

FORMER GATEWAY FRENCH DRY CLEANERS

3375 -3377 NEPTUNE AVENUE,

KINGS COUNTY

BROOKLYN, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C224151

Prepared for:

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date
1	04/15/2024	Updated sampling and inspection schedule as per NYSDEC approval in a March 27, 2024 e-mail following NYSDEC review of the February 2023 report by GZA GeoEnvironmental	1/28/2026
2	11/23/2025	Langan Revisions based on DECs comments received on 10/22/25, and 11/24/25.	1/28/2026

JANUARY 2026

CERTIFICATION STATEMENT

I Jason Hayes certify that I am currently a [NYS registered professional engineer or Qualified Environmental Professional as in defined in 6 NYCRR Part 375] and that this Site Management Plan was revised 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.]

11/21/2025

DATE

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BROOKLYN, NEW YORK

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LIST OF ACRONYMS

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

SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching 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: Site No. C224151, 3375 Neptune Avenue, Brooklyn, New York

Institutional Controls:	1. The property may be used for restricted residential, commercial, and industrial use.
	2. An Environmental Easement was filed with the King County Clerk.
	3. All ECs must be inspected at a frequency and in a manner defined in the SMP.
Engineering Controls:	1. Cover system
	2. Sub-Slab Depressurization System (SSDS)
Inspections:	Frequency
Cover inspection	Annually
SSDS	Annually
Maintenance:	
Cover	As needed
SSDS Maintenance	As needed
Reporting:	
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 3375-3377 Neptune Avenue site located in Brooklyn, 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. C224151, which is administered by New York State Department of Environmental Conservation (NYSDEC).

The BCP Participant, Bay Park ONE-A, LLC, entered into a Brownfield Cleanup Agreement (BCA) on April 10, 2013 with the NYSDEC to remediate the Site. A figure showing the Site location and boundaries is provided as 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 C. The Site boundary does not match the tax map boundaries as the Site is a portion of the legal property.

After completion of the remedial work, some contamination remained at the 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 for protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Kings County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site.

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

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement - Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC); and
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index No.: C224151-01- 13; Site No. C224151) 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 A of this SMP.

This SMP was prepared by GZA GeoEnvironmental of New York (GZA) and revised by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan), on behalf of Bay Park ONE-A LLC., in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions 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 shut-down 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 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, 6NYCRR 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:

1. 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 BCA, and all approved work plans and reports, including this SMP.
2. Within 15 days after the transfer of all or part of the Site, the new owner's name,

contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1, on the following page, includes contact information for the above notification. The information on Table 1 will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix A.

Table 1: Notifications*

Name	Contact Information
Yildiz Palumbo Project Manager, NYSDEC Region 2	Phone: (718) 482-4900 Email: yildiz.palumbo@dec.ny.gov
Megan Rivera NYSDOH Project Manager	Phone: (518) 402-7860 Email: beei@health.ny.gov
Jane O'Connell Chief, Superfund and Brownfield Cleanup Section, Division of Environmental Remediation	Phone: 718-482-4599 Email: Jane.oconnell@dec.ny.gov
Kelly Lewandowski NYSDEC Site Control	Phone: (518) 402-9581 Email: kelly.lewandowski@dec.ny.gov

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

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in Brooklyn, King County, New York and is identified as Section Block 6979 and a portion of Lot 100 on the King County Tax Map (Figure 2). The Site is an approximately 0.04-acre area and is bounded by a residential building to the north, Neptune Avenue to the south, commercial space to the east, and a grocery store and residential building to the west (see Figure 2 – Site Layout Map). The boundaries of the Site, including the legal meets and bounds are more fully described in Appendix C – Environmental Easement. The owner(s) of the Site parcel(s) at the time of issuance of this SMP is Bay Park ONE-A LLC.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of a one-story mixed-use building. The Site is zoned as mixed commercial-residential and is currently occupied by a dental office. Surrounding parcels are single family home and apartment buildings. The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties.

2.2.2 Geology

The Site and the surrounding area are relatively flat. Based on a review of the U.S. Geological Survey (USGS) Topographic Map for the Coney Island Quadrangle, dated 1979, and The Narrows, dated 1981, the Site has a ground surface elevation of approximately seven feet above Mean Sea Level (MSL) based on the National Geodetic Vertical Datum (NGVD). Mercator performed a survey of Site features relative to northing and easting, and the Brooklyn Highway Datum (BHD). The Site promenade is at an

approximate elevation of 7 feet BHD with the street level at approximately 3.5 feet BHD.

Physiographically, Coney Island is a sand spit peninsula along the southern Atlantic Ocean coastline of Brooklyn and extends southwest into the outer New York Harbor. This area of Brooklyn is relatively low lying and at one time consisted of sand dunes and scrub brush. The Site is located approximately 1,000 feet south of Gravesend Bay and Coney Island Creek and 2,000 feet north of the Atlantic coastline. The Site is also located approximately 3,000 feet from the western tip of Coney Island.

According to the USGS Reconnaissance of the Groundwater Resources of Kings and Queens Counties, New York, dated 1981, native Site overburden soils were deposited during the Pleistocene epoch. Holocene beach deposits make up most of the Rockaway Peninsula and Coney Island; these deposits are expected to extend to a depth of approximately 100 feet below ground surface (bgs). Beneath the beach deposits, are the Cretaceous period Gardiners Clay and Jameco Gravel Formation. The Magothy Formation occurs beneath these formations. The Raritan Clay and the Lloyd Sand underlie the Magothy Formation and sit above bedrock. Bedrock beneath the Site is mapped as a schist, gneiss, and amphibolite with pegmatite intrusions typical of the Cambro-Ordovician Hartland Formation and is present at depths greater than 800 feet bgs.

The stratigraphy of the Site consists of an asphalt or concrete cover, followed by a layer of urban fill to approximately 6 feet, and native unconsolidated sediments consisting of fine to coarse sand with silts. Groundwater is approximately 9 to 10 feet bgs at the Site and generally flows toward the southeast. [Two geologic cross sections are shown on Figures 6 and 7. Site specific boring logs are provided in Appendix D.](#)

[2.2.3 Hydrogeology](#)

King County is part of the Long Island Hydrogeologic System. Groundwater is the sole source of drinking water for Nassau and Suffolk Counties, but in Kings and Queens Counties, potable water is supplied by New York City. Groundwater is approximately 9 to 10 feet bgs at the Site and generally flows toward the southeast. The measured hydraulic

fluctuation at each well between measurements is approximately 0.5 feet. The hydraulic gradient has ranged between 0.0027 and 0.0031. No field estimates of hydraulic conductivity have been made at the Site to date. Based on published hydraulic conductivity data (Fetter, C.W., *Applied Hydrogeology*, 1994) for fine sands (0.028 and 2.8 feet per day), and assuming that aquifer porosity is 20%, the Darcy Velocity is estimated between 3.8×10^{-4} and 4.3×10^{-2} feet per day, or 0.1 and 20 feet per year, respectively.

Groundwater contours are shown on Figure 8. Groundwater elevation data is provided in Table 4.

2.3 Investigation and Remedial History

The Site is part of a development covering three city blocks. Prior to development in 1973-1974, the three city blocks contained residential and commercial buildings. Commercial businesses were primarily located along the northern side of Neptune Avenue. From about 1984 to 1995, the Site was occupied by the Gateway French Dry Cleaner, which utilized tetrachloroethene (PCE or “perc”) as a cleaning solvent. After 1995, the retail space was occupied by Neptune Dental and AFAM Medical until approximately 2009. Currently the Site is being used as a dental office.

A sub-slab depressurization system (SSDS) was installed in the residential building, located immediately north of the Site, in January 2013. The residential SSDS was deactivated on May 24, 2018, and the commercial SSDS was deactivated on February 13, 2024, which is owned by the Applicant. This SSDS system was installed by the Applicant in January 2013 prior to joining the BCP and has been operating since April 2013.

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.

A Phase I Environmental Site Assessment of 3325 Neptune Avenue, 2750 West 33rd Street, and 2770 West 33rd Street Brooklyn, New York (Phase I ESA) was completed in June 2008 by Velocity Consulting Incorporated (Velocity). The Phase I ESA indicated that a dry cleaner, known as the Gateway French Cleaners, formerly operated on-site at 3375-3377 Neptune Avenue. A City Directory Search of 3375-3377 Neptune Avenue lists Charles French Cleaners as the former occupant. Reportedly, Gateway French Cleaners operated from about 1984 to 1995. After 1995, the retail space was occupied by Neptune Dental and AFAM Medical until approximately 2009. A new tenant, also operating the space as a dental practice, has occupied the retail space since early 2012.

In May 2009, Goldberg-Zoino Associates of New York P.C. d/b/a GZA performed a limited subsurface investigation in the vicinity of the former Gateway French Dry Cleaners. The results of the investigation were summarized in the September 2009 Phase II Environmental Site Assessment Report, which was submitted to the NYSDEC. The Phase II found:

1. Petroleum constituents above NYS Part 375 Soil Cleanup Objectives (SCOs) were detected in the soil; and
2. PCE above the NYS Ambient Groundwater Water Quality Standard (AWQS) was detected in one shallow groundwater sample.

After discovery of groundwater and soils contaminated with petroleum constituents and PCE in May 2009, a supplemental subsurface investigation of the Gateway French Dry Cleaners operating space was performed in July 2009. This investigation found:

1. Relatively low levels of semivolatile organic compounds (SVOCs) were detected in Site soils;
2. PCE was detected in shallow groundwater samples, but at concentrations below the PCE AWQS;
3. Several additional VOCs were detected in shallow groundwater samples;
4. MTBE was identified in samples from deeper monitoring wells; and
5. A sub-slab soil vapor sample collected in July 2009 contained six VOCs at concentrations above one or more of the background values listed by the New York

State Department of Health in its Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (NYSDOH SVI).

Due to the presence of petroleum impacts to soil and groundwater, Spill Case No. 09-06360 was opened and additional assessments were conducted at the Site. Indoor and ambient air and two sub-slab soil vapor samples were collected on February 4, 2010 from beneath the former dry cleaning tenant space (GZA, July 2010) in accordance with the NYSDOH SVI. Soil samples were collected downgradient and in the vicinity of a 25,000-gallon fuel oil UST used to fuel the complex but located off the BCP Site in November of 2010 (GZA, December 2010). A groundwater sample was collected from a monitoring well installed downgradient of the UST (GZA, December 2010). The additional assessment found:

1. PCE and trichloroethene (TCE) were detected in both sub-slab vapor samples at concentrations above the NYSDOH Air Guideline Values (AGV);
2. In general, PCE concentrations were found to be much greater than TCE concentrations at the Site;
3. Laboratory analytical results of soil samples collected at the soil/groundwater interface adjacent to the UST did not indicate the detectable presence of VOCs and SVOCs below NYSDEC TAGM SCOS;
4. VOCs and SVOCs were not detected at concentrations above reporting limits; and
5. Data did not show significant fuel oil impacts to soil or groundwater from the UST.

In October of 2011, an additional assessment was conducted at and around the Site (GZA, 2012). GZA subcontracted a mobile gas chromatograph (GC) laboratory to screen vapor samples on-site for PCE and TCE. Confirmation and correlation summa canister samples were collected for fixed- laboratory analysis. A soil boring investigation was conducted beneath the dry cleaner tenant space floor slab. The assessment found:

1. The screening and confirmation results indicated that vapor VOC concentrations were highest on the southern side of the former dry cleaning tenant space and tapered off to the north or rear of the former dry cleaner tenant space;
2. The concentrations increased again to the north on the opposite side of a common-wall within the apartment space;
3. Soil staining and odors were observed and slightly elevated PID readings were measured in soils above the water table, extending to a depth of at least 12 feet below the building slab; and
4. Soil samples from two borings contained VOC concentrations that exceeded the NYSDEC Unrestricted Use SCOs.

On October 29, 2012, Hurricane Sandy inundated large areas of Coney Island. Approximately three to four feet of water covered the ground level residential apartments and the commercial spaces at the Bay Park One complex. The displacement of ground-floor tenants, demolition, and subsequent renovations provided an opportunity to delineate sub-slab vapors under the residential apartments located adjacent to the former dry cleaner tenant space and to install a SSDS as a mitigation measure. The SSDS was installed by Clean Vapor, LLC. of Blairstown, New Jersey. Construction was initiated on January 21, 2013. GZA collected three sub-slab vapor samples, which indicated elevated PCE concentrations. The SSDS is currently off (as of February 2023), following multiple rounds of samples demonstrating contaminant levels below guidance levels. Soil vapor, indoor air, and ambient air background sampling is conducted periodically according to the SMP.

Remedial Investigation (RI) activities were conducted between November 12 and 18, 2013. RI activities included the following scope of work (GZA, 2013; 2014):

1. Delineation of the horizontal and vertical extent of impacted soils, groundwater, and soil vapor in the Site vicinity;
2. Evaluation of the potential contaminant fate and transport as it currently exists in the subsurface; and
3. Data collection to evaluate potential remedial alternatives for exposure mitigation.

The following is a brief presentation of the RI findings:

1. Topography in the immediate area of the Site ranges from approximately 5 to 7 feet above the Brooklyn Highway datum.
2. Depth to groundwater ranges from 9 to 10 feet bgs at the Site.
3. Groundwater flow is generally to the southeast beneath the Site.
4. Tidal influences on groundwater are not evident.
5. The stratigraphy of the Site consists of asphalt or concrete surface cover, fill to approximately 6 feet, and native unconsolidated sediments consisting of fine to coarse sands with silts.
6. The Site building is founded on three structural concrete floor slabs with vertical grade beams along the perimeter of each.

Soil samples collected during the RI showed no herbicides or cyanide at detectable concentrations. Hexavalent chromium (Cr^{6+}) was detected above the laboratory method detection limit but below the laboratory reporting limit at one location. No samples analyzed contained constituents above the NYS Part 375 Commercial Use SCOs. No VOCs were detected at concentrations above the NYS Part 375 Unrestricted Use SCOs during the RI. One sample contained concentrations of semivolatile organic compounds (SVOCs), 4,4'-DDT, and lead above the NYS Part 375 Unrestricted Use SCOs. A second sample contained the pesticides 4,4'-DDT and dieldrin, the PCB Aroclor 1268, lead, and mercury at concentrations above the NYS Part 375 Unrestricted Use SCOs.

7. Analysis of groundwater samples collected during the RI showed no detectable concentrations of pesticides, PCBs, Cr^{6+} , or cyanide. No sample concentrations exceeded the NYSDEC AWQS for VOCs or SVOCs. All on-site groundwater samples contained metals, most commonly iron and sodium, at concentrations exceeding NYSDEC AWQS. Arsenic, magnesium, selenium and thallium were detected at concentrations exceeding the AWQS in one or more samples. This is in contrast to samples collected in previous investigations (discussed above).
8. Sub-slab soil vapor samples contained concentrations of many VOCs; PCE and TCE were detected above the New York State Department of Health (NYSDOH)

Air Guidance Values (AGVs). 1,2,4-Trimethylbenzene, 1,3- dichlorobenzene, o-xylene, and tetrahydrofuran were detected at concentrations above published guidance values.

9. Soil vapor samples collected around the exterior of the building footprint contained VOCs above published guidance values, including PCE and TCE above the respective AGVs. PCE was identified in all five sampling locations at concentrations ranging between 3.12 and 6,920 $\mu\text{g}/\text{m}^3$. TCE was identified in two samples at concentrations above the AGV, with a maximum detected concentration of 29.3 $\mu\text{g}/\text{m}^3$.

Based on the investigations, the primary contaminants of concern (COCs) were PCE and its breakdown product, TCE. The current and proposed future use of the Site is to remain as commercial space. Low levels (above regulatory standards) of COCs, particularly VOCs, are present in soil and groundwater. No soil or groundwater samples exhibited concentrations of COCs indicative of a significant source area, and/or previous or continued releases of COCs. However, sub-slab vapors under the Site have been detected at concentrations above the NYSDOH AGVs. Based on Matrix 2 of the October 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, sub-slab vapor concentrations require mitigation. An SSDS was installed to address these concerns.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the BCP Decision Document dated December 22, 2014, are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

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

This section provides a summary of contamination remaining at the Site following remediation. This information is presented for informational purposes should future excavations or development be performed at the Site and the environmental conditions that could be encountered disclosed. Please note that temporal changes in concentrations and distributions of contaminants can occur; the user should verify existing and current Site conditions prior to performing any work that disturbs the Site remedial cover.

2.5.1 Soil

Soil samples collected during the RI showed PCE detected in on-site soil at concentrations exceeding the Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs) of 1.3 parts per million (ppm), with a maximum PCE concentration of 2.9 ppm. Available soil sample results indicated no other VOCs, metals, SVOCs, pesticides or PCBs were detected above the restricted residential SCOs. Site-related soil contamination is not expected to extend off-site based on the available data. No soil samples exhibited concentrations of COCs indicative of a significant source area, and/or previous or continued releases of COCs.

Table 2 and Figure 3 summarize the results of all soil samples collected that exceed the UUSCOs and meet the Track 4 BCP SCOs for restricted residential use at the site after completion of remedial action.

2.5.2 Groundwater

PCE was detected in groundwater at concentrations exceeding the applicable

groundwater (GW) standards of 5 part per billion (ppb), with a maximum concentration of 5.8 ppb. Several naturally occurring metals were detected in GW at concentration exceeding the applicable standards. Naphthalene was detected above its GW standard with a concentration of 63.8 ppb. No pesticides or PCBs were detected above groundwater standards. Groundwater contamination was not found to extend off-site. No groundwater samples exhibited concentrations of COCs indicative of a significant source area, and/or previous or continued releases of COCs.

[Table 3 and Figure 4 summarize the results of all samples of groundwater that exceed the NYSDEC standards, criteria and guidance \(SCGs\) after completion of the remedial action.](#)

2.5.3 Soil Vapor

PCE and TCE were detected in sub-slab soil vapor samples both on- and off-site with concentrations up to 68,000 ug/m³ and 730 ug/m³ respectively; PCE and TCE were detected in on-site and off-site soil vapor samples with maximum concentrations of 6,920 ug/m³, and 29.3 ug/m³ respectively; PCE was detected in indoor air at a maximum concentrations of 1.38 ug/m³, while TCE was not detected in indoor air. Based on the NYSDOH soil vapor/indoor air decision matrices and guidance, an active SSDS was installed and operated since April 25, 2016 to address soil vapor intrusion both on and off-site. Upon achieving the remedial goals, the residential and commercial SSDS units were deactivated on May 24, 2018, and February 13, 2024, respectively.

Appendix J includes a Mann-Kendall statistical analysis of sub-slab and indoor air soil vapor analytical results along with the concentration trendlines at the soil gas sampling locations (SG-1 through SG-6) and indoor sampling locations (IA-1 through IA-6). Where a sample result was identified as non-detect by laboratory analysis, the reporting limit corresponding to the contaminant and sample was used in the Mann-Kendall analysis to assess for any trend. Plots were developed to confirm the calculated trends and to depict changes in concentration of site-related CVOCs (including PCE and TCE).

In indoor air samples, the Mann-Kendall results identified a stable trend or no trend for TCE, 1,1-dichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethane, cis-1,2-

dichloroethene, and vinyl chloride; however, an increasing trend for PCE was calculated at the indoor air locations. When comparing this result to the trend plots, the PCE trend appears to be decreasing after the March 2022 sampling event for IA-1 through IA-6.

In sub-slab vapor samples, the Mann-Kendall results identified a stable, decreasing, or no trend for PCE, TCE, 1,1-dichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethane, cis-1,2-dichloroethene, and vinyl chloride; however, 1,1-dichloroethane was calculated to be increasing at sample location SG-1. The highest 1,1-dichloroethane concentration at SG-1 was reported as a non-detect results with a reporting limit of 2.7 ug/m³ in the September 2020 sampling event and have since been non-detect and below the 2.7 ug/m³ concentration.

A map that indicates the locations of and summarizes soil gas and sub-slab vapor data in exceedance of NYSDOH guidance values prior to the remedy is shown in Figure 5.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

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

This plan provides:

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

3.2 Institutional Controls

A series of ICs are required by the RAWP and Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the Site to restricted residential or commercial uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. ICs

identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 9. These ICs are:

- The property may be used for restricted residential or commercial use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP;
- 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 9, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the Site are prohibited.

3.3 Engineering Controls

3.3.1 Cover (or Cap)

Exposure to remaining contamination at the Site is prevented by an existing cover system placed over the Site. This cover system is comprised of up to 10 inches of the existing concrete building slabs on the soil subgrade. Figure 10 presents the location of the cover system and applicable demarcation layers. The Excavation Work Plan (EWP) provided in Appendix B outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and the underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the Site and provided in Appendix F. Issues related to maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

3.3.2 Sub-slab Depressurization Systems

The SSDS systems were designed by GZA and are comprised of an existing SSDS at the residential apartment building immediately adjacent to the north of the Site and a second SSDS installed beneath the BCP Area and Non-BCP Area (Figure 10). The existing SSDS system was installed by the Participant in January 2013 prior to entry into the BCP and has been operating since April 2013. Details are provided in the SSDS Installation and Startup Report (September 26, 2013) (Appendix H). The second SSDS was installed beneath the entire building (BCP Area and Non-BCP Area) to prevent any potential residual vapors from soil and/or groundwater entering the building in the future. The installation started on March 28, 2016 and covers the Site and adjacent retail spaces: Stationary Store, Pharmacy, and the two restaurant spaces (Figure 10). Seven suction pits were created by removing one cubic foot of soil at each pit. Vapors exits the suction pits through Schedule 40 steel suction point riser pipes that are connected to cast iron overhead piping in accordance

with New York City fire codes. The piping runs to a roof mounted blower. Magnehelic pressure gauges monitor sub-slab pressure at strategically placed pressure probe points. A minimum of -0.004 inches of water column vacuum is to be maintained. The expanded SSDS officially started on April 25, 2016, and was operated until February 17, 2023 when the NYSDEC allowed system shut down.

Procedures for operating and maintaining the SSDSs are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). As built drawings, signed and sealed by a professional engineer, are included in Appendix H – Operations and Maintenance Manual. Figure 10 shows the location of the ECs for the Site.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

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

3.3.3.1 - 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, unless otherwise approved by NYSDEC.

3.3.3.2 – Sub-Slab Depressurization System

The residential SSD System was deactivated on May 24, 2018, and the active SSD System in the commercial part of the building was deactivated on February 17, 2023, as approved by NYSDEC and NYSDOH. Post shut down monitoring, and sampling of the soil vapor extraction wells (SVE 1, SVE-2, SVE-3, SVE-4, SVE-5, and SVE-6) is currently ongoing and detailed below in Section 4.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

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

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

- Sampling and analysis of soil vapor effluent from both systems;
- Assessing compliance with applicable 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/semiannual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – wide Inspection

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

The remedial party will conduct post shutdown monitoring inspections of all SSDSs annually. The remedial party will notify the DEC project manager about any problems within three business days of inspections. Inspection reports will be emailed to the DEC Project Manager and included in the next PRR. Any repairs needed will be made promptly according to the procedures in the Operation and Maintenance Plan (Section 5.0).

4.3 Treatment System Monitoring and Sampling

4.3.1 Remedial System Monitoring

Monitoring of both of the SSDSs post shut down monitoring and the cover system will be performed on a routine basis, as identified in Table 5 Remedial System Monitoring Requirements and Schedule (see below). Modification to the frequency or sampling requirements will require approval from the NYSDEC. A visual inspection of the complete

system will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when a suspected failure of either of the SSDS or the cover systems have been reported or an emergency occurs that is deemed likely to affect the operation of the system. SSDS and cover systems components to be monitored include, but are not limited to, the components included in Table 5 below.

Table 5 – Remedial System Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
Vacuum blowers	Flow Rate and Static Vacuum	See the specification in Appendix H	Annually
Sub-Slab Monitoring Ports (manual and remote)	vacuum	Minimum 0.01 water Column	Annually
Risers	Gate Valve positions, Vacuum		Annually
Concrete floor	Visible openings or cracks		Annually

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

The SSDS effluent from both systems were sampled quarterly for the first year, then semiannually thereafter to monitor effluent levels. Should the PCE concentrations in the SSDS effluent appear to be below NYSDOH AGVs, grab soil gas samples were collected while the system was operating. and presented in the NYSDOH Decision Matrices I and

II. On May 2, 2018 the NYSDEC and NYSDOH approved the post deactivation monitoring plan.

Samples shall be collected from the SSDS on a routine basis. Sampling locations, required analytical parameters, and schedule are provided in Table 6 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 6 – Remedial System Sampling Requirements and Schedule

Sampling Location	Analytical Parameters				Schedule
	VOCs (EPA Method 624)	TAL Metals (EPA Method 6010B)	pH (EPA Method 9040)	VOC (EPA Method TO-15)	
SSDS System Effluent (1 and 2)				X	quarterly for the first year, then semi annually

Table 7 – Post Deactivation Sampling Plan

Sampling Location	Analytical Parameters				Schedule
	VOCs (EP A Method 624)	TAL Metals (EPA Method 6010B)	pH (EPA Method 9040)	VOC (EPA Method TO-15)	
SVE 1, SVE-2, SVE-3, SVE-4, SVE-5, and SVE 6				X	Annually

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

4.4. Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix G - Site Management Forms. Other observations will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Field Activities Plan provided as Appendix E of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

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

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

Information on non-mechanical Engineering Controls (i.e. cover system) can be found in Section 3 - Engineering and Institutional Control Plan. Further detail regarding the Operation and Maintenance of the active SSDS is provided in Appendix H - 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.

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.

- Flood Plain: The Site is located in a special flood hazard area zone (Zone AE) with a base flood elevation of EL. 10 per FEMA preliminary flood maps released in 2013. Flooding has occurred previously at the Site.
- There are no exposed soils on the Site; therefore, the Site is not susceptible to erosion during severe rain events.
- The blower in the Active SSDS may be susceptible to damage from the wind.
- The blower in the Active SSDS may be susceptible to power loss and/or dips/surges in voltage during severe weather events; the Active SDSS may temporarily turn into a passive SSDS due to power loss.
- The Site is not susceptible to a spill or other contaminant release due to storm- related damage caused by flooding, erosion, high winds, loss of power etc.

6.2 Green Remediation Evaluation

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

The Green Remediation Evaluation will include the following items:

- Energy usage by SSDS.

6.2.1 Timing of Green Remediation Evaluations

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

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

6.2.2. Remedial Systems

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

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 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.

Remote pressure sensing was installed on the Site to reduce the Site visits and system checks, and further reduce the transportation time.

6.2.5 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix G – 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 check that green remediation actions are achieving the desired results.

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 G. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 8 and summarized in the Periodic Review Report.

Table 8: Schedule of Interim Monitoring/Inspection Reports

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

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

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

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);

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

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

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

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

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

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

7.2 Periodic Review Report

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

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

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

<http://www.dec.ny.gov/chemical/62440.html>

- A site evaluation, which includes the following:
 - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document.
 - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications.
 - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored.
 - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan.
 - Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
 - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

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

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

- *The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the Site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices; 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, Jason Hayes, of 368 Ninth Avenue 8th floor New York, NY 10001, am certifying as Owner’s/Remedial Party’s Designated Site Representative: I have been authorized and designated by all site owners/remedial parties to sign this certification for the Site.”

For BCP projects which the Department has determined do not represent a significant threat to public health or the environment, but where contaminants in groundwater exceed drinking water standards, the following should also be included for both IC/EC and IC scenarios listed above:

- *No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and*

For BCP projects, every five years the following certification will be added:

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

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control 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.

8.0 REFERENCES

Phase I Environmental Site Assessment Report – Bay Park, 3325 Neptune Avenue, 2750 – 2770 West 33rd Street Brooklyn, New York, Prepared by Velocity, June 2008.

Phase II Environmental Site Assessment Report – Bay Park, 3325 Neptune Avenue, 2750-2770 West 33rd Street, Brooklyn New York. Prepared by GZA GeoEnvironmental, September 10, 2009.

Vapor Intrusion Assessment Letter Report. Prepared by GZA GeoEnvironmental, July 2, 2010.

Supplemental Fuel Tank Investigation Report – Bay Park One Tower Apartments, 3325 Neptune Ave, 2750-2770 West 33rd Street, Brooklyn, New York. Prepared by GZA GeoEnvironmental, December 2010.

□ Vapor Delineation and Mitigation Design Interim Report. Prepared by GZA GeoEnvironmental, March 30, 2012.

□ Brownfield Cleanup Application. GZA, August 28, 2012.

□ Remedial Investigation Work Plan – Former Gateway French Cleaners, 3375 Neptune Avenue, Brooklyn New York, NYSDEC Site No. C224151. Prepared by GZA GeoEnvironmental, August 2012, revised September 2013.

□ Remedial Investigation Report– Former Gateway French Dry Cleaners, 3375 Neptune Avenue, Brooklyn New York, NYSDEC Site No. C224151. Prepared by GZA GeoEnvironmental, April 2014, revised July 2014.

Remedial Action Work Report– Former Gateway French Dry Cleaners, 3375 Neptune Avenue, Brooklyn New York, NYSDEC Site No. C224151. Prepared by GZA GeoEnvironmental, December 2014. Revised January 2015.

Site Management Plan - Former Gateway French Dry Cleaners, 3375 Neptune Avenue, Brooklyn New York, NYSDEC Site No. C224151. Prepared by GZA GeoEnvironmental, February 2023. Revised April 2024

[6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.](#)

[NYSDEC DER-10 – “Technical Guidance for Site Investigation and Remediation”.](#)

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

provide for the most efficient operation of the remedy, while minimizing energy, waste generation and water consumption.

6.2.4 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site, 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.

Remote pressure sensing was installed on the Site to reduce the Site visits and system checks, and further reduce the transportation time.

6.2.5 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix G – 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.

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 G. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 8 and summarized in the Periodic Review Report.

Table 8: Schedule of Interim Monitoring/Inspection Reports

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

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

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

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);

Tables

Table 3
Site Management Plan
Remaining Groundwater Sample Exceedances

Bay Park II
Brooklyn, New York
Langan Project No.:170915401

Analyte	CAS Number	NYSDEC SGVs	Location	P9	P9	P9	MW1	MW2	MW3	MW4	GZA14	GZA14	GZA14	GZA15
			Sample Name	P-9_10-14	P-9_14-18	P-9_21-23	MW1_111813	MW2_111813	MW3_111813	MW4_111513	GZA-14_25-29	GZA-14_35-39	GZA-14_15-19	GZA-15
			Sample Date	11/13/2013	11/13/2013	11/13/2013	11/18/2013	11/18/2013	11/18/2013	11/15/2013	11/14/2013	11/14/2013	11/15/2013	07/07/2014
Volatile Organic Compounds														
Acetone	67-64-1	50	ug/l	1.6 J	2 J	3.6 J	<5 U	<5 U	<5 U	<5 U	4.7 J	3.4 J	<5 U	<5 U
Isopropylbenzene (Cumene)	98-82-8	5	ug/l	<2.5 U	0.7 J	<2.5 U	0.95 J	<2.5 U						
Naphthalene	91-20-3	10	ug/l	<2.5 U	<2.5 U	<2.5 U	<2.5 U							
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	10	ug/l	<2.5 U	5.2	7.8	<2.5 U	<2.5 U						
Tetrachloroethene (PCE)	127-18-4	5	ug/l	1.6	<0.5 U	0.59	<0.5 U	<0.5 U	<0.5 U	<0.5 U				
Semi-Volatile Organic Compounds														
Acenaphthene	83-32-9	20	ug/l	NA	<0.2 U	NA	<0.2 U	<0.2 U	<0.2 U	<0.2 U	NA	NA	0.48	NA
Naphthalene	91-20-3	10	ug/l	NA	0.07 J	NA	<0.2 U	<0.2 U	<0.2 U	0.07 J	NA	NA	0.18 J	NA
Herbicides														
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	50	ug/l	NA	1.42 J	NA	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	NA
Metals														
Aluminum	7429-90-5	NS	ug/l	NA	68 J	NA	14.9	156	106	23.6 J	NA	NA	1,420	NA
Antimony	7440-36-0	3	ug/l	NA	1.52	NA	0.62 J	0.28 J	0.25 J	<5 U	NA	NA	1.07 J	NA
Arsenic	7440-38-2	25	ug/l	NA	2.77	NA	7.41	6.94	3.14	6.8	NA	NA	69.5	NA
Barium	7440-39-3	1000	ug/l	NA	173.8	NA	7.29	7.84	5.71	88	NA	NA	202.1	NA
Cadmium	7440-43-9	5	ug/l	NA	0.05 J	NA	<0.2 U	<0.2 U	<0.2 U	<1 U	NA	NA	<1 U	NA
Calcium	7440-70-2	NS	ug/l	NA	479,000	NA	75,100	108,000	92,900	434,000	NA	NA	626,000	NA
Chromium, Total	7440-47-3	50	ug/l	NA	6.24 J	NA	1.41	2	2.1	1.78 J	NA	NA	34.41	NA
Chromium, Trivalent	16065-83-1	NS	ug/l	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	NA	NA	34	NA
Cobalt	7440-48-4	NS	ug/l	NA	<4 U	NA	0.22 J	0.29 J	0.34 J	0.5 J	NA	NA	3.6	NA
Copper	7440-50-8	200	ug/l	NA	<20 U	NA	0.49 J	1.31	1.1	3.05 J	NA	NA	10.67	NA
Cyanide	57-12-5	200	ug/l	NA	2 J	NA	<5 U	2 J	1 J	<5 U	NA	NA	<5 U	NA
Iron	7439-89-6	300	ug/l	NA	7,360	NA	8,240	10,600	6,050	4,480	NA	NA	14,500	NA
Lead	7439-92-1	25	ug/l	NA	<20 U	NA	0.25 J	0.9 J	0.93 J	2.46 J	NA	NA	6.49	NA
Magnesium	7439-95-4	35000	ug/l	NA	387,000	NA	12,300	11,500	12,200	198,000	NA	NA	179,000	NA
Manganese	7439-96-5	300	ug/l	NA	210.8	NA	77.42	93.02	63.48	66.75	NA	NA	231.6	NA
Nickel	7440-02-0	100	ug/l	NA	12.94	NA	3.59	2.27	1.95	3.89	NA	NA	29.83	NA
Potassium	7440-09-7	NS	ug/l	NA	52,200	NA	11,800	8,780	10,200	40,400	NA	NA	42,800	NA
Selenium	7782-49-2	10	ug/l	NA	0.35 J	NA	1.28 J	1.38 J	1.22 J	16.2 J	NA	NA	19.2 J	NA
Sodium	7440-23-5	20000	ug/l	NA	3,620,000	NA	110,000	59,600	73,500	1,860,000	NA	NA	2,480,000	NA
Thallium	7440-28-0	0.5	ug/l	NA	0.76 J	NA	0.03 J	<0.5 U	<0.5 U	0.16 J	NA	NA	<2.5 U	NA
Vanadium	7440-62-2	NS	ug/l	NA	<100 U	NA	0.97 J	1.73 J	1.59 J	1.99 J	NA	NA	9.29 J	NA
Zinc	7440-66-6	2000	ug/l	NA	84.42 J	NA	13.68	12.02	11.07	20.8 J	NA	NA	40.35 J	NA

Table 3
Site Management Plan
Remaining Groundwater Sample Exceedances

Page 2 of 2

Bay Park II
Brooklyn, New York
Langan Project No.:170915401

Notes:

CAS - Chemical Abstract Service

NS - No standard

ug/l - microgram per liter

NA - Not analyzed

RL - Reporting limit

<RL - Not detected

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 Codes, Rules, and Regulations (NYCRR) Part 703.5 and the NYSDEC Technical and Operation Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water and published addenda (herein collectively referenced as "NYSDEC SGVs").

The criteria comparison for total metals (Chromium, Total) is provided for reference. The promulgated SGV shown is for hexavalent chromium.

Qualifiers:

J - The analyte was detected above the method detection limit (MDL), but below the RL; therefore, the result is an estimated concentration.

U - The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Exceedance Summary:

10 - Result exceeds NYSDEC SGVs

Table 2
Site Management Plan
Remaining Soil Sample Exceedances

Bay Park II
Brooklyn, New York
Langan Project No.:170915401

Analyte	CAS Number	Part 375 Unrestricted SCOs	NYPart 375 Restricted Use Restricted-Residential SCOs	Location	P9	P9	GZA14	GZA14
				Sample Name	P-9_5-6	P-9_16-18	GZA-14_4-5	GZA-14_15-16
				Sample Date	11/13/2013	11/13/2013	11/14/2013	11/14/2013
				Sample Depth	5-6	16-18	4-5	15-16
				Unit	Result	Result	Result	Result
Semi-Volatile Organic Compounds								
2-Methylnaphthalene	91-57-6	NS	NS	mg/kg	<0.21 U	<0.24 U	<0.21 U	0.13 J
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	0.33	34	mg/kg	<0.25 U	<0.29 U	<0.25 U	0.29 J
Acenaphthene	83-32-9	20	100	mg/kg	0.047 J	<0.16 U	0.036 J	0.45
Acenaphthylene	208-96-8	100	100	mg/kg	0.17	<0.16 U	0.1 J	0.094 J
Anthracene	120-12-7	100	100	mg/kg	0.22	<0.12 U	0.15	0.21
Benzo(a)anthracene	56-55-3	1	1	mg/kg	0.78	<0.12 U	0.44	0.49
Benzo(a)pyrene	50-32-8	1	1	mg/kg	0.77	<0.16 U	0.43	0.45
Benzo(b)fluoranthene	205-99-2	1	1	mg/kg	1	<0.12 U	0.54	0.44
Benzo(g,h,i)Perylene	191-24-2	100	100	mg/kg	0.56	<0.16 U	0.31	0.28
Benzo(k)fluoranthene	207-08-9	0.8	1	mg/kg	0.38	<0.12 U	0.25	0.23
Carbazole	86-74-8	NS	NS	mg/kg	0.13 J	<0.2 U	0.046 J	0.11 J
Chrysene	218-01-9	1	1	mg/kg	0.8	<0.12 U	0.48	0.45
Dibenz(a,h)anthracene	53-70-3	0.33	0.33	mg/kg	0.13	<0.12 U	0.086 J	0.07 J
Fluoranthene	206-44-0	100	100	mg/kg	1.4	<0.12 U	0.9	0.88
Fluorene	86-73-7	30	100	mg/kg	0.06 J	<0.2 U	<0.17 U	0.12 J
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	mg/kg	0.59	<0.16 U	0.25	0.26
Naphthalene	91-20-3	12	100	mg/kg	<0.17 U	<0.2 U	<0.17 U	0.41
Phenanthrene	85-01-8	100	100	mg/kg	0.89	<0.12 U	0.6	0.4
Pyrene	129-00-0	100	100	mg/kg	1.2	<0.12 U	0.8	0.8
Pesticides								
4,4'-DDE	72-55-9	0.0033	1.8	mg/kg	<0.00162 U	<0.00188 U	0.00325	<0.00251 U
4,4'-DDT	50-29-3	0.0033	1.7	mg/kg	0.0111	<0.00353 U	0.0312	<0.0047 U
Alpha Chlordane	5103-71-9	0.094	0.91	mg/kg	0.00588	<0.00235 U	0.0132	<0.00313 U
Dieldrin	60-57-1	0.005	0.039	mg/kg	<0.00101 U	<0.00118 U	0.00719 PI	<0.00157 U
Gamma Chlordane (Trans)	5103-74-2	NS	NS	mg/kg	0.000676 JPI	<0.00235 U	0.0108 PI	<0.00313 U
Heptachlor Epoxide	1024-57-3	NS	NS	mg/kg	0.00209 J	<0.00353 U	<0.00309 U	<0.0047 U
Polychlorinated Biphenyl								
PCB-1268 (Aroclor 1268)	11100-14-4	NS	NS	mg/kg	<0.0337 U	<0.0401 U	0.742	0.0197 J

Table 2
Site Management Plan
Remaining Soil Sample Exceedances

Bay Park II
Brooklyn, New York
Langan Project No.:170915401

Analyte	CAS Number	Part 375 Unrestricted SCOs	NYPart 375 Restricted Use Restricted-Residential SCOs	Location	P9	P9	GZA14	GZA14
				Sample Name	P-9_5-6	P-9_16-18	GZA-14_4-5	GZA-14_15-16
				Sample Date	11/13/2013	11/13/2013	11/14/2013	11/14/2013
				Sample Depth	5-6	16-18	4-5	15-16
				Unit	Result	Result	Result	Result
Metals								
Aluminum	7429-90-5	NS	NS	mg/kg	1,000	850	2,100	2,200
Antimony	7440-36-0	NS	NS	mg/kg	<3.9 U	2.2 J	<4 U	<6 U
Arsenic	7440-38-2	13	16	mg/kg	1	0.39 J	1.3	2.5
Barium	7440-39-3	350	350	mg/kg	73	3.6	97	14
Beryllium	7440-41-7	7.2	14	mg/kg	<0.39 U	<0.47 U	0.13 J	<0.6 U
Cadmium	7440-43-9	2.5	2.5	mg/kg	0.23 J	0.07 J	0.3 J	0.22 J
Calcium	7440-70-2	NS	NS	mg/kg	1,700	250	4,300	980
Chromium, Total	7440-47-3	1	22	mg/kg	4	3.5	6.1	9.6
Chromium, Trivalent	16065-83-1	30	36	mg/kg	4	3.5	6.1	9.6
Cobalt	7440-48-4	NS	NS	mg/kg	0.96 J	0.77 J	2.1	2 J
Copper	7440-50-8	50	270	mg/kg	9.6	1.4	45	15
Cyanide	57-12-5	27	27	mg/kg	<0.95 U	<1.2 U	<1 U	<1.5 U
Iron	7439-89-6	NS	NS	mg/kg	2,200	1,800	5,400	5,900
Lead	7439-92-1	63	400	mg/kg	97	1.5 J	99	28
Magnesium	7439-95-4	NS	NS	mg/kg	380	420	870	1,000
Manganese	7439-96-5	1600	2000	mg/kg	34	15	120	54
Mercury	7439-97-6	0.18	0.81	mg/kg	0.03 J	<0.1 U	<0.08 U	0.31
Nickel	7440-02-0	30	140	mg/kg	3.1	2.8	6.7	6.6
Potassium	7440-09-7	NS	NS	mg/kg	140 J	190 J	360	470
Silver	7440-22-4	2	36	mg/kg	<0.78 U	<0.95 U	0.19 J	<1.2 U
Sodium	7440-23-5	NS	NS	mg/kg	66 J	420	60 J	750
Thallium	7440-28-0	NS	NS	mg/kg	<1.6 U	<1.9 U	<1.6 U	<2.4 U
Vanadium	7440-62-2	NS	NS	mg/kg	4.3	3.8	9.3	8.3
Zinc	7440-66-6	109	2200	mg/kg	84	10	100	34

Table 2
Site Management Plan
Remaining Soil Sample Exceedances

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Bay Park II
Brooklyn, New York
Langan Project No.:170915401

Notes:

CAS - Chemical Abstract Service

NS - No standard

mg/kg - milligram per kilogram

NA - Not analyzed

RL - Reporting limit

<RL - Not detected

Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375

Unrestricted Use and Restricted Use Residential Soil Cleanup Objectives (SCO).

Criterion comparisons for 3- & 4-methylphenol (m&p cresol) are provided for reference. Promulgated SCOs are for 3-methylphenol (m-cresol) and 4-methylphenol (p-cresol).

The criteria comparison for total chromium is provided for reference. The promulgated SCO shown is for hexavalent chromium.

Qualifiers:

I - The lower value for the two columns has been reported due to obvious interference.

J - The analyte was detected above the method detection limit (MDL), but below the RL; therefore, the result is an estimated concentration.

P - The relative percent difference (RPD) between the results for the two columns exceeds the method-specified criteria.

U - The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Exceedance Summary:

10 - Result exceeds Unrestricted Use SCOs

10 - Result exceeds Restricted Use Residential SCOs

Table 2
Site Management Plan
Remaining Soil Sample Exceedances

Bay Park II
Brooklyn, New York
Langan Project No.:170915401

Analyte	CAS Number	Part 375 Unrestricted SCOs	NYPart 375 Restricted Use Restricted-Residential SCOs	Location	P9	P9	P9	P9	P9	GZA14	GZA14	GZA14	GZA14	GZA14		
				Sample Name	P-9_1-2	P-9_10	P-9_14.5-15	P-9_18-18.25	P-9_18.25-18.5	P-9_22.5-23	GZA-14_1	GZA-14_9	GZA-14_14.75	GZA-14_16.5	GZA-14_27.5	GZA-14_38.5
				Sample Date	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/14/2013	11/14/2013	11/14/2013	11/14/2013	11/14/2013	11/14/2013
				Sample Depth	1-2	10-10	14.5-15	18-18.25	18.25-18.5	22.5-23	1-1	9-9	14.75-14.75	16.5-16.5	27.5-27.5	38.5-38.5
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Volatile Organic Compounds																
1,2,4,5-Tetramethylbenzene	95-93-2	NS	NS	mg/kg	<0.0056 U	0.0014 J	<0.0047 U	<0.0049 U	<0.0071 U	<0.0042 U	<0.0048 U	<0.0046 U	<0.0082 U	<0.0062 U	<0.0048 U	
1,4-Diethyl Benzene	105-05-5	NS	NS	mg/kg	<0.0056 U	0.00023 J	<0.0047 U	<0.0049 U	<0.0071 U	<0.0042 U	<0.0048 U	<0.0046 U	<0.0082 U	<0.0062 U	<0.0048 U	
Acetone	67-64-1	0.05	100	mg/kg	<0.014 U	<0.011 U	0.0047 J	<0.012 U	0.013 J	0.0066 J	<0.012 U	<0.012 U	0.026	0.017	<0.012 U	0.0068 J
Carbon Disulfide	75-15-0	NS	NS	mg/kg	<0.014 U	<0.011 U	0.0024 J	<0.012 U	<0.018 U	0.0027 J	<0.012 U	<0.012 U	0.0096 J	0.0079 J	<0.012 U	<0.012 U
Cis-1,2-Dichloroethene	156-59-2	0.25	59	mg/kg	<0.0014 U	0.0018	<0.0012 U	<0.0012 U	<0.0018 U	<0.001 U	<0.0012 U	<0.0012 U	0.00077 J	0.00044 J	<0.0012 U	<0.0012 U
Diethyl Ether (Ethyl Ether)	60-29-7	NS	NS	mg/kg	<0.0071 U	<0.0056 U	<0.0059 U	<0.0061 U	<0.0088 U	<0.0053 U	<0.006 U	<0.0058 U	<0.01 U	<0.0077 U	<0.0059 U	<0.0061 U
Isopropylbenzene (Cumene)	98-82-8	NS	NS	mg/kg	<0.0014 U	<0.0011 U	0.00033 J	<0.0012 U	<0.0018 U	<0.001 U	<0.0012 U	<0.0012 U	<0.002 U	<0.0015 U	<0.0012 U	<0.0012 U
M,P-Xylene	179601-23-1	NS	NS	mg/kg	<0.0028 U	<0.0022 U	<0.0024 U	<0.0024 U	<0.0035 U	<0.0021 U	<0.0024 U	<0.0023 U	<0.0041 U	<0.0031 U	<0.0024 U	<0.0024 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.12	100	mg/kg	<0.014 U	<0.011 U	<0.012 U	<0.012 U	<0.033 J	0.0014 J	<0.012 U	<0.012 U	<0.02 U	<0.015 U	<0.012 U	<0.012 U
Methylene Chloride	75-09-2	0.05	51	mg/kg	<0.014 U	<0.011 U	<0.012 U	<0.012 U	<0.018 U	<0.01 U	<0.012 U	<0.012 U	<0.02 U	<0.015 U	<0.012 U	<0.012 U
Naphthalene	91-20-3	12	100	mg/kg	<0.0071 U	<0.0056 U	<0.0059 U	<0.0061 U	<0.0088 U	<0.0053 U	<0.006 U	<0.0058 U	0.0016 J	<0.0077 U	<0.0059 U	<0.0061 U
Sec-Butylbenzene	135-98-8	11	100	mg/kg	<0.0014 U	0.00029 J	<0.0012 U	<0.0012 U	<0.0018 U	<0.001 U	<0.0012 U	<0.0012 U	<0.002 U	<0.0015 U	<0.0012 U	<0.0012 U
Tetrachloroethene (PCE)	127-18-4	1.3	5.5	mg/kg	0.0027	0.00059 J	<0.0012 U	<0.0012 U	<0.0018 U	<0.001 U	0.0011 J	0.00073 J	<0.002 U	<0.0015 U	<0.0012 U	<0.0012 U
Trichloroethene (TCE)	79-01-6	0.47	10	mg/kg	<0.0014 U	0.00085 J	<0.0012 U	<0.0012 U	<0.0018 U	<0.001 U	<0.0012 U	<0.002 U	<0.0015 U	<0.0012 U	<0.0012 U	<0.0012 U

Table 2
Site Management Plan
Remaining Soil Sample Exceedances

Page 2 of 2

Bay Park II
Brooklyn, New York
Langan Project No.:170915401

Notes:

CAS - Chemical Abstract Service

NS - No standard

mg/kg - milligram per kilogram

NA - Not analyzed

RL - Reporting limit

<RL - Not detected

Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use and Restricted Use Restricted-Residential Soil Cleanup Objectives (SCO).

Qualifiers:

J - The analyte was detected above the method detection limit (MDL), but below the RL; therefore, the result is an estimated concentration.

U - The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Exceedance Summary:

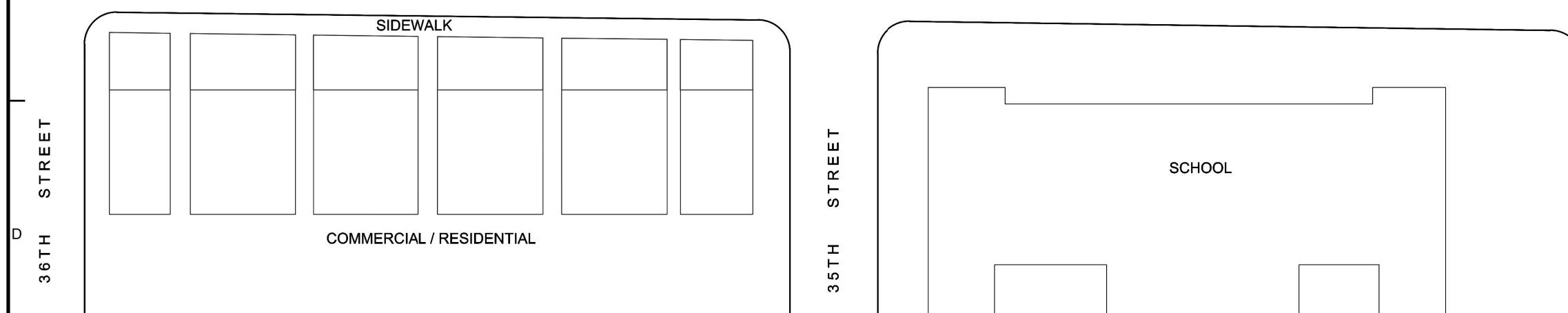
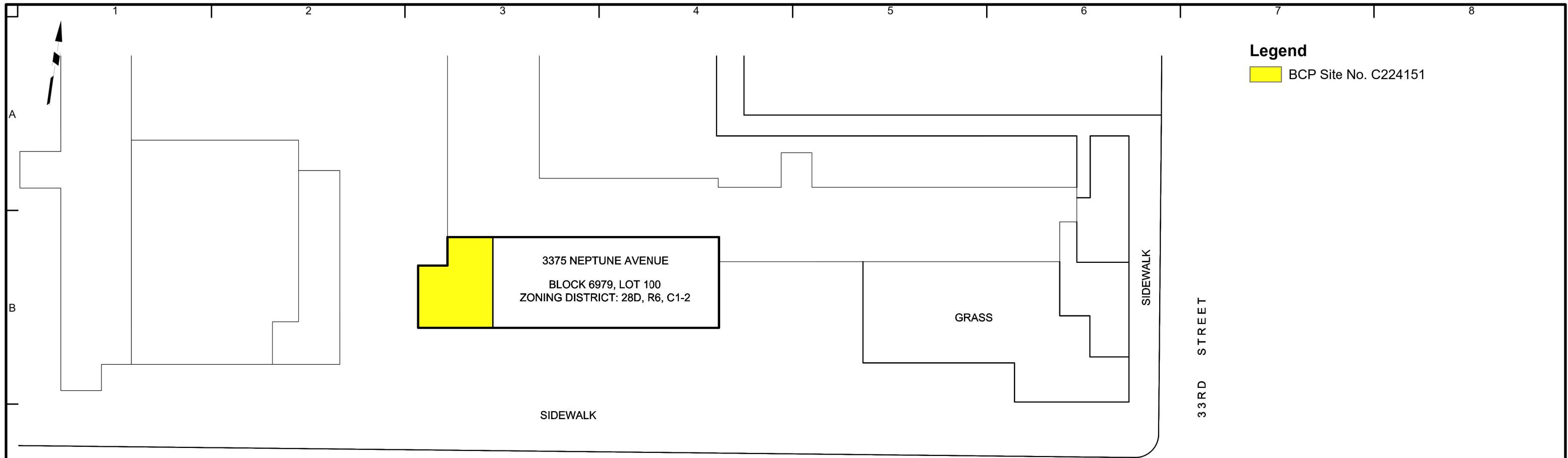
10 - Result exceeds Unrestricted Use SCOs

10 - Result exceeds Restricted Use Restricted-Residential SCOs

Figures



LANGAN 368 Ninth Avenue, 8th Floor New York, NY 10001-2727 T: 212.479.5400 F: 212.479.5444 www.langan.com	Project 3375 NEPTUNE AVENUE BROOKLYN KINGS COUNTY	Figure Title SITE LOCATION MAP	Project No. 170915401 Date 10/20/2025 Scale 1"=2,000' Drawn By GS Submission Date	Figure No. 1
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Notes:
1. Base map developed by using a Google Earth Professional 2015 aerial image.

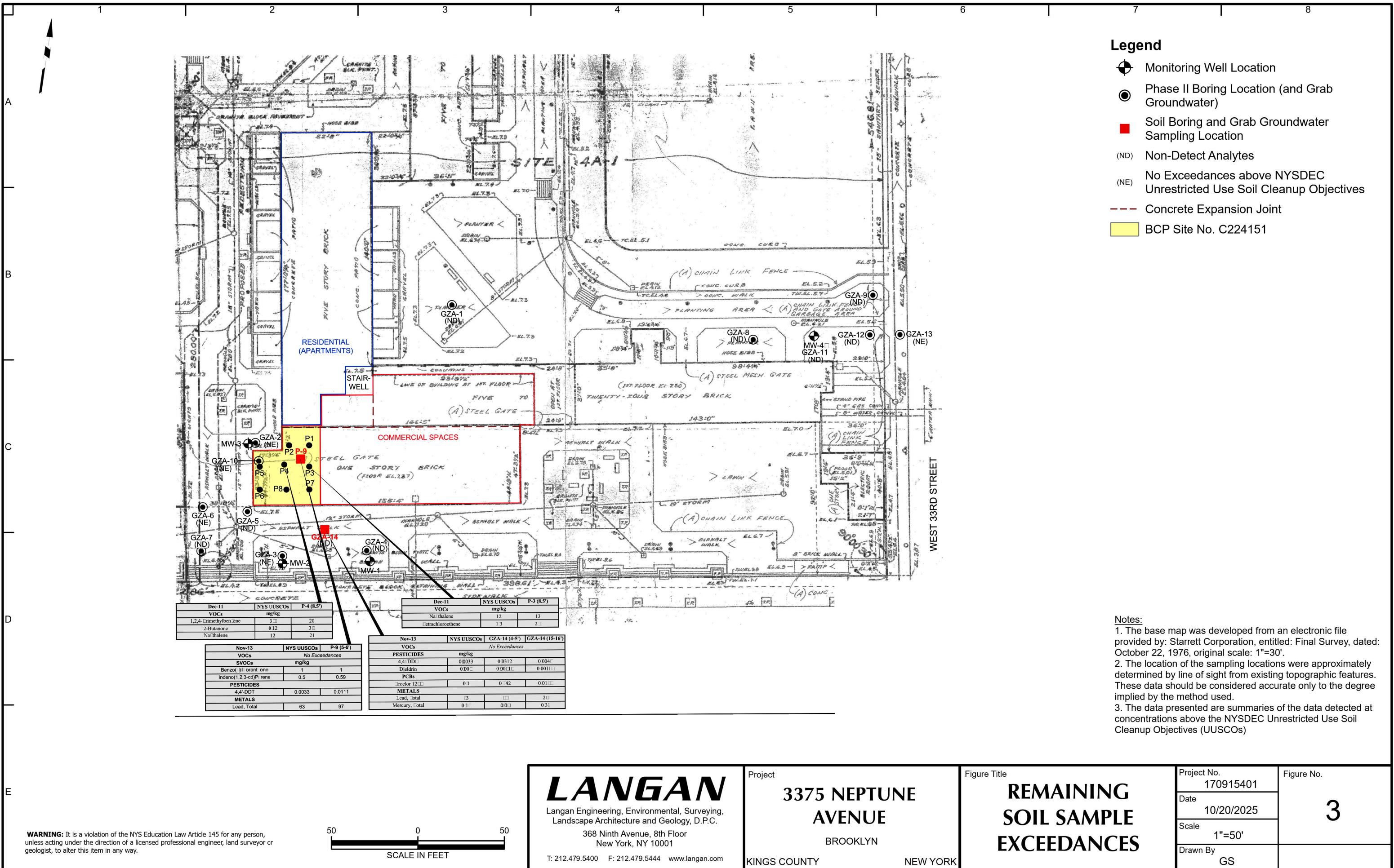
WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

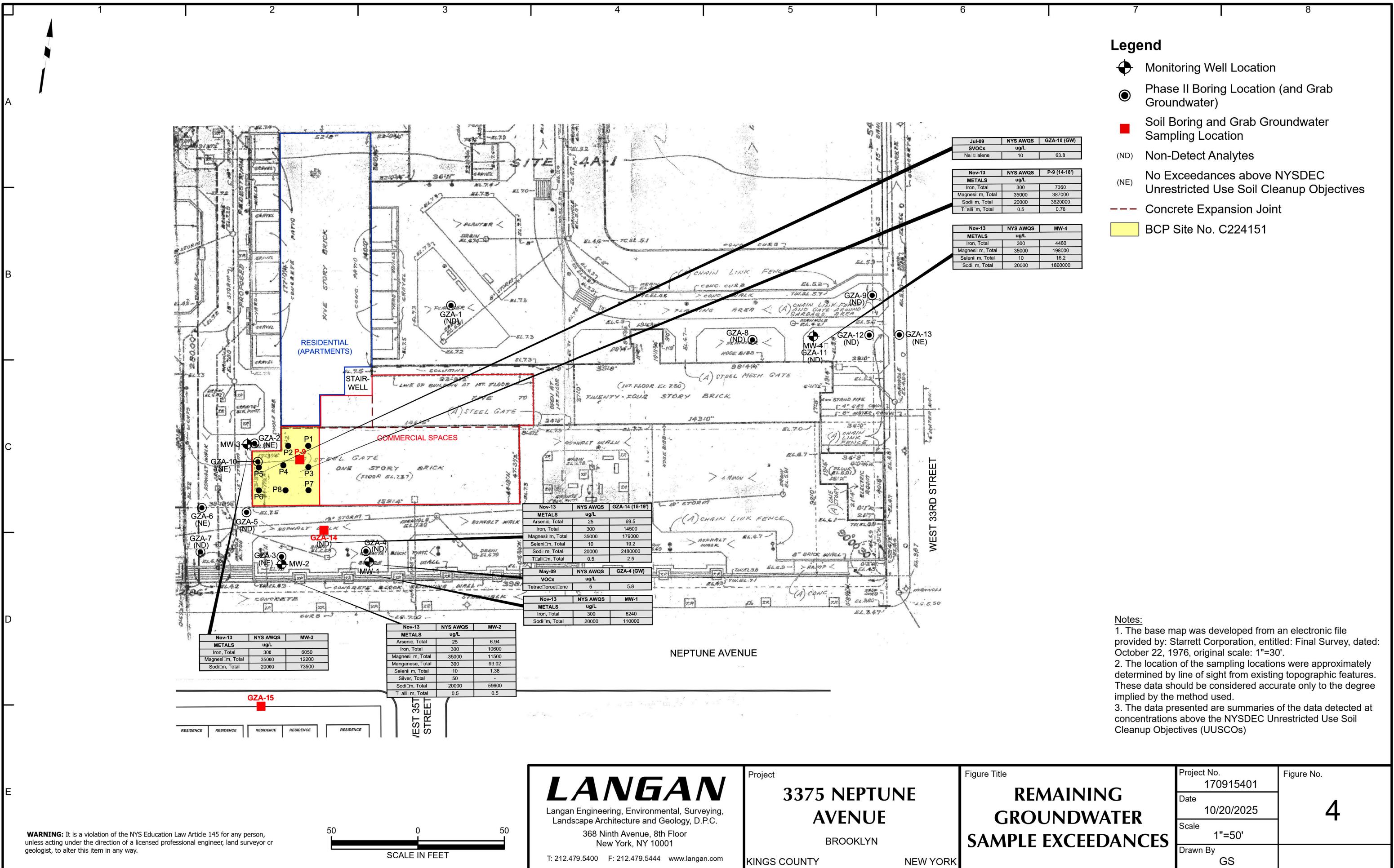
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SCALE IN FEET

Project No.	Figure No.
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Date	
10/20/2025	
Scale	
1"=50'	
Drawn By	
GS	

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Project 3375 NEPTUNE AVENUE BROOKLYN KINGS COUNTY NEW YORK Figure Title SITE LAYOUT MAP





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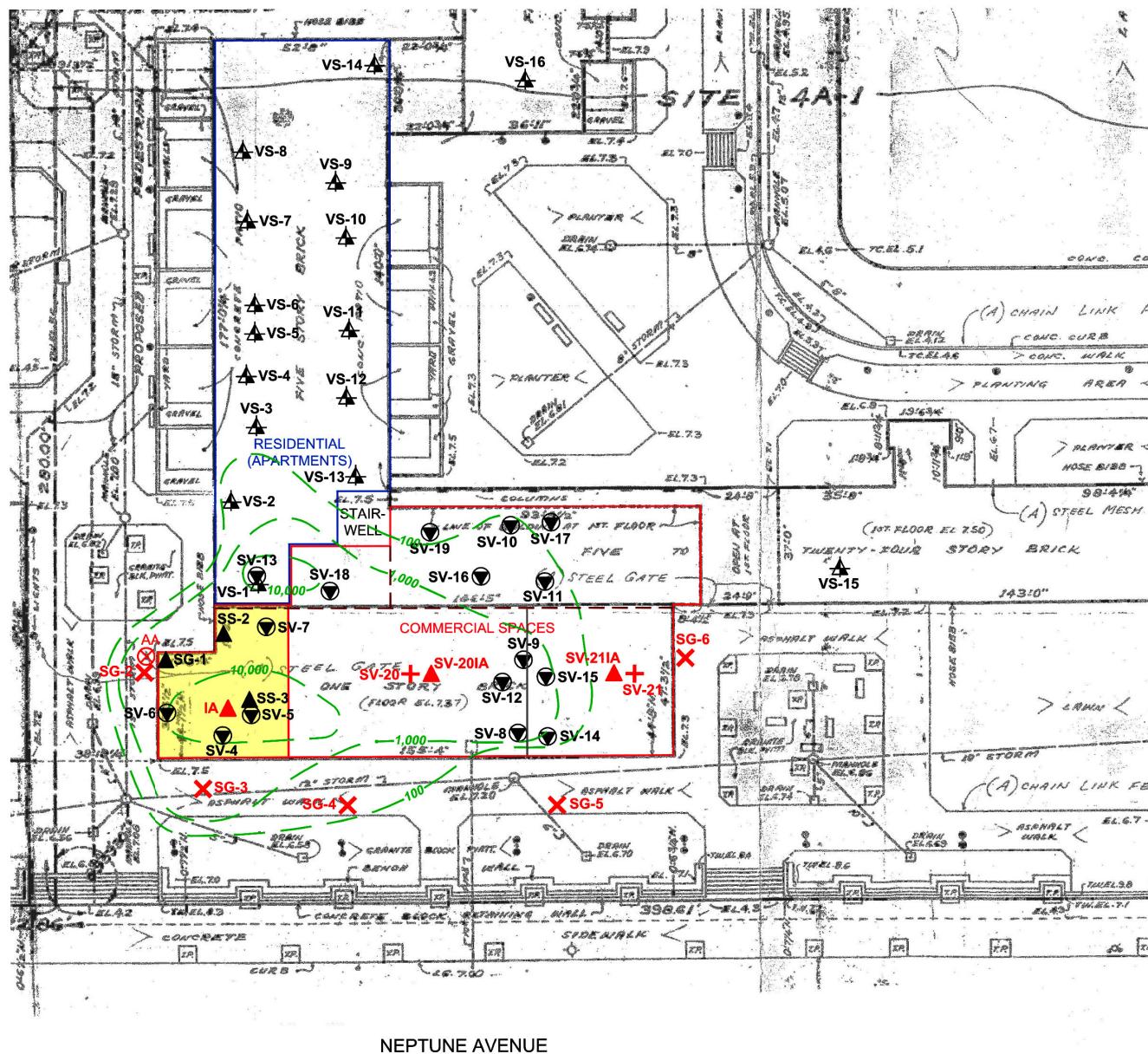
A

B

C

D

E



Legend

- ▲ 2009 & 2010 Soil Vapor Point (Previous Investigation)
- ▼ 2011 Soil Vapor Point (Previous Investigation)
- ▲ 2014 Soil Vapor Point
- ▲ 2013 Indoor Air Sample Location
- ✖ Exterior Soil Gas Sample Location
- ✖ Ambient Air Sample Location
- ✚ 2013 Soil Vapor Point
- Concrete Expansion Joint
- - - PCE Concentration Isopleth
- BCP Site No. C224151

Notes:

- The base map was developed from an electronic file provided by: Starrett Corporation, entitled: Final Survey, dated: October 22, 1976, original scale: 1"=30'.
- The location of the sampling locations were approximately determined by line of sight from existing topographic features. These data should be considered accurate only to the degree implied by the method used.

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50 0 50
SCALE IN FEET

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Project

**3375 NEPTUNE
AVENUE**

BROOKLYN
KINGS COUNTY
NEW YORK

Figure Title

**AREA OF SOIL
VAPOR INTRUSION
CONCERN**

Project No.
170915401

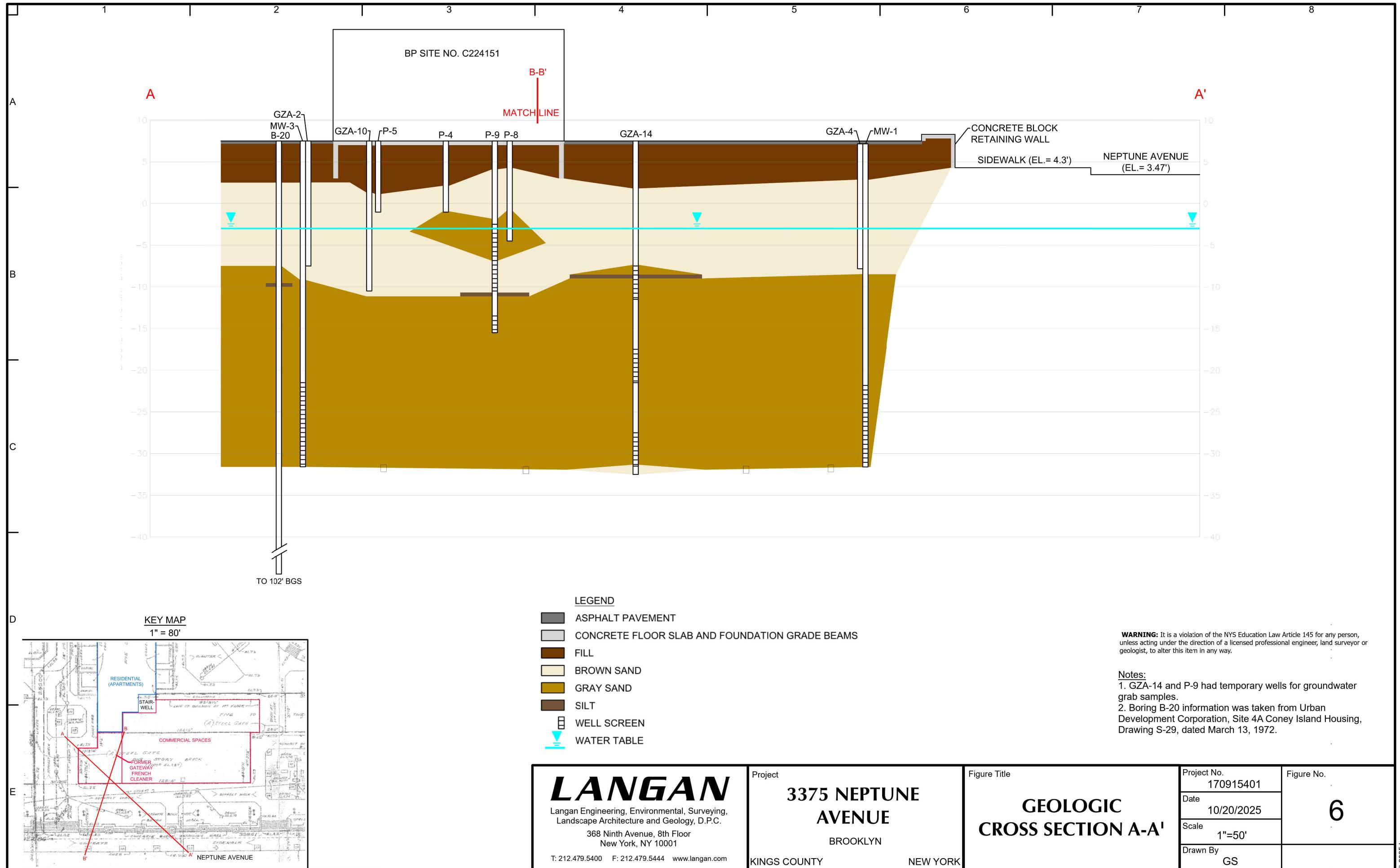
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10/20/2025

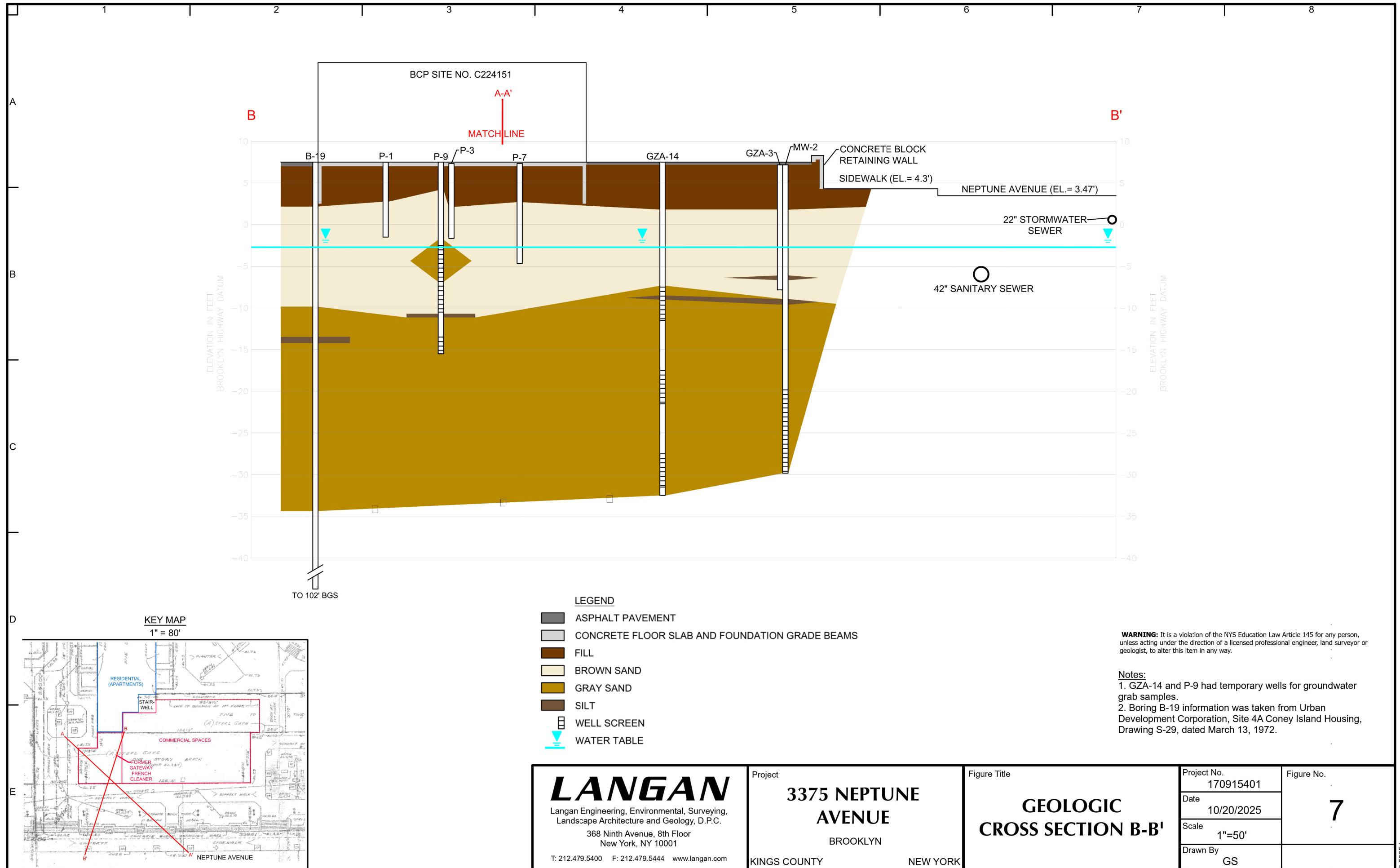
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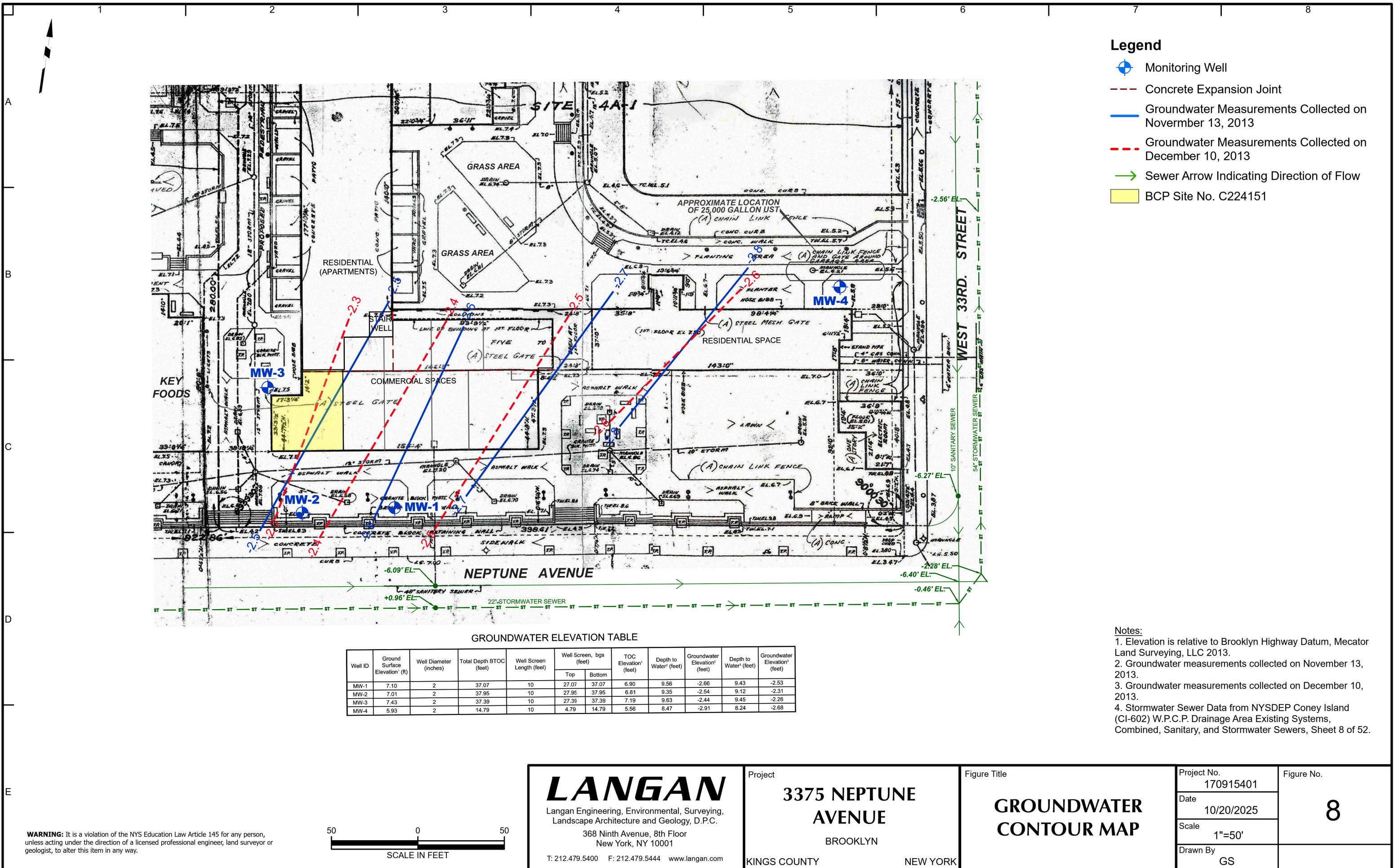
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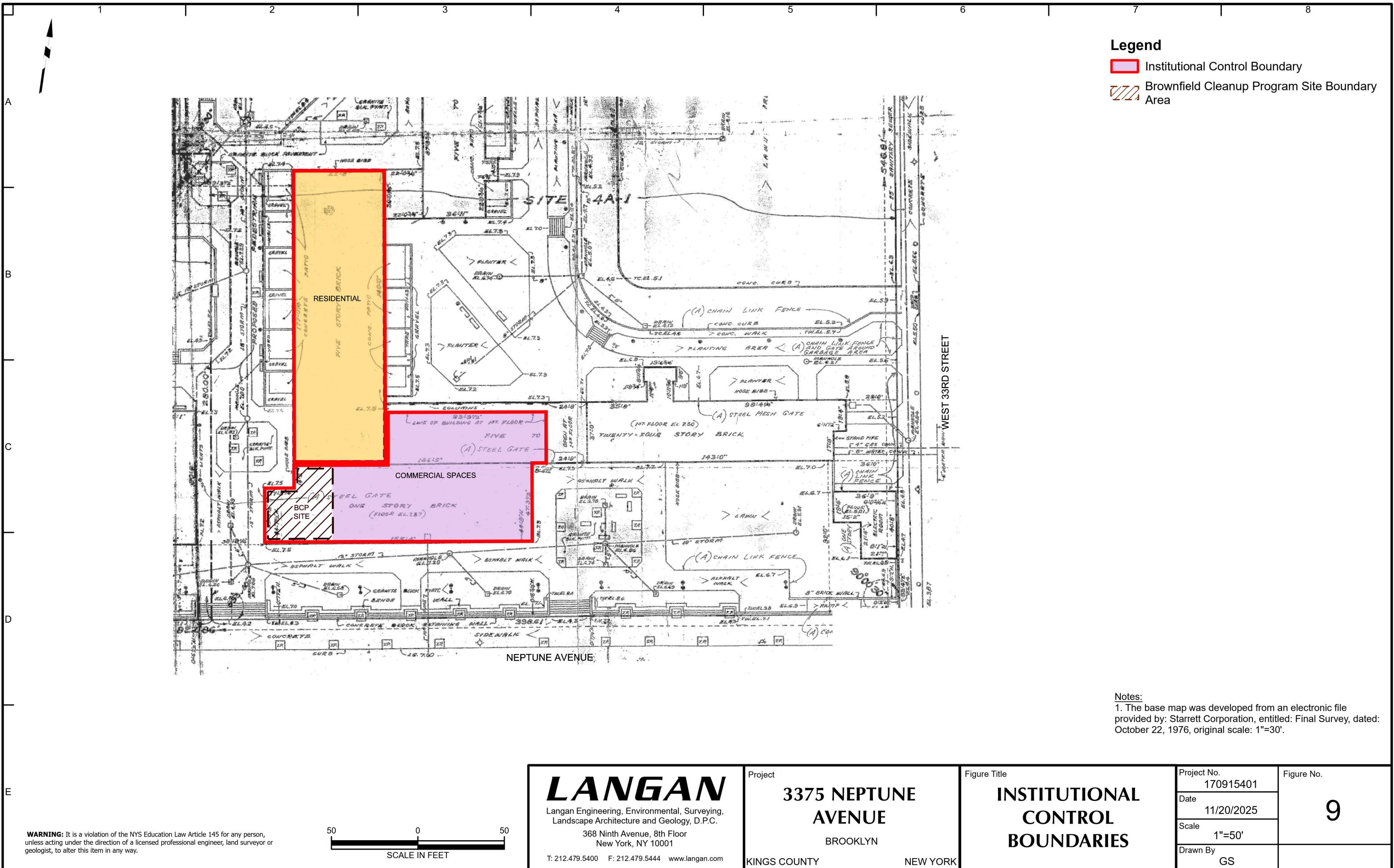
Figure No.

5







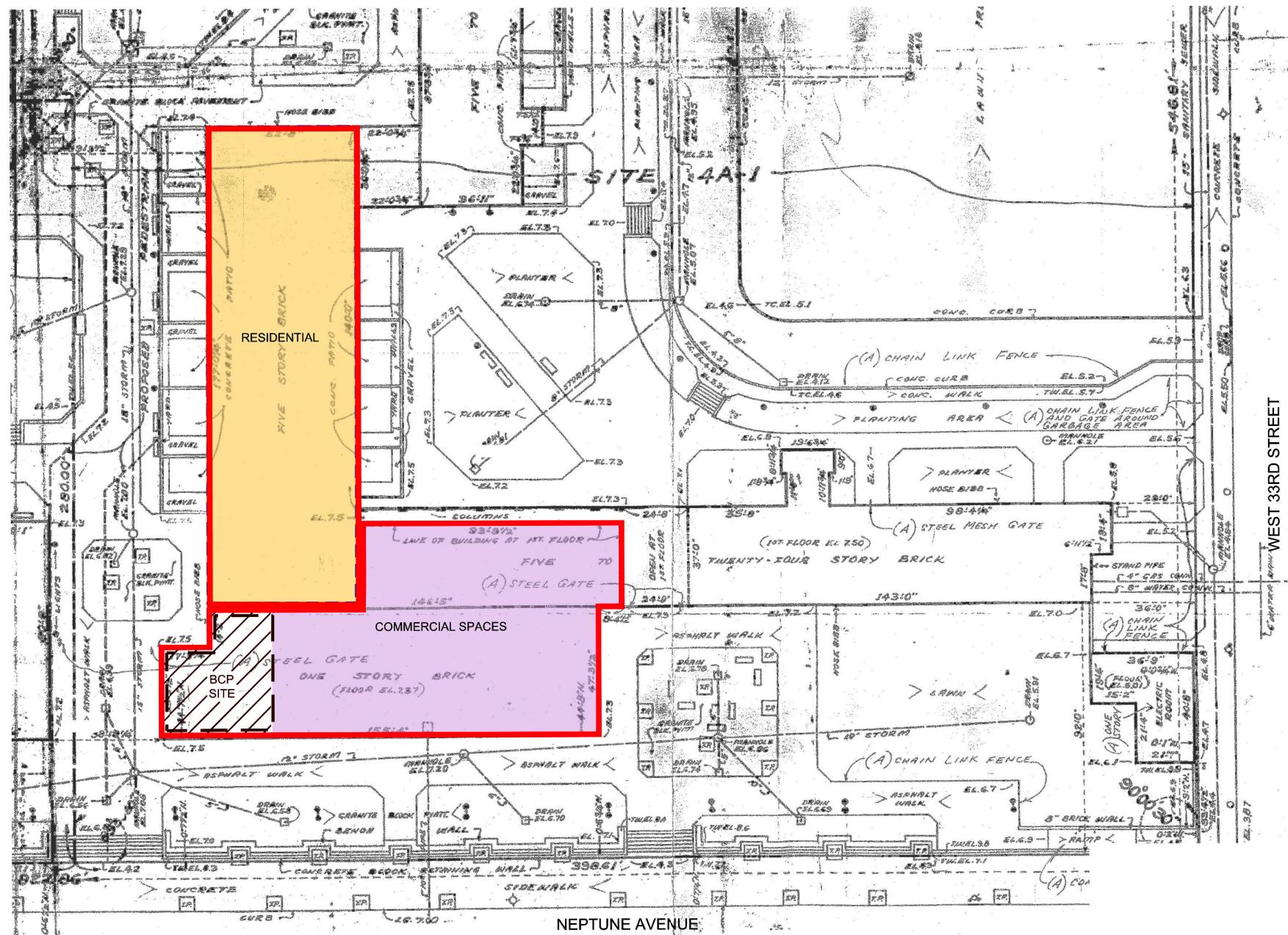


1 2 3 4 5 6 7 8

Legend

Existing Cover System and Installed SSDS System

Brownfield Cleanup Program Site Boundary Area



Notes:

1. The base map was developed from an electronic file provided by: Starrett Corporation, entitled: Final Survey, dated: October 22, 1976, original scale: 1"=30'.

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

50 0 50
SCALE IN FEET

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Project

**3375 NEPTUNE
AVENUE**

BROOKLYN
KINGS COUNTY

Figure Title

**ENGINEERING
CONTROLS LOCATION**

Project No.
170915401

Date
11/20/2025

Scale
1"=50'

Drawn By
GS

Figure No.

10

Appendix A Site Contacts

APPENDIX A – LIST OF SITE CONTACTS

APPENDIX A – LIST OF SITE CONTACTS

Name		Phone/Email Address
<u>[Site Owner]</u>	Bay Park ONE-A LLC.	(212) 350-9900 peter@dvln.com
<u>[Remedial Party]</u>	Bay Park ONE-A LLC.	(212) 350-9900 peter@dvln.com
<u>[Qualified Environmental Professional]</u>	David Winslow	(347) 242-7107 dwinslow@langan.com
<u>[NYSDEC DER Project Manager]</u>	Yildiz Palumbo	(718) 482-4891 yildiz.palumbo@dec.ny.gov
<u>[NYSDEC Regional HW Engineer]</u>	Jane O'Connell	(718) 482-4996 jane.oconnell@dec.ny.gov
<u>[NYSDEC Site Control]</u>	Andre Obligado	(518) 402-8000 andre.obligado@dec.ny.gov
<u>[Remedial Party Attorney]</u>	Howard Epstein	(212) 756-2596 howard.epstein@srz.com

APPENDIX B
EXCAVATION WORK PLAN (EWP)

Appendix B Excavation Work Plan

APPENDIX B – EXCAVATION WORK PLAN (EWP)

-1. NOTIFICATION

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

Table B-1: Notifications*

Yildiz Palumbo Project Manager, NYSDEC Region 2	Phone: (718) 482-4900 Email: yildiz.palumbo@dec.ny.gov
Jane O'Connell [Regional Office NYSDEC Representative]	Phone: (718) 482-4599 [jane.oconnell@dec.ny.gov]
Kelly Lewandowski [NYSDEC Site Control]	Phone: (518) 402-9569 Email: Kelly.lewandowski@dec.ny.gov

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

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of

contaminated soil to be excavated and any work that may impact an engineering control;

- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix F of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2. SOIL SCREENING METHODS

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

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections 5 and 6 of this Appendix.

-3 MATERIALS EXCAVATION AND LOAD-OUT

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

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

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

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

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

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

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the

adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

-4. MATERIALS TRANSPORT OFF-SITE

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

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

Truck transport routes are provided in Figure B-2. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport;

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

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

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

-5. MATERIALS DISPOSAL OFF-SITE

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

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

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

-6. MATERIALS REUSE ON-SITE

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

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

-7. FLUIDS MANAGEMENT

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

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

-8. 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 decision document. The existing cover system is comprised of a minimum of 4 inches of the existing concrete building slabs over the soil subgrade. The demarcation layer, consisting of orange snow fencing material, white geotextile or equivalent 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.

-9. BACKFILL FROM OFF-SITE SOURCES

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

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

All imported soils will meet the backfill and cover soil regulatory standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table B-2. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

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

-10. EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction,

excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

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

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

-11. COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the work area will be performed during construction. All curing/intrusive work will be performed using wet methods to prevent the release of dust. Continuous air monitoring will be performed during ground intrusive activities and during the handling of contaminated or potentially contaminated media.

A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown in Figure B-1. 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.

12. DUST CONTROL PLAN

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

- Dust suppression will be achieved through the use of a dedicated on-site water source, such as, a water hose or truck for road wetting. The truck, if applicable and needed, 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, un-vegetated soils vulnerable to dust production.
- Gravel will be used on construction access roadways, if not paved or concrete, 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.

-13. OTHER NUISANCES

The following items may be necessary depending on the type of wastes present, the location of the site and other site-specific concerns.

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.

TABLE B-2 - NYSDEC Soil Cleanup Objectives (SCOs)

Site No. C224151

3375 Neptune Avenue,

Brooklyn, New York

Contaminant	Protection of Public Health					Protection of Ecological Resources ⁿ	Protection of Groundwater
	Unrestricted Use	Residential	Restricted-Residential	Commercial	Industrial		
All soil cleanup objectives (SCOs) are in parts per million (ppm); approximately equivalent to mg/kg.							
Metals							
Arsenic	13 ^m	16 ^f	17 ^f	18 ^f	19 ^f	13 ^f	16 ^f
Barium	350 ^m	350 ^f	400	400	10,000 ^d	433	820
Beryllium	7.2	14	72	590	2,700	10	47
Cadmium	2.5 ^m	2.5 ^f	4.3	9.3	60	4	7.5
Chromium, hexavalent ^h	1 ⁱ	22	110	400	800	1 ^e	19
Chromium, trivalent ^h	30 ^m	36	180	1,500	6,800	41	NS
Copper	50	270	270	270	10,000 ^d	50	1,720
Total Cyanide ^h	27	27	27	27	10,000 ^d	NS	40
Lead	63 ^m	400	400	1,000	3,900	63 ^f	450
Manganese	1600 ^m	2,000 ^f	2,000 ^f	10,000 ^d	10,000 ^d	1600 ^f	2,000 ^f
Total Mercury	0.18 ^m	0.81 ^j	0.81 ^j	2.8 ^j	5.7 ^j	0.18 ^f	0.73
Nickel	30	140	310	310	10,000 ^d	30	130
Selenium	3.9 ^m	36	180	1,500	6,800	3.9 ^f	4 ^f
Silver	2	36	180	1,500	6,800	2	8.3
Zinc	109 ^m	2200	10,000 ^d	10,000 ^d	10,000 ^d	109 ^f	2,480
PCBs/Pesticides							
2,4,5-TP Acid (Silvex)	3.8	58	100 ^a	500 ^b	1,000 ^c	NS	3.8
4,4'-DDE	0.0033 ^l	1.8	8.9	62	120	0.0033 ^e	17
4,4'-DDT	0.0033 ^l	1.7	7.9	47	94	0.0033 ^e	136
4,4'-DDD	0.0033 ^l	2.6	13	92	180	0.0033 ^e	14
Aldrin	0.005 ^m	0.019	0.097	0.68	1.4	0.14	0.19
alpha-BHC	0.02	0.097	0.48	3.4	6.8	0.04 ^g	0.02
beta-BHC	0.036	0.072	0.36	3	14	0.6	0.09
Chlordane (alpha)	0.094	0.91	4.2	24	47	1.3	2.9
delta-BHC	0.04	100 ^a	100 ^a	500 ^b	1,000 ^c	0.04 ^g	0.25
Dibenzofuran	7	14	59	350	1,000 ^c	NS	210
Dieldrin	0.005 ^m	0.039	0.2	1.4	2.8	0.006	0.1
Endosulfan I	2.4	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	102
Endosulfan II	2.4	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	102
Endosulfan sulfate	2.4	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	1,000 ^c
Endrin	0.014	2.2	11	89	410	0.014	0.06
Heptachlor	0.042	0.42	2.1	15	29	0.14	0.38
Lindane	0.1	0.28	1.3	9.2	23	6	0.1
Polychlorinated biphenyls	0.1	1	1	1	25	1	3.2
Semivolatiles							
Acenaphthene	20	100 ^a	100 ^a	500 ^b	1,000 ^c	20	98
Acenaphthylene	100 ^k	100 ^a	100 ^a	501 ^b	1,000 ^c	NS	107
Anthracene	100 ^k	100 ^a	100 ^a	502 ^b	1,000 ^c	NS	1,000 ^c
Benz(a)anthracene	1 ^m	1 ^f	1 ^f	5.6	11	NS	1 ^f
Benzo(a)pyrene	1 ^m	1 ^f	1 ^f	1 ^f	1.1	2.6	22
Benzo(b)fluoranthene	1 ^m	1 ^f	1 ^f	5.6	11	NS	1.7
Benzo(g,h,i)perylene	100	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Benzo(k)fluoranthene	0.8 ^m	1	3.9	56	110	NS	1.7
Chrysene	1 ^m	1 ^f	3.9	56	110	NS	1 ^f
Dibenz(a,h)anthracene	0.33 ^l	0.33 ^e	0.33 ^e	0.56	1.1	NS	1,000 ^c
Fluoranthene	100 ^k	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Fluorene	30	100 ^a	100 ^a	500 ^b	1,000 ^c	30	386
Indeno(1,2,3-cd)pyrene	0.5 ^m	0.5 ^f	0.5 ^f	5.6	11	NS	8.2
m-Cresol	0.33 ^l	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
Naphthalene	12	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	12
o-Cresol	0.33 ^l	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
p-Cresol	0.33 ^l	34	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
Pentachlorophenol	0.8 ^l	2.4	6.7	6.7	55	0.8 ^e	0.8 ^e
Phenanthrene	100	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Phenol	0.33 ^l	100 ^a	100 ^a	500 ^b	1,000 ^c	30	0.33 ^e
Pyrene	100	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c

TABLE B-2 - NYSDEC Soil Cleanup Objectives (SCOs)

Site No. C224151

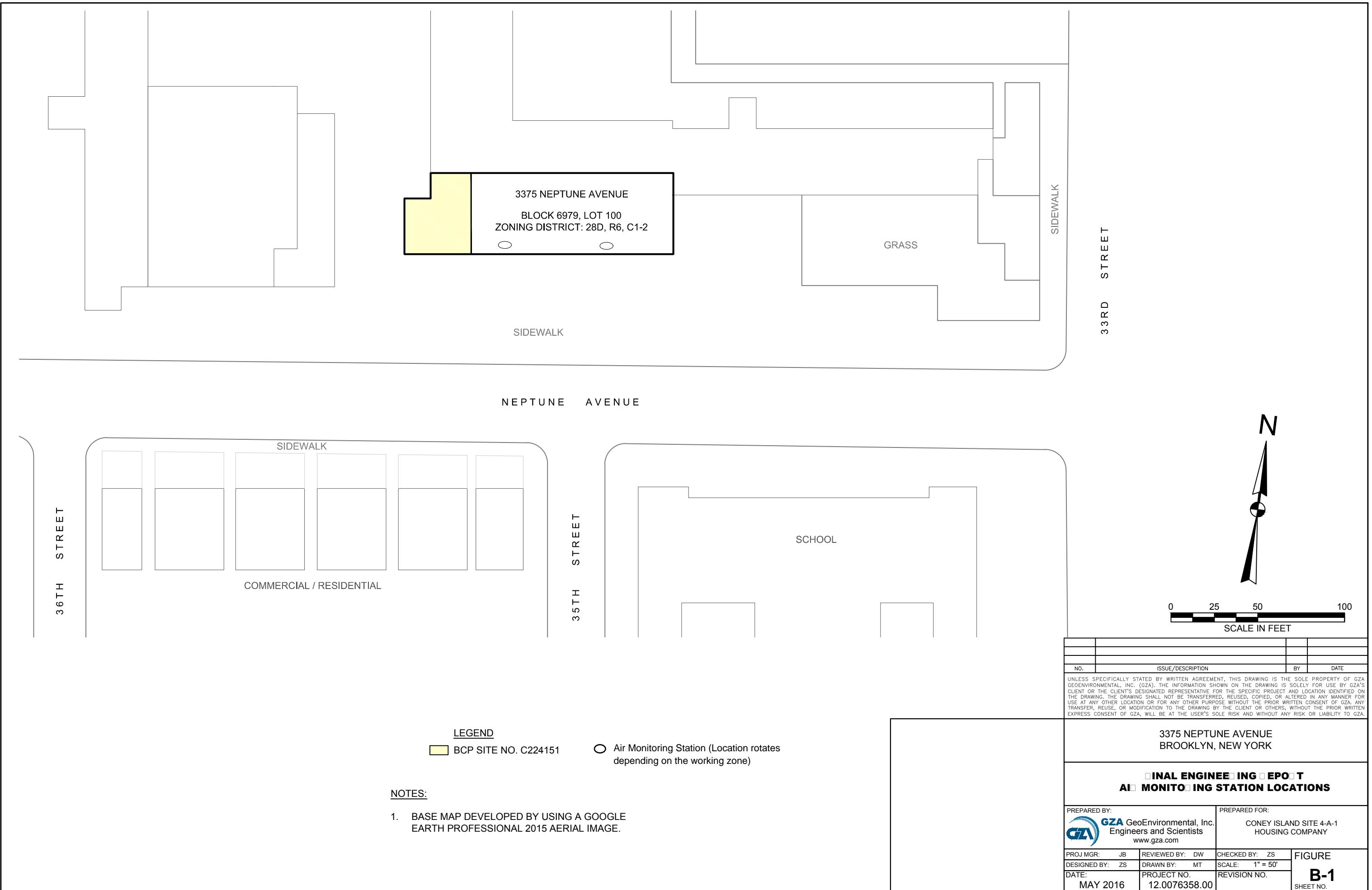
3375 Neptune Avenue,

Brooklyn, New York

Contaminant	Protection of Public Health					Protection of Ecological Resources ⁿ	Protection of Groundwater
	Unrestricted Use	Residential	Restricted-Residential	Commercial	Industrial		
All soil cleanup objectives (SCOs) are in parts per million (ppm); approximately equivalent to mg/kg.							
Volatiles							
1,1,1-Trichloroethane	0.68	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.68
1,1-Dichloroethane	0.27	19	26	240	480	NS	0.27
1,1-Dichloroethene	0.33	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33
1,2-Dichlorobenzene	1.1	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1.1
1,2-Dichloroethane	0.02 ^m	2.3	3.1	30	60	10	0.02 ^f
cis-1,2-Dichloroethene	0.25	59	100 ^a	500 ^b	1,000 ^c	NS	0.25
trans-1,2-Dichloroethene	0.19	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.19
1,3-Dichlorobenzene	2.4	17	49	280	560	NS	2.4
1,4-Dichlorobenzene	1.8	9.8	13	130	250	20	1.8
1,4-Dioxane	0.1 ^l	9.8	13	130	250	0.1 ^e	0.1 ^e
Acetone	0.05	100 ^a	100 ^b	500 ^b	1,000 ^c	2.2	0.05
Benzene	0.06	2.9	4.8	44	89	70	0.06
Butylbenzene	12	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	12
Carbon tetrachloride	0.76	1.4	2.4	22	44	NS	0.76
Chlorobenzene	1.1	100 ^a	100 ^a	500 ^b	1,000 ^c	40	1.1
Chloroform	0.37	10	49	350	700	12	0.37
Ethylbenzene	1	30	41	390	780	NS	1
Hexachlorobenzene	0.33 ^l	0.33 ^e	1.2	6	12	NS	3.2
Methyl ethyl ketone	0.12	100 ^a	100 ^a	500 ^b	1,000 ^c	100 ^a	0.12
Methyl tert-butyl ether	0.93	62	100 ^a	500 ^b	1,000 ^c	NS	0.93
Methylene chloride	0.05	51	100 ^a	500 ^b	1,000 ^c	12	0.05
n-Propylbenzene	3.9	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	3.9
sec-Butylbenzene	11	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	11
tert-Butylbenzene	5.9	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	5.9
Tetrachloroethene	1.3	5.5	19	150	300	2	1.3
Toluene	0.7	100 ^a	100 ^a	500 ^b	1,000 ^c	36	0.7
Trichloroethene	0.47	10	21	200	400	2	0.47
1,2,4-Trimethylbenzene	3.6	47	52	190	380	NS	3.6
1,3,5- Trimethylbenzene	8.4	47	52	190	380	NS	8.4
Vinyl chloride	0.02	0.21	0.9	13	27	NS	0.02
Xylene (mixed)	0.26	100 ^a	100 ^a	500 ^b	1,000 ^c	0.26	1.6

Notes:

^a The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm.^b The SCOs for commercial use were capped at a maximum value of 500 ppm.^c The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm.^d The SCOs for metals were capped at a maximum value of 10,000 ppm.^e For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.^f For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.^g This SCO is derived from data on mixed isomers of BHC.^h The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.ⁱ This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.^j This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts).^k The SCOs for unrestricted use were capped at a maximum value of 100 ppm.^l For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.^m For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.ⁿ Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.



New York City Truck Route Map



NEW JERSEY

MANHATTAN

QUEENS

NASSAU COUNTY

BROOKLYN

WESTCHESTER COUNTY

THE BRONX

ZIP Code Index

10001 Manhattan	F-2	10303 Staten Island	L-12	11203 Brooklyn	I-3	11362 Queens	F-8
10002 Manhattan	F-2	10304 Staten Island	M-14	11204 Brooklyn	J-2	11363 Queens	E-8
10003 Manhattan	G-1	10305 Staten Island	N-14	11205 Brooklyn	G-3	11364 Queens	F-8
10004 Manhattan	G-1	10306 Staten Island	N-13	11206 Brooklyn	H-4	11365 Queens	F-7
10005 Manhattan	G-2	10307 Staten Island	P-10	11207 Brooklyn	H-5	11366 Queens	F-6
10006 Manhattan	G-2	10308 Staten Island	O-12	11208 Brooklyn	H-5	11367 Queens	F-6
10007 Manhattan	G-2	10309 Staten Island	O-11	11209 Brooklyn	J-1	11368 Queens	F-5
10008 Manhattan	F-2	10310 Staten Island	L-13	11210 Brooklyn	J-1	11369 Queens	E-5
10009 Manhattan	F-2	10311 Staten Island	N-12	11211 Brooklyn	I-4	11371 Queens	E-4
10010 Manhattan	F-2	10312 Staten Island	N-12	11212 Brooklyn	I-4	11372 Queens	F-5
10011 Manhattan	G-2	10313 Staten Island	N-12	11213 Brooklyn	J-2	11373 Queens	F-5
10012 Manhattan	G-2	10314 Staten Island	N-12	11214 Brooklyn	H-2	11374 Queens	G-5
10013 Manhattan	G-2	10452 Bronx	C-4	11215 Brooklyn	H-2	11375 Queens	G-6
10014 Manhattan	F-2	10453 Bronx	C-4	11216 Brooklyn	H-2	11377 Queens	F-4
10015 Manhattan	F-2	10454 Bronx	D-4	11217 Brooklyn	I-2	11378 Queens	G-4
10016 Manhattan	F-2	10455 Bronx	D-4	11218 Brooklyn	I-2	11379 Queens	G-5
10017 Manhattan	F-2	10456 Bronx	C-4	11219 Brooklyn	J-1	11379 Queens	G-5
10018 Manhattan	F-2	10457 Bronx	C-4	11220 Brooklyn	B-5	11380 Queens	G-5
10019 Manhattan	E-2	10458 Bronx	C-5	11221 Brooklyn	H-4	11381 Queens	F-5
10020 Manhattan	F-2	10459 Bronx	C-5	11222 Brooklyn	H-4	11411 Queens	H-8
10021 Manhattan	F-2	10460 Bronx	C-5	11231 Brooklyn	K-2	11413 Queens	H-8
10022 Manhattan	F-2	10461 Bronx	C-6	11232 Brooklyn	K-2	11414 Queens	I-6
10023 Manhattan	E-3	10462 Bronx	C-5	11233 Brooklyn	A-5	11422 Queens	I-8
10024 Manhattan	D-3	10463 Bronx	B-4	11235 Brooklyn	I-3	11415 Queens	G-6
10025 Manhattan	D-3	10464 Bronx	B-7	11236 Brooklyn	I-3	11416 Queens	H-5
10027 Manhattan	D-3	10465 Bronx	C-6	11238 Brooklyn	J-1	11417 Queens	H-6
10028 Manhattan	E-3	10466 Bronx	A-6	11239 Brooklyn	K-3	11418 Queens	G-6
10029 Manhattan	E-3	10467 Bronx	B-5	11230 Brooklyn	J-3	11419 Queens	H-6
10030 Manhattan	D-3	10468 Bronx	B-4	11231 Brooklyn	K-2	11420 Queens	H-6
10031 Manhattan	C-3	10469 Bronx	B-6	11232 Brooklyn	I-2	11421 Queens	H-5
10032 Manhattan	C-3	10470 Bronx	A-5	11233 Brooklyn	H-6	11422 Queens	I-8
10033 Manhattan	C-3	10471 Bronx	A-4	11234 Brooklyn	J-4	11423 Queens	G-7
10034 Manhattan	B-4	10472 Bronx	C-5	11235 Brooklyn	K-3	11426 Queens	F-9
10035 Manhattan	D-4	10473 Bronx	D-5	11236 Brooklyn	I-4	11427 Queens	G-8
10037 Manhattan	E-3	10474 Bronx	B-6	11237 Brooklyn	H-3	11429 Queens	G-8
10038 Manhattan	E-3	10475 Bronx	I-5	11238 Brooklyn	I-5	11430 Queens	I-7
10039 Manhattan	G-3	11005 Queens	F-9	11239 Brooklyn	G-3	11432 Queens	G-7
10040 Manhattan	B-4	11101 Queens	F-3	11240 Brooklyn	E-6	11433 Queens	G-7
10044 Manhattan	E-3	11102 Queens	E-4	11244 Queens	F-6	11434 Queens	H-7
10065 Manhattan	E-3	11103 Queens	E-4	11256 Queens	E-6	11435 Queens	G-6
10075 Manhattan	E-3	11104 Queens	F-4	11257 Queens	E-7	11436 Queens	H-7
10128 Manhattan	E-3	11105 Queens	E-4	11259 Queens	E-7	11461 Queens	K-8
10280 Manhattan	G-1	11106 Queens	E-3	11359 Queens	D-7	11492 Queens	K-7
10301 Staten Island	L-14	11109 Queens	F-3	11360 Queens	E-7	11493 Queens	J-6
10302 Staten Island	L-13	11201 Brooklyn	H-2	11361 Queens	E-7	11494 Queens	K-6
				11367 Queens	L-4		

BE SAFE – AVOID A BRIDGE STRIKE

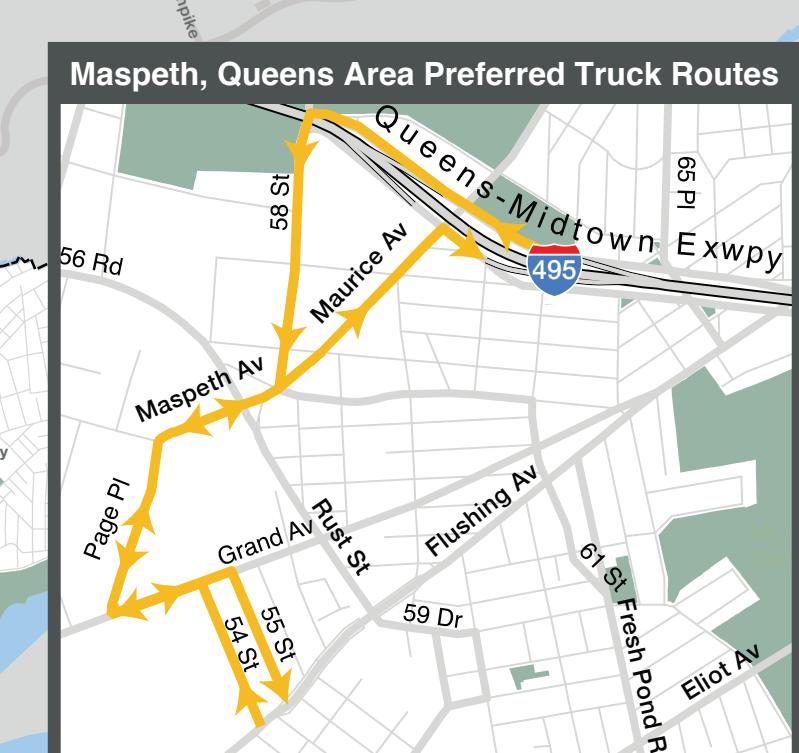


Bridge strikes and commercial vehicles on parkways cost NYC millions of dollars each year in travel delays, emergency response and bridge repairs. You may be liable for:

- Fines and/or points on your license.
- Reimbursement costs for bridge repair, clean up and delay.
- Severe damage to your vehicle.

NO TRUCKS OR COMMERCIAL VEHICLES ON PARKWAYS

JFK Travel Plaza
In 2015 the JFK Airport Travel Plaza will be opening a truck parking facility and truck fueling station. The truck park will provide 44 parking spots designed to accommodate 53-foot trailers.



Legend

—	Local Truck Route	Trucks with an origin or destination for the purpose of delivery, loading or servicing within the respective Borough, shall only operate on designated local routes, except that an operator may operate an off-designated street for the purpose of arriving at their destination or to be accommodated by leaving a designated truck route at the intersection that is nearest to their destination, proceeding by the most direct route, and then returning to the nearest designated truck route by the most direct route. If the operator has additional destinations in the same general area, the operator may proceed by the most direct route to their next destination without returning to a designated truck route, provided that the operator's next destination does not require that he/she cross a designated truck route.
—	Through Truck Route	Trucks having neither an origin nor a destination within the respective Borough shall restrict the operation of such vehicles to those street segments designated as Through Truck Routes.
—	Through Truck Route on Expressway	Trucks having neither an origin nor a destination within the respective Borough shall restrict the operation of such vehicles to those street segments designated as Through Truck Routes on Expressways.
—	Exception 53' Trailers Allowed	For definition see information on reverse side.
—	Industrial Business Zones (IBZ)	
—	Parks and Open Spaces	
—	Highway Exit	
—	Commercial Vehicles Prohibited	
—	Low Vertical Clearance Area	

Staten Island available on reverse side

.25 .5 1 Mile

North



Typical Truck Route Signs



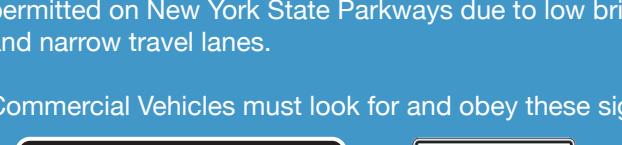
These signs are used to indicate the Truck Route System.

They are posted at intersecting truck routes and along the routes themselves.

Truck Restricted Roadways and Height Restrictions

No Commercial Vehicles, Trucks, or Tractor Trailers are permitted on New York State Parkways due to low bridge and narrow travel lanes.

Commercial Vehicles must look for and obey these signs:



The signs above mean "No Trucks." They are typically located at the entrance ramp for parkways or are attached to guide signs indicating roadways where trucks, trailers and tractor trailers are not permitted.



The sign above prohibits all vehicles above 6'11" in height from entering a roadway where it is posted.



When a bridge has an overhead clearance less than 14 feet, a sign is posted on the bridge indicating the legal overhead clearance of the bridge or elevated structure.



MAXIMUM VEHICLE HEIGHT 6'11"

Look for cyclists

Unload & move goods via the buffer zone

Park in the floating parking lane

6'-11" CLEARANCE

Look for cyclists

Not To Scale

Legend: See front of map

Owner

DOT Bridges

DOT Movable Bridges

MTA Bridges & Tunnels

Port Authority of New York and New Jersey

NYC & NJ Tunnels

Outerbridge Crossing

Marine Parkway Bridge

Verrazano-Narrows Bridge

Cross Bay Bridge

Not To Scale

Gross vehicle permissible weight is 80,000 lbs. If you exceed this, contact the respective agency for a permit.

NYC DOT: Vehicles over 30,000 pounds are permitted to cross any of the NYCDOT movable bridges or the Woods Hole Ferry Bridge.

MTA BAT: The tunnels and bridges permissible weight limits without a permit are 80,000 lbs. For both the Queens Midtown Tunnel and the Brooklyn Battery Tunnel, widths up to 10' can be accommodated under emergency conditions and with special permission.

PANYNJ: As the result of the latest federal ruling, commercial vehicles are prohibited from entering NYC via the Holland Tunnel but are encouraged to use the Lincoln Tunnel and George Washington Bridge as alternatives. The weight limit per axle is 20,000 lbs; the weight limit per tandem axle is 34,000 lbs with the exception of the Lincoln Tunnel and Holland Tunnel which have a weight limit of 22,400 lbs per axle.

More Information <http://www.nyc.gov/trucks>

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This map is to be used for reference purposes only. Please refer to the New York City Traffic Rules for the most current information on truck routes, permissible truck routes as well as permissible truck weights and dimensions. Information on this map is subject to change without notice. Always observe all posted restrictions as limitations may apply to designated truck routes.

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Appendix C Environmental Easement/Notice/Deed Restriction

Appendix D Boring Logs

APPENDIX D - BORING LOGS

GEOPROBE LOG											
 GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i>					Bay Park One 3375 Neptune Ave Brooklyn, NY			EXPLORATION NO.: GZA-14 SHEET: 1 of 2 PROJECT NO.: 12.0076112.02 REVIEWED BY:			
Logged By: D. Forth Drilling Co.: Aquifer Drilling and Testing, Inc. Foreman: C. Dylan				Geoprobe Location: See Plan Ground Surface Elev. (ft.): Final Geoprobe Depth (ft.): 38.5 Date Start - Finish: 11/14/2013 - 11/14/2013			H. Datum: V. Datum:				
Type of Rig: 6610 DT Rig Model: Geoprobe Drilling Method: Direct Push				Sampler Type: Macrocore Sampler O.D. (in.): 2.0 Sampler Length (in.): 60 Rock Core Size: N/A		Groundwater Depth (ft.)					
						Date	Time	Water Depth	Stab. Time		
Depth (ft)	Sample				Sample Description Modified Burnister			Remark	Elev. (ft.)	Stratum Description	Depth (ft.)
	No.	Depth (ft.)	Pen. (in)	Rec. (in)							
1	S-1	0-5	60	36	0.0	S-1: 3" Asphalt Brown, coarse SAND, some brick and concrete fragments, dry.			1	ASPHALT	0.25
2					0.0					FILL (SAND)	
3	S-2	5-10	60	36	0.0	S-2: Light brown, medium to fine grained SAND. Bottom 6": Damp Top 8": Dark brown			2		5
4					0.0					FILL	6.5
5	S-3	10-15	60	60	0.0	S-3: Light brown, fine to medium grained SAND. Top 2" moist, saturated below. 14-15 feet: Gray and silty at 14.75-15 feet. Dark gray, medium stiff SILT, not plastic.			3		10.5
6					0.0					SAND (Brown)	
7	S-4	15-20	60	60	0.0	S-4: Medium dense, gray, medium to fine grained SAND, saturated. 19-17.5": Gray SILT. Soft, non plastic Gary, coarse grained SAND until 20 feet, saturated.					15
8					0.0					SILT (Gray)	15.5
9					0.0					SILT (Gray)	16.5
10					0.0					SILT (Gray)	17.5
11					0.0					SILT (Gray)	
12					0.0						
13					0.0						
14					0.0						
15					0.0						
16					0.0						
17					0.0						
18					0.0						
19					0.0						
20					0.0						
REMARKS 1 - Sampled VOCS at 1 foot bgs. 2 - Sampled BNA 375, PEST/PCD, HERBs, Metals, CN, Hex/Tri ? at 4 feet bgs. 3 - Sampled VOC at 9 feet bgs. 4 - Temperature approximately 35 degrees, strong winds. Difficulty getting out 20-25 feet sample.											
Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.										GZA-14	

GEOPROBE LOG												
 GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i>					Bay Park One 3375 Neptune Ave Brooklyn, NY			EXPLORATION NO.: GZA-14 SHEET: 2 of 2 PROJECT NO.: 12.0076112.02 REVIEWED BY:				
Logged By: D. Forth Drilling Co.: Aquifer Drilling and Testing, Inc. Foreman: C. Dylan				Geoprobe Location: See Plan Ground Surface Elev. (ft.): Final Geoprobe Depth (ft.): 38.5 Date Start - Finish: 11/14/2013 - 11/14/2013				H. Datum: V. Datum:				
Type of Rig: 6610 DT Rig Model: Geoprobe Drilling Method: Direct Push				Sampler Type: Macrocore Sampler O.D. (in.): 2.0 Sampler Length (in.): 60 Rock Core Size: N/A			Groundwater Depth (ft.)					
							Date	Time	Water Depth	Stab. Time		
Depth (ft)	Sample				Sample Description				Remark	Elev. (ft.)	Stratum Description	Depth (ft.)
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)	Modified Burnister						
21	S-5	20-25	60	60	0.0	S-5: Dark gray, fine to medium grained SAND, upward ?				4		
22												
23												
24												
25	S-6	25-30	60	60	0.0	S-6: Gray, fine to medium grained SAND, saturated.						
26												
27												
28										5		
29												
30	S-7	30-35	60	60	0.0	S-7: Gray, medium to fine grained SAND, no odors, saturated.						
31						Becoming coarse grained 34-34.5 feet bgs.						
32						Becoming tan to light brown 34.5-35 feet bgs.						
33						Gray, medium grained SAND, saturated.						
34						Dark gray, medium grained.						
35						Light brown, coarse SAND at 38.5 feet bgs.						
36												
37												
38					3.0							
39						End of Exploration at 38.5 feet bgs.				6		
40												
REMARKS	5 - Sampled for VOCS at 27.5 feet. 6 - Sampled for VOCS at 38.5 feet.											
Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.											GZA-14	

GEOPROBE LOG												
 GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i>					Bay Park One 3375 Neptune Ave Brooklyn, NY			EXPLORATION NO.: P-09 SHEET: 1 of 2 PROJECT NO.: 12.0076112.02 REVIEWED BY:				
Logged By: B. Engard Drilling Co.: Aquifer Drilling and Testing, Inc. Foreman: C. Cameron				Geoprobe Location: See Plan Ground Surface Elev. (ft.): Final Geoprobe Depth (ft.): 23 Date Start - Finish: 11/12/2013 - 11/13/2013				H. Datum: V. Datum:				
Type of Rig: 420 Rig Model: Geoprobe LAR Drilling Method: Direct Push				Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 36 Rock Core Size:		Groundwater Depth (ft.)						
						Date	Time	Water Depth	Stab. Time			
Depth (ft)	Sample				Sample Description Modified Burnister				Remark	Elev. (ft.)	Stratum Description	Depth (ft.)
No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)								
1	S-1	0.5-1	36	4	0.3	S-1: Concrete floor slab Tan, fine to medium grained SAND, some rock/concrete fragments.				1	CONCRETE	0.5
2	S-2	3-6	36	36	0.4	S-2: Dark tan to brown, fine to medium grained SAND, moist.				4	FILL (SAND)	4
3	S-3	6-9	36	24	0.0	S-3: Dark tan to brown SAND, fine to medium grained SAND, moist.				6	SAND	6
4	S-4	9-12	36	36	0.3	S-4: Dark tan to brown SAND, fine to medium grained SAND, moist, becoming gray, saturated, odor.				10.5	SAND (Light brown to tan)	10.5
5	S-5	12-15	36	36	6.7	S-5: Becoming tan to light brown, saturated (mottled staining to 13 feet) 14.75': Dark gray SAND, saturated.				2	Staining to 12 feet	14.75
6	S-6	15-18	36	36	4.4	S-6: Tan to light brown, medium to fine grained SAND, saturated.				8	SAND (Dark gray)	18.5
7	S-7	18-21	36	36	2.1	S-7: 17.75': Dark gray SAND, saturated. Dark gray SAND, saturated, trace shells. 18.5'-18.75': Dark gray SILT, non plastic, moist.				10	SILT	19
8					0.7	Dark gray SAND, medium grained, trace shells, saturated, no odor.					SAND (Dark gray)	
9					0.2							
10					0.2							
REMARKS		1 - Sampled 1-2 feet bgs VOCS. 4 - Sampled 5-6 feet bgs Metals, Peat, HERB, SVOC, etc. 2 - Sampled 10.0 feet bgs VOCS. 3 - GW at 10.5 feet bgs. 6 - Sampled VOCS 14.5-15 feet bgs. 8 - Sampled SVOCs Metals et al 16-18 feet bgs. 7 - Sampled VOCS 18-18.5 feet Silt										
Field Screened for VOCS 10.5' to 12.5' feet bgs SAND a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.											P-09	

GEOPROBE LOG												
 GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i>					Bay Park One 3375 Neptune Ave Brooklyn, NY			EXPLORATION NO.: P-09 SHEET: 2 of 2 PROJECT NO: 12.0076112.02 REVIEWED BY:				
Logged By: B. Engard Drilling Co.: Aquifer Drilling and Testing, Inc. Foreman: C. Cameron				Geoprobe Location: See Plan Ground Surface Elev. (ft.): Final Geoprobe Depth (ft.): 23 Date Start - Finish: 11/12/2013 - 11/13/2013			H. Datum: V. Datum:					
Type of Rig: 420 Rig Model: Geoprobe LAR Drilling Method: Direct Push				Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 36 Rock Core Size:			Groundwater Depth (ft.)					
							Date	Time	Water Depth	Stab. Time		
Depth (ft)	Sample				Sample Description Modified Burnister				Remark	Elev. (ft.)	Stratum Description	Depth (ft.)
	No.	Depth (ft.)	Pen. (in)	Rec. (in)								
21	S-8	21-23	24	24	0.2 0.0 0.0	S-8: Dark gray, fine to medium SAND, saturated, no odor.				9	SAND (Dark gray)	23
22						End of Exploration at 23 feet bgs.				5		
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
REMARKS	9 - Sampled VOCS 21-23 feet bgs. 5 - Refusal at 23 feet bgs.											
Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.										P-09		

Appendix E Field Sampling Plan/Quality Assurance Project Plan

**APPENDIX E – FIELD SAMPLING PLAN/ QUALITY ASSURANCE PROJECT
PLAN**

**FIELD SAMPLING PROCEDURES/ QUALITY
ASSURANCE PROJECT PLAN**

**3375 NEPTUNE AVENUE
KING COUNTY
BROOKLYN, NEW YORK
NYSDEC Site Number C244151**

PREPARED FOR:

Coney Island Site 4-A-1 Housing Company
70 East 55th Street – 7th Floor
New York, NY 10022

PREPARED BY:

Goldberg-Zoino Associates of New York P.C.
d/b/a GZA GeoEnvironmental of New York (GZA)
104 West 29th Street, 10th Floor
New York, NY 10001
212-594-8140

MAY 2016
File No. 12.0076358.00

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Attachment 1. SSDS Sample Sheet

1.00 INTRODUCTION

GZA GeoEnvironmental of New York (GZA) has developed this Field Sampling plan and Quality Assurance Project Plan (QAPP) to establish the procedures for sample collection, analysis and quality assurance for SSDS Effluent Monitoring (Monitoring) activities performed at 3375 Neptune Avenue, Brooklyn, New York (the Site). Sampling and analytical activities will be conducted in accordance with this QAPP, and the applicable requirements of the New York State Department of Environmental Conservation (NYSDEC).

1.10 PROJECT SCOPE

This QAPP describes field, analytical and reporting standard operating procedures (SOPs) that will be utilized during Monitoring. The information and data collected will be utilized to assess the environmental conditions at the Site. These procedures generally apply to the following activities:

- SSDS effluent sampling
- Laboratory analysis
- Report preparation

1.20 PROJECT OBJECTIVES

This QAPP was prepared to ensure that field sampling procedures, selected analytical methods, and chemical analytical data are of sufficient quality to meet the intended usage. As specific conditions and additional information warrant, this QAPP may be amended or revised to include Site-specific quality assurance/quality control (QA/QC) procedures. The information/data collected during Monitoring will be used to evaluate the effectiveness of SSDS system to prevent any potential residual vapors from soil and/or groundwater entering the buildings.

2.00 PROJECT ORGANIZATION AND RESPONSIBILITIES

A description of specific roles and responsibilities is provided below.

The Project Manager will be responsible for:

- Initiating project activities;
- Identifying project staff, equipment, and other resource requirements;
- Interfacing with client concerning technical matters and project progress;
- Monitoring task activities, and adjusting efforts or resources, as required to help ensure that established quality objectives are maintained;
- Internal project administration; and
- Oversight of report preparation.

The Field Team Leader/Site Supervisor will be responsible for:

- Supervising the technical performance of the project staff and field subcontractors;
- Ensuring compliance with the work plan;
- Coordinating data validation and quality assurance;
- Report preparation; and
- Working with the Project Manager in coordinating overall project quality assurance including preparation of work plans and review of data.

The field team will be comprised of various members of GZA staff based on their availability.

The Health and Safety Coordinator will be responsible for working with the Project Manager and Field Team Leader/Site Supervisor in formulation of a Site-specific Health and Safety Plan.

Quality Assurance will be accomplished through the GZA Consultant Reviewer project review process.

3.00 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

3.10 DATA QUALITY PROTOCOLS

New York State Department of Health Environmental Laboratory Accreditation Program (ELAP)-certified laboratories will provide analytical services for the Monitoring program. Vapor samples will be analyzed for one or more compound classes using the following analytical methods:

- Volatile organic compound (VOC) analyses by EPA Method TO-15

Sample containers, preservation, holding times and volumes will be in accordance with the particular EPA method.

3.20 ACCURACY

Accuracy is defined as the degree of agreement of a measurement or average of measurements with an accepted reference or true value. Accuracy will be evaluated by use of calibration and calibration verification procedures, laboratory control samples, and surrogate, matrix, and analytical spikes. Not all accuracy checks are incorporated into each analytical method.

3.30 PRECISION

Precision is defined as a measure of mutual agreement among individual measurements of the sample property. Precision will be evaluated by the analysis of laboratory and matrix spike duplicate samples. We will also collect 5% duplicate samples in the field for comparison purposes.

3.40 DATA REPRESENTATIVENESS

Samples will be collected in a standardized manner designed to produce representative samples. This QAPP is designed so that the samples collected will present an accurate representation of actual Site conditions.

3.50 DATA COMPARABILITY

Data comparability will be ensured by control of sample collection methodology, analytical methodology, and data reporting and by the usage of USEPA-approved methodologies. The QAPP and sampling methodologies are designed so that comparability questions are minimized. Standardized sampling techniques and analytical methods will be used to attain stated project objectives. The required level of laboratory deliverables will maximize comparability of analytical results.

3.60 DATA COMPLETENESS

The number of samples to be collected is based on the need for data completeness. Data gaps will be addressed when/if they occur by systematic re-sampling and/or increasing the number of sampling points.

4.00 SAMPLING PROCEDURES

Environmental sampling will include SSDS effluent sampling.

4.10 SSDS EFFUENT SAMPLING

The VOC concentrations in the SSDS effluent will be sampled quarterly for the first year, then semiannually thereafter to monitor effluent levels. Should the PCE concentrations in the SSDS effluent appear to be below NYSDOH AGVs, grab soil gas samples will be collected while the system is operating. In the event that the soil gas samples are below mitigation levels, as presented in the NYSDOH Decision Matrices I and II, the system will be turned off and soil gas will be sampled quarterly to assess rebound for one year; sampling will be conducted semiannually for three years, biannually for two years, then once every four years thereafter. Specifically, the effluent will be screened with a hand held photoionization detector (PID) then an effluent sample will be collected. A canister will be used to collect an approximate two-hour effluent grab sample. After sample collection, the vapor sample will be shipped, via overnight courier, to a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory for volatile organic compound (VOC) analyses by EPA Method TO-15.

Table 1: Quality Assurance/Quality Control Analytical Summary

Sample	Methods	Hold Time	Sample Container	Number of Samples ¹
SSDS Exhaust	TO-15	14 days	6-L SUMMA	1

Analytical data will be provided in an electronic format in accordance with section 1.15 of the DEC-10.

4.20 QA/QC SAMPLE COLLECTION

4.2.1 EQUIPMENT

Canister integrity as a result of shipping should be examined prior to use. The canisters should be received in the field with the laboratory-measured pressure as part of the documentation. Field check the pressure of the canister before collecting the sample. The field-measured pressure should be within 10% of the laboratory recorded value. If this is not the case, the canister should be rejected and another canister used. There may be some minor difference in measured pressures (for instance with changes in altitude and barometric pressure) of less than 5% that does not reflect a canister integrity problem.

Canisters should be connected to the sampling point using small diameter stainless steel, nylon, or PTFE (Teflon) tubing and stainless steel compression-type fittings. (Other appropriate non-reactive materials may be used. Polyethylene and Tygon are not acceptable tubing materials.) The number of connections in the sampling system is should be minimized to reduce the number of locations where leaks could occur. Minimizing the length and diameter of the tubing reduces the sample residence time and the required purge volume.

5.00 DOCUMENTATION AND CHAIN-OF-CUSTODY

5.10 SAMPLE COLLECTION DOCUMENTATION

5.1.1 Field Data Documentation/Field Logs

A system of logging pertinent data collected during sampling operations will be maintained using bound field logbooks. Each page will be numbered, dated, and initialed or signed by the person making the entry. Entries will be made in ink. Errors will be crossed out with a single line, initialed, and dated. At the completion of the day, if a page is not complete, a diagonal line will be drawn through the remainder of the page with the signature at the bottom.

Samples will be tagged or labeled with pertinent Site information at the time of sampling. **Section 5.1.3** describes sample identification. Pertinent Site information to be supplied in the field log for each task is listed below:

- Initials or Signature of note taker
- Name and location of investigation
- Date and time of arrival and departure
- Names of all personnel on-Site and their affiliation
- Purpose of the visit
- Field instruments used, date and time of calibration and calibration checks, method of calibration, standards used
- Field measurement results
- Date, time, and location of all sampling points
- Method of sample collection
- Factors that could affect sample integrity
- Name of sampler(s)
- Sample identification and sample description
- Documentation of conversations with the client, regulatory personnel, field decisions, and approval
- Sample locations intervals
- Weather conditions

Field notebooks should contain only factual information entered as real-time notes, which will enable the user to recreate events on-Site.

5.1.2 Chain-of-Custody Records

Sample custody is discussed in detail in **Sections 5.1.4 through 5.1.6** of this Plan. Chain-of-custody records are initiated by the samplers in the field. The field portion of the custody documentation should include: (1) the project name; (2) signature(s) of sampler(s); (3) the sample number, date and time of collection, and whether the sample is grab or composite; and (4) if applicable, air bill or other shipping number. Sample receipt and log-in procedures at the laboratory are described in **Section 5.1.6** of this Plan.

Samples will be transferred to the custody of the respective laboratories via third-party commercial carriers or via laboratory courier service within timeframes required by NJDEP field sampling procedures.

5.1.3 Sample Labeling

Immediately upon collection, each sample will be labeled with an adhesive label, which includes the date and time of collection, sampler's initials, tests to be performed, preservative (if applicable), and a unique identifier. The following identification scheme will be used:

- A. The sample ID number will include the soil, soil gas, sediment, wastewater, or monitoring well location, along with the sample depth, sample interval, and the depth interval at which it was collected.

- B. The analysis required will be indicated for each sample.

Example: SVOC

- C. Date taken will be the date the sample was collected, using the format: MM-DD-YY.

Example: 03-22-12

- D. Time will be the time the sample was collected, using military time.

Example: 14:30

- E. The sampler's name will be printed in the "Sampled By" section.

- F. Other information relevant to the sample.

Example: Equipment Blank

A sample label will contain the following information:

Job No.

Client:

Sample Number

Date _____

Sample Time

Sample Matrix

Grab or Composite (explain)

Preservatives

Analyses

Sampler Signature

This sample label contains the authoritative information for the sample. Inconsistencies with other documents will be settled in favor of the vial or container label unless otherwise corrected in writing from the field personnel collecting samples.

5.1.4 Sample Custody

A sample is considered to be under a person's custody if:

- the item is in the actual possession of a person
- the item is in the view of the person after being in actual possession of the person
- the item was in the actual physical possession of the person but is locked up to prevent tampering
- the item is in a designated and identified secure area

5.1.5 Field Custody Procedures

Samples will be collected following the sampling procedures documented in **Section 4.00** of this Plan. Documentation of sample collection is described in **Section 5.1.1** of this Plan. Sample chain-of-custody and packaging procedures are summarized below. These procedures are intended to ensure that the samples will arrive at the laboratory with the chain-of-custody intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.
- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain

that a pencil was used to fill out the sample label because the pen would not function in wet weather.

- Samples will be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to the analytical laboratory courier, or to/from a secure storage location.
- All shipments will be accompanied by the chain-of-custody record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.
- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and/or secured to the inside top of each sample box or cooler. If using a commercial carrier service to ship sample containers to the laboratory, the containers will be secured with strapping tape and custody seals. The custody seals will be attached to the front right and back left of the cooler and covered with clear plastic tape after being signed by field personnel. The cooler will be strapped shut with strapping tape in at least two locations.
- If the samples are sent by commercial carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.
- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory sample custodian or laboratory courier, and signature of the laboratory sample custodian or courier on the chain-of-custody document as receiving the samples and signature of sampler as relinquishing samples.

5.1.6 Laboratory Custody Procedures

Samples will be received and logged in by a designated sample custodian or his/her designee. Upon sample receipt, the sample custodian will:

- Examine the shipping containers to verify that the custody tape is intact, if applicable,

- Examine all sample containers for damage,
- Determine if the temperature required for the requested testing program has been maintained during shipment and document the temperature on the chain-of-custody records,
- Compare samples received against those listed on the chain-of-custody,
- Verify that sample holding times have not been exceeded,
- Examine all shipping records for accuracy and completeness,
- Determine sample pH (if applicable) and record on chain-of-custody forms
- Sign and date the chain-of-custody immediately (if shipment is accepted) and attach the air bill,
- Note any problems associated with the coolers and/or samples on the cooler receipt form and notify the Laboratory Project Manager, who will be responsible for contacting GZA,
- Attach laboratory sample container labels with unique laboratory identification and test, and
- Place the samples in the proper laboratory storage.

Following receipt, samples will be logged in according to the following procedure:

- The samples will be entered into the laboratory tracking system. At a minimum, the following information will be entered: project name or identification, unique sample numbers (both client and internal laboratory), type of sample, required tests, date and time of laboratory receipt of samples, and field ID provided by field personnel.
- The Laboratory Project Manager will be notified of sample arrival.
- The completed chain-of-custody, air bills, and any additional documentation will be placed in the final evidence file.

5.20 SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

No field analyses are anticipated for this program. If site conditions were to warrant field analysis, the responsible contractor will prepare an addendum establishing the field analytical procedures. Analyses of samples will be performed by a New York ELAP Certified laboratory, certified for the specific analyses to be performed (e.g. TestAmerica Laboratories of Edison, NJ or Aqua Pro-Tech Laboratories in Fairfield, NJ or equivalent laboratory).

6.00 DATA REPORTING AND VALIDATION

Laboratory deliverables will include, at a minimum:

1. A cover page, including facility name and address, laboratory name and address, laboratory certification number, date of analytical report preparation, and signature of laboratory director.
2. A contents page.
3. A non-conformance summary
3. A listing of all field sample identification numbers and corresponding laboratory sample identification numbers
3. A listing of the analytical methods used
4. Detection limits for each analyte
5. Tabulated sample results, including date of analysis
6. Method blank results
7. Chain-of-custody documents
8. Temperature of sample at receipt

Errors in reporting identified during the data review process must be corrected by the reporting laboratory.

Attachment 1

Stack ID: _____

GZA GeoEnvironmental, Inc.

SSDS Sample Sheet

CLIENT: Coney Island Site 4-A-1 Housing Company

PROJECT NO: 12.0076358

SITE: 3375 Neptune Avenue, Brooklyn, New York

DATE:

WEATHER:

SAMPLER(S):

SUMMA:

Canister ID:

Regulator ID:

INITIAL:

FINAL:

Time Start _____

Time Stop _____

Vacuum

Vacuum

Effluent Sample Port:

Air Flow Rate (CFM):

Air Flow Rate (CFM):

Air velocity (ft/min): _____

Air velocity (ft/min): _____

Temp (deg F):

Temp (deg F):

Humidity (% rh):

Humidity (% rh): _____

Barometric Pressure (in. Hg):

Barometric Pressure (in. Hg):

STACK EFFLUENT PID READINGS:

Appendix F Health and Safety Plan

**APPENDIX F – HEALTH AND SAFETY PLAN AND ASSOCIATED
COMMUNITY AIR MONITORING PLAN**

**HEALTH AND SAFETY PLAN
3375 NEPTUNE AVENUE
KING COUNTY
BROOKLYN, NEW YORK
NYSDEC Site Number C244151**

PREPARED FOR:

Coney Island Site 4-A-1 Housing Company
70 East 55th Street – 7th Floor
New York, NY 10022

PREPARED BY:

Goldberg-Zoino Associates of New York P.C.
d/b/a GZA GeoEnvironmental of New York (GZA)
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APPENDICES

Appendix A Health and Safety Briefing/Site Orientation Record

Appendix B Directions to Hospital

Appendix C Material Safety Data Sheets

1.0 INTRODUCTION

1.1 Overview

This project-specific Health and Safety Plan (HASP) has been developed by GZA GeoEnvironmental of New York (GZA) on behalf of Coney Island Site 4-A-1 Housing Company (Client) to establish the procedures necessary for protection from potential contaminated soils resulting from the sub-slab installation (SSDS) Installation at 3375 Neptune Avenue located in Brooklyn, New York (Site) due to re-development plans.). The procedures in this HASP plan have been developed based on current knowledge regarding the hazards which are known or anticipated for the operations to be conducted at this Site.

1.2 Site Hazards

This HASP covers only the hazards associated with potential chemical exposures. Physical hazards such as injuries from typical SSDS Installation field work activities, including the operation of heavy equipment, noise exposure, heat and cold stress, electrical hazards, fire hazards, and general safety hazards associated with walking on working surfaces (trip and fall) are covered by the Client's CSMP.

Site activities may pose chemical exposure hazards. Potential chemical exposure hazards include skin contact, ingestion and inhalation hazards which may result from the presence of volatile organic compounds, semi-volatile organic compounds, and inorganic metallic elements (metals) on-Site. The potential adverse health effects from these detected contaminants are diverse. Many of these compounds are known or suspected to result in chronic illness from long-term exposures. However, due to the limited nature of the proposed work, only acute effects are a potential concern. See Section 2.0 for detailed chemical hazard information.

1.3 Project Team

The organizational structure established for the implementation of health and safety requirements established by this HASP are outlined in the CSMP. Personnel who have been assigned specific authority to implement and enforce the provisions of this HASP are identified below.

Name	Project Title/Assigned Role	Phone Numbers
James Bellew	Project Manager	Work:646-929-8923 Mobile:347-640-2759
Adam Spaulding	Site Supervisor	Work:973-774-3303 Mobile:201-396-3804
Lauren Schoenemann	Site Health and Safety Officer	Work:973-774-3308 Mobile:201-274-4622

The control of Site hazards is dependent upon the degree to which management enforces compliance and employees cooperate with the specified health and safety requirements. Therefore, personnel at all levels of the organization must recognize their individual responsibility to comply. All activities covered by this HASP must be conducted in compliance with this HASP and with applicable federal, state, and local health and safety regulations, including 29 CFR 1910.120. Personnel covered by this HASP who cannot or will not comply must be excluded from Site activities by the Project Superintendent, as defined in the CSMP.

2.0 HAZARD ASSESSMENT

The following hazard assessment applies only to the activities within the specified scope of this HASP.

2.1 Chemical Hazards and Known/ Suspect Chemicals of Concern

The chemical hazard information provided below is based on data provided in the Phase 1/Phase 2 Environmental Site Assessment Report, Remedial Investigation Report, and the Final Remedial Action Work Plan, dated July 2014 and January 2015, respectively. Both reports were prepared by GZA GeoEnvironmental of New York (GZANY). During the investigations, representative Site soils and groundwater were sampled for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), priority pollutant metals, pesticides, polychlorinated biphenyl (PCBs) and cyanide. Low concentrations of VOCs, SVOCs, and metal compounds were detected in the soil and groundwater. Constituents with exceeding concentrations and their respective health effects are listed below for reference. Information presented is based upon established Occupational Safety and Health Administration (OSHA) permissible exposure limits (PEL) and The National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs). All other

analytical parameters were reported within acceptable levels for Site urban residential land use. See **Section 4.0** for a description of the PPE that should be used for this Site.

Chemicals	REL/PEL/STEL (ppm)	Health Hazards
Indeno(1,2,3-cd)Pyrene	PEL = N/A	N/A
Trimethylbenzene	PEL = 25 ppm (120 mg/m ³) TWA REL = 25 ppm (120 mg/m ³) TWA	NA
Naphthalene	PEL = 10 ppm (50 mg/m ³) TWA REL = 10 ppm (50 mg/m ³) TWA REL = 15 ppm (75 mg/m ³) STEL	Reasonably anticipated to be a human carcinogen
Benzo(b)flouranthene	PEL = 0.2 mg/m ³ TWA REL = 0.1 mg/m ³ TWA	No signs or symptoms of acute or chronic exposure have been reported in humans; suspect human carcinogen.
Dichlorodiphenyl-trichloroethane (DDT)	PEL = 1.0 mg/m ³ REL = 0.5 mg/m ³	Potential Symptoms: Paresthesia of tongue, lips, face; tremors; apprehension, dizziness, fatigue, confusion, malaise; headaches; convulsions; paresis of hands; vomiting; eye, skin irritation; (carcinogenic)
Arsenic	PEL = 0.2 mg/m ³	The immediate symptoms of acute arsenic poisoning include vomiting, abdominal pain and diarrhea. These are followed by numbness and tingling of the extremities, muscle cramping and death, in extreme cases

Chemicals	REL/PEL/STEL (ppm)	Health Hazards
Dieldrin	PEL = 0.25 mg/m ³ REL = 0.25 mg/m ³	Potential Symptoms: Headaches; dizziness; nausea, vomiting, malaise; sweating; myoclonic limbjerks; clonic, tonic convulsions; coma.
Iron (ferric oxide dust)	PEL = 10 mg/m ³ TWA REL= 5 mg/m ³ TWA	Irritation of eyes, skin, respiratory system, cough; metal fume fever; siderosis (iron staining of the eyes); respiratory system.
Lead	PEL = 0.05 mg/m ³ REL = 0.05 mg/m ³	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension.
Magnesium	PEL = N/A	N/A
Titanium	PEL = N/A	N/A
Sodium	PEL = N/A	N/A
Aroclor 1268 (PCB)	PEL: 0.5 mg/m ³ TWA REL: 0.001 mg/m ³	No reports of effects in humans following acute (short-term) exposure to PCBs are available
Mercury	PEL = 0.05 mg/m ³ REL = 0.1 mg/m ³	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria.
Selenium	PEL = 0.2 mg/m ³	Irritation of eyes, skin, nose, throat; visual disturbance; headache; chills, fever, weakness; cough, nosebleeds; dyspnea, bronchial spasms; bronchitis; pulmonary edema; metallic taste, garlic breath; GI disturbance; dermatitis; eye, skin burns; lowered hemoglobin levels; tachycardia; tremors

Chemicals	REL/PEL/STEL (ppm)	Health Hazards
Tetrachloroethene	PEL = 100 ppm REL = 50 ppm TWA	Affects the central nervous system and liver; Prolonged exposure to 200 ppm causes dizziness, headache, confusion, nausea, and eye and mucous membrane irritation, reversible changes to the liver; headaches, vertigo, tremors, nausea with vomiting, fatigue, intoxication, unconsciousness, and even death.
Trichloroethene	PEL = 100 ppm REL = 25 ppm TWA	Irritation of eyes, skin; headache; visual disturbance; lassitude (weakness, exhaustion), dizziness; tremor; drowsiness, nausea; vomiting; dermatitis; cardiac arrhythmias; paresthesia; liver injury; potential male reproductive toxin; affects Kidneys, liver, eyes, skin, CNS, cardiovascular system; potential occupational carcinogen.

2.2 Volatile Organic Compounds (VOCs)

VOCs were detected in soil sample P-3 (8.5') and P-4 (8.5') at low concentrations exceeding their regulatory criteria. Laboratory analytical results indicate that tetrachloroethene and naphthalene were detected above NYSDEC Aqueous Water Quality Standards (AWQS) groundwater criteria. However, due to the limited intrusive work of the SSDS installation, vapor hazards at ambient temperatures are not expected to occur. Air quality monitoring for VOC concentrations will be implemented throughout the Site during all phases of SSDS installation, and dust management will be in place to ensure minimal exposure to soil and groundwater VOCs.

2.3 Semi-Volatile Organic Compounds (SVOCs)

Low levels of SVOC compounds identified in the soils at the Site exceeded the New York State Department of Environmental Conservation (NYSDEC) standards promulgated in the Part 375 Unrestricted Residential criteria. SVOC compounds with exceedences on Site include

benzo(b)flouranthene and indeno(1,2,3-cd)pyrene. However, due to the relatively low vapor pressure of SVOC compounds, vapor hazards at ambient temperatures are not expected to occur. However, if Site conditions are dry, the generation of contaminated dusts may pose a potential inhalation hazard. Therefore, dust levels should be controlled with wetting if necessary, as described in **Section 3.2**. In addition, repeated contact with certain SVOCs compounds have been associated with the development of skin cancer. Contact of SVOC compounds with the skin may cause photosensitization of the skin, producing skin burns after subsequent exposure to ultraviolet radiation. Protective measures, such as the wearing of chemically resistant gloves, are appropriate when handling SVOC contaminated materials.

2.4 Metals

Various metals including arsenic, copper, iron, magnesium, selenium mercury, titanium, and sodium, were detected in concentrations exceeding NYSDEC Part 375 Unrestricted Residential criteria in soil samples collected and are attributed to historic fill materials present throughout the Site. Overexposure to metal compounds has been associated with a variety of local and systemic health hazards, both acute and chronic in nature, including lung damage, neurological effects, gastrointestinal effects, kidney and liver damage, allergic dermatitis and other skin disorders. Exposure to metals is most commonly through inhalation and ingestion of dust. Metallic mercury is unique among metals, as it releases toxic vapors at normal room temperatures, and can be absorbed through the skin.

To estimate health risk, GZA calculated the airborne mercury exposure through dust. The basis of comparison used was the more conservative nuisance dust standard of the ACGIH Threshold Limit Value, 8-hour time-weighted average of 10 milligram per cubic meter of air (mg/m³). This nuisance dust is a general rule of thumb for the dust allowed before preventive measures, such as soil wetting of exposed soil, are used.

Based on the maximum concentration of mercury detected in soil of 0.31 mg/kg, GZA converted the units for better comparison:

$$\frac{0.31 \text{ mg}}{1 \text{ kg}} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{1 \text{ g}}{1000 \text{ mg}} = \frac{0.000003 \text{ mg mercury}}{10 \text{ mg soil (dust)}}$$

Since the maximum dust in air concentration is anticipated to be 10 mg/m³, the maximum mercury concentration is anticipated to be 0.000003 mg/m³. The OSHA Permissible Exposure Level (PEL) for mercury is a ceiling concentration of 0.1 mg/m³. When compared, the expected mercury in air concentration is a full six orders of magnitude less than the OSHA PEL.

GZA believes that airborne metals are not a significant risk to Site workers.

3.0 AIR MONITORING

Air monitoring falls into two separate categories: direct reading/environmental monitoring, and personal exposure monitoring. The following Sections summarize the types of environmental monitoring as well as the appropriate response actions applicable to the Site.

3.1 Organic Vapor Monitoring

Volatile organic vapor hazards have been identified for the Site (see **Section 2.0**). Therefore, organic vapor monitoring with a photoionization detector (PID) is expected to be required for the Site.

AIR MONITORING INSTRUMENTS AND ACTION LEVELS: PHOTO-IONIZATION DETECTOR

Organic Vapor Detector (H-Nu, OVM, OVA) - Breathing Zone Readings

<u>0 to 5 ppm</u>	Remain in Level D. Use colorimetric tubes or other chemical specific device to verify PID readings do not contain low PEL toxic materials.
<u>5 to 25 ppm</u>	Withdraw from work area and contact Project Management. Proceed to Level C protection for re-entry, or discontinue operation
<u>> 25 ppm</u>	Secure operations, withdraw from work area, and discontinue work at that location until contaminants can be evaluated, and detailed (SSHP) plan implemented.

3.2 Total Particulates

Due to the presence of SVOCs, VOCs and metals in soils and groundwater on-Site, total respirable particulates may be a concern. Dust levels should be visually monitored and if levels become noticeable, soils should be wetted down to control dusty conditions. Wetting may be accomplished using various methods, including a hose connected to a fire hydrant or other on-Site source of water. The Client's Project Superintendent shall be responsible for determining when the wetting of soils is needed and the most appropriate method to use. In addition, recommended measurements for particulate monitoring are detailed below.

Upwind concentrations should be measured at the start of each work day during active handling of excavated materials and periodically thereafter to establish background conditions. The particulate air monitoring work will be conducted using a pDR-1200 personal airborne particulate monitor (or approved equivalent) calibrated daily.

The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers (μm) in size (PM-10) and capable of integrating over a period of 5-minutes or less for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate excess of the action level.

Dust migration will be visually assessed during all work activities, and at no time will the downwind perimeter particulate levels be allowed to exceed a total standard of 10 mg/m^3 (or “nuisance” dust levels).

If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu\text{g/m}^3$) greater than the background (upwind perimeter) for a 5-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques (e.g., soil wetting) provided the downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and no visible dust is migrating from the work area.

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

3.3 Particulate Monitoring, Response Levels, and Actions

Parameter	Monitoring Instrument	Response Levels (above background)	Actions	Conditions for Continuing Work Activities
Particulates < 10 um (PM-10)	Dust Meter	Fugitive dust migration	1. implement dust suppression techniques	dust suppression techniques are in place
		>100 ug/m ³ but <150 ug/m ³	1. implement dust suppression techniques	levels must not exceed 150 ug/m ³ with dust suppression techniques in place
		>150 ug/m ³	1. halt activity 2. re-evaluate activities	levels decrease below 150 ug/m ³ and fugitive dust migration is prevented

3.4 Personal Exposure Monitoring

No asbestos, no lead-based paint, and no radiological hazards have been identified within the vicinity of the proposed SSDS installation area at the Site (see Section 2.0). Therefore, personal exposure monitoring is not required during SSDS installation.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) will be donned as described below for the activities covered by this HASP. Based on available analytical data and the proposed intrusive activities, the China Perfect Construction Corp. (Contractor), anticipates that all activities will require Level D or Modified Level D PPE.

4.1 General Site Work

General Site work conducted outside the SSDS installation areas, operators of heavy equipment, and non-intrusive activities which do not generate dust will require Level D protective equipment. Level D is defined as:

- Hardhat
- Eye protection
- Hearing protection (with site workers at all times and donned when appropriate)
- Steel-toed work boots
- Work clothes

Workers shall wear appropriate hearing protection during designated hearing protection-required tasks (such as, jack hammering, pile driving etc.). To reduce the exposure to noise, personnel working in areas of excessive noise must use hearing protectors (earplugs or earmuffs) in accordance with the CSMP. Rule-of-Thumb: Wherever actual data from sound level meters or noise dosimeters is unavailable, if it is necessary to raise one's voice above a normal conversational level to communicate with others within 3 to 5 feet away, hearing protection should be worn.

4.2 SSDS Installation Areas and Other Soil Handling

Personnel working in the areas of active SSDS installation, but not operating heavy equipment, and any other personnel potentially contacting contaminated materials will be required to wear Modified Level D PPE. Modified Level D is defined as:

- Hardhat
- Eye protection
- Hearing protection (as warranted see above)
- Steel-toed work boots
- Tyvek Coveralls
- Disposable nitrile chemically resistant gloves

Level C PPE and Level B are not expected to be required.

5.0 SITE CONTROL

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas along with personal protective equipment requirements will be clearly identified with signage. Pedestrian traffic will be managed to the extent possible by the Contractor's Traffic and Pedestrian Control Plan.

The Contractor will designate a work zone and support zone as defined below.

5.1 Work Zone

Work zones on Site will be temporary or dynamic, encompassing the work area(s) actively being worked in on that particular day(s). Site personnel will be advised of the current work area(s) as part of site safety meetings.

5.2 Support Zone

The support zone will consist of an area outside the areas of active SSDS installation and soil handling, where equipment and support vehicles will be located. Eating, drinking and smoking will be permitted only in this area. Sanitary facilities will be located on Site. In addition, potable water and water and soap for hand washing will be available at the Site.

5.3 Other Site Control and Safety Measures

The following measures are designed to augment the specific health and safety guidelines provided in this plan. These issues will form the basis of the Site ordination and daily safety meetings discussed in Section 7.4, below.

- The Site hazards will be evaluated by the Client's Project Superintendent using the Site Safety Checklist as defined by the CSMP.
- No one is to perform field work alone. Team members must be intimately familiar with the procedures for initiating an emergency response.
- Avoidance of contamination is of the utmost importance. Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces or materials. Walk around (not through) puddles and dis-colored surfaces. Do not kneel on the ground or set equipment on the ground.
- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited except in the support zone after proper decontamination as defined in Section 6.0.
- The use of alcohol or drugs is prohibited during the conduct or field operations.
- Safety equipment (PPE) will be required for all field personnel unless otherwise approved by the subcontractor's health and safety representatives and/or the Project Superintendent.

5.4 Site Security

The Site shall be unoccupied during Site work accept for Contractor personnel and subcontractors. If possible, access to the work areas during field work will be limited by closing site gates to reduce unauthorized pedestrian traffic. The Client's Project Superintendent is responsible for identifying the presence of all employees on Site.

Equipment left on Site during off hours must be locked, immobilized and/or otherwise secured to prevent theft or unauthorized use or access. The Contractor and subcontractors' employees will not be permitted on Site during off-hours without specific client approval.

6.0 DECONTAMINATION

Proper decontamination will be performed for personnel and equipment before leaving the Site. All solid waste generated during decontamination will be bagged by the Contractor personnel and stored on Site for disposal. Water will be disposed of by on-Site infiltration into soil within an exclusion zone.

6.1 Personal Decontamination

Personal decontamination will be accomplished by following a systematic procedure of cleaning and removal of personal protective equipment (PPE). The Contractor will supply decontamination equipment to allow PPE to be brushed to remove gross contamination and then scrubbed clean in a detergent solution and then rinsed clean. To facilitate this, a three-basin wash system will be set up on site by the Contractor.

Disposable PPE, such as Tyvek coveralls, gloves, and hearing protection, etc. will be placed in trash bags in an on-Site container pending a disposal. Alternative chemical decontamination procedures, such as steam-cleaning reusable rubber outer boots, may be used if necessary.

Steps required in a decontamination sequence will depend on the level of protection worn in accordance with Section 4.0:

1. Remove and wipe clean hard hat
2. Brush boots and gloves of gross contamination
3. Scrub boots and gloves clean
4. Rinse boots and gloves

5. Dry non-disposable equipment with paper towels
6. Remove Tyvek coveralls
7. Remove eye protection
8. Remove chemically resistant gloves

6.2 Equipment Decontamination

Hand tools and portable equipment will be decontaminated upon leaving the site using the same procedures for personal decontamination. Wooden tools are difficult to decontaminate because they absorb chemicals. Wooden hand tools will be kept on Site for the project duration and handled only by protected workers. At the end of the Site activities, wooden tools will be discarded if they cannot be decontaminated properly.

Large Equipment will be decontaminated in an area near the entrance to the Site. Decontamination of large equipment will mitigate the risk of spreading potentially-contaminated soil off-Site. The Contractor will use a combination of long-handled brushed, rods and shovels for general exterior cleaning and dislodging contaminated soil caught in tires and the undersides of vehicles and equipment.

Prior to leaving the Site, large equipment will be inspected to assure that excess material has not adhered to the equipment. If needed, the Contractor will clean the large equipment, including washing tires and undercarriages with a hose to remove excess adhered soil prior to leaving the Site.

7.0 MEDICAL MONITORING AND TRAINING REQUIREMENTS

Training records for Site personnel and subcontractors shall be provided by the Contractor prior to on-Site work, and will be maintained on Site.

7.1 Medical Monitoring

Respiratory protection is not required by the levels of soil contamination. Therefore, no medical monitoring requirements will be instituted for this project.

7.2 Training

All personnel covered by this HASP must have completed the appropriate training requirements specified in 29 CFR 1910.1200 Hazard Communication and 29 CFR 1910.120(e).

Workers requiring access to the Site (laborers and operators) prior to completion of soil remedial activities will require 40-hour HAZWOPER training due to the presence of gasoline contaminated soils and underground storage tanks.

Also, at least one Contractor employee must be on Site during all activities to act as the Site Foreman and will be responsible for identifying existing and predictable hazards in surroundings or working conditions that are unsanitary, hazardous, or dangerous to Site workers and or the community, and will have the authorization to take prompt corrective measures to eliminate them. This individual must have documentation of at least three days of supervised field experience as well as completion of the specified 8-hour training course for managers and supervisors. Records of certifications and training should be kept by the Contractor.

7.3 Subcontractors

Subcontractors will be required to provide to the Contractor Project (Site) Manager specific written documentation that each individual assigned to this project has completed the medical monitoring and training requirements specified above. This information must be provided prior to their performing any work on site.

7.4 Site Safety Meetings

Prior to the commencement of on-Site investigative activities, a Site safety meeting will be held to review the specific requirements of this HASP. Sign-off sheets will be collected at this meeting (see Appendix A). Short safety refresher meetings will be conducted daily or as conditions or work activates change. In addition, the Project Superintendent will document that Site visitors have had the required training in accordance with 29 CFR 1910.120 and will provide documented pre-entry safety briefings.

8.0 **EMERGENCY ACTION PLAN**

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." The Contractor personnel covered by this HASP may not participate in any emergency response where there are potential safety or health hazards (i.e., fire, explosion, or chemical exposure). The Contractor response actions will be limited to evacuation and medical/first aid as described within this section below.

The basic elements of an emergency evacuation plan include employee training, alarm systems, escape routes, escape procedures, critical operations or equipment, rescue and medical duty assignments, designation of responsible parties, emergency reporting procedures, and methods to account for all employees after evacuation.

8.1 Employee Information

General training regarding emergency evacuation procedures are included in the Contractor initial and refresher training courses. Also as described, employees must be instructed in the specific aspects of emergency evacuation applicable to the Site as part of the site safety meeting prior to the commencement of all on-site activities. On-Site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed. This information will be provided during the Site safety meetings (see **Section 7.4**) will be documented by the Contractor.

8.2 Emergency Signal and Alarm Systems

An emergency communication system must be in effect at all sites. The most simple and effective emergency communication system in many situations will be direct verbal communications. Each site must be assessed at the time of initial Site activity and periodically as the work progresses. Verbal communications must be supplemented anytime voices cannot be clearly perceived above ambient noise levels (i.e., noise from heavy equipment, trucks, etc.) and anytime a clear line-of-sight cannot be easily maintained amongst all personnel because of distance, terrain or other obstructions. The Contractor will maintain an air horn (or whistle) on-Site that will be used to signal an emergency so that it can be heard over other construction noises on-Site.

8.3 Emergency Contacts

Police: 911

Fire: 911

Ambulance: 911

St. John's Hospital: (718) 558-1000

8.4 Hospital Location

NY Methodist Hospital is located at 3049 Ocean Parkway, Brooklyn, New York. **Appendix B** presents a hospital route map.

8.5 Incident Reporting Procedures

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage requires an accident investigation and report. The investigation should be initiated as soon as emergency conditions are under control. The purpose of this investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided.

The investigation should begin while details are still fresh in the mind of anyone involved. The person administering first aid may be able to start the fact gathering process if the injured are able to speak. Pertinent facts must be determined. Questions beginning with who, what, when, where, and how are usually most effective to discover ways to improve job performance in terms of efficiency and quality of work, as well as safety and health concerns.

APPENDIX A

HEALTH AND SAFETY BRIEFING

Health and Safety Briefing/Site Orientation Record/Hazard Communication

This is to verify that I, the undersigned, have been provided with a site (orientation) briefing, including hazard communication, regarding the safety and health considerations at the 3375 Neptune Avenue, Brooklyn, New York 11224. I agree to abide by my employer's Site-specific safety and health plan and other safety or health requirements applicable to the Site.

Name (Print)

Signature

Company

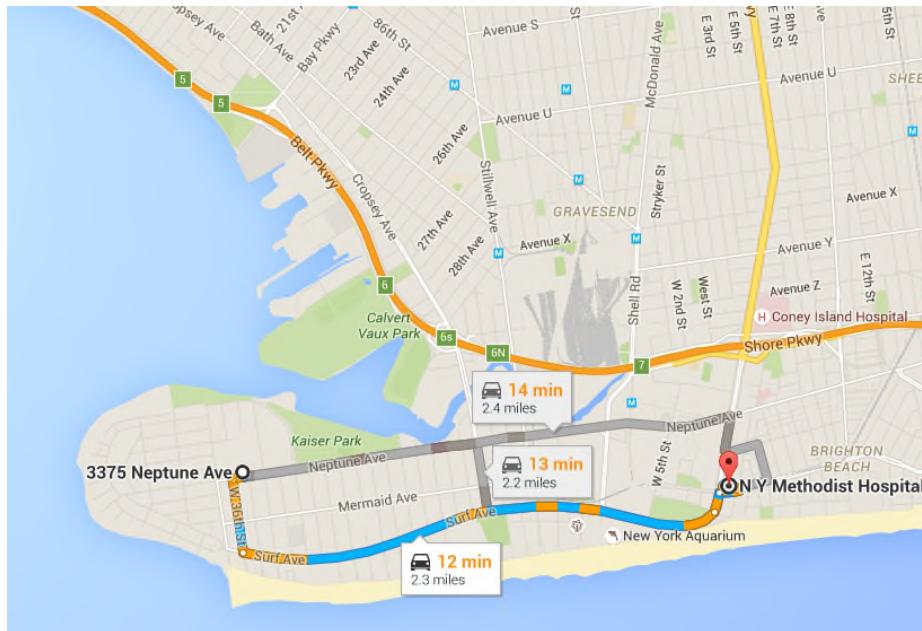
Date

Site (orientation) briefing conducted by: _____

Date: _____ Health and Safety Briefing/Site Orientation Record

APPENDIX B

ROUTE TO HOSPITAL



3375 Neptune Ave

Brooklyn, NY 11224

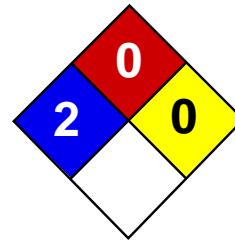
- ↑ Head east on Neptune Ave toward W 35th St
0.9 mi
- ↗ Turn right onto W 17th St
0.3 mi
- ↖ Turn left onto Surf Ave
0.8 mi
- ↑ Continue onto Ocean Pkwy
387 ft
- ↗ Turn right onto Brighton Beach Ave
381 ft
- ↖ Make a U-turn at Brighton 1st St
361 ft
- ↗ Turn right onto Ocean Pkwy
115 ft

NY Methodist Hospital

3049 Ocean Parkway, Brooklyn, NY 11235

APPENDIX C

MATERIAL SAFETY DATA SHEETS



Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet

Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

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

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C₂Cl₄

Contact Information:

Scienclab.com, Inc.

14025 Smith Rd.
Houston, Texas 77396

US Sales: 1-800-901-7247

International Sales: 1-281-441-4400

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

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

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

Section 2: Composition and Information on Ingredients

Composition:

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

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

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:

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

Section 4: First Aid Measures

Eye Contact:

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

Skin Contact:

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

Serious Skin Contact:

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

Inhalation:

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

Serious Inhalation:

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

Ingestion:

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

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

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

Large Spill:

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

Section 7: Handling and Storage

Precautions:

Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m³) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:

Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium, barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose/Conc: LD₅₀ [Rabbit] - Route: Oral; Dose: 5000 mg/kg LD₅₀ [Dog] - Route: Oral; Dose: 4000 mg/kg LD₅₀ [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symptoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain.

Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorientation, seizures, emotional instability, stupor, coma). It may cause pulmonary edema

Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver (hepatitis, fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/

central nervous system/peripheral nervous system (impaired memory, numbness of extremities, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fathead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:**WHMIS (Canada):**

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):**Health Hazard:** 2**Fire Hazard:** 0**Reactivity:** 0**Personal Protection:** g**National Fire Protection Association (U.S.A.):****Health:** 2**Flammability:** 0**Reactivity:** 0**Specific hazard:****Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information**References:** Not available.**Other Special Considerations:** Not available.**Created:** 10/10/2005 08:29 PM**Last Updated:** 06/09/2012 12:00 PM

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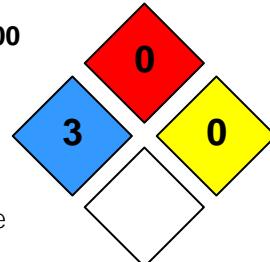
Material Safety Data Sheet – Perchloroethylene

SECTION I · PRODUCT IDENTIFICATION

Manufacturers Address:
916 West Lathrop Avenue
Savannah, Georgia 31415

CHEMTRAC – 24HR Emergency Telephone 1-800-424-9300

Information Phone: (912) 443-6702
Date Prepared: 26 Sept 08
Preparer: F.Spaeth



NFPA Rating

Synonym: PERC, Tetrachloroethylene
Chemical Family: Chlorinated Aliphatic

0- Minimal 1- Slight 2- Moderate
3- Serious 4- Extreme

SECTION II · HAZARDOUS INGREDIENTS

CHEMICAL NAME	CAS Number	%WT	TLV	PEL
Tetrachloroethylene	127-18-4	100	25ppm	100 ppm

SECTION III · HAZARDOUS IDENTIFICATION

Potential Acute Health Effects: Irritating to skin and eye tissue. Slightly toxic by inhalation.

Potential Chronic Health Effects: Repeated abuse of high levels produces adverse effects on the liver and to a lesser extent on the kidneys

SECTION IV · PHYSICAL and CHEMICAL PROPERTIES

Boiling Point Range: 250°F

Vapor Density (Air=1): 5.8

pH: NA

Vapor Pressure (mmHg): 14

Solubility In Water: Insoluble

VOC %: No available data.

Appearance/Odor: Clear colorless liquid with sweet odor.

Specific Gravity (H₂O=1): 1.46

Melting Point/Freezing Point: No available data.

SECTION V · FIRE FIGHTING MEASURES

Flash Point: None

Auto Ignition: No Data

Extinguishing Media: As apparent to surrounding fire.

Flammable Limits: Lower: None Upper: None

Fire Fighting Procedures: Evacuate the area and fight from a safe distance. Cool fire-exposed containers with water spray to prevent container weakening and possible rupture. Do not enter fire zone without self-contained breathing apparatus (SCBA) and structural firefighter's protective clothing.

Unusual Fire and Explosion Hazards: Explosive mixtures of tetrachloroethylene and air can be formed, but are difficult to ignite and require high intensity sources of heat.

SECTION VI · STABILITY AND REACTIVITY

Stability: Stable.

Conditions to Avoid: Red hot surfaces and Open Flames

Incompatibility: Avoid contact with powdered metals and strong alkalis.

Hazardous Decomposition Products: Oxides of Carbon, hydrogen chloride and phosgene.

Hazardous Polymerization: Will not occur.



Colonial Chemical Solutions, Inc.

SECTION VII - STORAGE AND HANDLING

Precautions To Be Taken In Handling and Storage: Do not use in confined spaces. Always store in tightly sealed, properly labeled, original container. Store in a cool, dry well ventilated area.

Other Precautions: DO NOT get in eyes, on skin, or on clothing. DO NOT breath vapors, mist, or fumes. DO NOT swallow. May be aspirated into the lungs which could be fatal.

SECTION VIII - HEALTH AND FIRST AID

Skin: Slight/Mildly irritating. Can be absorbed through the skin.

Eyes: Vapors may be irritating. Irritation accompanied by redness.

Inhalation: High vapor concentrations may be irritating to respiratory system. Breathing of vapor may cause headaches, irritation of throat and may cause central nervous system depression.

Ingestion: May cause gastric distress, diarrhea and vomiting.

FIRST AID PROCEDURES:

Eyes: Flush with large amounts of cool running water for at least 15 minutes. If irritation persists get medical attention.

Skin: Wash skin with soap and water. If irritation persists seek medical attention.

Inhalation: For excessive inhalation remove to fresh air. If breathing is difficult seek medical attention.

Ingestion: DO NOT induce vomiting. Drink large amounts of water or milk. Seek medical attention immediately.

SECTION IX - EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye Protection: Eye Protection when pouring. Goggles, safety glasses with side shields are recommended.

Respiratory Protection: Where adequate ventilation is not available an approved NIOSH respirator must be worn. In confined areas, use a self-contained breathing apparatus.

Skin Protection: Use suitable chemically resistant gloves, and clothing.

Ventilation: General Mechanical ventilation to prevent TLV from exceeding control limits.

Protective Clothing: Selection of protective clothing depends on potential exposure conditions and may include gloves, and other protective items.

Other Equipment: Eye wash station and shower in close proximity to use are advised

SECTION X - ACCIDENTAL RELEASE MEASURES

Small Spill: Isolate and stop source of spill provided it is safe to do so. Absorb on inert media and collect into suitable container. Wear necessary PPE.

Large Spill: Shut off or plug source of spill provided it is safe to do so. Dike area to contain spill. Salvage as much liquid as possible into a suitable container. Absorb residual on inert media and collect into suitable container. Do not allow material to enter drains, sewers or waterways.

Personal Protection in Case of Large Spill: Wear protective equipment and/or garments as described in Section IX as conditions warrant.

SECTION XI - DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above 0.7 mg/L. Avoid contaminating ground and surface water. Do not flush to drain. Follow local, state and federal applicable regulations for disposal.



Colonial Chemical Solutions, Inc.

SECTION XII - TRANSPORTAION

Proper Shipping Name: Tetrachloroethylene
Hazard Class: 6.1
UN Number: 1879
Packaging Group: III

SECTION XIII - TOXICOLOGY

Carcinogenicity: Tetrachloroethylene is listed by NTP as 'reasonably anticipated to be a human carcinogen' and by IARC as a Group 2A carcinogen.
Mutagenicity: Data suggest this to be a Mutagenic.
Reproductive: Data suggest this to have reproductive effects.
Sensitization: No sensitizer data found.

SECTION XIV - REGULATORY

RMP/PSM: Not Listed
CERCLA-RQ: 100 LBS
EPCRA 311/312: Yes, See Sections III and VIII
EPCRA 313: Yes
FIFRA: No documented information available.
RCRA-CODE: U210; D039
TSCA: Listed

SECTION XV - OTHER INFORMATION

The information contained on this Material Safety Data Sheet is considered accurate as of the date of publication. It is not necessarily all inclusive nor fully adequate in every circumstance. The suggestions should not be confused with, nor followed in violation of applicable laws, regulations, rules or insurance requirements. No warranty, express or implied, of merchantability, fitness, accuracy of data, or the results to be obtained from the use thereof is made. The vendor assumes no responsibility for injury or damages resulting from the inappropriate use of this product.

Appendix G Site Management Forms

APPENDIX G
SITE MANAGEMENT FORMS

Semiannual Condition Inspection Form

3375 Neptune Avenue,

Brooklyn, New York

Inspector's Name:

Weather Conditions:

Inspection Date:

Air Temperature:

Inspection Time:

Comments:

SSDS System Inspection:

1. Walk the entire roof surface and the ground floor of the building.

- Inspect fan stack guide wires
- Inspect fan mounting and vibration isolators
- Inspect bolts and set screws for tightness and rusty condition
- Record the Blower airflow and vacuum
- Inspect condition of piping
- Inspect condition of suction pit sealing
- Record Magnehelic gauge reading
- Record vacuum reading for each riser and monitoring point
- Inspect the condition of the labeling
- Comments (see or hear anything unusual?):

Cover System – Bottom Floor Inspection:

1. Walk all of the bottom floors.

- Any visible cracks or depressions in the ground floors?
- Any other visible openings (unintended) in the ground floors?
- Draw approximate location of floor cracks/openings on site map.
- Note the length of the crack/opening.
- Note the width of the crack/opening.
- Comments:

Cover System – Exterior Inspection:

- 1. Walk and inspect the entire perimeter of the Site.**
- 2. Walk and inspect all of the paved areas (concrete and asphalt) of the Site.**

- Are there any signs of significant cracks, settlement, or deterioration of the paved areas?
- Has any of the pavement material been removed?
- Are there any signs of intrusive activities (drilling, digging, trenching, grading, excavating, etc.)?
- Comments:

Repair**Summarize needed/completed repairs to Engineering Controls:****Inspector's Signature:**

*Details of the SSDS routine O&M are provide in **Table G1**

Table G1
Routine Operation and Maintenance Form

3375 Neptune Avenue,
 Brooklyn, New York

System component	Date	Condition/readings
Sealing		
Pipe		

	Date	Average airflow (cfm)	Average Static Vacuum ("W.C.)
Blower			

Sub Slab Vacuum Port	Date	Gate Valve Position (% open)	Average Vacuum ("W.C.)
SP#1			
SP#2			
SP#3			
SP#4			
SP#5			
SP#6			
SP#7			

	Date	Average Vacuum ("W.C.)
PB#1		
PB#2		
PB#3		
PB#4		
PB#5		
PB#6		
PT#1		
PT#2		
PT#3		
PT#4		
PT#5		
PT#6		

Appendix H O&M Manual

APPENDIX H
O&M MANUAL

SSDS OPERATIONS AND MAINTENANCE MANUAL

**3375 NEPTUNE AVENUE
KING COUNTY
BROOKLYN, NEW YORK
NYSDEC Site Number C224151**

PREPARED FOR:

Coney Island Site 4-A-1 Housing Company
70 East 55th Street – 7th Floor
New York, NY 10022

PREPARED BY:

Goldberg-Zoino Associates of New York P.C.
d/b/a GZA GeoEnvironmental of New York (GZA)
104 West 29th Street, 10th Floor
New York, NY 10001
212-594-8140

File No. 12.0076358.00

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Appendices

- Appendix A SSDS AS Built Drawings
- Appendix B Product Specifications on Mechanical Equipment
- Appendix C Inspection Schedule and Documentation Form
- Appendix D SSDS Installation and Startup Report (September 26, 2013)

Section 1 Sub-Slab Depressurization Systems

1.1 Purpose

The purpose of this document is to ensure the proper operation and maintenance of the active sub-slab depressurization system (SSDS) installed at 3375 Neptune Avenue, in Brooklyn, New York.

1.2 Site Operation and Maintenance Plan Requirements

This operations and maintenance (O&M) Plan has been prepared for the site to address in detail the institutional and engineering controls required for the site.

Provisions covered by this plan include:

- Parties responsible for implementation of the O&M Plan;
- Contact Information to be posted at the site for residents in case a need arises;
- SSDS operation and maintenance requirements in accordance with most recent NYSDOH guidance document, “Guidance for Evaluating Soil Vapor Intrusion in the State of New York”;
- Schedule of inspections and applicable testing in accordance with guidance or annually whichever is more frequent along with applicable inspections forms for use; and
- Copies of all equipment manuals, product materials guides or manuals.

A copy of the O&M Plan shall be maintained on site and in the property manager's offices. Original inspection forms shall be maintained at the offices of the Owners: Coney Island Site 4-A-1 Housing Company, 70 East 55th Street – 7th Floor, New York, NY 10022

Section 2 Implementation of the O&M Plan

2.1 Parties Responsible for implementation of the O&M Plan

Coney Island Site 4-A-1 Housing Company is responsible for operation and maintenance of the SSDS installed at 3375-3377 Neptune Avenue, in Brooklyn, New York.

2.2 Contact Information

You can always call 911 if you are in an emergency. If it can wait, to report an issue, you should contact Coney Island Site 4-A-1 Housing Company at Peter Gray peter@dvln.com.

2.3 Sub Slab Depressurization System Description

The SSDS systems are comprised of an existing SSDS installed in January 2013 at the residential apartment building immediately adjacent to the north of the Site and expanded second SSDS installed beneath the BCP Area and Non-BCP Area. Details of the existing SSDS are provided in *SSDS Installation and Startup Report* (September 26, 2013) (Appendix D). The second SSDS has been installed beneath the entire building (BCP Area and Non-BCP Area) to limit the potential for residual vapors from soil and/or groundwater from entering the buildings in the future. The system consists of the following important elements:

- Seven (7) suction pits depressurize the soils below the slab;
- Vapors exits the suction pits through Schedule 40 steel suction point riser pipes to cast iron overhead piping in accordance with New York City fire codes;
- One OBAR GBR-89 brushless radial blower is mounted to a pipe pier supported unistrut frame and located on the roof of the apartments above the commercial spaces;
- A Vapor Dynamics™ Vapor Guardian 5500 remote monitoring system monitors the sub slab vacuum at six (6) on-site sub slab monitoring points;

- Six (6) permanent sub slab test ports verify the sub slab vacuum at Operations and Maintenance visits.

Sub slab depressurization blower was officially started on April 25, 2016 (Monday). **Appendix A** to this document includes the as built drawings showing the approximate location of collection piping installed on the site. **Appendix B** includes product specifications on the mechanical systems, blower and the pressure sensors, installed.

2.3.1 Suction Point

A total of seven (7), three-inch suction points were installed as shown in the as-built drawings (**Appendix A**). The suction point riser pipes are Schedule 40 steel and overhead piping including the main vertical conveyance pipe is cast iron in accordance with New York City's fire codes.

The suction holes were created using a five-inch diameter concrete coring bit. Holes were sealed following clean out and riser pipe installation. Gun-grade urethane caulking and backer rod was used below the surface of the concrete as a preliminary seal followed by self-leveling urethane and concrete to seal the suction pipe flush with the concrete floor. The pipes were secured above each suction hole with pipe clamps attached to walls, columns, or overhead concrete to ensure the pipe cannot slip down into the suction pit

2.3.2 Vapor Conveyance Pipe

Horizontal pipe runs between the roof mounted fan and the suction points were installed with a 1-inch slope back to a suction point for every ten feet of horizontal pipe run. Vertical pipe runs were installed plumb. Piping was installed to limit water traps between the blowers and the suction points. Piping and fittings installed are cast iron Schedule 40 and clamped and supported according to the National Plumbing Code. Pipe was not supported by other building piping or ducts. Inline slide valves were installed at each suction point. The gate valves are currently in the 100% open position.

2.3.3 Blower, Wiring, Panels, and Breakers

A roof-mounted OBAR GBR-89 brushless radial blower was installed to create vacuum for the seven suction Pits. It is mounted to a pipe pier supported unistrut frame and located on the roof of the apartments above the commercial spaces. The blower connects to the suction points via an exterior 4-inch cast iron pipe that penetrates the roof of the commercial spaces and runs vertically up the front face of the apartment building. The exterior pipe is secured to the face of the building using unistrut and 4-inch galvanized pipe clamps.

One dedicated breaker was used to power the 220-volt radial blower. A second 110-volt dedicated breaker, previously installed during a former phase of work, was used to supply power to the Vapor Guardian 5500 monitoring panel. The breakers are labeled with a yellow sticker that reads “ASD Fan Circuit, DO NOT POWER OFF”. A Magnehelic was installed to indicate the static vacuum generated by the system. The Magnehelic is located in the Maintenance office as shown on the as-built drawings.

Labels were installed on the system components that read “Active Soil Depressurization System, Do Not Alter.” At least every 20 feet of exposed contaminant vent pipe length has a label. The labels are readable from three feet away.

2.3.4 Monitoring System

Onsite Sub Slab Monitoring Points

Six (6) sub-slab test ports were installed for the purpose of verifying sub-slab vacuum at Operations and Maintenance visits. The ports can be accessed via the flush mounted 3/8-inch cap head bolts which required a 5/16-inch hex head driver to remove.

Remote Monitoring

A Vapor Dynamics™ Vapor Guardian 5500 remote monitoring system was installed to replace the previous version of the monitoring system installed during the first phase of mitigation. The sensors from the first mitigation phase (residential) and current mitigation phase (commercial) now terminate at the location of the new monitoring panel. The following metrics for the commercial space mitigation system are being monitored:

Sub Slab Vacuum (6 locations)

Total System Applied Vacuum

Sub slab pressure differential probes were installed below the slab at the locations indicated on the as built drawings. 1/4 inch polyethylene vacuum tubing was routed from the sub slab probes to the sensors installed in electrical boxes mounted above drop ceilings where applicable. The polyethylene tubing and low voltage wire is routed in metal electrical conduit.

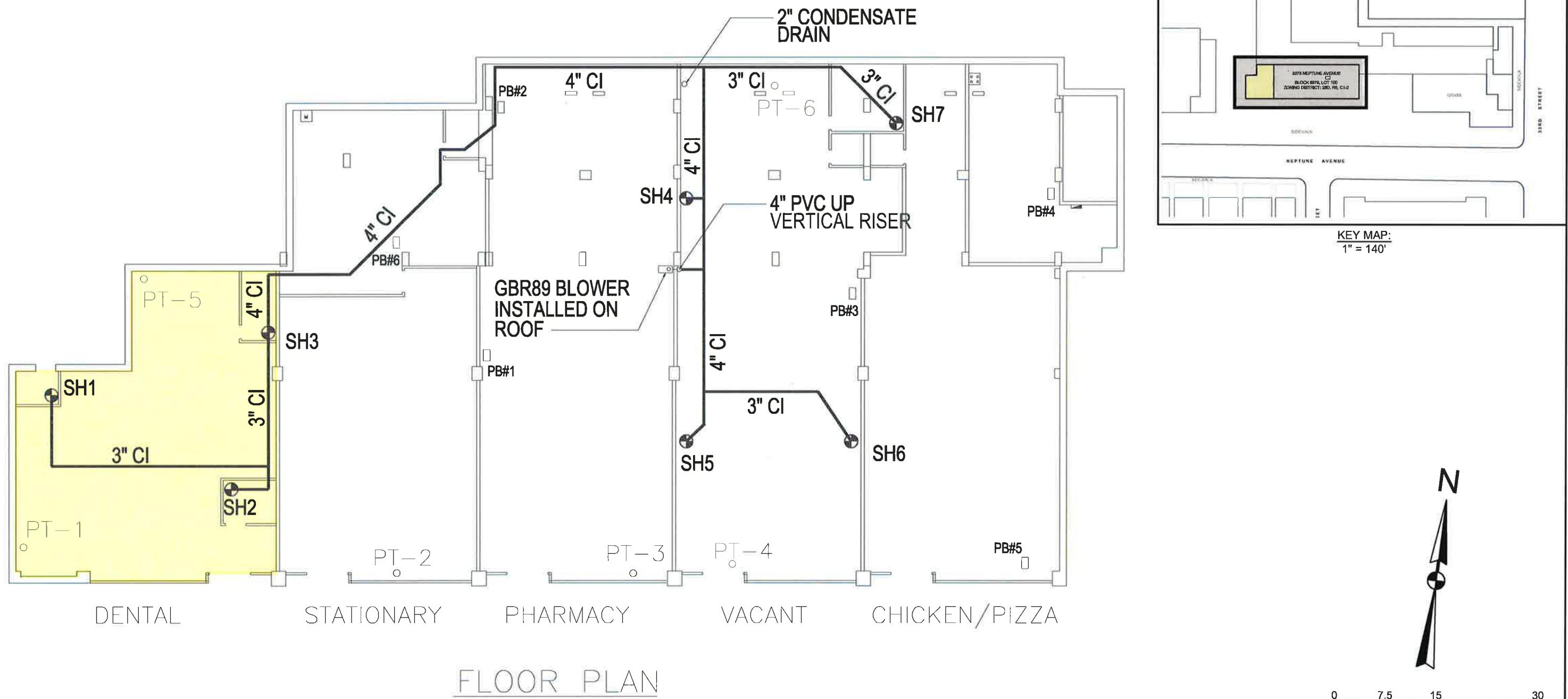
Section 3 Maintenance

Vapor Intrusion Mitigation Systems should be inspected annually. Maintenance on the SSDS system shall be performed by qualified maintenance personnel. Due to the installation of the remote monitoring system at this site, if no abnormalities are observed and if the system is operating within the intended performance range, inspections may be performed on an annual basis.

The following are the items to be checked on the scheduled inspection basis:

- **Sealing:** Floor and wall penetration sealing should remain in good condition, and all openings should be sealed. If floor caulking is damaged or missing, system performance could be compromised.
- **Pipe:** Pipe should be checked to ensure no damage or leaks have occurred. All exposed interior and exterior pipe should be inspected.
- **Blower:** The blower should be checked for any visual signs of damage. Applied vacuum and system airflow should be recorded.
- **Gate Valves:** Gate valves should be visually inspected for cracks. The position of each gate valve should be recorded to ensure no changes have been made. The position should be recorded as the approximate percentage open.
- **Vapor Guardian and Sensors:** Sensors should be manually “zeroed” and checked against the remote login terminal values.
- **Permanent Sub Slab Vacuum Ports:** Sub slab vacuum should be recorded at all permanent sub slab test ports.

Appendix A



LEGEND

BCP SITE NO. C224151

SH1 SUCTION HOLE

 MAGNAHFI

VAPOR GUARDIAN PANEL

UBAR GBR89 PANE

#1 □ PRESSURE PROBES

2. CAST IRON PIPE (SILVER, 4" DIAMETER)

1/2" PVC (POLYVINYL CHLORIDE PIPE)

4" PVC 4" PVC (POLYVINYL CHLORIDE PIPE)

NOTES

BASE MAP DEVELOPED FROM AN ELECTRONIC FILE PROVIDED BY CONEY ISLAND SITE 4-A-1 HOUSING COMPANY , ENTITLED "SUCTION PT. & BLOWERS," DATED 8/6/16, ORIGINAL SCALE 3/16"=1'.

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3375 NEPTUNE AVENUE
BROOKLYN, NEW YORK

FINAL ENGINEERING REPORT SUCTION PIT AND BLOWERS

REPAVED BY:
 **GZA** GeoEnvironmental of NY
Engineers and Scientists
www.gza.com

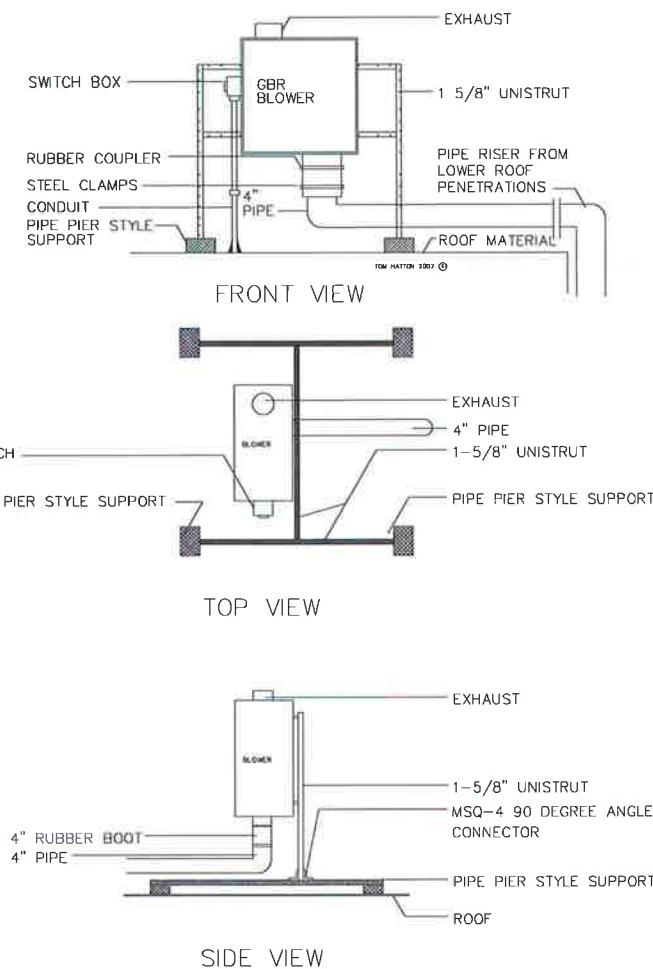
URED FOR:
CONEY ISLAND SITE 4-A-1
HOUSING COMPANY

PROJ MGR:	JB	REVIEWED BY:	DW	CH
DESIGNED BY:	ZS	DRAWN BY:	MT	SC
DATE:	NOVEMBER 2016	PROJECT NO.	12-0076358-00	

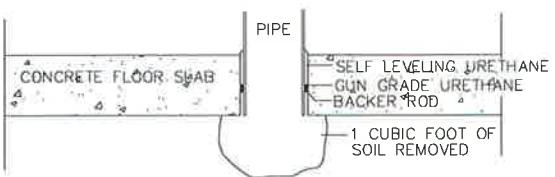
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3A
SHEET NO.

SHEET NO.

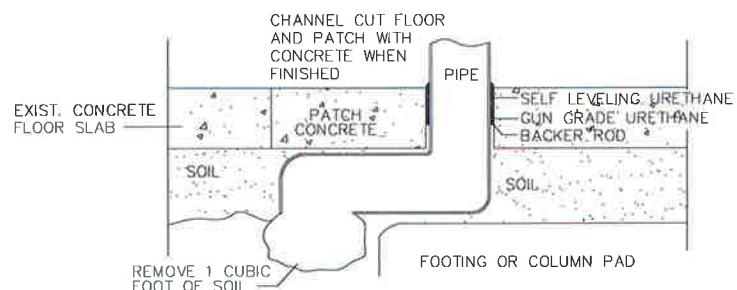
GBR SERIES BLOWERS



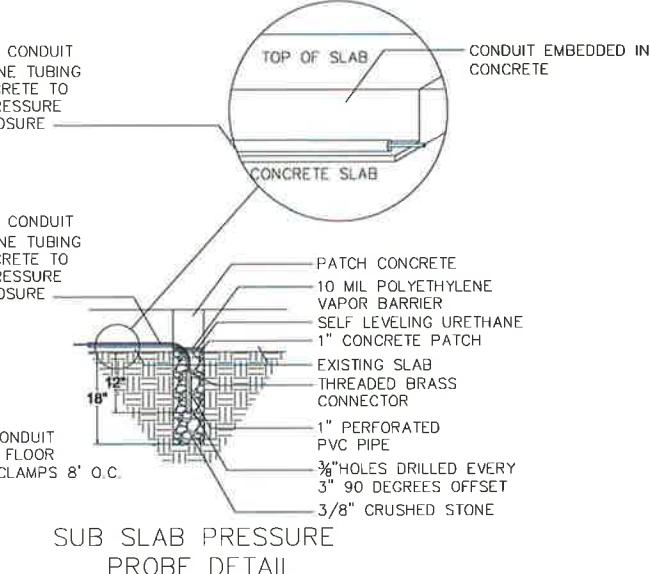
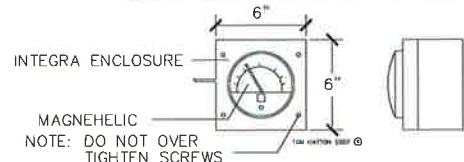
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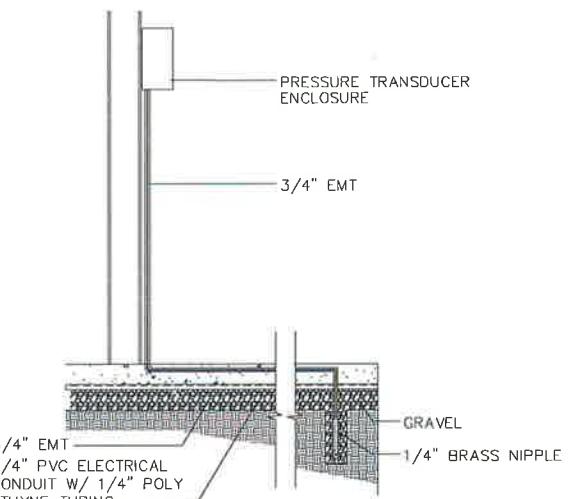
SUCTION POINT DETAIL AT FOOTER



MAGNEHELIC AND PROTECTIVE BOX ENCLOSURE DETAIL



SUB SLAB PRESSURE PROBE DETAIL



MONITORING DETAIL

EQUIPMENT SCHEDULE

Vapor Vent Piping
3" / 4" schedule 40 cast iron pipe and fittings
Piping Supports and Hardware
3", 4" Hanging Pipe Supports
Swivel ring or standard bolt type clevis
Adjustable band hanger
Double Expansion Anchors
3/8" threaded rod
1/2" threaded rod
Assorted bolts, nuts & washers
3" Pipe Secured to Concrete Floor or Wall 4" common riser to the blower
Slotted Conduit Channel
Conduit Clamps
Assorted bolts, nuts & washers

Vapor Blower
(1) GBR89
4" to 4" rubber boots with stainless steel hose clamps

Blower Support Frame
1 5/8" C- Profile Galvanized Unistrut
MSQ-2 Two Hole 90 degree Angle Connector
MSQ-4 Four Hole 90 degree Angle Connector
MSQ Pushbutton fastening bolt
Pipe Pier style supports for roof contact

Air Flow Regulator Valves
3" Gate Valves

Sealing Materials
Urethane sealant complies with Federal Specification
TT-S-00230C, Subject to compliance with contract requirements; the following manufacturers of urethane caulking sealants were used:
Mameco, Inc. (Vulkem)

Fire Protection
Fire stopping Caulk (Hilti)

Low Pressure Light Indicator And Audio Alarm

- (1) 0-10" w.c. Magnehelic, Dwyer Instruments
- (4) Dwyer MagneSense Vacuum Sensor
- Low Voltage Signal Wire (18-2 Gauge)

NO.	ISSUE/DESCRIPTION	BY	DATE

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3375 NEPTUNE AVENUE
BROOKLYN, NEW YORK

FINAL ENGINEERING REPORT
MECHANICAL DETAILS

PREPARED BY:  GZA GeoEnvironmental of NY Engineers and Scientists www.gza.com	PREPARED FOR: CONEY ISLAND SITE 4-A-1 HOUSING COMPANY
PROJ MGR: JB DESIGNED BY: ZS DATE: JUNE 2016	REVIEWED BY: DW DRAWN BY: MT PROJECT NO. 12.0076358.00 SCALE: NOT TO SCALE REVISION NO.

FIGURE
3B

SHEET NO.

Appendix B

THE OBAR GBR89

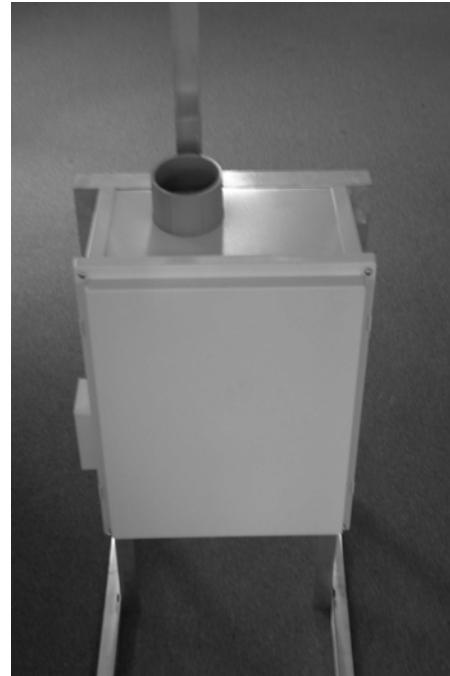


COMPACT RADIAL BLOWER

Based on 25 years of experience and 2 years of research and development, the patent pending GBR series of compact radial blowers provide the perfect combination of performance and design.

PERFORMANCE

- GBR89 HA 14" WC at 100CFM max flow 500 CFM.
- Built in speed control to customize performance.
- Condensate bypass built in.
- 18 month warranty 40,000 hr sealed bearings.



GBR series with Roof Mount

DESIGN

- Our modular design means the blower and manifold assembly can be removed and replaced as a unit. This makes repairs cost effective and easy and allows contractors to upgrade systems simply by swapping assemblies.
- The GBR series is based on a bypass blower designed to handle combustible materials.
- The housing is not required to be air tight so you can add gauges and alarms without compromising the system.
- Built in condensate bypass.
- Built in speed control.
- Quick disconnect electrical harness.
- All UL listed components including UL listed enclosure for outside use.
- Wall fastening lugs included.
- GBR series roof and wall mounts available to quickly configure the blowers for your installation while providing a custom built look.
- Compact design 18"x 16"x 10" weighing only 22 lbs.
- 4" schedule 40 inlet and 6" schedule 40 exhaust.

OBAR SYSTEMS INC 117 POCANTECS ROAD HIGHLAND LAKES NJ 07422 800 949 6227

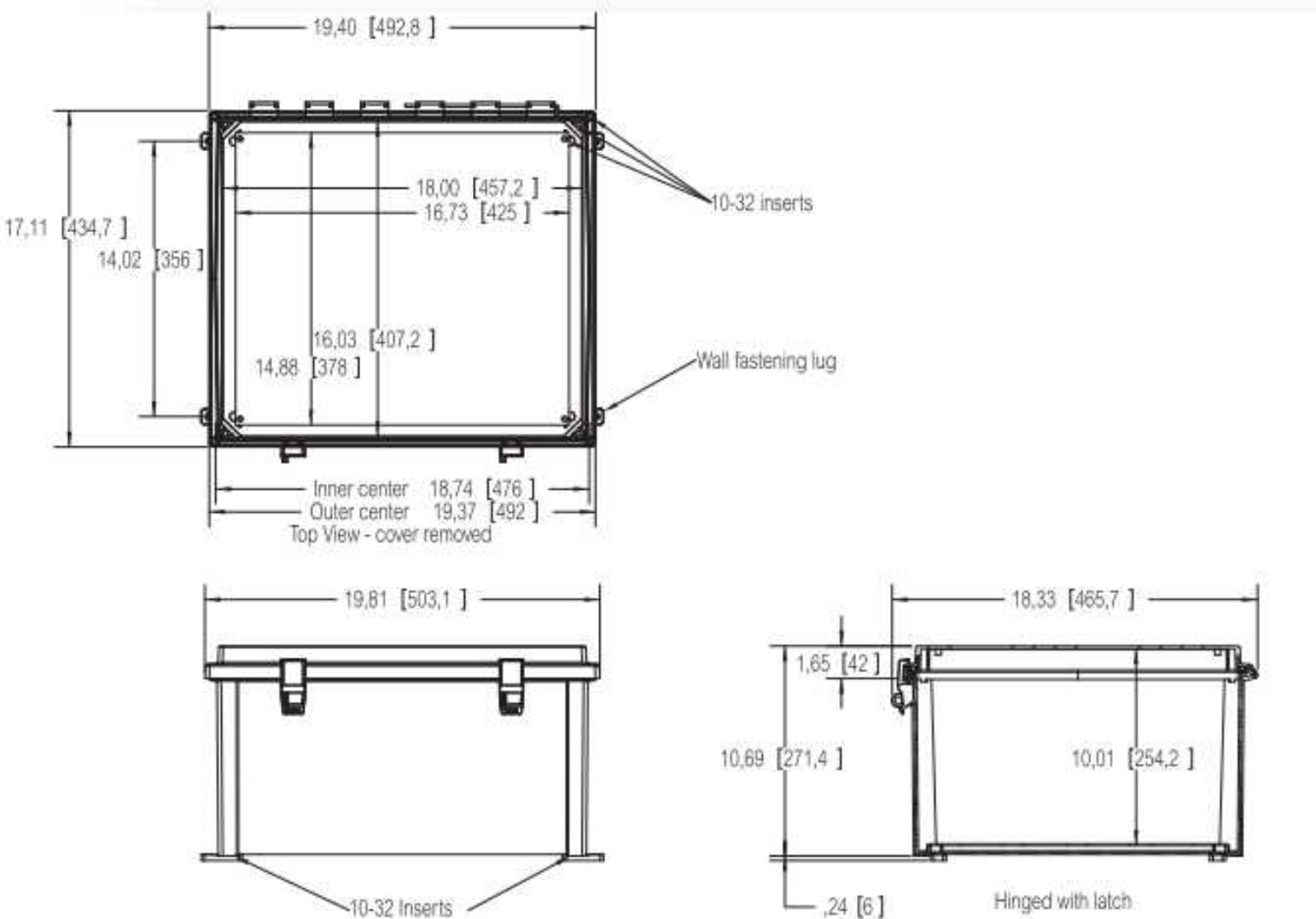
Enclosure Specifications & Rating

Ingress Protection (EN 60529): 66/67 Electrical insulation: Totally insulated

Halogen free (DIN/VDE 0472, Part 815): yes

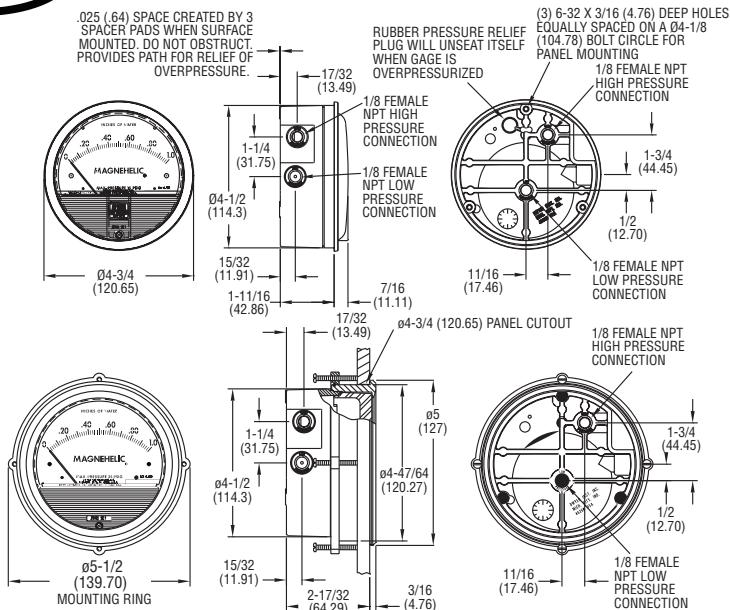
UV resistance: UL 508 Flammability Rating (UL 746 C 5): complies with UL 508 Glow Wire Test (IEC695-2-1) °C: 960 NEMA Class: UL Type 4, 4X, 6, 6P, 12 and 13

Certificates: Underwriters Laboratories





Magnehelic® Differential Pressure Gage



*The blowout plug is not used on models above 180 inches of water pressure, medium or high pressure models, or on gages which require an elastomer other than silicone for the diaphragm.

STANDARD GAGE ACCESSORIES: Two 1/8" NPT plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapters and three flush mounting adapters with screws.

MP AND HP GAGE ACCESSORIES: Mounting ring and snap ring retainer substituted for 3 adaptors, 1/4" compression fittings replace 1/8" pipe thread to rubber tubing adaptors.

OVERPRESSURE PROTECTION: Standard Magnehelic Differential Pressure Gages are rated for a maximum pressure of 15 psig and should not be used where that limit could be exceeded. Models employ a rubber plug on the rear which functions as a relief valve by unseating and venting the gage interior when over pressure reaches approximately 25 psig (excludes MP and HP models). To provide a free path for pressure relief, there are four spacer pads which maintain .023" clearance when gage is surface mounted. Do not obstruct the gap created by these pads.

SPECIFICATIONS

Service: Air and non-combustible, compatible gases. (Natural Gas option available.)

Wetted Materials: Consult factory.

Housing: Die cast aluminum case and bezel, with acrylic cover. (MP model has polycarbonate cover.)

Accuracy: $\pm 2\%$ of full scale ($\pm 3\%$ on 0, -100 Pa, -125 Pa, 10MM and $\pm 4\%$ on 00, -00N, -60 Pa, -6MM ranges), throughout range at 70°F (21.1°C).

Pressure Limits: -20" Hg to 15 psig.† (-0.677 bar to 1.034 bar; MP option: 35 psig (2.41 bar), HP option: 80 psig (5.52 bar).

Overpressure: Relief plug opens at approximately 25 psig (1.72 bar), standard gages only. The blowout plug is not used on models above 180 inches of water pressure, medium or high pressure models, or on gages which require an elastomer other than silicone for the diaphragm.

Temperature Limits: 20 to 140°F (-6.67 to 60°C). *Low temperature models available as special option.

Size: 4" (101.6 mm) diameter dial face.

Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Process Connections: 1/8" female NPT duplicate high and low pressure taps - one pair side and one pair back.

Weight: 1 lb 2 oz (510 g), MP & HP 2 lb 2 oz (963 g).

Agency Approvals: RoHS.

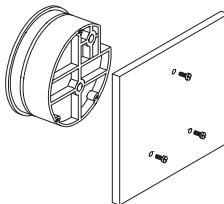
†For applications with high cycle rate within gage total pressure rating, next higher rating is recommended. See Medium and High pressure options.

Note: May be used with hydrogen when ordering Buna-N diaphragm. Pressure must be less than 35 psi.

INSTALLATION

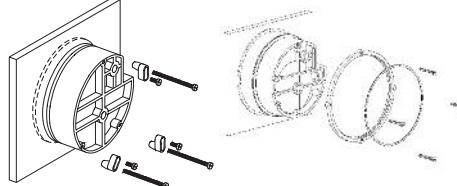
Select a location free from excessive vibration and where the ambient temperature will not exceed 140°F (60°C). Also, avoid direct sunlight which accelerates discoloration of the clear plastic cover. Sensing lines may be run any necessary distance. Long tubing lengths will not affect accuracy but will increase response time slightly. Do not restrict lines. If pulsating pressures or vibration cause excessive pointer oscillation, consult the factory for ways to provide additional damping. All standard Magnehelic® Differential Pressure Gages are calibrated with the diaphragm vertical and should be used in that position for maximum accuracy. If gages are to be used in other than vertical position, this should be specified on the order. Many higher range gages will perform within tolerance in other positions with only rezeroing. Low range models of 0.5" w.c. plus 0.25" w.c. and metric equivalents must be used in the vertical position only.

SURFACE MOUNTING



Locate mounting holes, 120° apart on a 4-1/8" dia. circle. Use No. 6-32 machine screws of appropriate length.

FLUSH MOUNTING



Provide a 4-9/16" dia. (116 mm) opening in panel. Provide a 4-3/4" dia. (120 mm) opening for MP and HP models. Insert gage and secure in place with No. 6-32 machine screws of appropriate length, with adapters, firmly secured in place.

PIPE MOUNTING

To mount gage on 1-1/4" - 2" pipe, order optional A-610 pipe mounting kit.

TO ZERO GAGE AFTER INSTALLATION

Set the indicating pointer exactly on the zero mark, using the external zero adjust screw on the cover at the bottom. Note that the zero check or adjustment can only be made with the high and low pressure taps both open to atmosphere.

OPERATION

Positive Pressure: Connect tubing from source of pressure to either of the two high pressure ports. Plug the port not used. Vent one or both low pressure ports to atmosphere.

Negative Pressure: Connect tubing from source of vacuum or negative pressure to either of the two low pressure ports. Plug the port not used. Vent one or both high pressure ports to atmosphere.

Differential Pressure: Connect tubing from the greater of two pressure sources to either high pressure port and the lower to either low pressure port. Plug both unused ports.

When one side of the gage is vented in dirty, dusty atmosphere, we suggest an A-331 Filter Vent Plug be installed in the open port to keep inside of gage clean.

A. For portable use of temporary installation use 1/8" pipe thread to rubber tubing adapter and connect to source of pressure with flexible rubber or vinyl tubing.

B. For permanent installation, 1/4" O.D., or larger, copper or aluminum tubing is recommended.

MAINTENANCE

No lubrication or periodic servicing is required. Keep case exterior and cover clean. Occasionally disconnect pressure lines to vent both sides of gage to atmosphere and re-zero. Optional vent valves should be used in permanent installations. The Series 2000 is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.

WARNING

Attempted field repair may void your warranty. Recalibration or repair by the user is not recommended.

TROUBLE SHOOTING TIPS

Gage won't indicate or is sluggish.

1. Duplicate pressure port not plugged.
2. Diaphragm ruptured due to overpressure.
3. Fittings or sensing lines blocked, pinched, or leaking.
4. Cover loose or "O" ring damaged, missing.
5. Pressure sensor, (static tips, Pitot tube, etc.) improperly located.
6. Ambient temperature too low. For operation below 20°F (-7°C), order gage with low temperature, (LT) option.

Appendix C

Appendix C Inspection Schedule and Documentation Form

Appendix D



**SUB-SLAB DEPRESSURIZATION SYSTEM
INSTALLATION & STARTUP REPORT
FORMER GATEWAY FRENCH CLEANERS
3375 NEPTUNE AVENUE
BROOKLYN, NEW YORK 11224
NYSDEC SITE NO. C224151**

PREPARED FOR:
Bay Park One Company
70 East 55th Street – 7th Floor
New York, NY 10022

PREPARED BY:
GZA GeoEnvironmental, Inc.
55 Lane Road, Suite 407
Fairfield, New Jersey 07004

September 2013
File No. 12.0076112.01

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TABLES

TABLE 1	SSDS SYSTEM EFFLUENT SAMPLING RESULTS
---------	---------------------------------------

FIGURES

FIGURE 1	SITE LOCATION MAP
FIGURE 2	SITE PLAN
FIGURE 3	SSDS PLAN

APPENDICES

APPENDIX A	LIMITATIONS
APPENDIX B	SSDS INSTALLATION REPORT
APPENDIX C	ANALYTICAL LABORATORY REPORT
APPENDIX D	AR-1 PROGRAM INPUT AND OUTPUT



1.00 INTRODUCTION

GZA GeoEnvironmental, Inc. (GZA) has prepared the report to document the installation and startup of a sub-slab depressurization system (SSDS) associated with the Former Gateway French [Dry] Cleaner, Volunteer [Brownfield] Cleanup (VCP) Site No. C224151, (Site) located at 3375-3377 Neptune Avenue, in Brooklyn, New York. Please refer to **Figure 1** for a Site location map. The Former Gateway French Cleaners (aka Charles French Cleaners) operated within the western portion of commercial-retail space, located at the above address, between 1975 and 1996. Previous Site investigation activities documented the presence of volatile organic compounds (VOCs), particularly tetrachlorethene (PCE), in sub-slab soil gas at the Site and under adjacent commercial retail and residential portions of the building. The SSDS was installed beneath the residential apartments immediately north of the Site.

Due to the presence of VOCs in the soil gas, vapor intrusion (VI) into occupied space is a potential health concern in the immediate Site vicinity. This report has been prepared to summarize the installation of a SSDS vapor intrusion mitigation system under the adjacent five-story residential apartment building immediately north of the Site. The SSDS system is designed to reduce the potential for migration of sub-slab vapors into ground floor residential apartments immediately north of the former dry cleaner space by creating negative pressure airspace under the ground-floor concrete floor slab. This report is subject to the limitations presented in **Appendix A**.

2.00 BACKGROUND

The Former Gateway French Cleaner (VCP Site No. C224151) is identified on the New York City Department of Finance Tax Map as a portion of Lot 100 on Block 6979; which is centrally located on the western end of the Coney Island neighborhood of Brooklyn. Coney Island is a sand spit peninsula along the southern Atlantic Ocean coast line of Brooklyn and extends southwest into the outer New York Harbor.

In May 2009, GZA performed a limited subsurface investigation in the vicinity of the former dry cleaner. After discovery of groundwater and soils contaminated with fuel compounds and PCE in May 2009, a supplemental subsurface investigation of the Gateway Cleaners operating space was performed in July 2009. Additional VI assessments were completed in February of 2010, and October of 2011.

Sub-slab soil vapor sample results indicated that VOCs were detected at concentrations above the EPA's Office of Solid Waste and Emergency Response (OSWER)¹ guidance including 1,2,4-trimethylbenzene, 1,3,5- trimethylbenzene, benzene, and ethyl benzene

¹ USEPA OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), EPA 530-D-02-004, Table 2C; November 2002.



and five VOCs exceeded NYSDOH² background values; including 1,2,4-trimethylbenzene, benzene, ethyl benzene, toluene, and m/p-xylene. PCE and trichloroethylene (TCE) were detected at concentrations, above the respective Table C-2 Indoor Air BASE median values, Helen Dawson USEPA Region 8 background values, and the New York State Department of Health (NYSDOH) Table 3.1 2006 Air Guideline Values.

In general, PCE concentrations are much greater than trichloroethylene (TCE) and other VOC concentrations at the Site; PCE was detected at concentrations as high as 65,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Sub-slab soil vapor delineation results indicated the vapor plume concentrations were highest at the southern side of the former dry cleaning space and decreased to the north and east. Elevated PCE was detected in a sub-slab soil gas sample collected beneath the residential apartments to the north of the Site.

Hurricane Sandy impacted the New York City Metropolitan Area inundating large areas of Coney Island, including the Site, on October 29, 2012. Approximately three to four feet of water covered the ground-level residential apartments and the commercial retail spaces at the Site which required gut-renovation. The displacement of the first floor tenants provided an unparalleled opportunity to install a sub-slab depressurization system (SSDS) system for the protection of Human Health within the residential apartments immediately north of the Site. The NYSDEC approved the installation of the SSDS system during December 13, 2012 e-mails and telephone conversations. A SSDS system was installed between December 2012 and May 2013.

2.1 ENVIRONMENTAL SITE SETTING

The following subsections provide information regarding the general physiographic, hydrologic, and soil conditions in the area of the Site.

2.1.1 REGIONAL PHYSIOGRAPHY

This area of Brooklyn was primarily sand dunes and scrub brush prior to development. The Site and the surrounding area are relatively flat but the Site is located on a manmade artificial fill promenade setback from street level. Based on a review of topographic map for the Coney Island Quadrangle, the Site has a ground surface elevation of approximately 7 feet above the Mean Sea Level (MSL); per the National Geodetic Vertical Datum (NGVD) 1988. A survey, performed by Rogers Surveying, PLLC, of Staten Island, New York on July 30, 2009, utilized an on-site stormwater manhole, located approximately 40 feet north of monitoring well MW-3, was set as a site datum at 7.00 ft. The 1906 Sanborn map indicates that the street level is approximately 4 feet above MSL. The Site is located approximately 1000 feet south of Gravesend Bay and Coney Island Creek and 2000 feet north of the Atlantic Coast line. The Site is also located approximately 3000 feet from the western tip of Coney Island.

² Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, NYSDOH Bureau of Environmental Exposure Investigation, October 2006.



2.1.2 SOIL AND ROCK CONDITIONS

Although the surficial soils have been reworked by wave action and human activity, the shallow unconsolidated sediments are composed of glacial outwash sands. These sands were deposited during the Pleistocene epoch and are expected to extend to a depth of approximately 100 feet below MSL. Beneath this layer, the Cretaceous period Gardiners Clay and Jamaico Gravel are expected to be present. The Magothy Formation occurs beneath these formations; which is in turn, underlain by the Raritan Clay and the Lloyd Sand. The bedrock underlying the Cretaceous deposits is expected to be the the Cambro-Ordovician Hartland Formation at a depth greater than 800 feet below ground surface.

2.1.3 GROUNDWATER CONDITIONS

Regional groundwater flow direction is generally controlled by regional topography with groundwater flow from higher to lower elevations. Based on the southeasterly down-sloping topography, the groundwater in the area is inferred to flow in a southeasterly direction. Manmade structures also have effects on groundwater flow. Along the Coney Island-Gravesend Bay shore line is the United States Pierhead and Bulkhead Line. Timber and steel bulkheads act as land erosion control but also act as groundwater flow barriers

Based on the previous Site investigations, groundwater was encountered between 9 and 10 feet bgs, or approximately 3 feet below MSL. Based on the two rounds of groundwater levels, the groundwater flow path is to the east. However, localized groundwater gradients in the Site vicinity may vary due to subsurface utilities, irrigation and infiltration, seasonal variations, precipitation events, local pumping wells or sump pumps, and heterogeneous subsurface conditions. There is a 60-inch stormwater sewer main which flows north along west 33rd Street to an outfall in Graves End Bay, where by it and its local branches are below groundwater near Neptune Avenue.

3.00 SSDS INSTALLATION ACTIVITIES

The following subsections present the activities related to the installation of the SSDS system at the Site. The SSDS system was installed by Clean Vapor, LLC., of Blairstown, New Jersey. Initial construction was begun on January 21, 2013; however, due to other construction activities, SSDS installation activities were dependent on access and other craftsmen work. Please refer to **Appendix B** for the full installation report from the contractor. A photographic log is also presented in **Appendix C**.

3.1 CONCRETE SLAB CONDITIONS

GZA made observations of the concrete floor slab. No large cracks or apertures were observed in the slab, however, there were numerous penetrations in the concrete floor slab to accommodate potable and wastewater connections, and electrical conduits. GZA made observations of the soil-slab contact through several large plumbing cutouts in the concrete floor slab. An air-filled gap or space, up to 2-inches deep, was observed at many locations between the slab and the soil. All of the sub-slab electrical lines were cut



and abandoned prior to being sealed with polyethylene cabling. All penetrations in the slab were likewise inspected and sealed with polyethylene caulk. Plumbing cutouts were backfilled and sealed with concrete.

3.2 SUTION POINT AND PIPING INSTALLATION

A total of seven, suction points were installed by coring a five inch hole in the concrete floor slab and installing a riser pipe. The suction point riser pipes are Schedule 40 Steel and are all connected to an overhead main. Gun-grade urethane caulk, backer rod and self-leveling urethane was used to seal the suction pipe flush with the concrete floor. The pipes were secured above each suction hole with pipe clamps attached to wall framing, columns, or overhead concrete to ensure the pipe cannot slip down into the suction pit. Please refer to **Figure 2** for a location of the Suction Pits relative to Site features.

All horizontal pipe runs of the main header were installed with a 1-inch per 10-feet slope back and all vertical pipe runs were installed plumb. Piping was installed such that there are no water trap areas between the blowers and the suction points. All piping and fittings installed are cast iron schedule 40 and clamped and supported according to the 2006 National Plumbing Code. The overhead main and the vertical conveyance pipe are cast iron in accordance with New York City's fire codes.

3.3 INSTALLATION OF THE BLOWER, WIRING, PANELS, AND BREAKERS

A roof-mounted Cincinnati Fan PB-14A direct drive radial blower was installed to create vacuum for all seven suction Pits. One dedicated breaker was used to power the 220 volt blower and a second 110 volt dedicated breaker was used to supply power to the remote monitoring and dynamic controls panel. The blower is controlled by a variable frequency drive (VFD) located in the electrical room of the second floor. A magnehelic vacuum gauge was installed to manually indicate the static vacuum generated by the system. The magnehelic gauge is also located in the second floor electric room, adjacent to the VFD and electric panel.

The VFD can be used to adjust the static vacuum applied to the sub-slab atmosphere to achieve specified pressure differential requirements and to manage electrical power consumption. The VFD is currently being controlled by a program logic controller and a third-party proprietary dynamic control system. The dynamic controls system is currently set to maintain a sub-slab vacuum level at sub-slab vapor monitoring point PT-5 (the lowest measured pressure probe) of 0.01 inches of water column. Please refer to **Figure 2** for the location of the sub-slab vapor monitoring points. If any sub slab sensor drops below 0.008 inches of water column, GZA will be notified.

A remote monitoring system monitors the total performance of the vapor intrusion mitigation system and is comprised of the following components:

- Sub Slab Vacuum (8 sensors)
- Individual Riser Vacuum (7 sensors)
- Total System Static Vacuum (1 sensor)
- Total System Airflow (1 sensor and 1 inline pito tube)
- System Power Consumption via the VFD.



3.4 INITIAL PERFORMANCE MONITORING

A Site visit was performed after startup to collect system performance information and laboratory effluent sampling of the SSDS system effluent. The effluent VOC concentrations were field screened with a Mini Rae 2000 Photo Ionization Detector (PID), and were data logged during sampling. GZA also collected the following field measurements:

	Start-up	70 minutes post start-up
Velocity	755 ft/min	750 ft/min
Temperature	68.2° - 70.6° F	76.7° - 78.1° F
Relative Humidity	50.5%	55.1%
PID	12 ppm	22.5 ppm

A six-liter summa canister was deployed to collect a TO-15 VOC laboratory analysis at a NYSDOH Environmental Laboratory Accreditation Program (ELAP) laboratory. The flow regulator was laboratory calibrated for one hour sample duration; which was chosen to mimic the NYSDEC Division of Air Resources (DAR) Short term Guidance Criteria (SGC); discussed further below. Laboratory samples from the summa canister were submitted for analysis of VOCs by Method TO-15. Results from the laboratory analysis are listed in **Table 1** and the laboratory report is presented in **Appendix D**.

The pipe diameter where the above measurements were collected is six-inches in diameter. Based on the measured velocity, the cubic feet per minute (CFM) of air flow from the system is approximately 148 CFM. Using the laboratory analysis concentrations, and the flow rate, hourly and annual contaminant specific and total VOC effluent loading rates were calculated; as presented in **Table 1**.

The following system measurements were collected on July 9, 2013, while the blower was operating at 220 CFM and a vacuum of 3.9-inches of water (in-H₂O):

Riser No.	Vacuum (in-H ₂ O)	Airflow (CFM)	Monitoring Point	Vacuum (in-H ₂ O)
SP-1	-1.074	1	PT-1	-0.473
SP-2	-1.054	7	PT-2	-0.105
SP-3	-1.076	17	PT-3	-0.164
SP-4	-1.169	45	PT-4	-0.288
SP-5	-1.028	47	PT-5	-0.441
SP-6	-1.281	33	PT-6	-0.539
SP-7	-1.238	65	PT-7	-0.864
			PT-8	-0.862

The measurements recorded and monitoring point PT-2 appears to be greatly affected by weather and wind loading suggesting that there is communication, to some degree, between the exterior of the building and the sub-slab envelope. Several areas of settling,



voidspace, or washouts were observed near the building after Hurricane Sandy. This monitoring point (PT-2) will not be used to regulate the VFD.

3.5 SAMPLING RESULTS AND AG-1 MODELING

The NYSDEC DAR has developed the SGC and the average-annual guidance criteria (AGC) based on the toxicity ranking (H-high, M-moderate, and L-low) of the potential impacting compound. Please see **Table 1** for the compound chemical allocation system (CAS) number, toxicity ranking and the SGC and AGC for individual compounds. Based on a simple comparison of the SGC and the average-annual guidance criteria (AGC) indicates that no SGCs are exceeded, but several AGCs are. However, the AGCs are the guidance concentrations at a nearby receptor, not the guidance concentrations at the source effluent.

Therefore, the results of the laboratory analysis and the effluent loading rate were then entered into the NYSDEC DAR Air Guidance (AR)-1 *Guidelines for the Control of Toxic Ambient Air Contaminants*, AG-1 computer program. All appropriate information for 28 of the detected VOCs, the effluent stack height and building dimensions were all entered into the AR-1 program. Please refer to **Appendix E** for the screen shots of the input and output files.

AGCs are based on actual carcinogenic risks, they represent estimates of air concentrations associated with an excess cancer risk of one-in-a-million from lifetime inhalation exposures. Four compounds are present in the system effluent and identified as a one-in-a-million risk: dichloromethane (CAS No. 0075-09-2), chloroform (CAS No. 00067-66-3), benzene (CAS No. 00071-43-2), and PCE (CAS No. 00127-18-4). However, based on the AR-1 analysis, none of the 28 detected compounds were at concentrations which exceeded the AGC.

5.00 SUMMARY AND CONCLUSIONS

The system is effective at creating a negative pressure envelope under the ground floor concrete floor slab. The system is removing VOCs from the subsurface mitigating the VI pathway for the ground floor residents. Based on the effluent sampling and the AR-1 analysis, effluent concentrations are below the compound specific AGCs.



TABLES

SSDS System Effluent TO-15 Results

Site No. C224151
3375 Neptune Avenue
Brooklyn, New York
Bay Bark One

LOCATION: SVE-1 SAMPLING DATE: 9/16/2013 LAB SAMPLE ID: L1318236-01	CAS Number	Toxicity	SGC ug/m3	AGC ug/m3	Results in ppbv	Results in ug/m3	Qal	Mass ug per Hour	Mass pounds per Hour	Mass pounds per Year
Carbon tetrachloride	00056-23-5	H	1,900	0.17	0.346	2.18		548	1.21E-06	1.06E-02
Ethyl Alcohol	00064-17-5	L	---	45,000	392	738.63		186,037	4.10E-04	3.59E+00
Iso-propyl alcohol	00067-63-0	M	98,000	7,000	62.9	154.61		38,942	8.59E-05	7.52E-01
Acetone (2-propanone)	00067-64-1	L	180,000	30,000	107	254.17		64,019	1.41E-04	1.24E+00
Chloroform	00067-66-3	M	150	0.043	2.82	13.77		3,469	7.65E-06	6.70E-02
Benzene	00071-43-2	H	1,300	0.13	17.9	57.18		14,403	3.18E-05	2.78E-01
1,1,1-Trichloroethane	00071-55-6	L	9,000	5,000	1.09	5.95	U	0	0	0
Bromomethane (Methyl bromide)	00074-83-9	M	3,900	5	0.777	3.02	U	0	0	0
Chloromethane (Methyl chloride)	00074-87-3	M	22,000	90	0.725	1.50		377	8.31E-07	7.28E-03
Chloroethane	00075-00-3	L	---	10,000	0.528	1.39	U	0	0	0
Vinyl chloride	00075-01-4	H	180,000	0.11	0.166	0.42		107	2.36E-07	2.06E-03
Methylene chloride	00075-09-2	M	14,000	2	4.52	15.70		3,955	8.72E-06	7.64E-02
Carbon disulfide	00075-15-0	M	6,200	700	0.623	1.94	U	0	0	0
Bromoform	00075-25-2	M	---	0.91	0.207	2.14	U	539	1.19E-06	1.04E-02
Bromodichloromethane	00075-27-4	M	---	70	1.34	8.98	U	0	0	0
1,1-Dichloroethane	00075-34-3	L	---	0.63	0.081	0.33	U	0	0.00E+00	0.00E+00
1,1-Dichloroethene	00075-35-4	M	---	70	0.793	3.14	U	0	0	0
Trichlorofluoromethane (Freon 11)	00075-69-4	L	9,000	5,000	3.2	17.98		4,529	9.99E-06	8.75E-02
Dichlorodifluoromethane	00075-71-8	NA	---	12,000	2.11	10.43		2,628	5.79E-06	5.08E-02
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon TF)	00076-13-1	L	960,000	180,000	1.53	11.73	U	0	0	0
1,2-Dichlorotetrafluoroethane (Freon 114)	00076-14-2	NA	---	17,000	1.4	9.79	U	0	0	0
1,2-Dichloropropane	00078-87-5	M	---	4	0.924	4.27	U	1,076	2.37E-06	2.08E-02
2-Butanone (Methyl ethyl ketone)	00078-93-3	M	13,000	5,000	6.31	18.61		4,687	1.03E-05	9.05E-02
1,1,2-Trichloroethane	00079-00-5	M	---	1.4	0.109	0.59	U	0	0.00E+00	0.00E+00
Trichloroethene (TCE)	00079-01-6	M	14,000	0.5	0.177	0.95		240	5.28E-07	4.63E-03
1,1,2,2-Tetrachloroethane	00079-34-5	M	---	16	1.37	9.41	U	0	0	0
Hexachlorobutadiene	00087-68-3	M	---	0.045	0.533	5.69	U	1,432	3.16E-06	2.77E-02
Xylenes (o)	00095-47-6	M	4,300	100	33.8	146.81		36,977	8.15E-05	7.14E-01
1,2-Dichlorobenzene	00095-50-1	M	30,000	200	1.2	7.21	U	0	0	0
1,2,4-Trimethylbenzene	00095-63-6	NA	---	6	21	103.24		26,003	5.73E-05	5.02E-01
Ethylbenzene	00100-41-4	M	54,000	1,000	35.2	152.89		38,509	8.49E-05	7.44E-01
Styrene	00100-42-5	M	17,000	1,000	1.86	7.92		1,995	4.40E-06	3.85E-02
Benzyl chloride	00100-44-7	H	240	0.02	1.04	5.39	U	1,356	2.99E-06	2.62E-02
1,4-Dichlorobenzene	00106-46-7	M	---	0.09	0.198	1.19	B	300	6.61E-07	5.79E-03
1,2-Dibromoethane	00106-93-4	H	---	0.0017	0.154	1.18	U	298	6.57E-07	5.76E-03
1,3-Butadiene	00106-99-0	H	---	0.0033	0.161	0.36	U	90	1.98E-07	1.73E-03
3-Chloropropene (allyl chloride)	00107-05-1	M	600	1	0.626	1.96		494	1.09E-06	9.53E-03
1,2-Dichloroethane	00107-06-2	M	---	0.038	0.081	0.33	U	83	1.82E-07	1.59E-03
Vinyl acetate	00108-05-4	M	5,300	200	0.704	2.48	U	0	0	0
4-Methyl-2-pentanone (MIBK)	00108-10-1	M	31,000	3,000	0.82	3.36	U	0	0	0
1,3,5-Trimethylbenzene	00108-67-8	M	---	290	6.15	30.23		7,615	1.68E-05	1.47E-01
Toluene	00108-88-3	L	37,000	5,000	182	685.87		172,749	3.81E-04	3.34E+00
Chlorobenzene	00108-90-7	M	---	110	0.921	4.24	U	0	0	0
Tetrahydrofuran	00109-99-9	M	30,000	350	1.83	5.40		1,359	3.00E-06	2.63E-02
n-Hexane	00110-54-3	M	---	700	32.2	113.48		28,583	6.30E-05	5.52E-01
Cyclohexane	00110-82-7	L	---	6,000	10.8	37.17		9,363	2.06E-05	1.81E-01
Propylene	00115-07-1	NA	---	3,000	1.08	1.86		468	1.03E-06	9.04E-03
1,2,4-Trichlorobenzene	00120-82-1	NA	---	3,700	1.48	10.99	U	0	0	0
1,4-Dioxane	00123-91-1	M	3,000	0.13	0.36	1.30	U	327	7.20E-07	6.31E-03
Dibromochloromethane	00124-48-1	NL	---	---	1.7	14.48	U	0	0	0
Tetrachloroethene (PCE)	00127-18-4	M	1,000	1	6.57	44.55		11,221	2.47E-05	2.17E-01
Ethyl Acetate	00141-78-6	M	---	3,400	25.5	91.89		23,145	5.10E-05	4.47E-01
n-Heptane	00142-82-5	M	210,000	3,900	27.5	112.70		28,385	6.26E-05	5.48E-01
1,2-Dichloroethene (cis)	00156-59-2	M	---	63	0.793	3.14	U	0	0	0
1,2-Dichloroethene (trans)	00156-60-5	M	---	63	9	35.68		8,988	1.98E-05	1.74E-01
2,2,4-Trimethylpentane	00540-84-1	M	---	3,300	54.2	253.16		63,762	1.41E-04	1.23E+00
1,3-Dichlorobenzene	00541-73-1	M	---	10	4.06	24.41		6,148	1.36E-05	1.19E-01
2-Hexanone	00591-78-6	NA	4,000	30	0.82	3.36	U	0	0	0
Bromoethane	00593-60-2	H	---	3	0.874	3.82	U	962	2.12E-06	1.86E-02
4-Ethyltoluene (p-Ethyltoluene)	00622-96-8	NL	---	---	5.56	27.33		6,885	1.52E-05	1.33E-01
Xylenes (m&p)	01330-20-7	L	4,300	100	95.1	413.07		104,040	2.29E-04	2.01E+00
MTBE (Methyl tert-butyl ether)	01634-04-4	M	---	3,000	0.721	2.60	U	0	0	0
cis-1,3-Dichloropropene	10061-01-5	NL	---	---	0.908	4.12	U	0	0	0
trans-1,3-Dichloropropene	10061-02-6	NL	---	---	0.908	4.12	U	0	0	0
Total VOCs	---	---	---	---	1179	3,716	---	906,543	0.002	17.5

NA - Not Available

NL - Compound not listed in DAR-1 Appendix C SCG/AGC Table

H - High Toxicity

M - Medium Toxicity

L - Low Toxicity

CAS - Chemical Abstract Service

SCGs - Short-term Guideline Concentrations

AGCs - Annual Guideline Concentrations

ug/m3 - Microgram per cubic meter

Qal - Laboratory Qualifier

B - Detectable concentrations were in the laboratory blank

U - Laboratory results are less than the reporting limit

ppbv - Parts per billion by volume

ug/ft3 - Micrograms per cubic foot

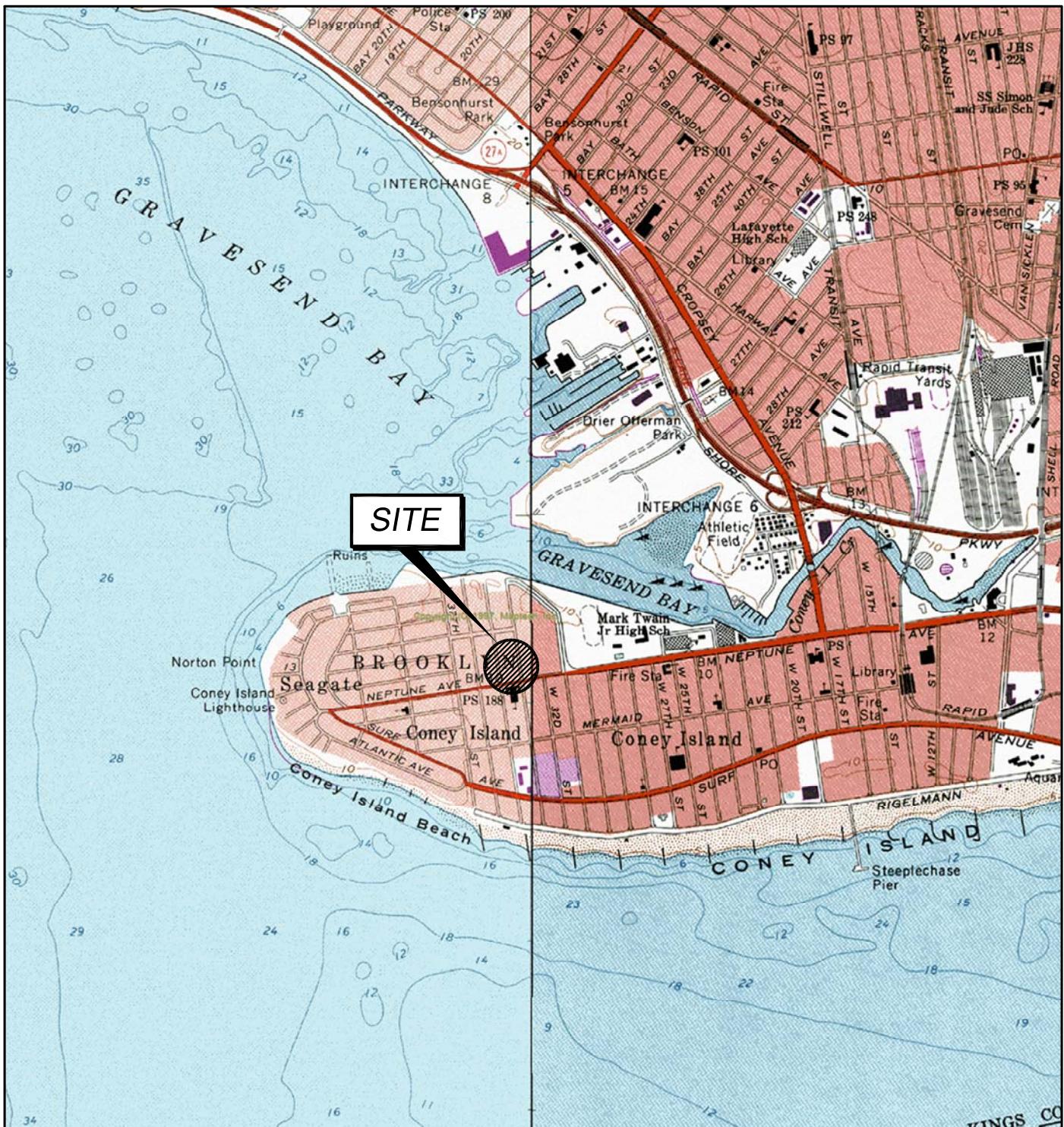
ug - Micrograms

ft3 - Cubic Feet

Laboratory Reporting Limit > AGCs

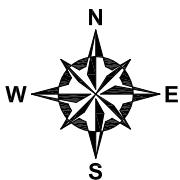


FIGURES



SOURCE:

USGS TOPOGRAPHIC MAPS: CONEY ISLAND, NY-NJ (1979) & THE NARROWS, NY-NJ (1998). CONTOUR INTERVAL 10 FT., ORIGINAL SCALE 1:24,000 (1"=2,000 FT.).



QUADRANGLE LOCATION

3375 NEPTUNE AVENUE
BROOKLYN, NEW YORK

PREPARED BY:

GZA GeoEnvironmental
of New York
Engineers and Scientists
104 WEST 29TH STREET, 10TH FLOOR
NEW YORK, NEW YORK 10001

PREPARED FOR:

STARRETT CORPORATION

SUB-SLAB DEPRESSURIZATION SYSTEM STARTUP SITE LOCATION MAP

PROJ MGR: D
DESIGNED BY: E
DATE: SEPT 2013

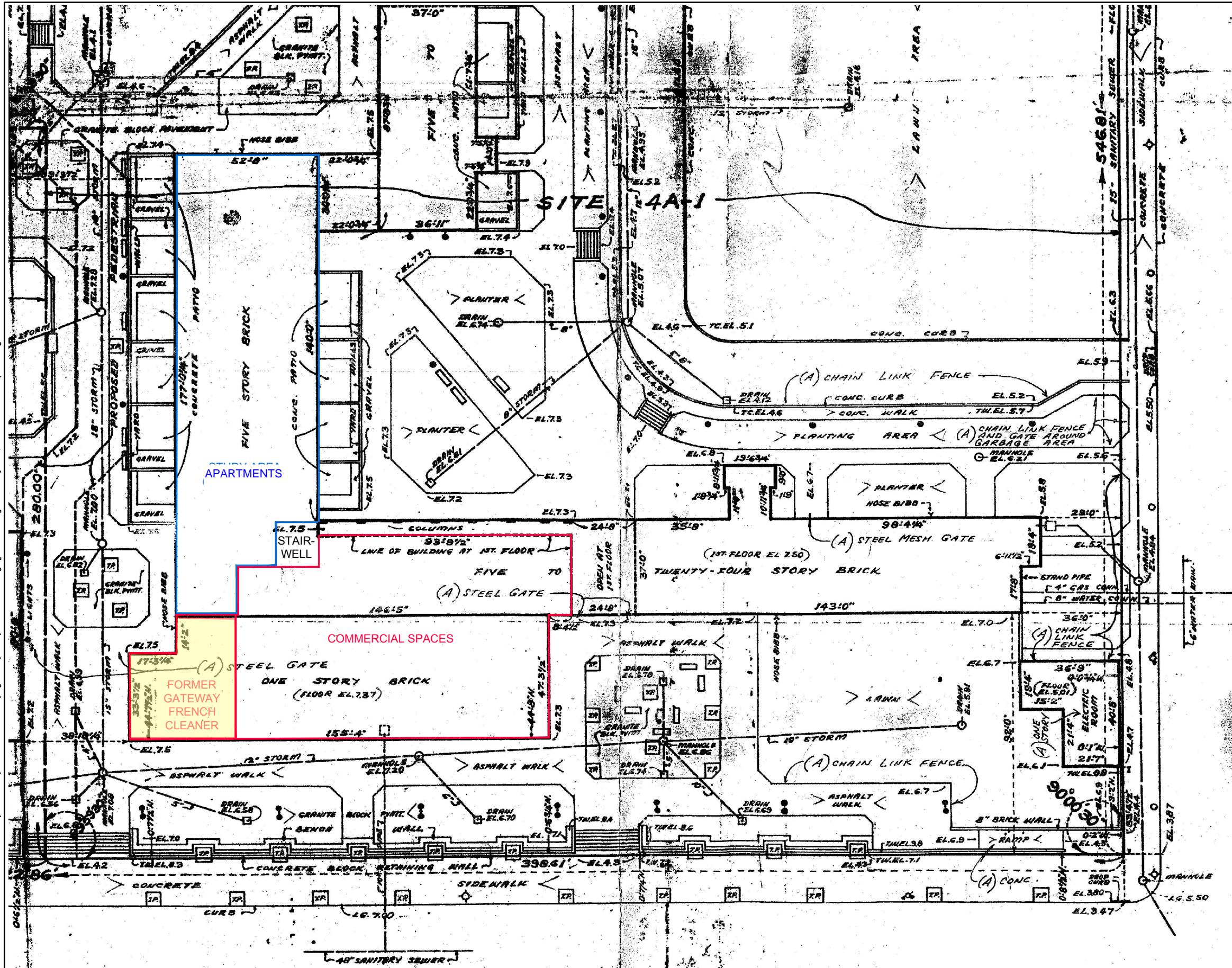
W REVIEWED BY: BE
E DRAWN BY: MT

CHECKED BY:

FIGURE

1

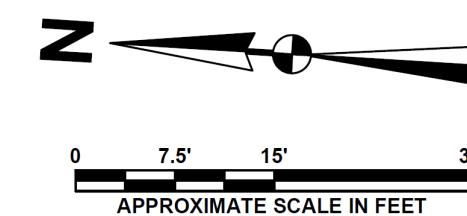
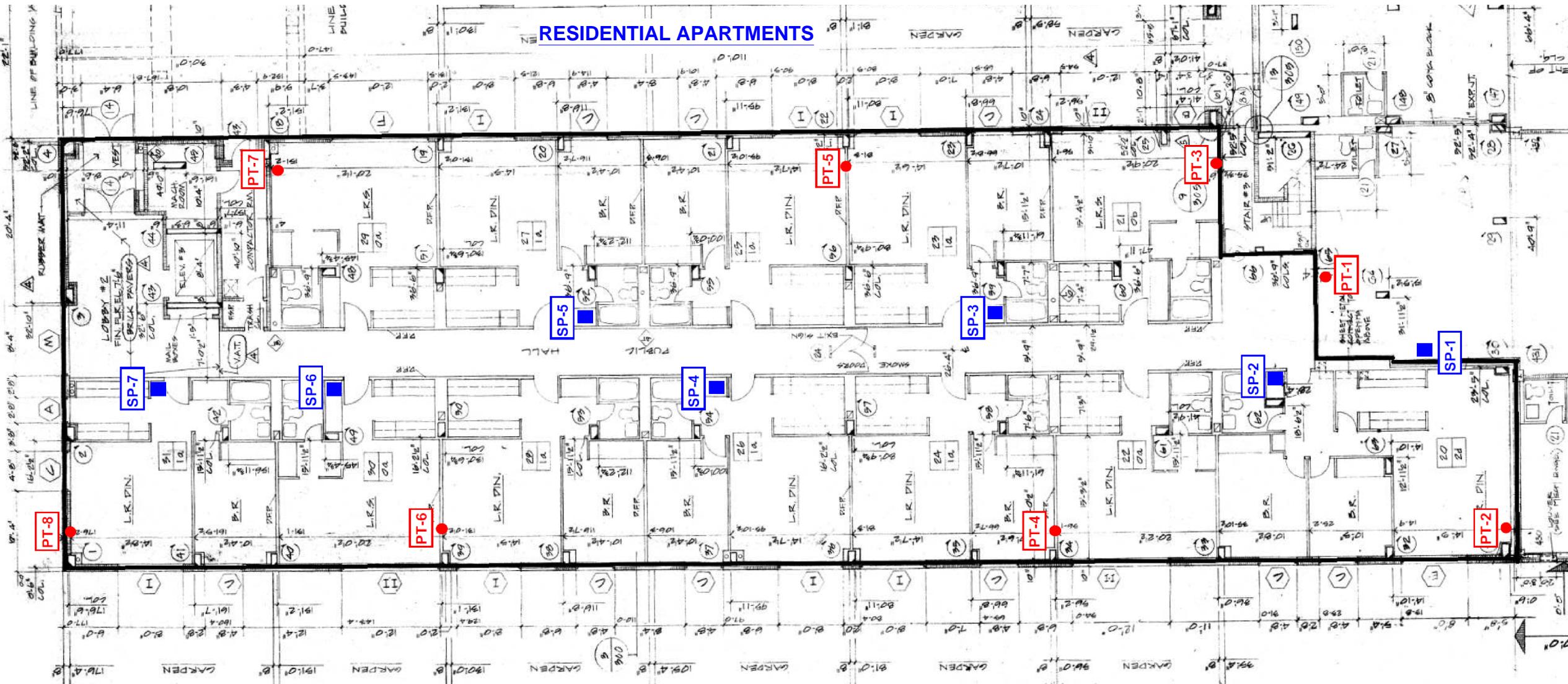
SHEET NO. 1



LEGEND

- Yellow box: Volunteer [Brownfield] Cleanup Program Site Former Gateway French Cleaners
- Red box: Commercial Retail Space
- Blue box: Residential Apartments

NO.	ISSUE/DESCRIPTION	BY	DATE
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3325 NEPTUNE AVENUE BROOKLYN, NEW YORK			
SUB-SLAB DEPRESSURIZATION SYSTEM STARTUP SITE MAP			
PREPARED BY:		PREPARED FOR:	
 GZA GeoEnvironmental of New York Engineers and Scientists 104 WEST 29TH STREET, 10TH FLOOR NEW YORK, NEW YORK 10001		STARRETT CORPORATION	
PROJ MGR:	DW	REVIEWED BY:	BE
DESIGNED BY:	BE	DRAWN BY:	MT
DATE:	SCALE: 1" = 40'		
SEPT 2013		PROJECT NO. 12.0076112.01	
		REVISION NO.	



NOTES:

1. THE BASE MAP WAS DEVELOPED FROM AN ELECTRONIC FILE PROVIDED BY: STARRETT CORPORATION, ENTITLED: GROUND FLOOR PLAN, DATED: FEBRUARY 7, 1972, ORIGINAL SCALE: 1/8" = 1', DRAWING NUMBER: A-102.

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3325 NEPTUNE AVENUE BROOKLYN, NEW YORK			

**SUB-SLAB DEPRESSURIZATION SYSTEM STARTUP
SAMPLING LOCATION PLAN**

PREPARED BY:	GZA GeoEnvironmental of New York Engineers and Scientists 104 WEST 29TH STREET, 10TH FLOOR NEW YORK, NEW YORK 10001		PREPARED FOR:	STARRETT CORPORATION	
PROJ MGR:	DW	REVIEWED BY:	BE	CHECKED BY:	DW
DESIGNED BY:	BE	DRAWN BY:	MT	SCALE:	1" = 15'
DATE:	SEPT 2013	PROJECT NO.	12.0076112.01	REVISION NO.	

FIGURE
3

SHEET NO.



APPENDIX A

LIMITATIONS



GEOHYDROLOGICAL LIMITATIONS

Use of Report

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

Standard of Care

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

Subsurface Conditions

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs.

6. Water level observations have been made (as described in the Report) at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.

Compliance with Codes and Regulations

7. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.

Screening and Analytical Testing

8. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.
9. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.
10. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

Interpretation of Data

11. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

Additional Information

12. In the event that the Client or others authorized to use this report obtain information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

Additional Services

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.



APPENDIX B
SSDS INSTALLATION REPORT



**REPORT OF
VAPOR INTRUSION MITIGATION
For:
3375 Neptune Avenue, Brooklyn, New York**

Prepared for:

**Mr. Brett Engard
Assistant Project Manager
GZA GeoEnvironmental of New York
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Prepared by:

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Clean Vapor, LLC
PO Box 688
Blairstown, NJ 07825**

July 2013

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1. Introduction

This report summarizes the vapor intrusion mitigation activities at the four story brick apartment building and rear of the one story stationary store located at 3375 Neptune Avenue, Brooklyn, New York. A Sub Slab Depressurization System (SSDS) has been designed and installed to mitigate the potential for vapor intrusion in the residential section of the building and the rear portion of the stationary store highlighted on the map below. This report and its appendices summarize the installation activities.

The vapor intrusion mitigation system was installed in accordance with the specifications provided in the Clean Vapor, LLC installation quote dated January 10, 2013. Mitigation activities began with mobilization on Thursday, January 17, 2013. Sub slab depressurization blowers were officially started on April 22, 2013 completing the majority of mitigation activities. On July 9, 2013 the originally specified blower was replaced with a blower that had a performance curve more conducive to efficiently depressurizing the highly permeable sub slab fill found at this site. One roof mounted direct drive radial blower, seven suction points, and 8 sub slab monitoring points were installed throughout the building area identified below. The system is meeting the intended design criteria of maintaining a sub slab vacuum level of 0.004 inches of water column ("wc).



Picture 1.1
Targeted Mitigation Area

2. System Commissioning Measurements

The general system layout was provided by GZA prior to providing an installation proposal. Exact suction point locations were determined and agreed upon by Clean Vapor, GZA, and the building owner's representative. The blower was specified based on the volume of air and static pressure readings recorded during diagnostic testing of the suction points prior to connecting to overhead piping. Depressurizing denser soils requires lower airflow and higher vacuum blowers while slab areas where the fill material is settled requires lower vacuum, higher airflow blowers. The sub slab fill at this site was highly permeable and produced high air flow yields, this lead to the installation of a low vacuum, high airflow direct drive radial blower. The design objective was to create a negative pressure field with a minimum performance of -0.004 inches of water column ("wc").

Post mitigation exhaust airflow, vacuum, and sub slab vacuum measurements occurred on July 9, 2013. Commission values were taken with the blower motor operating at 60Hz.

2.1. System Blower Measurements

Blower #	Blower Type	Airflow (cfm)	Vacuum ("wc)	VFD Setting (Hertz)
1	Cincinnati Fan PB-14A	220	3.9	60

2.2. Riser Pipe Measurements

Riser #	Vacuum ("wc)	Airflow (cfm)	Gate Vale %*
1	-1.074	1	100
2	-1.054	7	100
3	-1.076	17	100
4	-1.169	45	100
5	-1.028	47	100
6	-1.281	33	100
7	-1.238	65	100

* % open

2.3. Sub Slab Vacuum Measurements

The locations of the sub slab pressure probes can be found on the as-built drawings.

Test Hole	Vacuum ("wc)
PB#1	-0.473
PB#2	-0.105*
PB#3	-0.164
PB#4	-0.288
PB#5	-0.441
PB#6	-0.539
PB#7	-0.864
PB#8	-0.862

* Measurements reported by sub slab pressure probe 2 (PB#2) fluctuate substantially based on weather conditions and wind loading on the building. Due to the sensor's close proximity to the outside wall it is believed that the sensor is heavily influenced by external variables. During strong winds pressure sensor 2 sometimes fluctuates and should NOT be used to demonstrate system performance or drive the system's dynamic controls.

3. Suction Point Installation

A total of seven (7), three inch suction points were installed as shown in the as-built drawings. All The suction point riser pipes are Schedule 40 Steel and overhead piping including the main vertical conveyance pipe are cast iron in accordance with New York City's fire codes. The specific location of each suction hole was agreed upon by Clean Vapor, GZA, and the building owner's representative.

All of the suction holes were created using a five inch diameter concrete coring bit. All holes were sealed following clean out and riser pipe installation. Gun-grade urethane caulking and backer rod was used below the surface of the concrete as a preliminary seal followed by self-leveling urethane to seal the suction pipe flush with the concrete floor. The pipes were secured above each suction hole with pipe clamps attached to wall framing, columns, or overhead concrete to ensure the pipe cannot slip down into the suction pit.



Picture 3.1
Suction Point Sealing



Picture 3.2
Riser Pipe in First Floor Suction Point

4. Vapor Conveyance Pipe Installation

All horizontal pipe runs between the roof mounted fan and the suction points were installed with a 1 inch slope back to a suction point for every ten feet of horizontal pipe run. All vertical pipe

runs were installed plumb. Piping was installed so that there are no possible water traps between the blowers and the suction points. All piping and fittings installed are cast iron schedule 40 and clamped and supported according to the 2006 National Plumbing Code. Pipe was not supported by other building piping or ducts. Several examples of piping, clamps, and supports are shown in the following pictures.



Picture 4.1
Overhead Piping in the Fourth Floor Utility Room



Picture 4.2
Overhead Piping and Gate Valve on the First Floor



Picture 4.3
Riser Pipe Transitioning to Overhead Piping



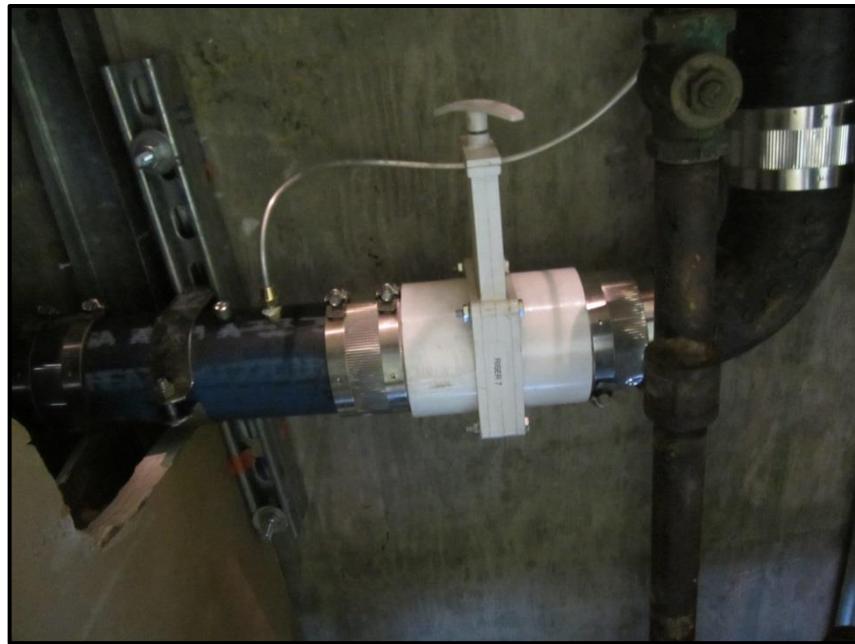
Picture 4.4
Sealing with Fire Rated Calk Around Pipe Penetration



Picture 4.5
Overhead Pipe T Connection

5. Gate Valves

Inline slide valves were installed for all suction points. All gate valves are currently in the 100% open position.



Picture 5.1
Gate Valve Installed in Over Head Piping (Closed in Picture During Installation)

6. Blower Installation

There is one roof mounted blower installed, as noted on the as-built drawings. The blower is a Cincinnati Fan PB-14A direct drive radial blower, it is mounted to pressure treated 6in. x 6in. lumber. The blower was specified based on diagnostic testing of the suction points. After the suction points were completed sealed, and the riser pipes were joined together, the system was field tested with the originally specified blower. Based on the final test it was decided that a higher airflow, lower vacuum blower would perform more efficiently given the sub slab fill characteristics. The picture below shows the field calibration of the dynamic control system using the current roof mounted radial blower being field tested during start up.



Picture 6.1
Roof Mounted Radial Blower being Field Tested with Bolometer

7. Blower Wiring, Panels, and Breakers

One dedicated breaker was used to power the 220 volt direct drive blower and a second 110 volt dedicated breaker was used to supply power to the remote monitoring and dynamic controls panel. The breakers are labeled “ASD” and have orange labels with the text “Radon Fan Circuit Do Not Power Off” affixed to them. The PB-14A Radial Blower is controlled by a Lenze Variable Frequency Drive (VFD) located in the electrical room on the second floor. The VFD can be used to adjust the static vacuum applied by the radial blower to achieve specified sub slab pressure differential requirements and manage electrical power consumption. The system was commissioned at 60Hz and the VFD is currently being controlled via the Vapor Dynamics, dynamic controls system.



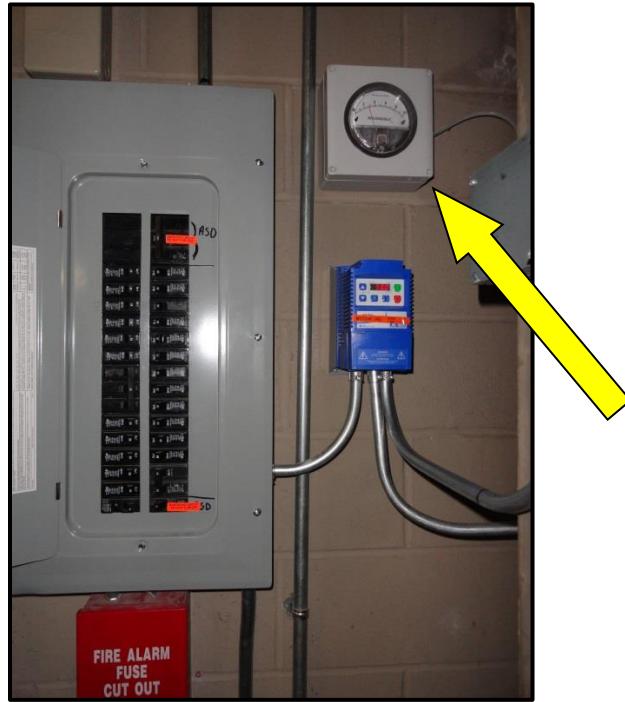
Picture 7.1
Labeled Circuit Breaker For Blower and System Electronics



Picture 7.2
Lenze VFD

8. Low Pressure Sensors and Light Alarm Panel

A Magnehelic was installed to indicate the static vacuum generated by the system. The Magnehelic is located in the Electric Room adjacent to the VFD and electric panel.



Picture 8.1
Alarm Panel with Magnehelic

9. System Labeling

Labels were installed on system components that read “Active Soil Depressurization System, Do Not Alter.” At least every 20 feet of exposed contaminant vent pipe length has a label. All labels are readable from three feet away. See picture below for labeling installed on vent piping.



Picture 9.1
Labeled Piping, System Components and Remote Monitoring Sensors

The remote monitoring system monitors the total performance of the vapor intrusion mitigation system and is comprised of the following components:

- Sub Slab Vacuum (8 sensors)
- Individual Riser Vacuum (7 sensors)
- Total System Static Vacuum (1 sensor)
- Total System Airflow (1 sensor and 1 inline pitot tube)
- System Power Consumption (taken from VFD)

Sub slab probes were installed below the slab at the locations indicated on the as built drawings. $\frac{1}{4}$ inch polyethylene vacuum tubing was routed from the probes to the sensors installed in electrical boxes mounted above the hallway drop ceiling. There is no exposed vacuum tubing in any walls or ceilings. All polyethylene tubing is routed in metal electrical conduit, where conduit is not used stainless steel tubing was used in place of polyethylene.



Picture 10.1
Installing Sub Slab Pressure Probes



Picture 10.2
Conduit Shielded Sub Slab Vacuum Tube Routed Through Wall Frames



Picture 10.3

Vapor Dynamics Panel for Remote Monitoring and Dynamic Controls in Rear of Stationary Store

10. Remote Monitoring and Dynamic Controls

The following system functions can be monitored remotely using the client login:

- Total System static vacuum
- Total System Airflow
- System power consumption
- Energy savings when using dynamic controls
- Individual Riser Vacuum
- Sub slab vacuum

The dynamic controls system is currently set to maintain a sub slab vacuum level at PB#5 (the lowest measured pressure probe) of 0.01 inches of water column. If any sub slab sensor drops below 0.008 inches of water column, Vapor Dynamics will be immediately alerted and Clean Vapor will be notified. The sub slab set point can be changed at any time by Clean Vapor at the request of GZA. GZA's remote login can be viewed by accessing the following website and using the following username and password:

<http://vapor.btechinc.com:8088/main/web/applet/client/Skeleton>

Username: GZA

Password: GZA (this can be changed once logged in)

Please Note: the login url will be changing within the next few weeks as we update our server. You will receive an email notification when the url has changed.

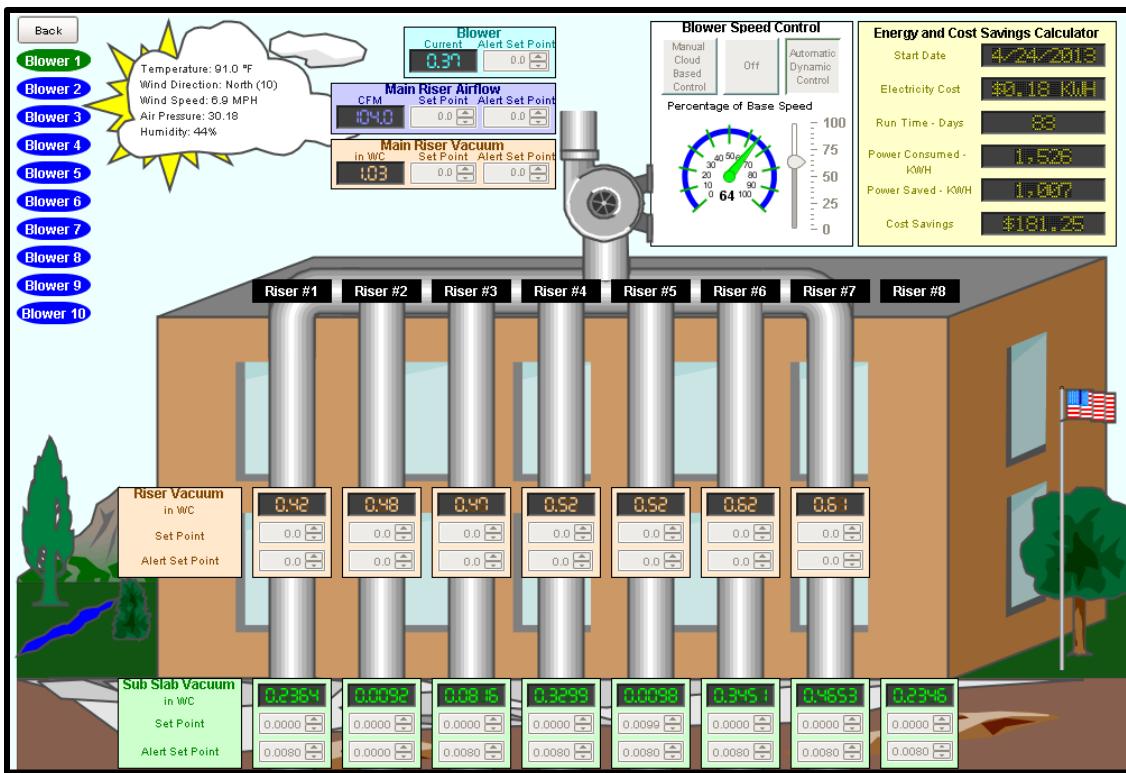
The remote login enables GZA to view all of their active sites being managed by Clean Vapor in one place. The first year of GZA's remote monitoring login has been included and begins on the day of report submission. GZA will be contacted by a representative from Vapor Dynamics to continue monitoring prior to the one year anniversary.

11. Operations and Maintenance

Vapor Intrusion Mitigation Systems should be inspected quarterly for the first year and annually thereafter. All maintenance on an (ASD) system should be performed by qualified maintenance personnel. Due to the installation of the remote monitoring system at this site, if no abnormalities are observed and if the system is operating within the intended performance range inspections may be performed on an annual basis only.

The following are the items to be checked on an annual basis:

- **Sealing:** Floor and wall penetration sealing should remain in good condition, and all openings should be sealed. If floor caulking is damaged or missing, system performance could be compromised.
- **Pipe:** Pipe should be checked to ensure no damage or leaks have occurred. It is recommended that the main conveyance pipe that runs overhead in the first floor hallway be inspected. Additionally, the common riser pipe should be inspected in each floor's utility closet.
- **Blower:** The blower should be checked for any visual signs of damage.
- **VFD:** The Lenze Variable Frequency Drive shall be inspected for any visual signs of damage and to ensure no error codes are being displayed.
- **Gate Valves:** Gate valves should be visually inspected for cracks. The position of each gate valve should be recorded to ensure no changes have been made. The position should be recorded as the approximate percentage open.
- **Dynamic Control and Sensor Values:** At the time of the inspection the annual system performance summary as reported by the dynamic controls should be reviewed and included in the annual report.



Picture 11.1
Remote Login Screenshot

Operations and Maintenance Annual Checklist:

System Component	Date	Condition/Reading	Date	Condition/Reading	Date	Condition/Reading
Sealing	7/9/2013	New				
Pipe	7/9/2013	New				
Blowers	7/9/2013	New				

Gate Valve	Date	Position	Date	Position	Date	Position
SP#1	7/9/2013	100%				
SP#2	7/9/2013	100%				
SP#3	7/9/2013	100%				
SP#4	7/9/2013	100%				
SP#5	7/9/2013	100%				
SP#6	7/9/2013	100%				
SP#7	7/9/2013	100%				

Please Contact Clean Vapor, LLC at (908) 362-5616 to provide you with a quote for your Annual Inspection.

12. As-Built Drawings (larger scale drawings sent separately with report)

□C□□E S□L
DEP□ESS□□□□□□N SYS□EM
33□NEP□□NE □□EN□E
BROOKLYN, NEW YORK

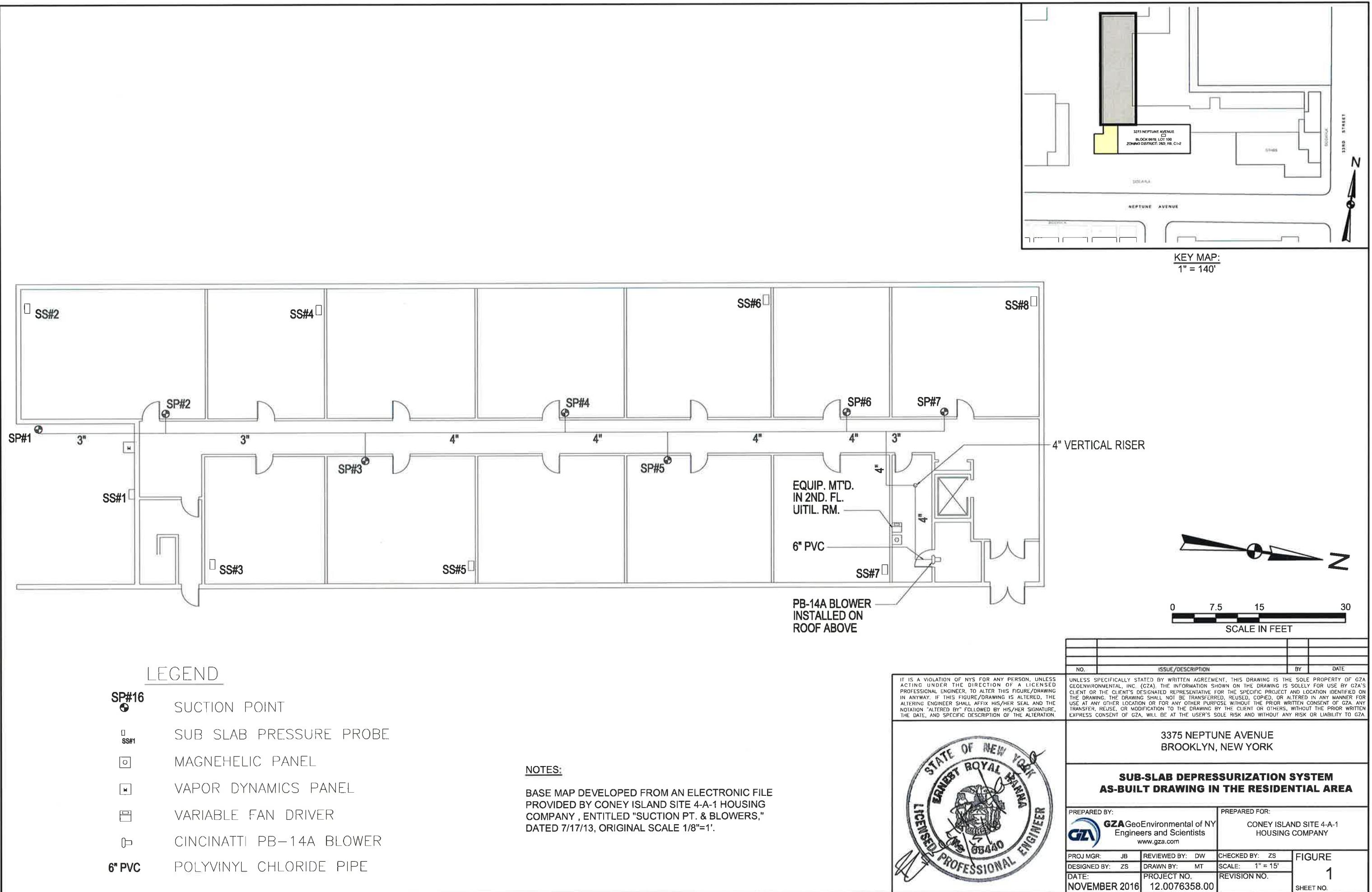
July 1□ 2013

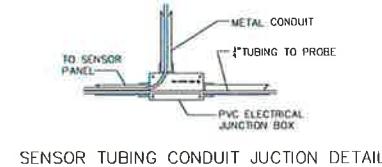
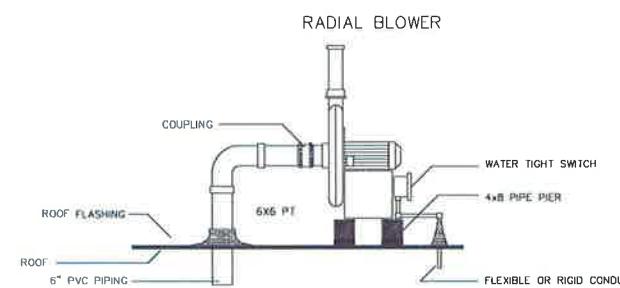
D□□□ □NG L□S□
C Cover
1 □s-Built Plans
2 Mechanical Details



CLEAN VAPOR LLC

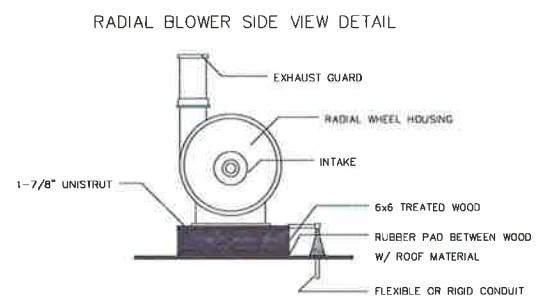
P.O. BOX 688, BLAIRSTOWN, NEW JERSEY 07825
Ph 908 362-5616 Fax 908 362-5433 www.cleanvapor.com



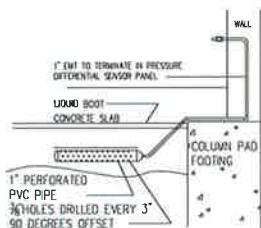


RADIAL BLOWER

SENSOR TUBING CONDUIT JUNCTION DETAIL

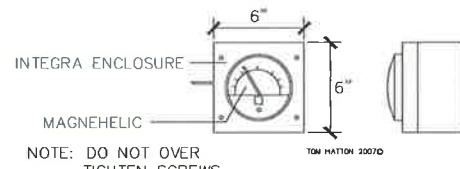


RADIAL BLOWER SIDE VIEW DETAIL

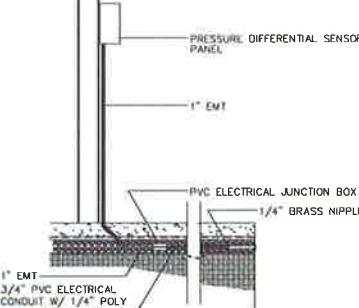
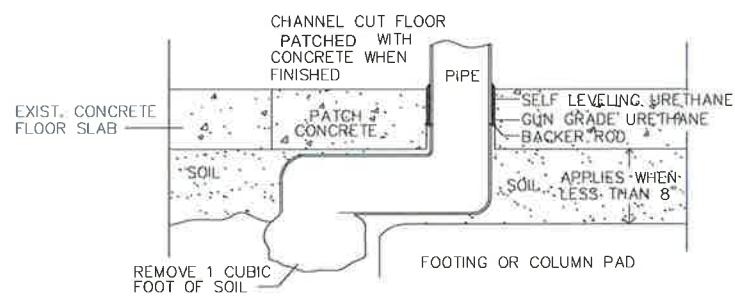


SOIL VACUUM PROBE DETAIL

MAGNEHELIC AND PROTECTIVE BOX ENCLOSURE DETAIL

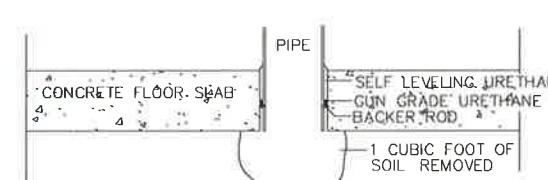


SUCTION POINT DETAIL AT FOOTER



MONITORING DETAIL

SUCTION POINT DETAIL



EQUIPMENT SCHEDULE

Vapor Vent Piping
Cast Iron Schedule 40 Pipe and Collars

Piping Supports and Hardware
3" and 4" Hanging Pipe Supports
Swivel ring or standard bolt type clevis
Adjustable band hanger
Double Expansion Anchors
3/8" threaded rod
1/2" threaded rod
Assorted bolts, nuts & washers
3" Pipe Secured to Concrete Floor or Wall
Slotted Conduit Channel
Conduit Clamps
Assorted bolts, nuts & washers

Vapor Blower
CINCINNATI PB-14A
4" to 6" rubber boots with stainless steel hose clamps
6" to 6" rubber boots with stainless steel hose clamps

Blower Support Frame
1 5/8" C-Profile Galvanized Unistrut
MSQ-2 Two Hole 90 degree Angle Connector
MSQ-4 Four Hole 90 degree Angle Connector
MSQ Pushbutton fastening bolt
Pipe Pier style supports for roof contact

Air Flow Regulator Valves
3" Gate Valves

Sealing Materials
Urethane sealant complies with Federal Specification TT-S-00230C, following Mameco, Inc. urethane caulking sealant was used:

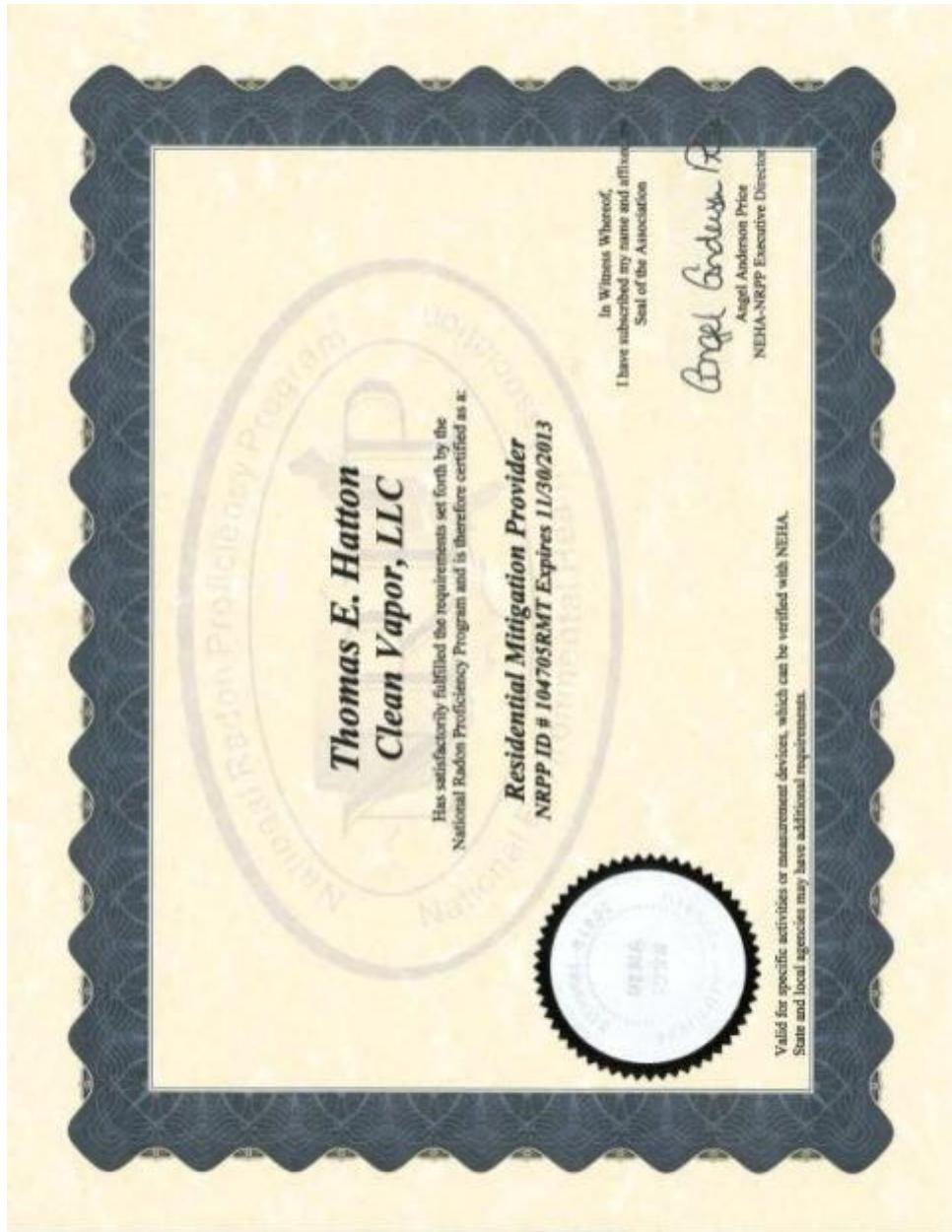
Vulkem
Fire Protection
Fire stopping Caulk

Low Pressure Sensors
Setra
Model 265 (17)

Magnehelic, Dwyer Instruments Inc.
Remote Monitor & Panel, Vapor Dynamics.
Pito Tube, Dwyer Instruments Inc.

NO.	ISSUE/DESCRIPTION	BY	DATE
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3375 NEPTUNE AVENUE BROOKLYN, NEW YORK			
SUB-SLAB DEPRESSURIZATION SYSTEM MECHANICAL DETAILS IN THE RESIDENTIAL AREA			
PREPARED BY:  GZA GeoEnvironmental of NY Engineers and Scientists www.gza.com		PREPARED FOR: CONEY ISLAND SITE 4-A-1 HOUSING COMPANY	
PROJ MGR: JB	REVIEWED BY: DW	CHECKED BY: ZS	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: NOT TO SCALE	2
DATE: NOVEMBER 2016	PROJECT NO. 12.0076358.00	REVISION NO.	SHEET NO. 1

13.Mitigation Licenses





STATE OF NEW JERSEY
Department of Environmental Protection-Radon Section
PO Box 415, Trenton, NJ 08625-0415

HEREBY CERTIFIES THE GOOD STANDING OF

THOMAS HATTON
2 ARTIST VIEW LN
BLAIRSTOWN NJ 07825-2400

AS A: RADON MITIGATION SPECIALIST

06/07/2012	thru	06/07/2013
Effective Date		Expiration Date
MIS10245		
CERTIFICATION NUMBER		

Patricia J. Hulker
MANAGER

THIS CERTIFICATION HAS BEEN ISSUED IN ACCORDANCE WITH
N.J.A.C. 7.28-27 AND THE CONDITIONS SET FORTH IN YOUR APPLICATION
PLEASE INFORM THE DEP OF ANY ADDRESS CHANGE.
CARRY YOUR CURRENT CERTIFICATE IN YOUR WALLET
FOR IDENTIFICATION PURPOSES

DOC# 120479460



STATE OF NEW JERSEY
Department of Environmental Protection-Radon Section
PO Box 415, Trenton, NJ 08625-0415

HEREBY CERTIFIES THE GOOD STANDING OF

THOMAS HATTON
2 ARTIST VIEW LN
BLAIRSTOWN NJ 07825-2400

AS A: RADON MEASUREMENT SPECIALIST

05/17/2012	thru	05/17/2013
Effective Date		Expiration Date
MES10245		
CERTIFICATION NUMBER		

Patricia J. Hulker

STATE OF NEW JERSEY			
DEPARTMENT OF ENVIRONMENTAL PROTECTION			
HEREBY CERTIFIES THE GOOD STANDING OF:			
THOMAS HATTON			
2 ARTIST VIEW LN			
BLAIRSTOWN NJ 07825-2400			
AS A: RADON MITIGATION SPECIALIST			
MIS10245	06/07/2012	thru	06/07/2013
Expiration Date			
PLEASE INFORM THE DEP OF ANY ADDRESS CHANGE.			

PLEASE DETACH HERE
IF YOUR CERTIFICATE IS LOST
PLEASE NOTIFY:

NJDEP - RADON SECTION
PO BOX 415
TRENTON, NJ 08625-0415
(609) 984-5425

STATE OF NEW JERSEY			
DEPARTMENT OF ENVIRONMENTAL PROTECTION			
HEREBY CERTIFIES THE GOOD STANDING OF:			
THOMAS HATTON			
2 ARTIST VIEW LN			
BLAIRSTOWN NJ 07825-2400			
AS A: RADON MEASUREMENT SPECIALIST			
MES10245	05/17/2012	thru	05/17/2013
Expiration Date			
PLEASE INFORM THE DEP OF ANY ADDRESS CHANGE.			

PLEASE DETACH HERE
IF YOUR CERTIFICATE IS LOST
PLEASE NOTIFY:

14. Technical Specification and Warranties

14.1. *Cincinnati Fan Radial Blower*



FAN SELECTION And PERFORMANCE

Your Cincinnati Fan Representative:
Adam Conley
Systech Design Inc
300 North Pottstown Pike Suite 220
Exton PA 19341
610-363-5290 Phone
610-524-7355 Fax
aconley@systech-design.com

Monday, April 29, 2013

Job Name: SYSTECH DESIGN/DONALDSON
Reference: Coney Island Quote: 240822

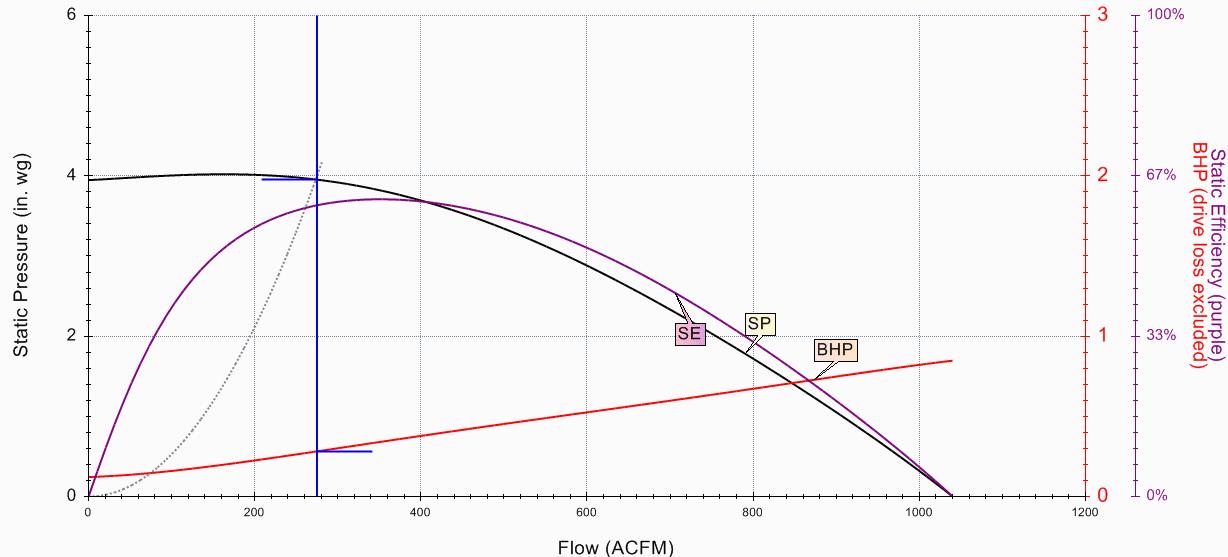
Operating Requirements

Volume, ACFM	275
Static Pressure, in. wg	4.0
Density, lb./ft. ³	0.075
Operating Temperature, °F	70
AMCA Arrangement No.	4
Motor Frequency, Hz	60
Start-Up Temperature, °F	70

Fan Selection and Specifications

Model	PB-14A
Fan RPM	1,750
Wheel Description	14-3/4 X 4 Radial
Wheel Width, %	100%
Wheel Diameter, in.	14.75
Inlet Diameter, in.	7.00
Outlet Velocity, ft./min.	1,393
Fan BHP	0.28
Static Efficiency, %	60.5%
Cold Start BHP	0.28
Construction Class	N/A
	Suggested Motor HP: 0.33

Cincinnati Fan PB-14A 14-3/4 X 4 Radial Wheel (Full Width) @ 1,750 RPM
Rating Point: 275 ACFM @ 4.0 in. wg SP, 0.075 lb./ft.³ Density, 0.28 BHP, 7.0 in. Inlet





APPENDIX C
ANALYTICAL LABORATORY REPORT



ANALYTICAL REPORT

Lab Number:	L1318236
Client:	GZA GeoEnvironmental, Inc. 55 Lane Road Suite 407 Fairfield, NJ 07004
ATTN:	Brett Engard
Phone:	(973) 774-3300
Project Name:	3375 NEPTUNE AVE
Project Number:	12.0076112.00
Report Date:	09/23/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LA00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1318236-01	SVE-1	BROOKLYN, NY	09/16/13 13:31

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

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 Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. 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. 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEX data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples 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 Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Case Narrative (continued)

REISSUE

Report Submission

This report replaces the report previously issued on September 17, 2013. At the request of the client this report has been revised to report data by TO-15 SIM for select compounds.

Volatile Organics in Air

Canisters were released from the laboratory on September 16, 2013. The canister certification results are provided as an addendum.

Samples L1318236-01 and WG636794-5 Duplicate The presence of Vinyl Acetate could not be determined in this sample due to a non-target compound interfering with the identification and quantification of this compound.

Samples L1318236-01 and WG636794-5 Duplicate results for Acetone and Tetrahydrofuran should be considered estimated due to co-elution with a non-target peak.

TO15-SIM

The WG637222-4 Method Blank has concentrations above the reporting limits for Hexachlorobutadiene. Since the sample was non-detect for this target analyte, no further actions were taken. The results of the original analysis are reported.

The method blank, WG637222-4, has reportable amounts of 1,4-Dichlorobenzene. Associated field sample results are B qualified.

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 Christopher J. Anderson

Title: Technical Director/Representative

Date: 09/23/13

AIR

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

SAMPLE RESULTS

Lab ID:	L1318236-01	Date Collected:	09/16/13 13:31
Client ID:	SVE-1	Date Received:	09/16/13
Sample Location:	BROOKLYN, NY	Field Prep:	Not Specified
Matrix:	Soil_Vapor		
Anaytical Method:	101,TO15-SIM		
Analytical Date:	09/17/13 13:23		
Analyst:	RY		

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Vinyl chloride	0.065	0.020	--	0.166	0.051	--		1
1,3-Butadiene	0.073	0.020	--	0.161	0.044	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Carbon tetrachloride	0.055	0.020	--	0.346	0.126	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	0.033	0.020	--	0.177	0.107	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
1,4-Dichlorobenzene	0.033	0.020	--	0.198	0.120	--	B	1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	115		60-140
bromochloromethane	109		60-140
chlorobenzene-d5	108		60-140



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

SAMPLE RESULTS

Lab ID:	L1318236-01	Date Collected:	09/16/13 13:31
Client ID:	SVE-1	Date Received:	09/16/13
Sample Location:	BROOKLYN, NY	Field Prep:	Not Specified
Matrix:	Soil_Vapor		
Anaytical Method:	48,TO-15		
Analytical Date:	09/17/13 13:23		
Analyst:	AR		

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Propylene	0.625	0.500	--	1.08	0.861	--		1
Dichlorodifluoromethane	0.426	0.200	--	2.11	0.989	--		1
Chloromethane	0.351	0.200	--	0.725	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	208	2.50	--	392	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	44.9	1.00	--	107	2.38	--		1
Trichlorofluoromethane	0.569	0.200	--	3.20	1.12	--		1
Isopropanol	25.6	0.500	--	62.9	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Methylene chloride	1.30	1.00	--	4.52	3.47	--		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	2.27	0.200	--	9.00	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	0.200	--	ND	0.704	--		1
2-Butanone	2.14	0.200	--	6.31	0.590	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

SAMPLE RESULTS

Lab ID: L1318236-01 Date Collected: 09/16/13 13:31
 Client ID: SVE-1 Date Received: 09/16/13
 Sample Location: BROOKLYN, NY Field Prep: Not Specified

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab							
Ethyl Acetate	7.07	0.500	--	25.5	1.80	--	1
Chloroform	0.578	0.200	--	2.82	0.977	--	1
Tetrahydrofuran	0.621	0.200	--	1.83	0.590	--	1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--	1
n-Hexane	9.15	0.200	--	32.2	0.705	--	1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--	1
Benzene	5.61	0.200	--	17.9	0.639	--	1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--	1
Cyclohexane	3.14	0.200	--	10.8	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	11.6	0.200	--	54.2	0.934	--	1
Heptane	6.71	0.200	--	27.5	0.820	--	1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.820	--	1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--	1
Toluene	48.2	0.200	--	182	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	0.969	0.200	--	6.57	1.36	--	1
Chlorobenzene	ND	0.200	--	ND	0.921	--	1
Ethylbenzene	8.10	0.200	--	35.2	0.869	--	1
p/m-Xylene	21.9	0.400	--	95.1	1.74	--	1
Bromoform	ND	0.200	--	ND	2.07	--	1



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

SAMPLE RESULTS

Lab ID: L1318236-01 Date Collected: 09/16/13 13:31
Client ID: SVE-1 Date Received: 09/16/13
Sample Location: BROOKLYN, NY Field Prep: Not Specified

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab							
Styrene	0.437	0.200	--	1.86	0.852	--	1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--	1
o-Xylene	7.78	0.200	--	33.8	0.869	--	1
4-Ethyltoluene	1.13	0.200	--	5.56	0.983	--	1
1,3,5-Trimethylbenzene	1.25	0.200	--	6.15	0.983	--	1
1,2,4-Trimethylbenzene	4.28	0.200	--	21.0	0.983	--	1
Benzyl chloride	ND	0.200	--	ND	1.04	--	1
1,3-Dichlorobenzene	0.675	0.200	--	4.06	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
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	99		60-140

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/17/13 12:38

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG636794-4							
Propylene	ND	0.500	--	ND	0.861	--	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
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	2.50	--	ND	4.71	--	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	0.500	--	ND	1.23	--	1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--	1
Methylene chloride	ND	1.00	--	ND	3.47	--	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	0.200	--	ND	0.704	--	1
2-Butanone	ND	0.200	--	ND	0.590	--	1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--	1
Ethyl Acetate	ND	0.500	--	ND	1.80	--	1



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/17/13 12:38

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG636794-4							
Chloroform	ND	0.200	--	ND	0.977	--	1
Tetrahydrofuran	ND	0.200	--	ND	0.590	--	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	0.200	--	ND	0.820	--	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



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/17/13 12:38

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG636794-4							
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
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
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	1

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 101,TO15-SIM
Analytical Date: 09/17/13 12:38

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
MCP Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG637222-4							
Vinyl chloride	ND	0.020	--	ND	0.051	--	1
1,3-Butadiene	ND	0.020	--	ND	0.044	--	1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--	1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--	1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--	1
1,4-Dioxane	ND	0.100	--	ND	0.360	--	1
Trichloroethene	ND	0.020	--	ND	0.107	--	1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--	1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--	1
Bromoform	ND	0.020	--	ND	0.207	--	1
1,4-Dichlorobenzene	0.032	0.020	--	0.192	0.120	--	1
Hexachlorobutadiene	0.053	0.050	--	0.565	0.533	--	1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG636794-3								
Chlorodifluoromethane	86		-		70-130	-		
Propylene	97		-		70-130	-		
Propane	66	Q	-		70-130	-		
Dichlorodifluoromethane	83		-		70-130	-		
Chloromethane	96		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	93		-		70-130	-		
Methanol	76		-		70-130	-		
Vinyl chloride	101		-		70-130	-		
1,3-Butadiene	98		-		70-130	-		
Butane	60	Q	-		70-130	-		
Bromomethane	104		-		70-130	-		
Chloroethane	99		-		70-130	-		
Ethyl Alcohol	80		-		70-130	-		
Dichlorofluoromethane	61	Q	-		70-130	-		
Vinyl bromide	107		-		70-130	-		
Acrolein	108		-		70-130	-		
Acetone	104		-		70-130	-		
Acetonitrile	90		-		70-130	-		
Trichlorofluoromethane	106		-		70-130	-		
iso-Propyl Alcohol	87		-		70-130	-		
Acrylonitrile	87		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG636794-3								
Pentane	86		-		70-130	-		
Ethyl ether	80		-		70-130	-		
1,1-Dichloroethene	100		-		70-130	-		
tert-Butyl Alcohol	85		-		70-130	-		
Methylene chloride	101		-		70-130	-		
3-Chloropropene	97		-		70-130	-		
Carbon disulfide	100		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	108		-		70-130	-		
trans-1,2-Dichloroethene	88		-		70-130	-		
1,1-Dichloroethane	95		-		70-130	-		
Methyl tert butyl ether	90		-		70-130	-		
Vinyl acetate	78		-		70-130	-		
2-Butanone	89		-		70-130	-		
cis-1,2-Dichloroethene	108		-		70-130	-		
Ethyl Acetate	94		-		70-130	-		
Chloroform	102		-		70-130	-		
Tetrahydrofuran	83		-		70-130	-		
2,2-Dichloropropane	87		-		70-130	-		
1,2-Dichloroethane	97		-		70-130	-		
n-Hexane	84		-		70-130	-		
Isopropyl Ether	82		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG636794-3								
Ethyl-Tert-Butyl-Ether	78		-		70-130	-		
1,1,1-Trichloroethane	94		-		70-130	-		
1,1-Dichloropropene	87		-		70-130	-		
Benzene	90		-		70-130	-		
Carbon tetrachloride	98		-		70-130	-		
Cyclohexane	83		-		70-130	-		
Tertiary-Amyl Methyl Ether	79		-		70-130	-		
Dibromomethane	88		-		70-130	-		
1,2-Dichloropropane	88		-		70-130	-		
Bromodichloromethane	90		-		70-130	-		
1,4-Dioxane	91		-		70-130	-		
Trichloroethene	103		-		70-130	-		
2,2,4-Trimethylpentane	85		-		70-130	-		
Methyl methacrylate	71		-		70-130	-		
Heptane	79		-		70-130	-		
cis-1,3-Dichloropropene	95		-		70-130	-		
4-Methyl-2-pentanone	82		-		70-130	-		
trans-1,3-Dichloropropene	81		-		70-130	-		
1,1,2-Trichloroethane	97		-		70-130	-		
Toluene	105		-		70-130	-		
1,3-Dichloropropane	96		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG636794-3								
2-Hexanone	93		-		70-130	-		
Dibromochloromethane	102		-		70-130	-		
1,2-Dibromoethane	111		-		70-130	-		
Butyl Acetate	101		-		70-130	-		
Octane	93		-		70-130	-		
Tetrachloroethene	114		-		70-130	-		
1,1,1,2-Tetrachloroethane	102		-		70-130	-		
Chlorobenzene	110		-		70-130	-		
Ethylbenzene	104		-		70-130	-		
p/m-Xylene	104		-		70-130	-		
Bromoform	101		-		70-130	-		
Styrene	107		-		70-130	-		
1,1,2,2-Tetrachloroethane	100		-		70-130	-		
o-Xylene	113		-		70-130	-		
1,2,3-Trichloropropane	92		-		70-130	-		
Nonane (C9)	86		-		70-130	-		
Isopropylbenzene	103		-		70-130	-		
Bromobenzene	96		-		70-130	-		
o-Chlorotoluene	105		-		70-130	-		
n-Propylbenzene	104		-		70-130	-		
p-Chlorotoluene	95		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG636794-3								
4-Ethyltoluene	93		-		70-130	-		
1,3,5-Trimethylbenzene	105		-		70-130	-		
tert-Butylbenzene	102		-		70-130	-		
1,2,4-Trimethylbenzene	109		-		70-130	-		
Decane (C10)	91		-		70-130	-		
Benzyl chloride	81		-		70-130	-		
1,3-Dichlorobenzene	114		-		70-130	-		
1,4-Dichlorobenzene	115		-		70-130	-		
sec-Butylbenzene	101		-		70-130	-		
p-Isopropyltoluene	95		-		70-130	-		
1,2-Dichlorobenzene	115		-		70-130	-		
n-Butylbenzene	103		-		70-130	-		
1,2-Dibromo-3-chloropropane	96		-		70-130	-		
Undecane	97		-		70-130	-		
Dodecane (C12)	102		-		70-130	-		
1,2,4-Trichlorobenzene	126		-		70-130	-		
Naphthalene	108		-		70-130	-		
1,2,3-Trichlorobenzene	111		-		70-130	-		
Hexachlorobutadiene	120		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	<i>LCS</i> <i>%Recovery</i>	<i>Qual</i>	<i>LCSD</i> <i>%Recovery</i>	<i>Qual</i>	<i>%Recovery</i> <i>Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <i>Limits</i>
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG637222-3								
Vinyl chloride	98		-		70-130	-		
1,3-Butadiene	107		-		70-130	-		
1,1-Dichloroethane	97		-		70-130	-		
1,2-Dichloroethane	97		-		70-130	-		
Carbon tetrachloride	108		-		70-130	-		
1,4-Dioxane	96		-		50-150	-		
Trichloroethene	99		-		70-130	-		
1,1,2-Trichloroethane	100		-		70-130	-		
1,2-Dibromoethane	107		-		70-130	-		
Bromoform	97		-		70-130	-		
1,4-Dichlorobenzene	108		-		70-130	-		
Hexachlorobutadiene	121		-		50-150	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG636794-5 QC Sample: L1318236-01 Client ID: SVE-1						
Propylene	0.625	0.740	ppbV	17		25
Dichlorodifluoromethane	0.426	0.507	ppbV	17		25
Chloromethane	0.351	0.417	ppbV	17		25
Freon-114	ND	ND	ppbV	NC		25
Vinyl chloride	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethanol	208	232	ppbV	11		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	44.9	51.3	ppbV	13		25
Trichlorofluoromethane	0.569	0.624	ppbV	9		25
Isopropanol	25.6	29.7	ppbV	15		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
Methylene chloride	1.30	1.40	ppbV	7		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	ND	ND	ppbV	NC		25
Freon-113	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	2.27	2.52	ppbV	10		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG636794-5 QC Sample: L1318236-01 Client ID: SVE-1					
1,1-Dichloroethane	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
Vinyl acetate	ND	ND	ppbV	NC	25
2-Butanone	2.14	2.25	ppbV	5	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
Ethyl Acetate	7.07	7.86	ppbV	11	25
Chloroform	0.578	0.612	ppbV	6	25
Tetrahydrofuran	0.621	0.566	ppbV	9	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
n-Hexane	9.15	10.2	ppbV	11	25
1,1,1-Trichloroethane	ND	ND	ppbV	NC	25
Benzene	5.61	6.34	ppbV	12	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Cyclohexane	3.14	3.58	ppbV	13	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
Trichloroethene	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	11.6	12.8	ppbV	10	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG636794-5 QC Sample: L1318236-01 Client ID: SVE-1					
Heptane	6.71	7.65	ppbV	13	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
Toluene	48.2	57.6	ppbV	18	25
2-Hexanone	ND	ND	ppbV	NC	25
Dibromochloromethane	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
Tetrachloroethene	0.969	1.15	ppbV	17	25
Chlorobenzene	ND	ND	ppbV	NC	25
Ethylbenzene	8.10	9.64	ppbV	17	25
p/m-Xylene	21.9	26.1	ppbV	18	25
Bromoform	ND	ND	ppbV	NC	25
Styrene	0.437	0.503	ppbV	14	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
o-Xylene	7.78	8.52	ppbV	9	25
4-Ethyltoluene	1.13	1.35	ppbV	18	25
1,3,5-Trimethylbenzene	1.25	1.50	ppbV	18	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG636794-5 QC Sample: L1318236-01 Client ID: SVE-1					
1,2,4-Trimethylbenzene	4.28	5.16	ppbV	19	25
Benzyl chloride	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	0.675	0.815	ppbV	19	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG637222-5 QC Sample: L1318236-01 Client ID: SVE-1					
Vinyl chloride	0.065	0.070	ppbV	7	25
1,3-Butadiene	0.073	0.084	ppbV	14	25
1,1-Dichloroethane	ND	ND	ppbV	NC	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
Carbon tetrachloride	0.055	0.061	ppbV	10	25
1,4-Dioxane	ND	ND	ppbV	NC	25
Trichloroethene	0.033	0.036	ppbV	9	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	0.033B	0.032	ppbV	3	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25

Project Name: 3375 NEPTUNE AVE

Serial_No:09231309:04

Project Number: 12.0076112.00

Lab Number: L1318236

Report Date: 09/23/13

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 (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1318236-01	SVE-1	0209	#90 SV	09/16/13	93144		-	-	-	Pass	80	85	6
L1318236-01	SVE-1	1829	6.0L Can	09/16/13	93144	L1317608-05	Pass	-29.4	-4.3	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Serial_No:09231309:04

Lab Number: L1317608
Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
Sample Location: Field Prep: Not Specified
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 09/10/13 19:37
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
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	2.50	--	ND	4.71	--		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	0.200	--	ND	0.434	--		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
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Serial_No:09231309:04

Lab Number: L1317608
Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
Sample Location: Field Prep: Not Specified

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air - Mansfield Lab							
Methylene chloride	ND	1.00	--	ND	3.47	--	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	0.200	--	ND	0.704	--	1
2-Butanone	ND	0.200	--	ND	0.590	--	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	0.200	--	ND	0.590	--	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
1,1,1-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
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



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1317608

Project Number: CANISTER QC BAT

Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
 Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
 Sample Location: Field Prep: Not Specified

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air - Mansfield Lab							
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	0.200	--	ND	0.820	--	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
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



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Serial_No:09231309:04

Lab Number: L1317608
Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
Sample Location: Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
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

Results	Qualifier	Units	RDL	Dilution Factor
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Tentatively Identified Compounds

No Tentatively Identified Compounds



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Serial_No:09231309:04

Lab Number: L1317608
Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
Sample Location: Field Prep: Not Specified

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab							

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	83		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	81		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Serial_No:09231309:04

Lab Number: L1317608
Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
Sample Location: Field Prep: Not Specified
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 09/10/13 19:37
Analyst: RY

Parameter	Results	ppbV		ug/m3		Qualifer	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Dichlorodifluoromethane	ND	0.050	--	ND	0.247	--	1
Chloromethane	ND	0.500	--	ND	1.03	--	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	0.020	--	ND	0.053	--	1
Acetone	ND	2.00	--	ND	4.75	--	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	1.00	--	ND	3.47	--	1
Freon-113	ND	0.050	--	ND	0.383	--	1
Halothane	ND	0.050	--	ND	0.404	--	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	0.020	--	ND	0.072	--	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
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--	1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1317608

Project Number: CANISTER QC BAT

Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
 Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
 Sample Location: Field Prep: Not Specified

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Bromodichloromethane	ND	0.020	--	0.134	--		1
1,4-Dioxane	ND	0.100	--	0.360	--		1
Trichloroethene	ND	0.020	--	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	0.109	--		1
Toluene	ND	0.050	--	0.188	--		1
Dibromochloromethane	ND	0.020	--	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	0.154	--		1
Tetrachloroethene	ND	0.020	--	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	0.137	--		1
Chlorobenzene	ND	0.020	--	0.092	--		1
Ethylbenzene	ND	0.020	--	0.087	--		1
p/m-Xylene	ND	0.040	--	0.174	--		1
Bromoform	ND	0.020	--	0.207	--		1
Styrene	ND	0.020	--	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	0.137	--		1
o-Xylene	ND	0.020	--	0.087	--		1
Isopropylbenzene	ND	0.500	--	2.46	--		1
4-Ethyltoluene	ND	0.020	--	0.098	--		1
1,3,5-Trimethylbenzene	ND	0.020	--	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	0.120	--		1
sec-Butylbenzene	ND	0.500	--	2.74	--		1
p-Isopropyltoluene	ND	0.500	--	2.74	--		1
1,2-Dichlorobenzene	ND	0.020	--	0.120	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Serial_No:09231309:04

Lab Number: L1317608
Report Date: 09/23/13

Air Canister Certification Results

Lab ID: L1317608-05 Date Collected: 09/09/13 10:28
Client ID: CAN 976 SHELF 48 Date Received: 09/09/13
Sample Location: Field Prep: Not Specified

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL	MDL	
Volatile Organics in Air by SIM - Mansfield Lab							
n-Butylbenzene	ND	0.500	--	ND	2.74	--	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	83		60-140
bromochloromethane	87		60-140
chlorobenzene-d5	83		60-140

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

N/A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1318236-01A	Canister - 6 Liter	N/A	N/A		Y	Absent	MCP-TO15-SIM(30),TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

GLOSSARY

Acronyms

- 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).
- 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.
- 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.
- 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.
- NI - Not Ignitable.
- 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.

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.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- 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.
- 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.
- 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.

Report Format: Data Usability Report



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

Data Qualifiers

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- 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.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report



Project Name: 3375 NEPTUNE AVE
Project Number: 12.0076112.00

Lab Number: L1318236
Report Date: 09/23/13

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

101 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA/625/R-96/010b:January 1999) with QC Requirements & Performance Standards for the Analysis of TO-15 under the Massachusetts Contingency Plan, WSC-CAM-IXB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical 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 Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical 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 Alpha Analytical.

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.



Certificate/Approval Program Summary

Last revised August 3, 2012 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable).

Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Titanium, Vanadium, Zinc, Total Organic Carbon, Corrosivity, TCLP 1311, SPLP 1312. **Organic Parameters:** PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045. **Organic Parameters:** EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020A, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, **Organic Parameters:** EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C, 8270D.)

Solid & Chemical Materials (Inorganic Parameters: EPA 1311, 3050B, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. **Organic Parameters:** EPA 3540C, 3570, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C, 8270D.)

Biological Tissue (Inorganic Parameters: EPA 6020A. **Organic Parameters:** EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C, 8270D.)

Air & Emissions (EPA TO-15.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 180.1, 1631E, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B, 3020A, . **Organic Parameters:** EPA 3510C, 3630C, 3640A, 3660B, 8081B, 8082A, 8270C, 8270D, 8015D.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 1311, 3050B, 3051A, 6020A, 7471B, 9040B, 9045C. **Organic Parameters:** SW-846 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8015D, 8082A, 8081B.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3020A, SM2320B, SM2540D, 2540G, 4500H-B, EPA 180.1, 1631E, SW-846 7470A, 9040C, 6020A, 9050A. **Organic Parameters:** SW-846 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D)

Solid & Chemical Materials (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 6020A, 7471B, 7474, 9040B, 9040C, 9045C, 9045D, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8081B, 8082A, 8270C, 8270D, 8015D.)

Atmospheric Organic Parameters (EPA 3C, TO-15, TO-10A, TO-13A-SIM.)

Biological Tissue (Inorganic Parameters: SW-846 6020A. Organic Parameters: SW-846 8270C, 8270D, 3510C, 3570, 3610C, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. **NELAP Accredited**.

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, 6020A, 1631E, 7470A, 9050A, EPA 180.1, 3020A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 3510C.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 6020A, 7471B, 7474, 9040C, 9045D. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 1311, 3050B, 3580A, 3570, 3051A.)

Air & Emissions (EPA TO-15, TO-10A.)

Pennsylvania Certificate/Lab ID: 68-02089 **NELAP Accredited**

Non-Potable Water (Inorganic Parameters: 1312, 1631E, 180.1, 3020A, 6020A, 7470A, 9040B, 9050A, 2320B, 2540D, 2540G, SM4500H+-B. Organic Parameters: 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 3051A, 6020A, 7471B, 7474 9040B, 9045C, 9060. Organic Parameters: EPA 3050B, 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8270D, 8081B, 8015D, 8082A.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. **NELAP Accredited via NJ-DEP**.

Refer to NJ-DEP Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. **NELAP Accredited**.

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8081, 8082.)

Air (Organic Parameters): EPA TO-15)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460194. **NELAP Accredited**.

Non-Potable Water (Inorganic Parameters: EPA 3020A, 6020A, 245.7, 9040B. Organic Parameters: EPA 3510C, 3640A, 3660B, 3665A, 8270C, 8270D, 8082A, 8081B, 8015D.)

Solid & Chemical Materials (Inorganic Parameters: EPA 6020A, 7470A, 7471B, 9040B, 9045C, 3050B, 3051, 9060. Organic Parameters: EPA 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 3570, 8270C, 8270D, 8081B, 8082A, 8015D.)

Washington State Department of Ecology Certificate/Lab ID: C954. **Non-Potable Water (Inorganic Parameters)**: SM2540D, 180.1, 1631E.)

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 7474, 9045C, 9050A, 9060. Organic Parameters: EPA 8081, 8082, 8015, 8270.)

U.S. Army Corps of Engineers

Department of Defense, L-A-B Certificate/Lab ID: L2217.01.

Non-Potable Water (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH, 8082A, 8081B, 8015D-SHC, 8015D.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH 8082A, 8081B, 8015D-SHC, 8015D.)

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl. **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, 2-Methylnaphthalene, 1-Methylnaphthalene.



APPENDIX D
AR-1 INPUT AND OUTPUT

AirGuide-1

Former Gateway French Cleaners 3375 Neptune Avenue Coney Island, B
 EMISSION POINT : Reg 2 Reg TOTAL DATE : 9/19/13

STACK PARAMETERS

Height Above Structure :	8. feet
Stack Height :	60. feet
Inside Diameter :	6. inches
Exit Temperature :	70. degrees fahrenheit
Exit Velocity :	12.58 feet/second
Exit Flow Rate :	148.00 ACFM

STACK LOCATION & BUILDING DIMENSIONS

Shortest Distance	
From Building To Property Line :	45. feet
Building Width :	50. feet
Building Length :	100. feet
Direction Building Length is Facing :	350.0 degrees
UTME :	584518. meters
UTMN :	4492382. meters
UTM ZONE :	18

Press < Enter > if all data is OK: -
 Type ANY CHARACTER and then Press < Enter > if you want to change data.

AirGuide-1

Former Gateway French Cleaners 3375 Neptune Avenue Coney Island, B
 EMISSION POINT : Reg 2 Reg TOTAL DATE : 9/19/13

Chemical Abstract Series NUMBER	CONTAMINANT EMISSIONS DATA			Page Number
	EMISSIONS LBS./HOUR	EMISSIONS LBS./YEAR	EMISSIONS TONS/YEAR	
*****	*****	*****	*****	
00015-07-1	0.0000001030	0.009	0.000	
00025-71-8	0.0000005790	0.051	0.000	
00074-87-3	0.0000000831	0.007	0.000	
00064-17-5	0.0000410000	3.590	0.002	
00067-64-1	0.0001410000	1.240	0.001	
00075-69-4	0.0000009990	0.088	0.000	

Press < Enter > if all data is OK: -
 Type ANY CHARACTER and then Press < Enter > if you want to change data.

AirGuide-1

Former Gateway French Cleaners 3375 Neptune Avenue Coney Island, B
 EMISSION POINT : Reg 2 Reg TOTAL DATE : 9/19/13

Chemical Abstract Series NUMBER	CONTAMINANT EMISSIONS DATA			Page Number
	EMISSIONS LBS./HOUR	EMISSIONS LBS./YEAR	EMISSIONS TONS/YEAR	
*****	*****	*****	*****	
00067-63-0	0.0000005980	0.752	0.000	
00025-09-2	0.0000008720	0.076	0.000	
00156-60-5	0.000019800	0.174	0.000	
00078-93-3	0.0000010300	0.091	0.000	
00141-78-6	0.0000051000	0.447	0.000	
00067-66-3	0.0000007650	0.067	0.000	

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AirGuide-1

Former Gateway French Cleaners 3375 Neptune Avenue Coney Island, B
EMISSION POINT : Reg 2 Reg TOTAL DATE : 9/19/13 Max

		CONTAMINANT EMISSIONS DATA		Page Number
Chemical Abstract Series NUMBER	EMISSIONS LBS./HOUR	EMISSIONS LBS./YEAR	EMISSIONS TONS/YEAR	
00109-99-9	0.000003000	0.026	0.000	
00110-54-3	0.000063000	0.552	0.000	
00071-43-2	0.000031000	0.278	0.000	
00110-62-7	0.000020600	0.181	0.000	
00540-84-1	0.000141000	1.230	0.001	
00142-82-5	0.000062600	0.548	0.000	

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Type ANY CHARACTER and then Press < Enter > if you want to change data.

AirGuide-1

Former Gateway French Cleaners 3375 Neptune Avenue Coney Island, B
EMISSION POINT : Reg 2 Reg TOTAL DATE : 9/19/13

		CONTAMINANT EMISSIONS DATA		Page Number
Chemical Abstract Series NUMBER	EMISSIONS LBS./HOUR	EMISSIONS LBS./YEAR	EMISSIONS TONS/YEAR	
00108-88-3	0.000381000	3.348	0.002	
00127-18-4	0.000024700	0.217	0.000	
00100-41-4	0.000084900	0.744	0.000	
01330-20-7	0.000229000	2.010	0.001	
00100-42-5	0.000004400	0.039	0.000	
00095-47-6	0.0000081500	0.714	0.000	

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Type ANY CHARACTER and then Press < Enter > if you want to change data.

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Former Gateway French Cleaners 3375 Neptune Avenue Coney Island, B
EMISSION POINT : Reg 2 Reg TOTAL DATE : 9/19/13

		CONTAMINANT EMISSIONS DATA		Page Number
Chemical Abstract Series NUMBER	EMISSIONS LBS./HOUR	EMISSIONS LBS./YEAR	EMISSIONS TONS/YEAR	
00622-96-8	0.000015200	0.133	0.000	
00108-67-8	0.000016800	0.147	0.000	
00095-63-6	0.000057300	0.502	0.000	
00541-73-1	0.000013600	0.119	0.000	

Press < Enter > if all data is OK: -
Type ANY CHARACTER and then Press < Enter > if you want to change data.

AirGuide-1

CONTAMINANT EMISSIONS SUMMARY

9/19/13
Page 1

CAS NUMBER	CONTAMINANT NAME	NUM. OF EPs PER CONTAM.	EMISSIONS (lbs/hour)	EMISSIONS (lbs/year)
00064-17-5	ETHANOL	1	0.0004100	3.59000
00067-63-0	ISOPROPYL ALCOHOL	1	0.0000859	0.75200
00067-64-1	ACETONE	1	0.0001410	1.24000
00067-66-3	CHLOROFORM	1	0.0000077	0.06700
00071-43-2	BENZENE	1	0.0000318	0.27800
00074-87-3	CHLOROMETHANE	1	0.0000008	0.00728
00075-09-2	DICHLOROMETHANE	1	0.0000087	0.07640
00075-69-4	TRICHLOROFLUOROMETHA	1	0.0000100	0.08750
00075-71-8	DICHLORODIFLUOROMETH	1	0.0000058	0.05080
00078-93-3	METHYL ETHYL KETONE	1	0.0000103	0.09050
00095-47-6	XYLENE, O-	1	0.0000815	0.71400
00095-63-6	TRIMETHYL BENZENE 1.	1	0.0000573	0.50200

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CONTAMINANT EMISSIONS SUMMARY

9/19/13
Page 2

CAS NUMBER	CONTAMINANT NAME	NUM. OF EPs PER CONTAM.	EMISSIONS (lbs/hour)	EMISSIONS (lbs/year)
00100-41-4	ETHYL BENZENE	1	0.0000849	0.74400
00100-42-5	STYRENE	1	0.0000044	0.03850
00108-67-8	MESITYLENE	1	0.0000168	0.14700
00108-88-3	TOLUENE	1	0.0003810	3.34000
00109-99-9	TETRAHYDROFURAN	1	0.0000030	0.02630
00110-54-3	HEXANE	1	0.0000630	0.55200
00110-87-7		1	0.0000206	0.18100
00115-07-1	PROPYLENE	1	0.0000010	0.00904
00127-18-4	TETRACHLOROETHYLENE	1	0.0000247	0.21700
00141-78-6	ETHYL ACETATE	1	0.0000510	0.44700
00142-82-5	HEPTANE, N-	1	0.0000626	0.54800
00156-60-5	DICHLOROETHYLENEtran	1	0.0000198	0.17400

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Type "X" and then Press < Enter > to EXIT and return to ANALYSIS MENU.

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CONTAMINANT EMISSIONS SUMMARY

9/19/13
Page 3

CAS NUMBER	CONTAMINANT NAME	NUM. OF EPs PER CONTAM.	EMISSIONS (lbs/hour)	EMISSIONS (lbs/year)
00540-84-1	ISO-OCTANE	1	0.0001410	1.23000
00541-73-1	DICHLOROBENZENE, m-	1	0.0000136	0.11900
00622-96-8	4-ETHYLtoluene	1	0.0000152	0.13300
01330-20-7	XYLENE,M,O&P MIXT.	1	0.0002290	2.01000
SUMMARY TOTALS		28	0.0019824	17.37132

Press < Enter > to continue scanning :
Type "X" and then Press < Enter > to EXIT and return to ANALYSIS MENU.

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CONTAMINANT ASSESSMENT SUMMARY OF DAR-1 ANALYSIS 9/19/13
Page 1

CAS NUMBER	SHORT-TERM		CAVITY		POINT or AREA SOURCE	
	AGC ug/m3	MAXIMUM (Cav.Pt.Area) % OF SGC	ACTUAL ANNUAL % OF AGC	POTENTIAL ANNUAL % OF AGC	ACTUAL ANNUAL % OF AGC	
00064-17-5	45000.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00067-63-0	7000.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00067-64-1	30000.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00067-66-3	0.043000000	0.0013	0.1031	0.0932	0.0933	
00071-43-2	0.130000000	0.0006	0.1415	0.1282	0.1281	
00074-87-3	90.000000000	0.0000	0.0000	0.0000	0.0000	
00075-09-2	2.100000000	0.0000	0.0024	0.0022	0.0022	
00075-69-4	5000.0000000	0.0000	0.0000	0.0000	0.0000	
00075-71-8	12000.0000000	0.0000	0.0000	0.0000	0.0000	
00078-93-3	5000.0000000	0.0000	0.0000	0.0000	0.0000	
00095-47-6	100.000000000	0.0005	0.0005	0.0004	0.0004	
00095-63-6	6.000000000	0.0000	0.0055	0.0050	0.0050	

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Type "X" and then Press < Enter > to EXIT and return to MENU.

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CONTAMINANT ASSESSMENT SUMMARY OF DAR-1 ANALYSIS 9/19/13
Page 2

CAS NUMBER	SHORT-TERM		CAVITY		POINT or AREA SOURCE	
	AGC ug/m3	MAXIMUM (Cav.Pt.Area) % OF SGC	ACTUAL ANNUAL % OF AGC	POTENTIAL ANNUAL % OF AGC	ACTUAL ANNUAL % OF AGC	
00100-41-4	1000.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00100-42-5	1000.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00108-67-8	290.000000000	0.0000	0.0000	0.0000	0.0000	0.0000
00108-88-3	5000.0000000	0.0003	0.0000	0.0000	0.0000	0.0000
00109-99-9	350.000000000	0.0000	0.0000	0.0000	0.0000	0.0000
00110-54-3	700.000000000	0.0000	0.0001	0.0000	0.0000	0.0000
00110-82-7	6000.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00115-07-1	3000.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00127-18-4	1.000000000	0.0006	0.0144	0.0129	0.0130	
00141-78-6	3400.0000000	0.0000	0.0000	0.0000	0.0000	
00142-82-5	3900.0000000	0.0000	0.0000	0.0000	0.0000	
00156-60-5	63.000000000	0.0000	0.0002	0.0002	0.0002	

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Type "X" and then Press < Enter > to EXIT and return to MENU.

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CONTAMINANT ASSESSMENT SUMMARY OF DAR-1 ANALYSIS 9/19/13
Page 3

CAS NUMBER	SHORT-TERM		CAVITY		POINT or AREA SOURCE	
	AGC ug/m3	MAXIMUM (Cav.Pt.Area) % OF SGC	ACTUAL ANNUAL % OF AGC	POTENTIAL ANNUAL % OF AGC	ACTUAL ANNUAL % OF AGC	
00540-84-1	3300.0000000	0.0000	0.0000	0.0000	0.0000	0.0000
00541-73-1	10.000000000	0.0000	0.0008	0.0007	0.0007	
00622-96-8	0.100000000	0.0000	0.0880	0.0796	0.0796	
01330-20-7	100.000000000	0.0014	0.0013	0.0012	0.0012	
SUMMARY TOTALS		0.0049	0.3579	0.3239	0.3239	

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CONTAMINANT IMPACT SUMMARY OF DAR-1 ANALYSIS 9/19/13
Page 1

CAS NUMBER	AGC ug/m3	SHORT-TERM		CAVITY		POINT or AREA SOURCE	
		MAXIMUM (Cav,Pt,Area) ug/m3	ACTUAL ANNUAL ug/m3	MAXIMUM (Cav,Pt,Area) ug/m3	ACTUAL ANNUAL ug/m3	POTENTIAL ANNUAL ug/m3	ACTUAL ANNUAL ug/m3
00064-17-5	45000.0000000	0.105253860	0.002374923	0.002148339	0.002149836		
00067-63-0	7000.0000000	0.022051968	0.000497477	0.000450103	0.000450328		
00067-64-1	30000.0000000	0.036197059	0.000820308	0.000738819	0.000742562		
00067-66-3	0.043000000	0.001963883	0.000044323	0.000040085	0.000040122		
00071-43-2	0.130000000	0.008163592	0.000183908	0.000166627	0.000166478		
00074-87-3	90.0000000	0.000213332	0.000004816	0.000004354	0.000004360		
00075-09-2	2.100000000	0.002238570	0.000050542	0.000045692	0.000045751		
00075-69-4	5000.0000000	0.002564600	0.000057885	0.000052346	0.000052399		
00075-71-8	12000.0000000	0.001486390	0.000033606	0.000030339	0.000030421		
00078-93-3	5000.0000000	0.002644182	0.000059869	0.000053970	0.000054195		
00095-47-6	100.0000000	0.020922413	0.000472338	0.000427048	0.000427572		
00095-63-6	6.000000000	0.014709869	0.0000332092	0.0000300243	0.0000300618		

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AirGuide-1

CONTAMINANT IMPACT SUMMARY OF DAR-1 ANALYSIS 9/19/13
Page 2

CAS NUMBER	AGC ug/m3	SHORT-TERM		CAVITY		POINT or AREA SOURCE	
		MAXIMUM (Cav,Pt,Area) ug/m3	ACTUAL ANNUAL ug/m3	MAXIMUM (Cav,Pt,Area) ug/m3	ACTUAL ANNUAL ug/m3	POTENTIAL ANNUAL ug/m3	ACTUAL ANNUAL ug/m3
00100-41-4	1000.0000000	0.021795251	0.000492185	0.000444863	0.000445537		
00100-42-5	1000.0000000	0.001129554	0.000025469	0.000023055	0.000023055		
00108-67-8	290.0000000	0.004312841	0.000097246	0.000088030	0.000088030		
00108-88-3	5000.0000000	0.097809076	0.002209539	0.001996384	0.002000126		
00109-99-9	350.0000000	0.000770150	0.000017398	0.000015720	0.000015749		
00110-54-3	700.0000000	0.016173154	0.000365169	0.000330111	0.000330560		
00110-82-7	6000.0000000	0.005288364	0.000119738	0.000107941	0.000108390		
00115-07-1	3000.0000000	0.000264418	0.000005980	0.000005397	0.000005414		
00127-18-4	1.0000000	0.006340903	0.000143554	0.000129424	0.000129948		
00141-78-6	3400.0000000	0.013092553	0.000295708	0.000267232	0.000267682		
00142-82-5	3900.0000000	0.016070466	0.000362523	0.000328015	0.000328164		
00156-60-5	63.0000000	0.005082991	0.000115108	0.000103749	0.000104198		

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Type "X" and then Press < Enter > to EXIT and return to MENU.

AirGuide-1

CONTAMINANT IMPACT SUMMARY OF DAR-1 ANALYSIS 9/19/13
Page 3

CAS NUMBER	AGC ug/m3	SHORT-TERM		CAVITY		POINT or AREA SOURCE	
		MAXIMUM (Cav,Pt,Area) ug/m3	ACTUAL ANNUAL ug/m3	MAXIMUM (Cav,Pt,Area) ug/m3	ACTUAL ANNUAL ug/m3	POTENTIAL ANNUAL ug/m3	ACTUAL ANNUAL ug/m3
00540-84-1	3300.0000000	0.036197059	0.000813692	0.000738819	0.000736573		
00541-73-1	10.0000000	0.003491347	0.000078723	0.000071262	0.000071262		
00622-96-8	0.100000000	0.003902094	0.000087985	0.000079646	0.000079646		
01330-20-7	100.0000000	0.058788132	0.001329692	0.001199926	0.001203669		

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AirGuide-1

EMISSION POINT AND CONTAMINANT IMPACT SUMMARY OF DAR-1 ANALYSIS 9/19/13

Page 1*

EMISSION POINT	CAS NUMBER	SHORT-TERM	CAVITY	POINT or AREA SOURCE	
		MAXIMUM (Cav.Pt.Area) ug/m3	ACTUAL ANNUAL ug/m3	POTENTIAL ANNUAL ug/m3	ACTUAL ANNUAL ug/m3
Reg 2 Reg TOTAL	00115-07-1	0.000264418	0.000005980	0.000005397	0.000005414
Reg 2 Reg TOTAL	00075-71-8	0.001486390	0.000033606	0.000030339	0.000030421
Reg 2 Reg TOTAL	00074-87-3	0.000213332	0.000004816	0.000004354	0.000004360
Reg 2 Reg TOTAL	00064-17-5	0.105253860	0.002374923	0.002148339	0.002149836
Reg 2 Reg TOTAL	00067-64-1	0.036197059	0.000820308	0.000738819	0.000742562
Reg 2 Reg TOTAL	00075-69-4	0.002564600	0.000057885	0.000052346	0.000052399
Reg 2 Reg TOTAL	00067-63-0	0.022051968	0.000497477	0.000450103	0.000450328
Reg 2 Reg TOTAL	00075-09-2	0.002238570	0.000050542	0.000045692	0.000045751
Reg 2 Reg TOTAL	00156-60-5	0.005082991	0.000115108	0.000103749	0.000104198
Reg 2 Reg TOTAL	00078-93-3	0.002644182	0.000059869	0.000053970	0.000054195
Reg 2 Reg TOTAL	00141-78-6	0.013092553	0.000295708	0.000267232	0.000267682
Reg 2 Reg TOTAL	00067-66-3	0.001963883	0.000044323	0.000040085	0.000040122

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Type "X" and then Press < Enter > to EXIT and return to MENU.

AirGuide-1

EMISSION POINT AND CONTAMINANT IMPACT SUMMARY OF DAR-1 ANALYSIS 9/19/13

Page 2*

EMISSION POINT	CAS NUMBER	SHORT-TERM	CAVITY	POINT or AREA SOURCE	
		MAXIMUM (Cav.Pt.Area) ug/m3	ACTUAL ANNUAL ug/m3	POTENTIAL ANNUAL ug/m3	ACTUAL ANNUAL ug/m3
Reg 2 Reg TOTAL	00109-99-9	0.000770150	0.000017398	0.000015720	0.000015749
Reg 2 Reg TOTAL	00110-54-3	0.016173154	0.000365169	0.000330111	0.000330560
Reg 2 Reg TOTAL	00071-43-2	0.008163592	0.000183908	0.000166627	0.000166478
Reg 2 Reg TOTAL	00110-82-7	0.005288364	0.000119738	0.000107941	0.000108390
Reg 2 Reg TOTAL	00540-84-1	0.036197059	0.000813692	0.000738819	0.000736573
Reg 2 Reg TOTAL	00142-82-5	0.016070466	0.000362523	0.000328015	0.000328164
Reg 2 Reg TOTAL	00108-88-3	0.097809076	0.002209539	0.001996384	0.002000126
Reg 2 Reg TOTAL	00127-18-4	0.006340903	0.000143554	0.000129424	0.000129948
Reg 2 Reg TOTAL	00100-41-4	0.021795251	0.000492185	0.000444863	0.000445537
Reg 2 Reg TOTAL	01330-20-7	0.058788132	0.001329692	0.001199926	0.001203669
Reg 2 Reg TOTAL	00100-42-5	0.001129554	0.000025469	0.000023055	0.000023055
Reg 2 Reg TOTAL	00095-47-6	0.020922413	0.000472338	0.000427048	0.000427572

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AirGuide-1

EMISSION POINT AND CONTAMINANT IMPACT SUMMARY OF DAR-1 ANALYSIS 9/19/13

Page 3*

EMISSION POINT	CAS NUMBER	SHORT-TERM	CAVITY	POINT or AREA SOURCE	
		MAXIMUM (Cav.Pt.Area) ug/m3	ACTUAL ANNUAL ug/m3	POTENTIAL ANNUAL ug/m3	ACTUAL ANNUAL ug/m3
Reg 2 Reg TOTAL	00622-96-8	0.003902094	0.000087985	0.000079646	0.000079646
Reg 2 Reg TOTAL	00108-67-8	0.004312841	0.000097246	0.000088030	0.000088030
Reg 2 Reg TOTAL	00095-63-6	0.014709869	0.000332092	0.000300243	0.000300618
Reg 2 Reg TOTAL	00541-73-1	0.003491347	0.0000878723	0.000071262	0.000071262
SUMMARY TOTALS		0.508918072	0.011491797	0.010387539	0.010402644

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Appendix I Permits and/or Permit Equivalent

APPENDIX I
PERMITS AND/OR PERMIT EQUIVALENT



Buildings

Work Permit Department of Buildings

Permit Number: 321244140-01-EW-MH

Issued: 03/23/2016

Expires: 02/01/2017

Address: BROOKLYN 3375 NEPTUNE AVENUE

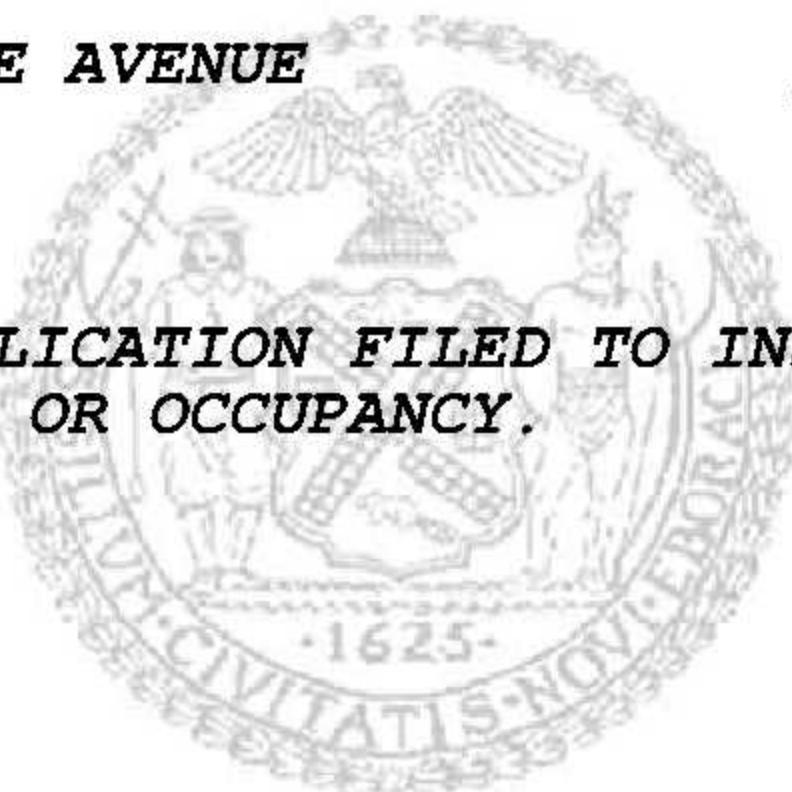
Issued to: DE BIN XIE

Business: SK ONE CONSTRUCTION INC

Contractor No: GC-606861

Description of Work:

ALTERATION TYPE 2 - MECH/HVAC APPLICATION FILED TO INSTALL A SUB SLAB DEPRESSURIZATION SYSTEM (SSDS). NO CHANGE IN USE, EGRESS, OR OCCUPANCY.



Review is requested under Building Code: 2014

SITE FILL: NOT APPLICABLE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

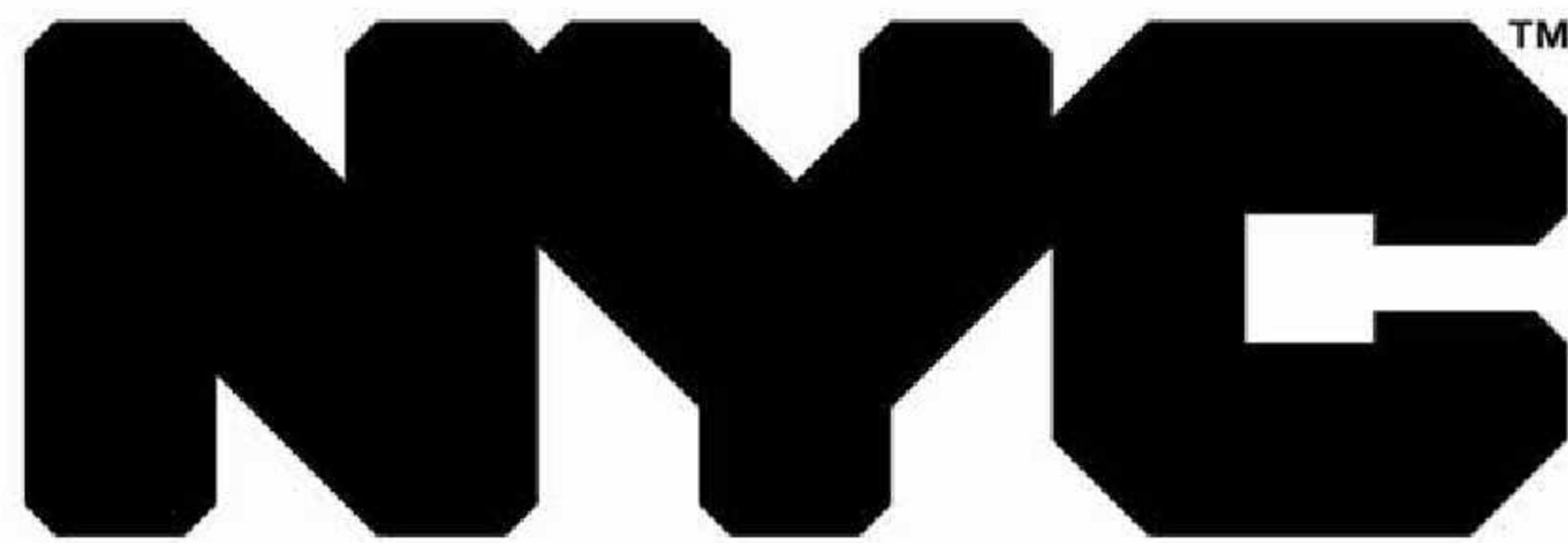


Commissioner of Buildings:

Rich Chandler

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 03/23/2016



Buildings

Work Permit Department of Buildings

Permit Number: 321244140-01-EW-OT

Issued: 03/23/2016

Expires: 02/01/2017

Address: BROOKLYN 3375 NEPTUNE AVENUE

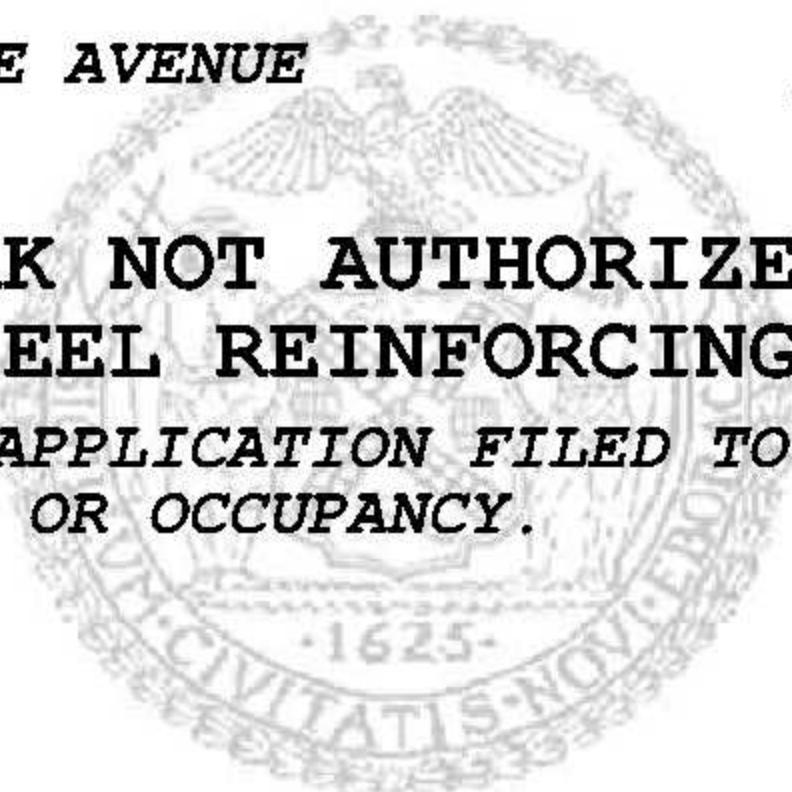
Issued to: DE BTN XIE

Business: SK ONE CONSTRUCTION INC

Contractor No: GC-606861

Description of Work: CONCRETE WORK NOT AUTHORIZED - CONCRETE PLACEMENT, FORMWORK, STEEL REINFORCING NOT PERMITTED.

ALTERATION TYPE 2 - GEN. CONSTR. APPLICATION FILED TO INSTALL A SUB SLAB DEPRESSURIZATION SYSTEM (SSDS). NO CHANGE IN USE, EGRESS, OR OCCUPANCY.



Review is requested under Building Code: 2014

SITE FILL: NOT APPLICABLE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:



Commissioner of Buildings:

Pink Chandler

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 03/23/2016

Appendix J Soil Vapor Mann-Kendall Analysis

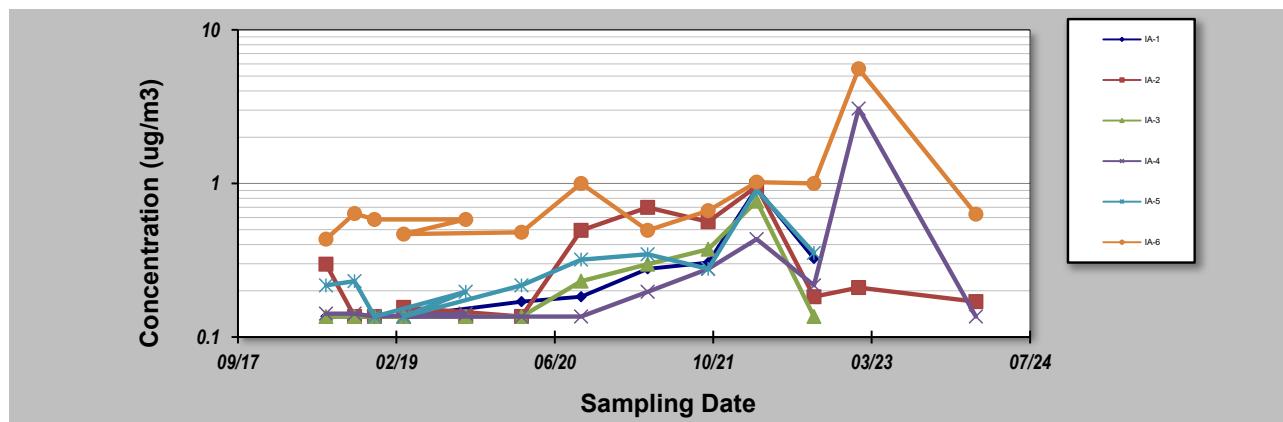
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **Tetrachloroethene (PCE)**
 Concentration Units: **ug/m³**

Sampling Point ID:		IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	
Sampling Event	Sampling Date	TETRACHLOROETHENE (PCE) CONCENTRATION (ug/m ³)						
1	6/27/2018	0.136		0.298	0.136	0.142	0.217	0.434
2	9/25/2018	0.136		0.136	0.136	0.142	0.231	0.637
3	11/27/2018	0.136		0.136	0.136	0.136	0.136	0.583
4	9/11/2019	0.136		0.136	0.136	0.142	0.197	0.583
5	2/27/2019	0.136		0.156	0.136	0.136	0.136	0.468
6	3/5/2020	0.17		0.136	0.136	0.136	0.217	0.481
7	9/9/2020	0.183		0.495	0.231	0.136	0.319	1
8	4/7/2021	0.278		0.698	0.298	0.197	0.346	0.495
9	10/15/2021	0.305		0.563	0.373	0.278	0.278	0.665
10	3/17/2022	0.929		0.956	0.766	0.434	0.909	1.02
11	9/14/2022	0.325		0.183	0.136	0.217	0.353	1
12	2/2/2023			0.21		3.07		5.58
13	2/7/2024			0.17		0.136		0.631
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.89	0.81	0.81	1.97	0.71	1.32		
Mann-Kendall Statistic (S):	43	24	26	23	31	36		
Confidence Factor:	>99.9%	91.8%	97.5%	90.8%	99.2%	98.5%		
Concentration Trend:	Increasing	Prob. Increasing	Increasing	Prob. Increasing	Increasing	Increasing		



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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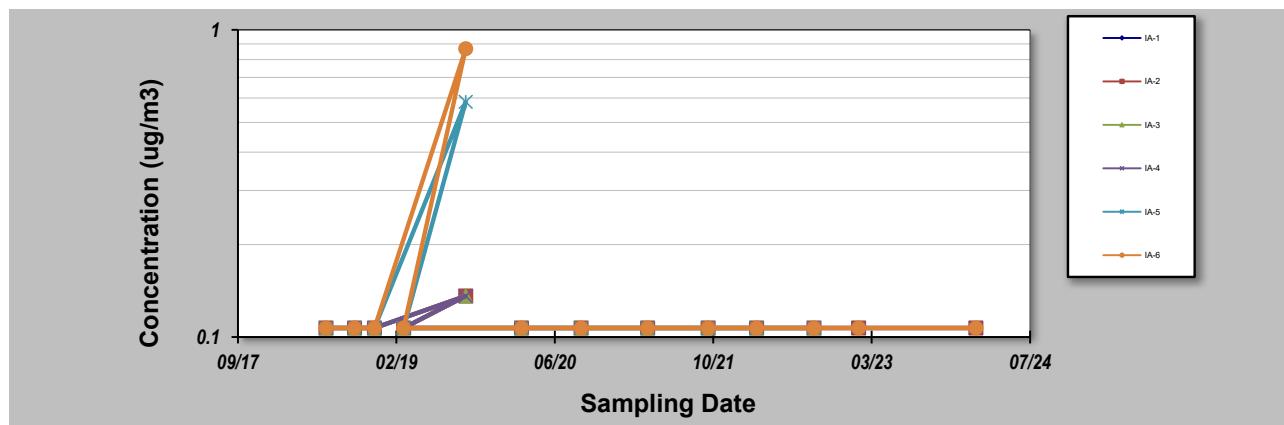
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **Trichloroethene (TCE)**
 Concentration Units: **ug/m³**

Sampling Point ID:		IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	
Sampling Event	Sampling Date	TRICHLOROETHENE (TCE) CONCENTRATION (ug/m ³)						
1	6/27/2018	0.107	0.107	0.107	0.107	0.107	0.107	
2	9/25/2018	0.107	0.107	0.107	0.107	0.107	0.107	
3	11/27/2018	0.107	0.107	0.107	0.107	0.107	0.107	
4	9/11/2019	0.136	0.136	0.136	0.136	0.583	0.868	
5	2/27/2019	0.107	0.107	0.107	0.107	0.107	0.107	
6	3/5/2020	0.107	0.107	0.107	0.107	0.107	0.107	
7	9/9/2020	0.107	0.107	0.107	0.107	0.107	0.107	
8	4/7/2021	0.107	0.107	0.107	0.107	0.107	0.107	
9	10/15/2021	0.107	0.107	0.107	0.107	0.107	0.107	
10	3/17/2022	0.107	0.107	0.107	0.107	0.107	0.107	
11	9/14/2022	0.107	0.107	0.107	0.107	0.107	0.107	
12	2/2/2023		0.107		0.107		0.107	
13	2/7/2024		0.107		0.107		0.107	
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.08	0.07	0.08	0.07	0.96	1.28		
Mann-Kendall Statistic (S):	-4	-6	-4	-6	-4	-6		
Confidence Factor:	59.0%	61.7%	59.0%	61.7%	59.0%	61.7%		
Concentration Trend:	Stable	Stable	Stable	Stable	Stable	No Trend		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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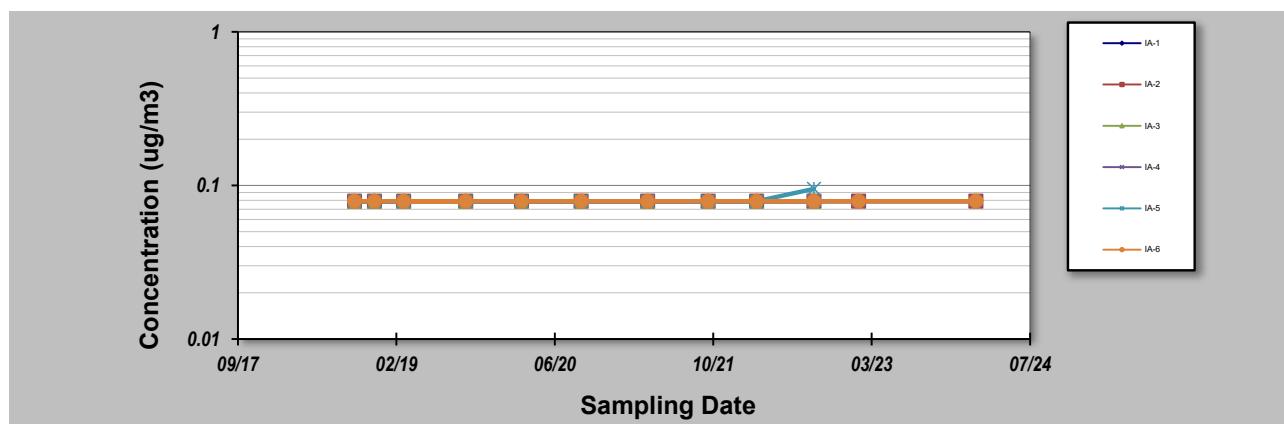
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: ***1,1-Dichloroethene (DCE)***
 Concentration Units: **ug/m³**

Sampling Point ID:		IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	
Sampling Event	Sampling Date	1,1-DICHLOROETHENE (DCE) CONCENTRATION (ug/m ³)						
1	9/25/2018	0.079	0.079	0.079	0.079	0.079	0.079	
2	11/27/2018	0.079	0.079	0.079	0.079	0.079	0.079	
3	9/11/2019	0.079	0.079	0.079	0.079	0.079	0.079	
4	2/27/2019	0.079	0.079	0.079	0.079	0.079	0.079	
5	3/5/2020	0.079	0.079	0.079	0.079	0.079	0.079	
6	9/9/2020	0.079	0.079	0.079	0.079	0.079	0.079	
7	4/7/2021	0.079	0.079	0.079	0.079	0.079	0.079	
8	10/15/2021	0.079	0.079	0.079	0.079	0.079	0.079	
9	3/17/2022	0.079	0.079	0.079	0.079	0.079	0.079	
10	9/14/2022	0.079	0.079	0.079	0.079	0.095	0.079	
11	2/2/2023		0.079		0.079		0.079	
12	2/7/2024		0.079		0.079		0.079	
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.00	0.00	0.00	0.00	0.07	0.00		
Mann-Kendall Statistic (S):	0	0	0	0	8	0		
Confidence Factor:	46.0%	45.1%	46.0%	45.1%	76.2%	45.1%		
Concentration Trend:	Stable	Stable	Stable	Stable	No Trend	Stable		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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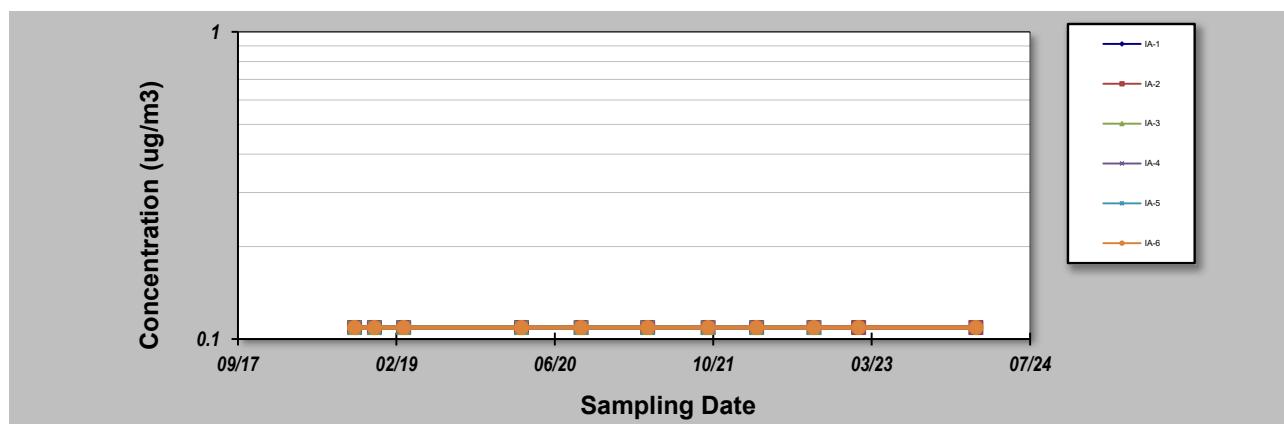
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **1,1,1-Trichloroethane (TCA)**
 Concentration Units: **ug/m³**

Sampling Point ID:		IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	
Sampling Event	Sampling Date	1,1,1-TRICHLOROETHANE (TCA) CONCENTRATION (ug/m ³)						
1	9/25/2018	0.109	0.109	0.109	0.109	0.109	0.109	
2	11/27/2018	0.109	0.109	0.109	0.109	0.109	0.109	
3	2/27/2019	0.109	0.109	0.109	0.109	0.109	0.109	
4	3/5/2020	0.109	0.109	0.109	0.109	0.109	0.109	
5	9/9/2020	0.109	0.109	0.109	0.109	0.109	0.109	
6	4/7/2021	0.109	0.109	0.109	0.109	0.109	0.109	
7	10/15/2021	0.109	0.109	0.109	0.109	0.109	0.109	
8	3/17/2022	0.109	0.109	0.109	0.109	0.109	0.109	
9	9/14/2022	0.109	0.109	0.109	0.109	0.109	0.109	
10	2/2/2023		0.109		0.109		0.109	
11	2/7/2024		0.109		0.109		0.109	
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Mann-Kendall Statistic (S):	0	0	0	0	0	0	0	
Confidence Factor:	46.0%	45.1%	46.0%	45.1%	46.0%	45.1%	45.1%	
Concentration Trend:	Stable	Stable	Stable	Stable	Stable	Stable	Stable	



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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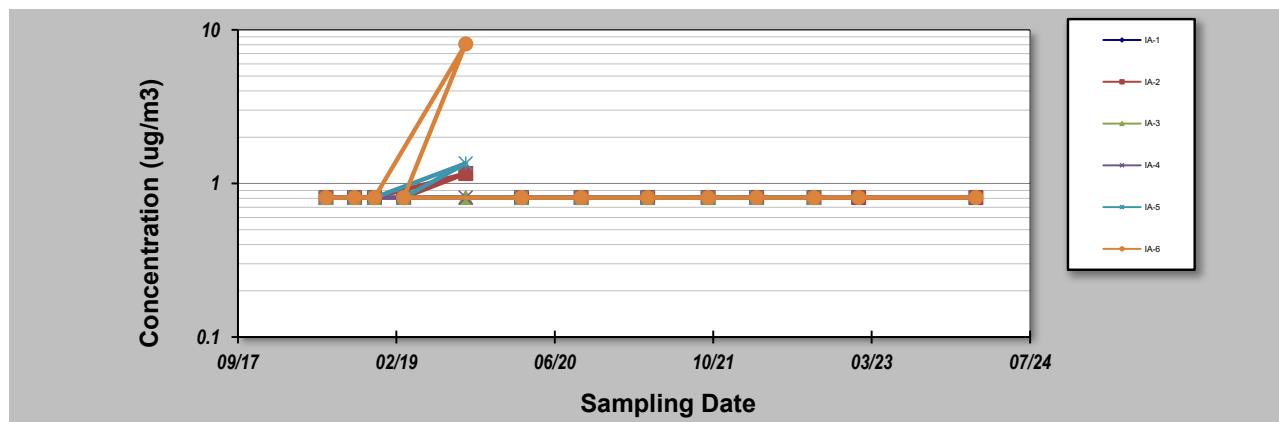
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: ***1,1-Dichloroethane (DCA)***
 Concentration Units: **ug/m³**

Sampling Point ID:		IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	
Sampling Event	Sampling Date	1,1-DICHLOROETHANE (DCA) CONCENTRATION (ug/m ³)						
1	6/27/2018	0.809	0.809	0.809	0.809	0.809	0.809	
2	9/25/2018	0.809	0.809	0.809	0.809	0.809	0.809	
3	11/27/2018	0.809	0.809	0.809	0.809	0.809	0.809	
4	9/11/2019	0.809	1.16	0.809	0.809	1.35	8.09	
5	2/27/2019	0.809	0.809	0.809	0.809	0.809	0.809	
6	3/5/2020	0.809	0.809	0.809	0.809	0.809	0.809	
7	9/9/2020	0.809	0.809	0.809	0.809	0.809	0.809	
8	4/7/2021	0.809	0.809	0.809	0.809	0.809	0.809	
9	10/15/2021	0.809	0.809	0.809	0.809	0.809	0.809	
10	3/17/2022	0.809	0.809	0.809	0.809	0.809	0.809	
11	9/14/2022	0.809	0.809	0.809	0.809	0.809	0.809	
12	2/2/2023		0.809		0.809		0.809	
13	2/7/2024		0.809		0.809		0.809	
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.00	0.12	0.00	0.00	0.19	1.47		
Mann-Kendall Statistic (S):	0	-6	0	0	-4	-6		
Confidence Factor:	45.1%	61.7%	45.1%	47.6%	59.0%	61.7%		
Concentration Trend:	Stable	Stable	Stable	Stable	Stable	No Trend		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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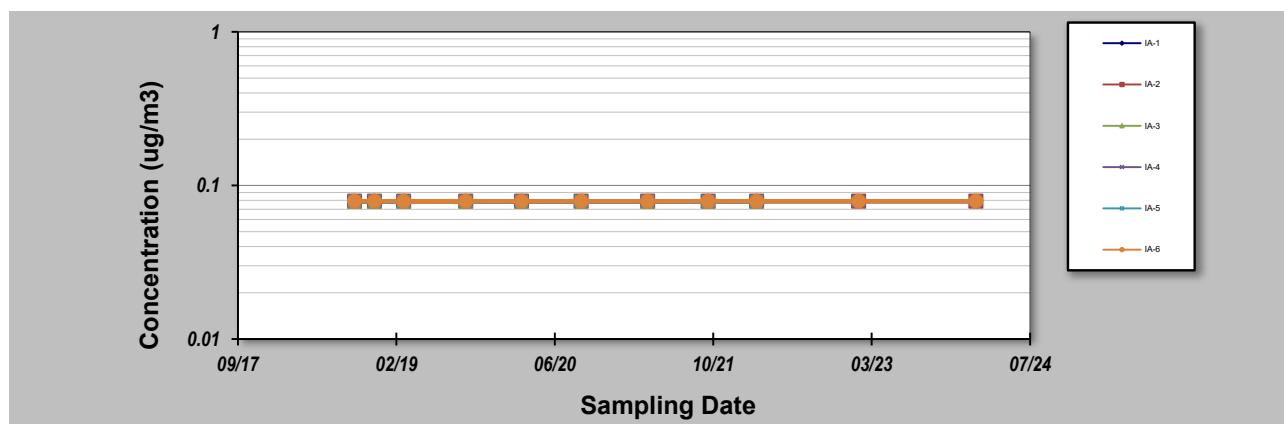
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **cis-1,2-Dichloroethene (DCE)**
 Concentration Units: **ug/m³**

Sampling Point ID:		IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	
Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE (DCE) CONCENTRATION (ug/m3)						
1	9/25/2018	0.079	0.079	0.079	0.079	0.079	0.079	
2	11/27/2018	0.079	0.079	0.079	0.079	0.079	0.079	
3	9/11/2019	0.079	0.079	0.079	0.079	0.079	0.079	
4	2/27/2019	0.079	0.079	0.079	0.079	0.079	0.079	
5	3/5/2020	0.079	0.079	0.079	0.079	0.079	0.079	
6	9/9/2020	0.079	0.079	0.079	0.079	0.079	0.079	
7	4/7/2021	0.079	0.079	0.079	0.079	0.079	0.079	
8	10/15/2021	0.079	0.079	0.079	0.079	0.079	0.079	
9	3/17/2022	0.079	0.079	0.079	0.079	0.079	0.079	
10	2/2/2023		0.079		0.079		0.079	
11	2/7/2024		0.079		0.079		0.079	
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Mann-Kendall Statistic (S):	0	0	0	0	0	0	0	
Confidence Factor:	46.0%	45.1%	46.0%	45.1%	46.0%	45.1%	45.1%	
Concentration Trend:	Stable	Stable	Stable	Stable	Stable	Stable	Stable	



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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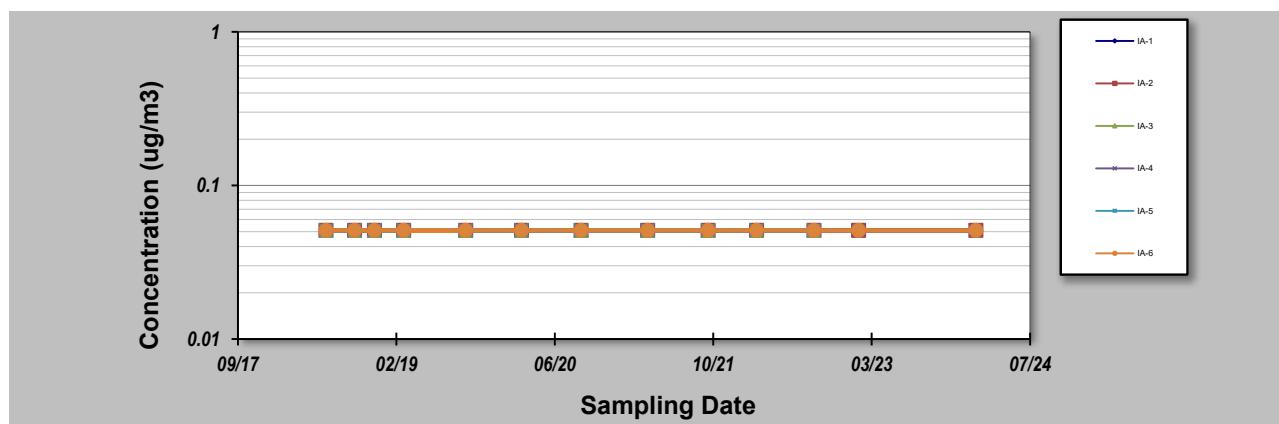
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **Vinyl Chloride**
 Concentration Units: **ug/m³**

Sampling Point ID:		IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	
Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (ug/m ³)						
1	6/27/2018	0.051	0.051	0.051	0.051	0.051	0.051	
2	9/25/2018	0.051	0.051	0.051	0.051	0.051	0.051	
3	11/27/2018	0.051	0.051	0.051	0.051	0.051	0.051	
4	9/11/2019	0.051	0.051	0.051	0.051	0.051	0.051	
5	2/27/2019	0.051	0.051	0.051	0.051	0.051	0.051	
6	3/5/2020	0.051	0.051	0.051	0.051	0.051	0.051	
7	9/9/2020	0.051	0.051	0.051	0.051	0.051	0.051	
8	4/7/2021	0.051	0.051	0.051	0.051	0.051	0.051	
9	10/15/2021	0.051	0.051	0.051	0.051	0.051	0.051	
10	3/17/2022	0.051	0.051	0.051	0.051	0.051	0.051	
11	9/14/2022	0.051	0.051	0.051	0.051	0.051	0.051	
12	2/2/2023		0.051		0.051		0.051	
13	2/7/2024		0.051		0.051		0.051	
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Mann-Kendall Statistic (S):	0	0	0	0	0	0	0	
Confidence Factor:	45.1%	47.6%	45.1%	47.6%	45.1%	47.6%		
Concentration Trend:	Stable	Stable	Stable	Stable	Stable	Stable	Stable	



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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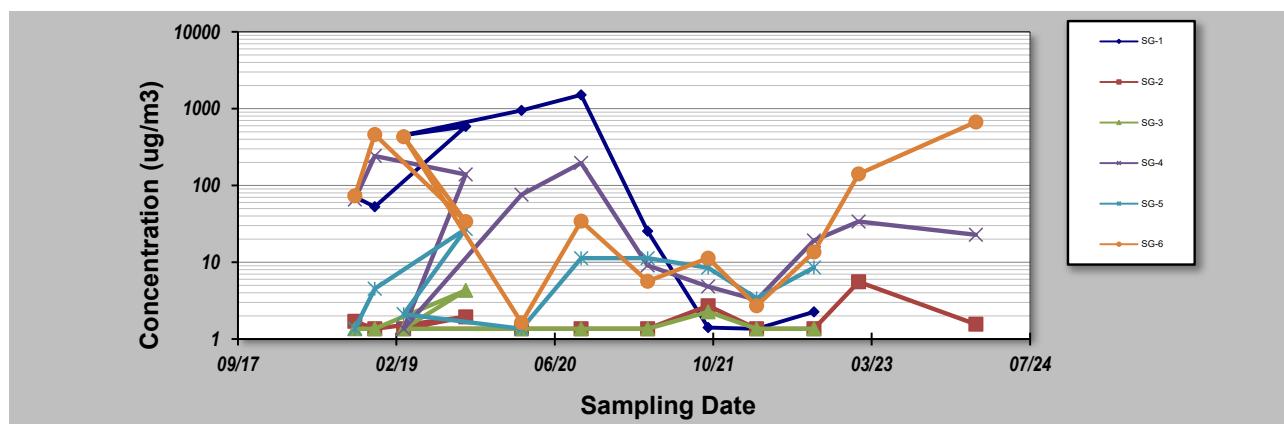
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **Tetrachloroethene (PCE)**
 Concentration Units: **ug/m³**

Sampling Point ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	
Sampling Event	Sampling Date	TETRACHLOROETHENE (PCE) CONCENTRATION (ug/m ³)						
1	9/26/2018	71.2	1.7	1.36	65.7	1.36	73.2	
2	11/28/2018	52.8	1.36	1.36	242	4.52	460	
3	9/11/2019	586	1.94	4.3	139	27.1	33.8	
4	2/27/2019	452	1.36	1.36	1.36	2.11	431	
5	3/5/2020	949	1.36	1.36	75.9	1.36	1.63	
6	9/9/2020	1510	1.36	1.36	196	11.3	34.3	
7	4/7/2021	25.4	1.36	1.36	9.09	11.3	5.65	
8	10/15/2021	1.41	2.71	2.26	4.83	8.48	11.3	
9	3/17/2022	1.36	1.36	1.36	3.23	3.39	2.71	
10	9/14/2022	2.26	1.36	1.36	19.2	8.54	13.6	
11	2/2/2023		5.56		33.9		141	
12	2/7/2024		1.56		22.8		670	
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	1.42	0.63	0.54	1.21	0.98	1.47		
Mann-Kendall Statistic (S):	-15	7	-1	-16	7	-2		
Confidence Factor:	89.2%	65.6%	50.0%	84.5%	70.0%	52.7%		
Concentration Trend:	No Trend	No Trend	Stable	No Trend	No Trend	No Trend		



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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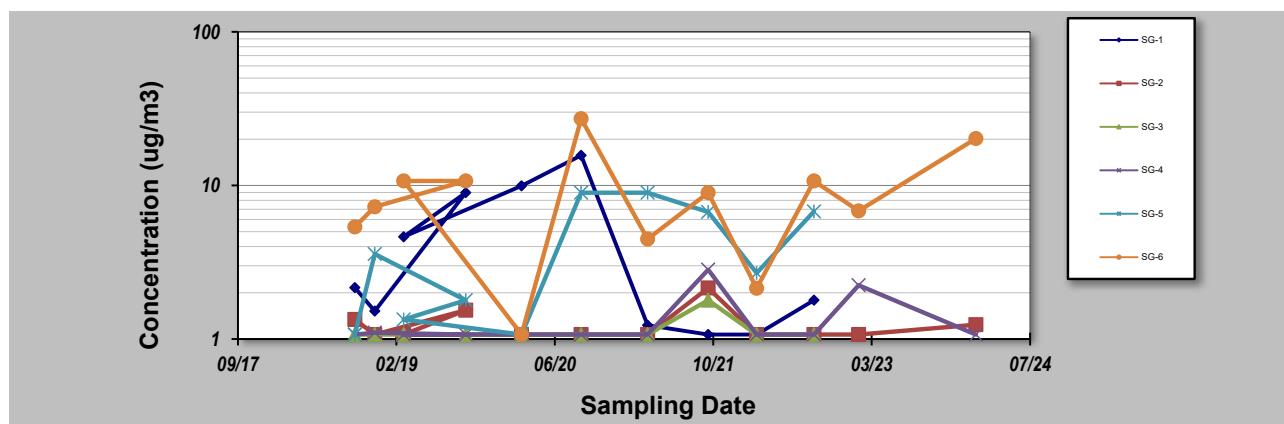
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **Trichloroethene (TCE)**
 Concentration Units: **ug/m³**

Sampling Point ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	
Sampling Event	Sampling Date	TRICHLOROETHENE (TCE) CONCENTRATION (ug/m ³)						
1	9/26/2018	2.16	1.34	1.07	1.07	1.07	5.37	
2	11/28/2018	1.52	1.07	1.07	1.1	3.58	7.26	
3	9/11/2019	8.97	1.54	1.07	1.07	1.79	10.7	
4	2/27/2019	4.63	1.07	1.07	1.07	1.34	10.7	
5	3/5/2020	9.94	1.07	1.07	1.07	1.07	1.07	
6	9/9/2020	15.7	1.07	1.07	1.07	8.97	27.2	
7	4/7/2021	1.23	1.07	1.07	1.07	8.97	4.48	
8	10/15/2021	1.07	2.15	1.79	2.83	6.72	8.97	
9	3/17/2022	1.07	1.07	1.07	1.07	2.69	2.14	
10	9/14/2022	1.79	1.07	1.07	1.07	6.77	10.7	
11	2/2/2023		1.07		2.24		6.83	
12	2/7/2024		1.24		1.07		20.2	
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	1.05	0.26	0.20	0.44	0.75	0.77		
Mann-Kendall Statistic (S):	-10	-4	5	7	15	9		
Confidence Factor:	78.4%	58.0%	63.6%	65.6%	89.2%	70.4%		
Concentration Trend:	No Trend	Stable	No Trend	No Trend	No Trend	No Trend		



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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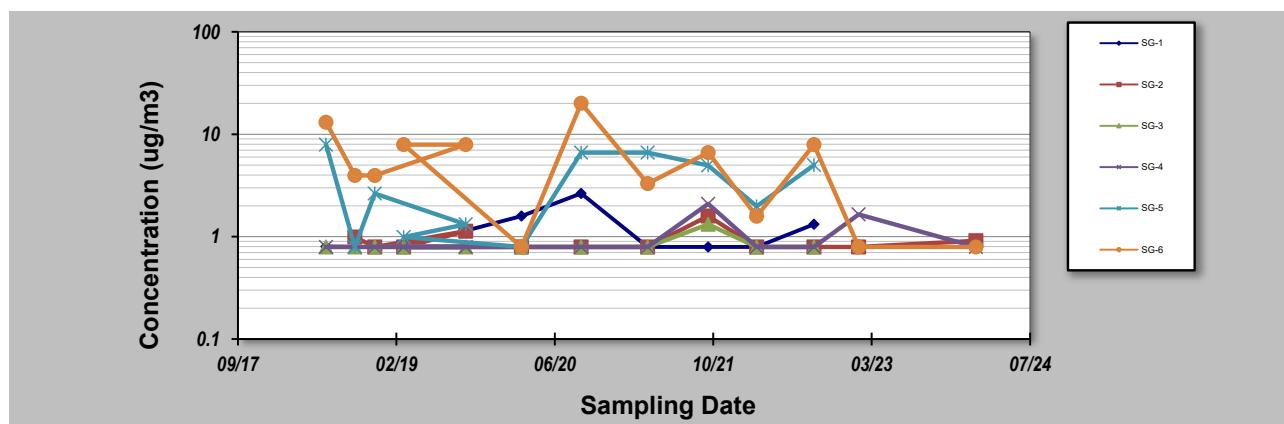
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: ***1,1-Dichloroethene (DCE)***
 Concentration Units: **ug/m³**

Sampling Point ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6
Sampling Event	Sampling Date	1,1-DICHLOROETHENE (DCE) CONCENTRATION (ug/m ³)					
1	6/27/2018	0.8		0.793	0.793	7.93	13.1
2	9/26/2018	0.793	0.991	0.793	0.793	0.793	3.96
3	11/28/2018	0.793	0.793	0.793	0.793	2.64	3.96
4	9/11/2019	0.793	1.13	0.793	0.793	1.32	7.93
5	2/27/2019	0.793	0.793	0.793	0.793	0.991	7.93
6	3/5/2020	1.59	0.793	0.793	0.793	0.793	0.793
7	9/9/2020	2.64	0.793	0.793	0.793	6.62	20.1
8	4/7/2021	0.793	0.793	0.793	0.793	6.62	3.3
9	10/15/2021	0.793	1.59	1.32	2.09	4.96	6.62
10	3/17/2022	0.793	0.793	0.793	0.793	1.98	1.58
11	9/14/2022	1.32	0.793	0.793	0.793	5	7.93
12	2/2/2023		0.793			1.65	0.793
13	2/7/2024		0.912		0.793		0.793
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:	0.55	0.26	0.20	0.44	0.75	0.99	
Mann-Kendall Statistic (S):	8	-4	5	11	15	-17	
Confidence Factor:	72.9%	58.0%	63.6%	74.9%	89.2%	86.0%	
Concentration Trend:	No Trend	Stable	No Trend	No Trend	No Trend	Stable	



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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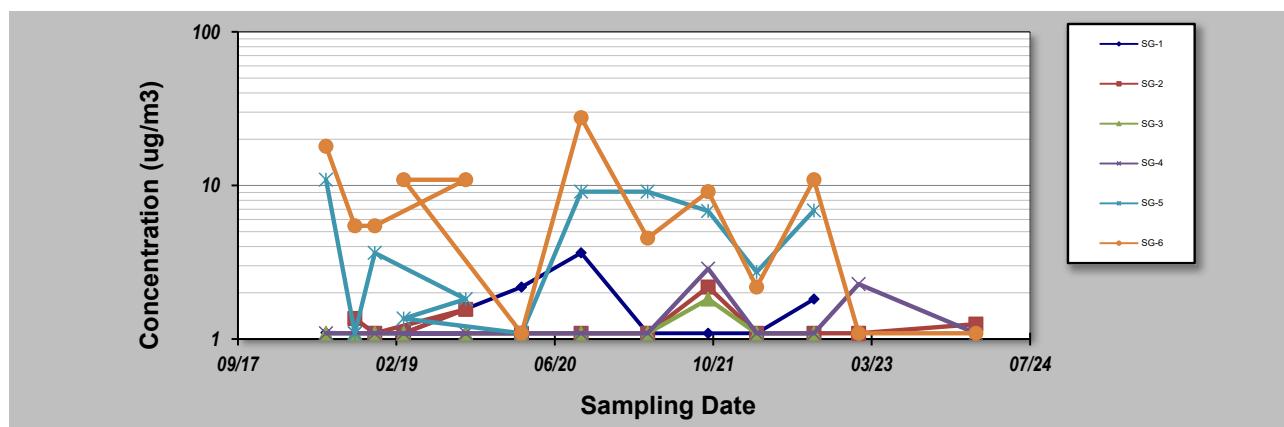
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **1,1,1-Trichloroethane (TCA)**
 Concentration Units: **ug/m³**

Sampling Point ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	
Sampling Event	Sampling Date	1,1,1-TRICHLOROETHANE (TCA) CONCENTRATION (ug/m ³)						
1	6/27/2018	1.1		1.09	1.09	10.9	18	
2	9/26/2018	1.09	1.36	1.09	1.09	1.09	5.46	
3	11/28/2018	1.09	1.09	1.09	1.09	3.64	5.46	
4	9/11/2019	1.09	1.56	1.09	1.09	1.82	10.9	
5	2/27/2019	1.09	1.09	1.09	1.09	1.36	10.9	
6	3/5/2020	2.18	1.09	1.09	1.09	1.09	1.09	
7	9/9/2020	3.64	1.09	1.09	1.09	9.11	27.6	
8	4/7/2021	1.09	1.09	1.09	1.09	9.11	4.54	
9	10/15/2021	1.09	2.18	1.82	2.87	6.82	9.11	
10	3/17/2022	1.09	1.09	1.09	1.09	2.73	2.18	
11	9/14/2022	1.82	1.09	1.09	1.09	6.87	10.9	
12	2/2/2023		1.09		2.28		1.09	
13	2/7/2024		1.25		1.09		1.09	
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.54	0.26	0.19	0.43	0.74	0.92		
Mann-Kendall Statistic (S):	4	-4	6	13	5	-27		
Confidence Factor:	59.0%	58.0%	64.8%	76.4%	61.9%	94.3%		
Concentration Trend:	No Trend	Stable	No Trend	No Trend	No Trend	Prob. Decreasing		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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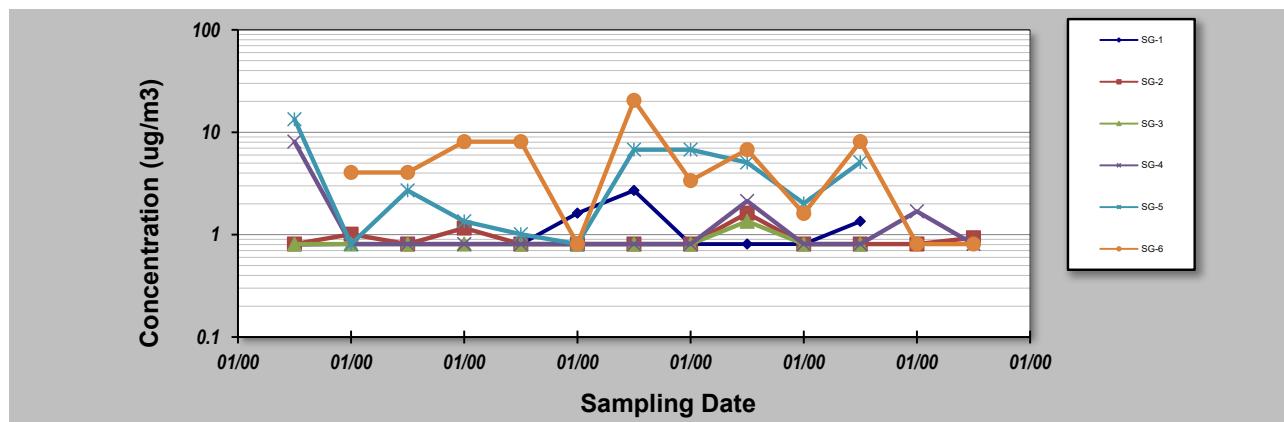
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: ***1,1-Dichloroethane (DCA)***
 Concentration Units: **ug/m³**

Sampling Point ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6
Sampling Event	Sampling Date	1,1-DICHLOROETHANE (DCA) CONCENTRATION (ug/m ³)					
1	6/27/2018	0.8	0.809	0.809	8.09	13.4	
2	9/26/2018	0.809	1.01	0.809	0.809	0.809	4.05
3	11/28/2018	0.809	0.809	0.809	0.809	2.7	4.05
4	9/11/2019	0.809	1.16	0.809	0.809	1.35	8.09
5	2/27/2019	0.809	0.809	0.809	0.809	1.01	8.09
6	3/5/2020	1.62	0.809	0.809	0.809	0.809	0.809
7	9/9/2020	2.7	0.809	0.809	0.809	6.76	20.5
8	4/7/2021	0.809	0.809	0.809	0.809	6.76	3.37
9	10/15/2021	0.809	1.62	1.35	2.13	5.06	6.76
10	3/17/2022	0.809	0.809	0.809	0.809	2.02	1.61
11	9/14/2022	1.35	0.809	0.809	0.809	5.1	8.09
12	2/2/2023		0.809		1.69		0.809
13	2/7/2025		0.931		0.809		0.809
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:	0.54	0.26	0.19	1.31	0.92	0.99	
Mann-Kendall Statistic (S):	18	0	6	-1	5	-17	
Confidence Factor:	90.5%	47.6%	64.8%	50.0%	61.9%	86.0%	
Concentration Trend:	Prob. Increasing	Stable	No Trend	No Trend	No Trend	Stable	



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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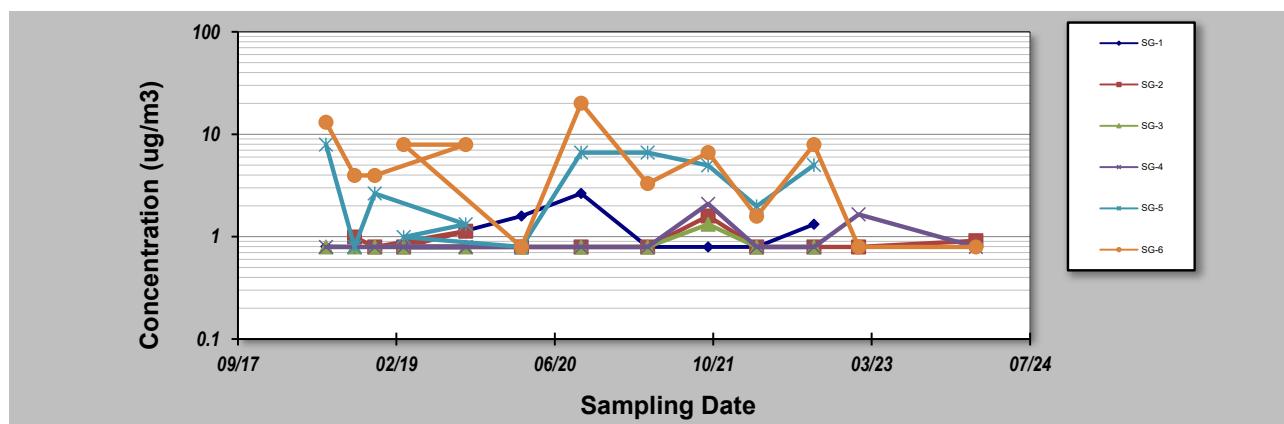
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **cis-1,2-Dichloroethene (DCE)**
 Concentration Units: **ug/m³**

Sampling Point ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	
Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE (DCE) CONCENTRATION (ug/m ³)						
1	6/27/2018	0.8		0.793	0.793	7.93	13.1	
2	9/25/2018	0.793	0.991	0.793	0.793	0.793	3.96	
3	11/28/2018	0.793	0.793	0.793	0.793	2.64	3.96	
4	9/11/2019	0.793	1.13	0.793	0.793	1.32	7.93	
5	2/27/2019	0.793	0.793	0.793	0.793	0.991	7.93	
6	3/5/2020	1.59	0.793	0.793	0.793	0.793	0.793	
7	9/9/2020	2.64	0.793	0.793	0.793	6.62	20.1	
8	4/7/2021	0.793	0.793	0.793	0.793	6.62	3.3	
9	10/15/2021	0.793	1.59	1.32	2.09	4.96	6.62	
10	3/17/2022	0.793	0.793	0.793	0.793	1.98	1.58	
11	9/14/2022	1.32	0.793	0.793	0.793	5	7.93	
12	2/2/2023		0.793			1.65		0.793
13	2/7/2024		0.912		0.793			0.793
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.54	0.26	0.19	0.43	0.75	0.93		
Mann-Kendall Statistic (S):	4	-4	6	13	5	-27		
Confidence Factor:	59.0%	58.0%	64.8%	76.4%	61.9%	94.3%		
Concentration Trend:	No Trend	Stable	No Trend	No Trend	No Trend	Prob. Decreasing		



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0, \text{ and } COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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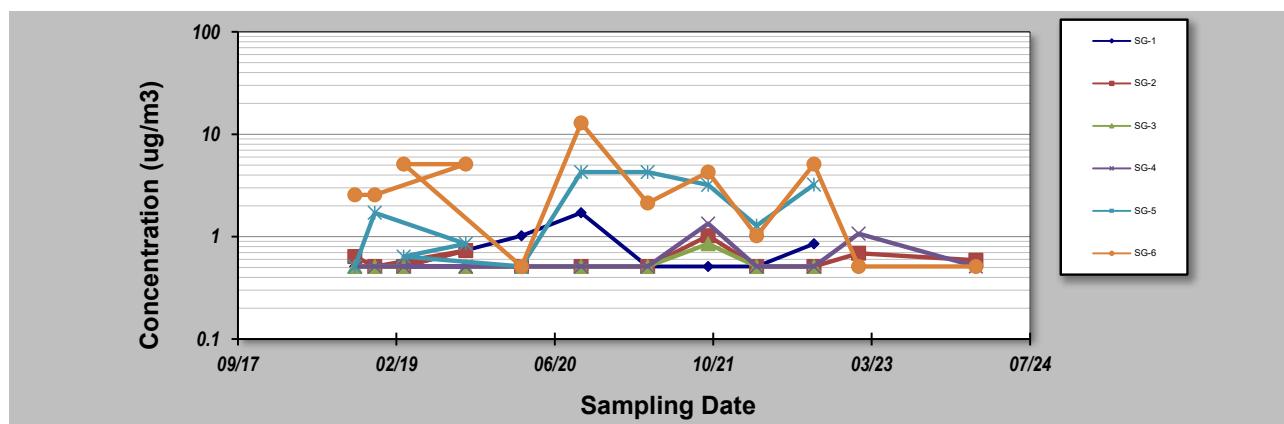
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **19-Sep-25**
 Facility Name: **Bay Park One LLC**
 Conducted By: **Morgan McBride**

Job ID: **170915401**
 Constituent: **Vinyl Chloride**
 Concentration Units: **ug/m³**

Sampling Point ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	
Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (ug/m ³)						
1	9/26/2018	0.511	0.639	0.511	0.511	0.511	2.56	
2	11/28/2018	0.511	0.511	0.511	0.511	1.71	2.56	
3	9/11/2019	0.511	0.731	0.511	0.511	0.851	5.11	
4	2/27/2019	0.511	0.511	0.511	0.511	0.639	5.11	
5	3/5/2020	1.02	0.511	0.511	0.511	0.511	0.511	
6	9/9/2020	1.71	0.511	0.511	0.511	4.27	12.9	
7	4/7/2021	0.511	0.511	0.511	0.511	4.27	2.13	
8	10/15/2021	0.511	1.02	0.851	1.34	3.2	4.27	
9	3/17/2022	0.511	0.511	0.511	0.511	1.28	1.02	
10	9/14/2022	0.851	0.511	0.511	0.511	3.22	5.11	
11	2/2/2023		0.688		1.07		0.511	
12	2/7/2024		0.588		0.511		0.511	
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:	0.55	0.25	0.20	0.44	0.75	0.99		
Mann-Kendall Statistic (S):	8	3	5	11	15	-17		
Confidence Factor:	72.9%	55.4%	63.6%	74.9%	89.2%	86.0%		
Concentration Trend:	No Trend	No Trend	No Trend	No Trend	No Trend	Stable		



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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