148-26 a/k/a 148-18 HILLSIDE AVENUE

QUEENS, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C241199

Prepared for:

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148-18 Hillside Avenue

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

OCTOBER 2025

CERTIFICATION STATEMENT

I Kevin M. Taylor 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) and Green Remediation (DER-31).

_____ P.E.

10/24/2025
_____ DATE



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Queens, New York

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List of Acronyms

ACT	Advanced Cleanup Technologies
AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BMP	Best Management Practice
CA RICH	CA RICH Geology Services, D.P.C.
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
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Greenhouse Gas
GWE&T	Groundwater Extraction and Treatment
H2M	H2M architects & engineers
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
P.E. or PE	Professional Engineer
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
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: C241199 148-26 a/k/a 148-18 Hillside Avenue, Queens NY

Institutional Controls:	1. The property may be used for restricted residential 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. Soil Vapor Extraction System	
	3. Sub-Slab Depressurization System	
Inspections:		Frequency
1. Cover inspection		Annually
2. Active Soil Vapor Extraction System		Quarterly
3. Active Sub-Slab Depressurization System		Annually
Monitoring:		
1. Soil Vapor Extraction System Shutdowns		As needed
2. Soil Vapor Extraction System Sampling		Quarterly
3. Soil Vapor Extraction System Measurement Collection		Quarterly
4. Sub-slab Depressurization Measurement Collection		Annually
Maintenance:		
1. Cover System		As needed

2. Soil Vapor Extraction System	As needed
3. Sub-Slab Depressurization System	As needed
Reporting:	
1. Quarterly Monitoring Reports for the Soil Vapor Extraction System	Quarterly
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 148-26 a/k/a 148-18 Hillside Avenue site 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. C241199, which is administered by New York State Department of Environmental Conservation (NYSDEC or Department).

Hillside 168, Inc. entered into a Brownfield Cleanup Agreement (BCA) in June 2022 with the NYSDEC to remediate the .0397-acre area Site. A figure showing the Site location and boundaries of this Site is provided in Figure 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 A.

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. The Envireonmental Easment was for the Site was executed by the Department on July 19, 2025, and filed with the Queens County Clerk on October 14, 2025. The County Recording Identifier number for this filing is 2025090900486001. A copy of the easement and proof of filing is provided in Appendix A.

This SMP was prepared to manage remaining contamination at the Site and off-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); and
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 and the BCA Site #C241199 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 B of this SMP.

This SMP was prepared by H2M architects + engineers, on behalf of Hillside 168 Inc., in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated June 2010 (revised April 2019), 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 and Alterations

Revisions and alterations to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC can also make changes to the SMP or request revisions from the remedial party. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. All approved alterations must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a

New York State Professional Engineer. In accordance with the Environmental Easement for the site, the NYSDEC project manager 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:

1. 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6 NYCRR Part 375 and/or Environmental Conservation Law.

2. 7-day advance notice of any field activity associated with the remedial program.

3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.

4. 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.

5. Notice within 48 hours of any non-routine maintenance activities.

6. 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.

7. 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:

8. 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.

9. 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 notifications. 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 B.

Table 1: Notifications*

Name	**Contact Information**	**Required Notification****
NYSDEC Project Manager-Rafi Alam	(518)-402-8606 rafi.alam@dec.ny.gov	All Notifications
NYSDEC Project Manager's Supervisor-Lisa Gorton	(518)-402-9574 lisa.gorton@dec.ny.gov	All Notifications
NYSDEC Site Control – Rafi Alam	(518)-402-8606 rafi.alam@dec.ny.gov	Notifications 1 and 8
NYSDOH Project Manager-Jim Sullivan	(518)-402-5584 jim.sullivan@health.ny.gov	Notifications 4, 6, and 7

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

** Note: Numbers in this column reference the numbered bullets in the notification list in this section.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in Jamaica, Queens County, New York and is identified as Block 9694 and Lot 17 on the New York City Tax Map (see Figure 3). The Site is an approximately .0397-acre area and is bounded by Hillside Avenue to the north followed by a two-story mixed-use building with apartments above commercial units, a six-story residential apartment building and a two-story religious building to the south, a one-story commercial building occupied by a supermarket to the east, and a two-story commercial building to the west (see Figure 2 – Site Layout Map). The boundaries of the Site are more fully described in Appendix A –Environmental Easement. The owner(s) of the Site parcel(s) at the time of issuance of this SMP is/are:

Hillside 168 Inc.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a 9-story mixed-use building with a ventilated parking garage. The Site is located in an R7A zoned district with a C2-3 commercial overlay and is currently a mixed-use (commercial and residential) building.

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 mixed-use commercial and residential properties; the properties immediately east of the Site include commercial properties; and the properties to the west of the Site include commercial properties.

2.2.2 Geology

The elevation of the Site is approximately 67 feet above mean sea level. The site has a light southern slope. The Site is located approximately 1.6 miles southeast of Willow Lake and 3.1 miles northeast of the Bergen Basin.

The USDA Web Soil Survey indicates that one soil type is primarily present at the Site: Urban land-outwash substratum, 0-3 percent slopes beneath The Urban land-outwash substratum, which consists of cemented material from 0 to 20 inches and is underlain typically by gravelly sand to 72 inches in the vicinity of the Site. The USDA Web Soil Survey was accessed to compile the USDA soil characteristics at https://websoilsurvey.sc.egov.usda.gov.

Soil boring logs installed in the Property during the previous investigations generally revealed medium to coarse-grained, medium plasticity, and silty sand mixed with urban fill material and gravels to a depth of 3 feet bgs, underlain by medium to coarse-grained, predominantly high plasticity, and silty sand to a depth of 5 feet bgs. From 5 feet to 43 feet bgs, the soil borings generally revealed damp to saturated, medium to coarse-grained, low plasticity, and silty sand with abundant rounded to subangular gravel.

Site specific boring logs are provided in Appendix C.

2.2.3 Hydrogeology

The groundwater interface was revealed at approximately 41 to 42.8 feet bgs. The major aquifer systems beneath the Site are the unconsolidated Upper Glacial aquifer and the Magothy, and Lloyd aquifers. The Upper Glacial aquifer extends from the ground surface to approximately 95 feet bgs and is composed of sand as the dominant fraction, along with varying amounts of gravel, silt and clay. Beneath the Upper Glacial aquifer, the Magothy aquifer is composed of unconsolidated sands as the dominant fraction with some silt and clay layers, which extends to a depth of approximately 100 feet bgs. The Raritan

confining unit, predominantly composed of low permeable clay with few sand layers, separates the Magothy and Lloyds aquifers and present between approximately 150 feet to 300 feet bgs. The Lloyd aquifer is encountered beneath the Raritan confining unit and is composed of poorly to moderate permeability sand and gravel in a clayey matrix, which extends to the top of bedrock at 400 feet bgs that consists of crystalline metamorphic or igneous lithology in the vicinity of the Site.

The United States Geological Survey (USGS) maintains the National Water Information System (NWIS) containing data from wells installed throughout the United States. According to the NWIS, the closest well with the groundwater data are located approximately 2.3 miles northwest of the Site. UGSS Well No. 404416073491801 was installed to a depth of 435 feet bgs and encountered groundwater at depths ranging from 61 to 74 feet bgs. The well was completed in Lloyd Aquifer. There is an indication that the Raritan confining unit was encountered during its installation.

During the Remedial Investigation, groundwater monitoring events found groundwater to be present between 42 and 42.75 feet bgs in the southern portion of the Site and 41.6 to 42.8 feet bgs in the northern portion of the Site. Groundwater in deep (regional) monitoring wells is flowing in a northerly direction beneath the Site.

A groundwater contour map is shown in Figure 4. Groundwater monitoring well construction logs are provided in Appendix C.

2.3 Investigation and Remedial History

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.

According to Sanborn maps, as of 1888, the Site contained a three-story residential building. In 1925, a one-story filling station with gasoline tanks had also been constructed. In 1942, the three-story building was identified as mixed-use, and it was demolished by 1963. In 1967, the gasoline tanks were no longer identified, and by 1992 the building was identified as an auto repair shop. The property remained substantially unchanged through 2006. In 2015, five abandoned 550-gallon gasoline underground storage tanks were identified in front of the building and an inactive 250-gallon waste oil underground storage tank was observed in the interior of the repair shop. In 2015, auto repair shop activities were terminated, and all auto shop solvents and chemicals were removed from the Property. After 2015, the Property was no longer used as an automobile shop and there have been no active tenants or business operations.

All historical investigations are detailed below:

Phase I Environmental Site Assessment by ACT, July 2015

ACT Completed a Phase I Environmnetal Site Assessment dated July 14, 2015. The ACT Phase I Report Revealed the following recognized environmental conditions:

- Historical industrial use of the subject Property
- A vapor encroachement condition at the subject Property.

OER Remedial Investigation by ACT, October 2016

A Remedial Investigation was performed for OER in 2016, and the results are documented in a companion document entitled “Remedial Investigation Report, 148-26 Hillside Avenue, Jamaica, New York”, dated October 2016 (RIR). Supplemental investigations of soil vapor and groundwater quality were performed from November to December 2016.

The work performed under the OER remedial investigation included a Site inspection, geophysical investigation, and the installation, screening, and sampling of 10 soil borings, 3 groundwater monitoring wells, and 7 soil vapor probes throughout the Site.

Soil quality data was compared to Unrestricted and Restricted Residential Use Soil Cleanup Objectives (UUSCOs and RRSCOs) contained in NYSDEC 6 NYCRR Part 375. Volatile Organic Compounds (VOCs) including Acetone (maximum of 110 µg/kg) and Tetrachloroethylene (PCE) (11,000 µg/kg) were detected above their Unrestricted Use Soil Cleanup Objectives (UUSCOs) in two shallow soil samples. Two Semi Volatile Organoc Compounds (SVOCs), Benzo(a)anthracene (1,550 µg/kg) and Chrysene (1,560 µg/kg) exceeded UUSCOs in one shallow soil sample. Benzo(a)anthracene also exceeded RRSCOs. One Pesticide, 4,4'-DDT (max. of 5.06 mg/kg) exceeded its UUSCO. Several metals were identified, and lead (1,100 mg/Kg) and selenium (7.18 mg/Kg) exceeded UUSCOs. Lead also exceeded RRSCOs. Overall, with the exception of PCE disposal, the soil chemistry is similar to sites with historic urban fill in New York City.

Soil vapor samples collected during the OER RI were compared to the compounds listedin the New York State Department of Health (NYSDOH) NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion, dated October 2006, updated June 2007 for the soil vapor/indoor air matrices, updated September 2013 for PCE, and updated August 2015 for Trichloroethylene. Soil vapor sampling detected several petroleum related and chlorinated compounds. Highest concentrations were detected for 2-Butanone at 1,100 µg/m3. Petroleum related (BTEX) compounds were detected at a maximum concentration of 299 µg/m3. Chlorinated VOC compound, PCE was detected in all seven samples and ranged in concentrations from 10 to 2,700 µg/m3. Trichloroethylene was detected in one soil vapor sample in the east section of the site at 55 µg/m3. Concentrations of PCE and Trichloroethylene are above the NYSDOH guidance matrix and require mitigation.

Groundwater samples collected during the OER RI were compared to the New York State 6NYCRR Part 703.5 Class GA Groundwater Quality Standards (GQS). Groundwater samples showed no Pesticides or dissolved Metals exceeding their GQS. One VOC, Chloroform was detected in two of the groundwater samples (max. of 14 µg/L) above its GQS of 7 µg/L. One SVOC, Bis(2-ethylhexyl) phthalate was detected in one groundwater sample (11 µg/L) above its GQS of 5 µg/L. Total PCBs were detected in the three groundwater samples (max. 0.135 µg/L) above its GQS of 0.09 µg/L.

OER Remedial Action Supplemental Investigation by ACT, February 2017

In 2017, ACT conducted a PCE Delineation Investigation at the Site, which included the installation, screening, and sampling of 4 soil borings spaced 5 feet from soil boring SB-9. Two soil samples (4-6ft and 6-8ft) were collected from each soil boring. Only soil boring SB-4 contained PCE (0.0093 mg/Kg @ 4-6ft) well below its UUSCO of 1.3 mg/Kg. None of the remaining seven soil samples contained PCE above its laboratory method detection limit.

NYSDEC Draft Remedial Investigation Report by ACT May 2023

-Soil Borings

A total of sixteen soil borings were installed at the Site during the Remedial Investigation with a total of 63 samples collected. Soil sampling intervals conformed to the NYSDEC approved RI Work Plan, which mandated that the samples be collected and submitted for laboratory analysis from surficial soils, 1-2 feet bgs, zones of highest observed contamination, and at water table interface. All soil samples collected from the Site were analyzed for the Target Compound List (TCL) VOCs by USEPA Method 8260, SVOCs by USEPA Method 8270, Pesticides by EPA Method 8081, PCBs by EPA Method 8082, TAL metals and cyanide by EPA Methods 6010 and 9010 PFAS by EPA Method 537m, and 1,4 Dioxane by EPA Method 8270-SIM. Soil quality was compared to NYSDEC Part 375 Protection of Groundwater, Restricted Residential Soil Cleanup Objectives, and Commercial Soil Cleanup Objectives (PGWSCOs, RRSCOs, CSCOs).

There are two discrete AOCs for soil quality: AOC-1 is located around the northern Property boundary along Hillside Avenue and includes the areas where former underground gasoline and waste oil tanks were located at the Site. AOC-2 is located around the eastern, western, and southern property boundaries and includes areas where former interior floor drains and exterior storm drains were located at the Site.

AOC-1:

- Four VOCs, Benzene (3.1 mg/Kg at 2-3’), Toluene (6.9 mg/Kg at 2-3’), Ethylbenzene (1.4 mg/Kg at 2-3’), and Total Xylenes (11.1 mg/Kg at 2-3’) (BTEX) were detected above their PGWSCOs in shallow soil from RISB-4.

- No VOCs were detected throughout soil boring RISB-7 above their PGWSCOs. Only one metal, Mercury (3.24 mg/Kg) was detected in shallow soil (1-2 feet bgs) above its CSCO. Mercury was not detected above its laboratory method detection limit in soil sample RISB-7 (38-40').
- Several petroleum-related VOCs, including 1,2,4-Trimethylbenzene (61 mg/Kg at 10-12'), 1,3,5-Trimethylbenzene (19 mg/Kg at 10-12'), Benzene (7.7 mg/Kg at 10-12'), Ethylbenzene (21 mg/Kg at 10-12'), Napthalene (14 mg/Kg at 10-12'), n-Propylbenzene (8.7 mg/Kg at 10-12'), Toluene (57 mg/Kg at 10-12'), and Total Xylenes (118 mg/Kg at 10- 12') and Methyl tert-butyl ether (MTBE) (94 mg/Kg at 10-12'), which is a gasoline additive, were detected above their PGWSCOs from 5 feet to 33 feet in soil boring RISB-8. Of these, 1,2,4-Trimethylbenzene, Benzene, and Total Xylenes were also detected above their RRSCOs. Petroleum related VOCs and MTBE did not exceed their RRSCOs below 22ft of the soil boring. Additionally, no VOCs were detected above their PGWSCOs in soil samples RISB-8 (33-35') and RISB-8 (40-43'). Soil contamination identified in the vicinity of RISB-8 is indicative of gasoline contamination related to the historically abandoned gasoline USTs.
- One metal, Arsenic (27.6 at 1-2') was detected in soil boring RISB-6 above its CSCO. No deeper soil samples collected from soil borings RISB-6 contained metals above their PGWSCOs. Seven SVOCs, including Benz(a)anthracene (5.6 mg/Kg at 0-1'), Benzo(a)pyrene (8.9 mg/Kg at 0-1'), Benzo(b)fluoranthene (5.6 mg/Kg at 0-1'), Benzo(k)fluoranthene (5 mg/Kg at 0-1'), Chrysene (8.8 mg/Kg at 0-1'), Dibenz(a,h)anthracene (1.3 mg/Kg at 0-1'), and Indeno(1,2,3-cd)pyrene (5 mg/Kg at 0-1') were detected in shallow soil of soil boring RISB-6 above their RRSCOs. Of these, Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, and Dibenz(a,h)anthracene were also detected above their CSCOs. These SVOCs exceedances are indicative of urban fill material found in shallow soil at the Site.

AOC-2:

- In Soil Boring SB-2, only one metal, Lead (458 mg/Kg) was detected in shallow soil (1- 2 feet bgs) above its RRSCO. Lead was detected in soil sample RISB-2 (35-40') at a concentration of 6.02 mg/Kg, which is below its PGWSCO. Seven SVOCs,

Benzo(a)anthracene (4.1 mg/Kg at 1-2'), Benzo(a)pyrene (3.8 mg/Kg at 1-2'), Benzo(b)fluoranthene (4.4 mg/Kg at 1-2'), Benzo(k)fluoranthene (2.6 mg/Kg at 1-2'), Chrysene (4.5 mg/Kg at 1-2'), Dibenz(a,h) anthracene (0.69 mg/Kg at 1-2'), and Indeno(1,2,3-cd) pyrene(2.8 mg/Kg at 1-2') were detected above their PGWSCOs in shallow soil from RISB-2. Of these, Benzo(a)anthracene, Benzo(b)fluoranthene, Chrysene, and Indeno(1,2,3-cd) pyrene were also detected above their RRSCOs and Benzo(a)pyrene and Dibenz(a,h)anthracene were detected above their CSCO. These SVOCs exceedances are indicative of urban fill material found in shallow soil at the Site.

- Only one metal, Lead (808 mg/Kg at 1-2') was detected in soil boring RISB-14 above its RRSCO.
- Soil boring RISB-16 was installed in the vicinity of a former floor drain in the northwestern portion of the former auto repair shop, where saturated petroleumcontaminated soil was observed during the investigation. On July 29, 2022, ACT reported the petroleum contamination to the NYSDEC Spills Office, which assigned Spill No. 22-03747 to the Site. One soil sample (6-7 feet bgs) was collected from soil boring RISB-16. The results revealed the following:
  - Fourteen VOCs, including 1,1-Dichloroethene (9 mg/Kg), 1,2,4-Trimethylbenzene (85 mg/Kg), 1,3,4-Trimethylbenzene (39 mg/Kg), Benzene (5.8 mg/Kg), cis-1,2-Dichloroethene (3,200 mg/Kg), Ethylbenzene (28 mg/Kg), Napthalene (32 mg/Kg), n-Propylbenzene (13 mg/Kg), PCE (7,800 mg/Kg), Toluene (130 mg/Kg), Total Xylenes (162 mg/Kg), trans-1,2-Dichloroethene (5.6 mg/Kg), Trichloroethene (430 mg/Kg), and Vinyl Chloride (45 mg/Kg) were detected above their PGWSCOs. Of these, 1,2,4-Trimethylbenzene, Benzene, Toluene, and Total Xylenes were also detected above their RRSCOs and cis-1,2-Dichloroethene, PCE, Trichloroethene, and Vinyl Chloride were detected above their CSCOs.
  - Three SVOCs, including Benzo(a)pyrene (2.1 mg/Kg), Chrysene (2.5 mg/Kg), and Napthalene (24 mg/Kg) were detected above their PGWSCOs. Of these, only Benzo(a)pyrene also exceeded its CSCO.
  - One PCB (PCB-1260 at 13 mg/Kg) was detected above its CSCO.

o Three metals, including Arsenic (42.7 mg/Kg), Cadmium (11 mg/Kg), and Lead (5,700 mg/Kg) were detected above their CSCOs.

o No pesticides were detected in the soil sample above their PGWSCOs.

-Monitoring Wells

Six groundwater monitoring wells (RIMW-1 through RIMW-6) were installed throughout the Property. All groundwater monitoring wells were installed to a depth of 60 feet bgs. The depth to water in six of the monitoring wells was found to range from 41.6 to 42.8 feet bgs and groundwater flow was determined to be towards the south. All groundwater samples collected from the Site (a total of six) were analyzed for the Target Compound List (TCL) VOCs by USEPA Method 8260, SVOCs by USEPA Method 8270, Pesticides by EPA Method 8081, PCBs by EPA Method 8082, total and dissolved TAL metals and cyanide by EPA Methods 6010 and 9010, PFAS by EPA Method 537m, and 1-4 Dioxane by EPA Method 8270-SIM. Groundwater quality was compared to NYSDEC Technical and Operational Guidance Series (TOGS).

Groundwater quality exceedances above NYSDEC Technical and Operational Guidance Series (TOGS) were identified in AOC-1 and AOC-2.

- Two SVOCs, including Benzo(a)anthracene (0.03 µg/L) and Chrysene (0.02 µg/L) were detected above NYSDEC TOGS in RIMW-5. MW-5 is located on the western portion of the property in the vicinity of the NYSDEC Spill No. 22-03747.
- Three metals including Iron (max concentration of 0.52 µg/L in RIMW-2), Manganese (max concentration of 1.86 µg/L in RIMW-1) and Sodium (max concentration of 172 µg/L in RIMW-5) were detected at concentrations above their NYSDEC TOGS for dissolved metals. Iron was detected above TOGS in RIMW-2, Sodium was detected above NYSDEC TOGS in all monitoring wells, and Manganese was detected above NYSDEC TOGS in monitoring wells 1, 2, 3, 5, and 6.

- PFOA was detected above NYSDEC groundwater guidance values in all monitoring wells with values ranging between 18.6 ng/L in monitoring well RIMW-6 and 29 ng/L in monitoring well RIMW-4.

-On-Site Soil Vapor

A total of five soil vapor samples were collected from five on-site soil vapor probes (RISV-1 through RISV-5). One soil vapor sample was collected from each soil vapor probe. All soil vapor samples were installed to a depth of 10 feet bgs. All soil vapor samples collected from the Site were analyzed for VOCs in accordance with USEPA Method TO-15.

- A total of 29 VOCs were detected in the soil vapor samples.
- The highest concentration of PCE (1,760 µg/m3) was detected in RISV-2, which was installed on the central-northern portion of the site.
- TCE was detected in all five soil vapor samples. The highest concentration of TCE (11 µg/m3) was detected in RISV-5. The second highest concentration of TCE (2.08 µg/m3) was detected in RISV-4, which was installed on the central-southern portion of the site.
- All soil vapor samples contained gasoline constituents Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX). The highest concentrations Benzene (17.2 µg/m3), Toluene (26.3 µg/m3), Ethylbenzene (6.12 µg/m3), and Total Xylenes (31.03 µg/m3) concentrations were detected in RISV-5.
- Several other petroleum and chlorinated VOCs were detected in the soil vapor samples.

NYSDEC Final Remedial Investigation Report by CA RICH May 2024

As discussed in CA RICH's Supplemental Remedial Investigation Workplan dated November 2023, off-site sampling was required to investigate surrounding adjacent properties. This sampling was performed in January 2024 and was included in the revised Final RIR (May 2024).

Nine buildings were selected for the off-site soil vapor intrusion evaluation. Based on the access attempts and conversations with the owner, access was granted to one neighboring property. Two interior sub-slab soil vapor points were installed inside the off-site property, designated SS-1 and SS-2. Indoor air samples identified as IA-1 and IA-2 were placed in close proximity to the subslab soil vapor points and placed at a breathing zone height. Two additional temporary soil vapor points were installed beneath the sidewalk along Hillside Avenue. Two samples were obtained from each vapor point at depths at 5 feet and 15 feet below sidewalk grade.

The results of the chemical analysis of the temporary soil vapor points, identified as Sidewalk SV-1 (5 feet), Sidewalk SV-1 (15 feet), Sidewalk SV-2 (5 feet) and Sidewalk SV-2 (15 feet) indicate the following as there are no standards for soil vapor beyond the footprint of a building:

- PCE ranged from 40.7 µg/m3 in sample Sidewalk SV-1 (5 feet) to 124 µg/m3 in Sidewalk SV-2 (15 feet).
- Methylene chloride ranged from not detected in sample SV-1 (5 feet) to 3.29 µg/m3 in Sidewalk SV-2 (15 feet).
- 1,1,1 trichloroethane, 1,1-dichlorothene, carbon tetrachloride, cis-1,2-dichloroethene, trichloroethene and vinyl chloride were not detected in any of the four samples obtained.
- All soil vapor samples contained 1,2,4-trimethylbenzene, 2,2,4- trimethylpentane, 2-butanone, 2-haxanone, 4-methyl-2-pentanone, acetone, benzene, chloroform, dichlorofluoromethane, ethanol, ethylbenzene, heptane, isopropanol, n-hexane, o-xylene, p/m-xylene, tertiary butyl alcohol, toluene, and trichlorofluoromethane.

Additionally, the two indoor air and two sub-slab samples were compared to NYSDOH's "Guidance for Evaluation Soil Vapor Intrusion in the State of New York" decision matrices A, B, and C. The sub-slab comparison to the indoor air sample identified "No Further Action" for the western most samples (SS-1 and IA-1). However, the sub-slab and indoor air results in the eastern most samples identified elevated concentrations of

trichloroethane and Cis-1,2-DCE in NYSDOH's mitigate range as well as PCE in the Monitor range.

Figure 11 includes a spider diagram of the soil, groundwater and soil vapor exceedances from the RIR (including off-site).

NYSDEC Soil Vapor Extraction System Pilot Test Result Report by CA RICH and Tyll Engineering and Consulting, PC April 2024

Based on the results of the supplemental sampling performed in January 2024 in which one sample identified Mitigate for compounds trichloroethane and cis-1,2-dichloroethane and Monitor for the compound PCE when compared to NYSDOH's "Guidance for Evaluation Soil Vapor Intrusion in the State of New York" Decision Matrices A, B, and C a pilot test was performed at the Site. The purpose of performing this pilot test was to obtain field data needed to confirm the design of the Soil Vapor Extraction System (SVE System) which was proposed to remediate impacted off-site soil vapor at a neighboring property (148-06 Hillside Avenue).

The SVE pilot test consisted of installing one SVE well, SVE-2. SVE-2 was installed with a four-inch Schedule 40 PVC slotted screen from one foot below basement grade to six feet below basement grade. A four-inch diameter solid PVC pipe was installed from basement grade to one foot below basement grade in order to horizontally manifold SVE-2 to the other two SVE wells (SVE-1 and SVE-3). Temporary vacuum measuring points were installed in the bare ground, horizontally in five-foot increments to the east of the newly installed SVE-2 to 30 feet. A total of six temporary vacuum points were installed. Each temporary vacuum point was installed to 2.5 feet below basement grade and consisted of a ¼ inch stainless steel point with tubing installed accessible at grade. Once SVE-2 and the six temporary vacuum points were installed, an Elmo Rieschle 2.1 horsepower regenerative blower with 110 volts was attached to SVE-2.

The results of the Pilot Test identified adequate vacuum at least 30 feet away from soil vapor extraction well SVE-2. Additionally, any vapors travelling onto the neighboring Union Hall site will be captured by the proposed SVE system design.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated June 2024 are as follows:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

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

A Remedial Investigation was performed at the Site in 2023. Several VOCs, SVOCs, metals and emerging contaminants were identified exceeding their restricted residential soil cleanup objectives (RRSCOs). However, almost all of these exceedances were in shallow depths (zero to two feet) and were removed during remedial excavation activities for the new building's basement. There were two additional areas of concern (AOC). These were identified as AOC-1 former petroleum storage facilities and AOC-2 former storm and floor drains in which contamination was identified at deeper depths. The RI data did not indicate off-site impacts in the soil related to the Site.

After the completion of the remedial action, endpoint soil samples were obtained. A total of eleven soil endpoints (identified as EP-1 through EP-11) were obtained. All endpoints were obtained from two to three feet below grade with the exception of two endpoints that were obtained from AOC-1 and AOC-2 in which endpoints were obtained from 15-16 feet below grade (EP-1) and 8-9 feet below grade (EP-3). All endpoints were analyzed for VOCs via EPA method 8260, SVOCs via EPA method 8270, 1,4 dioxane via EPA method 8270 sim, pesticides via EPA method 8081, PCBs via EPA method 8082, TAL metals, and emerging contaminants via EPA method 537.

Endpoint soil samples were compared to UUSCOs. No VOCs, SVOCs, PCBs, or emerging contaminants exceeded their UUSCOs or RRSCOs in EP-1 through EP-11. However, pesticide 4,4'-DDT was identified in EP-5 (2-3 ft.) exceeding its UUSCO; pesticide 4,4'-DDT was identified in EP-9 (2-3 ft.) exceeding its UUSCO; and lead, copper, zinc, and mercury were identified in EP-10 (2-3 ft.) exceeding their UUSCOs.

Endpoint soil samples were also compared to RRSCOs. All samples passed their restricted residential SCOs at two to three feet below grade with the exception of EP-10

(2-3 ft.) which failed for the metal lead. This endpoint was resampled for metals at four to five feet below grade (EP-10 (4-5 ft.)) and met the restricted residential SCOs.

Figure 5 summarize the results of all soil samples collected that exceed the UUSCOs or RRSCOs at the Site after completion of remedial action.

2.5.2 Groundwater

Groundwater monitoring wells were installed and sampled during the 2023 RI. All groundwater samples collected from the Site (a total of six) were analyzed for the TCL VOCs by USEPA Method 8260, SVOCs by USEPA Method 8270, Pesticides by EPA Method 8081, PCBs by EPA Method 8082, total and dissolved TAL metals and cyanide by EPA Methods 6010 and 9010, PFAS by EPA Method 537m, and 1-4 Dioxane by EPA Method 8270-SIM. Groundwater quality was compared to NYSDEC Technical and Operational Guidance Series (TOGS). SVOCs detected benzo(a)anthracene (up to 0.03 mg/L) and chrysene (up to 0.02 ug/L) exceeding their guidance in one sample (MW-5); additionally emerging contaminant PFOA was detected in all groundwater samples at a maximum of 26.5 ng/L. The data did not indicate any off-site impacts in the groundwater related to the Site.

These monitoring wells were all installed within the boundaries of the Site, and were all destroyed during remedial construction activities during the excavation of soils for the development of the new building. Therefore, no groundwater samples were obtained after remedial activities were completed. Additionally, groundwater monitoring is not part of the selected remedy of the site.

2.5.3 Soil Vapor

A total of five soil vapor samples were collected from five onsite soil vapor probes (RISV-1 through RISV-5) during the 2023 RI. Soil vapor samples were installed to a depth of 10 feet bgs. All soil vapor samples collected from the Site were analyzed for VOCs in accordance with USEPA Method TO-15. The results of the soil vapor sampling is discussed below:

- A total of 29 VOCs were detected in the soil vapor samples.
- The highest concentration of PCE (1,760 µg/m3) was detected in RISV-2, which was installed on the central-northern portion of the site.
- TCE was detected in all five soil vapor samples. The highest concentration of TCE (11 µg/m3) was detected in RISV-5. The second highest concentration of TCE (2.08 µg/m3) was detected in RISV-4, which was installed on the central-southern portion of the site.
- All soil vapor samples contained gasoline constituents Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX). The highest concentrations Benzene (17.2 µg/m3), Toluene (26.3 µg/m3), Ethylbenzene (6.12 µg/m3), and Total Xylenes (31.03 µg/m3) concentrations were detected in RISV-5.
- Several other petroleum and chlorinated VOCs were detected in the soil vapor samples.

In addition to the on-site soil vapor sampling, off-site soil vapor samples were obtained in January 2024 to investigate surrounding adjacent properties.

Based on the access attempts and conversations with the surrounding property owners, access was granted to one neighboring property. Two interior sub-slab soil vapor points were installed inside the basement of the off-site property, designated SS-1 and SS-2 as well as two indoor air samples IA-1 and IA-2. Two additional temporary soil vapor points were installed in front of the Property beneath the sidewalk along Hillside Avenue. Two samples were obtained from each vapor point at depths at 5 feet and 15 feet below sidewalk grade.

The results of the chemical analysis of the temporary soil vapor points, identified as Sidewalk SV-1 (5 feet), Sidewalk SV-1 (15 feet), Sidewalk SV-2 (5 feet) and Sidewalk SV-2 (15 feet) indicate the following as there are no standards for soil vapor beyond the footprint of a building:

- PCE ranged from 40.7 µg/m3 in sample Sidewalk SV-1 (5 feet) to 124 µg/m3 in Sidewalk SV-2 (15 feet).
- Methylene chloride ranged from not detected in sample SV-1 (5 feet) to 3.29 µg/m3 in Sidewalk SV-2 (15 feet).
- 1,1,1 trichloroethane, 1,1-dichlorothene, carbon tetrachloride, cis-1,2-dichloroethene, trichloroethene and vinyl chloride were not detected in any of the four samples obtained.
- All soil vapor samples contained 1,2,4-trimethylbenzene, 2,2,4- trimethylpentane, 2-butanone, 2-haxanone, 4-methyl-2-pentanone, acetone, benzene, chloroform, dichlorofluoromethane, ethanol, ethylbenzene, heptane, isopropanol, n-hexane, o-xylene, p/m-xylene, tertiary butyl alcohol, toluene, and trichlorofluoromethane.

Additionally, the two indoor air and two sub-slab samples were compared to NYSDOH's "Guidance for Evaluation Soil Vapor Intrusion in the State of New York" decision matrices A, B, and C. The sub-slab comparison to the indoor air sample identified "No Further Action" for the western most samples (SS-1 and IA-1). However, the sub-slab and indoor air results in the eastern most samples identified elevated concentrations of trichloroethane and Cis-1,2-DCE in NYSDOH's mitigate range as well as PCE in the Monitor range.

Figure 6 summarize the results of all samples of soil vapor that exceed the SCGs after completion of the remedial action.

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 project manager.

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 D) 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 project manager.

3.2 Institutional Controls

A series of ICs is required by the 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 restricted residential 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: restricted residential 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;
- 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 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;
- 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;
- Vegetable gardens and farming on the site are prohibited; and

3.3 Engineering Controls

3.3.1 Cover (or Cap)

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 concrete-covered sidewalks, and concrete building slabs. Figure 7 presents the location of the cover system and applicable demarcation layers. The Excavation Work Plan (EWP) provided in Appendix D outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed. 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 E. Any breach of the Site's cover system must be overseen by a Professional Engineer (PE) who is licensed and registered in New York State or a qualified person who directly reports to a PE who is licensed and registered in New York State.

3.3.2 Sub-slab Depressurization Systems

Based on the results of the on-site soil vapor sampling, an active SSDS was installed below the concrete foundation slab to further protect against the potential for the infiltration of soil vapor into the new building.

Installation of the active SSDS consists of a network of horizontal perforated pipe set in the middle of a gas permeable layer of stone immediately beneath the building slab and waterproofing/vapor barrier system. The horizontal piping consists of 4-inch Schedule 40 PVC perforated pipe covered with geotextile fabric and connected to a 4-inch galvanized steel riser pipe that penetrates the slab and travels through the building to the roof. The gas permeable layer consists of an 8-inch thick layer of washed ¾ inch bluestone. The galvanized steel riser pipe is finished 8 feet above the roofline, with a goose neck pipe to prevent rain infiltration, and is located at least 10 feet from any air intake or outdoor

recreational space. The SSDS includes a Radonaway EC6 Pro Series vacuum fan installed on the roof line and a pressure guage and alarm located in the basement.

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 PE who is licensed and registered in New York State, are included in Appendix F – Operations and Maintenance Manual. Figure 8 shows the location of the ECs for the Site.

3.3.3 Soil Vapor Extraction System

Based on the results of the off-site soil vapor sampling, a SVE system was installed below the western Property boundary at the Site to further protect against the potential for the infiltration of soil vapor into the neighboring property building.

Installation of the SVE system consists of a network of three, four-inch diameter, screened, schedule 40 PVC, SVE points (SVE-1 through SVE-3). These SVE points were installed vertically along the western wall of the Property at basement grade (13 feet below surface grade) and extend another six feet below basement grade (19 feet below surface grade). The three SVE points were horizontally manifolded to each other in the basement using 4-inch, solid, galvanized steel piping. A galvanized steel single riser (located at SVE-2) travels through the building to the roof. The galvanized steel riser pipe is finished 8 feet above the roofline, with a goose neck pipe to prevent rain infiltration, and is located at least 10 feet from any air intake or outdoor recreational space.

The SVE system includes a 3.5 horsepower Atlantic Blower Model #AB-500, vacuum relief valve, aluminum moisture separator tank with sight glass and high level switch, and appropriate vacuum, pressure and temperature gauges. The SVE system is equipt with a warning devise (a telemetry system) to indicate that the system is not operating properly. Additionally, the consultant will also be notified when there is blower failure, as well as when there is a high water level in the moisture knock out drum. In the

event that warning device is activated, applicable maintenance and repairs will be conducted, and the SVE system will be restarted.

On March 12, 2025, an effluent sample was obtained from the SVE system to have an Air Quality Impact Assessment performed in order to determine the necessity and extent of effluent treatment needed. According to the Air Quality Impact Assessment performed, based upon review of the data, and in accordance with analysis procedures described in NYSDEC DAR-1, it was concluded that the Site's impact on air quality is minimal and acceptable. Therefore, no treatment is necessary for the SVE system. The Air Quality Impact Assessment and effluent results are attached in Appendix G.

Upon NYSDOH's review of the draft SMP, it was determined that additional SVE system sampling would be required in order to confirm that no treatment is necessary for the SVE system. It was determined (and approved by NYSDEC) that two additional samples be obtained (from SVE-2 and SVE-3). These samples would each be collected over a 24-hour period once measurements were obtained and the SVE system was shown to be "stable". This sampling was performed during the week of October 13, 2025.

Once the laboratory analytical results are received, a DUSR will be prepared. Additionally, the results will be compared to the Guidance on Air Emissions of VOCs at DER Remediation Sites. Upon review of the validated results, the NYSDEC and NYSDOH will determine whether the installation of carbon treatment is warranted for the SVE system.

Procedures for operating and maintaining the SVE system are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). As-built drawings, signed and sealed by a PE who is licensed and registered in New York State, are included in Appendix F – Operations and Maintenance Manual. Figure 8 shows the location of the ECs for the Site.

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. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the site. Confirmation samples require Category B deliverables and a Data Usability Summary Report (DUSR).

As discussed below, the NYSDEC may approve termination of a groundwater monitoring program. When a remedial party receives this approval, the remedial party will decommission all site-related monitoring, injection and recovery wells as per the NYSDEC CP-43 policy.

The remedial party will also conduct any needed Site restoration activities, such as asphalt patching and decommissioning treatment system equipment. In addition, the remedial party will conduct any necessary restoration of vegetation coverage, trees and wetlands, and will comply with NYSDEC and United States Army Corps of Engineers regulations and guidance. Also, the remedial party will ensure that no ongoing erosion is occurring on the site.

3.3.4.1 – Cover (or Cap)

The composite 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 (SSD) System

The SSD system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH project managers. If monitoring data indicates that the SSD system may no longer be required, a proposal to discontinue the SSD system will be submitted by the remedial party to the NYSDEC and NYSDOH project managers.

3.3.4.3 – Soil Vapor Extraction System (SVE) System

The SVE system will not be discontinued unless prior written approval is granted by the NYSDEC project manager. 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 to the NYSDEC project manager. 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 AS/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 project manager.

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 project manager. 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 H.

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 annually.These periodic inspections must be conducted when the ground surface is visible (i.e. no snow cover). Site-wide inspections will be performed by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. 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 I – 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;
- Whether stormwater management systems, such as basins and outfalls, are working as designed;
- 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.

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 project manager 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 defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager 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. The remedial party will submit follow-up status reports to the NYSDEC within 45 days of the event on actions taken to respond to any emergency event requiring ongoing responsive action, describing and documenting actions taken to restore the effectiveness of the ECs.

4.3 Treatment System Monitoring and Sampling

4.3.1 Remedial System Monitoring

Monitoring of the SVE system will be performed on a routine basis, as identified in Table 2 Remedial System Monitoring Requirements and Schedule (see below). The monitoring of remedial systems must be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or sampling

requirements will require approval from the NYSDEC project manager. 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 SVE system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. SVE system components to be monitored include, but are not limited to, the components included in Table 2 below.

Table 2 – Remedial System Monitoring Requirements and Schedule

Remedial System Component	**Monitoring Parameter**	**Monitoring Schedule**
Blower	Flow Rate Vacuum	Quarterly
System Piping (risers)	Flow Rate Vacuum	Quarterly

A complete list of components to be inspected is provided in the Inspection Checklist, provided in Appendix I – 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

Samples shall be collected from the SVE system on a routine basis. Sampling locations, required analytical parameters and schedule are provided in Table 3 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

Table 3 – Remedial System Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Schedule
	VOC (EPA Method TO-15)	
SVE System Raw	X	Quarterly

The above Table includes a sample location for the SVE system sampling without carbon treatment. If it is determined that carbon treatment is necessary, more sample locations will be added. Detailed sample collection and analytical procedures and protocols are provided in Appendix H – Quality Assurance Project Plan.

The remedial party will properly dispose of all wastes generated by the remedial system at off-site disposal facilities according to local, state and federal laws and regulations. Wastes will be tested before disposal to comply with the permit conditions of the disposal facility. At this time there are no known wastes to be generated.

4.4 Post-Remediation Media Monitoring and Sampling

Samples shall be collected from the SVE System on a quarterly basis. Sampling locations, required analytical parameters and schedule are provided in Table 3. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

4.4.1 Soil Vapor Intrusion Sampling

Soil Vapor intrusion sampling will be performed once the levels of total VOCs in the raw sample decreases to a near constant or asymptotic concentration (as approved by NYSDEC) and it is demonstrated that shutdown of the system will not result in the migration of unacceptable concentrations of residual vapors to the on-site and off-site structures (as approved by NYSDOH). A shutdown plan will be submitted to the NYSDEC for review and approval. This plan will discuss the conversion of the system to a soil vapor intrusion mitigation system or will propose sampling activities for complete shutdown of the system. This plan may include sub/slab vapor/indoor air sampling at the neighboring property to determine if exposure concerns related to soil vapor intrusion remain. The overall remedy must meet the remedial action objectives of the project, and the soil vapor measurements must remain protective of the contemplated use of the on-site and off-site structures. If any improvements or changes are made to the interior building layout in areas outside of the SVE system's radius of influence, additional soil vapor intrusion sampling and/or expansion of the SVE system may be warranted. The NYSDEC and NYSDOH will be notified in advance of any such plans.

4.4.2 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix I – Site Management Forms. Other observations (e.g., groundwater monitoring well integrity) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network.

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 SSD and SVE systems;
- Will be updated periodically to reflect changes in Site conditions or the manner in which the SSD and SVE systems are operated and maintained.

Further detail regarding the Operation and Maintenance of the SSD and SVE systems is provided in Appendix F – 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

During the quarterly monitoring events, H2M will submit Quarterly Monitoring Reports to NYSDEC to describe the status of the SVE system and to provide a summary of operating conditions at the Site. Information in the reports include the hours of operation during the reporting period, the raw concentrations of VOCs in the extracted vapors, date of sampling, mass removal rates and total mass removed, summary of the laboratory results from the samples, summary of non-routine repairs or modifications (if any), and the summary of activities conducted during the performance period (major/minor equipment repair/maintenance).

In order to evaluate the performance criteria vapor readings are collected from the vapor sampling ports with a PID. Additionally, the samples of vapors will be collected

from the sample port of the SVE system for laboratory analysis by EPA Method TO-15. These samples will be used in assessing the amount of contaminant mass removed in the vapor. In addition, the airflow rates, vacuum, and temperature are obtained from the three wellheads as well as the sample ports to ensure the system is working adequately.

Monitoring events for the SSDS will be performed annually. Information obtained for the SSDS will be presented in the annual Periodic Review Report. In order to evaluate the performance criteria vapor readings are collected from the vapor sampling ports with a PID. Additionally, a visual inspection of the equipment and piping will be performed.

5.3 Operation and Maintenance of Soil Vapor Extraction System

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

5.3.1 SVE System Start-Up and Testing

The start-up test of the SVE System was conducted on June 3, 2025. There are five permanent vacuum monitoring points located throughout the basement. Once the blower was turned on and it was confirmed that no leaks were present, vacuum readings were measured at the three SVE points and the vacuum monitoring points with a hand held digital manometer. The blower remained on with a vacuum reading of approximately -9 inches of water. The results of the start-up test are presented below and on Figure 9. The radius of influence measured during the start-up test covered an area greater than the results of the pilot test that was conducted on April 17, 2024.

Upon start-up, a baseline reading of total VOCs from the effluent blower was taken with a PID (Minirae 3000). A PID reading of 0.0 ppm was recorded. The flow rates in standard cubic feet per minute (scfm) and vacuum (inches of water) applied to the points during the start-up test are presented below:

SVE Point	Vacuum (inches of water)	Flow (scfm)
SVE-1	-8	135
SVE-2	-8	79
SVE-3	-8	59

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.

5.3.2 Routine System Operation and Maintenance

The SVE system is designed to be maintenance free. If any components fail (telemetry system, moisture knock out drum, sensors, blower etc.) they will be replaced/repaired. At this time, there is no treatment (carbon drums) necessary for the SVE system as per the Air Guide Analysis performed.

5.3.3 Non-Routine Operation and Maintenance

The SVE system is designed and operated has no non-routine operation and maintenance requirements. If any components fail (telemetry system, moisture knock out drum, sensors, blower etc.) they will be repaired/replaced.

5.3.4 System Monitoring Devices and Alarms

The SVE system has a warning device (a telemetry system) to indicate that the system is not operating properly. 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 SVE system will be restarted. Operational problems will be noted in the Periodic Review Report to be prepared for that reporting period.

5.3.5 Fire Safety

The remedial party will conduct an annual facility walk with the local fire chief and/or fire suppression team. The site walk will allow for the addition of the facility to any local preplanning efforts. The NYSDEC project manager will be provided with the local fire chief's/fire suppression team's recommendations as soon as they become available. Following review, the NYSDEC project manager may direct the remedial party to implement the recommendations and/or revise the SMP.

5.4 Operation and Maintenance of Sub-slab Depressurization System

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

5.4.1 SSD System Start-Up and Testing

The start-up test of the SSD System was conducted on June 2, 2025. As discussed in Section 5.3, there are five permanent vacuum monitoring points located throughout the basement. Once the Radonaway fan was turned on and it was confirmed that no leaks were present, vacuum readings were measured at the SSDS riser and the vacuum monitoring points with a hand held digital manometer. The Radonaway fan remained on with a vacuum reading of approximately -1.127 inches of water. The results of the start-up test are presented below and on Figure 10. Additionally, the field sheet from June 2, 2025 is presented in Appendix I. The radius of influence measured during the start-up test covered the same area of influence as the SVE start-up test, in which the radius of influence identified adequate vacuum in all vacuum monitoring points.

Upon start-up, a baseline reading of total VOCs from the effluent blower was taken with a PID (Minirae 3000). A PID reading of 0.0 ppm was recorded. The flow rates in standard cubic feet per minute (scfm) and vacuum (inches of water) applied to the points during the start-up test are presented below:

Riser	Vacuum (inches of water)	Flow (scfm)
SSDS riser	-1.127	45

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.

5.4.2 Routine System Operation and Maintenance

The SSD system is designed to be maintenance free. Monitoring of the SSDS will consist of a visual inspection of the complete system to identify and repair leaks (if any). In addition, the building floor will be inspected for wear-related cracks or pitting and repaired as needed.

5.4.3 Non-Routine Operation and Maintenance

Any non-routine maintenance shall be performed in accordance with the equipment's owner's manual.

5.4.4 System Monitoring Devices and Alarms

The SSD system has a warning device (a vacuum monitoring alarm) to indicate that the system is not operating properly. 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 SSD system will be restarted. Operational problems will be noted in the Periodic Review Report to be prepared for that reporting period.

5.4.5 Fire Safety

The remedial party will conduct an annual facility walk with the local fire chief and/or fire suppression team. The site walk will allow for the addition of the facility to any local preplanning efforts. The NYSDEC project manager will be provided with the local fire chief's/fire suppression team's recommendations as soon as they become available. Following review, the NYSDEC project manager may direct the remedial party to implement the recommendations and/or revise the SMP.

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 current vulnerability assessment that evaluates the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding. This section also identifies vulnerability assessment updates that will be conducted for the site in Periodic Review Reports.

The Site is located in the central part of the Jamaica neighborhood of the County of Queens, NY. It is located at an elevation of approximately 66 feet above mean sea level. According to the FEMA Flood Map, the Site is not located within a flood hazard area. The Site is serviced by the New York City sewer system and meets all building codes for drainage. Therefore, the Site is not considered to be vulnerable to storm events related to climate change.

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 provides

an environmental footprint analysis of the remedy, as implemented at the time of this SMP. This section of the SMP also provides a summary of green remediation evaluations to be completed for the site during site management and reported in Periodic Review Reports (PRRs).

An Environmental Footprint Analysis was completed using USEPA's Spreadsheets for Environmental Footprint Analysis (SEFA), a NYSDEC approved footprint analysis calculator (see Appendix J). Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reducstion and material use was estimated for the remedy for a one-year period. Remedy components analyzed included quarterly SVE system monitoring, continuous operation of the SVE and SSD systems, and the annual inspection. It is important to note, that the SSD and SVE systems at the Site have not been turned on yet. The SEFA spreadsheets will be updated for "hours used" once the Systems are turned on and will be presented in the PRR.

Best Management Practices (BMPs) will be implemented at the Site to reduce the environmental footprint as further discussed below:

Emissions: Vehicle emissions and energy use will be minimized by reducing Site visits to the extent practible. However, at least 5 Site visits will be required to complete quarterly SVE system monitoring/sampling, and the annual inspection.

Energy Usage: The SVE and SSD Systems are required to run year-round until no further threat due to SVI is determined at the Site. A low powered fan and blower were selected for each system that produced acceptable vacuum to fully protect the building to minimize energy use and emissions.

Waste Generation: The remedy will result in minimal waste production. At this time a determination if carbon treatment is needed for the SVE system. If the Site's impact on the air quality is found to be minimal, no waste will be generated as part of the remedy.

Land and/or Ecosystems: Prior to redevelopement, the Site was vacant, contaminated land developed with small buildings. Therefore, the Site provided little to no positive impact to the communityand did not support any habitats or natural/cultural resources. The Site has been redeveloped as residential apartments with supporting commercial use, which significantly improves its impact to the community.

Water Usage: No water usage is required for implementation of the remedy.

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 NYSDEC 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 after approval from the DER project manager. 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.

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.

Components to be evaluated should include, but are not limited to:

- Heating/cooling systems and temperature set-points;
- Building skin, insulation and building use and occupancy;
- Ventilation;
- Lighting and plug loads; and
- Grounds and property management.

6.2.4 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site, 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.

Consideration shall be given to:

- Reduced sampling frequencies;
- Reduced Site visits and system checks;
- Installation of remote sensing/operations and telemetry;
- Bundling routine system operation checks, inspections, periodic sampling and other site management activities with other nearby sites.
- Coordination/consolidation of activities to maximize foreman/labor time; and
- Use of mass transit for site visits, where available, and carpooling.

6.2.5 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix I – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during site management and to identify corresponding benefits. A set of metrics has been developed and will be evaluated over time to ensure that green remediation actions are achieving the desired results.

6.3 Remedial System Optimization

A Remedial System Optimization (RSO) study will be conducted any time that the NYSDEC project manager 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 I. These forms are subject to NYSDEC revision. All Site management inspection, maintenance, and monitoring events will be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

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 4 and summarized in the Periodic Review Report.

Table 4: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Inspection Report	Annually
Periodic Review Report	Annually, or as otherwise determined by the NYSDEC

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

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 (e.g., sub-slab vapor, indoor air, outdoor air);

- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation);

- 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 NYSDEC project manager 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 NYSDEC project manager or at another frequency as may be required by the NYSDEC project manager. 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 A -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, fire inspections and severe condition inspections, if applicable.

- Description of any change of use, import of materials, or excavation that occurred during the certifying period.

- 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.

- Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.

- 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 tables and figures will include a presentation of past data as part of an evaluation of contaminant concentration trends, including but not limited to:
  - Trend monitoring graphs that present groundwater contaminant levels from before the start of the remedy implementation to the most current sampling data;
  - Trend monitoring graphs depicting system influent analytical data on a per event and cumulative basis;
  - O&M data summary tables;
  - A current plume map for sites with remaining groundwater contamination; and
  - A groundwater elevation contour map for each gauging event.
- 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 Remedial Action Work Plan (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;

- An update to the climate change vulnerability assessment if site or external conditions have changed since the previous assessment, and recommendations to address vulnerabilities.

- A summary of the Green Remediation evaluation, including a quantitative and qualitative overview of a site's environmental impacts and recommendations to improve the remedy's environmental footprint. The PRR will include the completed Summary of Green Remediation Metrics form provided in Appendix [x].

- An evaluation of trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving remedial goals as specified by the RAWP, ROD or Decision Document; and

- 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 and the cost per pound of mass removed during the certification period and during the life of the treatment system;

  - 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. Recommendations must address how receptors would be impacted. Recommendations can include:

    - Proposals to address efficiency and costs such as: instituting remote operation, system changes to decrease maintenance costs and downtime, and system changes to decrease energy use; and

- Proposals to modify or shut down a treatment system due to remediation completion, system performance or changed conditions. System shutdowns are addressed in Section 6.4 of DER-10.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a qualified environmental professional as defined in 6 NYCRR Part 375 or Professional Engineer licensed to practice and registered 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; and*
- *The information presented in this report is accurate and complete.*

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, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] for the site."

"I certify that the New York State Education Department has granted a Certificate of Authorization to provide Professional Engineering services to the firm that prepared this Periodic Review Report."

At the end of each certifying period, as determined by the NYSDEC project manager, the following certification will be provided to the NYSDEC project manager:

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

- *The institutional 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 information presented in this report is accurate and complete.*

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, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] for the site."

- *The assumptions made in the qualitative exposure assessment remain valid.*

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

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager. The Periodic Review Report may also need to be submitted in hard-copy format if 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 or failure to conduct site management activities, a Corrective Measures Work Plan will be submitted to the NYSDEC project manager 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 project manager.

7.4 Remedial System Optimization Report

If an RSO is to be performed (see Section 6.3), upon completion of an RSO, an RSO report must be submitted to the NYSDEC project manager for approval. 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 project manager and the NYSDOH project manager.

8.0 REFERENCES

6 NYCRR 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).

Advanced Cleanup Technologies, July 2015, Phase I Environmental Site Assessment.

Advanced Cleanup Technologies, October 2016, OER Remedial Investigation.

Advanced Cleanup Technologies, February 2017, OER Remedial Action Supplemental Investigation.

Advanced Cleanup Technologies, May 2023, NYSDEC Draft Remedial Investigation Report.

CA RICH Geology Services D.P.C., May 2024, NYSDEC Final Remedial Investigation Report.

CA RICH Geology Services D.P.C. and Tyll Engineering and Consulting, PC, April 2024, NYSDEC Soil Vapor Extraction System Pilot Test Result Report.

FIGURE 1

Property Location Map



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FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
1	T.R.B.	J.E.P.	TTCI2401	2025-1	5/12/2025	Not Shown

Property Location Map

C241199
148-18 Hillside Avenue
Queens, NY

X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-1

FIGURE 2

Site Plan

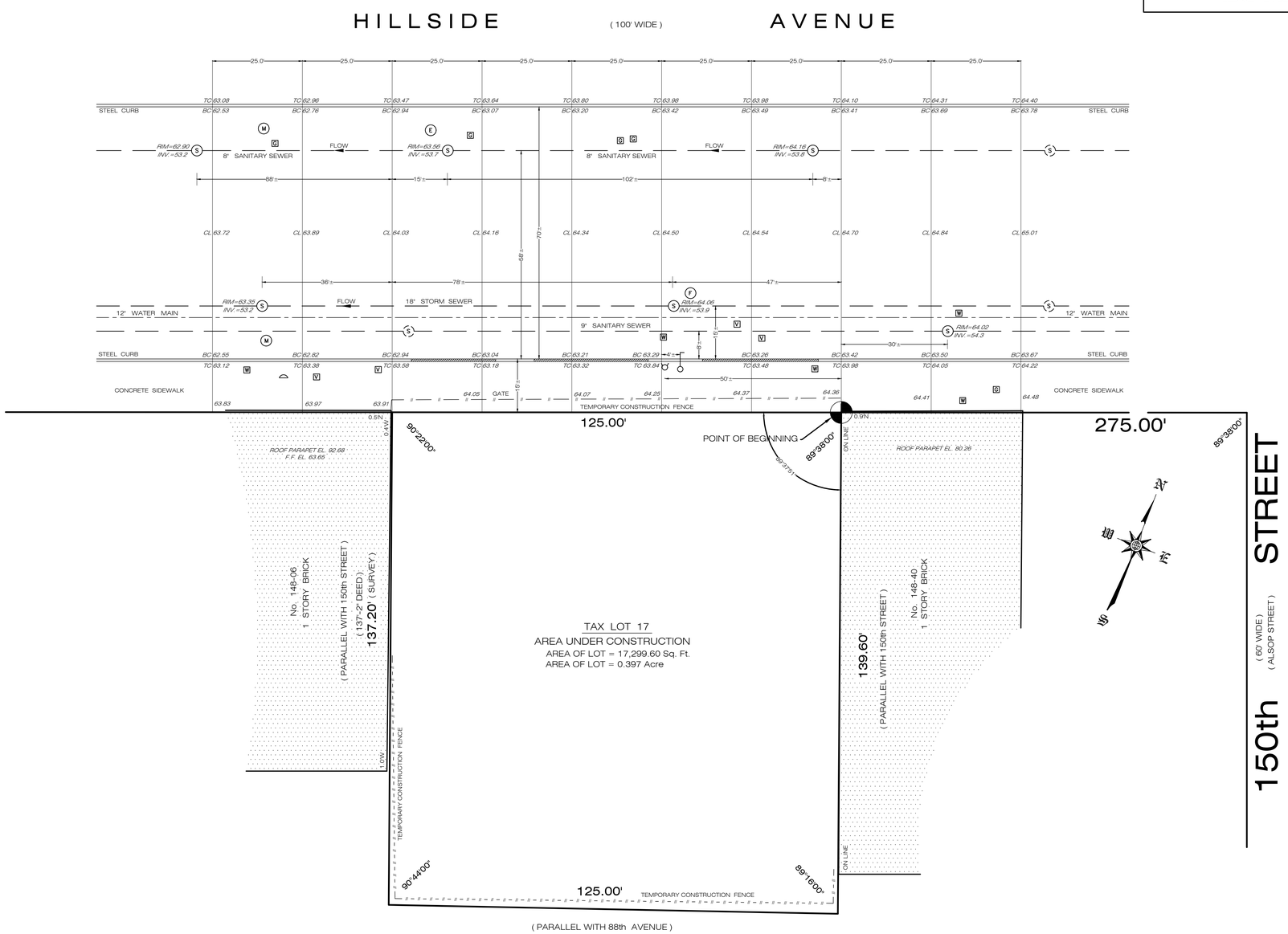


Figure 2 - Site Plan

FILE MAP INFO:-

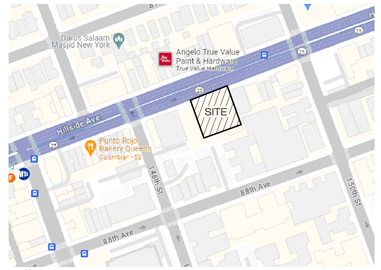
DESIGNATED AS LOT Nos. 179, 180, 181, 182 & 183
ON "MAP No. 2, BRONSON PROPERTY, IN THE VILLAGE OF JAMAICA"
FILED SEPTEMBER 28, 1887 AS MAP No. 641

SCALE: 1" = 16'

8 FT. 0 16 FT. 32 FT.
2.44M 0 4.88M 9.75M
METERS

SURVEY OF PROPERTY AT:-
QUEENS COUNTY, N.Y.
TAX SECTION: 42 TAX BLOCK: 9694 TAX LOT: 17
PROPERTY ADDRESS:
148-18 HILLSIDE AVENUE, JAMAICA, NY 11435
aka. 148-26 Hillside Avenue, Jamaica NY 11435

KEY MAP



LEGEND:-

- FIRE HYDRANT
- DROP CURB
- G - GAS VALVE
- W - WATER VALVE
- V - UNKNOWN VALVE
- PARKING METER
- E - ELECTRIC MANHOLE
- S - SEWER MANHOLE
- F - FDNY MANHOLE
- (S) - SEWER MAHOLE NOT FOUND IN FIELD
- LIGHT POLE
- TC - TOP OF CURB ELEVATION
- BC - BOTTOM OF CURB ELEVATION
- CL - CENTER LINE ELEVATION
- EL - SPOT ELEVATION
- F.F - FIRST FLOOR ELEVATION
- N - NORTH
- S - SOUTH
- E - EAST
- W - WEST

NOTE:

"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 Environmental Conservation Law. The engineering and institutional controls for this Easement are set forth 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 NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at derweb@dec.ny.gov".

Legal Description (OVERALL PARCEL) (ENVIRONMENTAL EASEMENT)

QUEENS COUNTY TAX MAP DESIGNATION:
SECTION 42 BLOCK 9694 LOT 17
0.397 Acreage

All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough of Queens, County of Queens, City and State of New York, known and designated as lots 179, 180, 181, 182 and 183 on a certain map entitles, "Map No. 2 Bronson Property, in the Village of Jamaica, Queens County, surveyed August 1887 by E.W. Conklin", and filed in the Office of the Clerk, now register, of the County of Queens on September 28, 1887 as Map No. 641, which said lots when taken together are bounded and described according to said map as follows:

BEGINNING at point on the Southerly side of Hillside Avenue, distance 275 feet Westerly from the corner formed by the intersection of the Southerly side of Hillside Avenue with the Westerly side of 150th Street (formerly Alsop Street);

RUNNING THENCE Southerly and parallel with 150th Street 139.60 feet;

THENCE Westerly and parallel with 88th Avenue (formerly Willet Avenue) 125 feet;

THENCE Northerly and parallel with 150th street 137.20' survey (137 feet 2 inches Deed) to the Southerly side of Hillside Avenue;

THENCE Easterly along the Southerly side of Hillside Avenue 125 feet to the point or place of BEGINNING.

CERTIFIED TO:
NEW YORK CITY DEPARTMENT OF BUILDINGS

NOTES:
1. THERE ARE NO VISIBLE STREAMS NOR NATURAL WATER COURSES IN THE PROPERTY EXCEPT AS SHOWN ON THIS SURVEY.
2. PROPERTY CORNER MONUMENTS WERE NOT PLACED AS PART OF THIS SURVEY.
3. IT IS A VIOLATION OF THE STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.
4. ARCHITECTS MUST ORDER A TOPOGRAPHICAL MAP SPECIFYING THEIR EXACT NEEDS.
5. CONSULT WITH THE HIGHWAY DEPARTMENT BEFORE DESIGNING, INSTALLING, OR MODIFYING ANY NEW OR EXISTING CURBS, WALKS, OR ROADWAYS IN THE STREETS SHOWN HEREON.
6. SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FROM VARIOUS CITY DEPARTMENTS AND/OR PRIVATE UTILITY COMPANIES. THE SURVEYOR ACCEPTS NO RESPONSIBILITY FOR ANY OF THIS DATA.
7. EASEMENTS OF RECORD ARE ONLY GUARANTEED IF AN ABSTRACT OF TITLE IS FURNISHED TO THE SURVEYOR.
8. ALL ELEVATIONS SHOWN REFER TO THE 1988 NAVD.
9. FEMA FLOOD INFORMATION THIS PROPERTY IS LOCATED ON PANEL 3604970233F ZONE "X" DATED SEPTEMBER 5, 2007.
10. NEW YORK STATE LAW REQUIRES BEFORE EXCAVATE CALL 811, & DIGNET AT 800-272-4480
11. SEWER & WATER INFORMATION MUST BE VERIFIED WITH DEP.
12. TEMPORARY CONSTRUCTION FENCE NOT LOCATED.

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

DATE:- MAY 29,, 2025 (LEGAL DESCRIPTION AMENDED)
DATE:- SEPTEMBER 6, 2024
SURVEY No:- COC-2024-663-C1
DESCRIPTION:- ENVIRONMENTAL EASEMENT

C.O.C MAPPING CORP.
COORDINATES OF CONSTRUCTION
91-22 215th PLACE
QUEENS VILLAGE, N.Y. 11428
TELEPHONE (347)239-9844
EMAIL COCMAPPING@GMAIL.COM

DRAFTED:-CJ | CHECKED:- SK

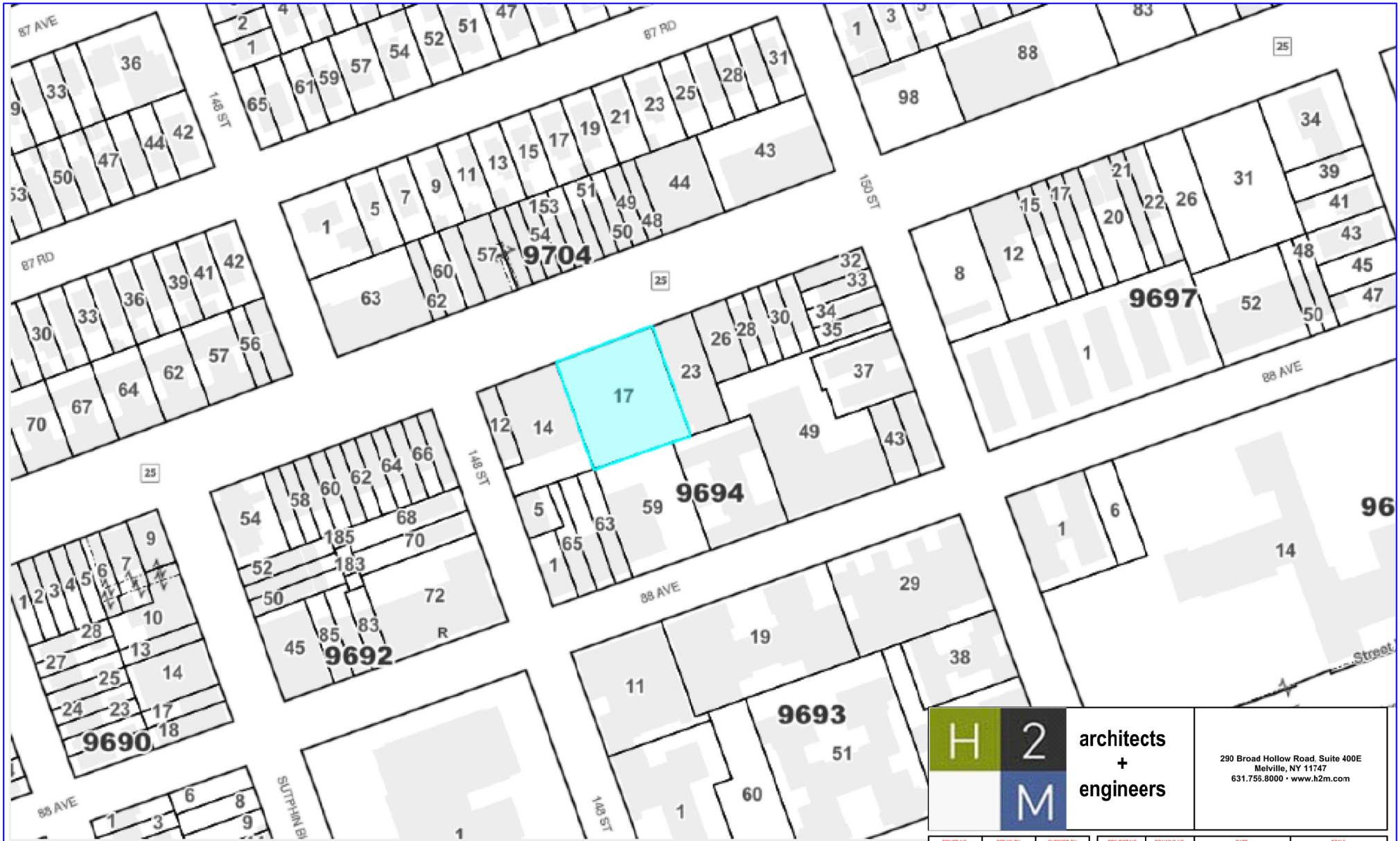
STATE OF NEW YORK
ADRIAN S. LALSA
LICENSED LAND SURVEYOR
050936

ADRIAN S. LALSA LIC.# 050936

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FIGURE 3

Tax Map



LEGEND

TAX_LOT_POLYGON	50 Tax Lot Number	TAX_LOT_FACE	
TAX_BLOCK_POLYGON	50 Tax Block Number	Regular	
BOUNDARY	50 Condo FKA Tax Lot Number	Underwater	
POSSESSION_HOOK	C50 Condo Flag/Number	Unknown	
	A9000 Air Lot Flag/Number	50 Tax Lot Dimension	
	S8000 Sub Lot Flag/Number	+/- 50 Approximate Tax Lot Dimension	
	R REUC Flag		

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FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
3	T.R.B.	J.E.P.	TTCI2401	2025-2	6/30/2025	Not Shown

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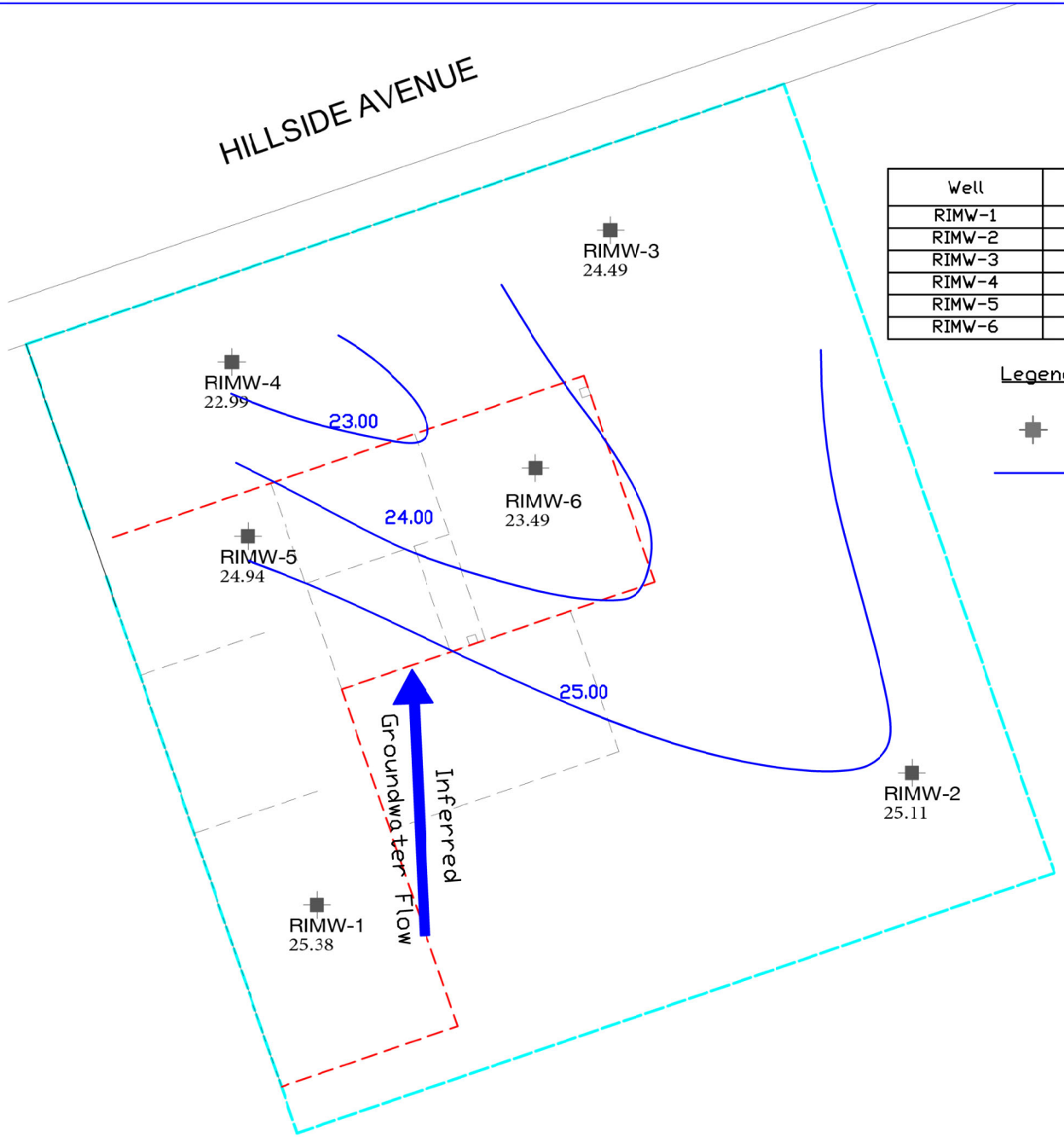
Tax Map
Block 9694; Lot 17

C241199
148-18 Hillside Avenue
Queens, NY

X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-2

FIGURE 4

Groundwater Contour Map



Well	Date	TOC Elevation	Depth to Water	Water Column Elevation
RIMW-1	10/24/2022	67.38	42.00	25.38
RIMW-2	10/24/2022	67.86	42.75	25.11
RIMW-3	10/24/2022	66.64	42.15	24.49
RIMW-4	10/24/2022	65.04	42.05	22.99
RIMW-5	10/24/2022	66.54	41.60	24.94
RIMW-6	10/24/2022	66.29	42.8	23.49

Legend:

Monitoring Well Location

Groundwater Elevation Contour Line

Note:
1. Elevations Obtained from ACT's May 16, 2023 Survey by C.O.C. Mapping Corp.

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FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
4	T.R.B.	J.E.P.	TTCI2401	2025-3	6/30/2025	Not Shown

N

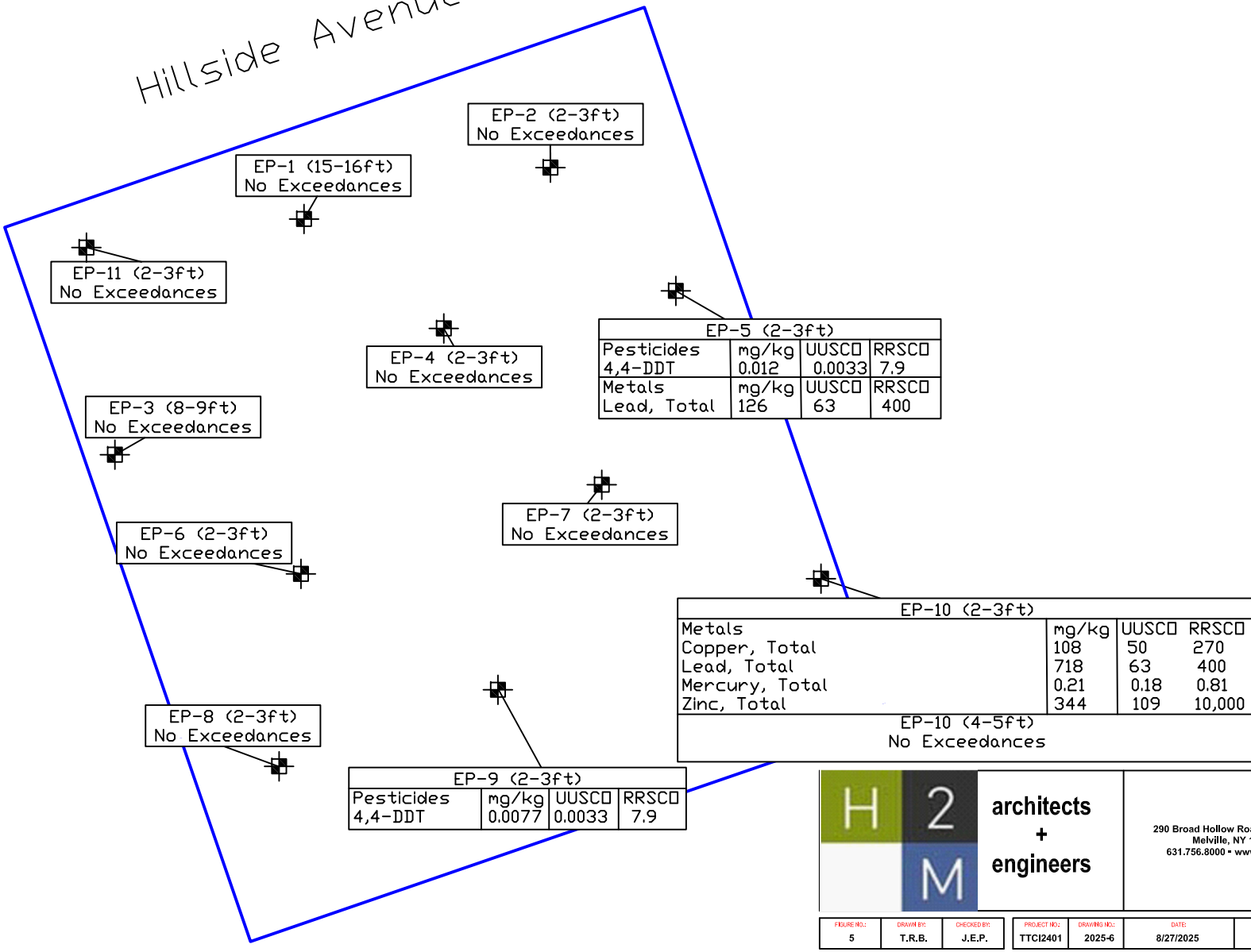
Groundwater Contour Map

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148-18 Hillside Avenue
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X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-3

FIGURE 5

Soil Endpoint Samples Detected Above Unrestricted or Restricted Residential SCO's



Legend:

Endpoint Soil Sample Location

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5	T.R.B.	J.E.P.	TTCI2401	2025-6	8/27/2025	Not Shown

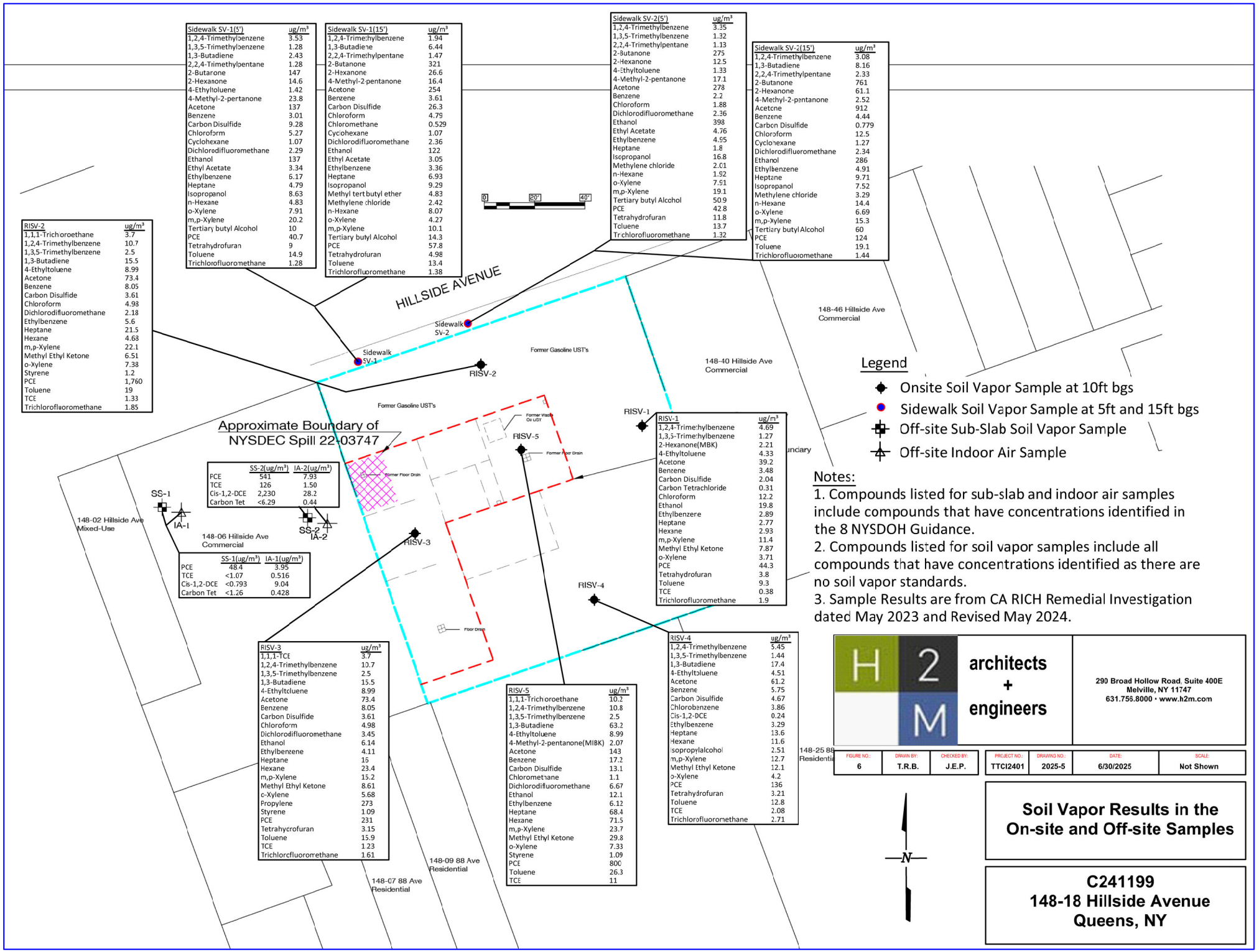
Soil Endpoint Samples Detected Above Unrestricted or Restricted Residential Use SCOs

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X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-6

FIGURE 6

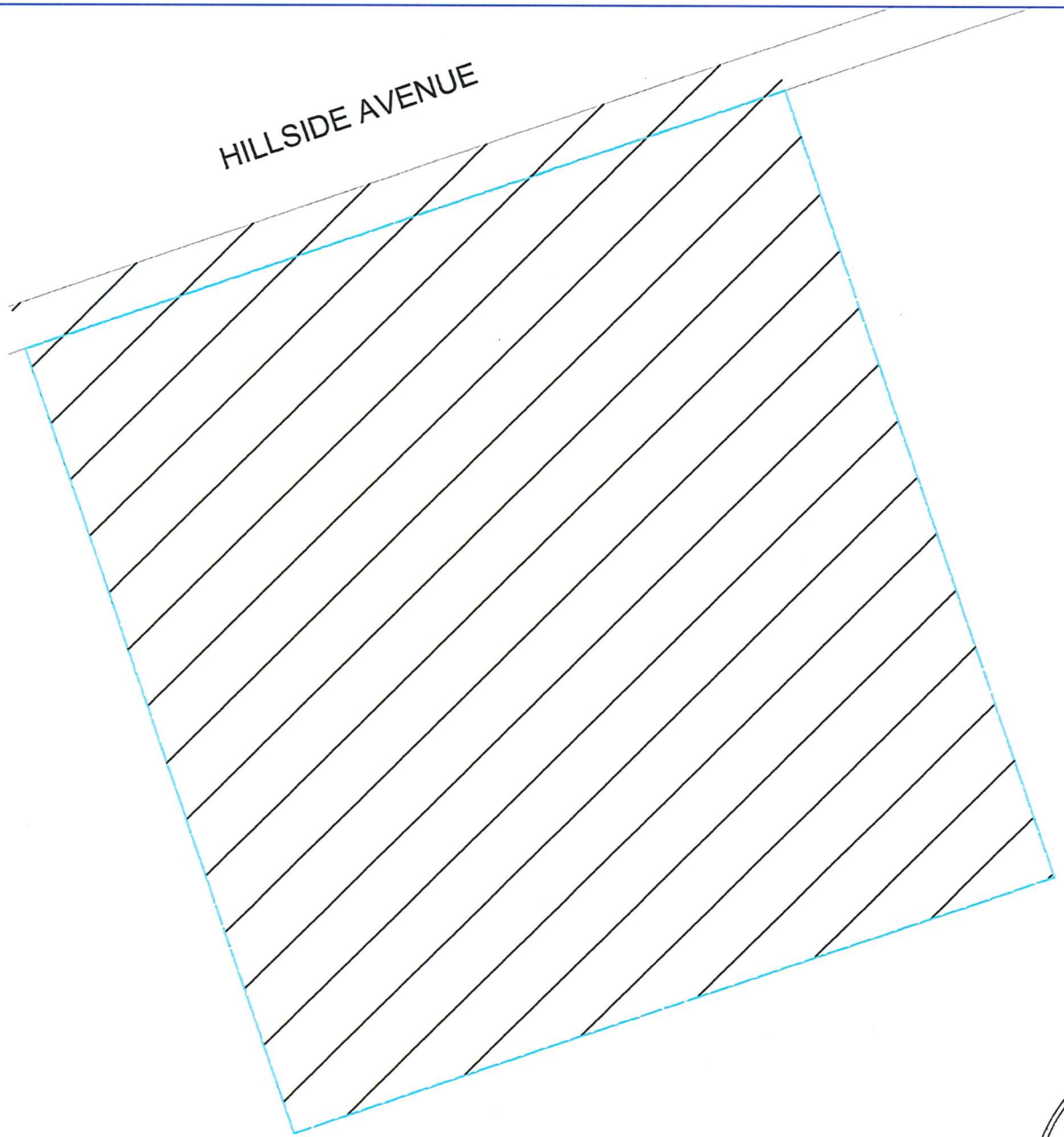
Soil Vapor Results in the On-site and Off-site Samples



X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-5

Figure 7

Location of Composite Cover System

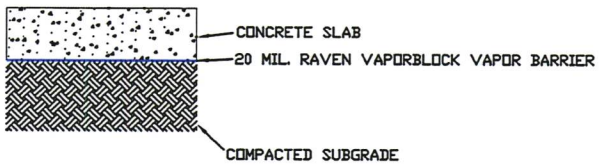


N

Legend

Property Boundary

Location of Composite Cover System
(Concrete Building Slab and Sidewalk)



Cross Section of Composite Cover System

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FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
7	E.B.	J.E.P.	TTCI2401	2025-7	8/27/2025	Not Shown

STATE OF NEW YORK
KEVIN M. TAYLOR
LICENSED PROFESSIONAL ENGINEER
102086

Cross Section and Location of Composite Cover System

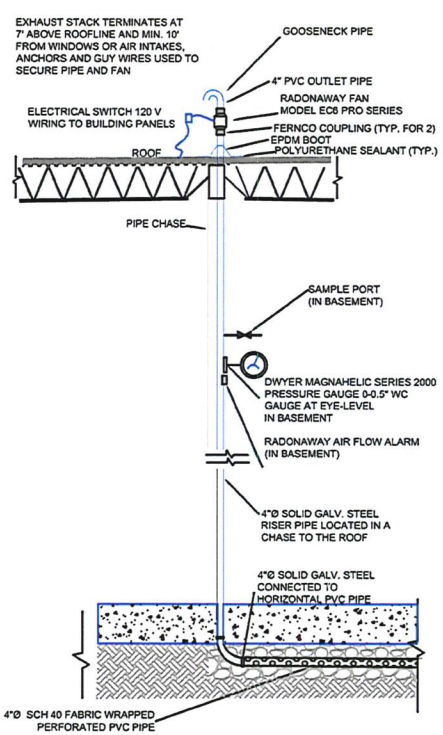
C241199
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Queens, NY

X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-7 JC

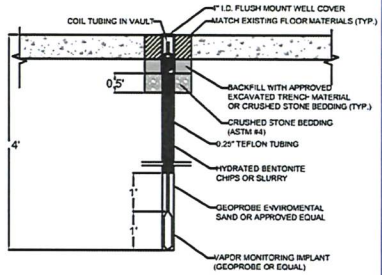
FIGURE 8

Locations of Engineering Controls for the Site

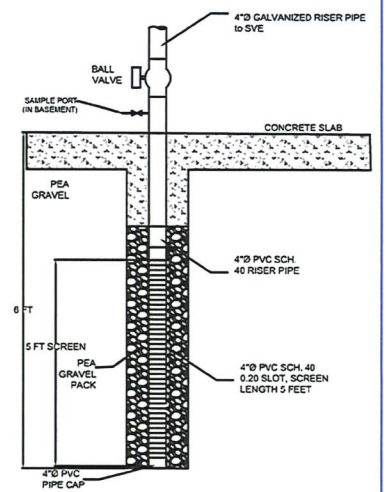




SSDS PROFILE
SCALE: NTS



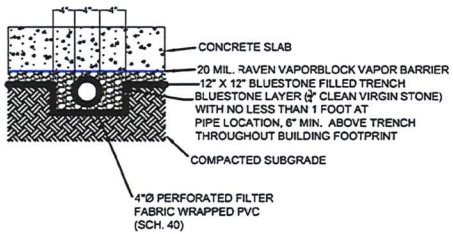
VACUUM MONITORING POINT DETAIL
NTS



SVE WELL
SCALE: NTS

LEGEND

- VACUUM MONITORING POINT
- 4"Ø SCH. 40 PVC SVE POINT
- SSDS HORIZONTAL PIPING (4"Ø SCH 40 PERFORATED PVC PIPE WRAPPED WITH FILTER SOCK)
- COMPOSITE COVER SYSTEM
- SOLID 4"Ø AIRTIGHT GALV. STEEL RISER PIPE



SSDS PIPE TRENCH DETAIL
SCALE: NTS

NOTES

1. SSDS piping installed at 6-inches below the bottom of the Site building slab.
2. SVE pipe installed approximately 19-feet below grade with 5-feet of screen.
3. Bottom of the Site building slab is 13-feet below grade. The SVE well depth is 6-feet below basement grade.
4. The SVE system consists of a network of three, 4"Ø sch. 40 perforated PVC vertical SVE well points. The SVE points were installed vertically along the western wall of the property at basement grade (13 feet below surface grade) and extends another six feet below basement grade. The three SVE points are horizontally connected along the basement ceiling with galvanized steel piping and are fitted with a galvanized steel riser pipe finished at the roof. An Atlantic Blower Model #AB-500 3.5HP, 208-230V, 3PH Blower was installed to provide vacuum for the SVE system.

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FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
8	T.R.B.	J.E.P.	TTCI2401	2025-4	8/27/2025	Not Shown

STATE OF NEW YORK
KEVIN M. TAYLOR
102086
LICENSED PROFESSIONAL ENGINEER

As Built Engineering Controls for the Site

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148-18 Hillside Avenue
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FIGURE 9

Results of SVE System Start-Up Test



Date: 6/3/2025
SVE On: 11:25am
Blower Make and Model: Atlantic Blower Model #AB-500 3.5HP
Readings Taken: 1:00pm
All Ball Valves Open
Dilution Valve Closed
Flow at MKO & Filter: 247 SCFM
Filter Inlet Vacuum: -9"H_2O
Blower Vacuum: -9"H_2O
Blower Pressure: 0"H_2O
SVE-1 Vacuum: -8"H_2O
Flow: 135 SCFM
PID: 0.0 PPM
SVE-2 Vacuum: -8"H_2O
Flow: 79 SCFM
PID: 0.0 PPM
SVE-1 Vacuum: -8"H_2O
Flow: 59 SCFM
PID: 0.0 PPM
Effluent PID: 0.0 PPM

LEGEND

- VACUUM MONITORING POINT
- SSDS HORIZONTAL PIPING (4"Ø SCH 40 PERFORATED PVC WRAPPED WITH FILTER SOCK)
- SOLID 4"Ø AIRTIGHT GALV. STEEL RISER PIPE
- 4"Ø SVE SCH. 40 PVC SVE POINT
- VMP-2 -0.248 VACUUM MONITORING POINT VACUUM READING IN "H_2O

NOTES

1. SSDS piping installed at 6-inches below the bottom of the Site building slab.
2. SVE pipe installed approximately 19-feet below grade with 5-feet of screen.
3. Bottom of the Site building slab is 13-feet below grade. The SVE well depth is 6-feet below basement grade.
4. The SVE system consists of a network of three, 4"Ø sch. 40 perforated PVC vertical SVE well points. The SVE points were installed vertically along the eastern wall of the property at basement grade (13 feet below surface grade) and extends another six feet below basement grade. The three SVE points are horizontally connected along the basement ceiling with galvanized steel piping and are fitted with a galvanized steel riser pipe finished at the roof. An Atlantic Blower Model #AB-500 3.5HP, 208-230V, 3PH Blower was installed to provide vacuum for the SVE system.

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FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
9	T.R.B.	J.E.P.	TTCI2401	2025-9	6/30/2025	Not Shown

Results of SVE System Start-Up Test

C241199
148-18 Hillside Avenue
Queens, NY

X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-9

FIGURE 10

Results of SSD System Start-Up Test



Date: 6/2/2025
SSDS Start Time: 11:55am
Fan Make and Model: Radonaway EC6 Pro Series
Readings Taken: 12:15pm
Basement SSDS Vacuum: -1.127"H_2O
Basement SSDS Flow: 45 SCFM
Basment PID: 0.0 PPM

LEGEND

- VACUUM MONITORING POINT
- SSDS HORIZONTAL PIPING (4"Ø SCH 40 PERFORATED PVC WRAPPED WITH FILTER SOCK)
- SOLID 4"Ø AIRTIGHT GALV. STEEL RISER PIPE
- 4"Ø SVE SCH. 40 PVC SVE POINT
- VMP-2 -0.546 — VACUUM MONITORING POINT VACUUM READING IN "H_2O

NOTES

1. SSDS piping installed at 6-inches below the bottom of the Site building slab.
2. SVE pipe installed approximately 19-feet below grade with 5-feet of screen.
3. Bottom of the Site building slab is 13-feet below grade. The SVE well depth is 6-feet below basement grade.
4. The SVE system consists of a network of three, 4"Ø sch. 40 perforated PVC vertical SVE well points. The SVE points were installed vertically along the eastern wall of the property at basement grade (13 feet below surface grade) and extends another six feet below basement grade. The three SVE points are horizontally connected along the basement ceiling with galvanized steel piping and are fitted with a galvanized steel riser pipe finished at the roof. An Atlantic Blower Model #AB-500 3.5HP, 208-230V, 3PH Blower was installed to provide vacuum for the SVE system.

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FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
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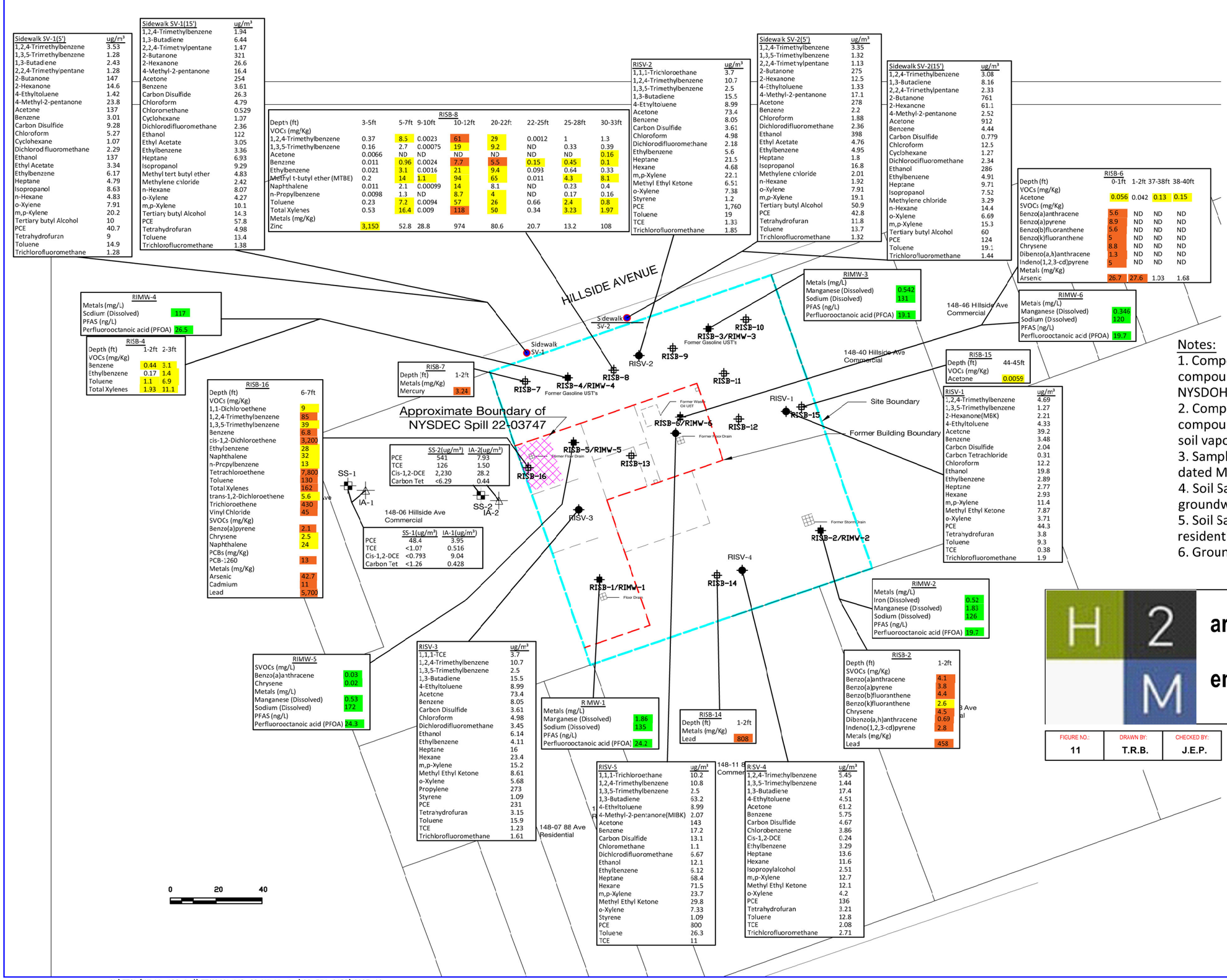
Results of SSD System Start-Up Test

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Figure 11

Spider Diagram of the Soil, Groundwater and Soi Vapor Exceedances from the RI (including off-site)



Sidewalk SV-1(5')	ug/m³
1,2,4-Trimethylbenzene	3.53
1,3,5-Trimethylbenzene	1.28
1,3-Butadiene	2.43
2,2,4-Trimethylpentane	1.28
2-Butanone	147
2-Hexanone	14.6
4-Ethyltoluene	1.42
4-Methyl-2-pentanone	23.8
Acetone	137
Benzene	3.01
Carbon Disulfide	9.28
Chloroform	5.27
Cyclohexane	1.07
Dichlorodifluoromethane	2.29
Ethanol	137
Ethyl Acetate	3.34
Ethylbenzene	6.17
Heptane	4.79
Isopropanol	8.63
n-Hexane	4.83
o-Xylene	7.91
m,p-Xylene	20.2
Tertiary butyl Alcohol	10
PCE	40.7
Tetrahydrofuran	9
Toluene	14.9
Trichlorofluoromethane	1.28

Sidewalk SV-1(15')	ug/m³
1,2,4-Trimethylbenzene	1.94
1,3-Butadiene	6.44
2,2,4-Trimethylpentane	1.47
2-Butanone	321
2-Hexanone	26.6
4-Methyl-2-pentanone	16.4
Acetone	254
Benzene	3.61
Carbon Disulfide	26.3
Chloroform	4.79
Chloromethane	0.529
Cyclohexane	1.07
Dichlorodifluoromethane	2.36
Ethanol	122
Ethyl Acetate	3.05
Ethylbenzene	3.36
Heptane	6.93
Isopropanol	9.29
Methyl tert butyl ether	4.83
Methylene chloride	2.42
n-Hexane	8.07
o-Xylene	4.27
m,p-Xylene	10.1
Tertiary butyl Alcohol	14.3
PCE	57.8
Tetrahydrofuran	4.98
Toluene	13.4
Trichlorofluoromethane	1.38

RISB-8								
Depth (ft)	3-5ft	5-7ft	9-10ft	10-12ft	20-22ft	22-25ft	25-28ft	30-33ft
VOCs (mg/Kg)								
1,2,4-Trimethylbenzene	0.37	8.5	0.0023	61	29	0.0012	1	1.3
1,3,5-Trimethylbenzene	0.16	2.7	0.00075	19	9.2	ND	0.33	0.39
Acetone	0.0066	ND	ND	ND	ND	ND	ND	0.16
Benzene	0.011	0.96	0.0024	7.7	5.5	0.15	0.45	0.1
Ethylbenzene	0.021	3.1	0.0016	21	9.4	0.093	0.64	0.33
Methyl t-butyl ether (MTBE)	0.2	14	1.1	94	65	0.011	4.3	8.1
Naphthalene	0.011	2.1	0.00099	14	8.1	ND	0.23	0.4
n-Propylbenzene	0.0098	1.3	ND	8.7	4	ND	0.17	0.16
Toluene	0.23	7.2	0.0094	57	26	0.66	2.4	0.8
Total Xylenes	0.53	16.4	0.009	118	50	0.34	3.23	1.97
Metals (mg/Kg)								
Zinc	3,150	52.8	28.8	974	80.6	20.7	13.2	108

RISV-2	ug/m³
1,1,1-Trichloroethane	3.7
1,2,4-Trimethylbenzene	10.7
1,3,5-Trimethylbenzene	2.5
1,3-Butadiene	15.5
4-Ethyltoluene	8.99
Acetone	73.4
Benzene	8.05
Chloroform	4.98
Dichlorodifluoromethane	2.18
Ethylbenzene	5.6
Heptane	21.5
Hexane	4.68
m,p-Xylene	22.1
Methyl Ethyl Ketone	6.51
o-Xylene	7.38
Styrene	1.2
PCE	1,760
Toluene	19
TCE	1.33
Trichlorofluoromethane	1.85

Sidewalk SV-2(5')	ug/m³
1,2,4-Trimethylbenzene	3.35
1,3,5-Trimethylbenzene	1.32
2,2,4-Trimethylpentane	1.13
2-Butanone	275
2-Hexanone	12.5
4-Ethyltoluene	1.33
4-Methyl-2-pentanone	17.1
Acetone	278
Benzene	2.2
Chloroform	1.88
Dichlorodifluoromethane	2.36
Ethanol	398
Ethyl Acetate	4.76
Ethylbenzene	4.95
Heptane	1.8
Isopropanol	16.8
Methylene chloride	2.01
n-Hexane	1.92
o-Xylene	7.91
m,p-Xylene	19.1
Tertiary butyl Alcohol	50.9
PCE	42.8
Tetrahydrofuran	11.8
Toluene	13.7
Trichlorofluoromethane	1.32

Sidewalk SV-2(15')	ug/m³
1,2,4-Trimethylbenzene	3.08
1,3-Butadiene	8.16
2,2,4-Trimethylpentane	2.33
2-Butanone	761
2-Hexanone	61.1
4-Methyl-2-pentanone	2.52
Acetone	912
Benzene	4.44
Carbon Disulfide	0.779
Chloroform	12.5
Cyclohexane	1.27
Dichlorodifluoromethane	2.34
Ethanol	286
Ethylbenzene	4.91
Heptane	9.71
Isopropanol	7.52
Methylene chloride	3.29
n-Hexane	14.4
o-Xylene	6.69
m,p-Xylene	15.3
Tertiary butyl Alcohol	60
PCE	124
Toluene	19.1
Trichlorofluoromethane	1.44

RISB-6				
Depth (ft)	0-1ft	1-2ft	37-38ft	38-40ft
VOCs (mg/Kg)				
Acetone	0.056	0.042	0.13	0.15
SVOCs (mg/Kg)				
Benzo(a)anthracene	5.6	ND	ND	ND
Benzo(a)pyrene	8.9	ND	ND	ND
Benzo(b)fluoranthene	5.6	ND	ND	ND
Benzo(k)fluoranthene	5	ND	ND	ND
Chrysene	8.8	ND	ND	ND
Dibenzo(a,h)anthracene	1.3	ND	ND	ND
Indeno(1,2,3-cd)pyrene	5	ND	ND	ND
Metals (mg/Kg)				
Arsenic	26.7	27.6	1.03	1.68

RIMW-3	
Metals (mg/L)	
Manganese (Dissolved)	0.542
Sodium (Dissolved)	131
PFAS (ng/L)	
Perfluorooctanoic acid (PFOA)	19.1

RIMW-6	
Metals (mg/L)	
Manganese (Dissolved)	0.346
Sodium (Dissolved)	120
PFAS (ng/L)	
Perfluorooctanoic acid (PFOA)	19.7

RIMW-4	
Metals (mg/L)	
Sodium (Dissolved)	117
PFAS (ng/L)	
Perfluorooctanoic acid (PFOA)	26.5

RISB-4		
Depth (ft)	1-2ft	2-3ft
VOCs (mg/Kg)		
Benzene	0.44	3.1
Ethylbenzene	0.17	1.4
Toluene	1.1	6.9
Total Xylenes	1.93	11.1

RISB-7	
Depth (ft)	1-2ft
Metals (mg/Kg)	
Mercury	3.24

RISB-15	
Depth (ft)	44-45ft
VOCs (mg/Kg)	
Acetone	0.0059

RISV-1	ug/m³
1,2,4-Trimethylbenzene	4.69
1,3,5-Trimethylbenzene	1.27
2-Hexanone(MBK)	2.21
4-Ethyltoluene	4.33
Acetone	39.2
Benzene	3.48
Carbon Disulfide	2.04
Carbon Tetrachloride	0.31
Chloroform	12.2
Ethanol	19.8
Ethylbenzene	2.89
Heptane	2.77
Hexane	2.93
m,p-Xylene	11.4
Methyl Ethyl Ketone	7.87
o-Xylene	3.71
PCE	44.3
Tetrahydrofuran	3.8
Toluene	9.3
TCE	0.38
Trichlorofluoromethane	1.9

RISB-16	6-7ft
Depth (ft)	
VOCs (mg/Kg)	
1,1-Dichloroethene	9
1,2,4-Trimethylbenzene	85
1,3,5-Trimethylbenzene	39
Benzene	6.8
cis-1,2-Dichloroethene	3,200
Ethylbenzene	28
Naphthalene	32
n-Propylbenzene	13
Tetrachloroethene	7,800
Toluene	130
Total Xylenes	162
trans-1,2-Dichloroethene	5.6
Trichloroethene	430
Vinyl Chloride	45
SVOCs (mg/Kg)	
Benzo(a)pyrene	2.1
Chrysene	2.5
Naphthalene	24
PCBs (mg/Kg)	
PCB-1260	13
Metals (mg/Kg)	
Arsenic	42.7
Cadmium	11
Lead	5,700

	SS-2(ug/m³)	IA-2(ug/m³)
PCE	541	7.93
TCE	126	1.50
Cis-1,2-DCE	2,230	28.2
Carbon Tet	<6.29	0.44

	SS-1(ug/m³)	IA-1(ug/m³)
PCE	48.4	3.95
TCE	<1.07	0.516
Cis-1,2-DCE	<0.793	9.04
Carbon Tet	<1.26	0.428

RIMW-5	
SVOCs (mg/L)	
Benzo(a)anthracene	0.03
Chrysene	0.02
Metals (mg/L)	
Manganese (Dissolved)	0.53
Sodium (Dissolved)	172
PFAS (ng/L)	
Perfluorooctanoic acid (PFOA)	24.3

RISV-3	ug/m³
1,1,1-TCE	3.7
1,2,4-Trimethylbenzene	10.7
1,3,5-Trimethylbenzene	2.5
1,3-Butadiene	15.5
4-Ethyltoluene	8.99
Acetone	73.4
Benzene	8.05
Carbon Disulfide	3.61
Chloroform	4.98
Dichlorodifluoromethane	3.45
Ethanol	6.14
Ethylbenzene	4.11
Heptane	16
Hexane	23.4
m,p-Xylene	15.2
Methyl Ethyl Ketone	8.61
o-Xylene	5.68
Propylene	273
Styrene	1.09
PCE	231
Tetrahydrofuran	3.15
Toluene	15.9
TCE	1.23
Trichlorofluoromethane	1.61

RIMW-1	
Metals (mg/L)	
Manganese (Dissolved)	1.86
Sodium (Dissolved)	135
PFAS (ng/L)	
Perfluorooctanoic acid (PFOA)	24.2

RISB-14	
Depth (ft)	1-2ft
Metals (mg/Kg)	
Lead	808

RISV-5	ug/m³
1,1,1-Trichloroethane	10.2
1,2,4-Trimethylbenzene	10.8
1,3,5-Trimethylbenzene	2.5
1,3-Butadiene	63.2
4-Ethyltoluene	8.99
4-Methyl-2-pentanone(MIBK)	2.07
Acetone	143
Benzene	17.2
Carbon Disulfide	13.1
Chloromethane	1.1
Dichlorodifluoromethane	6.67
Ethanol	12.1
Ethylbenzene	6.12
Heptane	68.4
Hexane	71.5
m,p-Xylene	23.7
Methyl Ethyl Ketone	29.8
o-Xylene	7.33
Styrene	1.09
PCE	800
Toluene	26.3
TCE	11

RISV-4	ug/m³
1,2,4-Trimethylbenzene	5.45
1,3,5-Trimethylbenzene	1.44
1,3-Butadiene	17.4
4-Ethyltoluene	4.51
Acetone	61.2
Benzene	5.75
Carbon Disulfide	4.67
Chlorobenzene	3.86
Cis-1,2-DCE	0.24
Ethylbenzene	3.29
Heptane	13.6
Hexane	11.6
Isopropylalcohol	2.51
m,p-Xylene	12.7
Methyl Ethyl Ketone	12.1
o-Xylene	4.2
PCE	136
Tetrahydrofuran	3.21
Toluene	12.8
TCE	2.08
Trichlorofluoromethane	2.71

RISB-2	
Depth (ft)	1-2ft
SVOCs (mg/Kg)	
Benzo(a)anthracene	4.1
Benzo(a)pyrene	3.8
Benzo(b)fluoranthene	4.4
Benzo(k)fluoranthene	2.6
Chrysene	4.5
Dibenzo(a,h)anthracene	0.69
Indeno(1,2,3-cd)pyrene	2.8
Metals (mg/Kg)	
Lead	458

RIMW-2	
Metals (mg/L)	
Iron (Dissolved)	0.52
Manganese (Dissolved)	1.83
Sodium (Dissolved)	126
PFAS (ng/L)	
Perfluorooctanoic acid (PFOA)	19.7

Legend

- Onsite Soil Vapor Sample at 10ft bgs
- Sidewalk Soil Vapor Sample at 5ft and 15ft bgs
- Off-site Sub-Slab Soil Vapor Sample
- Off-site Indoor Air Sample
- Combined Soil and Groundwater Sample Location
- Soil Sample Location

Notes:

1. Compounds listed for sub-slab and indoor air samples include compounds that have concentrations identified in the 8 NYSDOH Guidance.
2. Compounds listed for soil vapor samples include all compounds that have concentrations identified as there are no soil vapor standards.
3. Sample Results are from CA RICH Remedial Investigation dated May 2023 and Revised May 2024.
4. Soil Sample Results highlighted yellow exceed protection of groundwater soil cleanup objectives.
5. Soil Sample Results highlighted orange exceed restricted residential soil cleanup objectives.
6. Groundwater Sample results highlighted green exceed TOGS.

H2M architects + engineers
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Melville, NY 11747
631.756.8000 ▪ www.h2m.com

FIGURE NO.:	DRAWN BY:	CHECKED BY:
11	T.R.B.	J.E.P.

PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
TTCI2401	2025-16	10/20/2025	As Shown

Soil, Groundwater and Soil Vapor Exceedances from the RIR

C241199
148-18 Hillside Avenue
Queens, NY

X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-16

APPENDIX A

Environmental Easement

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

THIS INDENTURE made this 17th day of July, 2025, between Owner, Hillside 168 Inc., having an office at 4630 Kissena Blvd., Flushing, 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 148-26 a/k/a 148-18 Hillside Avenue 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 9694 Lot 17, being the same as that property conveyed to Grantor by deed dated October 14, 2015 and recorded in the City Register of the City of New York in City Register File No. 2015000378253. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.397 +/- acres, and is hereinafter more fully described in the Land Title Survey dated September 6, 2024, last revised May 29, 2025, prepared by Adrian S. Lalsa, 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: C241199-05-22, 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:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), 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 purposes as defined in 6NYCRR 375-1.8(g)(2)(i), 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: C241199
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.

Hillside 168 Inc.:

By: Chung Lam

Print Name: Chung Lam

Title: President Date: 7/10/2025

Grantor's Acknowledgment

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

On the 10th day of July, in the year 20 25, before me, the undersigned, personally appeared Chung Lam, 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.

ZEMIN WU
NOTARY PUBLIC-STATE OF NEW YORK
No. 01WU6228541
Qualified in Queens County
My Commission Expires September 20, 2026

Notary Public - State of New York

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: _____
Andrew O. Guglielmi, Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 18 day of July, in the year 2025 before me, the undersigned, personally appeared Andrew O. Guglielmi, 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

Cheryl A. Salem
Notary Public State of New York
Registration No. 01SA0002177
Qualified in Albany County
My Commission Expires March 3, 2027

SCHEDULE "A" PROPERTY DESCRIPTION

Easement Description:
SECTION 42 BLOCK 9694 LOT 17
0.397 Acreage

All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough of Queens, County of Queens, City and State of New York, known and designated as lots 179, 180, 181, 182 and 183 on a certain map entitles, "Map No. 2 Bronson Property, in the Village of Jamaica, Queens County, surveyed August 1887 by E.W. Conklin", and filed in the Office of the Clerk, now register, of the County of Queens on September 28, 1887 as Map No. 641, which said lots when taken together are bounded and described according to said map as follows:

BEGINNING at point on the Southerly side of Hillside Avenue, distance 275 feet Westerly from the corner formed by the intersection of the Southerly side of Hillside Avenue with the Westerly side of 150th Street (formerly Alsop Street);

RUNNING THENCE Southerly and parallel with 150th Street 139.60 feet;

THENCE Westerly and parallel with 88th Avenue (formerly Willet Avenue) 125 feet;

THENCE Northerly and parallel with 150th street 137.20' survey (137 feet 2 inches Deed) to the Southerly side of Hillside Avenue;

THENCE Easterly along the Southerly side of Hillside Avenue 125 feet to the point or place of BEGINNING.

Department of Finance

October 17, 2025

TIMOTHY F NEVINS
825 THIRD AVE
16TH FL
NEW YORK, NY 10022

RE: Submitted Transaction Successfully Recorded

Dear TIMOTHY F NEVINS:

Document Identification Number 2025090900486001 which was submitted and intaken for Recording on 10/14/2025 11:57:42 AM, was successfully recorded on 10/17/2025 at 2:49 PM.

Below summarizes the status of the document(s).

Recording & Endorsement Cover Page(s) attached

2025090900486001

If you have questions or require further information, please send an email to acrishelp@finance.nyc.gov and someone will get back to you.

Thank you.

City Register

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.

2025090900486001006E0A84

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

Document ID: 2025090900486001 Document Date: 07-11-2025 Preparation Date: 10-14-2025
Document Type: EASEMENT
Document Page Count: 9

PRESENTER:
TIMOTHY F NEVINS
825 THIRD AVE
16TH FL
NEW YORK, NY 10022
516-780-1969
TNEVINS@BDLAW.COM

RETURN TO:
TIMOTHY F NEVINS
825 THIRD AVE
16TH FL
NEW YORK, NY 10022
516-780-1969
TNEVINS@BDLAW.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
QUEENS	9694	17	Entire Lot	148-18 HILLSIDE AVENUE

Property Type: RESIDENTIAL VACANT LAND Easement

CROSS REFERENCE DATA

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

PARTIES

GRANTOR/SELLER:
HILLSIDE 168 INC
4630 KISSENA BLVD
FLUSHING, NY 11355

GRANTEE/BUYER:
NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NY 12233

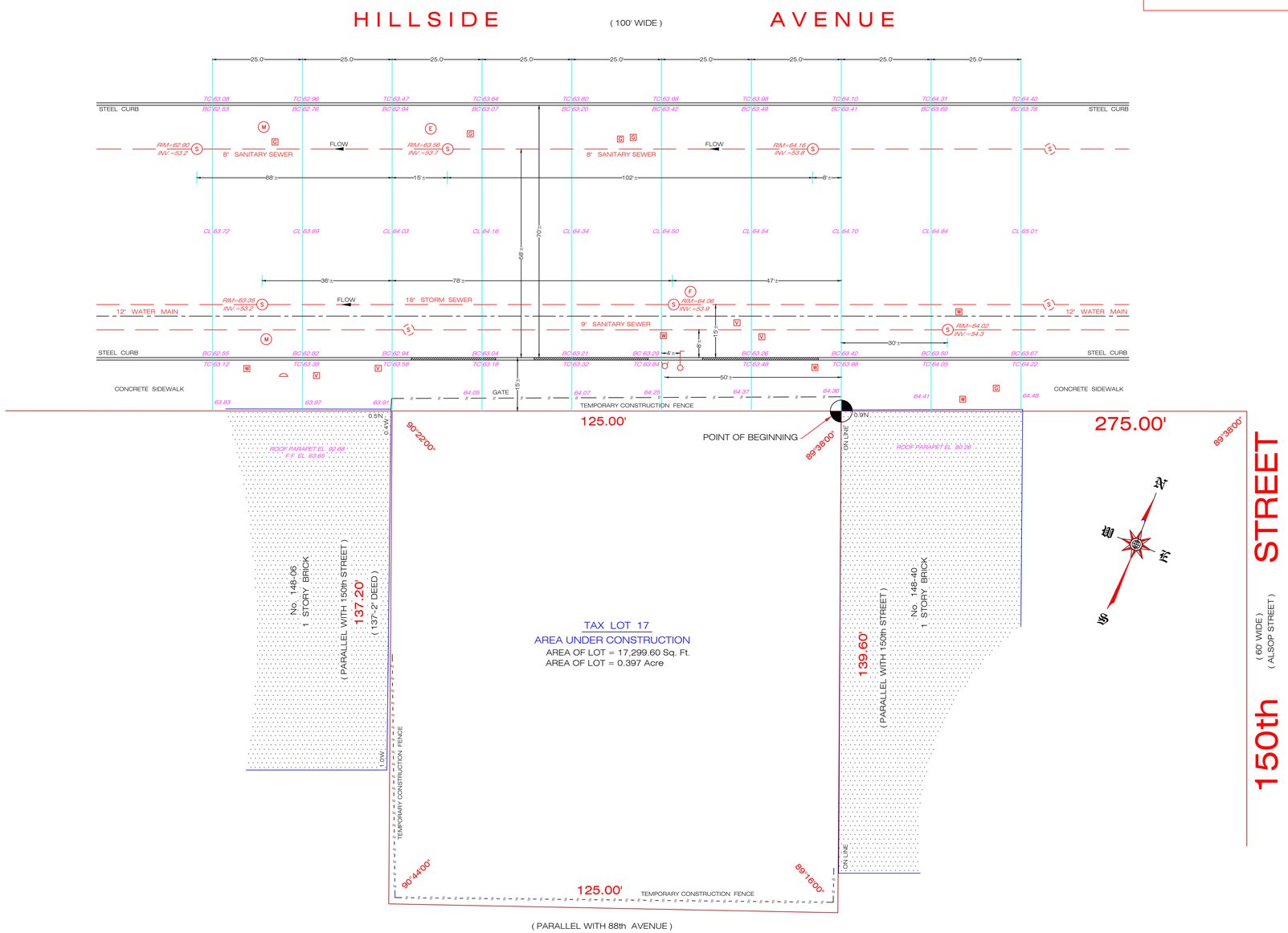
FEES AND TAXES

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 10-17-2025 14:49
City Register File No.(CRFN): **2025000283057**

City Register Official Signature



TAX LOT 17

AREA UNDER CONSTRUCTION

AREA OF LOT = 17,299.60 Sq. Ft.

AREA OF LOT = 0.397 Acre

FILE MAP INFO:-

DESIGNATED AS LOT Nos. 179, 180, 181, 182 & 183
ON "MAP No. 2, BRONSON PROPERTY, IN THE VILLAGE OF JAMAICA"
FILED SEPTEMBER 28, 1887 AS MAP No. 641

SCALE: 1" = 16'

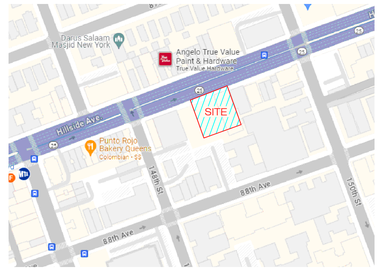
8 FT. 0 16 FT. 32 FT.

2.44M 0 4.88M 9.75M

METERS

SURVEY OF PROPERTY AT:-
QUEENS COUNTY, N.Y.
TAX SECTION: 42 TAX BLOCK: 9694 TAX LOT: 17
PROPERTY ADDRESS:
148-18 HILLSIDE AVENUE, JAMAICA, NY 11435
aka. 148-26 Hillside Avenue, Jamaica NY 11435

KEY MAP



LEGEND:-

- FIRE HYDRANT
- DROP CURB
- G - GAS VALVE
- W - WATER VALVE
- V - UNKNOWN VALVE
- PARKING METER
- E - ELECTRIC MANHOLE
- S - SEWER MANHOLE
- F - FDNY MANHOLE
- (S) - SEWER MAHOLE NOT FOUND IN FIELD
- LIGHT POLE
- TC - TOP OF CURB ELEVATION
- BC - BOTTOM OF CURB ELEVATION
- CL - CENTER LINE ELEVATION
- EL - SPOT ELEVATION
- F.F - FIRST FLOOR ELEVATION
- N - NORTH
- S - SOUTH
- E - EAST
- W - WEST

NOTE:

"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 Environmental Conservation Law. The engineering and institutional controls for this Easement are set forth 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 NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at derweb@dec.ny.gov".

Legal Description (OVERALL PARCEL) (ENVIRONMENTAL EASEMENT)

QUEENS COUNTY TAX MAP DESIGNATION:
SECTION 42 BLOCK 9694 LOT 17
0.397 Acreage

All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough of Queens, County of Queens, City and State of New York, known and designated as lots 179, 180, 181, 182 and 183 on a certain map entitles, "Map No. 2 Bronson Property, in the Village of Jamaica, Queens County, surveyed August 1887 by E.W. Conklin", and filed in the Office of the Clerk, now register, of the County of Queens on September 28, 1887 as Map No. 641, which said lots when taken together are bounded and described according to said map as follows:

BEGINNING at point on the Southerly side of Hillside Avenue, distance 275 feet Westerly from the corner formed by the intersection of the Southerly side of Hillside Avenue with the Westerly side of 150th Street (formerly Alsop Street);

RUNNING THENCE Southerly and parallel with 150th Street 139.60 feet;

THENCE Westerly and parallel with 88th Avenue (formerly Willet Avenue) 125 feet;

THENCE Northerly and parallel with 150th street 137 feet 2 inches to the Southerly side of Hillside Avenue;

THENCE Easterly along the Southerly side of Hillside Avenue 125 feet to the point or place of BEGINNING.

CERTIFIED TO:
NEW YORK CITY DEPARTMENT OF BUILDINGS

NOTES:
1. THERE ARE NO VISIBLE STREAMS NOR NATURAL WATER COURSES IN THE PROPERTY EXCEPT AS SHOWN ON THIS SURVEY.
2. PROPERTY CORNER MONUMENTS WERE NOT PLACED AS PART OF THIS SURVEY.
3. IT IS A VIOLATION OF THE STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.
4. ARCHITECTS MUST ORDER A TOPOGRAPHICAL MAP SPECIFYING THEIR EXACT NEEDS.
5. CONSULT WITH THE HIGHWAY DEPARTMENT BEFORE DESIGNING, INSTALLING, OR MODIFYING ANY NEW OR EXISTING CURBS, WALKS, OR ROADWAYS IN THE STREETS SHOWN HEREON.
6. SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FROM VARIOUS CITY DEPARTMENTS AND/OR PRIVATE UTILITY COMPANIES. THE SURVEYOR ACCEPTS NO RESPONSIBILITY FOR ANY OF THIS DATA.
7. EASEMENTS OF RECORD ARE ONLY GUARANTEED IF AN ABSTRACT OF TITLE IS FURNISHED TO THE SURVEYOR.
8. ALL ELEVATIONS SHOWN REFER TO THE 1988 NAVD.
9. FEMA FLOOD INFORMATION THIS PROPERTY IS LOCATED ON PANEL 3604970233F ZONE "X" DATED SEPTEMBER 5, 2007.
10. NEW YORK STATE LAW REQUIRES BEFORE EXCAVATE CALL 811, & DIGNET AT 800-272-4480
11. SEWER & WATER INFORMATION MUST BE VERIFIED WITH DEP.
12. TEMPORARY CONSTRUCTION FENCE NOT LOCATED.

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

DATE:- SEPTEMBER 6, 2024
SURVEY No:- COC-2024-663-C1
DESCRIPTION:- ENVIRONMENTAL EASEMENT

C.O.C MAPPING CORP.
COORDINATES OF CONSTRUCTION
91-22 215th PLACE
QUEENS VILLAGE, N.Y. 11428
TELEPHONE (347)239-9844
EMAIL COCMAPPING@GMAIL.COM

DRAFTED:-CJ CHECKED:- SK

STATE OF NEW YORK
ADRIAN S. LALSA
LICENSED LAND SURVEYOR
050936

ADRIAN S. LALSA LIC.# 050936

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APPENDIX B

List of Site Contacts

Site Contact List

148-28 a/k/a 148-18 Hillside Avenue, Queens, NY - NYSDEC Site #C241199

NYSDEC Project Manager
Rafi Alam
Rafi.Alam@dec.ny.gov

NYSDOH Project Manager
Jim Sullivan
jim.sullivan@health.ny.gov

NYSDEC Attorney
Leia Schmidt
Leia.Schmidt@dec.ny.gov

Property Owner's Environmental Attorney
John Paul, Esq.
Beveridge & Diamond, P.C.
jpaul@bdlaw.com

Property Owner
Chung Lam
Hillside 168 Inc.
clamrx@gmail.com

Qualified Environmental Professional
H2M architects & engineers
Jason Cooper
JCooper@h2m.com
Jessica Proscia
JProscia@h2m.com

Remedial Engineer
H2M architects & engineers
Kevin Taylor
KTaylor@h2m.com

APPENDIX C

Boring Logs and Groundwater Well Construction Logs

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

100 Main Street, Port Washington, NY

Project No.:	8346-JANY	**SOIL BORING No.:**	P1SB/MW-1
Location:	Hillside Ave Jamaica	**DATE:**	10/7/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	hot sunny
Drilling Rig:	Sonic 814066		
Geologist:	TY	**Completed depth:**	50SB 60 MW
Depth to Groundwater:	~43	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	3'7"	0		(0-1) brown to lighter brown w/ grey soils - compacted damp - loam like top soil w/ rounded gravels	Sample (0-1) (1-2)
2					(1-2) pale brown light reddish grey brown - silty sands coarse & medium sands - compacted	
3						
4					(2-4) blackened "fill" mostly asphaltic degraded - asphalt chunks - brittle-	
5			15 ppb 21			
6	5-10	3"	11		(4-5) brown to dark brown silty sands - compacted w/ some fill bricks, glass	
7			15 0 31		Uniform sleeve	
8			0 0		brown to light brown w/ grey brown DRY	
9			18 ppb 11		coarse sands - non silt loose packing - abundance of gravels both round & angular	
10			0 0			

SOIL BORING LOG

(2)

Project No.: 8346-JAM SOIL BORING No.: RISB-1

Location: Hillside Ave Jamaica DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	2'1"	0 ppb		(10-12) - dark orange brown coarse sands w/ very large cobbles - rock fragg non silty - dark brown + light orange sands	
12						
13					(12-15) light grey brown coarse sands non silt loose pack w/ angular gravels	
14						
15			↓			
16	15-20	1'8" low recovery	0 ppb		uniform sleeve dark brown to brown orange brown fine - coarse to very coarse sands - non silty - loose pack abundant rounded gravels few cobbles	
17						
18						
19						
20			↓			
21	20-25	3'2"	0	ppb	uniform sleeve Same as above! Slightly darker brown	Steam in sleeve
22			0			
23			16			
24			0			
25			19			
			11			
			23			
			0			
			6			
			16			

3

SOIL BORING LOG

Project No.: 8346-JAM
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-1
DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	2'	0 ppb		Uniform sleeve brown to orange brown coarse sands- damp moisture content- non silty rounded gravels + cobbles	
12						
13						
14		Moderate recovery				
15			↓		-Cobbles-	
16	30-35	2' 11" moderate recovery	0		brown to greenish grey sands w/ silts - saturated - wet - brown to light brown silt grey silt nodules w/ dark grey silt lenses rounded + angular gravels Course sands reach 35'	Sample (30-35) PID sleeve to drum
17			16			
18			141 ppb 327 ppb 249 ppb 454			
19			205 155	ppbs		
20			198 161			
21	35-40	2' 11 moderate recovery	34 0		(35-38) dark orange sands w/ some silt - coarse damp rounded gravels	
22			18 21			
23			0 0			
24			0	ppb	(38-40) grey to green grey DRY coarse sands non silty	
25			↓			

SOIL BORING LOG

(4)

Project No.: 8346-JANY

Location: Hillside Av

SOIL BORING No.: RISB-1

DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	40-45	2'2"	4		Uniform sleeve	(Sample 40-42)
12			14			
13			92		Dark brown to dark orange brown - coarse sands to very coarse sands, gravels "wet" w/ rounded pebbles	
14			118			
15			76			saturated wet 43
16	45-50	1'3"	22		NO SANDS all cobbles rounded wet	
17			14			
18			10			
19			0			
20			0			
21	50-55		Open		MW 60' TD 2" Ø screen 60-40 # 40 to +2 riser gravel to 35 ish bentonite to 30 ish	
22						
23						
24						
25						

Samples (0-7) shallows (40-42) GW area
(1-2)
(30-35) PID

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346-JANY	**SOIL BORING No.:**	R15B/MW-2
Location:	Hillside Ave Jamaica	**DATE:**	10/7/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	sunny cool FALL
Drilling Rig:	SONIC 8140LC	**Completed depth:**	50 SB 60 MW
Geologist:	TY	**Drilling Company:**	AARCO
Depth to Groundwater:	~42'	**Driller:**	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	3'3"	0ppb		(0-1) - loam like top silt/soils from site- wet - muddy - soft	sample (0-1) Full
2					light pale gray fine silts silty - aerated brown to olive gray brown fine - compacted - w/ rounded pebbles	(1-2) Full
3					(1-4) - degraded asphalts - Full layer - black - non compact w/ brown silts - hard + dense solid asphalts	
4					(4-5) olive gray compacted silts - medium sands - rounded pebbles w/ brown to orange black sandy	
5						
6	5-10	3'2"	0	ppb	(5-6) brown to slight dark silts orange brown fine - compacted silts - plastic clay like. w/ roots	
7			0		Abrupt boundary	
8			0		(6-7) light pale yellow coarse sands - w/ medium - non silt damp loose packed - orange sands layers thin	
9			3			
10			13		(7-10) brown to orange brown coarse sands - some medium - non silt - loose packing - w/ small rounded pebbles.	DRY
			0			
			0			
			0			

SOIL BORING LOG

(2)

Project No.: 8346-JANY SOIL BORING No.: BSB-2

Location: Hillside Ave Jamaica DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11 / 12 / 13 / 14 / 15	10-15	3'8"	0 ppb		(10-12) orange brown coarse sands loose packing Non silty large abundance of gravels & angular fragments damp – gradational – (12-15) light pale grey Fines w/ brown coarse sands Dry large round BR frag – very fine pulverized dusts	HOT & steaming sleeve.
16 / 17 / 18 / 19 / 20	15-20	2'10"	0 / 1 / M / 0 / 0 / 0 / 0 / 0 / 0 / 0 ppb		(15-16) grey compacted fine silts w/ blackened silt layers – organics roots & rounded pebbles clay like organics (16-18) light orange brown medium sands & coarse w/ pebbles – non silt, @18 – dust / powdery fine – pulverized grey fines to very fines w/ gravels (18-20) same as (15-16) – organic fine silts – clay like organics	
21 / 22 / 23 / 24 / 25	20-25	2'4"	0 ppb		(20-22) pale yellow brown medium sands – some mediums gravels some compaction – moisture (22-25) damp – dark brown to dark orange brown coarse sands w/ small rounded pebbles – moisture compaction	

SOIL BORING LOG

(3)

Project No.: 8346 - JAM SOIL BORING No.: RISB-2

Location: Hillside Ave Jamaica DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	2'3"	0 ppb		(25-27) damp - yellow brown coarse sands - non set - moisture compaction w/ round pebbles	
12						
13					(27-30) coarse orange to orange brown sands large rock frags angular	
14						
15						
16	30-35	1'5"	0 ppb		Low recovery Uniform sleeve coarse orange brown sands - olive grey green hue large angular fragments of BR	
17						
18			6 ppb			
19			0			
20			0			
21	35-40	3'3"	415	ppb	Uniform sleeve coarse sand - very coarse gravels - wet grey greenish brown large rounded gravels + fragments silty - mod compaction	Uniform sample 35-40 GW test + PID
22			655			
23			1018			
24			1250			
25			1205			
			1130			
			547			
			10 ppm			
			2840	ppb		
			3100	ppb		

→ Sleeve to drum

SOIL BORING LOG

(4)

Project No.: 8346-JANY
SOIL BORING No.: RISB-2
Location: Hillside Ave / Jamaica
DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	40-45	2'2"	8		(40-42) reddish brown muddy sands matrix majority large rounded cobbles (wet)	wet GW
12			8			
13			14			
14			12			
15			121	ppm	(42-45) brown to light orange coarse sands moisture content - non silt abundant gravels + rounded pebbles mica + pyr. minerals (wet)	
16	45-50	4'3"	42			
17			47			
18			67			
19			54			
20			17			
21			0		Uniform sleeve dark brown - dark orange brown coarse sands wet abundance of very coarse sands & gravels rounded range of grain colors.	
22			0			
23			27			
24			41			
25			48			
			80			
			46	ppb		
			62			
			45			
			40			
	50-55				END @ 50' SB 60' TD for MW 60-40 2" Ø screen 40 to 32 filter gravel to 35 ish bentonite to 30 ish	

Samples (0-1) shallows (1-2) (35-40) PID + GW area

SOIL BORING LOG

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

(1)

Project No.:	8346-JAN	**SOIL BORING No.:**	RISB-1/MW-3
Location:	Hillside Ave Jamaica	**DATE:**	10/5/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	rain cold wind
Drilling Rig:	Sunic 8140 LC	**Completed depth:**	50 SB 60 MW
Geologist:	TV	**Drilling Company:**	AARCO
Depth to Groundwater:	~43-45 area	**Driller:**	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	1'6" low recov	0ppb 0 800ppb 31ppb 0ppb		Very little recovery few small rocks top soil from site, muddy silts (0-2) concrete solid + dust (2-4) brown to reddish brown medium to coarse sands w/ gravels - silty (4-5) orange to light orange sandy silts some organics	X X Adjusted Sample (0-1) (2-4) limited volume
6	5-10	3'	0ppb		Uniform sleeve routing light orange yellow brown medium + coarse sands non silt, loose packing mixed w/ some fines damp - moisture content some rounded gravels	

no PFA 1020 1030

SOIL BORING LOG

(2)

Project No.: 8346-JANY
Location:
SOIL BORING No.: RISB-3
DATE: 10/5

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
	10-15	3'3"	0		(10-11) orange brown sand, loose coarse + med. w/ gravels	
11			9			
			1		(11-12) – brown to dark brown coarse sands + gravels + pebbles	
12			0			NO sample
			0			
13			19	ppb	(12-14) brown to slight orange brown coarse sands non silty loose damp abundant gravel	
			5			NO ODORS
14			31			
			0			
15			0		(14-15) pale yellow coarse sands some medium no gravels	
	15-20	3'6"	0		Uniform sleeve	
16			0		slight grey hue	
			0		brown orange brown coarse sands + mediums - DRY at top - damp @ 18 → 20 moisture compaction abundance of both large + small rounded gravels	
17			0			
			2	ppb		
18			0			
			0			
19			0			
			0			
20			25	ppb		
	20-25	3'	0		Uniform sleeve	
21						
					same as above!	
22						
			22		abundant large cobbles	
23			40			some steam in sleeve
			58	ppb		
24			1			
			20			
25			31			

SOIL BORING LOG

(3)

Project No.: 8346 - JANV **SOIL BORING No.:** RISB - 3

Location: Hillside Ave **DATE:** 10/5/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	3'9"	0 ppm		again uniform sleeve brown to dark orange brown mostly coarse sands w/ medium slight silt compaction grey silt chunks 27-30 abundant large gravels + cobbles	no sample no odor
16	30-35	3'8"	0 ppm		30-32 - brown to grey brown silty sands - mostly coarse with medium silt compaction gravels (32-33) dark brown cementitious sands (solidified by sunlight?) abundant cobbles (33-35) brown to reddish brown dry medium sands - some silt abundance of gravels ~50%	hot + steaming sleeve no samples
21	35-40				NO RECOVERY EMPTY SLEEVE - could be cobble layer as seen in other borings	
25						

SOIL BORING LOG

(4)

Project No.: 8346-SANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-3
DATE: 10/5/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	40-45	1'7" low recovery	0ppm		not alot of recovery 40-42 - pulverized brn fragments + dust - probably coral + gravel due to dry sonic grey to green grey - Mica schist most likely 42-43 - dark dark grey saturated silts, plastic - clay like organic layer 43-45 - brown to okey brown coarse sands - pulverized gravels dust non silty - Dry	DRY SAMPLE 43-45 1210
16	45-50		0ppm		45-48 - ALL rounded Cobbles! no sands (48-50) grey to green grey silty sand - silty conglomerate	DRY
21	50-55				Brown silt layer lenses rounded cobbles MW 60' TD 60-40 screen 2" ∅ 40 → +2 riser gravel to 35 ft	Bentonite to surface Mud/cuttings added
25						

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346-JAMY	**SOIL BORING No.:**	RISB-4
Location:	Hillside Ave Jamaica	**DATE:**	10/3/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	cold rain
Drilling Rig:	Geoprobe Sonic 8140LC		very windy
Geologist:	TY	**Completed depth:**	50' SB 60' MW
Depth to Groundwater:		**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
	0-5	3'	0		(0-6") top soil almost nothing	
1			0		(6"to 1) concrete	
			324 ppb		(1-3) dark brown to brown compacted silts w/ some fine ceramic, glass dark olive grey sands	sample (1-2) (2-3) adjusted due to lack of any sample volume (0-1)
2			433 ppb			
			975 ppb			
3			1300 ppb			
			17		(3-5') all concrete chunks + pwdr	
4			120 ppb			
			470 ppb			
5			130 ppb			
	5-10	3'4"	0		(5-6) same as (1-3)	
6			0			
			322 ppb		(6-7) mix of (1-3)/(5-6) + light brown to brown fine sandy compacted silts dark w/ some gravels	
7			0			
			70			
8			212			
			204		(7-10) all concrete - cored + pulverized.	
9			114			
			0			
10			71			

PID all over humid rain + steam in sleeves

SOIL BORING LOG

(2)

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-4
DATE: 10/3/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
	10-15	3'8"	50	ppb	(10-12) parking pulverized layer light reddish brown Drill fines w/ round cobbles	
11			0			
			36			
12			171			
			60			
13			64		(12-15) light orange brown coarse sands w/ layers light yellow + dark orange brown sands coarse damp - non silt - some rounded gravels	
			115			
14			85			
			28			
15			44	ppb		
	15-20	3'2"	0		Uniform sleeve light orange brown coarse sands - some layering (5-20) darker orange bands coarse sands - non silt damp loose pave some small pebbles	
16			17			
			84			
17			61			
			53			
18			44	12ppb		
			43			
19			0			
			8			
20			8			
	20-25	3'3"	6	ppb	20-23 - Compacted grey silts dense w/ plastic bags (?) (23-25) coating of sands from (15-20)	Fill from above (?)
21			64			
			0			
22			310			
			160			
23			0			
			16			
24			65			
			77			
25			31			

SOIL BORING LOG

(3)

Project No.: 8346.JANY **SOIL BORING No.:** P1513-4

Location: Hillside Ave Jamaica **DATE:** 10/3/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	3'2"	120		Uniform sleeve brown to orange brown coarse sands - non silt - damp - loose packing abundant round pebbles few layers of yellow off white coarse sands - black gravels BR & rare SS fragments	
12			120			
			138			
			58	ppb		
13			87			
			12			
14			0			
			0			
15			33			
			53	ppb		
16	30-35	3'7	111		Uniform sleeve: same as above slightly darker & dark grey silt nodules	Calibrated PID as in same
			133			
17			39			
			72			
18			15			
			86	ppb		
19			34			
			87			
20			53			
			50			
21	35-40	3'9	0		(35-36) no sands - round cobbles of BR assortment (36-37) light brown, light grey brown extremely compact & dense silts DRY thard (37-38) (38-40) brown to orange brown coarse sands - non silt - damp - loose packing abundant gravels	
			0			
22			11			
			4			
23			13			
			38	ppb		
24			20			
			34			
25			47			
			40			

↓ dense layer light brown silts - compacted

(4)

SOIL BORING LOG

Project No.: 8346-JAMY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-4
DATE: 10/3/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
41	40-45	3'8" GW	0		Uniform sleeve brown to light brown coarse sands - lots of coarse grains - wet @ 41' saturated 43" micas, Py/Pb, qtz sands large round stones	SAMPLE (40-42) Full wet @ 43.1
42			3			
43			30 ppb			
44			29			
45			41			
			166			
			42			
			23			
			17			
			7			
16	45-50	4'1"	0		Uniform sleeve lighter brown similar as above extra more gravels & pebbles little more silty 48+ abundant gravels & cobbles coarse sands slightly wet	
			10			
17			13			
			30			
18			43			
			94			
19			18			
			4			
20			25			
			7			
21	50-55				MW-4 installed 2" screen 60-40' screen 40' up riser well gravel to 38 bentonite to 35 (ev extra bags well gravel on top	
22						
23						
24						
25						

Soil samples
samples (1-2) (2-3) shallows (40-42) GW area

SOIL BORING LOG

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346 - JANY	**SOIL BORING No.:**	R15B-5
Location:	Hillside Ave	**DATE:**	9/30/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	cool breezy
Drilling Rig:	AARCO Sonic 8140LC		
Geologist:	TY	**Completed depth:**	50'SB 60'MW
Depth to Groundwater:	~46-47 (field observed table)	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	2'	0 ppb		dirt surface (0-5') mostly uniform dark brown to "black" compacted silty sands w/ fills mixed in - asphalts coal, bricks, concrete slags abundance of gravels "calcified" silts - dried + compacted from sonic -	Sample (0-1') Full + PFA Sample (1-2') Full + PFA
6	5-10	3'5"	0 ppb		(5-6) brown - olive brown compacted silty layer - fine sands - non dense (6-7) light orange brown coarse sands range of grain sizes non silt loose pack (7-8) dark orange brown silty sands layer - fines & mediums - compacted - non dense - fines damp (8-10) orange to light orange brown coarse to very coarse loose sands - abundance of gravels & pebbles (rounded)	

SOIL BORING LOG

(2)

Project No.: 8346 - JANY
Location: Hillside Ave
SOIL BORING No.: RISB-5
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	4'	0 0 11 ppb 0 ppb		Uniform sleeve brown to grey brown coarse to medium sands - some silts abundance of gravels, pebbles & cobbles - area of very fine dry sands (~12) & very silty chunks (~11) large cobbles abundant from 13-15'	
16	15-20	3'4"	0 ppb		(15-17) brown to grey brown coarse sands - slight silt - abundance of gravels & pebbles (angular) (17-18) very light pale yellow brown grey layer - very dry - lack of gravels (18-20) brown to orange brown coarse to very coarse sands loose pack - damp - non silt abundance gravels & cobbles	
21	20-25	2'	0 ppb		(20-22) brown to grey brown coarse dry sands with abundance of angular gravels (22-25) dark orange brown coarse sands - damp - moisture compaction abundance of very coarse rounded pebbles - orange sand grains blacks, reds, greens	

(3)

SOIL BORING LOG

Project No.: 8346 JAN
Location: Hillside Ave
SOIL BORING No.: B1513-5
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
25 26 27 28 29 30	25-30	3'4"	Opp's		(25-26) brown to grey brown medium to coarse sands small gravels, dry sands (26-30) light orange light orange brown - coarse sands some fines - acting as binding sands - qtz sands w/ grey silt nodules	fill
30 31 32 33 34 35	30-35	4'	Opp's		uniform sleeve brown, brownish grey brownish red very dry - coarse - medium sands - trace silts abundance of very large cobbles & rounded gravels greens & reds sandstone	fragments
35 36 37 38 39 40	35-40	1'2"	Opp's		very little recovery brown to light grey brown coarse & medium sands abundance of small & large gravels - mostly angular possible large boulder here	very little recovery Driller noted hard rock bucket sampler very hot

(4)

SOIL BORING LOG

Project No.: 8346-SAMY

Location: Hillside Ave Jamaica

SOIL BORING No.: MISB-5

DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
41	40-45	1'10" not after recovery	0ppb		Uniform sleeve brown to dark orange brown damp coarse sands closely resembles well graded gravel admixture of rounded pebbles range of grain colors reds, browns, greens glacial	(40-43) MS & MSD (SAMPLE 43-45) + duplicate Full + PFA
42						
43						
44						
45						
46	45-50	1'8" not after recovery	0ppb		layer large rounded cobbles! no sands - no matrix metamorphic / igneous cobbles	no sands all large BR/ cobbles
47						
48					saturated in sleeve @ 46/47 area	
49					orange grey brown coarse sands saturated - gravels & round pebbles	saturated
50					(47-50)	
51	50-55				GW table depth adjusted to max 45-50 area based on MW-6 GW level top indication ~43' 43-45 is deepest non saturated sample	
52						
53						
54						
55						

SAMPLES (0-1) shallow - Full
(1-2)
(40-43) MS + MSD (2 sets)
(43-45) GW table - Full + duplicate (2 sets)

6 sets of samples

9.30.22
8346-JANV

MW-5
2" Ø screen
60' TD
60 – 40 Screen (20' ft screen)
40' → 0 riser
well gravel to 35'
bentonite to 30'

(1)

SOIL BORING LOG

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346- JANY	**SOIL BORING No.:**	RISB-MW-6
Location:	Hillside Ave Jamaica	**DATE:**	9/29/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	sunny windy
Drilling Rig:	8140LC Sonic		
Geologist:	TY	**Completed depth:**	55'
Depth to Groundwater:	~52' ft (based on previous data)	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	2'7"	0ppb		(0-5) majority is asphalt / degraded asphalt fill - limited soil / sands volume - brown medium sands composition black chunks, asphaltic fill will sample what we can (TY)	SAMPLE (0-1) (1-2')
6	5-10	3'5"	0ppb		(5-8) orange course sands with small areas of off white qtz sands - very course moderately silty - (8-9) dark grey - damp layer composed silty medium sands (9-10) dark orange dark brown course to very course sands	

(2)

SOIL BORING LOG

Project No.: 8346-JAM
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-6
DATE: 9/25/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	4'	0 ppb		Uniform sleeve - brown & grey coarse / medium sands mix - mostly coarse abundance of gravels & rounded cobbles fragments of red SS (10-15)	
12						
13						
14						
15		small blips	184 ppb 280 ppb			
16	15-20	3'7"	1394 ppb 273 ppb 82 ppb 9		(15-20) another uniform sleeve brown to orange brown w/ grey hue - coarse sands with medium & large gravels, rounded cobbles damp Orange brown recv 20	SAMPLE (15-17) Full + PFA (PID)
17			0 ppb			
18						
19						
20						
21	20-25	3'.	50 ppb 79 225		(20-22) greyish brown medium sands w/ gravels - non silty - loose	
22			0 ppb		(22-25) orange to orange brown Sands - coarse to very coarse sands - non silty large gravel fragments damp.	
23						
24						
25						

(3)

SOIL BORING LOG

Project No.: 8346.5 ANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-6
DATE: 9/29/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	2'5"	0 ppb 23 25 0 0 4 24 0 154 0		uniform sleeve grey to orange grey brown non silty coarse sands w/ abundance of gravels & large fragments mostly rounded	NO SAMPLE
12						
13						
14						
15						
16	30-35	2'6"	0 ppb		(15-17) brown to orange brown coarse sands - non silty loose packing - abundance of gravels & cobbles (17-20) - grey - very fine to light grey powdery non silty very dry lots of crushed gravels	NO SAMPLE
17						
18						
19						
20						
36	35-40	2'2"	278 300 310 1070 415 2370 880 1438 1640 1388	ppb	(35-38) dark brown to orange brown coarse sands w/ gravels - non silty (38-40) grey to light grey medium - very very dry w/ gravels	Sample (37-38) Full + PFA sample (38-40) Full + PFA
37						
38						
39						
40						

(4)

SOIL BORING LOG

Project No.: 8346-SAN/
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-6
DATE: 9/29/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
41	40-45	41	0 ppb		(40-45) grey fine sands with coarse gravels NON silty - very dry very large angular chunks of rock fragments some brown siltier sands within	
46	45-50	4'7"	0 ppb		uniform - dark brown coarse sands — w/ silts between damp + wet not saturated range of grain colors blacks, reds, greens qtz rounded bags "damp"	
51	50-55	4'5"	0 ppb		uniform - orange coarse to very coarse sands w/ abundance of gravels rounded pebbles - range of grain colors reds, black, green "wet"	sample (50-52) full PFA

Samples (0-1) (1-2) Full + PFA shallow(s)

(15-17) PID
(37-38) PID

(38-40) PID
(50-52) GW table zone

9.29.22

MW-6

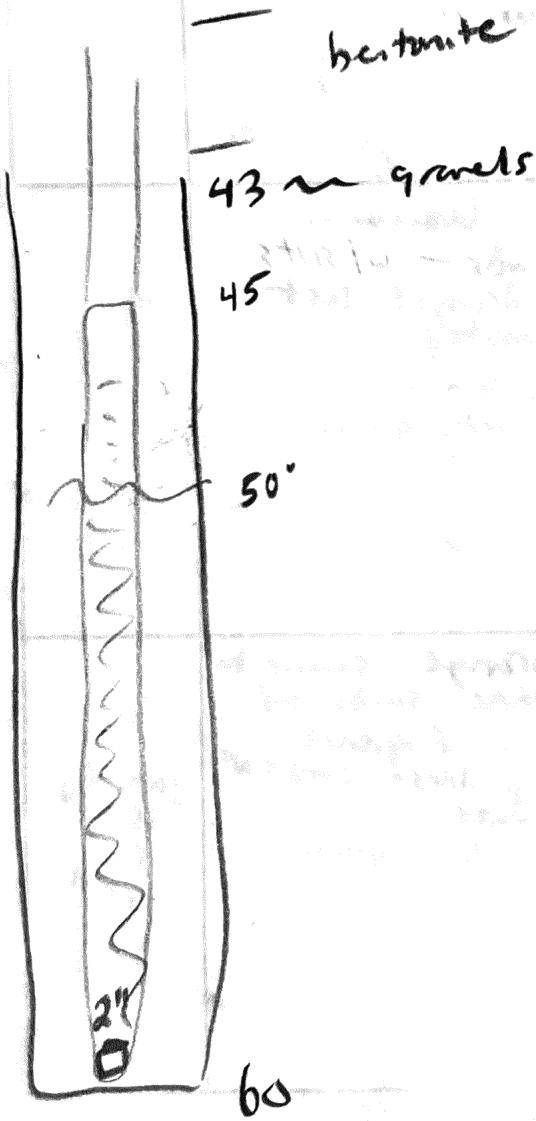
60' TD 2" Ø screen

60 - 45 screen

riser to +2 above surface

Check after install
22' - filled w/ water from sonic(?)

TY GW check @ AM 9/30/22
42.7'



* plastic sleeves very hot from SONIC

⊓ = sleeve length @ 5 ft

5 ft samplers

Page 1 of ___

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

100 Main Street, Port Washington, NY

Project No.:	8346-JAN1	**SOIL BORING No.:**	RISB-7
Location:	Hillside Ave Jamaica	**DATE:**	~~8/16/22~~ 10/3/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	Cool Sunny AM
Drilling Rig:	SONIC Geoprobe 8140LS		
Geologist:	TY	**Completed depth:**	
Depth to Groundwater:		**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
			390		(0-1) brown to olive brown - silty sands wet (from rain) silty, compact * hydraulic odor	*
1		Bag sleeve 4'	3200 ppb		large brown sands - medium size of large rocks - round	
			4800 ppb *			
2			319 ppb		(1-2) darkened area - hydraulic fluid odor - grey/black silty sands - compact - fines - possibly asphalt fills	Sample (0-1) 0810
	0-5	4'	64 ppb			
3			6 ppb			Sample (1-2) 0815
			0		@2' concrete slag layer	
4		4ft	0		(2-5) light brown to light orange brown compacted fine silty sands - olive brown silts dense - some rare pebbles	
			1			
5			0			
			16 ppb		(5-7) brown to light orange brown coarse sands - slight silt mostly loose - damp - coarse to very coarse small rounded gravels	
6			0			
			0			
7		3'11"	0			
			26 ppb		(7-8) reddish grey - powdery layer w/ gravels	No sample
8	5-10		13 ppb			
			10 ppb		(8-10) light olive brown - sandy silts - compact dense w/ orange to dark orange silts	
9		Bag Sleeve (0-1)	5 ppb			
			20			
10			35 ppb			

Stop Work @ 8 AM MTA 8/16/22

2nd attempt RISB-7 10/3/22

SOIL BORING LOG

(PID overly sensitive) (2)

Project No.: 8346-JANY

Location:

SOIL BORING No.: RISB-7

DATE: 8/16/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	4'3"	0		(10-12) brownish grey fine to medium sands - mod silt - damp w/ abundant angular gravels	
12			0			
13			10 ppb		(12-13) dark orange brown coarse sand - trace silts - medium to coarse w/ rounded pebbles - gradational -	
14			0		(13-15) light pale yellow brown damp layered course sands some large sands - some rounded gravels	
15			0			
16	15-20	4'	16		mostly uniform liner/sleeve brown to orange brown coarse sands - damp - moderate silts - slight reaction but mostly loose abundance of rounded pebbles & gravels red, green SS frags	
17			0			
18			20			
19			71 ppb			
20			20			
21	20-25	3'8"	18			
22			0			
23			0			
24			0			
25			6 ppb		(20-23) light pale brown grey course & medium sands some silts - damp - mostly loose abundant round & angular gravels - Gradational -	
			32			
			0			
			212			
			0			
			0		(23-25) dark orange brown medium sands - layers of dark brown coarse sands - mod silty coarse gravels & rounded gravels large cobbles	
			119			
			112			
			61			
			8			

SOIL BORING LOG

Project No.: 8346 JANY
Location: Hillside Ave Saginaw
SOIL BORING No.: RISB-7
DATE: 10/3/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
			0			
26			113 ppb		(25-26) dark orange brown coarse sands- damp- round pebbles	
			64			
27			42		(26-28) brown coarse sands some medium w/ olive silts & large angular gravels	
	25-30	4'4"	0			
28			41			
			141			
29			0		(28-30) light pale yellow to light orange brown coarse sands w/ some silt- loose- abundant round pebbles	
			53			
30			63 ppb			
			0		(30-31) dark brown to brown coarse sands- some medium w/ silt - some pebbles	
31			24			
			65			
32			47			
	30-35	4'8"	146	steam	(31-34) very very compacted & dense brown to olive silt layer - could be saturated w/ some large angular gravel	
33			0			
			29			
34			37			
			0		(34-35) brown to grey brown coarse	
35			0			
			0		sands- dry - ~30% gravels +	large cobbles
21		1	0			
			43		(35-36) - grey to grey brown dry coarse sands w/ medium some silt- abundant rounded & angular gravels	
22			81			
	35-40	4'4"	0		(36-39) brown to slight olive brown very compacted/cemented silts dry	
23		very hot steam sleeve	13			
			126 ppb			
24			223		(39-40) pale off white/grey powdery fine sands w/ some coarse browns - abundant angular gravels	
			0			
25			19			

Sleeves very hot - steamy - built up moisture - could be altering PID readings

(4)

SOIL BORING LOG

Project No.: 8346-SAMY

Location: Hillside Ave Jamaica

SOIL BORING No.: RISB-7

DATE: 10/3/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	40-45	1'5"	0		top half - orange to brown coarse sands hot & steamy - damp some silts - some smaller gravels	
12			40			
13		very little recovery steam	17			
14			0			
15			66			
16	45-50	3'8"	39		bottom half - purdey layer - grey - vy fine & very dry w/ large cobbles	dolomite non silt
17			88			
18			0			
19			63			
20			0			
21	50-55		0 ppb		(45-48) dark brown to dark orange brown coarse sands some silts - abundant small gravels - rounded pebbles damp	
22			12			
23			8			
24			44 ppb			
25			29			
			17			
			77 ppb		(48-50) grey brown - very dry fines - w/ cobbles & gravels DRY - non silt	nearest MW-5 41.78W
			0			
			0			
			9 ppb			
					END @ 50'	
					Based on GW table at nearest boring (38-40) sample - Full vy low recovery (40-45 area)	some may be evaporating GW table sample very hot

sample (0-1) (1-2) shallows (38-40) GW area

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Heavy rains + wind.

Project No.:	8346-JAMY	**SOIL BORING No.:**	RISB-8
Location:	Hillside Ave Jamaica	**DATE:**	10/4/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	cold RAIN
Drilling Rig:	GIHOLC Sonic		
Geologist:	TY	**Completed depth:**	50' SB
Depth to Groundwater:	closest MW-4 @ 47	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
			6800 ppb		Attempt 1 - no recovery (0-5)	
1			7.5 ppm		Attempt 2 - " " (0-5)	
			1800 ppb		SOLID CONCRETE	Steam in sleeve
2		1'3" very little recovery	233 ppb		(0-3) smallest amount of sands - reddish brown silts	
	0-5		781 ppb		* (slight gasoline odors)	SAMPLE (0-3) limited
3			6400 ppb		(3-5) some silts - reddish brown - compact - wet	
			470 ppb		abundant round gravels	(3-5) limited
4			0[illegible] ppb			
			632 ppb			
5			627 ppb			
			146 ppm		(5-7) brown to grey brown w/ grey silts - saturated * with odor	large metal sleeve tube (?)
6			350 ppm			
			498 ppm			Very hot + steaming sleeve
7		2'5"	320 ppm			
			35 ppm		Concrete 7-9	
8	5-10		10.7 ppm		Solid concrete pulverized concrete dust	
			8300 ppb			Heavy gasoline odor (?)
9			5100			
			900 ppb		9-10 - dark orange brown coarse sands - damp loose	
10			56 ppm			

sample (0-3) shallow
(3-5)
(5-7) > PID
(9-10)

SOIL BORING LOG

(2)

Project No.: 8346-JANY
Location: Hillside Ave.
SOIL BORING No.: RISB-8
DATE: 10/4/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
10	10-15	3'5"	196 ppm		(10-11) compacted clay/silts dark gry to brown very high odor	sample (10-12)
11			113 ppm			
			724 ppm			
12			12 ppm			
				2462 ppb	(11-15) Abrupt boundary light pale yellow brown coarse non silt sands loose - brown + dark oranges w/ pebbles	
13			5810 ppb			sample (12-15)
			800 ppb			
14			1630 ppb			
			687 ppb			
15				538 ppb		
	15-20	8'4"		ppb	Uniform sleeve orange to orange brown course & medium sands non silt- soft & loose packed layering of yellow brown darker orge sands abundant round Gravels & cobbles	Headspace PID very minor odors if any
16			969 ppm			
				371		
17				350		
				330		
18		3'10"		281 ppb		
			374			
19			320			
			270			
20			512 ppb			
	20-25	3'4"	72 ppm		Uniform sleeve - same as above	sample (20-22)
21			19 ppm			
			30 ppm			
22			25 ppm			
			9500 ppb			sample (22-25)
23			8155 ppb			
			8080 ppb			
24			16.5 ppm			
			16.38 ppb			
25			1914 ppb			

SOIL BORING LOG

(3)

Project No.: 8346-JAMY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-8
DATE: 10/4/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
			100 ppm		Uniform sleeve high odor	Sample 25-28 PID
10			65 ppm		same as above	
			33 ppm			
			28 ppm			
	25-30	4' 3"	27		dark brown to orange brown coarse sands	
13			560 ppb			
			616			Sample (28-30) PID
14			394		(14'-15') solid gray carbonated silts w/ rounded pebbles	
			821			
15			1838 ppb			
			106 ppm		Uniform sleeve (high odor) brown to olive brown coarse sands w/ gray silts - silts separate chunks - solvent odor abundant large gravels & fragments & cobbles	Sample 30-33 PID
16			45 ppm			
		ppm	30 ppm			
17			45 ppm			Sample (33-35) + MS & MSD PID
	30-35	3' 3"	63 ppm			
18			35 ppm			
			22 ppm			
19			19 ppm			
			3450			
20			20.3 ppm			
			521 ppb		(35-37') gray light gray sandy silts w/ abundant round pebbles	
21			200 ppb			
			1107 ppb			
22	35-40		116 ppb			Very minor odors
		4'	165 ppb			
23			208 ppb		(37-40) brown to light orange brown medium to coarse sands - near silty clumps of gray silts abundant round pebbles & cobbles	
			130 ppb			
24			120 ppb			
			180 ppb			
25			136 ppb			

SOIL BORING LOG

(4)

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-8
DATE: 10/4/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	40-45	2'	76 ppb 108 ppb 161 147 167 148 134 154 81 71 ppb		Uniform sleeve light orange brown to brown coarse sands colored grains - slight silt - bark @ half way in sleeve ~43 abundant rock pebbles	Sample (40-43) + duplicate wet ~44
16	45-50	2'1.6"	79 174 210 108 110 64 125 81 301 17	ppb	cobbles + no sands (45-49) 49-50 grey to green grey silty sands compacted & dense w/ large round cobbles	no sample
21	50-55				END 50' AARIO hole piping @ 50' GROUT TO -5'ft below surface will add hole plug 10/5 RISB-8 soils to drum	
25						

SOIL BORING LOG

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

100 Main Street, Port Washington, NY

Project No.:	8346-5ANY	**SOIL BORING No.:**	RISB-9
Location:	Hillside Ave Jamaica	**DATE:**	10/5/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	MISTY/A COOL
Drilling Rig:	4/40LC SONIC		
Geologist:	TY	**Completed depth:**	50'
Depth to Groundwater:	~43 (?)	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	3'6"	0 ppb		(0-4) silty loam like soft compacted silts light brown to brown fines w/ some rootlets small gravels angular some asphalt fill	sample (0-1) 1240 (1-2) 1250
2						
3						
4					(4-5) gradational to orange to light orange coarse sands w/ medium - some silts - slight compact some rounded gravels	
5						
6	5-10		0		Uniform sleeve light orange brown coarse sands - porous & loose packed orange & dark brown sands within NON SILT damp	NO sample NO odor
7						
8						
9			8			
10			12 0 ppb			

SOIL BORING LOG

(2)

Project No.: 8346 · JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-9
DATE: 10/5/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	3'3"	0ppb		Uniform sleeve light orange brown to brown coarse sands w/ medium sands - slight silt abundance of rounded & angular gravels few large cobbles	
12						
13						
14						
15						
16	15-20	2'4"	0	ppb	(15-17) brown to olive brown composite wet silts w/ orange coarse sands & round gravels	hot steaming sleeve
17			0			
18			105			
19			26			
20			0			
21			81		(17-20) light brown, brown slight orange tint - coarse sands w/ rounded gravels & few small cobbles some silt composition	
22			0			
23			0			
24			0			
25			0			
	20-25	3'8"	0ppb		Uniform sleeve light yellow pale brown - coarse sands - some medium slight silt composition few rounded gravels (20-23) abundant gravels (23-25) RCS SS Purple	

SOIL BORING LOG

(3)

Project No.: 8346-JANY

Location: Hillside Ave Jamaica

SOIL BORING No.: RPSB-4

DATE: 10/5/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	2'4"	0		Uniform sleeve Olive brown - grey brown wet (from sonic) pale grey silts - compact mostly medium sands w/ silt component good amount of sand pebbles & gravels	Steam in liner
12			0			
13			28 ppb			
14			0			
15			18			
16	30-35	2'10"	0		Uniform sleeve, brown to light brown some grey hue coarse sands, some mediums loose - dry non silt abundant small angular translucent pebbles	Steam in sleeve SAMPLE (33-35) 1350
17						
18						
19			30			
20			111 ppb			
21	35-40		34		NO recovery in sleeve Driller believes it slid out during trip out	
22						
23						
24						
25						

(4)

SOIL BORING LOG

Project No.: 8346-JAM
Location: Hillside Ave
SOIL BORING No.: RISB-9
DATE: 10/5/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11					No recovery in sleeve	
12	40-45					
13						
14						
15						
16	45-50	3'	Opp't		Full bag sleeve of large rounded cobbles some light pale grey silty mud matrix glacial deposits rounded cobbles	Attempted Sample (48-50) limited quantity 1340
17						
18						
19						
20						
21	50-55					
22						
23						
24						
25						

Sample (0-1) (1-2) shellaus

GW recov (33-35) + (48-50) due to missing sleeves

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346-J ANY	**SOIL BORING No.:**	RISB-10
Location:	Hills. & Ave Jamaica	**DATE:**	10/5/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	COLL RAIN
Drilling Rig:	8140 LC Sonic		
Geologist:	TY	**Completed depth:**	30
Depth to Groundwater:	~43-45	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	2'8"	0 ppb		(0-1') muddy top sands/ soil from surface @ site brown to brown grey very silty sands - tree roots organics rounded pebbles	no odors Samples (0-2) 0830 (1-2) 0840
2						
3					(1-3) Fill like layer - asphalts - bricks degraded asphalts coals mixed w/ dk brown sandy silts - abundant round pebbles	
4						
5					(3-5) brown to orange brown fine sands w/ silts - mostly fines, some mediums w/ grey silt chunks pretty compacted	
6	5-10	1" very very low recov	0 ppb		looks like backfill/cave in from surface silts (0-1)	NO sample
7						
8			30 ppb		S(10)	
9			16 ppb 0 ppb		Same - muddy brown to brown grey silty sands - roots organics	
10						

SOIL BORING LOG

(2)

Project No.: 8346-JANY
SOIL BORING No.: B193-10
Location: Hillside Ave Jamaica
DATE: 10/5/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	3'5"	0 ppm		Mostly uniform layer in grain size + gravels (10-12) reddish brown coarse sands w/ gravels - DRY non silt (12-13) dark brown coarse sands w/ large cobbles (13-15) brown to pale yellow grey brown damp coarse sands non silty w/ abundant gravels	hot + steaming layer NO odor or sample
16	15-20	3'	0 ppm		Same layering as above (15-16) dry orange red fines pulverized possibly w/ gravels DRY non silt (16-18) olive grey - green hue coarse sands NON SILT rounded gravels (18-20) brown to orange brown coarse sands - damp - non silt rounded gravels	hot + steaming sphere DRY DRY
21	20-25	3'4"	0 ppm		Uniform layering: (20-21) brown to olive brown coarse sands - non silt w/ gravels rounded DRY (21-22) brown coarse to medium sands - slight silt - damp - abundant small pebbles (22-23) olive grey - green hue - coarse sands non silt - dry w/ large grains (23-25) orange brown to light orange brown medium to coarse sands - some silts damp - compacted Dry moisture rounded gravels layers of dark orange red. sands	

SOIL BORING LOG

(3)

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-10
DATE: 10/9/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	2'7"	0		Uniform sleeve	
12			0			
13			29 ppb		brown to reddish brown coarse sands - DRY slight silt composition	steam in sleeve
14			0			
15			0			
16			0			
17			26	ppb	Some lighter brown & orange browns	
18			18	ppb		
19			30	ppb	abundant gravels	
20			67	ppb	few cobbles	
21	30-35	1'8" low recovery	0		little recovery	
22			0		Uniform sleeve	
23			5		wet (probably from sonic)	steam in sleeve
24			34	ppb	light yellow brown to brown	
25			9		coarse sand - moisture	
			0		composition - some silts	
			0		w/ gravels range of	
			55		grain colors reds, greens	
			255	ppb		
			176	ppb		
	35-40	3'6"	0	ppb	(35-36) muddy grey silts	
					composited w/ red sands	
					& rounded pebbles / gravels	
					wet	
					(36-40) - Uniform brown &	
					orange brown - coarse	
					sands - damp - composited	
					in areas (probably from sonic heat)	
					abundants of gravels	
					angular/broken & round	

red SS & slates -

SOIL BORING LOG

(4)

Project No.: 8346-JANY
Location: Hillside Ave
SOIL BORING No.: RISB-10
DATE: 10/4/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	40-45	3'3"	0 ppb		Uniform sleeve brown to "purple" brown reddish hue coarse sands mostly wet - coarse to very coarse - wide assortment of coarse grain sized + colors - reds, browns, purple qtz - black large rounded cobbles..	wet SAMPLE (40-43) Full GW ~43'
16	45-50	2'2"	0 ppb		Same as above more silt component wet brown to reddish brown coarse sands w/ tons of gravels + cobbles	
21	50-55				END @ 50' No MW	

Sample (0-1) shallow (40-43) GW area
(1-2)

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346-JANY	**SOIL BORING No.:**	RISB-11
Location:	Hillside Ave Jamaica	**DATE:**	9/30/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	cool sunny
Drilling Rig:	8140 LC SONIC		breezy
Geologist:	TY	**Completed depth:**	
Depth to Groundwater:		**Drilling Company:**	
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	3'7"	0ppb		dirt surface (ON 2ft hill/mound) (0-2') loosely packed top sands from site - light to light brown medium to coarse w/ gravels + fills - some silts - slight carpet	excavated from a mound not true top (0-2)
2						
3					(2-5') brown to dark brown - compacted silty sands - compacted w/ fill asphalt, brick, coals glass - "black" compacted silts weathered	(2-3) (3-4) is true (0-1) (1-2) Full + PFA
4						
5						
6	5-10	3'8"	0ppb		(5-7') light orange to light yellow orange coarse + medium sands little silt, slight carpet some gravels - damp	
7						
8					(7-8') pale light brown - dry - loose packed coarse sands w/ abundant gravels	
9					(8-10') brown to orange brown coarse + medium sands slight silt - gravels + rounded pebbles	
10						

SOIL BORING LOG

(2)

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-11
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	2'3"	0 ppb		(10-11) grey green grey purdey fine sands - possibly pulverized Rem sample - dry (11-12) olive grey - grey brown clay like silt layer - organic tree roots (12-15) brown to orange brown coarse sands mixed with medium - slight silt abundant small rounded pebbles	
16	15-20	4	0 ppb		Uniform sleeve browns mostly some grey brown mixed w/ orange brown mostly coarse sands with some silts Abundant rounded gravels damp	
21	20-25	1'9" little recovery	0 ppb		uniform sleeve - little recovery - same as above sleeve continuation of above damp	

SOIL BORING LOG

(3)

Project No.: 8346-JANY
Location: Hillside Ave
SOIL BORING No.: P153-11
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
26 27 28 29 30	25-30	3'3"	0 ppb ↓		(26-24) continuation of above chundant gravels angular & round (24-30) dark brown to dark orange brown - coarse sands slight silt - damp - loose pluck - very coarse gravels	
31 32 33 34 35	30-35	2'11"	0 ppb ↓ 47 ppb 41 ppb 0 ppb ↓		Uniform sleeve - continuation at 29-30 → 35' dark brown to dark orange brown - damp coarse sands w/ very coarse gravels	Very hot + steaming sleeve
36 37 38 39 40	35-40				NO SLEEVE - NO RECOVERY Cobble layer as seen on last two borings	

SOIL BORING LOG

(41)

Project No.: 8346 · JANI
Location: Hillside Ave

SOIL BORING No.: RISB-11
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
41	40-45	2'10"	0 ppm		(41-42) cobbles - wet w/ Mud - pale gray wet mud	GW?
42					(42-45) grey medium silty sands - very compacted w/ abundance of rounded pebbles + cobbles	
43						
44						
45						
46	45-50	2'	0 ppm		uniform sleeve (45-50) DRY DRY light grey to grey brown coarse sands - dry - non silty high amounts of crushed gravels & round cobbles	SAMPLE (48-50) FULL PFA
47						
48						
49						
50						
21	50-55					
22						
23						
24						
25						

Sample (2-3) (3-4) shallows

(48-50) GW zone (based on GW table of closest MW's)

SOIL BORING LOG

(1)

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

100 Main Street, Port Washington, NY

Project No.:	8346-JAMY	**SOIL BORING No.:**	RISB-12
Location:	Hillside Ave Jamaica	**DATE:**	9/29/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	sunny breezy full
Drilling Rig:	Geoprobe 8140LC		
Geologist:	TY	**Completed depth:**	55'
Depth to Groundwater:	~52' ft (based on previous data)	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	2'ft	0 ppb		(0-1) fill like materials mixed w/ dark brown to brown sands silty sands - coarse & medium coals, asphalts(?) bricks to organics (some wood & roots)	extremely low recovery (0-5) move spot & try again (TY)
2					(1-5) brown to light orange brown coarse to medium sands - trace silts - abundance of rounded gravels & fragments - red/purple SS fragment -	Sample (0-1) (1-2) → VOC's + 8021 → VOC's 8021 PFA
3						
4						
5						
6	5-10	3'5"	0 ppb		(5-7) - orange to orange brown coarse sands - w/ gravels & pebbles - damp - slight silt	
7					(7-8) light pale brown fine sands very fine to fine - cemented orange brown silt nodules	NO SAMPLE
8						
9					(8-10) orange sands - mostly medium w/ courses - abundant rounded gravels & pebbles	
10						

SOIL BORING LOG

(2)

Project No.: 8346-JAN

Location: Hillside Ave Jamaica

SOIL BORING No.: RISB-12

DATE: 9/29/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	3'9"	0ppm		(10-15) alternating bands/layers: (10-11) - brown - grey brown coarse sand + gravels (11-12) orange coarse sand w/ gravels (12-13) light light yellow brown medium silty sands w/ gravels (damp) (13-15) brown coarse sands abundant pebbles/gravels very coarse to coarse - dry	abundant large cobbles cryulez + sand gravels
16	15-20	3'	0ppm		similar to above: (16-17) brown to grey brown medium + coarse sands - angular gravels (17-18) grey brown coarse sands w/ red SS brass (18-19) yellow brown coarse sands - abundant gravels - large (18-20) dark brown medium coarse sands	NO SAMPLE
21	20-25	2'3"	0ppm		(20-25) uniform liner of brown to grey brown coarse sands - some medium sand silts - some large cobbles + gravels - very dry	NO SAMPLE

SOIL BORING LOG

(3)

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RBD-12
DATE: 9/29/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
26	25-30	2'8"	0 ppb		Uniform sleeve Orange to orange brown coarse & medium sands - dry - non silty loose packing large red SS fragment @ 27ish & red SS sands large rounded cobbles	
30						
31	30-35	3'6"	0		Uniform sleeve dark brown - non silty coarse & medium sands dry - abundance of angular & rounded gravels - very very dry & non silty loose packing large cobbles	SAMPLE (31-33) Full + PFA SAMPLE (33-35) Full + PFA
32			74 ppb			
33			542 ppb			
34			522 ppb			
35			447 ppb			
36			510			
37			1080 ppb			
38			167 ppb			
39			95 ppb			
40	35-40	3'9"	0 ppb		large amounts of large rounded cobbles Uniform mostly - light light pale brown fine sands between the large amounts of cobbles & gravels - some grey sands areas - very very dry non silty loose packing	

SOIL BORING LOG

(4)

Project No.: 8346-SAMP
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-12
DATE: 9/29/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
41	40-45	2'5"	0 ppb		(40 - 43/44) dark brown coarse sands - trace silts - dry clumps of compact in spots mostly loose coarse sands abundance of large rounded gravels & cobbles	
42						
43						
44			87		(43/44 - 45) Abrupt boundary to very very fine light grey "Sands" (powder) also w/ large rounded gravels	
45			71			
			60 ppb			
46	45-50	2'	0 ppb		(45-50) heterogeneous mix of types - greys / browns reddish brown sands - mostly coarse dry dry - brown sands slight silts (mostly loose packing) more angular & rounded cobbles & gravels throughout	
47						
48						
49						
50						
51	50-55	4'2"	0 ppb		wet but not saturated Abrupt boundary @ 50' to very coarse to coarse orange sands non silty - wet - range of sand grain colors - reds, browns, greens micas, pyrs, qtz	SAMPLE (50-52) Full + PFA
52						
53						
54						
55						

SAMPLES (0-1) VOC kit + 8 shallows
(1-2) VOC kit + 8 + PFA
(31-33) Full + PFA
(33-35) " " PID
(50-52) Full + PFA
GW table

(1)

SOIL BORING LOG

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346-JANY	**SOIL BORING No.:**	R15B-13
Location:	Hillside Ave Jamaica	**DATE:**	9/30/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	cool breezy Full
Drilling Rig:	8140LC		
Geologist:	TY	**Completed depth:**	
Depth to Groundwater:		**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	3'9"	0 ppb		(0-2) brown top soils- medium silty- tree roots, grass organic silts w/ some fill. compact	(top soil) SAMPLE (0-1) Full + PFA
2					(2-3) - mostly compacted fill dark brown to "black" compacted silts w/ fill - bricks, ceramics asphalt	(Fill) SAMPLE (0-2) Full + PFA
3					(3-5') orange to orange brown silty sands - compact & dense - mostly medium w/ fines compacted with silts	(native)
4						
5			↓			
6	5-10	2'11"	61 ppb		Uniform sleeve	
			18			
			155		(5-10) brown to light brown to very light brown Course medium sands non silt - loose pack Abundance of round & angular gravel	Steaming hot Sands in Sleeve
7			21 ppb			
			0			
8			7			
			19 ppb			
9			0			
			0			
10			0		Sands were very hot & steaming	

SOIL BORING LOG

(2)

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: R153-13
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	3'7"	0ppm		Uniform sleeve light grey to light grey brown - fine to medium sands - to very fine - loose powdery & possibly pulverized (?) Few brown & grey & few course gravels - some rounded Non silty	
16	15-20	1'8" small sleeve & recovery	0ppm		little recovery same as above very fine to fine Non silt sands powdery & dry dry few large cobbles some small gravels	
21	20-25	2'4"	0ppm		(20-23) same as above (23-25) Abrupt boundary to dark brown to orange brown coarse sands - non silty - loose packing abundant sand gravels	

glacial coarse
grain colors reds, greens, blacks

SOIL BORING LOG

(3)

Project No.: 8346 - JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-13
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
26	25-30	3'8"	0 ppb		(Uniform sleeve - continue from above brown to orange brown - coarse sands - mostly coarse but mixed very coarse & mediums - non silt - loose packing - damp - small ranges gravels amount within	
27						
28						
29						
30						
31	30-35	3'4"	0 ppb		31-33 33-35 transitional to grey grey brown medium sands some silty lenses high amount of course gravels / rock dry sands - yellow brown	
32						
33						
34						
35						
36	35-40	2'5"	0 ppb		(35-37) - green grey fine & medium sands - dry dry & loose high amounts of gravels very hot	super hot & steaming sleeve
37						
38			20 ppb		(37-40) reddish grey fine powdery sands w/ brown course sands - good amounts of angular gravels non silty very hot	
39			0 ppb			
40						

SOIL BORING LOG

(4)

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-13
DATE: 9/30/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
41	40-45	2'7"	0 ppb		(40-42) all rounded cobbles no sands matrix	
42					(42-43) gray green grey fine saturated muds silty + Carpet	
43					(43-45) orange to orange brown coarse to very coarse sands	
44					PAH mics non silty loose pack some runnels gravels	
45						
46	45-50	1'6" very little recovery	0 ppb		(45-50) grey - green grey with brown - coarse sands "wet" non silty - abundance of small rounded pebbles grains are wet in appearance but not saturated	Sample (48-50) Full + PFA
47						
48						
49						
50						
21	50-55					
22						
23						
24						
25						

SAMPLES (0-1) shrimps Full + PFA
(1-2)
(48-50) Full + PFA
GW table area

(1)

SOIL BORING LOG

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

100 Main Street, Port Washington, NY

Project No.:	8346-SANY	**SOIL BORING No.:**	RISB-14
Location:	Hillside Ave Jamaica	**DATE:**	10/7/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	cool sunny fall
Drilling Rig:	SONIC 8140LC		
Geologist:	TY	**Completed depth:**	50
Depth to Groundwater:	~43/42	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
			15		(0-1) brown to Olive brown silty mix w/ blackened areas (mostly asphalt depicted)	Sample (0-1) TPA
1			27			
			7			
2		2'6"	16	ppb	computed brown silty layers	(1-2) PPA ? blackened areas
			11		admixed course sands	
3	0-5		0		(1-5) Abrupt boundary Ceramic fill orange to orange brown fine to medium sandy silts. silt olive gray	
			10			
4			11		computed - orange sandy	
			15		loose w/ gravels / pebbles	
5			0			
			0 ppb		(5-7) computed very fine silts pale grey brown - fine to very fine - non plastic w/ light orange brown silt layering	no sample no odor
6						
7					Abrupt boundary	
	5-10	2'2"				
8					(7-10) orange to orange brown medium to coarse sands non silt - loose packed few gravels	
9						
10			↓			

SOIL BORING LOG

(2)

Project No.: 8346-JANY

Location: Hillside Ave Jamaica

SOIL BORING No.: B153-MW

DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	2'5"	0		(10-11) dark brown to grey brown dark - wet (fine sand (?) compact but soft sandy silts - grey green silt nodules orange silt layering dark dark grey silts	
12			10			
13			0			
14			11			
15			3			
			53	ppb		
			0			
			0		(11-15) -Abrupt- brown - dense brown, slight orange course sands- some medium non silt abundance of gravels	
			0			
			0			
16	15-20	2'8"	0 ppb		Uniform sleeve course dark brown to brown, orange hue DRY porous course sands non silt - loose packing abundant rounded cobbles + gravels	
17						
18						
19						
20						
	20-25	2'4"	81		(20-21) dark grey brown cylinder of fine compacted wet silts (could be from sand or rock) dark grey silts w/ brown sandy layer (21-25) -Abrupt- (compact + dense light pale brown course sands- non silty - loose packing abundant very course gravels + rounded pebbles small cobbles	Steam in Sleeve
21			18			
			0	ppb		
22			11			
23			7			
24			11			
25			33			
			53			
			67			
			11			

SOIL BORING LOG

(3)

Project No.: 8346 · JAN1

Location: Hillside Ave Jamaica

SOIL BORING No.: RISB-14

DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	25-30	3'2"	0		uniform sleeve pale brown to yellow grey brown - damp - moisture compaction - course sands some medium - loosely compacted very gravels + pebbles range of grain sizes (dark) blacks + browns	
12			3			
13			5			
			0			
			11	ppb		
14			0			
			8			
15			0			
			0			
16	30-35	1'10"	0		Uniform sleeve - low recovery compacted silty sands dark brown - dark orange brown DRY dense compact (from sonic heat?) dark olive grey silts w/ large rounded gravels	steam
			142	ppb		
17			14			
			52			
18			0			
			0			
19			17			
			19			
20			11			
21	35-40	1'8"	0 ppb		Uniform sleeve - low recovery pale grey - to brown course to very course looks like pulverized ground up rock fragments no silty - dry - abundance of crushed angular gravels	steam in sleeve
			↓			
22			23			
			41			
23			0			
			11			
24			101	ppb		
			0			
25						

SOIL BORING LOG

(4)

Project No.: 8346-JANY
Location: Hillside Ave
SOIL BORING No.: RISB-14
DATE: 10/7/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	40-45	2'10"	0 6 28 40 51 14 4 13 17 18		Uniform sleeve Dark brown - dark orange brown - course to very course sandy gravels + pebbles - non silty damp to wet - loose packing abundant round pebbles	SAMPLE (40-42) FULL PFA 42 (7) wet
16 17 18 19 20	45-50	3'9"	0 ppb		Continuation of above Same as above progressively more course toward 50'	
21 22 23 24 25	50-55				END SB@ 50'	

Samples (0-1) (1-2) shallows (40-42) GW area

plastic sleeves -5ft lengths 6" diameter sleeves

(2)

SOIL BORING LOG

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
100 Main Street, Port Washington, NY

Project No.:	8346-JANY	**SOIL BORING No.:**	RISB-15
Location:	Hillside Ave Jamaica	**DATE:**	9/29/22
Drilling Method:	Direct Push driling technology	**WEATHER:**	cool Fall breezy
Drilling Rig:	8140LC Geoprobe sonic		
Geologist:	TY	**Completed depth:**	55'
Depth to Groundwater:	~52' ft (based on previous data)	**Drilling Company:**	AARCO
		Driller:	

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
1	0-5	little recovery 1'8"	0ppb		Sand/gravel surface (0-2) brown to dark orange brown coarse, medium sands- abundant gravels, tree roots, trace silts asphalts & rocks - trace fill	very slow sonic drilling
2						
3					(2-5) large cored out boulder pieces w/ sands described above brown to dark orange brown coarse sands w/ gravel trace fill NOT ALOT OF SOIL VOLUME IN SLEEVE	Driller- large boulder
4						
5						
6	5-10	3'8"	0ppb		(5-6) large cored out BR boulders Multi-color of grey/light grey coarse sands - wet from sonic	very slow sonic drilling
7					(6-10) natives (?) orange to dark orange brown coarse to v coarse sands - dry - abundant rounded gravels - big + small pebbles + stones (rounded) Fragments of BR within	
8						
9						
10						

SAMPLES
(0-1) VOC + 8

(1-2) VOC list 8 + PFA
Very limited volume

NO SAMPLE

- sample depths are estimates - sands pushed out of samplers into sleeve (6")
5' ft intervals

TY

(2)

SOIL BORING LOG

Project No.: 8346-JANY
Location: Hillside Ave Jamaica
SOIL BORING No.: B15B-15
DATE: 9/26/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
11	10-15	4'	0 ppb		(10-12) wet from sonic grey to pale grey fines & medium wet - silty - small gravels rounded abundant large rock fragments both angular & round cut from sonic	NO SAMPLES
12						
13					(12-15) transition to dry orange sands mostly coarse abundance of rounded pebbles & cobbles pale orange grey sands coarse non silty	lots of rounded stones
14						
15						
16	15-20	3'5"	0 ppb		(15-16) wet from sonic - grey to pale grey fines & medium sands - silty sands w/ large BR brass & gravels	
17					(16-20) brown to orange brown coarse to medium sands - non silty - loose dry - abundant of round pebbles & cobbles	lots of rounded stones
18						
19						
20						
21	20-25	3'	0 ppb 0 ppb		(20-22) orange brown to orange medium to coarse sands slightly silty (compared to above) much less gravels	
22						
23			2 ppb		(22-25) dark grey silty area w/ dark dark grey bands organics - very earthy odor lots in layer rounded pebbles	NO SAMPLES
24			45 ppb 87 ppb 11 ppb			
25			17 ppb			

(3)

SOIL BORING LOG

Project No.: 8346-JAN
Location: Hillside Ave Jamaica
SOIL BORING No.: RISB-15
DATE: 9/24/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
25 26 27 28 29 30	25-30	3'5"	0ppb		(25-30) uniform sleeve orange - orange brown coarse sands - + medium (sand) slightly silty - abundance of round pebbles + gravels medium sized (~2")	NO SAMPLES
30 31 32 33 34 35	30-35	2'9"	0ppb		(30-31) greyish fine silts - wet from sample - pulverized BZ bags - muddy (31-35) large majority fine gravels + pebbles - w/ light pale grey fine sands matrix very very dry - 75% rocks 25% sands	
35 36 37 38 39 40	35-40	2'8" very hot sleeve	0ppb		(35-40) very very light gray fine to medium sands - very very dry dusty dry - very very fine w/ large rock fragments/cobbles red SS fragments abundance of rounded pebbles rounded cobbles	

(4)

SOIL BORING LOG

Project No.: 8346-JANY
SOIL BORING No.: RISB-15
Location: Hillside Ave Jamaica
DATE: 9/26/22

Depth (ft. bgs)	Depth (ft)	Recovery (ft)	PID (ppm)	USCS Symbol	Description	Environmental Description
41	40-45	2'	0		(40-44) brown to dark brown medium to course sands - damp moderately silty - rounded pebbles & cobbles	
42			0 ppb			
43			0			
44			98 ppb		(44-45) super super fine & dry pale grey - greyish white sands very very dry w/ rounded gravels bottom - very loose	SAMPLE (44-45) Full
45			138 ppb			
46	45-50	3'	402 ppb		(45-46)	@45' Driller note "very soft"
47			0 ppb		(46-50) brown to slight orange brown course sands, medium sand silty clumps mostly course sands - sme rounded pebbles mostly dry until 48' - damp	
48					~48 - damp	
49						SAMPLE (50-52) Full
50						
51	50-55	4'	0 ppb	Assumed GW table	damp - not saturated (50-55) - coarse to very coarse orange to orange brown sands - no silts at all very loose - small gravels glacial deposits - range of grain colors red, green, brown, blacks, whites closely resembles well graded in size micas pyrs qtz	@50 - stop check GW w/ meter caved in to 44' NO GW indicate (continue will base off 52' data
52						
53						
54						
55						

SAMPLES (TY)
(0-1) limited VOC's + 8 shallow(s)
(1-2) VOC + 8 + PFA
(44-45) Full + PFA PID
(50-52) Full + PFA GW

8346-JANY
Hillside Ave

11/2/22
~11 AM

Test Pit Sample

TP depth ~6' sample +1'Ft in (0-1)
6-7 in TP

Full analysis + DFA / 1.4 Dioxane
+
Equip Blank

Bucket Auger

PID in sampled soil: 30.40ppm

PID in open TP: 0ppb

blackened
Steen
wet
gasoline + sewer odor

(+1'Ft below is either metal or boulder or cobble)

~~BSMA~~

SB-16 (6-7) sample

Note on FCOC - petroleum fingerprint

Scale: 1 square = _____

APPENDIX D

Excavation Work Plan

Excavation Work Plan

Site No.: C241199

148-26 a/k/a 148-18 Hillside Avenue
Queens, New York

H2M Project No.: TTCI2401

Prepared for:

Hillside 168 Inc.
148-18 Hillside Avenue
Queens, New York

and

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12207

Prepared by:

H2M architects + engineers
290 Broad Hollow Road, Suite 400E
Melville, New York 11747

H 2 M architects + engineers

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EXCAVATION WORK PLAN
148-26 a/k/a 148-18 Hillside Avenue
Queens, NY

A-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination or breach or alter the site's cover system, the site owner or their representative will notify the NYSDEC contacts listed in the table below. The table includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information.

Name	**Contact Information**
Rafi Alam, NYSDEC Project Manager	(518) 402-8606 rafi.alam@dec.ny.gov
Lisa Gorton, NYSDEC Project Manager's Supervisor	(518)-402-9574 lisa.gorton@dec.ny.gov
Jim Sullivan, NYSDOH Project Manager	(518)-402-5584 Jim.sullivan@health.ny.gov
Jason Cooper, H2M QEP/PG	Jcooper@h2m.com
Kevin Taylor, PE, Remedial Engineer	KTaylor@h2m.com

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, any modifications of truck routes, 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, and submittals (e.g., reports) to the NYSDEC documenting the completed intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP, 29 CFR 1910.120 and 29 CFR 1926 Subpart P;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in this SMP;

- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP. The alteration, restoration and modification of engineering controls must conform with Article 145 Section 7209 of the Education Law regarding the application professional seals and alterations

A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed during all excavations into known or potentially contaminated material (remaining contamination) or a breach of the cover system. A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will perform the screening. 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 Sections A-6 and A-7 of this Appendix.

A-3 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

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.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State 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. A site utility stakeout will be completed for all utilities prior to any ground intrusive activities at 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). Trucks transporting contaminated soil must have either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides.

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. Material accumulated from the street cleaning and egress cleaning activities will be disposed off-site at a permitted landfill facility in accordance with all applicable local, State, and Federal regulations.

A-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.

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Exact truck transport routes were determined after disposal facilities were selected. Truck routes for Clean Earth of Carteret, Clean Earth of North Jersey, and the Clean Soil Bank location are attached to this report. All trucks loaded with Site materials will exit the vicinity of the Site using only approved truck routes. These are 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 stoping 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 to the extent possible in order to minimize off-site disturbance. Off-site queuing will be prohibited.

A-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 off-site in a permitted facility in accordance with all local, State 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 project manager. Unregulated off-site management of materials from this site will not occur without formal NYSDEC project manager approval.

Off-site disposal locations for excavated soils will be identified in the preexcavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, (e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility). Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include, but will not be limited to: 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 consistent with 6 NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6 NYCRR Subpart 360-15 registered or permitted facility).

A-7 MATERIALS REUSE ON-SITE

The qualified environmental professional, as defined in 6 NYCRR Part 375, will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material (i.e. contaminated) 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 the cover system or within landscaping berms. Contaminated on-site material may only be used beneath the site cover as backfill for subsurface utility lines with prior approval from the DEC project manager.

Proposed materials for reuse on-site must be sampled for full suite analytical parameters including per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet the site use criteria presented in NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for all constituents listed, and the NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (November 2022) guidance values. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil/fill material for reuse on-site will be segregated and staged as described in Sections A-2 and A-3 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC project manager. Stockpile locations will be based on the location of site excavation activities and proximity to nearby site features. Material reuse on-site will comply with requirements of NYSDEC

DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager.

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.

A-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 off-site at a permitted facility 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.

A-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 Record of Decision. The existing cover system is comprised of a minimum of asphalt pavement, and concrete building slab. The demarcation layer, consisting of orange snow fencing material, will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. 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. The alteration, restoration and modification of engineering controls must conform with Article 145 Section 7209 of the Education Law regarding the application professional seals and alterations.

A-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional, as defined in 6 NYCRR Part 375, 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, 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 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for commercial use. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 375-6.8b of 6 NYCRR. Soils that meet 'general' fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC project manager. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. 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.

A-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a 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 NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

A-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. The NYSDEC project manager will be promptly notified of the discovery.

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 semivolatiles (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone within two hours 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.

A-13 COMMUNITY AIR MONITORING PLAN

A figure showing the location of air sampling stations based on generally prevailing wind conditions will be developed. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

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

A-13A: SPECIAL REQUIREMENTS FOR WORK WITHIN 20 FEET OF POTENTIALLY EXPOSED INDIVIDUALS OR STRUCTURES

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 part-per-million, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 micrograms per cubic meter, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 micrograms per cubic meter or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

A-13B: SPECIAL REQUIREMENTS FOR INDOOR WORK WITH CO-LOCATED RESIDENCES OR FACILITIES

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under “Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures” except that in this instance “nearby/occupied structures” would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering

controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

A-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors offsite and on-site. Specific odor control methods to be used on a routine basis will include the use of a PID meter to screen for VOCs, and olfactory observations by Field Technicians. 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.

A-15 DUST CONTROL PLAN

Particulate monitoring must be conducted according to the Community Air Monitoring Plan (CAMP) provided in Section A-13. If particulate levels at the site exceed the thresholds listed in the CAMP or if airborne dust is observed on the site or leaving the site, the dust suppression techniques listed below will be employed. The remedial party will also take measures listed below to prevent dust production on the site.

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 using 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.

A-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.

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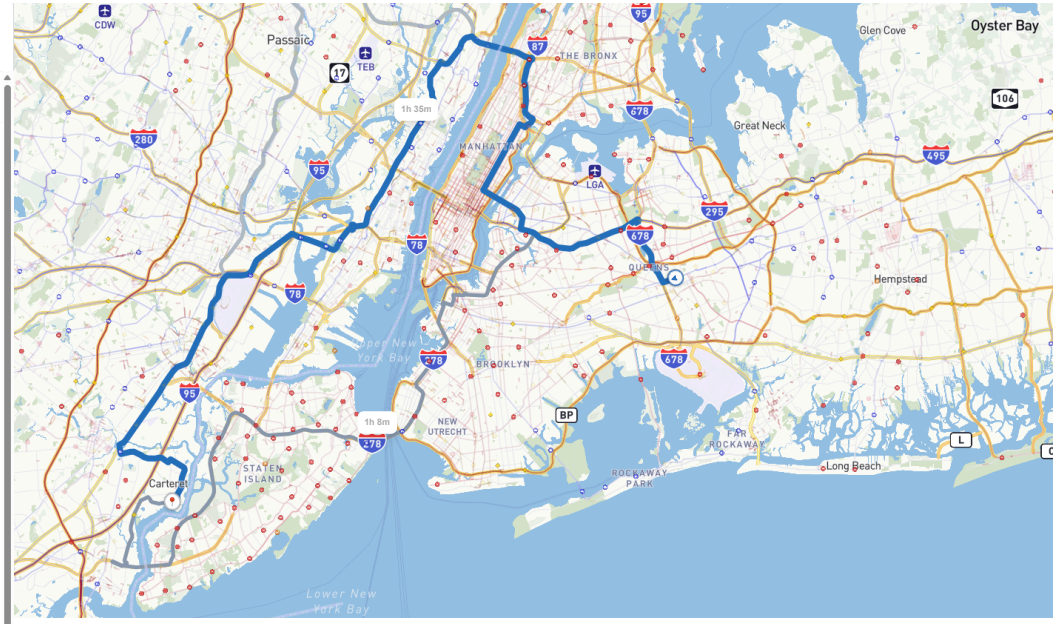
Directions
148-18 Hillside Ave Jamaica NY 11435
24 Middlesex Ave Carteret NJ 07008

1 hr 35 min (54 mi)
via US 1, US 1 EXPR

148-18 Hillside Ave
148-18 Hillside Ave, Jamaica, NY 11435

- Turn right on 138th Street — 50 ft
- Keep left on I 678 North — 50 ft
- Exit 12B — 150 ft
- Exit 15 — 0.1 mi
- Turn right on Van Dam Street — 0.1 mi
- Turn left on NY 25 — 0.1 mi
- Keep right on East 60th Street — 0.1 mi
- Turn right on 3rd Avenue — 0.1 mi
- Turn right on East 125th Street — 0.1 mi
- Turn left on Willis Avenue Bridge — 0.1 mi
- Take ramp left onto I 87 North — 0.1 mi
- Exit 7N-S — 0.2 mi
- Exit 7S — 0.2 mi
- Keep left on I 95; US 1 — 0.2 mi
- Exit 72B — 0.2 mi
- Keep right on US 1; US 9 — 0.2 mi
- Turn left on US 1; US 9 — 0.2 mi
- Keep left on Tonnelle Avenue/US 1 and 9 Southbound — 0.2 mi
- Keep right on US 1 Truck; US 9 Truck — 0.3 mi
- Keep right on US 1 Truck; US 9 Truck — 0.3 mi
- Exit right on US 1 Truck; US 9 Truck — 0.3 mi
- Take ramp right onto US 1; US 9 — 0.3 mi
- Keep left on US 1; US 9 — 0.3 mi
- Exit left on US 1 EXPR; US 9 EXPR — 0.3 mi
- Exit right on US 1 EXPR; US 9 EXPR — 0.4 mi
- Continue — 0.4 mi
- Turn left on CR 514 — 0.4 mi
- Turn left on CR 602 — 0.4 mi
- Turn left on Industrial Highway; Peter J. Sica Memorial Industrial Highway — 0.4 mi
- Turn right on Industrial Highway; Peter J. Sica Memorial Industrial Highway — 0.4 mi
- Arrive at 24 Middlesex Ave — 0.4 mi

Clean Earth
24 Middlesex Ave, Carteret, NJ 07008



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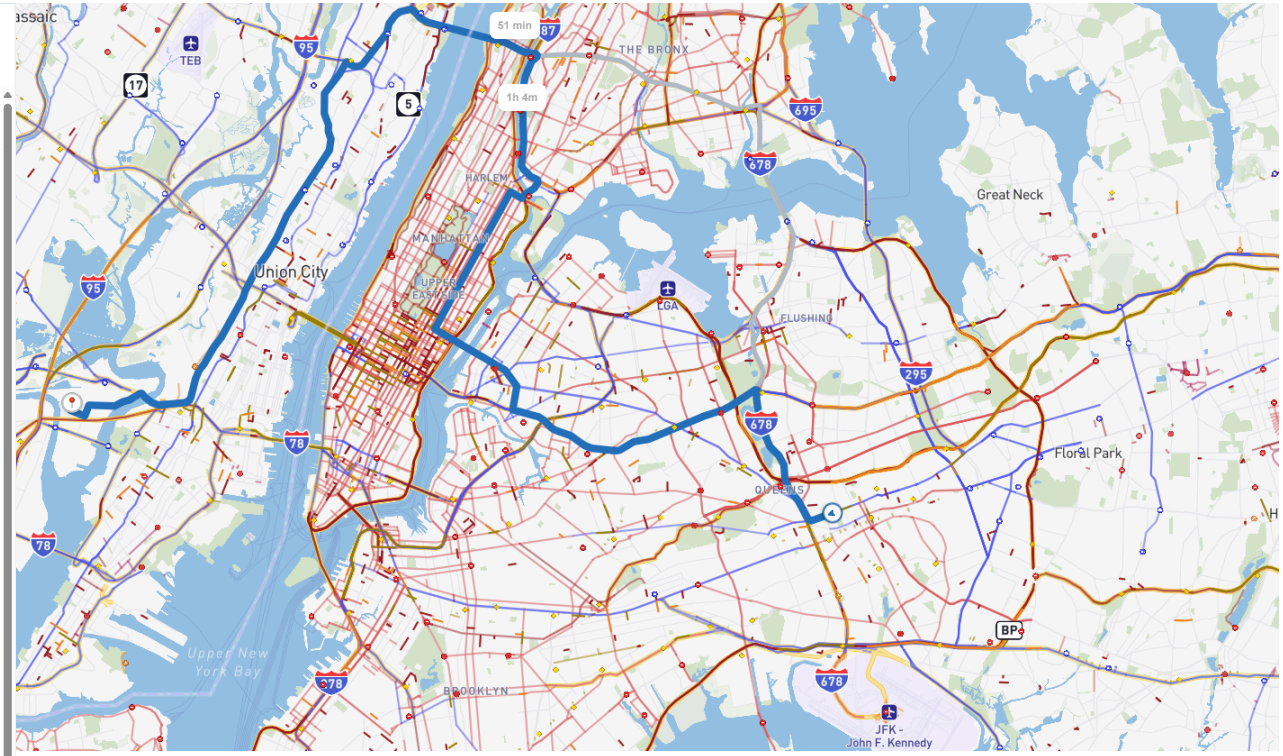
148-18 Hillside Ave Jamaica NY 11435
115 Jacobus Ave Kearny NJ 07032

1 hr 4 min (35 mi)
via I 495 West, US 1

148-18 Hillside Ave
148-18 Hillside Ave, Jamaica, NY 11435

- Turn right on 138th Street — 50 ft
- Keep left on I 678 North — 50 ft
- Exit 12B — 150 ft
- Exit 15 — 0.1 mi
- Turn right on Van Dam Street — 0.1 mi
- Turn left on NY 25 — 0.1 mi
- Keep right on East 60th Street — 0.1 mi
- Turn right on 3rd Avenue — 0.1 mi
- Turn right on East 125th Street — 0.1 mi
- Turn left on Willis Avenue Bridge — 0.1 mi
- Take ramp left onto I 87 North — 0.1 mi
- Exit 7N-S — 0.2 mi
- Exit 7S — 0.2 mi
- Keep left on I 95; US 1 — 0.2 mi
- Exit 72B — 0.2 mi
- Keep right on US 1; US 9 — 0.2 mi
- Turn left on US 1; US 9 — 0.2 mi
- Keep left on Tonnelle Avenue/US 1 and 9 Southbound — 0.2 mi
- Keep right on US 1 Truck; US 9 Truck — 0.3 mi
- Keep left on NJ 7 — 0.3 mi
- Exit right on Fish House Road — 0.3 mi
- Turn left on Central Avenue — 0.3 mi
- Turn right on 3rd Street — 0.3 mi
- Turn right on Jacobus Avenue — 0.3 mi
- Arrive at 115 Jacobus Ave — 0.3 mi

Clean Earth Of New Jersey Inc
115 Jacobus Ave, Kearny, NJ 07032



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Directions

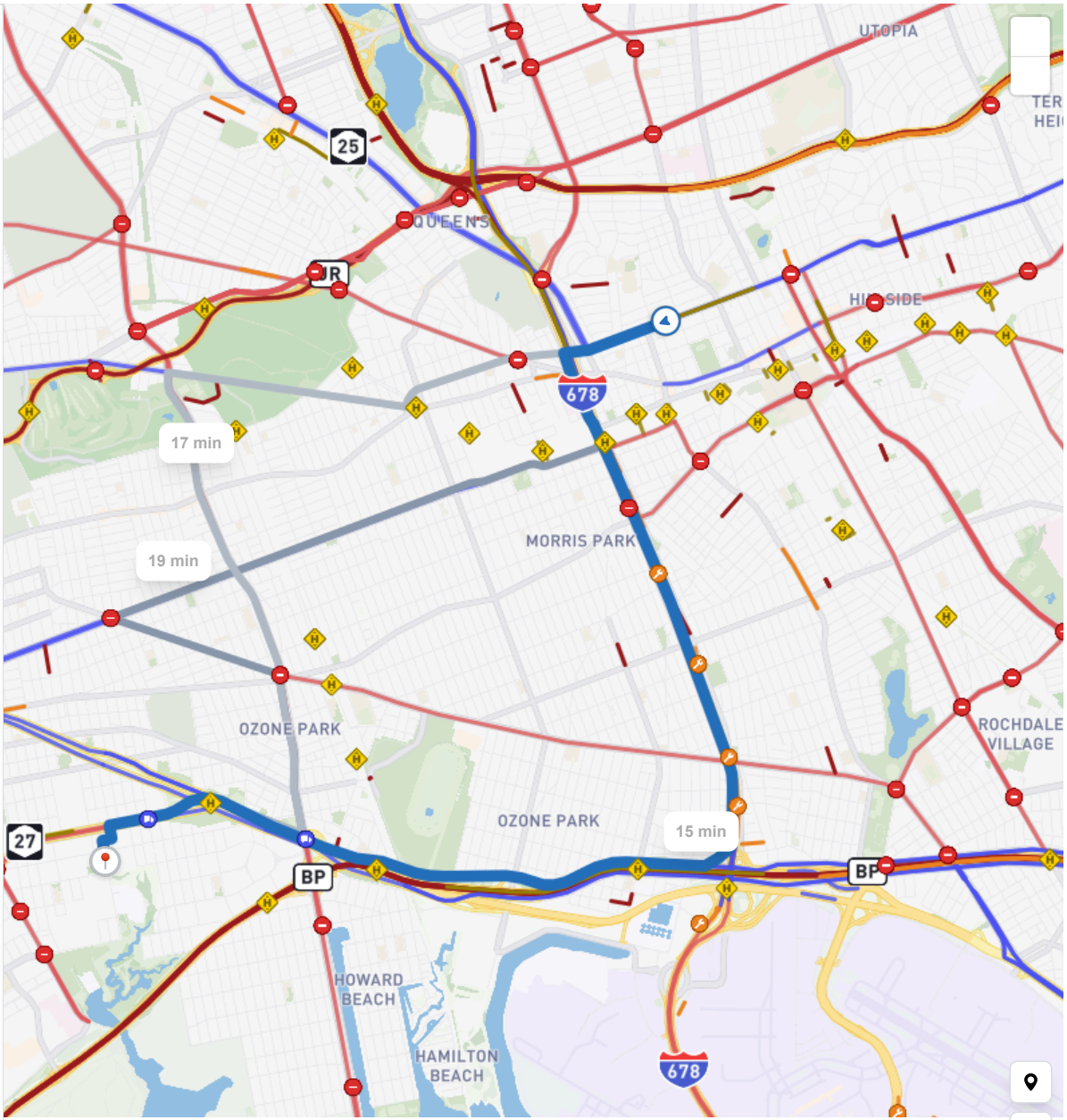
148-18 Hillside Ave Jamaica NY 11435
830 Forbell St Brooklyn NY 11208

15 min (6.7 mi)
via I 678 South, North Conduit Avenu

148-18 Hillside Ave
148-18 Hillside Ave, Jamaica, NY 11435

- Turn left on Van Wyck Expressway West — 50 ft
- Keep left on I 678 South — 50 ft
- Exit 1W — 100 ft
- Exit 1W — 100 ft
- Continue — 100 ft
- Keep right on NY 27 — 100 ft
- Keep left on NY 27 — 200 ft
- Keep left on NY 27 — 250 ft
- Turn left on Drew Street — 250 ft
- Turn right on Drew Street — 250 ft
- Turn left on Forbell Street — 250 ft
- Arrive at 830 Forbell St — 0.1 mi

830 Forbell St
830 Forbell St, Brooklyn, NY 11208



APPENDIX E

Health and Safety Plan & Community Air Monitoring Plan

Health and Safety Plan &
Community Air Monitoring Plan

Site No.: C241199

148-26 a/k/a 148-18 Hillside Avenue
Queens, New York

H2M Project No.: TTCI2401

Prepared for:

Hillside 168 Inc.
148-18 Hillside Avenue
Queens, New York

and

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12207

Prepared by:

H2M architects + engineers
290 Broad Hollow Road, Suite 400E
Melville, New York 11747

H 2 M architects + engineers

HEALTH AND SAFETY PLAN

&

COMMUNITY AIR MONITORING PLAN

1.0 INTRODUCTION

This Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) is developed for utilization during implementation of the Site Management Plan at 148-26 a/k/a 148-18 Hillside Avenue, Queens, New York, NYSDEC Site #C241199 (hereinafter referred to as the 'Site'). The HASP is to be enforced by the Project Health and Safety Manager and on-site Health & Safety Coordinator (HSC). The on-site HSC will interface with the Project Manager and is vested with the authority to make field decisions including the termination of on-site activities if an imminent health and safety hazard, condition or related concern arises. Information and protocol in the HASP are applicable to all on-site personnel who will be entering the work zone.

2.0 POTENTIAL HAZARDS

2.1 Chemical Hazards

Based on the results of the Remedial Investigation, H2M architects + engineers (H2M) will operate as if the contaminants of concern are tetrachloroethene (PCE), trichloroethene (TCE), and Cis-1,2-DCE.

The organic chemicals listed above are described as "sweet" or "aromatic" smelling and are narcotic in high concentrations. Acute exposure to significant concentrations of these chemicals can cause irritation of the skin, eyes and mucus membrane, headache, dizziness, nausea, and in high enough concentrations, loss of consciousness and death *(Sax, 1984)*. These compounds are suspected to be carcinogenic with chronic exposure.

Physical properties and additional toxicological information is included in Appendix A.

2.2 Other Health and Safety Risks

The HASP addresses the environmentally-related chemical hazards identified on the Site. Normal physical hazards associated with using drilling equipment and hand tools as well as hazards associated with adverse climatic conditions (heat & cold) also exist and represent a certain degree of risk to be assumed by on-site personnel.

Certain provisions in this Plan, specifically the use of personnel protective equipment, may tend to increase the risk of physical injury, as well as susceptibility to cold or heat stress. This is primarily due to restrictions in dexterity, hearing, sight, and normal body heat transfer inherent in the use of protective gear.

3.0 RISK MANAGEMENT

3.1 Work / Exclusion Zones

For each proposed remedial activity, a work / exclusion zone will be established surrounding the activity. Access to this area will be limited to properly trained, properly protected personnel directly involved with the on-site activities. Enforcement of the work / exclusion zone boundaries is the responsibility of the on-site Health and Safety Coordinator.

3.2 Personnel Protection

Health & Safety regulatory personnel have developed different levels of personnel protection to deal with differing degrees of potential risks of exposure to chemical constituents. The levels are designated as **A, B, C,** and **D** and ranked according to the amount of personnel protection afforded by each level. Level **A** is the highest level of protection and Level **D** is the lowest level of protection as described below.

> **A** – Fully encapsulating suit, SCBA, hard hat, chemical-resistant steel-toed boots, boot covers, inner and outer gloves.
>
> **B** – One-piece, hooded chemical-resistant splash suit, SCBA, hard hat, chemical-resistant steel-toed boots, boot covers, inner and outer gloves.

C – One-piece, hooded chemical-resistant splash suit, hard hat, canister equipped face mask, chemical-resistant steel-toed boots, boot covers, inner and outer gloves.

D – Work clothes, hard hat (optional), work boots/shoes, gloves (as needed).

The different levels are primarily dependent upon the degree of respiratory protection necessary, in conjunction with appropriate protective clothing. Levels of protection mandate a degree of respiratory protection. However, flexibility exists within the lower levels (B, C, and D) concerning proper protective clothing.

The four levels of protection were developed for utilization in situations which involve suspected or known atmospheric and/or environmental hazards including airborne contamination and skin-affecting substances.

It is anticipated that work will be performed using Level D protection (no respiratory protection with protective clothing requirements limited to long sleeved shirts, long pants or coveralls, work gloves and steel-toe leather work boots).

Level D may be modified by the HSC to include protective clothing or equipment (Saran-coated disposable coveralls or PVC splash suits, safety glasses, hard hat with face shield, and chemically resistant boots) based upon physical hazards, skin contact concerns, and real-time monitoring.

Real-time air monitoring for total airborne organics using either a photo-ionization detector will determine if and when an upgrade from Level D to a higher level of respiratory protection is warranted. Decisions for an upgrade from Level D to higher levels of protection, mitigative actions, and/or suspension of work are the responsibility of the Project Manager and/or the designated on-site Health & Safety Coordinator.

3.3 Air Monitoring

The Health & Safety Coordinator or his properly trained assignee will conduct “Real Time” air monitoring for total organic vapor and total particulates. 'Real-time' monitoring refers to the utilization of instrumentation, which yields immediate measurements. The utilization of real time monitoring helps determine immediate or long-term risks to on-site personnel and the general public, the appropriate level of personnel respiratory protection necessary, and actions to mitigate the recognized hazard. Air monitoring will be conducted in accordance with NYSDOH's Community Air Monitoring Program.

3.3.1 Particulate Monitoring

a. Instrumentation

Dust particulates in air will be monitored using a light scattering technique MINIRAM Model PDM-3 Miniature Real-time Aerosol Monitor (MINIRAM) or equivalent. The MINIRAM is capable of measuring airborne dust particles within the range of 10 to 100,000 micrograms per cubic meter ($\mu g/m^3$).

b. Application

Dust monitoring will occur at regular intervals excavation work activities. Monitoring will be conducted in upgradient and downgradient locations, relative to prevailing wind direction) along the perimeter of the work zone. The HSC or his designee will perform monitoring. As outlined in the NYSDOH Community Air Monitoring Plan, if particulate levels in the downwind location are 150 mg/m^3 greater than those measured in the upwind location, dust suppression techniques shall be employed.

3.3.2 Organic Vapor

a. Instrumentation

Real-time monitoring for total organic vapor (TOV) utilizes either a photo-ionization detector (PID) or flame ionization detector (FID).

b. Application

Organic vapor monitoring is performed as outlined in the NYSDOH Community Air Monitoring Plan. Specifically, monitoring shall be conducted at the downwind perimeter of the work zone periodically during work activities. If TOV levels exceed 5 parts per million (ppm) above established pre-work background levels, work activities will be halted and monitoring will be continued under the provision of a Vapor Emission Response Plan (as outlined in the Community Air Monitoring Plan).

3.4 Worker Training

Personnel overseeing the work will be trained, fit-tested, and medically certified (OSHA 29 CFR 1910. 134). This includes the Health & Safety Coordinator or his/her properly trained assignee.

Prior to any work, all workers involved with the project should be aware of the potential chemical, physical and biological hazards discussed in this document, as well as the general safety practices outlined below. A safety briefing by the on-site HSC and/or assistant designee shall take place at the outset of work activities.

The HSC will be available to address project-related health & safety issues a site worker (such as an equipment operator or laborer) may have regarding the site conditions. Once an issue is brought to the HCS's attention, he or she will evaluate the issue and apply the procedures outlined in this Health & Safety Plan.

3.5 General Safety Practices

All project personnel shall follow the following safety practices:

1. Avoid unnecessary skin exposure to subsurface materials. Long-sleeved shirts tucked into long pants (or coveralls), work gloves, and steel-toe leather work boots are required unless modified gear is approved by the HSC. Remove any excess residual soil from clothes prior to leaving the site.

2. No eating, drinking, gum or tobacco chewing, or smoking allowed in designated work areas. Thoroughly wash hands prior to these activities outside the work area. Avoid sitting on the ground during breaks or while eating and drinking. Thoroughly wash all exposed body areas at the end of the workday.

3. Some symptoms of acute exposure include: nausea, dizziness, light-headedness, impaired coordination, headache, blurred vision, and nose/throat/eye irritation. If these symptoms are experienced or strong odor is detected, leave the work area and immediately report the incident to the on-site HSC.

3.6 Enforcement

Enforcement of the Site Safety Plan will be the responsibility of the HSC. The Coordinator should be on-site on a full-time basis and perform or directly oversee all aspects of Project Health & Safety operations including: air monitoring; environmental mitigation; personnel respiratory and skin protection; general safety practices; documentation; emergency procedures and protocol; and reporting and recordkeeping as described below.

3.7 Reporting and Recordkeeping

Incidents involving injury, symptoms of exposure, discovery of contained (potentially hazardous) materials, or unsafe work practices and/or conditions should be immediately reported to the HSC.

A log book must be maintained on-site to document all aspects of HASP enforcement. The log is paginated and dated with entries made on a daily basis in waterproof ink, initialed by the HSC or designee. Log entries should include date and time of instrument monitoring, instrument type, measurement method, test results, calibration and maintenance information, as well as appropriate mitigative actions responding to detections. Miscellaneous information to be logged may include weather conditions, reported complaints or symptoms, regulatory inspections, and reasons to upgrade personnel protection above the normal specification (Level D).

4.0 EMERGENCIES

4.1 EMERGENCY RESPONSE SERVICES

(1)	**HOSPITAL** Jamaica Hospital Medical Center 8900 Van Wyck Expressway Jamaica, NY 11418 (See Figure 1 for Map Route)	**(718) 206-6066**
(2)	**AMBULANCE**	**911**
(3)	**FIRE DEPARTMENT** **HAZARDOUS MATERIAL**	**911**
(4)	**POLICE DEPARTMENT**	**911**
(5)	**POISON CONTROL CENTER**	**(800) 222-1222**

The preceding list and associated attached map (Figure 1) illustrating the fastest route to the nearest hospital must be conspicuously posted in areas of worker congregation and adjacent to all on-site telephones (if any).

4.2 EMERGENCY PROCEDURES

4.2.1 Contact or Exposure to Suspected Hazardous Materials

In the event of a fire, chemical discharge, medical emergency, workers are instructed to immediately notify the HSC and proper emergency services (posted). Should physical contact with unknown or questionable materials occur, immediately wash the affected body areas with clean water and notify the HSC. Anyone experiencing symptoms of exposure should exit the work area, notify the HSC, and seek medical attention.

4.2.2 Personnel Decontamination, First Aid, and Fire Protection

The first step in the treatment of skin exposure to most chemicals is to rinse the affected area with water. For this reason, adequate amounts of water and soap are maintained on-site in a clearly designated and readily-accessible location. Portable emergency eyewash stations and a first aid kit must be made available and maintained in the same locations as the potable water. Fire extinguishers are also to be maintained on-site in designated locations. All on-site personnel are to be made aware of the locations of the above-mentioned on-site Health & Safety accommodations during the initial Health and Safety briefing.

4.2.3 Ingress/egress

Clear paths of ingress/egress to work zones and site entrances/exits must be maintained at all times. Unauthorized personnel are restricted from accessing the site.

5.0 COMMUNITY AIR MONITORING PLAN

Real-time air monitoring, for volatile compounds and particulate levels at the perimeter of the work area is necessary. This plan includes the following:

- Volatile organic compounds must be monitored at the downwind perimeter of the work area on a continuous basis. If total organic vapor levels exceed 5 ppm above background, work activities must be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings must be recorded and be available for State (DEC & DOH) personnel to review.

- Particulates should be continuously monitored upwind, downwind and within the work area at temporary particulate monitoring stations during excavation activities. If the downwind particulate level is 150 µg/m^3 greater than the upwind particulate level, then dust suppression techniques must be employed. All readings must be recorded and be available for State (DEC & DOH) personnel to review.

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 part-per-million, monitoring should occur within the occupied structure(s).

Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 micrograms per cubic meter, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 micrograms per cubic meter or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Special Requirements for Indoor Work with Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume. If the organic vapor

levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided:

- The organic vapor level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

Major Vapor Emission

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If efforts to abate the emission source are unsuccessful and, if organic vapor levels are approaching 5 ppm above background for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect;

However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background.

Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in the Health and Safety Plan of the Work Plan will go into effect.

2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation.

3. Frequent air monitoring will be conducted at 30 minutes intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

6.0 HEALTH AND SAFETY PLAN REFERENCES

1. American Conference Governmental Industrial Hygienists, 1989; Threshold Limit Values And Biological Exposure Indices, 111 Pp.

2. Geoenvironmental Consultants, Inc.; 1987; Safety & Operations At Hazardous Materials Sites

3. NIOSH Guide To Chemical Hazards, 1985, US Department Of Health And Human Services, Centers For Disease Control

4. US Department Of Labor Occupational Safety & Health Administration, 1989; Hazardous Waste Operations And Emergency Response Interim Final Rule, 29 CFR Part 1910

5. Sax, N. I. Dangerous Properties Of Industrial Materials; © 1984

7.0 KEY PERSONNEL

Responsibility	Name and Phone Number	Task Description
Project Manager	Jessica Proscia (516) 830-6300	Oversee and coordinate all technical aspects for the project
Site Safety Officer	Jessica Proscia (516) 830-6300	Coordinate and inspect all health and safety operations from the project site
Client Representative	Chung Lam (917) 922-0098	
Project Manager Alternate	Jason Cooper (516) 833-2535	
Site Safety Officer Alternate	Jason Cooper (516) 833-2535	

Figure 1

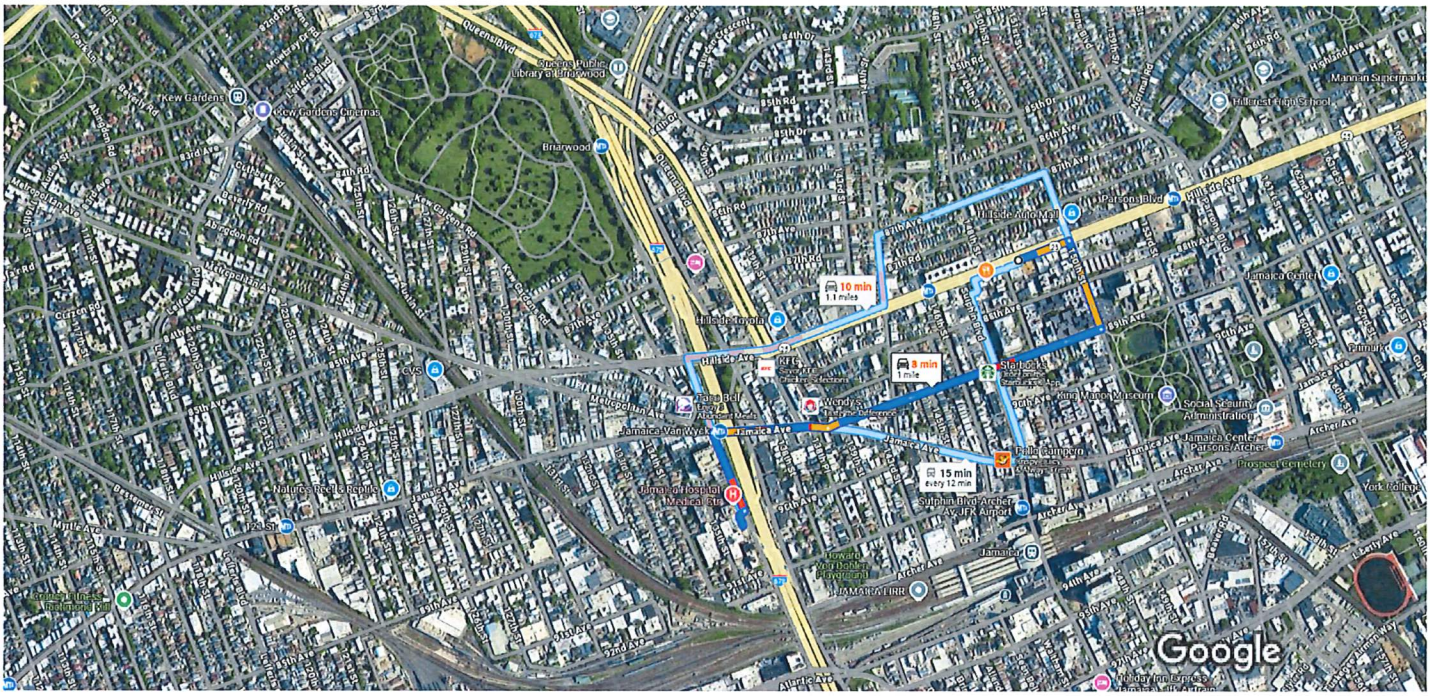
Hospital Route Map

Google Maps

14818 Hillside Ave., Briarwood, NY 11435 to 8900 Van Wyck Expy, Richmond Hill, NY 11418

Drive 1.0 mile, 8 min

Figure 1 Hospital Route



Imagery ©2025 Airbus, Maxar Technologies, Map data ©2025 Google 500 ft

14818 Hillside Ave., Briarwood, NY 11435

1. Head east on Hillside Ave. toward 150th St
   436 ft
2. Turn right at the 1st cross street onto 150th St
   0.1 mi
3. Turn right onto 89th Ave
   0.4 mi
4. Slight right onto Jamaica Ave
   0.2 mi
5. Turn left onto Van Wyck Expy
   0.1 mi
6. Turn right
   Destination will be on the right

8900 Van Wyck Expy
Richmond Hill, NY 11418

Help us improve Google Maps

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Appendix A

Physical Properties and Toxicological Information

SAFETY DATA SHEET

Creation Date 03-Feb-2010 **Revision Date** 24-Dec-2021 **Revision Number** 3

1. Identification

Product Name **Trichloroethylene**

Cat No. : **T340-4; T341-4; T341-20; T341-500; T403-4**

CAS No 79-01-6
Synonyms Trichloroethene (Stabilized/Technical/Electronic/Certified ACS)

Recommended Use Laboratory chemicals.
Uses advised against .

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver, Heart, spleen, Blood.	

Label Elements

Signal Word

Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May cause drowsiness or dizziness
Suspected of causing genetic defects
May cause cancer
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Trichloroethylene	79-01-6	>95

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Most important symptoms and effects	May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	410 °C / 770 °F
Explosion Limits	
Upper	44.8 vol %
Lower	8 vol %
Oxidizing Properties	Not oxidising
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Chlorine. Phosgene. Carbon monoxide (CO). Carbon dioxide (CO_2). Hydrogen chloride gas.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
Environmental Precautions	Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light. Do not store in aluminum containers. Incompatible Materials. Strong oxidizing agents. Strong bases. Amines. Alkali metals. Metals. .

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Trichloroethylene	TWA: 10 ppm STEL: 25 ppm	(Vacated) TWA: 50 ppm (Vacated) TWA: 270 mg/m³ Ceiling: 200 ppm (Vacated) STEL: 200 ppm (Vacated) STEL: 1080 mg/m³ TWA: 100 ppm	IDLH: 1000 ppm	TWA: 10 ppm STEL: 25 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Characteristic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-85 °C / -121 °F
Boiling Point/Range	87 °C / 188.6 °F
Flash Point	No information available
Evaporation Rate	0.69 (Carbon Tetrachloride = 1.0)

Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	44.8 vol %
Lower	8 vol %
Vapor Pressure	77.3 mbar @ 20 °C
Vapor Density	4.5 (Air = 1.0)
Specific Gravity	1.460
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	410 °C / 770 °F
Decomposition Temperature	> 120°C
Viscosity	0.55 mPa.s (25°C)
Molecular Formula	C2 H Cl3
Molecular Weight	131.39

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Light sensitive.

Conditions to Avoid Incompatible products. Excess heat. Exposure to light. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong bases, Amines, Alkali metals, Metals,

Hazardous Decomposition Products Chlorine, Phosgene, Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Trichloroethylene	LD50 = 4920 mg/kg (Rat)	LD50 = 29000 mg/kg (Rabbit)	LC50 = 26 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Trichloroethylene	79-01-6	Group 1	Known	A2	X	A2

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects Mutagenic effects have occurred in humans.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver Heart spleen Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is:. Harmful to aquatic organisms. Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Trichloroethylene	EC50: = 175 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 450 mg/L, 96h (Desmodesmus subspicatus)	LC50: 31.4 - 71.8 mg/L, 96h flow-through (Pimephales promelas) LC50: 39 - 54 mg/L, 96h static (Lepomis macrochirus)	EC50 = 0.81 mg/L 24 h EC50 = 115 mg/L 10 min EC50 = 190 mg/L 15 min EC50 = 235 mg/L 24 h EC50 = 410 mg/L 24 h EC50 = 975 mg/L 5 min	EC50: = 2.2 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Trichloroethylene	2.4

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Trichloroethylene - 79-01-6	U228	-

14. Transport information

DOT

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1

Packing Group III

TDG

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Trichloroethylene	79-01-6	X	ACTIVE	R;S

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

TSCA 12(b) - Notices of Export

Component	CAS No	**TSCA 12(b)** - Notices of Export
Trichloroethylene	79-01-6	Section 5 Section 6

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Trichloroethylene	79-01-6	X	-	201-167-4	X	X	X	X	X	X

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Trichloroethylene	79-01-6	>95	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Trichloroethylene	X	100 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors

Trichloroethylene	X		-

OSHA - Occupational Safety and Health Administration: Not applicable

CERCLA: This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Trichloroethylene	100 lb 1 lb	-

California Proposition 65: This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Trichloroethylene	79-01-6	Carcinogen Developmental Male Reproductive	14 µg/day 50 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Trichloroethylene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security: This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade: No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Trichloroethylene	Carcinogenic Category 1B Article 57 Application date: October 21, 2014 Sunset date: April 21, 2016 Exemption - None	Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 201-167-4 - Carcinogenic, Article 57a

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Trichloroethylene	79-01-6	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive	Seveso III Directive	Rotterdam	Basel Convention

		(2012/18/EC) - Qualifying Quantities for Major Accident Notification	(2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Convention (PIC)	(Hazardous Waste)
Trichloroethylene	79-01-6	Not applicable	Not applicable	Not applicable	Annex I - Y45

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 03-Feb-2010
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 10-December-2009 **Revision Date** 24-December-2021 **Revision Number** 6

1. Identification

Product Name **Tetrachloroethylene**

Cat No. : **C182-20; C182-4**

CAS-No 127-18-4
Synonyms Perchloroethylene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Importer/Distributor
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Manufacturer
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Skin Sensitization	Category 1
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements

Causes skin irritation
May cause an allergic skin reaction
Causes serious eye irritation
May cause drowsiness and dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Contaminated work clothing should not be allowed out of the workplace
Response
IF exposed or concerned: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Take off contaminated clothing
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant

Other Hazards
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Tetrachloroethylene	127-18-4	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms/effects None reasonably foreseeable. May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated.

Hazardous Combustion Products
Chlorine. Phosgene. Hydrogen chloride gas.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation.
Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight. Incompatible Materials. Strong acids. Strong oxidizing agents. Strong bases. Metals. Zinc. Amines. Aluminium.

8. Exposure controls / personal protection

Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH IDLH
Tetrachloroethylene	TWA: 25 ppm	TWA: 25 ppm	TWA: 25 ppm	TWA: 25 ppm	TWA: 25 ppm	(Vacated) TWA:	IDLH: 150 ppm

	TWA: 170 mg/m³ STEL: 100 ppm STEL: 678 mg/m³	STEL: 100 ppm	STEL: 100 ppm	TWA: 170 mg/m³ STEL: 100 ppm STEL: 685 mg/m³	STEL: 100 ppm	25 ppm (Vacated) TWA: 170 mg/m³ Ceiling: 200 ppm TWA: 100 ppm	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles

Hand Protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Nitrile rubber	> 480 minutes	0.38 mm	As tested under EN374-3
Viton (R)	> 480 minutes	0.3 mm	Determination of Resistance to Permeation by Chemicals

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Characteristic, sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-22 °C / -7.6 °F
Boiling Point/Range	120 - 122 °C / 248 - 251.6 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	6.0 (Ether = 1.0)

Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	18 mbar @ 20 °C
Vapor Density	No information available
Density	1.619
Specific Gravity	1.625
Solubility	0.15 g/L water (20°C)
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	> 150°C
Viscosity	0.89 mPa s at 20 °C
Molecular Formula	C2 Cl4
Molecular Weight	165.83

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Exposure to moist air or water.

Incompatible Materials Strong acids, Strong oxidizing agents, Strong bases, Metals, Zinc, Amines, Aluminium

Hazardous Decomposition Products Chlorine, Phosgene, Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetrachloroethylene	LD50 = 2629 mg/kg (Rat)	LD50 > 10000 mg/kg (Rat)	LC50 = 27.8 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Tetrachloroethylene	127-18-4	Group 2A	Reasonably Anticipated	A3	X	A3

IARC (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)	*A1 - Known Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Animal Carcinogen*
Mexico - Occupational Exposure Limits - Carcinogens	*ACGIH: (American Conference of Governmental Industrial Hygienists)* *Mexico - Occupational Exposure Limits - Carcinogens* *A1 - Confirmed Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Confirmed Animal Carcinogen* *A4 - Not Classifiable as a Human Carcinogen* *A5 - Not Suspected as a Human Carcinogen*

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Tetrachloroethylene	Group II Chemical	Not applicable	Not applicable

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Tetrachloroethylene	EC50: > 500 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: 12.4 - 14.4 mg/L, 96h flow-through (Pimephales promelas) LC50: 8.6 - 13.5 mg/L, 96h static (Pimephales promelas) LC50: 11.0 - 15.0 mg/L, 96h static (Lepomis macrochirus) LC50: 4.73 - 5.27 mg/L, 96h flow-through (Oncorhynchus mykiss)	EC50 = 100 mg/L 24 h EC50 = 112 mg/L 24 h EC50 = 120.0 mg/L 30 min	EC50: 6.1 - 9.0 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability Insoluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

Component	log Pow
Tetrachloroethylene	2.88

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Tetrachloroethylene - 127-18-4	U210	-

14. Transport information

DOT
- **UN-No** UN1897
- **Proper Shipping Name** TETRACHLOROETHYLENE
- **Hazard Class** 6.1
- **Packing Group** III

TDG
- **UN-No** UN1897
- **Proper Shipping Name** TETRACHLOROETHYLENE
- **Hazard Class** 6.1
- **Packing Group** III

IATA
- **UN-No** UN1897
- **Proper Shipping Name** TETRACHLOROETHYLENE
- **Hazard Class** 6.1
- **Packing Group** III

IMDG/IMO
- **UN-No** UN1897
- **Proper Shipping Name** TETRACHLOROETHYLENE
- **Hazard Class** 6.1
- **Packing Group** III

15. Regulatory information

International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Tetrachloroethylene	127-18-4	X	-	X	ACTIVE	204-825-9	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Tetrachloroethylene	127-18-4	X	KE-33294	X	X	X	X	X	X

Legend:
X - Listed '-' - Not Listed
KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA)	Canada's Chemicals Management Plan (CEPA)

		- List of Toxic Substances	
Tetrachloroethylene	Part 1, Group A Substance Part 4 Substance	Schedule I	

Other International Regulations

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Tetrachloroethylene	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Tetrachloroethylene	127-18-4	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Tetrachloroethylene	127-18-4	Not applicable	Not applicable	Not applicable	Annex I - Y45

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 10-December-2009
Revision Date 24-December-2021
Print Date 24-December-2021
Revision Summary This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 6.11
Revision Date 03/19/2024
Print Date 07/13/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *cis*-1,2-Dichloroethylene

Product Number : D62004
Brand : Aldrich
Index-No. : 602-026-00-3
CAS-No. : 156-59-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Short-term (acute) aquatic hazard (Category 3), H402
Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

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Pictogram	
Signal Word	Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H302 + H332	Harmful if swallowed or if inhaled.
H315	Causes skin irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	cis-Acetylene dichloride
Formula	:	$C_2H_2Cl_2$
Molecular weight	:	96.94 g/mol
CAS-No.	:	156-59-2
EC-No.	:	205-859-7
Index-No.	:	602-026-00-3

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Component	Classification	Concentration
cis-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Aquatic Acute 3; Aquatic Chronic 3; H225, H302, H332, H315, H402, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.

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Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

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Handle and store under inert gas. Air and moisture sensitive. Light sensitive.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
cis-Dichloroethylene	156-59-2	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
required

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: light yellow
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -80 °C (-112 °F) - lit.
f)	Initial boiling point and boiling range	60 °C 140 °F - lit.
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	1.284 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Oxidizing agents

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 770 mg/kg
Remarks: (RTECS)
Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l - vapor

(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 24 h
Remarks: (RTECS)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: KV9420000
narcosis
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill sunfish) - 140 mg/l - 96 h Remarks: (ECOTOX Database)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

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SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.11 Revision Date: 03/19/2024 Print Date: 07/13/2024

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APPENDIX F

O & M Manual

Operations and Maintenance Manual (O & M Manual)

Site No.: C241199

148-26 a/k/a 148-18 Hillside Avenue
Queens, New York

H2M Project No.: TTCI2401

Prepared for:

Hillside 168 Inc.
148-18 Hillside Avenue
Queens, New York

and

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12207

Prepared by:

H2M architects + engineers
290 Broad Hollow Road, Suite 400E
Melville, New York 11747

H 2 M architects + engineers

1.0 OPERATION AND MAINTENANCE MANUAL

1.1 General

This Operation and Maintenance (O&M) Manual provides a brief description of the measures necessary to operate, monitor, and maintain the mechanical components of the remedy selected for the Site.

This O&M Manual:

- Includes the procedures necessary to allow individuals unfamiliar with the Site to operate and maintain the Soil Vapor Extraction (SVE) and Sub Slab Depressurization (SSD) systems (the Systems);

- Will be updated periodically to reflect changes in the Site conditions or the manner in which the Systems are operated and maintained.

A copy of this O & M Manual, along with the complete SMP, is kept at the Site. This O&M Manual is not to be used as a stand-alone document, but as a component document of the SMP.

1.2 Remedial System Performance Criteria

H2M will submit Quarterly Monitoring Reports to NYSDEC to describe the status of the SVE system and to provide a summary of operating conditions at the site. Information in the reports will include the hours of operation during the reporting period, the raw concentrations of VOCs in the extracted vapors, date of sampling, mass removal rates and total mass removed, summary of the laboratory results from the samples, summary of non-routine repairs or modifications (if any), and the summary of activities conducted during the performance period (major/minor equipment repair/maintenance).

In order to evaluate the SVE performance criteria vapor measurements are collected from the vapor sampling ports at each SVE riser and on the SVE system with a PID. Additionally, an untreated vapor (raw) sample will be collected from the sample port located on the SVE system for laboratory analysis of VOCs by EPA Method TO-15. This sample will be used to determine the amount of contaminant mass removed in the vapor. In addition, the airflow rates, vacuum, and temperature are obtained from the three SVE wellheads as well as the SVE sample ports to ensure the system is working adequately.

Monitoring events for the SSDS will be performed annually. Information obtained for the SSDS will be presented in the annual Periodic Review Report. In order to evaluate the performance criteria, VOC measurements are collected from the vapor sampling ports with a PID. Vacuum readings will be obtained from the vacuum monitoring points throughout the basement. Additionally, a visual inspection of the equipment and piping will be performed.

1.3 Operation and Maintenance of the SVE and SSDS

As-builts of the Systems are presented in Figure 1 of this O&M Plan. The blower for the SVE shall not be serviced or repaired at the Site. If the blower fails, the unit will need to be removed and shipped out for repairs, or most likely replaced with another 3.5 HP regenerative blower, or equivalent. If the fan for the SSDS fails, then another Radonaway EC6 Pro Series vacuum fan (or equivalent) will be installed to replace the fan that has failed.

1.3.1 Systems Start-up and Testing

SVE System Start-up Test

The start-up test of the SVE System was conducted on June 3, 2025. There are five permanent vacuum monitoring points located throughout the basement (identified as VMP-1 through VMP-5). The blower was turned on and it was confirmed that no leaks were present. Vacuum readings were measured at the three SVE points (SVE-1 through SVE-3) and the vacuum monitoring points with a hand held magnahelic gauge and digital manometer. The blower remained on with a vacuum reading of approximately -9 inches of water. The results of the start-up test are presented below and in Figure 9 of the SMP. The radius of influence measured during the start-up test covered an area greater than the results of the pilot test that was conducted on April 17, 2024.

Upon start-up, a baseline reading of total VOCs from the effluent blower was taken with a PID (Minirae 3000). A PID reading of 0.0 ppm was recorded. The flow rates in standard cubic feet per minute (scfm) and vacuum (inches of water) applied to the points during the start-up test are presented below:

SVE Point	Vacuum (inches of water)	Flow (scfm)
SVE-1	-8	135
SVE-2	-8	79
SVE-3	-8	59

SSD System Start-up Test

The start-up test of the SSD System was conducted on June 2, 2025. As discussed above, there are five permanent vacuum monitoring points located throughout the basement. The Radonaway fan was turned on and it was confirmed that no leaks were present. Vacuum readings were measured at the SSDS basement riser and the vacuum monitoring points with a hand held digital manometer. The Radonaway fan remained on with a vacuum reading of approximately -1.127 inches of water. The results of the start-up test are presented below and on Figure 10 of the SMP. The radius of influence measured during the start-up test confirmed adequate vacuum in all vacuum monitoring points.

Upon start-up, a baseline reading of total VOCs from the effluent blower was taken with a PID (Minirae 3000). A PID reading of 0.0 ppm was recorded. The flow rates in standard cubic feet per minute (scfm) and vacuum (inches of water) applied to the SSDS riser during the start-up test are presented below:

Riser	Vacuum (inches of water)	Flow (scfm)
SSDS riser	-1.127	45

1.3.2 Routine System Operation and Maintenance

The Systems are designed to be maintenance free.

If any components fail (blower, fan, meters, telemetry etc.) they will be repaired or replaced. Please see the manufacturer's instructions, provided.

1.3.3 Non-Routine System Operation and Maintenance

The System's designed and operated has no non-routine operation and maintenance requirements. If any components fail (telemetry system, fan, gauges, piping, filters, blower, moisture knockout drum, etc.) they will be replaced/repaired.

1.3.4 System Monitoring Devices and Alarms

The SVE system has a warning device (a telemetry system) to indicate that the system is not operating properly (high temperature etc.). Additionally, the telemetry system will alert the consultant (via phone call and email) when there is blower failure, as well as when there is a high water level in the moisture knock out drum. In the event that warning device is activated, applicable maintenance and repairs will be conducted, and the SVE system will be restarted.

Additionally, the SSDS has been equipped with a vacuum monitoring alarm. This will inform the individuals on-site that the SSDS is not functioning properly. A sign will be placed near the SSDS alarm with the consultants name and phone number and the consultant will be notified.

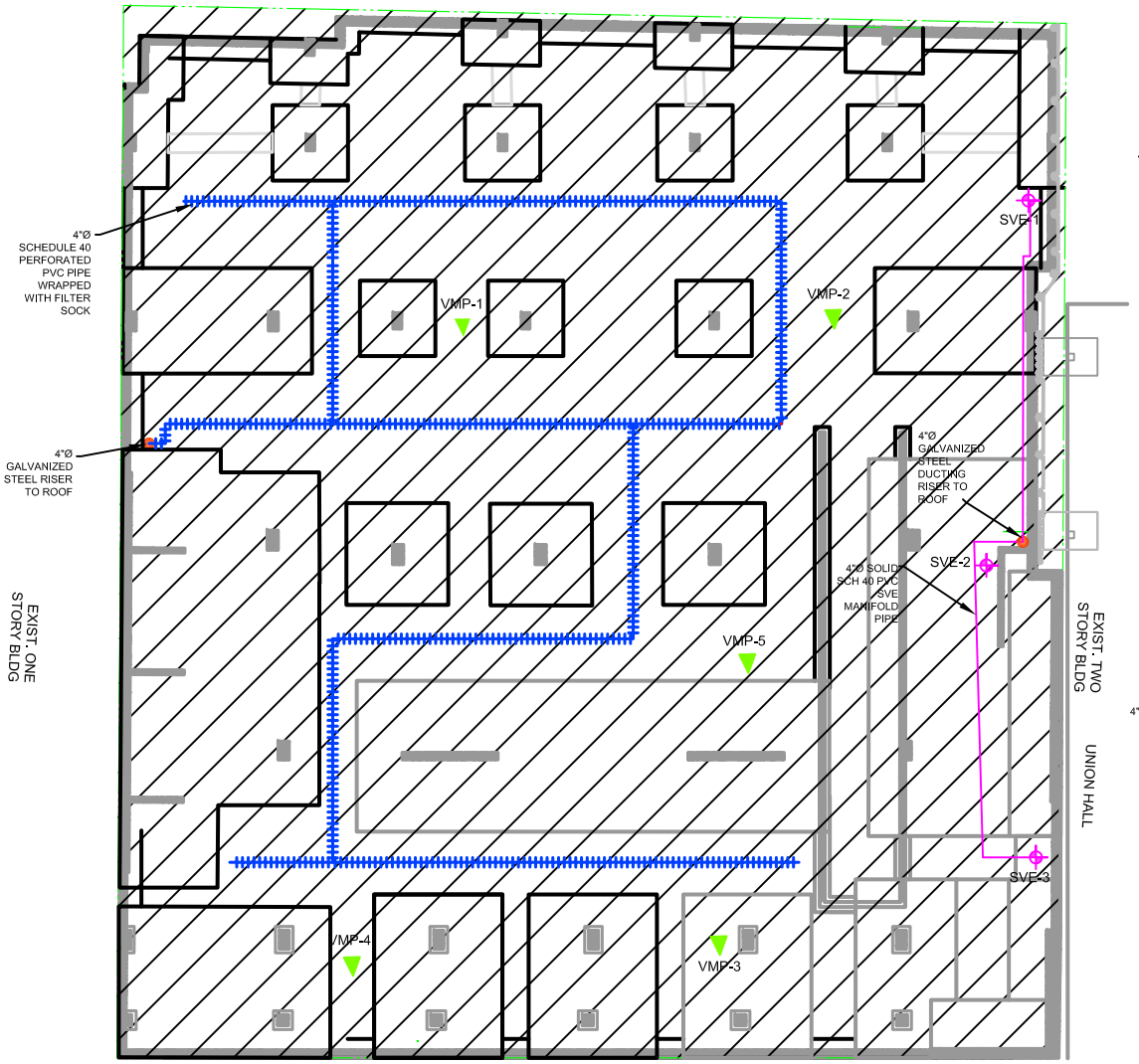
Operational problems will be noted in the Quarterly Monitoring Reports and the Periodic Review Report to be prepared for that reporting period.

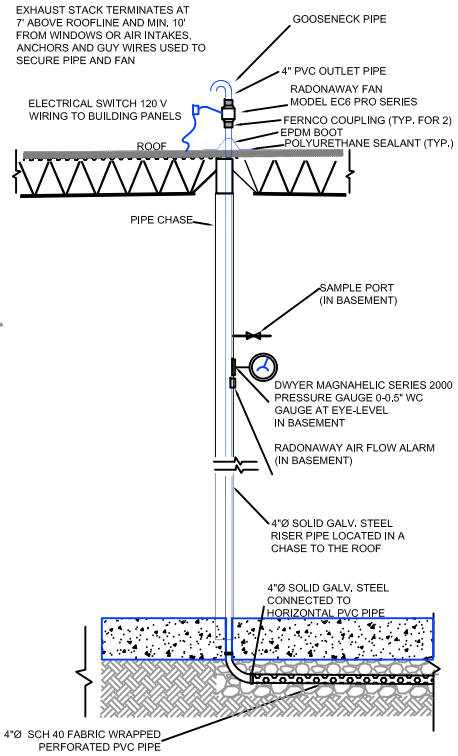
1.4 Site Cover Control

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 concrete building slabs and sidewalks.

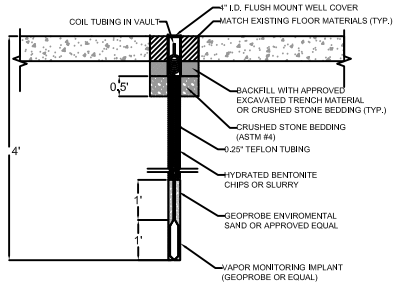
After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Decision Documents. The demarcation layer, consisting of orange snow fencing material, will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in the SMP. 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. The alteration, restoration and modification of engineering controls must conform with Article 145 Section 7209 of the Education Law regarding the application professional seals and alterations.

Additionally, any disturbance of the Site's cover system must be overseen by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

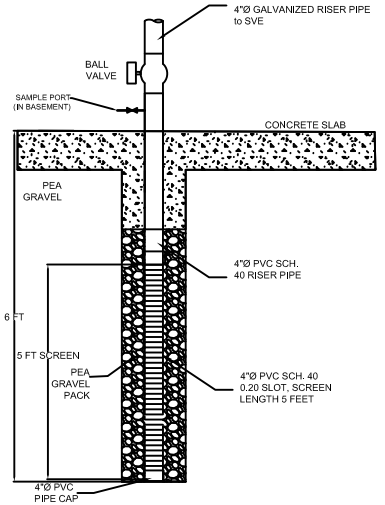




SSDS PROFILE
SCALE: NTS



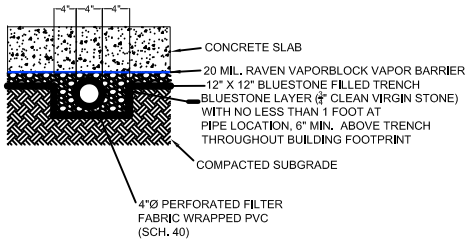
VACUUM MONITORING POINT DETAIL
NTS



SVE WELL
SCALE: NTS

NOTES

1. SSDS piping installed at 6-inches below the bottom of the Site building slab.
2. SVE pipe installed approximately 19-feet below grade with 5-feet of screen.
3. Bottom of the Site building slab is 13-feet below grade. The SVE well depth is 6-feet below basement grade.
4. The SVE system consists of a network of three, 4"Ø sch. 40 perforated PVC vertical SVE well points. The SVE points were installed vertically along the western wall of the property at basement grade (13 feet below surface grade) and extends another six feet below basement grade. The three SVE points are horizontally connected along the basement ceiling with galvanized steel piping and are fitted with a galvanized steel riser pipe finished at the roof. An Atlantic Blower Model #AB-500 3.5HP, 208-230V, 3PH Blower was installed to provide vacuum for the SVE system.



SSDS PIPE TRENCH DETAIL
SCALE: NTS

LEGEND

- VACUUM MONITORING POINT
- SSDS HORIZONTAL PIPING (4"Ø SCH 40 PERFORATED PVC PIPE WRAPPED WITH FILTER SOCK)
- SOLID 4"Ø AIRTIGHT GALV. STEEL RISER PIPE
- 4"Ø SCH. 40 PVC SVE POINT
- COMPOSITE COVER SYSTEM

H2M architects + engineers
290 Broad Hollow Road, Suite 400E
Melville, NY 11747
631.756.8000 • www.h2m.com

FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
8	T.R.B.	J.E.P.	TTCI2401	2025-4	8/27/2025	Not Shown

As Built Engineering Controls for the Site

C241199
148-18 Hillside Avenue
Queens, NY

X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-4

APPENDIX G

Air Quality Impact Assessment

May 5, 2025

Ms. Jessica Proscia
Senior Project Scientist
H2M architects + engineers
290 Broad Hollow Road, Suite 400E
Melville, NY 11747

Re: Soil Vapor Extraction System – Air Quality Impact Assessment
148-18 Hillside Avenue, Jamaica, Queens, New York Site

Dear Ms. Proscia:

Proactive Environmental Solutions, LLC (Proactive) has prepared this Air Quality Impact Assessment Summary Report for the Soil Vapor Extraction System[1], or "SVE System") located at 148-18 Hillside Avenue, Jamaica, Queens, New York (Site). Work was performed in accordance with Proactive's proposal dated March 3, 2025.

Methodology

Proactive conducted an Air Quality Impact Assessment where we evaluated potential air quality impacts from operation of the proposed SVE System to be installed at the Site. We obtained source specific data including site and parcel boundary maps, laboratory analytical results, SVE System design information, and assumed worst-case building dimensions. Table 1 summarizes source-specific information that were collected. Figure 1 shows the location of the SVE System exhaust stack and the nearest distance to the property line.

Table 1. Air Quality Impact Assessment Source-Specific Information

Design Maximum Volumetric Flow Rate:	163 scfm
Design Maximum Volumetric Flow Rate:	175 acfm @ 116 ^{0}F
Stack Diameter:	3.75 inches
Stack Height (above grade):	118.5 feet
Exhaust Exit Temperature:	70 ^{0}F
Building Height:	110 feet
Nearest Distance to Property Line:	10 feet
Receptor Height:	118.5 feet

[1] The site has both a Sub Slab Depressurization System (SSDS) and a Soil Vapor Extraction (SVE System). For simplicity, the term "SVE System" as used in this report is meant to reference both these Systems.

Maximum predicted 1-hour contaminant impacts from the SVE System exhaust stack discharge point were assessed using the USEPA preferred AERSCREEN model (Version 21112), the latest screening model based on AERMOD. The model estimates "worst-case" 1-hour concentrations for a single source (point, area, or volume) using source-specific data. AERSCREEN generates application-specific worst-case meteorology using representative minimum and maximum ambient air temperatures, and site-specific surface characteristics such as albedo ratio (reflectivity), Bowen ratio (atmospheric stability), and surface roughness (effects of surface friction on atmospheric dispersion). The model incorporates the PRIME downwash algorithms that are part of the AERMOD refined model and utilizes the PRIME plume rise model enhancements to the Building Profile Input Program (BPIPRIM) to provide a detailed analysis of downwash influences on a direction-specific basis. AERSCREEN also incorporates AERMOD's complex terrain algorithms and utilizes the AERMAP terrain processor to account for the actual terrain in the vicinity of the source on a direction-specific basis.

AERSCREEN uses a conservative algorithm to predict maximum 1-hour pollutant impacts at user-defined sensitive receptor locations. From this, a predicted worst-case annual impact of the contaminant can be derived using a conservative persistence factor. AERSCREEN maximum predicted 1-hour and annual impacts are then compared to New York State Department of Environmental Conservation (NYSDEC) health-based guidance values (i.e., DAR-1 Short-term Guideline Concentrations (SGCs) and Annual Guideline Concentrations (AGCs)).

All appropriate regulatory defaults (i.e., buoyancy induced dispersion, building downwash, gradual plume rise, urban dispersion coefficients, default conservative meteorology data) were utilized in the air modeling analysis. Stack parameters (i.e., location, exhaust exit temperature, stack height and diameter, and flue gas flow rate) were obtained from H2M. Contaminant emission rates were calculated using laboratory analytical data for compounds that were reported above detection limits based on a single soil vapor sample collected at the Site. Emission rate calculations for each of the contaminants reported above detection limits are provided in Attachment A[2].

Results and Discussion

To assess potential air quality impacts from SVE System air contaminants reported above detection levels, model predicted maximum 1-hour impacts were compared to respective NYSDEC SGCs and AGCs. To assess potential annual impacts, model scaling ratios were applied,

[2] Please note that the site analyses described in this letter report and its Attachments were completed prior to the site receiving an environmental easement, where the site address was changed from 148-26 Hillside Avenue to 148-18 Hillside Avenue. References to the site address in all Figures and Attachments to this report remain at 148-26 Hillside Avenue, since the analyses results as originally compiled cannot be revised without completely redoing all modeling with the new site address, which would have no impact on modeling results.

in accordance with procedures provided in the AERSCREEN User's Guide. Attachment B provides a summary of the results from the air quality impact assessment, which shows that potential air quality impacts are acceptable (per NYSDEC DAR-1 procedures). AERSCREEN modeling output is provided in Attachment C.

Results and Discussion

Based upon review of relevant data, and in accordance with analysis procedures described in NYSDEC DAR-1, an air quality impact assessment has been completed for the proposed SVE System at 148-18 Hillside Avenue. It is concluded that the Site's impact on air quality is minimal and acceptable.

If you have any questions or would like to discuss this report in more detail, please do not hesitate to contact Paul Eisen at (516) 510-2878 or peisen@pro-enviro.com.

Sincerely,

PROACTIVE ENVIRONMENTAL SOLUTIONS, LLC

Paul Eisen

Paul Eisen, CCM, Principal Scientist

Chris Geraghty, CCM, Senior Scientist

PROJECT TITLE:

Figure 1. Site Location Map
148-26 Hillside Avenue, Jamaica, Queens, New York - SVE System Air Quality Impact Assessment



COMMENTS:

Modeling of Worst-Case Scenario based on the following assumptions:

- Height of nearest sensitive receptor equal to release height of SVE effluent/exhaust discharge point (118.5 ft above grade)

- Horizontal distance of nearest sensitive receptor assumed to equal 10 feet (approximate distance of nearest adjacent property boundary)

COMPANY NAME:

Proactive Environmental Solutions

MODELER:

Chris Geraghty, CCM

SCALE: 1:2,000

0 0.05 km

DATE:

5/2/2025

PROJECT NO.:

Sub-Slab Depressurization System Emission Rate Calculations

148-26 Hillside Avenue, Jamaica, Queens, NY Site - Soil Vapor Sample Test Results - Emission Rate Calculation for Detected Contaminants

Soil Vapor Sample Contaminant Concentrations (from Pace Analytical Report dated April 2, 2025)

Contaminant	Contaminant CAS #	Contaminant Molecular Weight (g/mol)	$c_{contaminant}$ (ppbv)	$c_{contaminant}$ (ppmv)	$c_{contaminant}$ (µg/m^3)	$c_{contaminant}$ (mg/m^3)
Dichlorodifluoromethane	75-71-8	120.91	0.361	0.000361	1.79	0.002
Chloromethane	74-87-3	50.49	0.416	0.000416	0.859	0.001
1,3-Butadiene	106-99-0	54.09	1.68	0.00168	3.72	0.004
Ethanol	64-17-5	46.07	7.51	0.00751	14.2	0.014
Acetone	67-64-1	58.08	5.95	0.00595	14.1	0.014
Isopropanol	67-63-0	60.10	2.20	0.0022	5.41	0.005
2-Butanone	78-93-3	72.11	0.969	0.000969	2.86	0.003
Tetrahydrofuran	109-99-9	72.11	125	0.125	369	0.369
n-Hexane	110-54-3	86.18	1.78	0.00178	6.27	0.006
Benzene	71-43-2	78.1118	5.97	0.00597	19.1	0.019
Cyclohexane	110-82-7	84.16	0.535	0.000535	1.84	0.002
2,2,4-Trimethylpentane	540-84-1	114.23	0.756	0.000756	3.53	0.004
Heptane	142-82-5	100.20	0.493	0.000493	2.02	0.002
Toluene	108-88-3	92.14	7.36	0.00736	27.7	0.028
Tetrachloroethene	127-18-4	165.83	0.227	0.000227	1.54	0.002
Ethylbenzene	100-41-4	106.17	0.607	0.000607	2.64	0.003
p/m-Xylene	106-42-3, 108-	106.17	2.84	0.00284	12.3	0.012
o-Xylene	95-47-6	106.17	0.999	0.000999	4.34	0.004
Total Xylenes	1330-20-7	106.17	3.839	0.003839	16.64	0.017
Styrene	100-42-5	104.15	0.383	0.000383	1.63	0.002
1,2,4-Trimethylbenzene	95-63-6	120.19	0.691	0.000691	3.40	0.003

Equation used to convert mass concentration to mass emission rate:

$$\mathrm{ER}\left(\frac{\mathrm{mg}}{\mathrm{hr}}\right)_{\mathrm{contaminant}} = c\left(\frac{mg_{contaminant}}{m^3\ air}\right) * Q\left(\frac{m^3\ air}{hr}\right)$$ (Heinsohn, Jennings, Kabel, 1999)

$$\mathrm{ER}_{\mathrm{contaminant}} = \frac{\left[\left(\frac{mg}{m^3}\right) * \left(\frac{ft^3}{\mathrm{min}}\right) * \left(60\frac{\mathrm{min}}{hr}\right)\right]}{\left(3.28\frac{\mathrm{ft}}{\mathrm{m}}\right)^3}$$

SVE System Effluent Volumetric Flow Rate = 175 acfm @ 116 ˚F

Unit Conversion: 1 mg = 2.20E-06 lbs

SVE System Effluent - Uncontrolled (Baseline) Emission Rates

Contaminant	Contaminant CAS #	Emission Rate (mg/hr)	Emission Rate (g/s)	Emission Rate (lb/hr)
Dichlorodifluoromethane	75-71-8	0.533	1.48E-07	1.17E-06
Chloromethane	74-87-3	0.256	7.10E-08	5.63E-07
1,3-Butadiene	106-99-0	1.107	3.07E-07	2.44E-06
Ethanol	64-17-5	4.225	1.17E-06	9.31E-06
Acetone	67-64-1	4.195	1.17E-06	9.25E-06
Isopropanol	67-63-0	1.610	4.47E-07	3.55E-06
2-Butanone	78-93-3	0.851	2.36E-07	1.88E-06
Tetrahydrofuran	109-99-9	109.781	3.05E-05	2.42E-04
n-Hexane	110-54-3	1.865	5.18E-07	4.11E-06
Benzene	71-43-2	5.682	1.58E-06	1.25E-05
Cyclohexane	110-82-7	0.547	1.52E-07	1.21E-06

148-26 Hillside Avenue, Jamaica, Queens, NY Site - Soil Vapor Sample Test Results - Emission Rate Calculation for Detected Contaminants

2,2,4-Trimethylpentane	540-84-1	1.050	2.92E-07	2.32E-06
Heptane	142-82-5	0.601	1.67E-07	1.32E-06
Toluene	108-88-3	8.241	2.29E-06	1.82E-05
Tetrachloroethene	127-18-4	0.458	1.27E-07	1.01E-06
Ethylbenzene	100-41-4	0.785	2.18E-07	1.73E-06
p/m-Xylene	106-42-3, 108-	3.659	1.02E-06	8.07E-06
o-Xylene	95-47-6	1.291	3.59E-07	2.85E-06
Total Xylenes	1330-20-7	4.951	1.38E-06	1.09E-05
Styrene	100-42-5	0.485	1.35E-07	1.07E-06
1,2,4-Trimethylbenzene	95-63-6	1.012	2.81E-07	2.23E-06

Source:
Heinsohn, Robert Jennings, and Robert Lynn Kabel. Chapter 1, Section 1.6.3 Contaminant Concentration, Equation 1.16. "Sources and Control of Air Pollution". Upper Saddle River, NJ: Prentice-Hall, 1999. 669+. Print.

Attachment B

Summary of AERSCREEN Modeling Results
Comparison to Applicable NYSDEC DAR-1 SGCs/AGCs and 6 NYCRR Part 212 Requirements

148-26 Hillside Avenue, Jamaica, Queens, NY Site SVE System Effluent
Air Quality Dispersion Modeling Results (AERSCREEN, Version 21112)

The maximum hourly concentrations calculated by AERSCREEN are based on a unit emission rate of 1 g/s, and then scaled based on each pollutant's actual emission rate. Hourly and annual maximum concentrations of each pollutant are calculated using the following equations:

$$C_{hourly,i} = C_{AERSCREEN} * \frac{E_{h,i}}{E_u}$$

where: $C_{hourly,i}$ = maximum hourly concentration of pollutant i ($\mu g/m^3$)

$C_{AERSCREEN}$ = maximum hourly concentration from AERSCREEN ($\mu g/m^3$)

$E_{h,i}$ = maximum hourly emission rate of pollutant i (g/s)

E_u = unit emission rate = 1 g/s

$$C_{annual,i} = C_{AERSCREEN} * S * \frac{E_{a,i}}{E_u}$$

where: $C_{annual,i}$ = average annual concentration of pollutant i ($\mu g/m^3$)

$C_{AERSCREEN}$ = maximum hourly concentration from AERSCREEN ($\mu g/m^3$)

S = scaling factor = 0.10

$E_{a,i}$ = average annual emission rate of pollutant i (g/s)

E_u = unit emission rate = 1 g/s

AERSCREEN Predicted Air Quality Impacts for SVE System Effluent (Modeled Source ID: SVE STK)

Contaminant	Contaminant CAS #	Pollutant Averaging Time	Modeled Emission Rate (g/s)	Minimum Distance to Fence (ft)	Receptor Height (ft agl)	$C_{AERSCREEN}$ ($\mu g/m^3$)	Contaminant Emission Rate		Predicted Hourly Contaminant Impact ($\mu g/m^3$)	AERSCREEN Annual Scaling Ratio	Predicted Annual Contaminant Impact ($\mu g/m^3$)
							lb/hr	g/s			
Dichlorodifluoromethane	75-71-8	1-Hr	1	10	118.5	1.83E+05	1.17E-06	1.48E-07	2.71E-02	n/a	n/a
Chloromethane	74-87-3	1-Hr	1	10	118.5	1.83E+05	5.63E-07	7.10E-08	1.30E-02	n/a	n/a
1,3-Butadiene	106-99-0	1-Hr	1	10	118.5	1.83E+05	2.44E-06	3.07E-07	5.63E-02	n/a	n/a
Ethanol	64-17-5	1-Hr	1	10	118.5	1.83E+05	9.31E-06	1.17E-06	2.15E-01	n/a	n/a
Acetone	67-64-1	1-Hr	1	10	118.5	1.83E+05	9.25E-06	1.17E-06	2.13E-01	n/a	n/a
Isopropanol	67-63-0	1-Hr	1	10	118.5	1.83E+05	3.55E-06	4.47E-07	8.19E-02	n/a	n/a
2-Butanone	78-93-3	1-Hr	1	10	118.5	1.83E+05	1.88E-06	2.36E-07	4.33E-02	n/a	n/a
Tetrahydrofuran	109-99-9	1-Hr	1	10	118.5	1.83E+05	2.42E-04	3.05E-05	5.59E+00	n/a	n/a
n-Hexane	110-54-3	1-Hr	1	10	118.5	1.83E+05	4.11E-06	5.18E-07	9.49E-02	n/a	n/a
Benzene	71-43-2	1-Hr	1	10	118.5	1.83E+05	1.25E-05	1.58E-06	2.89E-01	n/a	n/a
Cyclohexane	110-82-7	1-Hr	1	10	118.5	1.83E+05	1.21E-06	1.52E-07	2.79E-02	n/a	n/a
2,2,4-Trimethylpentane	540-84-1	1-Hr	1	10	118.5	1.83E+05	2.32E-06	2.92E-07	5.34E-02	n/a	n/a
Heptane	142-82-5	1-Hr	1	10	118.5	1.83E+05	1.32E-06	1.67E-07	3.06E-02	n/a	n/a
Toluene	108-88-3	1-Hr	1	10	118.5	1.83E+05	1.82E-05	2.29E-06	4.19E-01	n/a	n/a
Tetrachloroethene	127-18-4	1-Hr	1	10	118.5	1.83E+05	1.01E-06	1.27E-07	2.33E-02	n/a	n/a

148-26 Hillside Avenue, Jamaica, Queens, NY Site SVE System Effluent
Air Quality Dispersion Modeling Results (AERSCREEN, Version 21112)

AERSCREEN Predicted Air Quality Impacts for SVE System Effluent (Modeled Source ID: SVE STK)

Contaminant	Contaminant CAS #	Pollutant Averaging Time	Modeled Emission Rate (g/s)	Minimum Distance to Fence (ft)	Receptor Height (ft agl)	$C_{AERSCREEN}$ ($\mu g/m^3$)	Contaminant Emission Rate		Predicted Hourly Contaminant Impact ($\mu g/m^3$)	AERSCREEN Annual Scaling Ratio	Predicted Annual Contaminant Impact ($\mu g/m^3$)
							lb/hr	g/s			
Ethylbenzene	100-41-4	1-Hr	1	10	118.5	1.83E+05	1.73E-06	2.18E-07	4.00E-02	n/a	n/a
p/m-Xylene	06-42-3, 108-38-	1-Hr	1	10	118.5	1.83E+05	8.07E-06	1.02E-06	1.86E-01	n/a	n/a
o-Xylene	95-47-6	1-Hr	1	10	118.5	1.83E+05	2.85E-06	3.59E-07	6.57E-02	n/a	n/a
Total Xylenes	1330-20-7	1-Hr	1	10	118.5	1.83E+05	1.09E-05	1.38E-06	2.52E-01	n/a	n/a
Styrene	100-42-5	1-Hr	1	10	118.5	1.83E+05	1.07E-06	1.35E-07	2.47E-02	n/a	n/a
1,2,4-Trimethylbenzene	95-63-6	1-Hr	1	10	118.5	1.83E+05	2.23E-06	2.81E-07	5.15E-02	n/a	n/a
Dichlorodifluoromethane	75-71-8	Annual	1	10	118.5	1.83E+05	1.17E-06	1.48E-07	2.71E-02	0.10	2.71E-03
Chloromethane	74-87-3	Annual	1	10	118.5	1.83E+05	5.63E-07	7.10E-08	1.30E-02	0.10	1.30E-03
1,3-Butadiene	106-99-0	Annual	1	10	118.5	1.83E+05	2.44E-06	3.07E-07	5.63E-02	0.10	5.63E-03
Ethanol	64-17-5	Annual	1	10	118.5	1.83E+05	9.31E-06	1.17E-06	2.15E-01	0.10	2.15E-02
Acetone	67-64-1	Annual	1	10	118.5	1.83E+05	9.25E-06	1.17E-06	2.13E-01	0.10	2.13E-02
Isopropanol	67-63-0	Annual	1	10	118.5	1.83E+05	3.55E-06	4.47E-07	8.19E-02	0.10	8.19E-03
2-Butanone	78-93-3	Annual	1	10	118.5	1.83E+05	1.88E-06	2.36E-07	4.33E-02	0.10	4.33E-03
Tetrahydrofuran	109-99-9	Annual	1	10	118.5	1.83E+05	2.42E-04	3.05E-05	5.59E+00	0.10	5.59E-01
n-Hexane	110-54-3	Annual	1	10	118.5	1.83E+05	4.11E-06	5.18E-07	9.49E-02	0.10	9.49E-03
Benzene	71-43-2	Annual	1	10	118.5	1.83E+05	1.25E-05	1.58E-06	2.89E-01	0.10	2.89E-02
Cyclohexane	110-82-7	Annual	1	10	118.5	1.83E+05	1.21E-06	1.52E-07	2.79E-02	0.10	2.79E-03
2,2,4-Trimethylpentane	540-84-1	Annual	1	10	118.5	1.83E+05	2.32E-06	2.92E-07	5.34E-02	0.10	5.34E-03
Heptane	142-82-5	Annual	1	10	118.5	1.83E+05	1.32E-06	1.67E-07	3.06E-02	0.10	3.06E-03
Toluene	108-88-3	Annual	1	10	118.5	1.83E+05	1.82E-05	2.29E-06	4.19E-01	0.10	4.19E-02
Tetrachloroethene	127-18-4	Annual	1	10	118.5	1.83E+05	1.01E-06	1.27E-07	2.33E-02	0.10	2.33E-03
Ethylbenzene	100-41-4	Annual	1	10	118.5	1.83E+05	1.73E-06	2.18E-07	4.00E-02	0.10	4.00E-03
p/m-Xylene	06-42-3, 108-38-	Annual	1	10	118.5	1.83E+05	8.07E-06	1.02E-06	1.86E-01	0.10	1.86E-02
o-Xylene	95-47-6	Annual	1	10	118.5	1.83E+05	2.85E-06	3.59E-07	6.57E-02	0.10	6.57E-03
Total Xylenes	1330-20-7	Annual	1	10	118.5	1.83E+05	1.09E-05	1.38E-06	2.52E-01	0.10	2.52E-02
Styrene	100-42-5	Annual	1	10	118.5	1.83E+05	1.07E-06	1.35E-07	2.47E-02	0.10	2.47E-03
1,2,4-Trimethylbenzene	95-63-6	Annual	1	10	118.5	1.83E+05	2.23E-06	2.81E-07	5.15E-02	0.10	5.15E-03

148-26 Hillside Avenue, Jamaica, Queens, NY Site SVE System Effluent - Potential Air Quality Impacts

Worst-Case Potential Impacts from System Effluent Beyond Property Line - Uncontrolled (Baseline) Emission Rates at 175 ACFM, 70 ^{0}F Exit Temperature and 118.5' Effluent Exhaust Release Height

Contaminant	Contaminant CAS #	Uncontrolled Emission Rate (lb/hr) [1]	Maximum Potential Annual Emissions (lb/yr) [1]	USEPA AERSCREEN Worst-Case Predicted Impacts [2]			NYSDEC HTAC? [3]	§212-2.2 Table 2 HTAC Mass Emission Limit (lb/yr) [3]	NYSDEC DAR-1 Toxicity Level [4, 5]	NYSDEC Contaminant Environmental Rating [4] (Proposed)	Air Cleaning Requirements of Table 4 of 212-2.3	NYSDEC DAR-1 Guideline Values		In Compliance w/ Part 212?
				Max 1-hr Conc. (µg/m^3)	Max Annual Conc. (µg/m^3)	Receptor Distance from Source (ft)						NYSDEC Short-term Guideline Conc (µg/m^3)	NYSDEC Annual Guideline Conc (µg/m^3)	
Dichlorodifluoromethane	75-71-8	1.17E-06	1.03E-02	0.027	0.003	10.00	N	--	(Moderate)	B	Meet Applicable SGC/AGC	(--)	12000.0	Y
Chloromethane	74-87-3	5.63E-07	4.94E-03	0.013	0.001	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	22000.0	90.0	Y
1,3-Butadiene	106-99-0	2.44E-06	2.14E-02	5.6E-02	5.6E-03	10.00	Y	25	High	A	Meet HTAC Mass Emission Limit	(--)	3.3E-02	Y
Ethanol	64-17-5	9.31E-06	8.16E-02	0.215	0.021	10.00	N	--	Low	C	Meet Applicable SGC/AGC	(--)	45000.0	Y
Acetone	67-64-1	9.25E-06	8.10E-02	0.213	0.021	10.00	N	--	Low	C	Meet Applicable SGC/AGC	180000.0	30000.0	Y
Isopropanol	67-63-0	3.55E-06	3.11E-02	0.082	0.008	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	98000.0	7000.0	Y
2-Butanone	78-93-3	1.88E-06	1.64E-02	0.043	0.004	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	13000.0	5000.0	Y
Tetrahydrofuran	109-99-9	2.42E-04	2.12E+00	5.587	0.559	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	30000.0	350.0	Y
n-Hexane	110-54-3	4.11E-06	3.60E-02	0.095	0.009	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	(--)	700.0	Y
Benzene	71-43-2	1.25E-05	1.10E-01	0.289	2.9E-02	10.00	Y	100	High	A	Meet HTAC Mass Emission Limit	27.0	1.3E-01	Y
Cyclohexane	110-82-7	1.21E-06	1.06E-02	0.028	0.003	10.00	N	--	Low	C	Meet Applicable SGC/AGC	(--)	6000.0	Y
2,2,4-Trimethylpentane	540-84-1	2.32E-06	2.03E-02	0.053	0.005	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	(--)	3300.0	Y
Heptane	142-82-5	1.32E-06	1.16E-02	0.031	0.003	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	210000.0	3900.0	Y
Toluene	108-88-3	1.82E-05	1.59E-01	0.419	0.042	10.00	N	--	Low	C	Meet Applicable SGC/AGC	37000.0	5000.0	Y
Tetrachloroethene	127-18-4	1.01E-06	8.85E-03	0.023	0.002	10.00	Y	1000	High	A	Meet HTAC Mass Emission Limit	300.0	3.8	Y
Ethylbenzene	100-41-4	1.73E-06	1.52E-02	0.040	0.004	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	(--)	1000.0	Y
p/m-Xylene	106-42-3, 108-38-3	8.07E-06	7.07E-02	0.186	0.019	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	22000.0	100.0	Y
o-Xylene	95-47-6	2.85E-06	2.49E-02	0.066	0.007	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	22000.0	100.0	Y
Total Xylenes	1330-20-7	1.09E-05	9.56E-02	0.252	0.025	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	22000.0	100.0	Y
Styrene	100-42-5	1.07E-06	9.37E-03	0.025	0.002	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	17000.0	1000.0	Y
1,2,4-Trimethylbenzene	95-63-6	2.23E-06	1.95E-02	0.051	0.005	10.00	N	--	Moderate	B	Meet Applicable SGC/AGC	(--)	60.0	Y

Table Notes:

[1] Hourly emission rates based on soil vapor sampling results from Pace Analytical Report dated April 2, 2025, and SVE System design maximum volumetric flow rate of 175 ACFM @ 116 ˚F. Maximum annual emissions calculated by multiplying hourly emission rate by 8,760 hours of operation per year.

[2] Worst-Case Scenario based upon following assumptions:
- Height of nearest sensitive receptor equal to release height of SVE effluent/exhaust discharge point (118.5 ft above grade).
- Horizontal distance of nearest sensitive receptor assumed to equal 10 feet (approximate distance of nearest adjacent property line).

[3] Per 6 NYCRR 212-2.2 Table 2 - highly toxic air contaminant list. For an air contaminant listed here, the facility owner or operator shall either limit the actual annual emissions from all process operations at the facility so as to not exceed the mass emission limit listed for the individual HTAC; or demonstrate compliance with the air cleaning requirements for the HTAC as specified in subdivision 212-2.3(b), Table 4 – degree of air cleaning required for non-criteria air contaminants, of Subpart 212-2.3 for the environmental rating assigned to the contaminant by NYSDEC.

[4] From DAR-1 AGC/SGC Tables: H = High, M = Moderate, L = Low. In accordance with DAR-1 procedures, when assigning an initial Environmental Rating (ER) for each contaminant, an ER of "A" should be assigned to high toxicity contaminants; an ER of "B" should be assigned to moderate toxicity contaminants; an ER of "C" should be assigned to low toxicity contaminants; and, an ER of "D" should only be initially assigned to contamintants identified as simple asphyxiants.

[5] Per DAR-1 procedures, those air contaminants without a toxicity classification should be assigned a moderate toxicity classification. Thus, where a toxicity value has not been assigned in the AGC/SGC Tables, a moderate toxicity rating, denoted as "(moderate)", is shown. SGC and AGC which are not available are denoted as "(--)".

AERSCREEN Model Output

TITLE: SCENARIO 1 - WORST CASE

********** POINTCAP PARAMETERS **********

SOURCE EMISSION RATE:	1.0000	g/s	7.937	lb/hr
STACK HEIGHT:	36.12	meters	118.50	feet
STACK INNER DIAMETER:	0.095	meters	3.75	inches
PLUME EXIT TEMPERATURE:	294.3	K	70.0	Deg F
PLUME EXIT VELOCITY:	11.591	m/s	38.03	ft/s
STACK AIR FLOW RATE:	175	ACFM		
STACK BASE LONGITUDE:	-73.8079	deg	600705.	Easting
STACK BASE LATITUDE:	40.7059	deg	4506792.	Northing
STACK BASE UTM ZONE:			18	
REFERENCE DATUM (NADA):			4	
STACK BASE ELEVATION:	20.01	meters	65.65	feet
RURAL OR URBAN:	URBAN			
POPULATION:	3940			
FLAGPOLE RECEPTOR HEIGHT:	36.12	meters	118.50	feet
DIGITAL ELEVATION MAP(S)	"USGS_NED_13_n41w074.tif"			
INITIAL PROBE DISTANCE =	450.	meters	1476.	feet

********** BUILDING DOWNWASH PARAMETERS **********

USER DEFINED BPIPPRM INPUT FILE: AERSCREEN.BPI

MAXIMUM BUILDING HEIGHT:	33.5 meters	110.0 feet	
MAXIMUM BUILDING LENGTH:	56.5 meters	185.3 feet	
MINIMUM BUILDING WIDTH:	39.2 meters	128.6 feet	

********** FLOW SECTOR ANALYSIS **********

25 meter receptor spacing: 1. meters - 450. meters

FLOW SECTOR	BUILD WIDTH	BUILD LENGTH	XBADJ	YBADJ	MAXIMUM 1-HR CONC (ug/m3)	IMPACT DIST (m)	RECEPTOR HEIGHT (m)	TEMPORAL PERIOD
10	54.36	55.22	-15.33	-13.01	0.1477E+07	1.0	0.01	ANN
20	56.27	56.39	-13.84	-10.71	0.1097E+07	1.0	0.00	ANN
30	56.47	55.85	-11.93	-8.08	0.7689E+06	1.0	0.00	ANN
40	54.95	53.61	-9.66	-5.21	0.5175E+06	1.0	0.00	ANN
50	51.77	49.74	-7.09	-2.18	0.3749E+06	1.0	0.00	ANN
60	47.01	44.36	-4.31	0.92	0.2883E+06	1.0	0.00	ANN
70	42.03	39.20	-2.29	4.13	0.2445E+06	1.0	-0.01	ANN
80	47.93	45.70	-6.49	7.09	0.3626E+06	1.0	-0.01	ANN
90	52.37	50.80	-10.49	9.84	0.6009E+06	1.0	-0.01	ANN
100	55.22	54.36	-14.18	12.28	0.1119E+07	1.0	-0.02	ANN
110	56.39	56.27	-17.43	14.36	0.1694E+07	1.0	-0.02	ANN
120	55.85	56.47	-20.15	15.99	0.4267E+07	1.0	-0.02	ANN
130	53.61	54.95	-22.27	17.15	0.4470E+07	1.0	-0.02	ANN
140	49.74	51.77	-23.70	17.78	0.4621E+07	1.0	-0.02	ANN
150	44.36	47.01	-24.42	17.87	0.4817E+07	1.0	-0.02	ANN
160	39.20	42.03	-25.14	17.32	0.5077E+07	1.0	-0.02	ANN
170	45.70	47.93	-31.05	16.36	0.5325E+07	1.0	-0.02	ANN
180	50.80	52.37	-36.02	14.91	0.5581E+07	1.0	-0.02	ANN
190	54.36	55.22	-39.89	13.01	0.5820E+07	1.0	-0.02	ANN
200	56.27	56.39	-42.55	10.71	0.6070E+07	1.0	-0.02	ANN
210	56.47	55.85	-43.92	8.08	0.6230E+07	1.0	-0.02	ANN
220	54.95	53.61	-43.95	5.21	0.6579E+07	1.0	-0.01	ANN
230	51.77	49.74	-42.65	2.18	0.6662E+07	1.0	-0.01	ANN
240	47.01	44.36	-40.05	-0.92	0.6660E+07	1.0	-0.01	ANN
250	42.03	39.20	-36.92	-4.13	0.6610E+07	1.0	-0.01	ANN
260*	47.93	45.70	-39.21	-7.09	0.6781E+07	1.0	0.00	ANN
270	52.37	50.80	-40.31	-9.84	0.6687E+07	1.0	0.00	ANN
280	55.22	54.36	-40.19	-12.28	0.6417E+07	1.0	0.00	ANN
290	56.39	56.27	-38.84	-14.36	0.6016E+07	1.0	0.00	ANN
300	55.85	56.47	-36.31	-15.99	0.5975E+07	1.0	0.01	ANN
310	53.61	54.95	-32.69	-17.15	0.5817E+07	1.0	0.01	ANN
320	49.74	51.77	-28.06	-17.78	0.5576E+07	1.0	0.01	ANN
330	44.36	47.01	-22.59	-17.87	0.5342E+07	1.0	0.01	ANN
340	39.20	42.03	-16.89	-17.32	0.3761E+07	1.0	0.01	ANN
350	45.70	47.93	-16.88	-16.36	0.2455E+07	1.0	0.01	ANN
360	50.80	52.37	-16.35	-14.91	0.1621E+07	1.0	0.01	ANN

* = worst case flow sector

```
--------------------------------------------------------------------------------
**********  MAKEMET METEOROLOGY PARAMETERS  **********
--------------------------------------------------------------------------------

MIN/MAX TEMPERATURE:    250.0 / 310.0 (K)

MINIMUM WIND SPEED:       0.5 m/s

ANEMOMETER HEIGHT:     10.000 meters

SURFACE CHARACTERISTICS INPUT: USER ENTERED

ALBEDO:                   0.21
BOWEN RATIO:              1.62
ROUGHNESS LENGTH:       1.000 (meters)

SURFACE FRICTION VELOCITY (U*) NOT ADUSTED


       METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT
       ------------------------------------------------------------

 YR MO DY JDY HR
 -- -- -- --- --
 10 01 09   9 01

    H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 -0.36  0.043 -9.000  0.020 -999.  208.     17.3 1.000   1.62   0.21    0.50

    HT  REF TA     HT
- - - - - - - - - - -
  10.0   250.0    2.0


       METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT
       -------------------------------------------------------------

 YR MO DY JDY HR
 -- -- -- --- --
 10 01 09   9 01

    H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 -0.36  0.043 -9.000  0.020 -999.  208.     17.3 1.000   1.62   0.21    0.50

    HT  REF TA     HT
```

```
- - - - - - - - - - -
  10.0   250.0    2.0
```

```
--------------------------------------------------------------------------------
********************** AERSCREEN AUTOMATED DISTANCES **********************
                  OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE
--------------------------------------------------------------------------------
```

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	RECEPTOR HEIGHT (m)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	RECEPTOR HEIGHT (m)
1.00	0.6781E+07	0.00	225.00	244.7	-0.32
3.05	0.1832E+06	-0.04	250.00	216.9	-0.42
25.00	3063.	-0.02	275.00	195.5	-0.53
50.00	1990.	0.07	300.00	178.6	-0.59
75.00	1177.	0.03	325.00	169.6	-3.37
100.00	751.1	0.01	350.00	165.1	-5.12
125.00	533.8	0.09	375.00	163.0	-3.97
150.00	411.4	0.04	400.00	161.7	-4.14
175.00	334.4	-0.23	425.00	160.9	-5.03
200.00	282.6	-0.34	450.00	159.4	-5.15

```
--------------------------------------------------------------------------------
**********************  AERSCREEN MAXIMUM IMPACT SUMMARY  **********************
--------------------------------------------------------------------------------
```

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
ELEVATED TERRAIN	0.6781E+07	0.6781E+07	0.6103E+07	0.4068E+07	0.6781E+06

```
DISTANCE FROM SOURCE          1.00 meters directed toward 260 degrees
RECEPTOR HEIGHT      0.00 meters
```

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
IMPACT AT THE AMBIENT BOUNDARY	0.6781E+07	0.6781E+07	0.6103E+07	0.4068E+07	0.6781E+06

```
DISTANCE FROM SOURCE          1.00 meters directed toward 260 degrees
RECEPTOR HEIGHT      0.00 meters
```

ANALYTICAL REPORT

Lab Number:	L2514635
Client:	H2M Architects & Engineers 290 Broad Hollow Road Suite 400E Melville, NY 11747
ATTN:	Jessica Proscia
Phone:	(631) 393-4986
Project Name:	148-28 HILLSIDE AVE
Project Number:	Not Specified
Report Date:	04/02/25

The original project report/data package is held by Pace Analytical Services. This report/data package is paginated and should be reproduced only in its entirety. Pace Analytical Services holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NH ELAP (2249).

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

Lab Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2514635-01	EFFLUENTAIR(3/12/25)	SOIL_VAPOR	148-28 HILLSIDE AVE, QUEENS NY	03/12/25 11:43	03/13/25

Project Name:	148-28 HILLSIDE AVE	**Lab Number:**	L2514635
Project Number:	Not Specified	**Report Date:**	04/02/25

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Pace Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Pace's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Pace Project Manager and made arrangements for Pace to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	148-28 HILLSIDE AVE	**Lab Number:**	L2514635
Project Number:	Not Specified	**Report Date:**	04/02/25

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on February 28, 2025. The canister certification data is provided as an addendum.

L2514635-01: The sample was re-analyzed on dilution in order to quantitate the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

L2514635-01D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 04/02/25

AIR

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

SAMPLE RESULTS

Lab ID: L2514635-01
Client ID: EFFLUENTAIR(3/12/25)
Sample Location: 148-28 HILLSIDE AVE, QUEENS NY

Date Collected: 03/12/25 11:43
Date Received: 03/13/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/01/25 01:59
Analyst: TPH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Dichlorodifluoromethane	0.361	0.200	--	1.79	0.989	--		1
Chloromethane	0.416	0.200	--	0.859	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	1.68	0.200	--	3.72	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	7.51	5.00	--	14.2	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	5.95	1.00	--	14.1	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	2.20	1.00	--	5.41	2.46	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	0.969	0.500	--	2.86	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified
Lab Number: L2514635
Report Date: 04/02/25

SAMPLE RESULTS

Lab ID: L2514635-01
Client ID: EFFLUENTAIR(3/12/25)
Sample Location: 148-28 HILLSIDE AVE, QUEENS NY

Date Collected: 03/12/25 11:43
Date Received: 03/13/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	116	0.500	--	342	1.47	--	E	1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	1.78	0.200	--	6.27	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	5.97	0.200	--	19.1	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	0.535	0.200	--	1.84	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.756	0.200	--	3.53	0.934	--		1
Heptane	0.493	0.200	--	2.02	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	7.36	0.200	--	27.7	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	0.227	0.200	--	1.54	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.607	0.200	--	2.64	0.869	--		1

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

SAMPLE RESULTS

Lab ID: L2514635-01
Client ID: EFFLUENTAIR(3/12/25)
Sample Location: 148-28 HILLSIDE AVE, QUEENS NY

Date Collected: 03/12/25 11:43
Date Received: 03/13/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
p/m-Xylene	2.84	0.400	--	12.3	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	0.383	0.200	--	1.63	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.999	0.200	--	4.34	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	0.691	0.200	--	3.40	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.190	--	ND	0.996	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	100		60-140
Bromochloromethane	108		60-140
chlorobenzene-d5	112		60-140

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

SAMPLE RESULTS

Lab ID: L2514635-01 D
Client ID: EFFLUENTAIR(3/12/25)
Sample Location: 148-28 HILLSIDE AVE, QUEENS NY

Date Collected: 03/12/25 11:43
Date Received: 03/13/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/01/25 09:02
Analyst: TPH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Tetrahydrofuran	125	2.50	--	369	7.37	--		5

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	97		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	83		60-140

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified
Lab Number: L2514635
Report Date: 04/02/25

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 03/31/25 19:27

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab for sample(s): 01 Batch: WG2047623-4								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	1.00	--	ND	2.46	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified
Lab Number: L2514635
Report Date: 04/02/25

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 03/31/25 19:27

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab for sample(s): 01 Batch: WG2047623-4								
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified
Lab Number: L2514635
Report Date: 04/02/25

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 03/31/25 19:27

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab for sample(s): 01 Batch: WG2047623-4								
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.190	--	ND	0.996	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Air Lab	Associated sample(s): 01		Batch: WG2047623-3					
Dichlorodifluoromethane	88		-		70-130	-		
Chloromethane	92		-		70-130	-		
Freon-114	93		-		70-130	-		
Vinyl chloride	88		-		70-130	-		
1,3-Butadiene	83		-		70-130	-		
Bromomethane	88		-		70-130	-		
Chloroethane	81		-		70-130	-		
Ethanol	76		-		40-160	-		
Vinyl bromide	80		-		70-130	-		
Acetone	97		-		40-160	-		
Trichlorofluoromethane	90		-		70-130	-		
Isopropanol	90		-		40-160	-		
1,1-Dichloroethene	95		-		70-130	-		
Tertiary butyl Alcohol	82		-		70-130	-		
Methylene chloride	94		-		70-130	-		
3-Chloropropene	80		-		70-130	-		
Carbon disulfide	83		-		70-130	-		
Freon-113	96		-		70-130	-		
trans-1,2-Dichloroethene	94		-		70-130	-		
1,1-Dichloroethane	90		-		70-130	-		
Methyl tert butyl ether	86		-		70-130	-		
2-Butanone	84		-		70-130	-		
cis-1,2-Dichloroethene	94		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Air Lab	Associated sample(s): 01		Batch: WG2047623-3					
Ethyl Acetate	102		-		70-130	-		
Chloroform	92		-		70-130	-		
Tetrahydrofuran	89		-		70-130	-		
1,2-Dichloroethane	85		-		70-130	-		
n-Hexane	97		-		70-130	-		
1,1,1-Trichloroethane	94		-		70-130	-		
Benzene	82		-		70-130	-		
Carbon tetrachloride	84		-		70-130	-		
Cyclohexane	98		-		70-130	-		
1,2-Dichloropropane	88		-		70-130	-		
Bromodichloromethane	91		-		70-130	-		
1,4-Dioxane	88		-		70-130	-		
Trichloroethene	97		-		70-130	-		
2,2,4-Trimethylpentane	99		-		70-130	-		
Heptane	81		-		70-130	-		
cis-1,3-Dichloropropene	86		-		70-130	-		
4-Methyl-2-pentanone	76		-		70-130	-		
trans-1,3-Dichloropropene	89		-		70-130	-		
1,1,2-Trichloroethane	94		-		70-130	-		
Toluene	91		-		70-130	-		
2-Hexanone	72		-		70-130	-		
Dibromochloromethane	96		-		70-130	-		
1,2-Dibromoethane	90		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Air Lab	Associated sample(s): 01		Batch: WG2047623-3					
Tetrachloroethene	91		-		70-130	-		
Chlorobenzene	89		-		70-130	-		
Ethylbenzene	92		-		70-130	-		
p/m-Xylene	93		-		70-130	-		
Bromoform	101		-		70-130	-		
Styrene	90		-		70-130	-		
1,1,2,2-Tetrachloroethane	98		-		70-130	-		
o-Xylene	93		-		70-130	-		
4-Ethyltoluene	99		-		70-130	-		
1,3,5-Trimethylbenzene	99		-		70-130	-		
1,2,4-Trimethylbenzene	98		-		70-130	-		
Benzyl chloride	86		-		70-130	-		
1,3-Dichlorobenzene	98		-		70-130	-		
1,4-Dichlorobenzene	97		-		70-130	-		
1,2-Dichlorobenzene	86		-		70-130	-		
1,2,4-Trichlorobenzene	96		-		70-130	-		
Naphthalene	86		-		70-130	-		
Hexachlorobutadiene	91		-		70-130	-		

Project Name: 148-28 HILLSIDE AVE

Project Number:

Lab Number: L2514635

Report Date: 04/02/25

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt	Flow Controler Leak Chk	Flow Out mL/min	Flow In	% RPD
L2514635-01	EFFLUENTAIR(3/12/25)	240	2.7L Can	02/28/25	509979	L2454716-02	Pass	29.9	0.0	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 09/24/24 18:59
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	100		60-140
Bromochloromethane	103		60-140
chlorobenzene-d5	103		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 09/24/24 18:59
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acrolein	ND	0.050	--	ND	0.115	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.100	--	ND	0.377	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.100	--	ND	0.518	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2454716
Report Date: 04/02/25

Air Canister Certification Results

Lab ID: L2454716-02
Client ID: CAN 552 SHELF 8
Sample Location:

Date Collected: 09/23/24 16:00
Date Received: 09/24/24
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	101		60-140
bromochloromethane	106		60-140
chlorobenzene-d5	103		60-140

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified

Lab Number: L2514635
Report Date: 04/02/25

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2514635-01A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	148-28 HILLSIDE AVE	**Lab Number:**	L2514635
Project Number:	Not Specified	**Report Date:**	04/02/25

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	148-28 HILLSIDE AVE	**Lab Number:**	L2514635
Project Number:	Not Specified	**Report Date:**	04/02/25

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	148-28 HILLSIDE AVE	**Lab Number:**	L2514635
Project Number:	Not Specified	**Report Date:**	04/02/25

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name: 148-28 HILLSIDE AVE
Project Number: Not Specified
Lab Number: L2514635
Report Date: 04/02/25

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Pace Analytical Services performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Pace Analytical Services shall be to re-perform the work at it's own expense. In no event shall Pace Analytical Services be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Pace Analytical Services.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
MADEP-APH.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases

The following test method is not included in our New Jersey Secondary NELAP Scope of Accreditation:

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (via Alpha SOP 23528)

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility – 8 Walkup Dr. Westborough, MA 01581

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

Certification IDs:

Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
CT PH-0826, IL 200077, IN C-MA-03, KY JY98045, ME MA00086, MD 348, MA M-MA086, NH 2064, NJ MA935, NY 11148, NC (DW) 25700, NC (NPW/SCM) 666, OR MA-1316, PA 68-03671, RI LAO00065, TX T104704476, VT VT-0935, VA 460195

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
CT PH-0825, ANAB/DoD L2474, IL 200081, IN C-MA-04, KY KY98046, LA 3090, ME MA00030, MI 9110, MN 025-999-495, NH 2062, NJ MA015, NY 11627, NC (NPW/SCM) 685, OR MA-0262, PA 68-02089, RI LAO00299, TX T-104704419, VT VT-0015, VA 460194, WA C954

Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
ANAB/DoD L2474, ME MA01156, MN 025-999-498, NH 2249, NJ MA025, NY 12191, OR 4203, TX T104704583, VA 460311, WA C1104.

For a complete listing of analytes and methods, please contact your Project Manager.

Alpha Analytical
320 Forbes Blvd
Mansfield, MA 02048-1806
Tel: 508-822-9300
Fax: 508-822-3288

AIR Chain-of-Custody - NJ

Date Rec'd in Lab 3/14/25 | ALPHA Job# L2514635

1 of 1 COCs

Client Contact Information

Company: H2M
Address: 290 Broad Hollow Rd
City/State/Zip Melville, NY
Phone: 516-220 6300
FAX:
Email: JProscia@H2M.com
Site Contact: Jessica Proscia
Site Contact Phone:

Project Information

Project Name: 148-28 Hillside Ave
~~Project No:~~ Queens NY
Site/Location: 148-28 Hillside Ave
Project Manager: Jessica Proscia

Analysis Turn-Around Time

Standard (Specify)
Rush (Specify)

NJ DEP Information

Bureau: Division: Contract No:

Report Information - Data Deliverables:

☐ FAX:
☒ ADEx ☐ Criteria Checker:
☒ EMail (standard pdf report)

Billing Information

☐ Same as Client Info PO #:

ALPHA LAB ID (Lab Use Only)	Sample Identification	Sample Date(s)	Time Start (24 hr clock)	Time Stop (24 hr clock)	Canister Pressure in Field (Hg) (Start)	Canister Pressure in Field (Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Outgoing Canister Pressure (Hg) (Note1)	Incoming Canister Pressure (Hg) (Note 2)	Flow Reg. ID	Can ID	Can Size (L)	Flow Controller Readout (ml/min) (Note1)	Batch Cert ID (Note 1)	Analysis: TO-15	Analysis: EPA 3C	Matrix: Indoor /Ambient Air	Matrix: Soil Gas	Matrix: SVE Effluent
14635-01	Effluent Air (3/12/25)	3/10/25	11:42	11:43	-10	-2	54°	54°			6806097	240	2.7			X				X

Custody Seals:
Outgoing Seal No: (refer to crate seal)
Incoming Seal No: (if applicable)

Temperature (Fahrenheit)	Ambient	Maximum	Minimum	
Start				
Stop				

Pressure (inches of Hg)	Ambient	Maximum	Minimum	
Start				
Stop				

Individual Preparing Canister/Containers and Laboratory Canister Certification
Name:
Signature:

Footnotes:
(1) Refer to equipment tags for these readings.
(2) Readings provided in data deliverable package.

Special Instructions/QC Requirements & Comments:

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time: 3/13/25 1029
Samples Relinquished by:	Date/Time: 3/13/25 1600	Received by: FEDEX	Date/Time: 3.13.25 18:40
Relinquished by: FEDEX	Date/Time: 3.13.25 22:25	Received by: Courtney Green	Date/Time: MAR 13 2025 2040

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until all ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

Courtney Green
Chain of custody 3/14/25 0540

Chain of custody 3/14/25 0145

3/14/25 0145
3/14/25 0540

Note: Combined External Chain of Custody and NJDEP Field Test Data Sheet

APPENDIX H

Quality Assurance Project Plan

Quality Assurance Project Plan (QAPP)

Site No.: C241199

148-26 a/k/a 148-18 Hillside Avenue
Queens, New York

H2M Project No.: TTCI2401

Prepared for:

Hillside 168 Inc.
148-18 Hillside Avenue
Queens, New York

and

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12207

Prepared by:

H2M architects + engineers
290 Broad Hollow Road, Suite 400E
Melville, New York 11747

H 2 M architects + engineers

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Quality Assurance Project Plan

1.1 Introduction - The following Quality Assurance Project Plan ("QAPP") has been prepared specifically for the Site Management Plan (SMP) in connection with the 148-26 a/k/a 148-18 Hillside Avenue, Queens NY Site cleanup under the NYSDEC Site Number C241199. This Plan was prepared and approved as stated below.

Prepared by: _____ Date: 5/6/25
Jason Cooper, Quality Assurance Officer

Approved by: _____ Date: 5/6/25
Jessica Proscia., Senior Project Manager/Senior Project Scientist

1.2 Project Description - The SMP subject to this QAPP has been prepared to address the following issues:

- Remove the VOCs from the subsurface soils and soil vapor via an active Soil Vapor Extraction (SVE) system.

The methods that will be used include the continuous operation of the SVE system.

1.3 Project Organization – Jessica Proscia will serve as the Senior Project Manager (PM) and will be responsible for the overall scheduling and performance of all investigative activities.

Jason Cooper will serve as the Quality Assurance Officer (QAO) for this project. His duties will include:

- Review of laboratory data packages
- Interface with laboratory
- Performance of Field Audits

Experienced H2M staff will perform and/or oversee completion of all the field activities described in the SMP.

1.4 Quality Assurance Objectives and Data Measurement

Chemical Analysis – All environmental samples will be delivered to a New York State-Certified laboratory contracted to H2M for chemical analysis. This data is intended to determine the potential for soil vapor to contain detectable concentrations of VOCs. Soil vapor will be chemically analyzed utilizing the procedures and protocols described in Sampling, Sample Preparation, & Analysis Requirements of EPA Compendium Method T0-15. Each stainless-steel SUMMA air sampling canister required for analysis utilizing EPA Method T0-15 will be specially pre-calibrated and prepared for the requisite six liter sampling volumes.

Quality assurance objectives are generally defined in terms of five parameters:

- **Representativeness -** Representativeness is the degree to which sampling data accurately and precisely represents site conditions, and is dependent on sampling and analytical variability. The SMP has been designed to assess the presence of the constituents in the target media at the time of sampling. The Plan presents the rationale for sample quantities and location. The Plan also presents field sampling methodologies and laboratory analytical methodologies.

  The use of the prescribed field and laboratory analytical methods with associated holding times and preservation requirements are intended to provide representative data. Further discussion of QC checks is presented in Section 1.11.

- **Comparability** - Comparability is the degree of confidence with which one data set can be compared to another data set. Comparability between this investigation and to the extent possible, with existing data will be maintained through consistent sampling and analytical methodology set forth in the QAPP; the SMP; the NYSDEC ASP analytical methods (2005) with NYSDEC ASP QA/QC requirements (2005); and through use of QA/QC procedures and appropriately trained personnel.

- **Completeness -** Completeness is defined as a measure of the amount of valid data obtained from a sampling event compared to the amount that was expected to be obtained under normal conditions. This will be determined upon assessment of the analytical results.

- **Precision -** Precision is the measure of reproducibility of sample results. The goal is to maintain a level of analytical precision consistent with the objectives of the SMP. To maximize precision, sampling and analytical procedures will be followed. All work for the investigation phase of this project will adhere to established protocols presented in the QAPP, and the SMP. Checks for analytical precision will include the analysis of matrix spike duplicated, laboratory duplicates, and field duplicates. Checks for field measurement precision will include obtaining duplicate field measurements. Further discussion of precision QC checks is provided in Section 1.11.

- **Accuracy** - Accuracy is the deviation of a measurement from the true value of a known standard. Both field and analytical accuracy will be monitored through initial and continuing calibration of instruments. In addition, internal standards, matrix spikes, blank spikes, and surrogates (e.g. system monitoring compounds) will be used to assess the accuracy of the laboratory analytical data.

1.5 Sampling Procedures - The sampling procedures that will be employed are discussed in detail in the SMP.

1.6 Sample and Document Custody Procedures

- **General** - The Chain-of-Custody program allows for the tracing of possession and handling of the sample from its time of collection through its chemical analysis in the laboratory. The chain-of-custody program at this site will include:

  - Sample labels
  - Chain-of-Custody records
  - Field records

- **Sample Container Details**

Sample Matrix & Parameters	Container & Preservation	Method	Holding Time*
Soil Vapor			
Raw Air Sample for VOCs	One 6-liter SUMMA Canister	USEPA TO-15	30 days

*Holding Time is calculated from collection date

- **Sample Labels** - To prevent misidentification of samples, a label will be affixed to the sample container and will contain the following information:

  - Site Name
  - Sample identification number
  - Date and time of collection
  - Initials of Sampler
  - Preservation (if any)
  - Type of analysis to be conducted.

- **Chain-of-Custody Records** - To establish the documentation necessary to trace sample possession from the time of collection, a chain-of-custody record will be filled out and will accompany samples at all times. The record will contain the following information:

  - Project name:
  - Printed name and signature of samplers
  - Sample Identification
  - Date and time of collection
  - Sampling location
  - Number of containers for each sample
  - Signature of individuals involved in sample transfer (when relinquishing and accepting samples)
  - Inclusive dates and times of possession.

- **Field Records** - Field records will be maintained during each sampling effort in a logbook. All aspects of sample collection, handling and visual observations will be recorded. All sample collection equipment, field analytical equipment and equipment utilized to make physical measurements will be identified in the field logbook.

All calculations, results and calibration data for field sampling, field analytical and field physical measurement equipment will also be recorded in the field logbook. Entries will be dated and initialed. Entries will be made in ink, and will be legible.

1.7 Calibration Procedures and Frequency - The contracted laboratory will follow the NYSDEC Category-B requirements for equipment calibration procedures and frequency.

1.8 Analytical Procedures - Soil vapor samples will be chemically analyzed utilizing the procedures and protocols described in Sampling, Sample Preparation, & Analysis Requirements of EPA Compendium Method T0-15. Each stainless-steel SUMMA air sampling canister required for analysis utilizing EPA Method T0-15 will be specially pre-calibrated and prepared for the requisite six liter sampling volumes.

1.9 Data Reduction, Validation and Reporting

- **Field Data** - All field data recorded in logbooks or on log sheets will be evaluated in the Office and transferred to word processor text by field personnel or clerical staff. The QAO and/or PM will review this data for accuracy and completeness.

- **Laboratory Data** - The laboratory will transfer the instrument readings to laboratory report forms.

1.10 Internal Quality Control Checks

Both field and laboratory quality control checks are proposed for this project. In the event that there are any deviations from these checks, the Project Manager and Quality Assurance Officer will be notified. The proposed field and laboratory control checks are discussed below.

Field Quality Control Checks

- **Field Measurements -** To verify the quality of data collected using field instrumentation, at least one duplicate measurement will be obtained per day and reported for all field analytical measurements.

- **Sample Containers -** Certified-clean sample containers will be supplied by the contracted laboratory.

It is important to note, that field duplicates, rinse blanks, or trip blanks are not required for the raw SVE system sampling. However, if any shutdown or modification to the SVE system is proposed to occur, additional requirements (field duplicates) will be warranted at that time to support the decision process. This will be further discussed in a proposed plan at that time, which presents the details regarding the change to the system and how sampling will be performed to identify that the change is appropriate.

1.11 Performance and Systems Audits

Performance and systems audits will be completed in the field and the laboratory during the investigation phase of this project as described below.

- **Field Audits –** H2M's Project Manager and Quality Assurance Officer will monitor field performance and field meter calibrations to verify that measurements are taken according to established protocols. The Project Manager will review all field logs.

- **Laboratory Audits** – The contracted laboratory will perform internal audits consistent with NYSDEC ASP (2005).

1.12 Preventive Maintenance

Preventive maintenance schedules have been developed for both field and laboratory instruments. A summary of the maintenance activities to be performed is presented below.

- **Field Instruments and Equipment -** Prior to any field sampling, each piece of field equipment will be inspected to assure it is operational. If the equipment is not operational, it must be serviced prior to use. All meters which require charging or batteries will be fully charged or have fresh batteries. If instrument servicing is required, it is the responsibility of the field personnel to follow the maintenance schedule and arrange for prompt service.

- **Laboratory Instruments and Equipment -** The laboratory will document Laboratory instrument and equipment procedures. Documentation includes details of any observed problems, corrective measure(s), routine maintenance, and instrument repair (which will include information regarding the repair and the individual who performed the repair).

  Preventive maintenance of laboratory equipment generally will follow the guidelines recommended by the manufacturer. A malfunctioning instrument will be repaired immediately by in-house staff or through a service call from the manufacturer.

1.13 Data Assessment Procedures

The analytical data generated during implementation of the SMP will be evaluated with respect to precision, accuracy, and completeness. The procedures utilized when assessing data precision, accuracy, and completeness are presented below.

- **Data Precision Assessment Procedures -** Field precision is difficult to measure because of temporal variations in field parameters. However, precision will be controlled through the use of experienced field personnel, properly calibrated meters, and duplicate field measurements.

It is important to note, that field duplicates, matrix spike (MS) and matrix spike duplicate (MSD) samples are not required for the raw SVE system sampling. However, if any shutdown or modification to the SVE system is proposed to occur, additional requirements (field duplicates, MS and MSD samples) will be warranted at that time to support the decision process.

How this will be performed is detailed below:

Laboratory data precision for organic analyses will be monitored through the use of matrix spike duplicate sample analyses. For other parameters, laboratory data precision will be monitored through the use of field duplicates and/or laboratory duplicates.

The precision of data will be measured by calculation of the standard deviation (SD) and the coefficient of variation (CV) of duplicate sample sets. The SD and CV are calculated for duplicate sample sets by:

$$SD = (A-B)/1.414$$
$$CV = ((A-B)/1.414/((A+B)/2))$$

Where:

A = Analytical result from one of two duplicate measurements
B = Analytical result from the second measurement.

Where appropriate, A and B may be either the raw measurement or an appropriate mathematical transformation of the raw measurement (e.g., the logarithm of the concentration of a substance).

Alternately, the relative percent difference (RPD) can be calculated by the following equation:

$$RPD = \frac{(A-B)}{(A+B)/2} \times 100$$

$$RPD = 1.414\ (CV)(100)$$

- **Data Accuracy Assessment Procedures -** The accuracy of field measurements will be controlled by experienced field personnel, properly calibrated field meters, and adherence to established protocols. The accuracy of field meters will be assessed by review of calibration and maintenance logs.

  Laboratory accuracy will be assessed via the use of matrix spikes, surrogate spikes, and internal standards. Where available and appropriate, QA performance standards will be analyzed periodically to assess laboratory accuracy. Accuracy will be calculated as a percent recovery as follows:

$$Accuracy = \frac{A-X}{B} \times 100$$

  Where:

  A = Value measured in spiked sample or standard
  X = Value measured in original sample
  B = True value of amount added to sample or true value of standard

  This formula is derived under the assumption of constant accuracy over the original and spiked measurements. If any accuracy calculated by this formula is outside of the acceptable levels, data will be evaluated to determine whether the deviation represents unacceptable accuracy, or variable, but acceptable accuracy. Accuracy objectives for matrix spike recoveries and surrogate recovery objectives are identified in the NYSDEC, ASP (2005).

- **Data Completeness Assessment Procedures -** Completeness of a field or laboratory data set will be calculated by comparing the number of samples collected or analyzed to the proposed number.

$$\text{Completeness} = \frac{\text{No. Valid Samples Collected or Analyzed}}{\text{No. Proposed Samples Collected or Analyzed}} \times 100$$

  As general guidelines, overall project completeness is expected to be at least 90 percent. The assessment of completeness will require professional judgment to determine data usability for intended purposes.

1.14 Corrective Action

Corrective actions are required when field or analytical data are not within the objectives specified in this QAPP, or the SMP. Corrective actions include procedures to promptly investigate, document, evaluate, and correct data collection and/or analytical procedures. Field and laboratory corrective action procedures for this project are described below.

- **Field Procedures** - When conducting the investigative fieldwork, if a condition is noted that would have an adverse effect on data quality, corrective action will be taken so as not to repeat this condition. Condition identification, cause and corrective action implemented will be documented as a memo to the project file and reported to the Project Manager.

  Examples of situations, which would require corrective actions, are provided below:

  - Protocols as defined by the QAPP and the SMP have not been followed;
  - Equipment is not in proper working order or properly calibrated;
  - QC requirements have not been met; and
  - Issues resulting from performance or systems audits.

  Project field personnel will continuously monitor ongoing work performance in the normal course of daily responsibilities.

- **Laboratory Procedures -** In the laboratory, when a condition is noted to have an adverse effect on data quality, corrective action will be taken so as not to repeat this condition. Condition identification, cause and corrective action to be taken will be documented, and reported to the Quality Assurance Officer.

  Corrective action may be initiated, at a minimum, under the following conditions:

  - Specific laboratory analytical protocols have not been followed;
  - Predetermined data acceptance standards are not obtained;
  - Equipment is not in proper working order or calibrated;
  - Sample and test results are not completely traceable;
  - QC requirements have not been met; and
  - Issues resulting from performance or systems audits.

  Laboratory personnel will continuously monitor ongoing work performance in the normal course of daily responsibilities.

1.15 Quality Assurance Reports and Management

- **Reporting** – The Quarterly Monitoring Reports and Periodic Review Reports will be submitted to the NYSDEC. It is important to note, that data validation and the preparation of a DUSR is not required for the quarterly raw SVE system sampling.

  However, if any shutdown or modification to the SVE system is proposed to occur, additional requirements will be warranted at that time to support the decision process. This will be further discussed in a proposed plan at that time, which presents the details regarding the change to the system and how sampling will be performed to identify that the change is appropriate.

APPENDIX I

Site Management Forms

Periodic Review Report Site-Wide Inspection Check List

148-28 a/k/a 148-18 Hillside Avenue
Queens, New York
NYSDEC Site #C241199

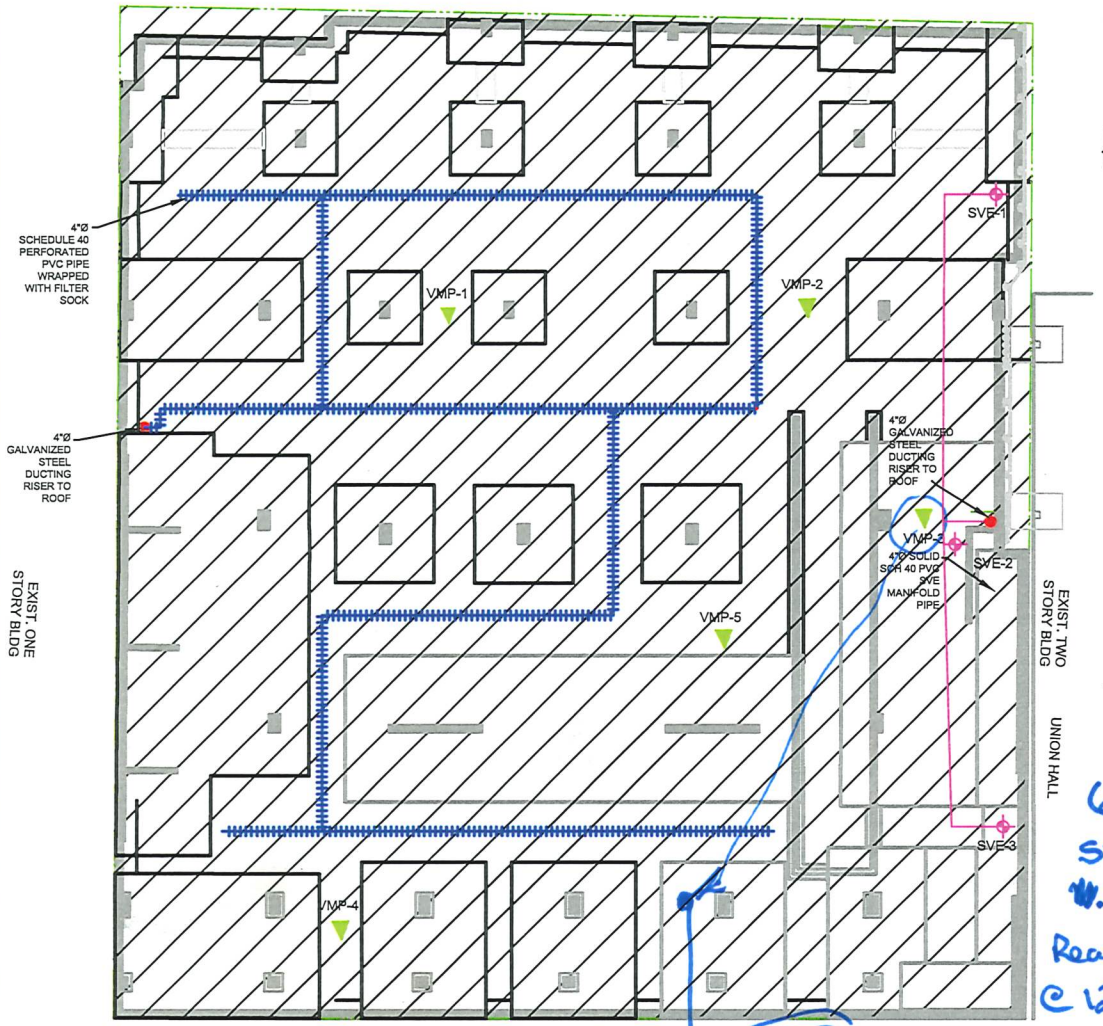
Compliances to be Addressed	Comments
Provide an evaluation of the condition and continued effectiveness of engineering controls (foundation slabs, SSDS, SVE system).	
Are all institutional controls, including Site usage for commercial use in compliance?	
Are vegetable gardens and farming being prohibited?	
Is the use of groundwater being prohibited?	
What are the general Site conditions?	
What condition is the SVE system blower in? What is the flow rate? What is the vacuum?	
What condition is the SVE system piping in?	
Does Site access remain available to maintain engineering controls?	
Are all permits and schedules included in the Operation and Maintenance Plan in Compliance?	
Are any air supply, HVAC intakes, or adjoining/adjacent buildings constructed within 10 feet of any of the SVE or SSDS vents?	
Has any intrusive work been done on the site within the reporting period; if so was the composite cover system breached? If so was the SMP adhered to?	
Inspector- *Date/Time-*	

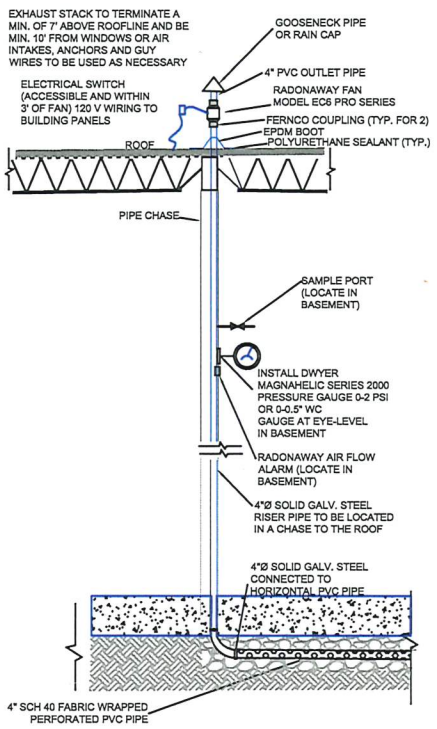
Quarterly Monitoring Field Form

146-26 a/k/a 148-18 Hillside Avenue
Queens, NY
Site No. C241199
SVE System Data Log Field Form

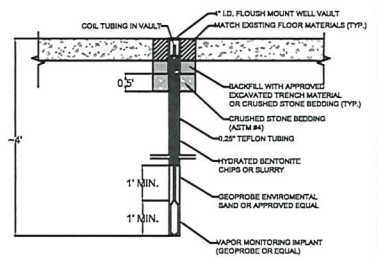
Date		
System Status on Arrival		
System Status on Departure		
Control Panel Hours		
Control Panel Hours - Time Recorded		
Operating Hours Since Last Visit		
Hours Available Since Last Visit		
Percent Operation (quarterly)		
Moisture Separator Liquid Level (inches)		
Vacuum		
	SVE-1 ("WC) at Wellhead	
	SVE-2 ("WC) at Wellhead	
	SVE-3 ("WC) at Wellhead	
	System Influent ("WC)	
Temperature		
	Raw Temp (°F)	
Airflow		
	SVE-1 (CFM) at Wellhead	
	SVE-2 (CFM) at Wellhead	
	SVE-3 (CFM) at Wellhead	
	System (SCFM)	
Volatile Organic Compounds		
	SVE-1	
	SVE-2	
	SVE-3	

Notes:

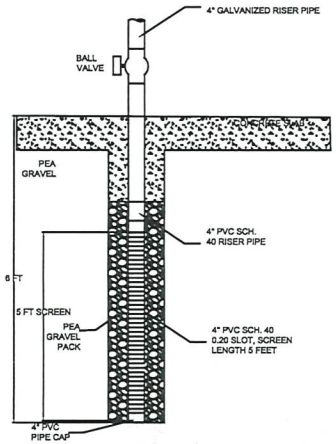




SSDS PROFILE
SCALE: NTS

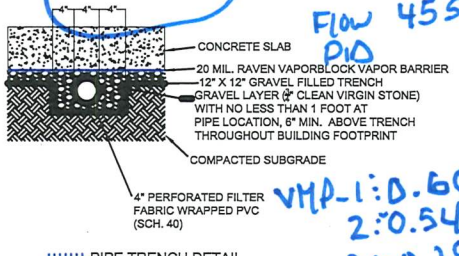


VACUUM MONITORING POINT DETAIL
NTS



SVE WELL
SCALE: NTS

6/2/25
SSDS on @ 11:55
Run for 20 mins
Readings beg @ 12:15
Basement SSDS
VAC -1.127
Flow 455 CFM
PID
VMP-3



PIPE TRENCH DETAIL
SCALE: NTS

VMP-1: 0.603
2: 0.546
3: 0.396
4: -0.385
5: -0.482

LEGEND

- VACUUM MONITORING POINT
- SSDS HORIZONTAL PIPING (SCH 40 PERFORATED PVC WRAPPED WITH FILTER SOCK)
- SOLID 4" AIRTIGHT GALV. STEEL RISER PIPE
- 4"Ø SVE SCH. 40 PVC SVE POINT
- COMPOSITE COVER SYSTEM

NOTES

1. SSDS piping installed at 6-inches below the bottom of the Site building slab.
2. SVE pipe installed approximately 19-feet below grade with 5-feet of screen.
3. Bottom of the Site building slab is 13-feet below grade. The SVE well depth is 6-feet below basement grade.
4. Installation of the SVE system consists of a network of three, 4"Ø sch. 40 perforated PVC vertical SVE well points. The SVE points were installed vertically along the western wall of the property at basement grade (13 feet below surface grade) and extends another six feet below basement grade. The three SVE points are horizontally connected along the basement ceiling with galvanized steel piping and are fitted with a galvanized steel riser pipe finished at the roof. An Atlantic Blower Model #AB-500 3.5HP, 208-230V, 3PH Blower was installed to provide vacuum for the SVE system.

H2M architects + engineers
290 Broad Hollow Road, Suite 400E
Melville, NY 11747
631.756.8000 • www.h2m.com

FIGURE NO.:	DRAWN BY:	CHECKED BY:	PROJECT NO.:	DRAWING NO.:	DATE:	SCALE:
8	T.R.B.	J.E.P.	TTCI2401	2025-4	5/12/2025	Not Shown

Locations of Engineering Controls for the Site

C241199
148-18 Hillside Avenue
Jamaica, NY

X:\TTCI (Hillside 168, Inc)\TTCI2401 148-28 Hillside Ave\02-BIM-CADD\2025-4

APPENDIX J

Environmental Footprint Analysis

148-26 aka 148-18 Hillside Avenue

Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019

Input Workbook

Track 2 Restricted Residential Cleanup

	Enter the path name (if not saved in the same directory) and file name of the "Main" workbook for the project.
Path Name:	
Main File Name:	SEFA_main_(121718).xlsx

Component	**Remedy Component Names**
Component 1	*Soil Vapor Extraction Monitoring*
Component 2	*SSDS Extraction Monitoring*
Component 3	*Annual Inspection*
Component 4	*< Component 4 >*
Component 5	*< Component 5 >*
Component 6	*< Component 6 >*

Component names are autofilled from the "Main" workbook.

The following color coding applies to cells in the worksheets in this workbook.

	Green cells indicate notes or instructions
	Yellow cells are for manual data input
	Red cells are for manual data input from a drop-down list of selections and are protected
	Blue cells are calculated cells that are protected
	Gray cells are not available and/or not applicable for data entry

Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019
148-26 aka 148-18 Hillside Avenue - Track 2 Restricted Residential Cleanup

Input Summary

Remedy Component Number →			2	3	4	5	6									Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		SVE Monitoring	SSDS	Annual Inspection	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
On-Site																						
On-site Renewable Energy																						
Renewable electricity generated on-site	MWh															0	0	0	0	0	0	0
Landfill gas combusted on-site for energy use	ccf CH_4															0	0	0	0	0	0	0
On-site biodiesel use	gal															0	0	0	0	0	0	0
On-site biodiesel use - Other	gal															0	0	0	0	0	0	0
User-defined on-site renewable energy use #1	TBD															0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD															0	0	0	0	0	0	0
On-Site Conventional Energy																						
Grid electricity	MWh															0	0	0	0	0	0	0
On-site diesel use - Other	Gal															0	0	0	0	0	0	0
On-site diesel use <75 hp	Gal															0	0	0	0	0	0	0
On-site diesel use 75<hp<750	Gal															0	0	0	0	0	0	0
On-site diesel use >750 hp	Gal															0	0	0	0	0	0	0
On-site gasoline use - Other	Gal															0	0	0	0	0	0	0
On-site gasoline use <25 hp	Gal															0	0	0	0	0	0	0
On-site gasoline use >25 hp	Gal															0	0	0	0	0	0	0
On-site natural gas use	ccf															0	0	0	0	0	0	0
On-site compressed natural gas use - Other	ccf															0	0	0	0	0	0	0
On-site compressed natural gas use	ccf															0	0	0	0	0	0	0
On-site liquified petroleum gas use - Other	gal															0	0	0	0	0	0	0
On-site liquified petroleum gas use	gal															0	0	0	0	0	0	0
Other forms of on-site conventional energy use #1	TBD															0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD															0	0	0	0	0	0	0
Other On-site Emissions																						
On-site HAP process emissions	Lbs															0	0	0	0	0	0	0
On-site GHG emissions	Lbs CO2e															0	0	0	0	0	0	0
On-site carbon storage	Lbs CO2e															0	0	0	0	0	0	0
GHG avoided by flaring on-site landfill methane	ccf CH4															0	0	0	0	0	0	0
Other on-site NOx emissions or reductions	Lbs															0	0	0	0	0	0	0
Other on-site SOx emissions or reductions	Lbs															0	0	0	0	0	0	0
Other on-site PM emissions or reductions	Lbs															0	0	0	0	0	0	0
Electricity Generation																						
Grid electricity	MWh															0	0	0	0	0	0	0
Voluntary purchase of renewable electricity	MWh															0	0	0	0	0	0	0
Voluntary purchase of RECs	MWh															0	0	0	0	0	0	0
Transportation																						
Transportation Fuel Use Breakdown																						
Biodiesel use - Personnel Transport	gal															0	0	0	0	0	0	0
Biodiesel use - Personnel Transport - User Defined	gal															0	0	0	0	0	0	0
Biodiesel use - Equipment Transport	gal															0	0	0	0	0	0	0
Biodiesel use - Equipment Transport - User Defined	gal															0	0	0	0	0	0	0
Biodiesel use - Material Transport	gal															0	0	0	0	0	0	0
Biodiesel use - Material Transport - User Defined	gal															0	0	0	0	0	0	0
Biodiesel use - Waste Transport	gal															0	0	0	0	0	0	0
Biodiesel use - Waste Transport - User Defined	gal															0	0	0	0	0	0	0
Diesel use - Personnel Transport - other vehicles	gal															0	0	0	0	0	0	0
Diesel use - Personnel Transport - car	gal															0	0	0	0	0	0	0
Diesel use - Personnel Transport - passenger truck	gal															0	0	0	0	0	0	0
Diesel use - Personnel Transport - User Defined	gal															0	0	0	0	0	0	0
Diesel use - Equipment Transport	gal															0	0	0	0	0	0	0
Diesel use - Equipment Transport - User Defined	gal															0	0	0	0	0	0	0
Diesel use - Material Transport	gal															0	0	0	0	0	0	0
Diesel use - Material Transport - User Defined	gal															0	0	0	0	0	0	0
Diesel use - Waste Transport	gal															0	0	0	0	0	0	0
Diesel use - Waste Transport - User Defined	gal															0	0	0	0	0	0	0
Gasoline use - Personnel Transport - other vehicles	gal															0	0	0	0	0	0	0
Gasoline use - Personnel Transport - car	gal															0	0	0	0	0	0	0
Gasoline use - Personnel Transport - passenger truck	gal															0	0	0	0	0	0	0
Gasoline use - Personnel Transport - User Defined	gal															0	0	0	0	0	0	0
Gasoline use - Equipment Transport	gal															0	0	0	0	0	0	0
Gasoline use - Equipment Transport - User Defined	gal															0	0	0	0	0	0	0
Natural Gas use - Personnel Transport	ccf															0	0	0	0	0	0	0
Natural Gas use - Personnel Transport - User Defined	ccf															0	0	0	0	0	0	0
Natural Gas use - Equipment Transport	ccf															0	0	0	0	0	0	0

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Input Summary

Remedy Component Number →			2	3	4	5	6									Remedy Component Subtotals						
Item		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				Total
		SVE Monitoring	SSDS	Annual Inspection	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
Conventional Energy																						
Transportation diesel use	gal															0	0	0	0	0	0	0
Transportation gasoline use	gal															0	0	0	0	0	0	0
Transportation natural gas use	ccf															0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD															0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD															0	0	0	0	0	0	0
Renewable Energy																						
Transportation biodiesel use	gal															0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD															0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD															0	0	0	0	0	0	0
Off-Site																						
Construction Materials																						
Aluminum, Rolled Sheet	lb															0	0	0	0	0	0	0
Asphalt, mastic	lb															0	0	0	0	0	0	0
Asphalt, paving-grade	lb															0	0	0	0	0	0	0
Ethanol, Corn, 95%	lb															0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb															0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb															0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb															0	0	0	0	0	0	0
Gravel/sand/clay	lb															0	0	0	0	0	0	0
HDPE	lb															0	0	0	0	0	0	0
Photovoltaic system (installed)	W															0	0	0	0	0	0	0
PVC	lb															0	0	0	0	0	0	0
Portland cement, US average	lb																					
Ready-mixed concrete, 20 MPa	ft3															0	0	0	0	0	0	0
Round Gravel	lb															0	0	0	0	0	0	0
Sand	lb															0	0	0	0	0	0	0
Stainless Steel	lb															0	0	0	0	0	0	0
Steel	lb															0	0	0	0	0	0	0
Other refined construction materials	lb															0	0	0	0	0	0	0
Other unrefined construction materials	lb															0	0	0	0	0	0	0
Treatment Materials & Chemicals																						
Cheese Whey	lbs															0	0	0	0	0	0	0
Emulsified vegetable oil	lbs															0	0	0	0	0	0	0
Granular activated carbon, primary	lbs															0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs															0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs															0	0	0	0	0	0	0
Iron (II) Sulfate	lbs															0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs															0	0	0	0	0	0	0
Molasses	lbs															0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs															0	0	0	0	0	0	0
Potassium Permanganate	lbs															0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs															0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs															0	0	0	0	0	0	0
Material Type																						
Total Virgin Refined Materials	tons															0	0	0	0	0	0	0
Total Recycled Refined Materials	tons															0	0	0	0	0	0	0
Total Reused Refined Materials	tons															0	0	0	0	0	0	0
Total Refined Material	tons															0	0	0	0	0	0	0
Total Virgin Unrefined Materials	tons															0	0	0	0	0	0	0
Total Recycled Unrefined Materials	tons															0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons															0	0	0	0	0	0	0
Total Unrefined Material	tons															0	0	0	0	0	0	0
Fuel Processing																						
Biodiesel produced	gal															0	0	0	0	0	0	0
Diesel produced	gal															0	0	0	0	0	0	0
Gasoline produced	gal															0	0	0	0	0	0	0
Compressed natural gas produced	ccf															0	0	0	0	0	0	0
Liquified petroleum gas produced	gal															0	0	0	0	0	0	0
Natural gas produced	ccf															0	0	0	0	0	0	0
Water Use																						
Public Water Supply	gal x 1000															0	0	0	0	0	0	0
Extracted Groundwater	gal x 1000															0	0	0	0	0	0	0
Surface Water	gal x 1000															0	0	0	0	0	0	0
Reclaimed Water	gal x 1000															0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000															0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000															0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000															0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6									Remedy Component Subtotals						
Item		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				Total
		SVE Monitoring	SSDS	Annual Inspection	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
Waste/Recycle Handling																						
Hazardous waste incineration	lbs															0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000															0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons															0	0	0	0	0	0	0
Off-site hazardous waste landfill	tons															0	0	0	0	0	0	0
Recycled/Reused On-Site	tons															0	0	0	0	0	0	0
Recycled/Reused Off-Site	tons															0	0	0	0	0	0	0
Solid Waste Totals																						
Total Non-Hazardous Waste	tons															0	0	0	0	0	0	0
Total Hazardous Waste	tons															0	0	0	0	0	0	0
Total Recycled/Reused	tons															0	0	0	0	0	0	0
Total Waste (all types)	tons															0	0	0	0	0	0	0
Lab Services																						
Off-site Laboratory Analysis - Other	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - Metals	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - Mercury	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - Inorganic Anions	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - Alkalinity	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - Perchlorate	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - Sulfate	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - PCBs	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - VOCs	sample															0	0	0	0	0	0	0
Off-site Laboratory Analysis - SVOCs	sample															0	0	0	0	0	0	0
Resource Extraction for Electricity																						
Coal extraction and processing	MWh															0	0	0	0	0	0	0
Natural gas extraction and processing	MWh															0	0	0	0	0	0	0
Nuclear fuel extraction and processing	MWh															0	0	0	0	0	0	0
Oil extraction and processing	MWh															0	0	0	0	0	0	0
Other fuel extraction and processing	MWh															0	0	0	0	0	0	0
Electricity Transmission																						
Transmission and distribution losses	MWh															0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6									Remedy Component Subtotals						
Item		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				Total
		SVE Monitoring	SSDS	Annual Inspection	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
Other																						
User-defined material #1	TBD															0	0	0	0	0	0	0
User-defined material #2	TBD															0	0	0	0	0	0	0
User-defined material #3	TBD															0	0	0	0	0	0	0
User-defined material #4	TBD															0	0	0	0	0	0	0
User-defined material #5	TBD															0	0	0	0	0	0	0
User-defined material #6	TBD															0	0	0	0	0	0	0
User-defined material #7	TBD															0	0	0	0	0	0	0
User-defined material #8	TBD															0	0	0	0	0	0	0
User-defined material #9	TBD															0	0	0	0	0	0	0
User-defined material #10	TBD															0	0	0	0	0	0	0
User-defined material #11	TBD															0	0	0	0	0	0	0
User-defined material #12	TBD															0	0	0	0	0	0	0
User-defined material #13	TBD															0	0	0	0	0	0	0
User-defined material #14	TBD															0	0	0	0	0	0	0
User-defined material #15	TBD															0	0	0	0	0	0	0
User-defined material #16	TBD															0	0	0	0	0	0	0
User-defined material #17	TBD															0	0	0	0	0	0	0
User-defined material #18	TBD															0	0	0	0	0	0	0
User-defined material #19	TBD															0	0	0	0	0	0	0
User-defined material #20	TBD															0	0	0	0	0	0	0
User-defined Waste Destinations																						
User-defined recycled/reused on-site #1	TBD															0	0	0	0	0	0	0
User-defined recycled/reused on-site #2	TBD															0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD															0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD															0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD															0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD															0	0	0	0	0	0	0
User-defined non-hazardous waste destination #1	TBD															0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD															0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD															0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD															0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD															0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD															0	0	0	0	0	0	0

Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019
148-26 aka 148-18 Hillside Avenue - Track 2 Restricted Residential Cleanup

Input Worksheet for Input Template

Please specify which Remedy Component this Input worksheet is part of: (Select "Off" to exclude this Input worksheet from calculations and results)	Component 1	Soil Vapor Extraction Monitoring

General Scope

Example Items Eliminated through Screening Process

Other Notes and References

Personnel Transportation

Participant	Number of Roundtrips to Site	Roundtrip Distance to Site (miles)	Mode of Transportation*	Transport Fuel Type*	Total Distance Transported (miles)	Default Fuel Usage Rate**	Fuel Usage Rate Override**	Fuel Used for Personnel Transport**	Activity or Notes
QEP	4	50	Car	Gasoline	200	25		8	

**** See the "Detailed Notes and Explanations" tab for explanation of transport and fuel options.***

***** for biodiesel, B20, diesel, and gasoline, units are gallons for Fuel Used and miles/gallon for Fuel Usage Rate; for natural gas, units are hundreds of cubic feet (ccf) for Fuel Used and ccf/miles for Fuel Usage Rate; for electricity, units are miles/kWh for Fuel Usage Rate and the kWh (Fuel Used) are added to total grid electricity used (cell G69).***

On-Site Equipment Use and Transportation

Equipment Type*	HP*	Load Factor (%)*	Equipment Fuel Type**	Equipment Fuel Usage Rate	Equipment Hours Operated	Fuel Used for On-site Equipment	Equipment weight (tons)	Number of Equipment Roundtrips to Site	Roundtrip Distance to Site (miles)	Total Distance Transported (miles)	Mode of Transportation	Transport Fuel Type***	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Equipment Transport (gallons)	Activity or Notes

**** HP and Load Factor must be entered by user in Columns C and D. Please see the "Detailed Notes and Explanations" tab for further explanation.***

***** For biodiesel, B20, diesel, gasoline, and liquified petroleum gas, units are gallons for Fuel Used for On-site Equipment and gallons/hr for Equipment Fuel Usage Rate; for compressed natural gas units are ccf (hundreds of cubic feet) for Fuel Used for On-site Equipment and ccf/hr for Equipment Fuel Usage Rate.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation and other aspects of data entry in Columns M, N, and P. Units are gallons for Fuel Used for Equipment Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Input Template

Remedy Component that this Input worksheet is part of:	Component 1	Soil Vapor Extraction Monitoring

On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
Atlantic Blower	3.5	75%	75%	2.611		0	System not turned on yet
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
Estimated Total Electricity Usage Based on Above						0	
Renewable Electricity Generated On-Site*							
Total Electricity Usage Based on Personnel Transportation						0	
Total Grid Electricity Used						0	

**** Electricity generated on-site from renewable resources, for which the facility retains the rights to the renewable energy (i.e., does not sell renewable energy certificates associated with the renewable energy generation).***

On-Site Natural Gas Use

Equipment Type	Power Rating (Btu/hr)	Efficiency (%)	Hours Used	Energy Required (Btu)	Natural Gas Used (ccf)	Notes
					0	
				0		
Totals			0	0	0	

Landfill Gas Combusted On-Site for Energy Use

Equipment Type	Landfill Gas (ccf)	% Methane by volume	Used for electricity?	Landfill Gas Methane Used (ccf)	Notes
				0	
				0	
				0	
Total				0	

Please see the "Detailed Notes and Explanations" tab for instructions on using the two tables above ("On-site Natural Gas Use" and "Landfill Gas Combusted On-Site for Energy Use"). In the two tables above, ccf = hundreds of cubic feet.

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation***	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														

**** Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined Materials" in the dropdown menu.***

***** Selections must be made in Columns F - H in order for the footprint calculations to be performed. Please see the "Detailed Notes and Explanations" tab for further information.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns L, N, O, and Q. Units are gallons for Fuel Used for Materials Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Input Template

Remedy Component that this Input worksheet is part of:	Component 1	Soil Vapor Extraction Monitoring

Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation **	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

**** No footprint is calculated for the Recycled/Reused On-Site and Off-Site selections. Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined" selections in the dropdown menu.***

***** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns I, K, L, and N. Units are gallons for Fuel Used for Waste Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

**** Only the "Public Water" selection has an associated footprint. No footprint is calculated for the other water source selections.***

Note: Information entered in Columns F - V (Source/Quality/Use/Fate) is not compiled or reported by SEFA.

Input Worksheet for Input Template

Remedy Component that this Input worksheet is part of:	**Component 1**	**Soil Vapor Extraction Monitoring**

Other Energy Use and Air Emissions

Item		Units	Quantity	Notes
On-Site				
User-defined on-site conventional energy use #1	*User-Defined	TBD		
User-defined on-site conventional energy use #2	*User-Defined	TBD		
On-site HAP process emissions**		lbs		
On-site GHG emissions**		lbs CO2e		
On-site carbon storage**		lbs CO2e		
Landfill gas flared on-site		ccf CH4		
Other on-site NOx emissions or reductions**		lbs		
Other on-site SOx emissions or reductions**		lbs		
Other on-site PM emissions or reductions**		lbs		
Transportation		**Units**	**Quantity**	**Notes**
User-defined conventional energy transportation #1	*User-Defined	TBD	10	
User-defined conventional energy transportation #2	*User-Defined	TBD		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Enter a positive number for emissions and a negative number for reductions, avoidances, or storage***
See the "Detailed Notes and Explanations" tab for use of this table.

Other Voluntary Renewable Energy Use

Item		Units	Quantity	Notes
User-defined on-site renewable energy use #1	*User-Defined	TBD		
User-defined on-site renewable energy use #2	*User-Defined	TBD		
User-defined renewable energy transportation #1	*User-Defined	TBD		
User-defined renewable energy transportation #2	*User-Defined	TBD		
Voluntary purchase of renewable electricity**		MWh		
Voluntary purchase of RECs**		MWh		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Complete information on provider in the table to the right. No footprint reductions are associated with the voluntary purchases.***
See the "Detailed Notes and Explanations" tab for use of this table

Off-Site Laboratory Analysis

Parameter and Notes	Number of Samples	Comments
Totals	**0**	

Description of purchased renewable electricity (green pricing product or green marketing product)	Provider:	
	Type of product:	
	Type of renewable energy source:	
	Date of renewable system installation:	
Description of purchased RECs	Provider:	
	Type of renewable energy source:	
	Date of renewable system installation:	
	Location of renewable system installation:	

Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019
148-26 aka 148-18 Hillside Avenue - Track 2 Restricted Residential Cleanup

Input Worksheet for Input Template (2)

Please specify which Remedy Component this Input worksheet is part of: (Select "Off" to exclude this Input worksheet from calculations and results)	Component 2	SSDS Extraction Monitoring

General Scope

Example Items Eliminated through Screening Process

Other Notes and References

Personnel Transportation

Participant	Number of Roundtrips to Site	Roundtrip Distance to Site (miles)	Mode of Transportation*	Transport Fuel Type*	Total Distance Transported (miles)	Default Fuel Usage Rate**	Fuel Usage Rate Override**	Fuel Used for Personnel Transport**	Activity or Notes

** See the "Detailed Notes and Explanations" tab for explanation of transport and fuel options.*

*** for biodiesel, B20, diesel, and gasoline, units are gallons for Fuel Used and miles/gallon for Fuel Usage Rate; for natural gas, units are hundreds of cubic feet (ccf) for Fuel Used and ccf/miles for Fuel Usage Rate; for electricity, units are miles/kWh for Fuel Usage Rate and the kWh (Fuel Used) are added to total grid electricity used (cell G69).*

On-Site Equipment Use and Transportation

Equipment Type*	HP*	Load Factor (%)*	Equipment Fuel Type**	Equipment Fuel Usage Rate	Equipment Hours Operated	Fuel Used for On-site Equipment	Equipment weight (tons)	Number of Equipment Roundtrips to Site	Roundtrip Distance to Site (miles)	Total Distance Transported (miles)	Mode of Transportation	Transport Fuel Type***	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Equipment Transport (gallons)	Activity or Notes

** HP and Load Factor must be entered by user in Columns C and D. Please see the "Detailed Notes and Explanations" tab for further explanation.*

*** For biodiesel, B20, diesel, gasoline, and liquified petroleum gas, units are gallons for Fuel Used for On-site Equipment and gallons/hr for Equipment Fuel Usage Rate; for compressed natural gas units are ccf (hundreds of cubic feet) for Fuel Used for On-site Equipment and ccf/hr for Equipment Fuel Usage Rate.*

**** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation and other aspects of data entry in Columns M, N, and P. Units are gallons for Fuel Used for Equipment Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.*

Input Worksheet for Input Template (2)

Remedy Component that this Input worksheet is part of:	Component 2	SSDS Extraction Monitoring

On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
RadonAway #EC6	1.61	75%	75%	1.20106		0	SSDS not turned on yet
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
Estimated Total Electricity Usage Based on Above						0	
Renewable Electricity Generated On-Site*							
Total Electricity Usage Based on Personnel Transportation						0	
Total Grid Electricity Used						0	

**** Electricity generated on-site from renewable resources, for which the facility retains the rights to the renewable energy (i.e., does not sell renewable energy certificates associated with the renewable energy generation).***

On-Site Natural Gas Use

Equipment Type	Power Rating (Btu/hr)	Efficiency (%)	Hours Used	Energy Required (Btu)	Natural Gas Used (ccf)	Notes
					0	
				0		
Totals			0	0	0	

Landfill Gas Combusted On-Site for Energy Use

Equipment Type	Landfill Gas (ccf)	% Methane by volume	Used for electricity?	Landfill Gas Methane Used (ccf)	Notes
				0	
				0	
				0	
Total				0	

Please see the "Detailed Notes and Explanations" tab for instructions on using the two tables above ("On-site Natural Gas Use" and "Landfill Gas Combusted On-Site for Energy Use"). In the two tables above, ccf = hundreds of cubic feet.

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation***	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
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			0														
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			0														

**** Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined Materials" in the dropdown menu.***

***** Selections must be made in Columns F - H in order for the footprint calculations to be performed. Please see the "Detailed Notes and Explanations" tab for further information.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns L, N, O, and Q. Units are gallons for Fuel Used for Materials Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Input Template (2)

Remedy Component that this Input worksheet is part of:	Component 2	SSDS Extraction Monitoring

Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation **	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

**** No footprint is calculated for the Recycled/Reused On-Site and Off-Site selections. Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined" selections in the dropdown menu.***

***** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns I, K, L, and N. Units are gallons for Fuel Used for Waste Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

**** Only the "Public Water" selection has an associated footprint. No footprint is calculated for the other water source selections.***

Note: Information entered in Columns F - V (Source/Quality/Use/Fate) is not compiled or reported by SEFA.

Input Worksheet for Input Template (2)

Remedy Component that this Input worksheet is part of:	**Component 2**	**SSDS Extraction Monitoring**

Other Energy Use and Air Emissions

Item		Units	Quantity	Notes
On-Site				
User-defined on-site conventional energy use #1	*User-Defined	TBD		
User-defined on-site conventional energy use #2	*User-Defined	TBD		
On-site HAP process emissions**		lbs		
On-site GHG emissions**		lbs CO2e		
On-site carbon storage**		lbs CO2e		
Landfill gas flared on-site		ccf CH4		
Other on-site NOx emissions or reductions**		lbs		
Other on-site SOx emissions or reductions**		lbs		
Other on-site PM emissions or reductions**		lbs		
Transportation		**Units**	**Quantity**	**Notes**
User-defined conventional energy transportation #1	*User-Defined	TBD	10	
User-defined conventional energy transportation #2	*User-Defined	TBD		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Enter a positive number for emissions and a negative number for reductions, avoidances, or storage***
See the "Detailed Notes and Explanations" tab for use of this table.

Other Voluntary Renewable Energy Use

Item		Units	Quantity	Notes
User-defined on-site renewable energy use #1	*User-Defined	TBD		
User-defined on-site renewable energy use #2	*User-Defined	TBD		
User-defined renewable energy transportation #1	*User-Defined	TBD		
User-defined renewable energy transportation #2	*User-Defined	TBD		
Voluntary purchase of renewable electricity**		MWh		
Voluntary purchase of RECs**		MWh		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Complete information on provider in the table to the right. No footprint reductions are associated with the voluntary purchases.***
See the "Detailed Notes and Explanations" tab for use of this table

Off-Site Laboratory Analysis

Parameter and Notes	Number of Samples	Comments
Totals	**0**	

Description of purchased renewable electricity (green pricing product or green marketing product)	Provider:	
	Type of product:	
	Type of renewable energy source:	
	Date of renewable system installation:	
Description of purchased RECs	Provider:	
	Type of renewable energy source:	
	Date of renewable system installation:	
	Location of renewable system installation:	

Input Worksheet for Input Template (3)

Please specify which Remedy Component this Input worksheet is part of: (Select "Off" to exclude this Input worksheet from calculations and results)	**Component 3**	**Annual Inspection**

General Scope

Example Items Eliminated through Screening Process

Other Notes and References

Personnel Transportation

Participant	Number of Roundtrips to Site	Roundtrip Distance to Site (miles)	Mode of Transportation*	Transport Fuel Type*	Total Distance Transported (miles)	Default Fuel Usage Rate**	Fuel Usage Rate Override**	Fuel Used for Personnel Transport**	Activity or Notes
Engineer	1	50	Car	Gasoline	50	25		2	

** See the "Detailed Notes and Explanations" tab for explanation of transport and fuel options.*

*** for biodiesel, B20, diesel, and gasoline, units are gallons for Fuel Used and miles/gallon for Fuel Usage Rate; for natural gas, units are hundreds of cubic feet (ccf) for Fuel Used and ccf/miles for Fuel Usage Rate; for electricity, units are miles/kWh for Fuel Usage Rate and the kWh (Fuel Used) are added to total grid electricity used (cell G69).*

On-Site Equipment Use and Transportation

Equipment Type*	HP*	Load Factor (%)*	Equipment Fuel Type**	Equipment Fuel Usage Rate	Equipment Hours Operated	Fuel Used for On-site Equipment	Equipment weight (tons)	Number of Equipment Roundtrips to Site	Roundtrip Distance to Site (miles)	Total Distance Transported (miles)	Mode of Transportation	Transport Fuel Type***	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Equipment Transport (gallons)	Activity or Notes

** HP and Load Factor must be entered by user in Columns C and D. Please see the "Detailed Notes and Explanations" tab for further explanation.*

*** For biodiesel, B20, diesel, gasoline, and liquified petroleum gas, units are gallons for Fuel Used for On-site Equipment and gallons/hr for Equipment Fuel Usage Rate; for compressed natural gas units are ccf (hundreds of cubic feet) for Fuel Used for On-site Equipment and ccf/hr for Equipment Fuel Usage Rate.*

**** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation and other aspects of data entry in Columns M, N, and P. Units are gallons for Fuel Used for Equipment Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.*

Input Worksheet for Input Template (3)

Remedy Component that this Input worksheet is part of:	Component 3	Annual Inspection

On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
Estimated Total Electricity Usage Based on Above						0	
Renewable Electricity Generated On-Site*							
Total Electricity Usage Based on Personnel Transportation						0	
Total Grid Electricity Used						0	

**** Electricity generated on-site from renewable resources, for which the facility retains the rights to the renewable energy (i.e., does not sell renewable energy certificates associated with the renewable energy generation).***

On-Site Natural Gas Use

Equipment Type	Power Rating (Btu/hr)	Efficiency (%)	Hours Used	Energy Required (Btu)	Natural Gas Used (ccf)	Notes
					0	
				0		
Totals			0	0	0	

Landfill Gas Combusted On-Site for Energy Use

Equipment Type	Landfill Gas (ccf)	% Methane by volume	Used for electricity?	Landfill Gas Methane Used (ccf)	Notes
				0	
				0	
				0	
Total				0	

Please see the "Detailed Notes and Explanations" tab for instructions on using the two tables above ("On-site Natural Gas Use" and "Landfill Gas Combusted On-Site for Energy Use"). In the two tables above, ccf = hundreds of cubic feet.

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation***	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														

**** Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined Materials" in the dropdown menu.***

***** Selections must be made in Columns F - H in order for the footprint calculations to be performed. Please see the "Detailed Notes and Explanations" tab for further information.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns L, N, O, and Q. Units are gallons for Fuel Used for Materials Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Input Template (3)

Remedy Component that this Input worksheet is part of:	Component 3	Annual Inspection

Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation**	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

**** No footprint is calculated for the Recycled/Reused On-Site and Off-Site selections. Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined" selections in the dropdown menu.***

***** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns I, K, L, and N. Units are gallons for Fuel Used for Waste Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

**** Only the "Public Water" selection has an associated footprint. No footprint is calculated for the other water source selections.***

Note: Information entered in Columns F - V (Source/Quality/Use/Fate) is not compiled or reported by SEFA.

Input Worksheet for Input Template (3)

Remedy Component that this Input worksheet is part of:	**Component 3**	**Annual Inspection**

Other Energy Use and Air Emissions

Item		Units	Quantity	Notes
On-Site				
User-defined on-site conventional energy use #1	*User-Defined	TBD		
User-defined on-site conventional energy use #2	*User-Defined	TBD		
On-site HAP process emissions**		lbs		
On-site GHG emissions**		lbs CO2e		
On-site carbon storage**		lbs CO2e		
Landfill gas flared on-site		ccf CH4		
Other on-site NOx emissions or reductions**		lbs		
Other on-site SOx emissions or reductions**		lbs		
Other on-site PM emissions or reductions**		lbs		
Transportation		**Units**	**Quantity**	**Notes**
User-defined conventional energy transportation #1	*User-Defined	TBD	10	
User-defined conventional energy transportation #2	*User-Defined	TBD		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Enter a positive number for emissions and a negative number for reductions, avoidances, or storage***
See the "Detailed Notes and Explanations" tab for use of this table.

Other Voluntary Renewable Energy Use

Item		Units	Quantity	Notes
User-defined on-site renewable energy use #1	*User-Defined	TBD		
User-defined on-site renewable energy use #2	*User-Defined	TBD		
User-defined renewable energy transportation #1	*User-Defined	TBD		
User-defined renewable energy transportation #2	*User-Defined	TBD		
Voluntary purchase of renewable electricity**		MWh		
Voluntary purchase of RECs**		MWh		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Complete information on provider in the table to the right. No footprint reductions are associated with the voluntary purchases.***
See the "Detailed Notes and Explanations" tab for use of this table

Off-Site Laboratory Analysis

Parameter and Notes	Number of Samples	Comments
Totals	**0**	

Description of purchased renewable electricity (green pricing product or green marketing product)	Provider:	
	Type of product:	
	Type of renewable energy source:	
	Date of renewable system installation:	
Description of purchased RECs	Provider:	
	Type of renewable energy source:	
	Date of renewable system installation:	
	Location of renewable system installation:	