AECOM

# Flatbush Station A&B Former Gas Holder Site

**BROOKLYN, KINGS COUNTY, NEW YORK**

# Site Management Plan

**NYSDEC Site Number: 224061**

**Prepared for:**

The Brooklyn Union Gas Company d/b/a National Grid NY
2 Hanson Place, Brooklyn, New York

**Prepared by:**

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## Revisions to Final Approved Site Management Plan:

| Revision # | Submitted Date | Summary of Revision | DEC Approval Date |
|---|---|---|---|
| 1 | 7/15/2016 | 1. Update to site history to include the discovery and removal of unknown tank on 760 Parkside Avenue.<br>2. Revised summary of property zoning.<br>3. Revision to update the depth of MGP-related impacts in one localized area around a small tank foundation on 760 Parkside Avenue.<br>4. Revision to include the construction activities completed in 2013 and 2014 on the 760 Parkside Avenue property including removal of MGP-related and non-MGP related soils from the 760 Parkside Avenue property and construction of a three-story medical facility<br>5. Inclusion of 2014 Indoor Air Sample Results for 760 Parkside Avenue.<br>6. Revision to Property Owner Certification and National Grid Certification.<br>7. Revisions to the Site Layout and the CCS Location Figures. | September 7, 2016 |
| 2 | 5/23/2025 | 1. Updating change in ownership of 329 Clarkson Avenue from SUNY Downstate to CHV 329 Clarkson Avenue L.P. and CHV 329 Clarkson Avenue Housing Development Fund Corporation (CHV) | |

| | | | |
|---|---|---|---|
| | | 2. Updating the site history to reflect development activities on 329 Clarkson Avenue by CHV.<br>3. Updating Investigation History and Results to Include the Remedial System Optimization Investigations (RSOI) performed at 324 Winthrop Street and 329 Clarkson Avenue.<br>4. Updating Environmental Easements and property use at 329 Clarkson Avenue.<br>5. Modifying the Groundwater Monitoring Program to reflect the NYSDEC approved decommissioning of wells MW-06, MW-07, MW-08, MW-09, and MW-10 on 329 Clarkson Avenue. | |

# Certification Page

I, Robert Forstner, certify that I am currently a NYS registered professional engineer (#080989) and that this Site Management Plan was prepared in accordance with all applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Signature _____ Date: May xx, 2025

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# List of Acronyms

| | |
|---|---|
| ASP | Analytical Services Protocol |
| AWQSGV | Ambient Water Quality Standards and Guidelines Values |
| bgs | below ground surface |
| BTEX | Benzene, Toluene, Ethylbenzene, Xylene |
| BUG | Brooklyn Union Gas |
| CAMP | Community Air Monitoring Plan |
| CCR | Construction Completion Report |
| CCS | Composite Cover System |
| CHV | CHV 329 Clarkson Avenue L.P. and<br>CHV 329 Clarkson Avenue Housing Development Fund Corporation |
| COC | Certificate of Completion |
| COI | Contaminants of Interest |
| CPP | Community Participation Plan |
| DNAPL | Dense Nonaqueous Phase Liquid |
| DER-10 | NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation |
| DUSR | Data Usability Summary Report |
| EC | Engineering Controls |
| ECL | Environmental Conservation Law |
| EDR | Environmental Data Resources |
| ELAP | Environmental Laboratory Approval Program |
| EWP | Excavation Work Plan |
| FSP | Field Sampling Plan |
| ft | feet |
| HASP | Health and Safety Plan |
| IC | Institutional Controls |
| I.E.P. | Independent Electric Plant |
| MGP | Manufactured Gas Plant |
| µg/m3 | microgram per meter cubed |
| MNA | Monitored Natural Attenuation |
| NAD 83 | North American Datum of 1983 |
| NAPL | Non-aqueous Phase Liquid |
| NAVD 88 | North American Vertical Datum of 1988 |
| NYCRR | New York Codes Rules and Regulations |
| NYC | New York City |
| NYS | New York State |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSDOH | New York State Department of Health |
| OCAS | Order on Consent Index and Administrative Settlement |

| | |
|---|---|
| PAHs | Polycyclic Aromatic Hydrocarbons |
| PCBs | Polychlorinated Biphenyls |
| PFAS | Per- and Polyfluoroalkyl Substances |
| PFOA | Perfluorooctanoic Acid |
| PFOS | Perfluorooctane Sulfonic Acid |
| PID | Photoionization Detector |
| QA | Quality Assurance |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| QEP | Qualified Environmental Professional |
| ROW | Right of Way |
| RRUSCOs | Restricted Residential Use Soil Cleanup Objectives |
| RSOI | Remedial System Optimization Investigation |
| SC | Site Characterization |
| SCG | Standards, Criteria, and Guidance |
| SCO | Soil Cleanup Objectives |
| SMP | Site Management Plan |
| SPLP | Synthetic Precipitation Leaching Procedure |
| SSDS | Sub-Slab Depressurization System |
| SUNY | State University of New York |
| SVI | Soil Vapor Intrusion |
| SVOCs | Semi Volatile Organic Compounds |
| USEPA | United Stated Environmental Protection Agency |
| USGS | United States Geological Society |
| VOCs | Volatile Organic Compounds |

# 1.0 Introduction

## 1.1 General

This document is required as an element of the remedial program at the Flatbush Station A&B Former Gas Holder Site under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by the Department of Environmental Conservation (NYSDEC). The remedial program was implemented at the Site in accordance with Order on Consent Index and Administrative Settlement (OCAS) # A2-0552-0606, Site # 224061, which was executed on March 2007 (NYSDEC, 2007). The OCAS covers the operation of the Flatbush Station A&B Former Gas Holder Site located in the Flatbush area of Brooklyn, New York.

The Brooklyn Union Gas Company d/b/a National Grid NY (National Grid) entered into an OCAS with the NYSDEC to implement a remedial program at the location of the former Flatbush Station A & B Former Gas Holder site in Brooklyn, Kings County, New York. The Site is illustrated on a portion of the United States Geological Society (USGS) 7.5 Minute Jamaica Quadrangle map in Figure 1-1. This OCAS required the Remedial Party, National Grid, to investigate and remediate media impacted with residual manufactured gas plant (MGP) material at the Site. For purposes of further discussion in this Site Management Plan (SMP), the term “Site” is comprised of four separate tax lots (Block 4827 Lots 24 and 30 [324 Winthrop Street], Block 4828 Lot 21 [329 Clarkson Avenue], and Block 4828 Lot 22 [760 Parkside Avenue]), a portion of Parkside Avenue, and a portion of Clarkson Avenue. A parcel map of the Site is provided in Figure 1-2. A figure showing the Site layout and extent of the SMP is provided in Figure 1-3. The boundaries of the Site are more fully described in the metes and bounds site description (Appendix A) that is part of the Environmental Easements.

A Site Characterization (SC), conducted as part of the remedial program, identified residual MGP impacts in the Site subsurface soils and groundwater. The residual MGP impacts are located in the deeper soils at the Site and do not have the potential direct contact. Remedial System Optimization Investigations (RSOIs; previously known as Supplemental Site Characterizations) were conducted at 324 Winthrop Avenue in 2020 and 329 Clarkson Avenue in 2021. The locations of the SC and RSOI activities are shown in Figure 1-4. This SMP was prepared to manage the residual MGP impacts at the Site until the Environmental Easements are extinguished in accordance with NYS Environmental Conservation Law (ECL) Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by AECOM, on behalf of National Grid, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (DER-10), dated June 2010 (NYSDEC, 2010), and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easements for the Site. Copies of the Environmental Easements are included in Appendix B.

## 1.2 Purpose

The Site contains residual MGP impacts identified during the SC and RSOI process. ECs have been incorporated into the Site remedy to control exposure to remaining MGP impacts during the use of the Site and to ensure protection of public health and the environment. Environmental Easements granted to the NYSDEC, and recorded with the Kings County Clerk, will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on Site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easements for MGP impacts that are present at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easements and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage the residual MGP impacts at the Site including: (1) implementation and management of all EC/ICs; (2) media monitoring; (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (4) defining criteria for termination of media monitoring.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; and (2) a Monitoring Plan for implementation of Site Monitoring.

This SMP also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Environmental Easements. Failure to properly implement the SMP is a violation of the Environmental Easements, 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 (ECL) and 6 NYCRR Part 375, and thereby subject to applicable penalties.

## 1.3 Revisions and Alterations

Revisions to this SMP will be proposed in writing to the NYSDEC's project manager. The SMP will be updated to the most recent template if requested by NYSDEC. 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, removal of MGP-related impacted 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 Easements 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.

## 1.4 Notifications

### 1.4.1 Site Notification Requirements

All intrusive activities must be approved by NYSDEC. Sufficient notification must be made to NYSDEC. Typically, the type of notification and reporting requirements depend on the scope of work. Large-scale intrusive work will require additional investigation and, depending on findings of the investigation, may require a detailed work plan, such as a Remedial Action Work Plan while smaller scale (i.e., “limited”) intrusive activities will comply with the Excavation Work Plan (Appendix C) and may require a Notice of Intrusion letter or a simple letter work plan. Further details regarding notification requirements and contacts are provided in Section 3.8 Inspections and Notifications.

# 2.0 Site Background, Summary of Previous Investigations, and Site Development

## 2.1 Site Location and Description

The Site is located in Brooklyn, Kings County, New York and is identified as Block 4827, Lots 24 and 30, Block 4828 Lot 21, Block 4828 Lot 22, and portion of Parkside Avenue and Clarkson Avenue on the New York City (NYC) Tax Map. The Site is an approximately 5-acre area bounded by Winthrop Street to the north, Clarkson Avenue to the south, and commercial properties to the east and to the west (see Figure 1-3). Parkside Avenue dissects the Site into two parcels – a northern parcel consisting of Block 4827 Lots 24 and 30 and a southern parcel consisting of Block 4828 Lots 21 and 22 and portion of Clarkson Avenue. The portion of the Site north of Parkside Avenue consists of a paved parking lot. The portion south of Parkside Avenue includes 760 Parkside Avenue property which consists of a paved parking lot and a two story building known as SUNY Downstate Incubator Medical Facility; 329 Clarkson Avenue which is being developed as Clarkson Estates, a 9-story building for affordable and supportive housing, commercial and community facilities, and underground parking (the foundation and basement constructions has been completed as detailed in the January 17, 2025 Construction Completion Report (CCR) by GZA GeoEnvironmental, Inc.).

The current parcels are listed by the NYC Department of Finance as Building Class G2 and G6 - garage and licensed parking lot and I9 - miscellaneous hospital or healthcare facility. The NYC Department of City Planning has listed the zone classification for this area as M1, which indicates the Site is zoned for light manufacturing and commercial buildings, with Block 4827 Lot 30 [324 Winthrop Street] classified as R6, which indicates multi-unit residential.

The current property owners are listed below based on NYC Department of Finance on-line database. Figure 1-2 shows a parcel map of the Site.

Table 2-1 Property Owners and Land Use by Parcel

| Parcel | Owner | Parcel Address | Land Use |
|---|---|---|---|
| 1. Block 4827 Lot 30 (northern portion of the Site) | Brooklyn Union Gas Co. | Winthrop Street, Brooklyn, NY 11225 | Parking facilities and Gas regulator infrastructure |
| 2. Block 4827 Lot 24 (northern portion of the Site) | Beneficial Fund for the Downstate Medical Center of SUNY, Inc. | 324 Winthrop Street, Brooklyn, NY 11226 | Parking facilities |
| 3. Block 4828 Lot 21 (southern portion of the Site) | CHV 329 Clarkson Avenue L.P. and CHV 329 Clarkson Avenue Housing Development Fund Corporation | 329 Clarkson Avenue, Brooklyn, NY 11226 | Mixed Residential, Community Facilities, Parking Facilities, and Commercial |

| Parcel | Owner | Parcel Address | Land Use |
|---|---|---|---|
| 4. Block 4828 Lot 22 (southern portion of the Site) | Health Science Center | 760 Parkside Avenue, Brooklyn, NY 11226 | Health center |

Parcels 2, and 4 are managed by SUNY Downstate, and Parcel 3 is managed by CHV 329 Clarkson Avenue L.P. and CHV 329 Clarkson Avenue Housing Development Fund Corporation (CHV). The NYC Department of City Planning has listed the zone classification for Parcels 3 and 4 as M1, which indicates that this portion of the Site is zoned for mixed use which includes light manufacturing, commercial buildings, and multi-residential properties. Parcel 1 is zoned R6, which indicates that this portion of the Site is zoned for medium density housing of between three and five stories. Parcel 2 is spilt with the northern half zoned R6 and the southern half zoned M1. The boundaries of the Site are more fully described in the metes and bounds description (Appendix A) attached to the Environmental Easements (Appendix B).

## 2.2 Site History

A summary of the Site history was developed based on a review of the historic Sanborn Fire Insurance maps, aerial photographs, historical photographs, historical drawings, and historical topographical maps for the Site, as well as a review of the database report provided by Environmental Data Resources (EDR). Figure 2-1 shows the approximate boundaries and structures of the former Flatbush Gas Works facility, which include the operations of the Flatbush Gas Company and the Brooklyn Union Gas Company (BUG) described below are shown on Figure 1-5.

The Flatbush Gas Company was established in 1864. The first indication of gas manufacturing activity at the Site is believed to be around 1873. Two gas holders, GH#1 (150,000 cubic yard capacity) and GH#2 (1 million cubic yard capacity), are believed to have been constructed at the Site between 1879 and 1905. Between 1895 and 1897, BUG purchased six small MGPs, including the Flatbush Gas Company, and operated them as subsidiaries until completing their integration into BUG in 1927 (Encyclopedia.com). Review of the Brown's Directory indicated that the Flatbush Gas Company ceased the MGP Holder operations in 1904 and purchased gas from BUG for storage and distribution. The Flatbush Gas Company was also operating an Independent Electric Plant (I.E.P.) in 1904 on the 329 Clarkson Avenue property. The I.E.P. produced electricity from six brick steam boilers, 2 generators, and 5 dynamos. While two five million cubic foot gas holders (GH#3 and GH#4) are believed to have been constructed on the Northern Parcel of the Site in 1908 and 1923, respectively, and the GH#1 demolished sometime between 1912 and 1917, the Flatbush Gas Company and BUG operations on the Southern Parcel had ceased by 1925.

By 1929 the ownership of the facility has been transferred to BUG. Between 1947 and 1954, the 1 million cu ft holder and associated structures located south of Parkside Avenue were removed. Two gasoline fuel tanks were present along the southwestern border of the Site abutting the adjacent metal products manufacturing building (former auto garage). By 1958, the area had been developed into parking lots, a tobacco and candy distribution center, and manufacturing. In 1969 the ABACO Fabrics Company occupied a one-story building on the 329 Clarkson Avenue property, which was later occupied by the PETER Partition Corporation and used for manufacturing from approximately1977 to 1994. From approximately 1995 to 2023, this building was used by the Health Science Center for employee parking, and by the facilities department for storage of equipment and materials. This building was removed in 2023, and the 329 Clarkson Avenue property was excavated for the construction of a multiuse building by CHV as detailed in Section 2.1 and Section 2.5.2.

In 2004, the 760 Parkside Avenue Property immediately north of the 329 Clarkson Avenue property was developed into a medical facility. The medical facility was further expanded from 2012 to 2013 into the three-story SUNY Downstate Incubator Medical Facility and paved parking areas currently occupying the property. During the property owner's excavation activities on 760 Parkside Avenue, on March 28, 2013, a curved brick structure was discovered while excavating a trench for a storm drain line and junction box. National Grid visited the Site and confirmed the presence of a tank-like foundation and MGP-related impacts. The estimated diameter of the tank-like foundation was 35 ft, and its estimated location is shown on Figure 2-1. The presence of this tank-like foundation is not shown on Sanborn maps (though is seen in an 1890 Atlas), and none of the 2011 SC soil borings were installed within the structure.

The twin gas holders and associated structures remained unchanged on the northern parcel until they were decommissioned between 1979 and 1980, however available data was insufficient to identify when gas storage and distribution activities were discontinued. Following the removal of the northern holders and structures, the parcel was converted to a parking lot, and has remained in this configuration to the present day.

Residential properties have been consistently located along Nostrand Avenue and the north side of Winthrop Avenue located to the west and north of the Site, respectively. In the early 1900s, parking lots, auto repair garages, and manufacturing buildings were intermixed with the residences, but by 2000, the area along these avenues was almost exclusively residences with a few private medical facilities. The lot immediately to the west of the northern holders was previously occupied by a green house and a bowling alley, and is currently occupied by the SUNY Health Science Center. The New York City Department of Sanitation garage (Brooklyn East 14) has consistently occupied the lot to the east of the northern holders since 1929 through the present. The lot to the east of the southern holder remained vacant until the holder was decommissioned between 1979 and 1980. A gasoline service station was constructed on the lot at this time. An auto body shop was constructed on the lot to the west of the southern holder at this time as well. The shop was replaced by a Health Center sometime between 1995 and 2001.

## 2.3 Geologic Conditions

### Site Geology

The Site geology consists of four unconsolidated units varying widely in thickness and distribution across the Site. These units consist of fill, sand, silty sand, and gravel. The sand unit, which is the most extensive unit beneath the Site, consists of two subunits, well-graded sand and poorly-graded sand. Geologic sections are shown in Figure 2-2.

**Fill**

The fill thickness ranges from 3.5 to 17 feet with the thickest layers present beneath the 760 Parkside Avenue property and 324 Winthrop Avenue property. The primary component of the fill is coarse to fine sand with some angular to sub-angular gravel, and lesser amounts of clay, silt, and cobbles. While the unit closely resembles the underlying sand unit, the fill unit at the Site was typically defined by the presence of anthropogenic materials, such as whole and crushed brick, pieces of concrete, wood fibers, and other non-native materials, and cobbles.

**Sand**

The most extensive unit beneath the fill is sand, which consists of subunits of well-graded and poorly-graded sands. The well-graded sand is composed of fine to coarse sand with lesser amounts of silt, sand and gravel. Well-graded sands were typically encountered directly below the fill unit, and generally range in thickness from 9 feet to over 40 feet with the unit thinnest to the north and west and thickest to the south. The poorly-graded sand is composed of predominately fine sand, although medium sand and trace gravel are observed occasionally. The unit is encountered directly below the well-graded sand, although pockets of the unit and some interfingering of the unit in the well-graded sand occurs beneath 760 Parkside Avenue.

**Silty Sand**

The silty sand unit occurs as two- to ten-foot-thick discontinuous lenses or pockets that cannot be clearly connected across the Site. However, there does appear to be a shallow unit encountered at approximately 20 feet (ft) below ground surface (bgs) at the northwest corner and along the southeastern Site boundary. A deeper unit is encountered at approximately 70 ft bgs beneath the southwestern as well as beneath the northeastern portions of the Site. The unit is composed of fine sand with greater than 30 percent silt and is non-plastic or cohesive.

**Gravel**

The gravel unit consists of subangular to subrounded fine to coarse gravel with some sand, and few cobbles. The unit is discontinuous, and is encountered in lenses or pockets 5 to 12 feet thick, and is not encountered deeper than 34 ft bgs.

### Site Hydrogeology

Groundwater was encountered in the overburden at depths ranging from approximately 46 to 51 ft bgs. Groundwater contour maps (Figure 2-3) have been prepared for two rounds of data (March 9, 2011 and July 28, 2011). As shown on these figures, the groundwater flow is from north to south beneath the Site, including a very slight westward flow component along the southern site boundary. Table 2-2 summarizes the screen intervals and the depths to groundwater measured in the monitoring wells installed on the Site respectively.

## 2.4 Summary of Site Investigations

National Grid has completed three investigations at the Flatbush Form Holder site. These include:

- Site Characterization Study performed from 2010 to 2011 (AECOM, 2011)
- Remedial System Optimization Investigation (referred to as a Supplemental Site Characterization during work plan preparation) at 324 Winthrop Street performed in 2020 AECOM, 2022b)
- Remedial System Optimization Investigation at 329 Clarkson Avenue performed in 2021 (AECOM, 2022a)

### 2.4.1 Summary of Site Characterization Findings

A SC was performed to characterize the nature and extent of MGP-related impacts at the Site prior to the completion of the first iteration of this SMP. The results of the SC are described in detail in the Site Characterization Report dated December 2011 (AECOM, 2011).

To determine whether the soil, groundwater, and soil vapor contain residual MGP-related impacts at levels of concern, data from the SC were compared to the following standards, criteria and guidance (SCGs):

- Groundwater SCGs are based on the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGV) and Part 5 of the NYS Sanitary Code.
- Soil SCGs are based on the NYSDEC Division of Environmental Remediation, 6 New York Codes, Rules and Regulations (NYCRR) Part 375 Restricted Commercial Use Soil Cleanup Objectives (SCOs), as well as NYSDEC's alternative polycyclic aromatic hydrocarbons (PAH) criterion for non-residential sites, total PAH of 500 mg/Kg, specified in NYSDEC Policy CP-51 Soil Cleanup Guidance, October 2010.
- Indoor air SCGs are based on the NYS Department of Health (NYSDOH) Database summary of indoor and outdoor air sample results in control homes collected and analyzed by DOH from 1989 through 1996.

Generally, the SC determined that that there were no ongoing exposures to residual MGP impacts from the Site. The Site surface is mostly covered which further reduces the likelihood of direct contact with soil impacted with residual MGP waste. Exposure to groundwater impacted with residual MGP waste is not occurring as there are no supply wells located in the impacted area. Soil vapor samples from the Site have shown evidence of MGP-related impacts but in concentrations low enough not to cause an indoor air pathway.

Many soil, groundwater, and ambient and soil vapor samples were collected during the SC to characterize the nature and extent of residual MGP impacts. The main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The principal human health and environmental risks posed by this Site relate to the presence of highly weathered NAPL located at depths greater than 15 ft bgs on a portion of the Site mainly the western portion of the 760 Parkside Avenue property and Parkside Avenue. Observations during the property owner's excavation activities on 760 Parkside Avenue in 2013 indicated that a localized area near the newly observed small tank-like foundation contains MGP-related impacts as shallow as 7 feet bgs.

Dense non-aqueous phase liquid (DNAPL) does not readily dissolve in water and tend to sink to the bottom of water bodies and aquifers. When released into the subsurface, DNAPL can spread out in complex directions that may or may not be the same direction as groundwater flow. DNAPL associated with MGP sites is unusual because its density is only slightly greater than water. Although DNAPL does tend to sink, the relatively slight difference in density between the DNAPL associated with MGP sites and water makes this sinking effect somewhat unpredictable.

Two classes of chemical compounds contained in the NAPL are of concern:

(1) Benzene, toluene, ethylbenzene, and total xylenes (collectively known as the BTEX compounds) are VOCs, which are also commonly found in unleaded gasoline, paint

thinners, and other solvents. They are somewhat soluble in water. Consequently, groundwater which comes into contact with NAPL is often impacted by these compounds. This impacted groundwater is then free to move away from the source along with the ordinary groundwater flow through the subsurface.

(2) Polycyclic aromatic hydrocarbons (PAHs) are a large group of SVOCs with several hundred different individuals known to exist. They are far less soluble than the BTEX compounds, and consequently are far less likely to cause impacts to groundwater. They are also far less likely to be digested by soil bacteria, and thus are very persistent in the environment. The United States Environmental Protection Agency (USEPA; EPA) has identified 17 of the PAHs as hazardous materials, and these are the ones used to define the extent of MGP-related PAH impacts at the Site.

An inorganic contaminant of concern is cyanide. Cyanide, bound to iron to form ferric-ferrocyanide, is a component of some NAPL associated with MGP sites.

Table 2-3 and Table 2-4 summarize the analytical data for the contaminants of interest (COIs) in subsurface soil and groundwater; and compare the data with the SCGs for the Site. The locations of all the samples are noted on Figure 1-4.

Below is a summary of site conditions when the SC was performed in 2011:

**Waste**

The waste material associated with the Site is NAPL. The highly weathered NAPL is present in the western portion of 760 Parkside Avenue and western portion of Parkside Avenue at depths greater than 15 ft bgs with exception of a localized area near the small tank foundation on 760 Parkside Avenue where NAPL impacts were observed at seven ft bgs. NAPL impacts included naphthalene-like odors, staining, trace sheens, coatings of soil grains (NAPL observed on soil grains but not in the pore spaces), and trace blebs. The extent of the residual MGP impacts observed during the SC is shown on Figure 2-4.

**Soil**

PAH and BTEX MGP impacts of subsurface soils were detected in areas where visible NAPL impacts were present. Thus, the highest levels of soil MGP impacts are found in the deeper subsurface soils (greater than 15 ft bgs) in the western portion of 760 Parkside Avenue and western portion of Parkside Avenue. Outside of the zones of NAPL impacts, PAH and BTEX concentrations decrease rapidly. Total BTEX concentrations ranged from not detectable to 198 ppm, and PAH concentrations ranged from not detectable to 763.8 ppm. Benzo(a)pyrene was the only PAH detected above the SCGs in the upper eight ft of fill. Cyanide was detected in only a few subsurface samples, at low levels. The highest value, 72.9 ppm, was found in fill area on the northern portion of the Site away from visible-weathered NAPL indicating the presence of urban fill. The material in the upper 15 ft of fill contains compounds related to both MGP and non-MGP processes. Material, such as slag, ash, and purifier waste, indicative of MGP activities was absent. Therefore, the fill material in the upper 15 ft predominately is more consistent with typical urban fill. A summary of compounds detected in subsurface soils during the SC and the RSOIs are provided in Table 2-3.

During the SC, concentrations of BTEX, PAHs, metals and cyanide were detected in subsurface soils above the 6NYCRR Part 375 Commercial Use Soil Cleanup Objectives as shown in Figure 2-5.

**Site-Related Groundwater**

Groundwater beneath the majority of the Site does not contain MGP-related constituents at concentrations exceeding the AWQSGVs. Tetrachlorethane, a chlorinated solvent unrelated to MGP Holder operations, is present in the southwestern portion and along the southwestern boundary of the Site. Toluene, ethylbenzene, xylene, naphthalene, and/or acenaphthene were detected at concentrations exceeding the AWQSGVs in the southeastern portion and along the southeastern property boundary. Although these compounds are typically found at MGP Holder sites, the distribution of these compounds indicates an off-Site source(s). A summary of compounds detected in Site groundwater are provided in Table 2-4. Concentrations of compounds detected in groundwater above AWQSGVs during the SC are shown in Figure 2-6.

**Site-Related Soil Vapor Intrusion**

Soil vapor samples were collected during the SC to determine the soil vapor intrusion pathway for the 760 Parkside Avenue property. Laboratory testing of exterior soil vapor revealed that concentrations of VOCs were detected above the Upper 95th Percentile Values of the NYSDOH Background Outdoor Air values. Soil vapor and ambient air results are summarized on Table 2-5. Given that the depth to groundwater at the Site is approximately 50 ft bgs, the source of these compounds in soil gas is considered to be from impacts within the fill material and not related to dissolved phase constituents. A definite source of the impacts cannot be determined based on the VOCs detected. For instance, while benzene, toluene, and ethylbenzene are common at MGP Holder Sites, they can also be related to petroleum releases or the disposal of solvents, paints, etc. Other compounds, such as chloroform, freon, and trichloroethene, etc., are not associated with MGP Holder Sites.

The USEPA conducted a study of randomly selected public and commercial office buildings and compiled a database of typical indoor air concentrations for several constituents. These concentrations, known as “background indoor air concentrations,” are recommended for comparison to indoor air results in the NYSDOH “Guidance for Evaluating Soil Vapor Intrusion in the State of New York” (NYSDOH, 2006), and are include on Table 2-5. While a comparison of these background concentrations to the soil vapor results is not meaningful, some general conclusions are possible. Primarily, soil vapor concentrations of all constituents are less than or within three times the background values. Therefore, it is reasonable to assume that soil vapor that did migrate to the ground surface would attenuate to the point of being consistent with the background indoor air concentrations. Concentrations of compounds detected in soil vapor above NYSDOH standards are shown in Figure 2-7.

On December 18, 2014, AECOM collected indoor air samples following the completed addition to the Downstate Biotechnology Incubator building located at 760 Parkside Avenue. The building project and indoor air assessment are described in detail in the AECOM 2014 Second Semiannual Groundwater Monitoring (SA2) and Annual Periodic Review Report dated August 2015. Six indoor air samples, one duplicate sample (collected inside of the building), and one ambient air sample (collected outside of the building in the ambient air) were collected (Figure 2-8).

Analytical results for the indoor air samples are summarized on Table 2-6 and compared to the USEPA background indoor air concentrations as recommended in the NYSDOH “Guidance for Evaluating Soil Vapor Intrusion in the State of New York” (2006). Compounds are broken into two categories: “Possibly MGP-related or Other Sources” and “Not MGP-related”. “Possibly MGP-related or Other Sources” are compounds that may come from both MGP-related sources and other types of sources such as NAPL, petroleum feedstocks, floor wax and polish, construction materials and

cigarette smoke. “Not MGP-related” compounds which are not related to MGP sources and are present due to non-MGP source, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc. No “Possibly MGP-related or Other Source” compounds were detected above the background concentrations. Only one of the “Not MGP-related” compounds, 4-methyl-2-pentanone, was detected in sample B01-IA6-20141218 above the background concentrations. Most of the detected compounds were also detected in the ambient air sample, with the exception of six constituents (2-methylpentane, ethylbenzene, m&p-xylene, o-xylene, 2-hexanone, and chloroform).

The results show that, with the exception of the “Not MGP-related” compound 4-methyl-2-pentanone, VOCs in indoor air are consistent within typical background values and ambient air results. Based on these findings, VOCs detected in soil vapor during the SC are being prevented from migrating through new building foundation by the installation of the vapor barrier under the new addition at 760 Parkside Avenue.

### 2.4.2 324 Winthrop Street Remedial System Optimization Investigation Findings

In 2020, the 324 Winthrop Street property on the Northern Parcel was under negotiations for redevelopment as a mixed-use residential development. In accordance with the requirements of the 2014 SMP (Revision 1, 2016), an RSOI (known at the time as a Supplemental Site Characterization) was implemented on the 324 Winthrop Street property on the Northern Parcel to supplement the SC data to evaluate the risk of exposure for the construction workers and future residents to residuals from the former gas holder operations. The scope and results of the RSOI are described in detail in the Final Remedial System Optimization Investigation Report, 324 Winthrop Street, Northern Parcel (AECOM, 2022b). The objectives of the RSOI included the following:

- Verify, to the extent possible, and investigate the location of the former MGP Holder structures on the Northern Parcel.
- Collect soil and groundwater samples to delineate the extent and distribution of residual impacts and compare to the NYSDEC Part 375-6 Restricted Residential Use Soil Cleanup Objectives (RRUSCOs) for soil and Class GA Groundwater Criteria for groundwater samples.
- Evaluate the presence of per- and polyfluoroalkyl substances (PFAS) throughout the vadose zone beneath the parcel. PFAS have historically not been evaluated at MGP Holder sites because they are not associated with former MGP Holder operations. PFAS comprise a diverse group of synthetic chemicals used in various military, industrial applications, and consumer products, and it is well documented that PFAS were not manufactured before the 1940’s. In January 2020, the NYSDEC DER issued the Guidelines for Sampling and Analysis of PFAS Under NYSDEC’s Part 375 Remedial Programs (NYSDEC, 2020), which requires PFAS sampling as part of any site characterization and/or investigation conducted under DER programs. In January 2021, these guidelines were replaced by the Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC’s Part 375 Remedial Programs document (NYSDEC, 2021). The PFAS data collected as part of this investigation was provided to the NYSDEC for informational purposes only, but it is not representative of residuals from historical MGP Holder operations at this Site and National Grid is responsible to remediate PFAS-related compounds.

To achieve these objectives, the RSOI included the excavation of nine test pits from two to ten feet below ground surface depending on the presence and depth of concrete holder foundations, the advancement of 39 soil borings to depths ranging from 35 to 85 ft bgs, and laboratory analyses of 265 soil samples, two forensic fingerprint samples, and four grab groundwater samples. Former structures

encountered in test pits and soil borings on the 324 Winthrop Street property on the Northern Parcel include the former 150,000 cubic foot gasometer (Gas Holder No. 1), the two 5,000,000 cubic foot holders (Gas Holders No. 3 and No. 4), and the former exhauster house. Gas Holder No. 1 (gasometer) was encountered at a depth of 24.5 ft bgs with thicknesses ranging from 0.5 and 1 foot. The gasometer foundation was not encountered in two of the four borings advanced within the gasometer footprint. The footprint of the holder has been adjusted 14 feet to the east (shown as a dashed outline) on Figure 1-4. Gas Holder No. 3 on the eastern side of the property, was encountered at depths ranging from 4.5 ft bgs to 7.5 ft bgs. The concrete holder foundation ranged from competent to a weathered powder, and the thickness ranged from 0.5 feet to 3 feet. Gas Holder No. 4 which is located on the western side of the property and above the former gasometer, was encountered at depths ranging from 5 to 9 ft bgs with a concrete holder foundation thickness ranging from 0.5 to 2 feet. In some areas near the center of the holder, the bottom 6 to 12 inches of fill was saturated with water. Holder foundations are shown on the RSOI cross-sections A-A', B-B', C-C'. and D-D' on Figures 4-2 through 4-5, respectively, included in Appendix D.

Visual and olfactory impacts beneath the Northern Parcel consist of odors (petroleum-like or naphthalene-like), staining, NAPL blebs and globs, sheens (NAPL or petroleum), and NAPL coated material or lenses. Material saturated with NAPL (areas where the entirety of the pore space of the soil matrix appears to be filled with NAPL) was not encountered at the Northern Parcel. The majority of olfactory and visual impacts were observed within and above the foundation of the former gas holders. Observed impacts between five ft bgs and the holder foundation of former Gas Holder No. 3 consisted predominately of petroleum-like odors and staining. Observed impacts between five ft bgs and the holder foundation of former Gas Holder No. 4 were limited to observations of petroleum-like coating of soil grains at two locations (SB-135 and SB-139), and naphthalene-like odor and/or staining at SB-09, SB-10, and SB-136. The distribution of observed impacts was widespread across each holder, but were not ubiquitous. From 15 to 25 ft bgs, the only olfactory and visual impacts observed include naphthalene-like odor, staining, sheen, and a slight NAPL coating in SB-135 from 23 to 23.5 ft bgs and a PID reading of 1,152 ppm from 23.5 to 24.5 ft bgs right above the Gas Holder No. 1 foundation at 24.5 ft bgs.

Results of the investigation indicate that the use of Gas Holder No. 3 and Gas Holder No. 4 for storage and distribution of manufactured gas did not result in the widespread release of MGP-related residuals to subsurface media. The majority of the soil samples with detections of SVOCs, metals, and PCBs above the RRUSCOs, and the one VOC sample, were present in the upper 10 ft of soils within and adjacent to Gas Holder No. 3, Gas Holder No. 4, and the exhauster house. A small subset of samples exceeded the RRUSCOs between 10 and 25 ft bgs and beneath the groundwater table, while none of the samples collected between 25 and 50 ft bgs had concentrations of constituents above the RRUSCOs. Based on the fingerprint results, the materials encountered in Gas Holder No. 1 and Gas Holder No. 4 are from MGP and petroleum related sources that do not appear related to the materials beneath the water table and encountered on the Southern Parcel.

The RSOI concluded that no additional controls are recommended if the use of the Northern Parcel remains unchanged. However, developing the Northern Parcel for mixed use, including Restricted Residential Use, requires modifying the SMP and Environmental Easement, and instituting ICs and ECs to prevent residents, visitors, and construction workers from coming in contact with the subsurface soils unless the upper 15 to 25 ft of soil is removed at locations where COIs were detected at concentrations above the RRUSCOs.

#### 2.4.2.1 324 Winthrop Street RSOI Findings for Non-MGP Related Compounds

PFAS analytical results are summarized on Table 2-7. Seven samples collected from the upper 10 feet of subsurface soil were analyzed for PFAS and 12 samples collected from the vadose zone 10 to 50 ft bgs were analyzed for Synthetic Precipitation Leaching Procedure (SPLP) PFAS. The results for 21 PFAS compounds analyzed were compared to the NYSDEC RRUSCOs and Protection of Groundwater criteria. The SPLP results were compared to the NYSDEC groundwater screening levels listed in the NYSDEC 2021 Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs. While PFAS compounds, including perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), were detected in four of the seven samples analyzed for PFAS, and 11 of the 12 samples analyzed for SPLP PFAS, no compounds were detected above the RRUSCO or Protection of Groundwater criteria.

### 2.4.3 329 Clarkson Avenue Remedial System Optimization Investigation Findings

In 2021, the 329 Clarkson Avenue property on the Southern Parcel was being planned for a multi-use development to included residential space, community facilities, recreational and ornamental garden areas, and underground parking. In accordance with the requirements of the 2014 SMP (Revision 1, 2016), an RSOI was implemented on the 329 Clarkson Avenue property on the Southern Parcel to supplement the SC data to evaluate the risk of exposure for the construction workers and future residents to residuals from the former gas holder operations. The scope and results of the RSOI are described in detail in the Final Remedial System Optimization Investigation Report, 329 Clarkson Avenue, Southern Parcel (AECOM, 2022a). The objectives of the RSOI included the following:

- Verify, to the extent possible, and investigate the location of the former MGP Holder structures, including the brick oil tank and oil house on the 329 Clarkson Avenue property.
- Collect soil and groundwater samples to delineate the extent and distribution of residual impacts and compare to the NYSDEC Part 375-6 RRUSCOs for soil samples.
- Evaluate the presence of per- and polyfluoroalkyl substances (PFAS) throughout the vadose zone beneath the parcel. PFAS have historically not been evaluated at MGP Holder sites because they are not associated with former MGP Holder operations. In January 2021, the NYSDEC DER issued the Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs document (NYSDEC, 2021), which requires PFAS sampling as part of any site characterization and/or investigation conducted under DER programs. The PFAS data collected as part of this investigation was provided to the NYSDEC for informational purposes only, but it is not representative of residuals from historical MGP Holder operations at this Site and National Grid is not responsible to remediate PFAS-related compounds.
- Evaluate the potential for soil vapor intrusion into the future building from MGP residuals as well as non-MGP related residuals (if present) and determine whether any mitigation measures are necessary for the Site and/or building design.

To achieve these objectives, the RSOI included geophysical survey techniques, the excavation of 2 test pits from two to seven feet below ground surface (ft bgs) depending on the presence and depth of concrete foundations, the advancement of 19 soil borings to depths ranging from 20 to 90 ft bgs, the installation of 10 soil vapor points (installed in the soil borings), and laboratory analyses of 68 soil samples and 10 soil vapor samples.

The foundations of three former Flatbush MGP Holder and/or I.E.P. structures (Brick Oil Tank, Brick Oil House, and the Boiler House) were observed during the advancement of soil borings and test pits

during the 2011 SC and the 2021 RSOI. The concrete pad of the former Brick Oil Tank was encountered from 1.5 to 1.8 ft bgs, and the concrete pad of the former oil house was encountered at depths ranging from 1 to 3.5 ft bgs with a maximum thickness of four feet. No visual or olfactory related MGP or petroleum impacts were observed above or below the concrete pad. Concrete slabs of the former Boiler House were observed at depths ranging from 5.5 to 10 ft bgs, and large pieces of broken concrete were observed from 8 to 15 ft bgs. Woody debris with a rotting wood and trace creosote-like odor and PID headspace reading of 692 ppm was observed from 9.5 to 12.5 ft bgs within the footprint of the Boiler House at locations where concrete slabs were not observed. The origin of this wood was unknown, but it could possibly be a former support piling or fill. Note these structures were removed during the excavation activities detailed in Section 2.5.2.

Visual and olfactory impacts beneath the property were very limited and were observed in 4 of the 6 borings advanced in 2011 and in only one of the 19 soil borings advanced in 2021, and most impacts were present beneath the water table. Observed impacts consisted of odors (petroleum-like, gasoline-like, rotten wood, trace creosote-like, or naphthalene-like) and petroleum staining. The rotted wood/trace creosote-like odor was the only olfactory impact observed in shallow soils (0 - 25 ft bgs). Observations of impacts in the deep vadose zone soils (25 - 50) were limited to one observation of petroleum-like odors 44 to 50 ft bgs in the northeast corner of the site and adjacent to the BP service station. The petroleum like odors continue beneath the groundwater table to a depth of 69 ft bgs and include petroleum staining and a strong gasoline-like odor with a PID head space of 1350 ppm from 50-52 ft bgs. A faint naphthalene-like odor was also observed at 71.5 to 74 ft bgs. The remainder of the observations included faint to strong naphthalene-like odors beneath the water table along the eastern and southern sides of the property.

The majority of the soil samples with detections of SVOCs and metals above the RRUSCOs were present in urban fill in the upper five ft of soils, as well as a few samples down to 20 ft bgs. These soils were distributed through the central part of the property as well as the northeast corner. Some of the soil samples with PAHs above the RRUSCOs were encountered within the footprint of the Oil House and the Boiler House, and none were encountered within the former Brick Oil Tank. While PAHs and lead are often present at MGP Holder sites, they are also common in urban fill material from both residential and commercial use, the incomplete combustion of petroleum (mostly vehicles), and the use of lead paints. The majority of the concentrations of VOCs, SVOCs, metals, cyanide, and pesticides were detected in upper five feet of soil, which was reworked and/or imported to the Site after the MGP Holder and I.E.P. were closed, and the manufacturing warehouse was built. In addition, the highest concentrations of VOCs (which were not detected above the RRUSCOs) and SVOCs in soil and VOC in soil vapor, were detected in the northeast corner of the property at SB-6 (2011) (at the water table) and SB-207/SV-207 (2021) installed adjacent to the BP gasoline service station indicating an off-Site, non-MGP source of impacts.

The RSOI concluded that no additional controls are recommended if the use of the 329 Clarkson Avenue Property remained unchanged. However, developing the 329 Clarkson Avenue property for mixed use, including Restricted Residential Use, would require modifying the SMP and recording an Environmental Easement, and instituting ICs and ECs to prevent residents, visitors, and construction workers from potentially coming into contact with the subsurface soils unless the upper 15 to 20 ft of soil is removed at locations where COIs were detected at concentrations above the RRUSCOs.

#### 2.4.3.1 329 Clarkson Avenue RSOI Findings for Non-MGP Related Compounds

PFAS analytical results are summarized on Table 2-7. The results for 21 PFAS compounds analyzed were compared to the NYSDEC RRUSCOs and Protection of Groundwater criteria listed in the

NYSDEC 2021 Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs (NYSDEC, 2021). Four PFAS compounds, including PFOA and PFOS, were detected in two of the seven samples analyzed for PFAS including the sample from SB-202 (2021) from three to five ft bgs and from SB-207 from two to four ft bgs. No compounds were detected above the RRUSCO or Protection of Groundwater criteria, and no PFAS compounds were detected below five ft bgs.

Soil vapor results are summarized on Table 2-5. Regulatory criteria for evaluating soil vapor are not available, and the soil vapor results are being provided for informational purposes and supporting documentation for the proposed redevelopment of the property. A total of 44 of the 90 VOCs analyzed were detected in the ten soil gas samples collected in 2021. Total VOC concentrations ranged from 82.98 micrograms per meter cubed (µg/m3) at SV-215 in the southeast corner of the property to 21,896 µg/m3 at SV-207 in the northeast corner of the property adjacent to the BP Gasoline Service Station.

## 2.5 Site Development Activities and Soil Removal

### 2.5.1 760 Parkside Avenue

From 2012 to 2013, the medical facility present on 760 Parkside Avenue was further expanded into the three-story SUNY Downstate Incubator Medical Facility and paved parking areas currently occupying the property. The excavation activities performed during this phase of the property development included the removal and shipment of 4,238.89 tons of soil offsite for disposal at three licensed waste disposal facilities. Details of the soil management are included in the AECOM 2014 Second Semiannual Groundwater Monitoring (SA2) and Annual Periodic Review Report dated August 2015.

### 2.5.2 329 Clarkson Avenue

CHV's development on the property includes a 9-story building with underground parking, underground residential and community facilities, an open space courtyard, and basketball court below street level and small open space areas. On November 3, 2023, NYSDEC approved an Excavation Work Plan (EWP) prepared by GZA on behalf of CHV for soil excavation and disposal and installation of the soil cover system. The project area is shown on CCR Figure 4 included in Appendix E. CHV included the installation of a passive Sub-Slab Depressurization System (SSDS) to prevent potential soil vapor intrusion (Note this system is not an Engineering Control required under this SMP).

The Site redevelopment consisted of the excavation of soil to an overall depth of approximately 18 ft bgs. Prior to soil being excavated and transported offsite, a waste characterization investigation was completed onsite by CHV to determine the soil quality for disposal purposes. The vast majority of the onsite soil was considered non-hazardous except for one hot spot area where, based on the lead concentrations, the soil was considered a hazardous waste. These soils were in the upper five feet of fill, are not located coincident with a former gas holder structure, and are not related to the Flatbush former Holder Site activities. A total of 59,208 tons of non-hazardous soil and debris was removed from the Site. None of the soil disposed offsite contained constituents indicative of MGP-related impacts. Approximately 2,500 tons of soil was reused onsite as backfill as shown in CCR Figure 5 included in Appendix E. Details of the soil management are included in the 2025 CCR by GZA.

Pursuant to the NYSDEC approved EWP, a SSDS was installed which consisted of nine extraction trenches and piping, a foam core layer, and 20-mil vapor barrier below the building slab (see CCR Figure 6 included in Appendix E). There are two areas onsite without an impervious cover where two-

feet of clean fill was placed. Following imported fill approval by NYSDEC on May 20, 2024, approximately 75 tons of clean fill was imported to the property from Faztec Industries located in Staten Island to install a minimum two-foot cover in the areas with no impervious surface shown on CCR Figure 4 included in Appendix E.

For a more detailed summary of the site's redevelopment activities, please refer to the revised Construction Completion Report dated January 2025 (GZA, 2025).

# 3.0 Engineering and Institutional Control Plan

## 3.1 Introduction

### 3.1.1 General

Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment Since from residual MGP impacts in soil and groundwater beneath the Site. An EC/IC Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by the NYSDEC project manager.

ECs and ICs are presented in separate sections for each of the four parcels and Right-of-Ways (ROWs) within the boundary of the Site.

### 3.1.2 Purpose

This Engineering and Institutional Control Plan provides:

- A description of all EC/ICs on the Site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement (Appendix B);
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the EWP (as provided in Appendix C) for the proper handling of impacted material that may be disturbed during small-scale (i.e. limited) intrusive work and/or activities at the Site;
- A description of the roles and responsibilities of each party (i.e., the NYSDEC, the property owner, and National Grid) with respect to this SMP is included as the Matrix of Responsibility (Table 3-1): and
- Other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by the NYSDEC project manager.

## 3.2 760 Parkside Avenue Property

### 3.2.1 Engineering Controls

#### 3.2.1.1 Engineering Control System

Composite Cover System

Exposure to residual MGP impacts in soil/fill at the 760 Parkside Avenue property is prevented by the presence of a composite cover system (CCS. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to impacted subsurface soils and groundwater present at the 760 Parkside Avenue property. The CCS is comprised of a minimum of six inches of

soils not impacted by MGP-related residuals, asphalt pavement, concrete-covered sidewalks, and concrete building slabs and at least seven feet (limited to one localized area around the small tank foundation on 760 Parkside Avenue), but generally 14.5 feet, of soils not impacted by MGP-related residuals (Figure 3-1). The CCS at the 760 Parkside Avenue is a permanent control that must remain intact above the residual MGP-related impacts. The EWP that appears in Appendix C outlines the procedures required to be implemented in the event the CCS is breached, penetrated or temporarily removed, and any underlying residual MGP-related impacts are disturbed. Procedures for the inspection and maintenance of this CCS are provided in the Monitoring Plan included in Section 4 of this SMP.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 4 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the 760 Parkside Avenue property, occurs.

Monitored Natural Attenuation

Groundwater monitoring activities to assess monitored natural attenuation (MNA) will be completed on an annual basis. The details of the groundwater monitoring program are provided in Section 4.

#### 3.2.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the Site. Confirmation samples require Category B deliverables and a Data Usability Summary Report (DUSR).

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

Composite Cover System

The CCS is a permanent control, and the quality and integrity of this system will be inspected annually until directed otherwise by NYSDEC or its successor agency. The cover systems purpose is to maintain a barrier between the public and remaining impacts and the inspection will focus on the structural/remedial integrity of the cover system. Monitoring for aesthetics or functionality apart from the remedial purpose is not required by the SMP.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater MGP-related impact levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

Groundwater monitoring activities to assess monitored natural attenuation (MNA) will be completed on an annual basis. The details of the groundwater monitoring program are provided in Section 4.

### 3.2.2 Institutional Controls

One IC, an Environmental Easement, is required to: (1) implement, maintain and monitor the CCS (Figure 3-1) and MNA; (2) control disturbances of the subsurface residual MGP impacts; and (3) limit the use and development of the 760 Parkside Avenue property to Restricted Commercial Use only. The Environmental Easement on the 760 Parkside Avenue property requires compliance with this SMP. The Environmental Easement is included in Appendix B. The IC boundaries are shown in the figures associated with the Environmental Easement. Key components of the Environmental Easement are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All ECs must be operated and maintained as specified in this SMP by the 760 Parkside Avenue property owner(s) and National Grid jointly;
- All ECs must be inspected and certified by National Grid at a frequency and in a manner defined in the SMP;
- Groundwater and indoor air monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP.

ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Environmental Easement specifies the following property restrictions that apply to the 760 Parkside Avenue property:

- The 760 Parkside Avenue property may only be used for Restricted Commercial Use provided that the long-term ECs/ICs included in this SMP are employed;
- The 760 Parkside Avenue property may not be used for a higher level of use, such as Restricted Residential Use, without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the 760 Parkside Avenue property that will disturb residual MGP-related impacts material below the CCS must be conducted in accordance with this SMP;
- The use of the groundwater underlying the 760 Parkside Avenue property is prohibited without the approval of the NYSDEC;
- The potential for vapor intrusion must be evaluated prior to any modification of the existing building and for any buildings developed on the 760 Parkside Avenue property, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the 760 Parkside Avenue property are prohibited.

Components of the Environmental Easement may be modified, added or deleted from this list as warranted by Site-specific conditions with approval from the NYSDEC project manager.

National Grid will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the 760 Parkside Avenue property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the 760 Parkside Avenue property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

## 3.3 329 Clarkson Avenue Property

### 3.3.1 Engineering Controls

#### 3.3.1.1 Engineering Control Systems

Composite Cover System

Exposure to potential residual MGP-related impacts in soil/fill at the 329 Clarkson Avenue property is prevented by the presence of a CCS. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to potentially impacted subsurface soils and groundwater present at the 329 Clarkson Avenue property. The CCS is comprised of a minimum of 24 inches of clean soil over a demarcation layer comprised of orange snow fence, 6-8-inch concrete covered sidewalks, or concrete building slab of varying thickness that includes a 20-mil vapor barrier. The location of the CCS is shown on Figure 3-1 and the typical as-built cross-section used onsite is shown on Figure 3-2. The CCS at the 329 Clarkson Avenue property is a permanent control that must remain intact above the potential residual MGP-related impacts.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 4 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the 329 Clarkson Avenue property, occurs.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will be completed on an annual basis. The details of the groundwater monitoring program are provided in Section 4.

#### 3.3.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the NYSDEC. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the Site. Confirmation samples require Category B deliverables and a DUSR.

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

Composite Cover System

The CCS is a permanent control, and the quality and integrity of this system will be inspected annually until directed otherwise by NYSDEC or its successor agency. The cover systems purpose is to maintain a barrier between the public and remaining impacts and the inspection will focus on the structural/remedial integrity of the cover system. Monitoring for aesthetics or functionality apart from the remedial purpose is not required by the SMP.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater MGP-related impact levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

### 3.3.2 Institutional Controls

One IC, an Environmental Easement, is required by the NYSDEC: (1) implement, maintain, and monitor the ECs (the CCS and MNA); (2) prevent future exposure to remaining MGP impacts by controlling disturbances of the subsurface MGP impacts; and (3) limit the use and development of the 329 Clarkson Avenue property to Restricted Residential Use only. The Environmental Easement on the 329 Clarkson Avenue property requires compliance with this SMP. The IC boundaries are shown in the figures associated with the Environmental Easement package included in Appendix B. Key components of the Environmental Easement are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All ECs must be operated and maintained as specified in this SMP by the 329 Clarkson Avenue property owner(s) and National Grid jointly;
- All ECs must be inspected and certified by National Grid at a frequency and in a manner defined in the SMP;
- Groundwater and indoor air monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Environmental Easement and the SMP specify the following property restrictions that apply to the 329 Clarkson Avenue property:

- The 329 Clarkson Avenue property may only be used for Restricted Residential Use provided that the long-term ECs/ICs included in this SMP are employed;
- The 329 Clarkson Avenue property may not be used for a higher level of use, such as Unrestricted Residential Use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;

- The use of the groundwater underlying the 329 Clarkson Avenue property is prohibited without the approval of the NYSDEC;
- The potential for vapor intrusion must be evaluated prior to any modification of the existing building and for any buildings developed on the 329 Clarkson Avenue property, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the 329 Clarkson Avenue property are prohibited;

Components of the Environmental Easement may be modified, added or deleted from this list as warranted by Site-specific conditions with approval from the NYSDEC project manager.

National Grid will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the 329 Clarkson Avenue property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the 329 Clarkson Avenue property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

## 3.4 324 Winthrop Street Property

### 3.4.1 Engineering Controls

#### 3.4.1.1 Engineering Control Systems

Composite Cover System

Exposure to residual MGP-related impacts in soil/fill at the 324 Winthrop Street property is prevented by the presence of a CCS. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to impacted subsurface soils and groundwater present at the 324 Winthrop Street property. The CCS is comprised of a minimum of six inches of asphalt pavement (Figure 3-1). The CCS at the 324 Winthrop Street property is a permanent control that must remain intact above the residual MGP impacts. The EWP that appears in Appendix C outlines the procedures required to be implemented in the event the CCS is breached, penetrated or temporarily removed, and any underlying residual MGP-related impacts are disturbed. Procedures for the inspection and maintenance of this CCS are provided in the Monitoring Plan included in Section 4 of this SMP.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 4 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition occurs which may affect controls at the 324 Winthrop Avenue property.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will be completed on an annual basis. The details of the groundwater monitoring program are provided in Section 4.

#### 3.4.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the NYSDEC. The framework for

determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the site. Confirmation samples require Category B deliverables and a DUSR.

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

Composite Cover System

The CCS is a permanent control, and the quality and integrity of this system will be inspected annually until directed otherwise by NYSDEC or its successor agency. The cover systems purpose is to maintain a barrier between the public and remaining impacts and the inspection will focus on the structural/remedial integrity of the cover system. Monitoring for aesthetics or functionality apart from the remedial purpose is not required by the SMP.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater MGP-related impact levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

### 3.4.2 Institutional Controls

One IC, an Environmental Easement, is required by the NYSDEC: (1) implement, maintain and monitor the CCS (Figure 3-1) and MNA; (2) control disturbances of the subsurface impacts; and (3) limit the use and development of the 324 Winthrop Street property to Restricted Commercial Use only. The Environmental Easement on the 324 Winthrop Street property requires compliance with this SMP. The IC boundaries are shown in the figures associated with the Environmental Easement package included in Appendix B. Key components of the Environmental Easement are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All ECs must be operated and maintained as specified in this SMP by the 324 Winthrop Street property owner(s) and National Grid jointly;
- All ECs must be inspected and certified by National Grid at a frequency and in a manner defined in the SMP;
- Groundwater and indoor air monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Environmental Easement and this SMP specify the following property restrictions that apply to the 324 Winthrop Street property:

- The 324 Winthrop Street property may only be used for Restricted Commercial Use provided that the long-term ECs/ICs included in this SMP are employed;
- The 324 Winthrop Street property may not be used for a higher level of use, such as Restricted Residential Use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the 324 Winthrop Street property that will disturb residual MGP impacted material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the 324 Winthrop Street property is prohibited without the approval of the NYSDEC;
- The potential for vapor intrusion must be evaluated prior to any modification to the existing conditions and for any buildings developed on the 324 Winthrop Street property, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the 324 Winthrop Street property are prohibited.

Components of the Environmental Easement may be modified, added or deleted from this list as warranted by Site-specific conditions with approval from the NYSDEC project manager.

National Grid will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the 324 Winthrop Street property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the 324 Winthrop Street property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

## 3.5 New York City Rights-of-Way

The New York City (NYC) Right-of-Way (ROW) areas include:

- Parkside Avenue from the west boundary of 324 Winthrop Street property to the east boundary of 324 Winthrop Street property; and
- Clarkson Avenue from the west boundary of 329 Clarkson Avenue to the east boundary of 329 Clarkson Avenue

These ROW areas will collectively be referred to as the NYC ROW areas and individually as NYC ROW–Parkside Avenue area and NYC ROW-Clarkson Avenue area respectively.

## 3.5.1 Engineering Controls

### 3.5.1.1 Engineering Control Systems

Composite Cover System on NYC ROW areas

Exposure to residual MGP impacts in soil/fill at the NYC ROW–Parkside Avenue and NYC ROW-Clarkson Avenue areas are prevented by a CCS. Figure 3-1 provides a summary of the boundary of the CCS present on the NYC ROW–Parkside Avenue and NYC ROW-Clarkson Avenue areas. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to impacted subsurface soils and groundwater present at the NYC ROW–Parkside Avenue and NYC ROW-Clarkson Avenue areas. The CCS beneath Parkside Avenue is comprised of a minimum of 12 inches of asphalt pavement and concrete sidewalks and 14 feet of soils not impacted by residual MGP-related impacts below the asphalt pavement and concrete sidewalks. The CCS beneath Clarkson Avenue is comprised of a minimum of 12 inches of asphalt pavement and concrete sidewalks and 4.5 feet of soils not impacted by residual MGP-related impacts below the asphalt pavement and concrete sidewalks. The CCS at the NYC ROW–Parkside Avenue and NYC ROW-Clarkson Avenue areas is a permanent control that must remain intact above the residual MGP impacts. The EWP that appears in Appendix C outlines the procedures required to be implemented in the event the CCS is breached, penetrated or temporarily removed, and any underlying residual MGP impacts are disturbed. Procedures for the inspection and maintenance of this CCS are provided in the Monitoring Plan included in Section 4 of this SMP.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 4 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition occurs which may affect controls at the NYC ROW–Parkside Avenue and NYC ROW-Clarkson Avenue areas.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will be completed on an annual basis on the NYC ROW areas. The details of the groundwater monitoring program are provided in Section 4.

### 3.5.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the Site. Confirmation samples require Category B deliverables and a DUSR.

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

Composite Cover System

The CCS is a permanent control, and the quality and integrity of this system will be inspected annually until directed otherwise by NYSDEC or its successor agency. The cover systems purpose is to maintain a barrier between the public and remaining impacts and the inspection will focus on the structural/remedial integrity of the cover system. Monitoring for aesthetics or functionality apart from the remedial purpose is not required by the SMP.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater MGP-related impact levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

Copies of this SMP will be supplied to all applicable NYC agencies and departments and utility companies that operate on the NYC ROWs. All ECs will be visually inspected at a frequency and in a manner defined in the SMP.

## 3.6 Steps to Be Taken in Advance of On-Site Intrusive Work

A description of each of the plans to be followed for implementation of EC/ICs is provided below.

### 3.6.1 Excavation Work Plan

This SMP includes an EWP in Appendix C that is to be used for small-scale (i.e., limited) excavations. The NYSDEC project manager will make the determination of small-scale or large-scale, with respect to excavations. This EWP will be implemented to address any intrusive activities prior to the final remedy or any portion of the final remedy at the Site. The property owners, their tenants, consultants, and contractors are required to implement this EWP. National Grid is only responsible for costs associated with MGP-related impacts.

The Owners of the various properties located within the limits of this SMP as discussed above, and associated parties preparing the remedial documents submitted to the NYSDEC, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining impacts, and for structures that may be affected by excavations (such as building foundations and bridge footings). The owner of each property located within the limits of this SMP will ensure that property development activities will not interfere with, or otherwise impair or compromise, the ECs described in this SMP.

Any future intrusive work that will penetrate the CCS, or encounter or disturb the residual MGP-related impacts, including any modifications or repairs to the existing CCS will be performed in compliance with the EWP that is attached as Appendix C to 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 Community Air Monitoring Plan (CAMP) prepared for the Site. HASP and CAMP requirements are summarized in Section 3.6.2 and 3.6.3, respectively. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

### 3.6.2 HASP

This SMP includes an example Health and Safety Plan that is to be used for small-scale (i.e., limited) excavations and large-scale redevelopment. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in the HASP provided in Appendix F. This HASP establishes policies and procedures to protect personnel from the potential hazards posed by

the activities at the Site. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Site workers are required to review and sign a Site-specific HASP, acknowledging that they understand and will adhere to the HASP. Subcontractors will also prepare their own Site-specific HASP for the protection of their employees from the hazards associated with their work tasks and may use this document as a guide.

### 3.6.3 CAMP

A CAMP was developed for future activities at the Site. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in the CAMP provided in Appendix F. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. This plan describes the proposed air monitoring means and methods that will be implemented during intrusive activities.

### 3.6.4 QAPP

The Quality Assurance Project Plan (QAPP) presents the project scope and goals, organization, objectives, sample handling procedures and specific quality assurance/quality control (QA/QC) procedures. Furthermore, the QAPP identifies project responsibilities, prescribes guidance and specifications to make certain that:

- Samples are identified and controlled through sample tracking systems and chain-of custody protocols;
- Field and laboratory analytical results are valid and usable by adherence to established protocols and procedures;
- Laboratory data are validated so they can be applied to developing a conceptual understanding of the nature and extent of MGP impacts to soils and groundwaters at the Site; and
- All aspects of the investigation, from field to laboratory are documented to provide data that are technically sound and legally defensible.

The requirements of this QAPP apply to all contractor activities as appropriate for their respective tasks. This QAPP was prepared based upon guidance provided by the EPA and NYSDEC including DER-10, Technical Guidance for Site Investigation and Remediation, New York State Department of Environmental Conservation, May 2010. The QAPP is included as Appendix K.

### 3.6.5 FSP

The Field Sampling Plan (FSP) provides the applicable procedures for collecting, transporting, and logging analytical samples during further investigation described in Section 4. The FSP is a companion document to the QAPP described in Section 4 and is included as Appendix K.

## 3.7 Further Investigation and Possible Remedial Work Plan

Further investigation of the Site will be required should large-scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and

extent, if any, of impacts in areas where access was previously limited or unavailable, will be investigated pursuant to a plan approved by the NYSDEC. Based on the investigation results and the NYSDEC's determination of the need for a remedy, a remedial work plan will be developed for the final remedy of MGP-related impacts at the Site, including removal and/or treatment of any source areas to the extent feasible. If a remedy is determined to be necessary to address sources of non-MGP-related impacts present at the Site, this will be evaluated separately for further action and is not the responsibility of National Grid. A Citizen Participation Plan (CPP) will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment.

### 3.7.1 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain residual MGP-related impacts and the potential for soil vapor intrusion (SVI) has been identified, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, NYSDEC, NYSDOH, or other regulatory guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner(s) within 30 days of validation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

## 3.8 Inspections and Notifications

### 3.8.1 Inspections

Inspections of all remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive Site-wide inspection will be conducted annually, 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;
- Sampling and analysis of appropriate media during monitoring events;

- If Site records are complete and up to date; and
- Changes, or necessary changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 4). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 6).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a Qualified Environmental Professional (QEP) as defined by NYSDEC.

### 3.8.2 Notifications

The following notifications will be submitted by the property owner(s) to National Grid and the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in property use that are required under the terms of the Environmental Easement, 6NYCRR Part 375, and/or ECL.
- 15-business day advance notice of any proposed ground-intrusive activities pursuant to the EWP.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other ECs and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the affected property, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

National Grid will review and provide comments on all planned ground-intrusive activities. National Grid may have a representative on-site, as appropriate, during any ground-intrusive work activities to observe activities and document compliance with this SMP.

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

- At least 60 days prior to the change, National Grid and the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Environmental Easement, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the property, the new owner’s name, contact representative, and contact information will be confirmed in writing.

- National Grid will notify the property owner of any change to the National Grid and NYSDEC contacts listed below.

All notifications will be submitted to:

**National Grid Program Managers**:

Name: Jonathan Mitchell
Address: 175 East Old Country Road, Hicksville, New York 11801
Telephone: (631) 338-8636
Email: jonathan.mitchell@nationalgrid.com

Name: Mike Quinlan
Address: 175 East Old Country Road, Hicksville, New York 11801
Telephone: (516) 220-4363
Email: michael.quinlan@nationalgrid.com

**NYSDEC Senior Project Manager**:

Name: John Miller
Address: New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor, Albany, New York 12233-7013
Telephone: (518) 402-9589
Email: john.miller@dec.ny.gov

## 3.9 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

### 3.9.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to AECOM. These emergency contact lists must be maintained in an easily accessible location at the site.

**Table 3-2: Emergency Contact Numbers**

| | |
|---|---|
| Medical, Fire, and Police: | 911 |
| One Call Center: | (800) 272-4480 (3-day notice required for utility mark out) |
| Poison Control Center: | (800) 222-1222 |
| Pollution Toxic Chemical Oil Spills: | (800) 424-8802 |
| NYSDEC Spills Hotline | (800) 457-7362 |
| Kings County Hospital | (718) 245-3131 |
| Electric (Con Edison) | (800) 752-6633 |
| Water/Sewer (NYCDEP) | (212) 639-9675 |
| Gas (National Grid) | (718) 643-4050 |
| Jonathan Mitchell, National Grid | (631) 338-8636 |
| Mike Quinlan, National Grid | (516) 220-4363 |
| Megan Dascoli, AECOM | (212)377-8724 |

*** Note: Contact numbers subject to change and should be updated as necessary**

### 3.9.2 Map and Directions to Nearest Health Facility

**Site Location:** Flatbush Station Former A&B Holder Site

**Nearest Hospital Name:** Kings County Hospital

**Hospital Location:** 451 Clarkson Avenue, Brooklyn, NY 11203

**Hospital Telephone:** (718) 245-3131

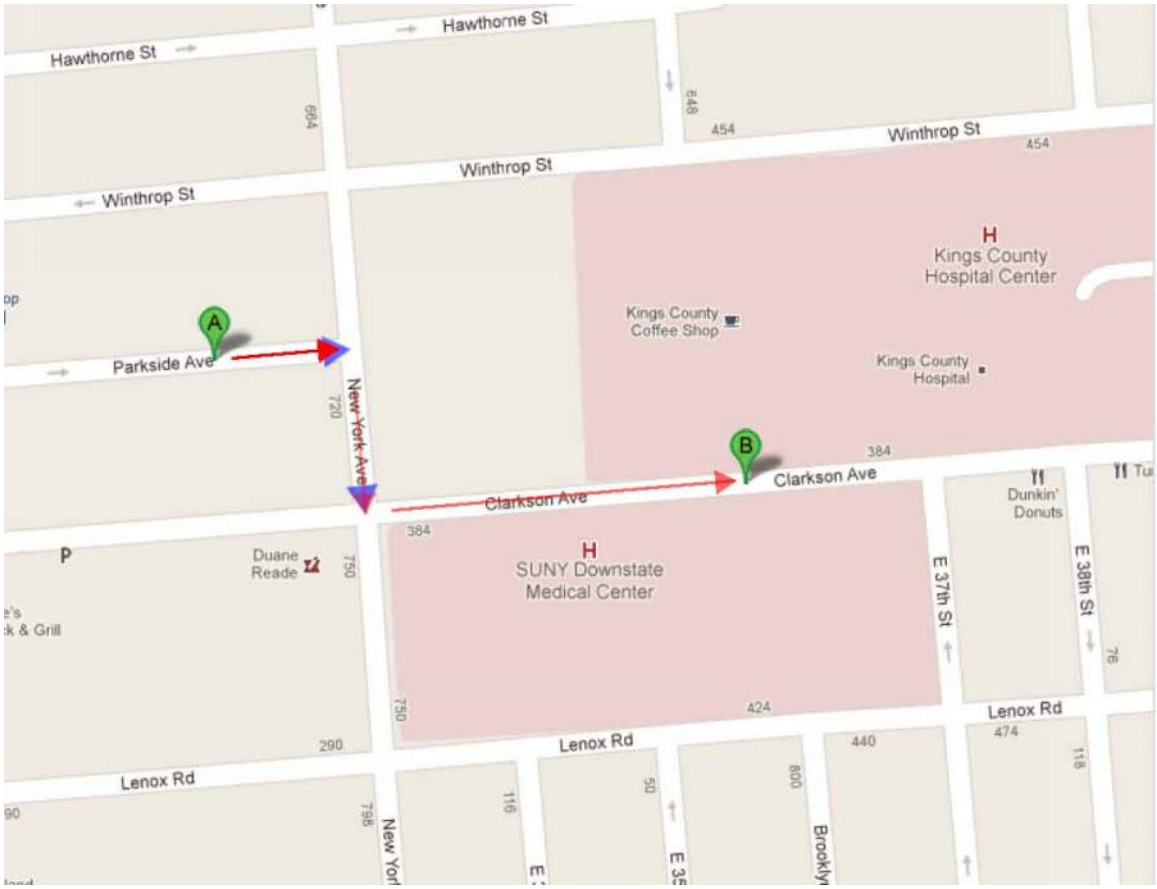
**Directions to the Hospital:**

1. Head East from the Site towards New York Avenue
2. Turn Right onto New York Avenue towards Clarkson Avenue
3. Turn the 1st Left onto Clarkson Avenue
4. Arrive at 451 Clarkson Avenue

**Total Distance:** 0.4 miles

**Total Estimated Time:** 1 minute

**Map Showing Route from the site to the Hospital:**



### 3.9.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 3-2).

#### 3.9.3.1 Emergency Spill Response

Should a spill occur, immediately employ methods to control or stop the migration of the spilled material, if feasible. If the release is significant or has impacted soil or groundwater, immediately notify the appropriate response agency. The following information must be provided:

- Time and location of spill;
- Type and nature of material spilled;
- Approximate amount of material spilled;
- Whether the spill has affected or has the potential to affect a waterway or sewer;
- A brief description of the affected areas/equipment; and
- The expected time of cleanup completion.

Cleanup procedures will be in accordance with applicable local, state and federal regulations. Spill cleanup kits, appropriate to the monitoring or redevelopment activities (i.e., absorbent pads, ground cover, speedy dry, etc.) must be made available on-site.

#### 3.9.3.2 Fire

Fire extinguishers are to be made available on-site for trained personnel to use on minor, controllable fires without endangering the safety of others. If the nature of the fire is beyond control with a fire extinguisher, the fire department shall be notified immediately.

### 3.9.4 Personal Injury

General information regarding Site operations and worker health and safety is included in the HASP found in Appendix F. Minor cuts or abrasions are to be washed and treated immediately. First aid may be given on-site as deemed necessary. If needed, the individual will be decontaminated and transported to Kings County Hospital. The ambulance/rescue squad will be contacted (911) for transport as necessary in an emergency. In any life-threatening situation, the life-saving treatment of personnel is the immediate priority. The Emergency Coordinator, as defined in the HASP, or designee will be available to brief the rescue squad immediately upon their arrival to the location of the injured person(s), nature and extent of the injury(s), personnel involved, hazardous substances involved, and any other pertinent information. The Emergency Coordinator will supply chemical hazard information to appropriate medical personnel and complete an incident report on the accident or injury.

# 4.0 Site Monitoring Plan

## 4.1 Introduction

### 4.1.1 General

This Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate residual MGP-related impacts at the Site, including all ECs, and all affected Site media identified below. ECs at the Site include CCS and MNA. This Monitoring Plan may only be revised with the approval of NYSDEC.

### 4.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

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

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and

Annual inspection and periodic certification.

Annual groundwater monitoring of the performance of the remedy and overall reduction in residual MGP-related impacts will be conducted. Any changes to monitoring frequency must be approved by the NYSDEC. Trends in MGP-related impact levels in air, soil, and/or groundwater in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 4-1 and outlined in detail in Sections 4.2 and 4.3 below.

**Table 4-1: Monitoring/Inspection Schedule**

| Monitoring Program | Frequency* | Matrix | Analysis |
|---|---|---|---|
| CCS | Annually | Cap | Inspection |
| MNA | Annually | Groundwater | BTEX & PAHs |
| SVI/Indoor Air | Prior to or after any Building Renovation/Construction | Air | EPA Modified TO-15 Parameters |
| Excavation | Prior to Disposal | Soil | Disposal Facility Parameters |

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

## 4.2 Composite Cover System Monitoring

The CCS EC will be inspected annually by a New York State licensed professional engineer or QEP to confirm that the cover system is intact, remains unchanged, and continues to be protective of human health and the environment. The inspection will be completed by an individual that is familiar with the CCS and the Site. The annual inspections will be documented on the Annual Inspection and Certification Checklist provided in Appendix G. The form provides a checklist to document if there are any changes since the previous year's inspection and that the EC continues to operate as intended. A survey of the CCS will be completed if changes in the cover occur during the year or if changes are noted in the annual inspection. The survey will be completed by a New York State licensed surveyor and referenced to the North American Vertical Datum (NAVD 88) to an accuracy of 0.01 ±foot and to the North American Datum (NAD 83).

If an emergency, such as a natural disaster or unforeseen failure of the EC occurs, an inspection of the affected property will be conducted by a QEP within five business days of the event to verify the effectiveness of the composite cover.

## 4.3 Groundwater Monitoring Program

Groundwater monitoring will be performed on an annual basis to assess the performance of natural attenuation. A network of monitoring wells (Figure 1-4) has been installed to monitor both up-gradient and down-gradient groundwater conditions at the Site. The monitoring wells included in the planned monitoring program are MW-1 and MW-2 (used for water levels) and MW-3, MW-4, and MW-10R (used for groundwater sample collection).

The network of wells has been designed based on the following criteria:

- Two monitoring wells (MW-01 and MW-02) were installed in the shallow-overburden aquifer underlying the Site to determine the upgradient groundwater conditions.

- Three monitoring wells (MW-03, MW-04, and MW-06) were installed in the shallow-overburden aquifer underlying the Site to determine the side-gradient groundwater conditions. The NYSDEC approved the decommissioning of monitoring well MW-06 as part of the 329 Clarkson Avenue Development.
- One monitoring well (MW-09) was installed in the shallow-overburden aquifer underlying the Site to determine the Site groundwater conditions. The NYSDEC approved the decommissioning of monitoring well MW-09 as part of the 329 Clarkson Avenue Development.
- Three monitoring wells (MW-07, MW-08, and MW-10) were installed in the shallow-overburden aquifer underlying the Site to determine the downgradient groundwater conditions. The NYSDEC approved the decommissioning of monitoring wells MW07, MW-08, and MW-10 as part of the 329 Clarkson Avenue Development provided MW-10 (Figure 1-4) is reinstalled following the property development activities (expected to be completed prior to the November 2025 annual groundwater monitoring event).

Monitoring well boring and construction logs are included in Appendix H.

### 4.3.1 Monitoring Schedule

The monitoring well network will be monitored annually. Groundwater monitoring may be discontinued with the approval of NYSDEC in monitoring wells if concentrations decrease below NYS AWQSGVs for four consecutive sampling events or as directed by the NYSDEC.

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

Deliverables for the groundwater monitoring program are specified below.

#### 4.3.1.1 Sampling Protocol

All monitoring well sampling activities performed by National Grid's QEP will be recorded in a field book and a groundwater-sampling log presented in the Standard Operating Procedures included in Appendix I. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network. Each sample will be collected utilizing low flow groundwater sampling collection methods provided in the Field Sampling Plan (Appendix J). Each groundwater sample will be analyzed for BTEX via EPA Method 8260C and PAHs via EPA Method 8270D by a NYSDOH environmental laboratory approval program (ELAP)-certified laboratory. The groundwater samples will also be collected, handled, and analyzed according to the example QAPP in Appendix K.

#### 4.3.1.2 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in any Site monitoring wells, the wells will be physically agitated/surged and redeveloped under the supervision of National Grid's QEP. Additionally, monitoring wells will be properly decommissioned and/or replaced under the supervision of National Grid's QEP (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed by National Grid's QEP based on assessments of structural integrity and overall performance.

The NYSDEC project manager will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well decommissioning will be performed in accordance with NYSDEC's guidance entitled "Commissioner Policy (CP)-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise directed by the NYSDEC.

## 4.4 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. 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 (Appendix G). The form will compile sufficient information to assess the following:

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

## 4.5 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the QAPP prepared for the Site (Appendix K). The main components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
  - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with the NYSDEC Analytical Services Protocol (ASP) requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.

  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

- Analytical Procedures;
- Preparation of a DUSR, which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules; and
- Corrective Action Measures.

## 4.6 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared, subsequent to each sampling event. The report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- 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 groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables is summarized in Table 4-2 below.

**Table 4-2: Schedule of Monitoring/Inspection Reports**

| Task | Reporting Frequency* |
|---|---|
| Groundwater Monitoring | Annual |
| Periodic Inspections | Annual |

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

# 5.0 Operation and Maintenance Plan

## 5.1 Introduction

The Site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment for MGP-related impacts. Therefore, the operation and maintenance of such components is not included in this SMP.

# 6.0 Inspections, Reporting, and Certifications

## 6.1 Site Inspections

### 6.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 4 Monitoring Plan of this SMP. At a minimum, a Site-wide inspection will be conducted annually. Inspections of CCS will also be conducted when a breakdown of CCS has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

### 6.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in Appendix G. Additionally, a general Site-wide inspection form will be completed during the Site-wide inspection. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all groundwater sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the Periodic Review Report.

### 6.1.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and
- The Site condition continues to be protective of public health and the environment and is performing as detailed in this SMP.

## 6.2 Certification of Engineering and Institutional Controls

Information about EC/ICs can be found in the Engineering and Institutional Control Plan portion of the SMP. Inspection of the EC/ICs will occur at a frequency described in Section 4 Monitoring Plan.

### 6.2.1 Owner's Certification

After the last inspection of the reporting period, the property owners' designated representative shall complete the "Property Owner Questionnaire and Certification" included in Appendix G. The property owners will certify that to their knowledge the ECs/ICs are in place at the Site and no changes have occurred for which National Grid and the NYSDEC have not been notified.

### 6.2.2 National Grid's Certification

After the last inspection of the reporting period, a QEP or Professional Engineer licensed to practice in New York State will prepare the following certification:

For each EC/IC 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 EC/ICs required by the remedial program was performed under my direction;
- The EC/ICs employed at this Site is unchanged from the date the control was put in place, or last approved by the NYSDEC, with the exception of the Composite Cover System (CCS) due to Site development by the property owner. The CCS was reestablished at the completion of the development activities;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment, with the exception of temporary disruption to the CCS during Site development by the property owner. Public access to the disturbed area was restricted by fencing, and the CCS was reestablished at the end of construction activities;
- Nothing has occurred that would constitute a violation or failure to comply with this SMP;
- Access is available to the Site by the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- Uses of the Site are compliant with the Environmental Easements.
- The EC systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices;
- The information presented in this report is accurate and complete; and
- 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.

The signed certifications will be included in the Periodic Review Report described below.

## 6.3 Periodic Review Report

A Periodic Review Report will be submitted by National Grid's QEP to the NYSDEC every year, beginning eighteen months after the COC or equivalent document is issued. 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 B (Environmental Easement). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Groundwater 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;
- Description of any change of use, import of materials, or excavation that occurred during the certifying period.

- All applicable inspection forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format;
- Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), 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 electronically in a NYSDEC-approved format. 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; and
- A Site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of this SMP;
  - Any new conclusions or observations regarding Site residual MGP impacts based on inspections or data generated by the Monitoring Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
  - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the Site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

## 6.4 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC project manager by National Grid's QEP 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 is approved by the NYSDEC project manager.

# 7.0 References

AECOM, 2011. Site Characterization Report, Flatbush Station A&B Former Gas Holder Site, Brooklyn, New York, Prepared for National Grid, Brooklyn, NY. December 2011

AECOM, 2015. 2014 Second Semiannual Groundwater Monitoring (SA2) and Annual Periodic Review Report, Flatbush Station A&B Former Gas Holder Site, Brooklyn, New York, Prepared for National Grid, Brooklyn, NY. August 2015.

AECOM, 2022a. FINAL Remedial System Optimization Investigation Report, 329 Clarkson Avenue, Southern Parcel, Flatbush Station A&B Former Gas Holder Site, Brooklyn, New York, Prepared for National Grid, Brooklyn, NY. May 2022.

AECOM, 2022b. FINAL Remedial System Optimization Investigation Report, 324 Winthrop Avenue, Northern Parcel, Flatbush Station A&B Former Gas Holder Site, Brooklyn, New York, Prepared for National Grid, Brooklyn, NY. June 2022.

GZA, 2025.Construction Completion Report, Clarkson Estates, Kings County, New York, prepared for CHV 329 Clarkson Avenue L.P. and CHV 329 Clarkson Avenue Housing Development Fund Corporation, New York, New York, January 2025.

New York State Department of Environmental Conservation (NYSDEC), 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Division of Water Technical and Operational Guidance Series (1.1.1), June 1998

NYSDEC, 2007. Order on Consent and Administrative Settlement - In the matter of the Development and Implementation of Remedial Programs for Former MGPs and Gas Holder Locations Under Article 27, Title 13 of the ECL by Brooklyn Union, Index # A2-0552-0606, March 2007

NYSDEC, 2010. DER-10, Technical Guidance for Site Investigation and Remediation.

# Tables

# Table 2-2
# Monitoring Well Construction Summary
# Flatbush Station A & B Former Gas Holder Site, Brooklyn, New York

| MW ID | Ground Surface Elevation (ft) | Top of Casing Elevation (ft) | Date Installed | Well Diameter | Screen Slot | Screened Interval (ft bgs) | Sump Interval (ft bgs) | 09-Mar-11 | | 28-Jul-11 | | Groundwater Elevation (ft) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | DTW | DTB | DTW | DTB | 9-Mar-11 | 28-Jul-11 |
| MW-1 | 57.36 | 57.09 | 1/25/11 | 2" pvc | 0.010 | 48-58 | 58-60 | 48.57 | 59.90 | 48.12 | 59.87 | 8.52 | 8.97 |
| MW-2 | 55.41 | 55.03 | 1/26/11 | 2" pvc | 0.010 | 47-57 | 57-59 | 46.52 | 58.80 | 46.08 | 58.72 | 8.51 | 8.95 |
| MW-3 | 58.23 | 57.83 | 2/9/11 | 2" pvc | 0.010 | 47-57 | 57-59 | 49.48 | 58.60 | 49.03 | 58.70 | 8.35 | 8.80 |
| MW-4 | 56.58 | 56.25 | 2/15/11 | 2" pvc | 0.010 | 47-57 | 57-59 | 47.88 | 59.00 | 47.43 | 58.95 | 8.37 | 8.82 |
| MW-5 | 59.58 | 59.15 | 1/20/11 | 2" pvc | 0.010 | 47-57 | 57-59 | 50.97 | 59.50 | 50.52 | 59.47 | 8.18 | 8.63 |
| MW-6 | 57.82 | 57.49 | 1/18/11 | 2" pvc | 0.020 | 47-57 | 57-59 | 49.22 | 58.80 | 48.80 | 58.78 | 8.27 | 8.69 |
| MW-7 | 58.23 | 57.86 | 1/20/11 | 2" pvc | 0.020 | 47-57 | 57-59 | 49.71 | 59.10 | 49.17 | 59.14 | 8.15 | 8.69 |
| MW-8 | 57.62 | 57.30 | 2/16/11 | 2" pvc | 0.010 | 47-57 | 57-59 | 49.18 | 59.30 | 48.72 | 59.22 | 8.12 | 8.58 |
| MW - 9 | 58.30 | 57.93 | 7/7/11 | 2" pvc | 0.010 | 47-57 | 57-59 | NA | NA | 49.17 | 60.16 | NA | 8.76 |
| MW - 10 | 58.02 | 57.61 | 7/13/11 | 2" pvc | 0.010 | 47-57 | 57-59 | NA | NA | 48.96 | 58.50 | NA | 8.65 |

**Notes:**

DTW = Depth to water from the top of casing/pvc

DTB = Depth to bottom of the well from the top of casing/pvc

bgs = Below Ground Surface

NA - Not available

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-01<br>324 Winthrop<br>SB-1(4.5-5)012411<br>1/24/2011<br>4.5 - 5 ft | SB-01<br>324 Winthrop<br>SB-1(44-46.5)012411<br>1/24/2011<br>44 - 46.5 ft | SB-01 DUP<br>324 Winthrop<br>DUP-2-012411<br>1/24/2011<br>44 - 46.5 ft | SB-01<br>324 Winthrop<br>SB-1(59-61.5)012411<br>1/24/2011<br>59 - 61.5 ft | SB-02<br>324 Winthrop<br>SB-2(3.5-12)012511<br>1/25/2011<br>3.5 - 12 ft | SB-02<br>324 Winthrop<br>SB-2(46.5-49)012511<br>1/25/2011<br>46.5 - 49 ft | SB-02<br>324 Winthrop<br>SB-2(56.5-59)012611<br>1/26/2011<br>56.5 - 59 ft | SB-03<br>324 Winthrop<br>SB-3(1.5-3)020811<br>2/8/2011<br>1.5 - 3 ft | SB-03<br>324 Winthrop<br>SB-3(31.5-34)020911<br>2/9/2011<br>31.5 - 34 ft | SB-03<br>324 Winthrop<br>SB-3(46.5-49)020911<br>2/9/2011<br>46.5 - 49 ft | SB-03<br>324 Winthrop<br>SB-3(56.5-59)020911<br>2/9/2011<br>56.5 - 59 ft | SB-03 DUP<br>324 Winthrop<br>DUP-3-020911<br>2/9/2011<br>56.5 - 59 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0021 U | < 0.0019 U | < 0.0018 U | < 0.0022 U | < 0.0020 U | < 0.0019 U | < 0.0023 U | < 0.0025 U | < 0.0020 U | < 0.0019 U | < 0.0023 U | < 0.0022 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0021 U | < 0.0019 U | < 0.0018 U | < 0.0022 U | < 0.002 U | < 0.0019 U | < 0.0023 U | < 0.0025 U | < 0.002 U | < 0.0019 U | < 0.0023 U | < 0.0022 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0021 U | < 0.0019 U | < 0.0018 U | < 0.0022 U | < 0.002 U | < 0.0019 U | < 0.0023 U | < 0.0025 U | < 0.002 U | < 0.0019 U | < 0.0023 U | < 0.0022 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 UJ | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0010 UJ | < 0.00093 UJ | < 0.00092 UJ | < 0.0011 UJ | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0010 UJ | < 0.00093 UJ | < 0.00092 UJ | < 0.0011 UJ | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.052 UJ | < 0.046 UJ | < 0.046 UJ | < 0.055 UJ | < 0.049 UJ | < 0.047 UJ | < 0.056 UJ | < 0.063 UJ | < 0.049 UJ | < 0.048 UJ | < 0.057 UJ | < 0.056 UJ |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.01 U | < 0.0093 U | < 0.0092 U | < 0.011 U | **0.0019 J** | < 0.0093 U | < 0.011 U | NA R | NA R | NA R | NA R | NA R |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.01 U | < 0.0093 U | < 0.0092 U | < 0.011 U | < 0.0098 U | < 0.0093 U | < 0.011 U | < 0.013 U | < 0.0098 U | < 0.0095 U | < 0.011 U | < 0.011 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.01 UJ | < 0.0093 UJ | < 0.0092 UJ | < 0.011 UJ | < 0.0098 U | < 0.0093 U | < 0.011 U | < 0.013 U | < 0.0098 U | < 0.0095 U | < 0.011 U | < 0.011 U |
| Acetone | 67-64-1 | 100 | 500 | **0.033 J** | **0.016 J** | **0.013 J** | **0.04 J** | **0.038 J** | NA R | **0.011 J** | **0.014 J** | **0.0062 J** | NA R | **0.0045 J** | **0.0065 J** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 UJ | < 0.00098 UJ | < 0.00095 UJ | < 0.0011 UJ | < 0.0011 UJ |
| Bromomethane | 74-83-9 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | **0.00046 J** | < 0.0011 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 UJ | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0010 UJ | < 0.00093 UJ | < 0.00092 U | < 0.0011 UJ | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 U | **0.0015** | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | **0.00061 J** | **0.0013** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Styrene | 100-42-5 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0010 U | < 0.00093 U | < 0.00092 UJ | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0010 UJ | < 0.00093 UJ | < 0.00092 U | < 0.0011 UJ | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0010 U | < 0.00093 U | < 0.00092 U | < 0.0011 U | < 0.00098 U | < 0.00093 U | < 0.0011 U | < 0.0013 U | < 0.00098 U | < 0.00095 U | < 0.0011 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.033** | **0.016** | **0.013** | **0.042** | **0.04** | < 0.047 U | **0.011** | **0.014** | **0.0062** | < 0.048 U | **0.0056** | **0.0078** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-04<br>324 Winthrop<br>SB-4(2.5-5)021011<br>2/10/2011<br>2.5 - 5 ft | SB-04<br>324 Winthrop<br>SB-4 (47.5-50)021011<br>2/10/2011<br>47.5 - 50 ft | SB-04<br>324 Winthrop<br>SB-4 (64-67)021011<br>2/10/2011<br>64 - 67 ft | SB-05<br>760 Parkside<br>SB/MW-5(4.5-5)010411<br>1/4/2011<br>4.5 - 5 ft | SB-05<br>760 Parkside<br>SB-5 (31-33)011911<br>1/19/2011<br>31 - 33 ft | SB-05<br>760 Parkside<br>SB-5 (47-49)011911<br>1/19/2011<br>47 - 49 ft | SB-05<br>760 Parkside<br>SB-5 (69-71)011911<br>1/19/2011<br>69 - 71 ft | SB-06<br>329 Clarkson<br>SB-6(4.5-5)011711<br>1/17/2011<br>4.5 - 5 ft | SB-06<br>329 Clarkson<br>SB-6(50-52)011811<br>1/18/2011<br>50 - 52 ft | SB-06<br>329 Clarkson<br>SB-6(66.5-69)011811<br>1/18/2011<br>66.5 - 69 ft | SB-07<br>329 Clarkson<br>SB-7 (4.5-5)012011<br>1/20/2011<br>4.5 - 5 ft | SB-07<br>329 Clarkson<br>SB-7 (51.5-54)012111<br>1/20/2011<br>51.5 - 54 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | **1.2** | **0.00033 J** | < 0.0010 U | < 0.0010 UJ |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0020 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0018 U | < 0.0018 U | < 0.0021 U | < 0.0024 U | **2.7** | **0.00082 J** | < 0.0020 U | < 0.0020 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | **0.56** | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.002 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0018 U | < 0.0018 U | < 0.0021 U | < 0.0012 U | **3.26** | **0.00082** | < 0.0010 U | < 0.0010 UJ |
| Toluene | 108-88-3 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.002 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0018 U | < 0.0018 U | < 0.0021 U | < 0.0012 U | **4.46** | **0.00115 J** | < 0.0010 U | < 0.0010 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 UJ | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 UJ | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 UJ | < 0.0010 UJ |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.05 UJ | < 0.054 UJ | < 0.059 UJ | < 0.058 UJ | < 0.046 UJ | < 0.045 UJ | < 0.053 U | < 0.061 UJ | < 4.7 U | < 0.046 UJ | < 0.051 UJ | < 0.051 UJ |
| 2-Butanone | 78-93-3 | 100 | 500 | NA R | NA R | NA R | R | R | R | R | R | < 0.93 U | R | R | R |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.01 U | < 0.011 U | < 0.012 U | < 0.012 U | < 0.0091 U | < 0.0090 UJ | < 0.011 UJ | < 0.012 UJ | R | < 0.0092 UJ | < 0.01 UJ | < 0.01 UJ |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.01 U | < 0.011 U | < 0.012 U | < 0.012 U | < 0.0091 U | < 0.0090 UJ | < 0.011 UJ | < 0.012 UJ | < 0.93 UJ | < 0.0092 UJ | < 0.01 UJ | < 0.01 UJ |
| Acetone | 67-64-1 | 100 | 500 | NA R | NA R | NA R | **0.016 J** | **0.0052 J** | **0.0061 J** | **0.048 J** | < 0.013 U | R | **0.016 J** | **0.01 J** | **0.022 J** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| Bromoform | 75-25-2 | NL | NL | < 0.0010 UJ | < 0.0011 UJ | < 0.0012 UJ | < 0.0012 U | < 0.00091 UJ | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 UJ | < 0.0010 U | < 0.0010 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 UJ | < 0.0011 U | < 0.0012 U | < 0.093 U | **0.00090 J** | < 0.0010 UJ | < 0.0010 UJ |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 UJ | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 UJ | < 0.0010 UJ |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 UJ | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 UJ | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | **0.23** | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | R | R | R | R | R | R | R | R | R |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | **0.052 J** | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | **0.0042** | **0.00046 J** | **0.00050 J** | **0.0045** | **0.00074 J** | < 0.093 U | **0.00053 J** | **0.00059 J** | < 0.0010 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| Styrene | 100-42-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 UJ |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0010 U | < 0.0011 U | < 0.0012 U | **0.0022** | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 UJ | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.00091 U | < 0.00090 U | < 0.0011 U | < 0.0012 U | < 0.093 U | < 0.00092 U | < 0.0010 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.05 U | < 0.054 U | < 0.059 U | **0.0224** | **0.00566** | **0.0066** | **0.0525** | **0.00074 J** | **0.282 J** | **0.01743 J** | **0.01059 J** | **0.022 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-07<br>329 Clarkson<br>SB-7 (66.5-69)012011<br>1/20/2011<br>66.5 - 69 ft | SB-08<br>329 Clarkson<br>SB-8 (3-5)021611<br>2/16/2011<br>3 - 5 ft | SB-08<br>329 Clarkson<br>SB-8 (43-46)021611<br>2/16/2011<br>43 - 46 ft | SB-08<br>329 Clarkson<br>SB-8 (56-59)021611<br>2/16/2011<br>56 - 59 ft | SB-09<br>324 Winthrop<br>SB-9(2-3)012811<br>1/28/2011<br>2 - 3 ft | SB-09<br>324 Winthrop<br>SB-9(6-7)012811<br>1/28/2011<br>6 - 7 ft | SB-09<br>324 Winthrop<br>SB-9(8-10)012811<br>1/28/2011<br>8 - 10 ft | SB-10<br>324 Winthrop<br>SB-10(1.5-3)020111<br>2/1/2011<br>1.5 - 3 ft | SB-10<br>324 Winthrop<br>SB-10(5-7.5)020111<br>2/1/2011<br>5 - 7.5 ft | SB-10<br>324 Winthrop<br>SB-10(60-62.5)020211<br>2/2/2011<br>60 - 62.5 ft | SB-10<br>324 Winthrop<br>SB-10(80-82.5)020211<br>2/2/2011<br>80 - 82.5 ft | SB-11<br>324 Winthrop<br>SB-11(1-2)013111<br>1/31/2011<br>1 - 2 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.0064** | **0.026** | < 0.00094 U | **0.01** | **0.066** | < 0.0010 U | < 0.0011 U | **0.00098 J** |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.0077** | **0.0056** | < 0.00094 U | **0.00031 J** | **0.26** | < 0.0010 U | **0.00054 J** | **0.00064 J** |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0020 U | < 0.0024 U | < 0.0019 U | < 0.0022 U | **0.014** | **0.018** | < 0.0019 U | **0.00091 J** | **0.4** | < 0.0021 U | < 0.0021 U | **0.0011 J** |
| o-Xylene | 95-47-6 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.0095** | **0.015** | < 0.00094 U | < 0.0012 U | **0.22** | < 0.0010 U | < 0.0011 U | **0.00088 J** |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.024** | **0.033** | < 0.0019 U | **0.00091** | **0.62** | < 0.0021 U | < 0.0021 U | **0.0020** |
| Toluene | 108-88-3 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.015** | **0.015** | < 0.00094 U | **0.00068 J** | **0.12** | **0.0015** | < 0.0011 U | **0.00056 J** |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.053** | **0.08** | < 0.0019 U | **0.012** | **1.1** | **0.0015** | **0.00054** | **0.0042** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.00098 UJ | < 0.0012 UJ | < 0.00096 UJ | < 0.0011 UJ | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.049 UJ | < 0.061 UJ | < 0.048 UJ | < 0.055 UJ | < 0.05 UJ | < 0.062 UJ | < 0.047 UJ | < 0.059 UJ | < 0.055 UJ | < 0.051 UJ | < 0.053 UJ | < 0.052 UJ |
| 2-Butanone | 78-93-3 | 100 | 500 | R | **0.0081 J** | R | R | **0.0024 J** | **0.0021 J** | NA R | **0.012 J** | **0.0077 J** | **0.0012 J** | NA R | **0.014** |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0098 UJ | < 0.012 U | < 0.0096 U | < 0.011 U | < 0.01 U | < 0.012 U | < 0.0094 U | < 0.012 U | < 0.011 U | < 0.01 U | < 0.011 UJ | < 0.01 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NS | NS | NS | NS | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0098 UJ | < 0.012 U | < 0.0096 U | < 0.011 U | < 0.01 U | < 0.012 U | < 0.0094 U | < 0.012 U | < 0.011 U | < 0.01 U | < 0.011 U | < 0.01 U |
| Acetone | 67-64-1 | 100 | 500 | **0.012 J** | **0.047 J** | R | **0.0080 J** | **0.031 J** | **0.024 J** | **0.014** | **0.15 J** | **0.085 J** | **0.0076 J** | **0.0063 J** | **0.12 J** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Bromoform | 75-25-2 | NL | NL | < 0.00098 U | < 0.0012 UJ | < 0.00096 UJ | < 0.0011 UJ | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 UJ | < 0.0010 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.00098 UJ | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.00092 J** | **0.0016 J** | < 0.00094 U | **0.0078** | **0.015** | < 0.0010 U | **0.0026** | **0.0021** |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.00098 UJ | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.00093 J** | **0.0040** | < 0.00094 U | **0.0019** | **0.0018** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Freon TF | 76-13-1 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.00026 J** | **0.017** | < 0.00094 U | **0.0023** | **0.043** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Methyl acetate | 79-20-9 | NL | NL | R | R | R | R | < 0.0010 U | < 0.0012 U | NA R | < 0.0012 U | < 0.0011 U | NA R | NA R | < 0.0010 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.0016** | **0.0021** | < 0.00094 U | **0.0035** | **0.0026** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.00053 J** | **0.00060 J** | **0.00063 J** | **0.0012** | **0.015** | < 0.0010 U | < 0.0011 U | **0.0020** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Styrene | 100-42-5 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | **0.00043 J** | **0.0033** | < 0.00094 U | < 0.0012 U | **0.016** | **0.0038** | **0.0010 J** | < 0.0010 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.00098 U | < 0.0012 U | < 0.00096 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.00094 U | < 0.0012 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.012 J** | **0.0551 J** | < 0.00096 U | **0.008 J** | **0.091** | **0.13** | **0.015** | **0.19** | **1.3** | **0.014** | **0.01** | **0.14** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-11<br>324 Winthrop<br>SB-11(35.6-40)013111<br>1/31/2011<br>35.6 - 40 ft | SB-11<br>324 Winthrop<br>SB-11(40.6-43)013111<br>1/31/2011<br>40.6 - 43 ft | SB-12<br>324 Winthrop<br>SB-12(3.5-4.5)020311<br>2/3/2011<br>3.5 - 4.5 ft | SB-12<br>324 Winthrop<br>SB-12(69-72)020411<br>2/4/2011<br>69 - 72 ft | SB-12<br>324 Winthrop<br>SB-12(75-77)020411<br>2/4/2011<br>75 - 77 ft | SB-13<br>324 Winthrop<br>SB-13(0-1.5)020411<br>2/4/2011<br>0 - 1.5 ft | SB-13<br>324 Winthrop<br>SB-13(64-66.5)020711<br>2/7/2011<br>64 - 66.5 ft | SB-13<br>324 Winthrop<br>SB-13(77-79)020711<br>2/7/2011<br>77 - 79 ft | SB-14<br>760 Parkside<br>SB-14(5-5.5)010311<br>1/3/2011<br>5 - 5.5 ft | SB-14<br>760 Parkside<br>SB-14(48-50)010511<br>1/5/2011<br>48 - 50 ft | SB-14<br>760 Parkside<br>SB-14(56-58)010611<br>1/6/2011<br>56 - 58 ft | SB-15<br>760 Parkside<br>SB-15(4-5.5)010311<br>1/3/2011<br>4 - 5.5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | **0.0010** | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.00094 U | < 0.00096 U | **0.00030 J** | < 0.00098 U | < 0.0011 U | < 0.0011 U | **0.25** | **0.00075 J** | < 0.0010 U | < 0.0011 U | **0.0017** | < 0.0010 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0019 U | < 0.0019 U | **0.00087 J** | < 0.0020 U | < 0.0022 U | **0.00056 J** | **0.38** | **0.00095 J** | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.00094 U | < 0.00096 U | **0.00050 J** | < 0.00098 U | < 0.0011 U | **0.0020** | **0.54** | **0.0015** | < 0.0010 U | **0.00042 J** | **0.0010 J** | < 0.0010 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0019 U | < 0.0019 U | **0.0014** | < 0.002 U | < 0.0022 U | **0.0026** | **0.92** | **0.0025** | < 0.0021 U | **0.00042** | **0.001** | < 0.0021 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.00094 U | < 0.00096 U | **0.0014** | **0.0026** | **0.00035 J** | < 0.0011 U | < 0.11 U | **0.00070 J** | **0.00080 J** | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0019 U | < 0.0019 U | **0.0031** | **0.0026** | **0.00035** | **0.0026** | **1.2** | **0.0039** | **0.0018** | **0.00084** | **0.0037** | < 0.0021 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NS | NS | NS | NS |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.047 UJ | < 0.048 UJ | < 0.059 UJ | < 0.049 UJ | < 0.055 UJ | < 0.053 UJ | < 5.7 UJ | < 0.055 UJ | < 0.052 UJ | < 0.053 UJ | < 0.054 UJ | < 0.052 UJ |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0094 U | < 0.0096 U | **0.0025 J** | NA R | NA R | NA R | NA R | NA R | R | R | R | R |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0094 U | < 0.0096 U | < 0.012 U | < 0.0098 U | < 0.011 U | < 0.011 U | < 1.1 U | < 0.011 U | < 0.01 U | < 0.011 UJ | < 0.011 UJ | < 0.01 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NS | NS | NS | NS |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0094 U | **0.00088 J** | < 0.012 U | < 0.0098 U | < 0.011 U | NA R | < 1.1 U | NA R | < 0.01 U | < 0.011 U | < 0.011 U | < 0.01 U |
| Acetone | 67-64-1 | 100 | 500 | NA R | < 0.0096 UJ | **0.014** | **0.0042 J** | **0.0059 J** | NA R | NA R | NA R | **0.0046 J** | < 0.011 U | < 0.011 U | **0.021 J** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Bromoform | 75-25-2 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 UJ | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 UJ | < 0.0010 U | < 0.0011 UJ | < 0.0011 UJ | < 0.0010 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.00094 U | < 0.00096 U | **0.00055 J** | < 0.00098 U | **0.0012** | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 UJ | < 0.0011 UJ | < 0.0010 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.00094 U | < 0.00096 U | **0.00035 J** | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 UJ | < 0.11 U | < 0.0011 UJ | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Freon TF | 76-13-1 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | **0.25** | < 0.0011 U | < 0.0010 U | **0.00047 J** | **0.0043** | < 0.0010 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.00094 U | < 0.00096 U | NA R | NA R | NA R | NA R | NA | NA R | R | R | R | R |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.00094 U | < 0.00096 U | **0.00035 J** | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | **0.00056 J** | < 0.11 U | **0.0022** | **0.00095 J** | < 0.0011 U | < 0.0011 U | **0.0053** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Styrene | 100-42-5 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | **0.0083** | **0.0011** | < 0.0011 U | < 0.11 U | **0.0022** | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.00094 U | < 0.00096 U | < 0.0012 U | < 0.00098 U | < 0.0011 U | < 0.0011 UJ | < 0.11 U | < 0.0011 UJ | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.047 U | **0.00088** | **0.021** | **0.015** | **0.0086** | **0.0031** | **1.4** | **0.0083** | **0.00555** | **0.00047** | **0.0043** | **0.0263** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-15<br>760 Parkside<br>SB-15(66-68)011011<br>1/10/2011<br>66 - 68 ft | SB-15<br>760 Parkside<br>SB-15(78-80)011011<br>1/11/2011<br>78 - 80 ft | SB-16<br>329 Clarkson<br>SB-16(4-5)012211<br>1/22/2011<br>4-5 | SB-16<br>329 Clarkson<br>SB-16(47-50)012211<br>1/22/2011<br>47-50 | SB-16<br>329 Clarkson<br>SB-16(68-70)012211<br>1/22/2011<br>68-70 | SB-17<br>760 Parkside<br>SB-17(4.5-5)010411<br>1/4/2011<br>4.5 - 5 ft | SB-17<br>760 Parkside<br>SB-17(31-33)011711<br>1/17/2011<br>31 - 33 ft | SB-17<br>760 Parkside<br>SB-17(49-51)011711<br>1/17/2011<br>49 - 51 ft | SB-17<br>760 Parkside<br>SB-17(67-69)011711<br>1/17/2011<br>67 - 69 ft | SB-18<br>760 Parkside<br>SB-18(4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-18<br>760 Parkside<br>SB-18(27.5-30)062411<br>6/27/2011<br>27.5 - 30 ft | SB-18<br>760 Parkside<br>SB-18(42.5-45)062411<br>6/27/2011<br>42.5 - 45 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | **0.0053 J** | **0.064 J** | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | **87** | **0.0016** | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | **0.093 J** | < 0.0010 U | **0.00035 J** | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | **70** | **0.0050** | < 0.0020 U | < 0.0020 U | < 0.0024 U | **0.0012 J** | **1.7** | **0.00066 J** | **0.0035** | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| o-Xylene | 95-47-6 | NL | NL | **38** | **0.0049** | < 0.00098 U | < 0.00098 U | < 0.0012 U | **0.00055 J** | **2** | **0.00051 J** | **0.0026** | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | **108** | **0.0099** | < 0.00098 U | < 0.00098 U | < 0.0012 U | **0.00175** | **3.7** | **0.00117** | **0.0061** | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| Toluene | 108-88-3 | 100 | 500 | **3** | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | **0.0048 J** | **0.17 J** | < 0.0010 U | **0.00046 J** | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **306** | **0.0214** | < 0.00098 U | < 0.00098 U | < 0.0012 U | **0.0136** | **7.727** | **0.00234** | **0.01301** | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 1 UJ | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 52 UJ | < 0.056 UJ | < 0.049 UJ | < 0.049 UJ | < 0.06 UJ | < 0.055 UJ | < 9.8 UJ | < 0.05 UJ | < 0.063 UJ | < 0.052 UJ | < 0.052 UJ | < 0.058 UJ |
| 2-Butanone | 78-93-3 | 100 | 500 | < 10 U | R | R | R | R | R | **0.25 J** | R | R | R | < 0.01 UJ | R |
| 2-Hexanone | 591-78-6 | NL | NL | < 10 U | < 0.011 U | < 0.0098 UJ | < 0.0098 UJ | < 0.012 UJ | < 0.011 U | R | < 0.01 UJ | < 0.013 UJ | < 0.01 U | < 0.01 U | < 0.012 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 10 U | < 0.011 U | < 0.0098 UJ | < 0.0098 UJ | < 0.012 UJ | < 0.011 U | < 2 UJ | < 0.01 UJ | < 0.013 UJ | < 0.01 U | < 0.01 UJ | < 0.012 U |
| Acetone | 67-64-1 | 100 | 500 | < 10 U | < 0.011 UJ | **0.0077 J** | **0.0056 J** | **0.013 J** | **0.0066 J** | R | < 0.01 U | < 0.013 U | < 0.01 U | **0.0078 J** | **0.039 J** |
| Bromochloromethane | 74-97-5 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 UJ | < 0.0010 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 UJ | < 0.0010 U | < 0.0012 U |
| Bromomethane | 74-83-9 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 1 U | **0.0084** | < 0.00098 UJ | < 0.00098 UJ | < 0.0012 UJ | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 UJ | < 0.0010 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | **0.00033 J** | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Chloromethane | 74-87-3 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 UJ | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 UJ | < 0.0010 U | < 0.0013 U | < 0.0010 UJ | < 0.0010 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | **11** | **0.0020** | < 0.00098 U | < 0.00098 U | **0.00057 J** | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Methyl acetate | 79-20-9 | NL | NL | < 2.1 U | < 0.0011 U | R | R | R | R | R | R | R | < 0.0010 U | < 0.0010 U | R |
| Methylcyclohexane | 108-87-2 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 1 U | < 0.0011 U | **0.00073 J** | < 0.00098 U | **0.0014** | **0.0037** | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | **0.0035** | **0.0025** |
| MTBE | 1634-04-4 | 100 | 500 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | < 1 U | **0.00098 J** | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | **0.19 J** | **0.00046 J** | **0.0025** | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 1 U | **0.00083 J** | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 1 U | < 0.0011 U | < 0.00098 U | < 0.00098 U | < 0.0012 U | < 0.0011 U | < 0.2 U | < 0.0010 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **11** | **0.01221** | **0.00843 J** | **0.0056 J** | **0.0153 J** | **0.0103** | **0.44** | **0.00046** | **0.0025** | < 0.052 | **0.0113** | **0.0415** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-18<br>760 Parkside<br>SB-18(70-72.5)062411<br>6/27/2011<br>70 - 72.5 ft | SB-19<br>760 Parkside<br>SB-19(4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-19<br>760 Parkside<br>SB-19(72.5-75)062411<br>6/24/2011<br>72.5 - 75 ft | SB-19<br>760 Parkside<br>SB-19(75-77.5)062411<br>6/24/2011<br>75 - 77.5 ft | SB-20<br>760 Parkside<br>SB-20 (4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-20<br>760 Parkside<br>SB-20(15-17.5)062411<br>6/28/2011<br>15 - 17.5 ft | SB-20<br>760 Parkside<br>SB-20(62.5-65)062411<br>6/28/2011<br>62.5 - 65 ft | SB-20<br>760 Parkside<br>SB-20(87.5-90)062411<br>6/29/2011<br>87.5 - 90 ft | SB-21<br>760 Parkside<br>SB-21(4.5-5)062311<br>6/23/2011<br>4.5 - 5 ft | SB-21<br>760 Parkside<br>SB-21(72.5-75)062411<br>6/29/2011<br>72.5 - 75 ft | SB-21<br>760 Parkside<br>SB-21(92.5-95)062411<br>6/29/2011<br>92.5 - 95 ft | SB-22<br>329 Clarkson<br>SB-22(1-2)062411<br>7/6/2011<br>1 - 2 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.0018** | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.00058 J** | < 0.12 U | < 0.0014 U | < 0.00094 U | **0.048** | **0.028** | < 0.0012 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0023 U | < 0.0027 U | < 0.0025 U | < 0.0021 U | < 0.0022 U | **0.0035** | < 0.24 U | < 0.0027 U | < 0.0019 U | **0.05** | **0.0072** | < 0.0023 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.00087 J** | < 0.12 U | < 0.0014 U | < 0.00094 U | **0.07** | **0.017** | < 0.0012 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0023 U | < 0.0027 U | < 0.0025 U | < 0.0021 U | < 0.0022 U | **0.00437** | < 0.24 U | < 0.0027 U | < 0 | **0.12** | **0.0242** | < 0.0012 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.0024** | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0023 U | < 0.0027 U | < 0.0025 U | < 0.0021 U | < 0.0022 U | **0.01352** | < 0.24 U | < 0.0027 U | 0 | 0.288 | 0.0764 | < 0.0012 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.058 UJ | < 0.066 UJ | < 0.061 UJ | < 0.053 UJ | < 0.054 UJ | < 0.055 UJ | < 6.1 UJ | < 0.068 UJ | < 0.047 UJ | < 0.062 UJ | < 0.064 UJ | < 0.058 UJ |
| 2-Butanone | 78-93-3 | 100 | 500 | R | R | R | < 0.011 UJ | R | R | R | R | R | R | R | < 0.012 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.012 U | < 0.013 U | < 0.012 U | < 0.011 U | < 0.011 U | < 0.011 U | < 1.2 U | < 0.014 U | < 0.0094 U | < 0.012 U | < 0.013 U | < 0.012 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.012 U | < 0.013 U | < 0.012 U | < 0.011 U | < 0.011 U | < 0.011 U | < 1.2 U | < 0.014 U | < 0.0094 U | < 0.012 U | < 0.013 U | < 0.012 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.014 UJ | < 0.013 U | < 0.012 U | < 0.011 U | < 0.011 U | < 0.015 UJ | R | < 0.014 UJ | < 0.0094 U | < 0.021 UJ | < 0.013 UJ | R |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0013 UJ | < 0.0012 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0013 UJ | < 0.0012 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | **0.0070** | < 0.0012 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0013 UJ | < 0.0012 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0013 U | < 0.0012 U | **0.00088 J** | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | **0.00039 J** | **0.0018** | < 0.0012 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0013 UJ | < 0.0012 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | **0.2** | < 0.0014 U | < 0.00094 U | **0.0021** | **0.0018** | < 0.0012 U |
| Methyl acetate | 79-20-9 | NL | NL | R | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | R | < 0.24 U | < 0.0014 U | < 0.00094 U | R | R | < 0.0012 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | **0.014** | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | **0.0047** | < 0.12 U | **0.0039** | < 0.00094 U | **0.011** | **0.0029** | **0.0020** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.0049** | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | **0.0014** | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | **0.00059 J** | < 0.0013 U | < 0.0012 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.12 U | < 0.0014 U | < 0.00094 U | < 0.0012 U | < 0.0013 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.014** | < 0.066 | < 0.061 | **0.00088** | < 0.054 | **0.0096** | **0.2** | **0.0039** | < 0.047 | **0.01408** | **0.0149** | **0.002** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-22<br>329 Clarkson<br>SB-22(82.5-85)062411<br>7/6/2011<br>82.5 - 85 ft | SB-22<br>329 Clarkson<br>SB-22(92.5-95)062411<br>7/6/2011<br>92.5 - 95 ft | SB-23<br>329 Clarkson<br>SB-23(77.5-80)062411<br>7/13/2011<br>77.5 - 80 ft | SB-23<br>329 Clarkson<br>SB-23(92.5-95)062411<br>7/13/2011<br>92.5 - 95 ft | SB-24<br>760 Parkside<br>SB-24(4-5)062411<br>6/30/2011<br>4 - 5 ft | SB-24<br>760 Parkside<br>SB-24(32.5-35)062411<br>6/30/2011<br>32.5 - 35 ft | SB-25<br>324 Winthrop<br>SB-25(4-5)062411<br>7/7/2011<br>4 - 5 ft | SB-25<br>324 Winthrop<br>SB-25(82.5-85)062411<br>7/11/2011<br>82.5 - 85 ft | SB-25<br>324 Winthrop<br>SB-25(90-92.5)062411<br>7/11/2011<br>90 - 92.5 ft | SB-101<br>324 Winthrop<br>SB-101(2-4)<br>8/24/2020<br>2 - 4 ft | SB-101<br>324 Winthrop<br>SB-101(7-9)<br>8/25/2020<br>7 - 9 ft | SB-101<br>324 Winthrop<br>SB-101(12-14)<br>8/25/2020<br>12 - 14 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | **0.00033 J** | < 0.0012 U | < 0.0011 U | **0.15** | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | **33** | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | **0.00060 J** | < 0.0023 U | < 0.0022 U | **0.081** | < 0.0024 U | < 0.0020 U | < 0.0025 U | < 0.0024 U | **20** | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| o-Xylene | 95-47-6 | NL | NL | **0.00069 J** | < 0.0012 U | < 0.0011 U | **0.1** | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | **21** | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | **0.00129** | < 0.0012 U | < 0.0011 U | **0.181** | < 0.0024 U | < 0.0020 U | < 0.0025 U | < 0.0024 U | **41** | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | **0.00053 J** | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **0.00162 J** | < 0.0012 U | < 0.0011 U | **0.33153 J** | < 0.0024 U | < 0.0020 U | < 0.0025 U | < 0.0024 U | **74** | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NS | NS | NS | NS | NS | NS | NA | NA | NA | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 UJ | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 UJ | < 0.0012 UJ | < 0.0012 U | < 0.0014 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 UJ | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 UJ | < 0.0012 UJ | < 0.0012 U | < 0.0014 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.06 UJ | < 0.058 UJ | < 0.055 U | < 0.061 U | < 0.06 UJ | < 0.05 UJ | < 0.063 UJ | < 0.061 UJ | < 58 UJ | < 0.023 U | < 0.024 U | < 0.027 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.012 U | < 0.012 U | < 0.011 U | < 0.012 UJ | R | R | < 0.013 U | NA R | NA R | < 0.0058 U | < 0.0059 U | < 0.0068 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.012 UJ | < 0.012 U | < 0.011 U | < 0.012 U | < 0.012 U | < 0.01 U | < 0.013 U | < 0.012 U | < 12 U | < 0.0058 U | < 0.0059 U | < 0.0068 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NS | NS | NS | NS | NS | NS | NA | NA | NA | < 0.012 U | < 0.012 U | < 0.014 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.012 UJ | < 0.012 U | < 0.011 U | < 0.012 U | < 0.012 U | < 0.01 U | < 0.013 U | < 0.012 U | < 12 U | < 0.0058 U | < 0.0059 U | < 0.0068 U |
| Acetone | 67-64-1 | 100 | 500 | **0.012 J** | **0.015 J** | **0.015** | **0.0091 J** | < 0.012 UJ | < 0.01 UJ | NA R | **0.0070 J** | NA R | **0.023** | **0.022** | **0.026** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 UJ | < 1.2 U | < 0.0012 UJ | < 0.0012 UJ | < 0.0014 UJ |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.00061 J** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | **0.00041 J** | **0.0022** | < 0.0014 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 UJ | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 UJ | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | **0.0038** | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | **6.9** | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | R | R | < 0.0013 U | < 0.0012 U | < 2.3 U | < 0.0058 U | < 0.0059 U | < 0.0068 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | **0.0027** | **0.0052** | **0.015 B** | **0.019** | **0.0031** | < 0.0010 U | **0.00065 J** | < 0.0023 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 UJ | < 0.0012 UJ | < 0.0014 UJ |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | **0.3 J** | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.0012 U | < 0.0014 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.01531 J** | **0.0202 J** | **0.03 B** | **0.0319 J** | **0.0031** | < 0.05 | **0.00065** | **0.0070** | **81** | **0.023** | **0.024** | **0.026** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-101<br>324 Winthrop<br>SB-101(22-24)<br>8/26/2020<br>22 - 24 ft | SB-101<br>324 Winthrop<br>SB-101(33-35)<br>8/26/2020<br>33 - 35 ft | SB-102<br>324 Winthrop<br>SB-102(2-4)<br>8/26/2020<br>2 - 4 ft | SB-102<br>324 Winthrop<br>SB-102(6-8)<br>8/26/2020<br>6 - 8 ft | SB-102<br>324 Winthrop<br>SB-102(12-14)<br>8/26/2020<br>12 - 14 ft | SB-102<br>324 Winthrop<br>SB-102(22-24)<br>8/26/2020<br>22 - 24 ft | SB-102<br>324 Winthrop<br>SB-102(33-35)<br>8/26/2020<br>33 - 35 ft | SB-103<br>324 Winthrop<br>SB-103(2-4)<br>8/25/2020<br>2 - 4 ft | SB-103<br>324 Winthrop<br>SB-103(6-8)<br>8/27/2020<br>6 - 8 ft | SB-103<br>324 Winthrop<br>SB-103(12-14)<br>8/27/2020<br>12 - 14 ft | SB-103<br>324 Winthrop<br>SB-103(22-24)<br>8/27/2020<br>22 - 24 ft | SB-103<br>324 Winthrop<br>SB-103(33-35)<br>8/27/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | **0.00042 J** | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | **0.00042** | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.029 U | < 0.037 U | < 0.027 U | < 0.029 U | < 0.034 U | < 0.024 U | < 0.027 U | < 0.022 U | < 0.022 U | < 0.026 U | < 0.024 U | < 0.025 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0073 U | < 0.0092 U | **0.0066 J** | **0.0046 J** | < 0.0084 U | < 0.0059 U | < 0.0067 U | **0.0071** | **0.0039 J** | **0.0039 J** | < 0.0060 U | < 0.0064 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0073 U | < 0.0092 U | < 0.0067 U | < 0.0073 U | < 0.0084 U | < 0.0059 U | < 0.0067 U | < 0.0055 U | < 0.0054 U | < 0.0064 U | < 0.0060 U | < 0.0064 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.015 U | < 0.018 U | < 0.013 U | < 0.015 U | < 0.017 U | < 0.012 U | < 0.013 U | < 0.011 U | < 0.011 U | < 0.013 U | < 0.012 U | < 0.013 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0073 U | < 0.0092 U | < 0.0067 U | < 0.0073 U | < 0.0084 U | < 0.0059 U | < 0.0067 U | < 0.0055 U | < 0.0054 U | < 0.0064 U | < 0.0060 U | < 0.0064 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0087 U | < 0.011 U | **0.048** | **0.029** | **0.011** | < 0.0071 U | < 0.0080 U | **0.049** | **0.026** | **0.02** | **0.014** | **0.0095** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0015 UJ | < 0.0018 UJ | < 0.0013 UJ | < 0.0015 UJ | < 0.0017 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0011 UJ | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | **0.00054 J** | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | **0.00073 J** | **0.00039 J** | < 0.0012 U | < 0.0013 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0073 U | < 0.0092 U | < 0.0067 U | < 0.0073 U | < 0.0084 U | < 0.0059 U | < 0.0067 U | < 0.0055 U | < 0.0054 U | < 0.0064 U | < 0.0060 U | < 0.0064 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0015 UJ | < 0.0018 UJ | < 0.0013 UJ | < 0.0015 UJ | < 0.0017 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Styrene | 100-42-5 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0015 U | < 0.0018 U | < 0.0013 U | < 0.0015 U | < 0.0017 U | < 0.0012 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0013 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.029 U | < 0.037 U | **0.055** | **0.034** | **0.011** | < 0.024 U | < 0.027 U | **0.057** | **0.031** | **0.024** | **0.014** | **0.0095** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-104<br>324 Winthrop<br>SB-104(2-4)<br>8/25/2020<br>2 - 4 ft | SB-104<br>324 Winthrop<br>SB-104(6-8)<br>8/30/2020<br>6 - 8 ft | SB-104<br>324 Winthrop<br>SB-104(12-14)<br>8/30/2020<br>12 - 14 ft | SB-104<br>324 Winthrop<br>SB-104(22-24)<br>8/30/2020<br>22 - 24 ft | SB-104<br>324 Winthrop<br>SB-104(33-35)<br>8/30/2020<br>33 - 35 ft | SB-108<br>324 Winthrop<br>SB-108(2-4)<br>8/24/2020<br>2 - 4 ft | SB-108<br>324 Winthrop<br>SB-108(6-8)<br>8/25/2020<br>6 - 8 ft | SB-108<br>324 Winthrop<br>SB-108(10-12)<br>8/25/2020<br>10 - 12 ft | SB-108<br>324 Winthrop<br>SB-108(22-24)<br>8/25/2020<br>22 - 24 ft | SB-108<br>324 Winthrop<br>SB-108(33-35)<br>8/25/2020<br>33 - 35 ft | SB-109<br>324 Winthrop<br>SB-109(1-3)<br>8/26/2020<br>1 - 3 ft | SB-109<br>324 Winthrop<br>SB-109 (5-7)<br>9/1/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | **0.00056 J** | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0025** | **0.26** | **0.21** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.0066** |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.011** | **18** | **5.5** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.0011 J** |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0061** | **24** | **7.2** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.0055** |
| o-Xylene | 95-47-6 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0035** | **8.5** | **2.5** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.0045** |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.001 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0096** | **33** | **9.7** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.01** |
| Toluene | 108-88-3 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0012 J** | **1.5** | **0.59** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.0020** |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **0.00056** | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.024** | **52** | **16** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.02** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.00036 J** | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0043 J+** | < 0.15 U | **0.1 J** | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.00022 J** |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.00077 J** | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.00042 J** |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0011 J** | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.00072 J** |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.021 U | < 0.022 U | < 0.023 U | < 0.027 U | < 0.026 U | < 0.035 U | < 7.4 U | < 6.1 U | < 0.022 U | < 0.028 U | < 0.029 U | < 0.024 U |
| 2-Butanone | 78-93-3 | 100 | 500 | **0.0053** | **0.0048 J** | **0.0054 J** | < 0.0068 U | < 0.0064 U | **0.036** | < 0.74 U | < 0.61 U | < 0.0054 U | < 0.0071 U | 0.0054 J | **0.0078** |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0051 U | < 0.0056 U | < 0.0056 U | < 0.0068 U | < 0.0064 U | < 0.0088 U | < 0.74 U | < 0.61 U | < 0.0054 U | < 0.0071 U | < 0.0072 U | < 0.0059 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.01 U | < 0.011 U | < 0.011 U | < 0.014 U | < 0.013 U | < 0.018 U | < 1.5 U | < 1.2 U | < 0.011 U | < 0.014 U | < 0.014 U | < 0.012 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0051 U | < 0.0056 U | < 0.0056 U | < 0.0068 U | < 0.0064 U | **0.0033 J** | < 0.74 U | < 0.61 U | < 0.0054 U | < 0.0071 U | < 0.0072 U | < 0.0059 U |
| Acetone | 67-64-1 | 100 | 500 | **0.031** | **0.026** | **0.032** | **0.012** | < 0.0077 U | **0.23** | < 0.74 U | < 0.61 U | < 0.0065 U | < 0.0085 U | 0.04 | **0.037** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0010 UJ | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 UJ | < 0.0014 UJ | < 0.0014 UJ | < 0.0012 UJ |
| Bromomethane | 74-83-9 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.0010** | **0.00036 J** | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0022** | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | 0.00063 J | **0.00046 J** |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0040** | **0.16** | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.0036** |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0080** | **3.9** | **1.3** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.01** |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0051 U | < 0.0056 U | < 0.0056 U | < 0.0068 U | < 0.0064 U | < 0.0088 U | **0.29 J** | **0.71** | < 0.0054 U | < 0.0071 U | < 0.0072 U | < 0.0059 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.0090** | **0.43** | **0.19** | < 0.0011 U | < 0.0014 U | < 0.0014 U | **0.0032** |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0010 UJ | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 UJ | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | **0.00069 J** | **0.28** | **0.17** | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0010 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0018 U | < 0.15 U | < 0.12 U | < 0.0011 U | < 0.0014 U | < 0.0014 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.038** | **0.031** | **0.037** | **0.012** | < 0.026 U | **0.32** | **57** | **18** | < 0.022 U | < 0.028 U | 0.046 | **0.083** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-109<br>324 Winthrop<br>SB-109 (12-14)<br>9/1/2020<br>12 - 14 ft | SB-109<br>324 Winthrop<br>SB-109 (27-29)<br>9/1/2020<br>27 - 29 ft | SB-109<br>324 Winthrop<br>SB-109 (48-50)<br>9/1/2020<br>48 - 50 ft | SB-109<br>324 Winthrop<br>SB-109 (70-72)<br>9/2/2020<br>70 - 72 ft | SB-109<br>324 Winthrop<br>SB-109 (83-85)<br>9/2/2020<br>83 - 85 ft | SB-110<br>324 Winthrop<br>SB-110(1-3)<br>8/26/2020<br>1 - 3 ft | SB-110<br>324 Winthrop<br>SB-110 (5-7)<br>8/31/2020<br>5 - 7 ft | SB-110<br>324 Winthrop<br>SB-110 (20-22)<br>8/31/2020<br>20 - 22 ft | SB-110<br>324 Winthrop<br>SB-110 (33-35)<br>8/31/2020<br>33 - 35 ft | SB-110 DUP<br>324 Winthrop<br>DUPE-2-083120<br>8/31/2020<br>5 - 7 ft | SB-111<br>324 Winthrop<br>SB-111(2-4)<br>10/4/2020<br>2 - 4 ft | SB-111<br>324 Winthrop<br>SB-111(5-7)<br>10/17/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | **0.00095 J** | **0.58** | < 0.0011 U | < 0.0014 U | **0.75** | < 0.00098 U | **0.011** |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | **18** | < 0.0011 U | < 0.0014 U | **24** | < 0.00098 U | **0.0029** |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | **0.00063 J** | **26** | < 0.0011 U | < 0.0014 U | **35** | < 0.00098 U | **0.0097** |
| o-Xylene | 95-47-6 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | **9.6** | < 0.0011 U | < 0.0014 U | **13** | < 0.00098 U | **0.0056** |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | **0.00063** | **36** | < 0.0011 U | < 0.0014 U | **48** | < 0.00098 U | **0.015** |
| Toluene | 108-88-3 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | **1.9** | < 0.0011 U | < 0.0014 U | **2.6** | < 0.00098 U | **0.011** |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | **0.0016** | **56** | < 0.0011 U | < 0.0014 U | **75** | < 0.00098 U | **0.04** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.019 U | < 0.024 U | < 0.019 U | < 0.025 U | < 0.026 U | < 0.031 U | < 7 U | < 0.023 U | < 0.029 U | < 6.3 U | < 0.02 U | < 0.022 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0049 U | < 0.0059 U | < 0.0047 U | < 0.0062 U | < 0.0064 U | **0.0066 J** | < 0.7 U | < 0.0056 U | < 0.0072 U | < 0.63 U | < 0.0049 U | **0.0039 J** |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0049 U | < 0.0059 U | < 0.0047 U | < 0.0062 UJ | < 0.0064 U | < 0.0077 U | < 0.7 U | < 0.0056 U | < 0.0072 U | < 0.63 U | < 0.0049 U | < 0.0054 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.0097 U | < 0.012 U | < 0.0093 U | < 0.012 U | < 0.013 U | < 0.015 U | < 1.4 U | < 0.011 U | < 0.014 U | < 1.3 U | < 0.0098 U | < 0.011 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0049 U | < 0.0059 U | < 0.0047 U | < 0.0062 UJ | < 0.0064 U | < 0.0077 U | < 0.7 U | < 0.0056 U | < 0.0072 U | < 0.63 U | < 0.0049 U | < 0.0054 U |
| Acetone | 67-64-1 | 100 | 500 | **0.011** | **0.025** | < 0.0056 U | < 0.0075 U | < 0.0077 U | **0.054** | < 0.7 U | **0.018** | < 0.0087 U | < 0.63 U | < 0.0059 U | **0.029** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Bromoform | 75-25-2 | NL | NL | < 0.00097 UJ | < 0.0012 UJ | < 0.00093 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0015 UJ | < 0.14 U | < 0.0011 UJ | < 0.0014 UJ | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.00097 U | **0.00066 J** | < 0.00093 U | < 0.0012 U | < 0.0013 U | **0.0032** | **0.097 J** | **0.0014** | < 0.0014 U | **0.086 J** | **0.00028 J** | **0.0038** |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 UJ | < 0.0011 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | **0.14** | < 0.0011 U | < 0.0014 U | **0.21** | < 0.00098 U | **0.00075 J** |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Freon TF | 76-13-1 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | **0.00038 J** | **4.8** | < 0.0011 U | < 0.0014 U | **6.6** | < 0.00098 U | **0.00085 J** |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0049 U | < 0.0059 U | < 0.0047 U | < 0.0062 U | < 0.0064 U | < 0.0077 U | **0.45 J** | < 0.0056 U | < 0.0072 U | **0.33 J** | < 0.0049 UJ | < 0.0054 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | **0.52** | < 0.0011 U | < 0.0014 U | **0.72** | < 0.00098 U | **0.0014** |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | **0.00062 J** | < 0.0015 U | < 0.14 U | **0.00066 J** | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 UJ | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Styrene | 100-42-5 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 UJ | < 0.0013 U | < 0.0015 U | **0.25** | < 0.0011 U | < 0.0014 U | **0.24** | < 0.00098 U | **0.0015** |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | **0.00066 J** | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 U | < 0.0011 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.00097 U | < 0.0012 U | < 0.00093 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.14 U | < 0.0011 U | < 0.0014 U | < 0.13 U | < 0.00098 UJ | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.011** | **0.026** | < 0.019 U | < 0.025 U | **0.0013** | **0.066** | **62** | **0.02** | < 0.029 U | **84** | **0.00028** | **0.081** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-111<br>324 Winthrop<br>SB-111(13-15)<br>10/17/2020<br>13 - 15 ft | SB-111<br>324 Winthrop<br>SB-111(28-30)<br>10/17/2020<br>28 - 30 ft | SB-111<br>324 Winthrop<br>SB-111(33-35)<br>10/17/2020<br>33 - 35 ft | SB-111 DUP<br>324 Winthrop<br>DUPE-21-101720<br>10/17/2020<br>13 - 15 ft | SB-112<br>324 Winthrop<br>SB-112(2-4)<br>10/4/2020<br>2 - 4 ft | SB-112<br>324 Winthrop<br>SB-112(5-7)<br>10/10/2020<br>5 - 7 ft | SB-112<br>324 Winthrop<br>SB-112(13-15)<br>10/10/2020<br>13 - 15 ft | SB-112<br>324 Winthrop<br>SB-112(33-35)<br>10/10/2020<br>33 - 35 ft | SB-112<br>324 Winthrop<br>SB-112(48-50)<br>10/10/2020<br>48 - 50 ft | SB-112<br>324 Winthrop<br>SB-112(66-68)<br>10/11/2020<br>66 - 68 ft | SB-112<br>324 Winthrop<br>SB-112(83-85)<br>10/11/2020<br>83 - 85 ft | SB-113<br>324 Winthrop<br>SB-113(2-4)<br>10/3/2020<br>2 - 4 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.6 J-** | **0.0023 J-** | **0.0018** | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **8.6 J-** | **0.00042 J-** | **0.0030** | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0012 U | **0.00020 J** | < 0.0012 U | < 0.0011 U | < 0.0011 U | **9.7 J-** | **0.0030 J-** | **0.0068** | < 0.0010 U | **0.0018** | < 0.0014 U | **0.00036** |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | **0.0029** | < 0.0012 U | < 0.0011 U | < 0.0011 U | **7.7 J-** | **0.0012 J-** | **0.0042** | < 0.0010 U | **0.0011** | < 0.0014 U | < 0.0012 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0012 U | **0.0031** | < 0.0012 U | < 0.0011 U | < 0.0011 U | **17** | **0.0042** | **0.011** | < 0.001 U | **0.0029** | < 0.0014 U | **0.00036** |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **1.6 J-** | **0.0078 J-** | **0.0076** | < 0.0010 U | **0.00087 J** | **0.00036 J** | **0.00074** |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0012 U | **0.0031** | < 0.0012 U | < 0.0011 U | < 0.0011 U | **28** | **0.015** | **0.023** | < 0.001 U | **0.0038** | **0.00036** | **0.0011** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.024 U | < 0.023 U | < 0.023 U | < 0.022 U | < 0.023 U | < 7.8 UJ | < 0.023 UJ | < 0.018 U | < 0.02 U | < 0.02 U | < 0.029 U | < 0.025 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0059 U | < 0.0058 U | < 0.0058 U | < 0.0056 U | < 0.0057 U | < 0.78 UJ | < 0.0057 UJ | < 0.0044 U | < 0.0050 U | < 0.0051 U | < 0.0072 U | < 0.0062 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0059 U | < 0.0058 U | < 0.0058 U | < 0.0056 U | < 0.0057 U | < 0.78 UJ | < 0.0057 UJ | < 0.0044 U | < 0.0050 U | < 0.0051 U | < 0.0072 U | < 0.0062 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.012 U | < 0.012 U | < 0.012 U | **0.0099 J** | < 0.011 U | < 1.6 UJ | < 0.011 UJ | < 0.0088 U | < 0.01 U | < 0.01 U | < 0.014 U | < 0.012 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0059 U | < 0.0058 U | < 0.0058 U | < 0.0056 U | < 0.0057 U | < 0.78 UJ | < 0.0057 UJ | < 0.0044 U | < 0.0050 U | < 0.0051 U | < 0.0072 U | < 0.0062 U |
| Acetone | 67-64-1 | 100 | 500 | **0.011** | < 0.0070 U | < 0.0070 U | **0.011** | **0.016** | < 0.78 UJ | **0.0088 J-** | **0.011** | < 0.0060 U | < 0.0061 U | < 0.0086 U | < 0.0075 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | **0.00056 J** | < 0.16 UJ | < 0.0011 UJ | **0.0025** | **0.00059 J** | **0.0022** | < 0.0014 U | < 0.0012 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | **0.00043 J** | **0.0021** | < 0.0012 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 UJ | < 0.16 UJ | < 0.0011 UJ | < 0.00088 UJ | < 0.0010 UJ | < 0.0010 UJ | < 0.0014 U | < 0.0012 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.59 J-** | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 UJ | < 0.0010 UJ | < 0.0014 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | **0.00075 J** | **0.00040 J** | < 0.0011 U | < 0.0011 U | **1.4 J-** | < 0.0011 UJ | **0.00047 J** | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0059 U | < 0.0058 U | < 0.0058 U | < 0.0056 U | < 0.0057 U | **0.59 J-** | < 0.0057 UJ | < 0.0044 U | < 0.0050 UJ | < 0.0051 UJ | < 0.0072 U | < 0.0062 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | **2.2 J-** | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | **0.0013** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | **0.00076 J** | < 0.0012 U | < 0.0011 U | < 0.0011 U | **0.9 J-** | < 0.0011 UJ | **0.0021** | < 0.0010 U | **0.0014** | **0.0010 J** | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | **0.0050** | < 0.0012 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.16 UJ | < 0.0011 UJ | < 0.00088 U | < 0.0010 U | < 0.0010 U | < 0.0014 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.011** | **0.0046** | **0.00040** | **0.021** | **0.017** | **34** | **0.024** | **0.039** | **0.00059** | **0.0078** | **0.0085** | **0.0024** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-113<br>324 Winthrop<br>SB-113(8-10)<br>10/14/2020<br>8 - 10 ft | SB-113<br>324 Winthrop<br>SB-113 (13-15)<br>10/14/2020<br>13 - 15 ft | SB-113<br>324 Winthrop<br>SB-113 (36-38)<br>10/14/2020<br>36 - 38 ft | SB-113<br>324 Winthrop<br>SB-113 (48-50)<br>10/14/2020<br>48 - 50 ft | SB-113<br>324 Winthrop<br>SB-113 (68-70)<br>10/15/2020<br>68 - 70 ft | SB-113<br>324 Winthrop<br>SB-113 (83-85)<br>10/15/2020<br>83 - 85 ft | SB-113 DUP<br>324 Winthrop<br>DUPE-20-101520<br>10/15/2020<br>68 - 70 ft | SB-114<br>324 Winthrop<br>SB-114(2-4)<br>10/3/2020<br>2 - 4 ft | SB-114<br>324 Winthrop<br>SB-114(5-7)<br>10/13/2020<br>5 - 7 ft | SB-114<br>324 Winthrop<br>SB-114(13-15)<br>10/13/2020<br>13 - 15 ft | SB-114<br>324 Winthrop<br>SB-114(23-25)<br>10/13/2020<br>23 - 25 ft | SB-114<br>324 Winthrop<br>SB-114(33-35)<br>10/13/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | **0.00026** | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | **0.00035 J** | < 0.0012 U | **0.00032 J** | **0.00079** | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | **0.00035** | < 0.0012 U | **0.00032** | **0.00079** | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | **0.0011** | **0.00031 J** | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | **0.00035** | < 0.0012 U | **0.00032** | **0.0022** | **0.00031** | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.026 U | < 0.026 U | < 0.024 U | < 0.029 U | < 0.024 U | < 0.024 U | < 0.023 U | < 0.021 | < 0.022 U | < 0.028 U | < 0.026 U | < 0.024 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0065 U | < 0.0064 U | < 0.0059 U | < 0.0073 U | < 0.0060 U | < 0.0060 U | < 0.0059 U | < 0.0052 | < 0.0055 U | < 0.0070 U | < 0.0064 U | < 0.0061 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0065 U | < 0.0064 U | < 0.0059 U | < 0.0073 U | < 0.0060 U | < 0.0060 U | < 0.0059 U | < 0.0052 | < 0.0055 U | < 0.0070 U | < 0.0064 U | < 0.0061 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.013 U | < 0.013 U | < 0.012 U | < 0.015 U | < 0.012 U | < 0.012 U | < 0.012 U | < 0.01 | < 0.011 U | < 0.014 U | < 0.013 U | < 0.012 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0065 U | < 0.0064 U | < 0.0059 U | < 0.0073 U | < 0.0060 U | < 0.0060 U | < 0.0059 U | < 0.0052 | < 0.0055 U | < 0.0070 U | < 0.0064 U | < 0.0061 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0079 U | **0.0095 J+** | < 0.0071 U | < 0.0088 U | < 0.0073 U | < 0.0073 U | < 0.0070 U | **0.014** | **0.013 J+** | < 0.0084 U | < 0.0077 U | < 0.0073 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.00043** | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0065 U | < 0.0064 U | < 0.0059 U | < 0.0073 U | < 0.0060 U | < 0.0060 U | < 0.0059 U | < 0.0052 | < 0.0055 U | < 0.0070 U | < 0.0064 U | < 0.0061 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | **0.0039** | **0.00072 J** | **0.0042** | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0013 U | < 0.0013 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0010 | < 0.0011 U | < 0.0014 U | < 0.0013 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.00043** | **0.0095** | < 0.0012 U | < 0.0015 U | **0.0043** | **0.00072** | **0.0045** | **0.016** | **0.013** | < 0.028 U | < 0.026 U | < 0.024 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-115<br>324 Winthrop<br>SB-115(2-4)<br>8/29/2020<br>2 - 4 ft | SB-115<br>324 Winthrop<br>SB-115(5-7)090820<br>9/8/2020<br>5 - 7 ft | SB-115<br>324 Winthrop<br>SB-115(11-13)090820<br>9/8/2020<br>11 - 13 ft | SB-115<br>324 Winthrop<br>SB-115(15-17)090820<br>9/8/2020<br>15 - 17 ft | SB-115<br>324 Winthrop<br>SB-115(33-35)090820<br>9/8/2020<br>33 - 35 ft | SB-115 DUP<br>324 Winthrop<br>DUPE-4-090820<br>9/9/2020<br>5 - 7 ft | SB-116<br>324 Winthrop<br>SB-116(2-4)<br>8/29/2020<br>2 - 4 ft | SB-116<br>324 Winthrop<br>SB-116(5-7)090820<br>9/8/2020<br>5 - 7 ft | SB-110<br>324 Winthrop<br>SB-110-083120<br>8/31/2020 | SB-116<br>324 Winthrop<br>SB-116(12-14)090820<br>9/8/2020<br>12 - 14 ft | SB-116<br>324 Winthrop<br>SB-116(22-24)090820<br>9/8/2020<br>22 - 24 ft | SB-116<br>324 Winthrop<br>SB-116(33-35)090820<br>9/8/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | **0.00073 J** | **5.6** | < 0.0011 U | **0.4** | < 0.0011 U | **3.4** | < 0.0013 U | **0.083 J** | < 0.0016 U | < 0.00086 U | **0.00073 J** | < 0.0011 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0014 U | **100** | **0.00023 J** | **10** | < 0.0011 U | **71** | < 0.0013 U | **1.9** | < 0.0016 U | < 0.00086 U | **0.00057 J** | < 0.0011 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0014 U | **130** | < 0.0011 U | **15** | < 0.0011 U | **92** | < 0.0013 U | **2.5** | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0014 U | **48** | < 0.0011 U | **6.1** | < 0.0011 U | **35** | < 0.0013 U | **1.5** | < 0.0016 U | < 0.00086 U | **0.00074 J** | < 0.0011 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0014 U | **180** | < 0.0011 U | **21** | < 0.0011 U | **130** | < 0.0013 U | **4** | < 0.0016 U | < 0.00086 U | **0.00074** | < 0.0011 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0014 U | **29** | < 0.0011 U | **3.2** | < 0.0011 U | **21** | < 0.0013 U | **0.19** | < 0.0016 U | < 0.00086 U | **0.00045 J** | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **0.00073** | **310** | **0.00023** | **35** | < 0.0011 U | **220** | < 0.0013 U | **6.2** | < 0.0016 U | < 0.00086 U | **0.0025** | < 0.0011 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 UJ | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 UJ | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | **0.066 J** | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 UJ | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | **0.11** | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.028 U | < 35 U | < 0.021 U | < 5.7 U | < 0.021 U | < 26 U | < 0.026 U | < 5.6 U | < 0.031 U | < 0.017 U | < 0.024 U | < 0.022 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0069 U | < 3.5 U | < 0.0053 U | < 0.57 U | < 0.0053 U | < 2.6 U | < 0.0064 U | < 0.56 U | < 0.0078 U | < 0.0043 U | < 0.0059 U | < 0.0054 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0069 U | < 3.5 U | < 0.0053 U | < 0.57 U | < 0.0053 U | < 2.6 U | < 0.0064 U | < 0.56 U | < 0.0078 U | < 0.0043 U | < 0.0059 U | < 0.0054 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.014 U | < 7 U | < 0.011 U | < 1.1 U | < 0.011 U | < 5.3 U | < 0.013 U | < 1.1 U | < 0.016 U | < 0.0086 U | < 0.012 U | < 0.011 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0069 U | < 3.5 U | < 0.0053 U | < 0.57 U | < 0.0053 U | < 2.6 U | < 0.0064 U | < 0.56 U | < 0.0078 U | < 0.0043 U | < 0.0059 U | < 0.0054 U |
| Acetone | 67-64-1 | 100 | 500 | **0.021** | < 3.5 U | < 0.0064 U | < 0.57 U | < 0.0064 U | < 2.6 U | **0.017** | < 0.56 U | **0.011** | < 0.0052 U | < 0.0071 U | < 0.0065 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 UJ | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.00055 J** | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | **0.00035 J** | < 0.11 U | < 0.0016 U | < 0.00086 U | **0.00073 J** | < 0.0011 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 UJ | < 0.0011 U | < 0.53 UJ | < 0.0013 U | < 0.11 UJ | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0014 U | **0.52 J** | < 0.0011 U | **0.055 J** | < 0.0011 U | **0.36 J** | < 0.0013 U | **0.076 J** | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 UJ | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 U | < 0.0011 UJ | < 0.53 UJ | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 UJ | < 0.0012 UJ | < 0.0011 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0014 U | **19** | < 0.0011 U | **1.9** | < 0.0011 U | **13** | < 0.0013 U | **1.6** | < 0.0016 U | < 0.00086 U | **0.00071 J** | < 0.0011 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0069 U | < 3.5 U | < 0.0053 U | **0.31 J** | < 0.0053 U | < 2.6 U | < 0.0064 U | < 0.56 U | < 0.0078 U | < 0.0043 U | < 0.0059 U | < 0.0054 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0014 U | **1.5** | < 0.0011 U | **0.25** | < 0.0011 UJ | **1.1** | < 0.0013 U | **0.36** | < 0.0016 U | < 0.00086 U | **0.00084 J** | < 0.0011 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Styrene | 100-42-5 | NL | NL | < 0.0014 U | **0.6 J** | < 0.0011 U | < 0.11 U | < 0.0011 U | **0.66** | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0014 U | < 0.7 U | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 U | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 UJ | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0014 U | < 0.7 UJ | < 0.0011 U | < 0.11 U | < 0.0011 U | < 0.53 UJ | < 0.0013 U | < 0.11 U | < 0.0016 U | < 0.00086 U | < 0.0012 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.022** | **330** | **0.00023** | **37** | < 0.021 U | **240** | **0.017** | **8.4** | **0.011** | < 0.017 U | **0.0048** | < 0.022 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-117<br>324 Winthrop<br>SB-117(2-4)090920<br>9/9/2020<br>2 - 4 ft | SB-117<br>324 Winthrop<br>SB-117(5-7)091220<br>9/12/2020<br>5 - 7 ft | SB-117<br>324 Winthrop<br>SB-117(10-12)091220<br>9/12/2020<br>10 - 12 ft | SB-117<br>324 Winthrop<br>SB-117(22-24)091220<br>9/12/2020<br>22 - 24 ft | SB-117<br>324 Winthrop<br>SB-117(33-35)091220<br>9/12/2020<br>33 - 35 ft | SB-118<br>324 Winthrop<br>SB-118 (2-4)092020<br>9/20/2020<br>2 - 4 ft | SB-118<br>324 Winthrop<br>SB-118(5-7)<br>10/3/2020<br>5 - 7 ft | SB-118<br>324 Winthrop<br>SB-118(13-15)<br>10/3/2020<br>13 - 15 ft | SB-118<br>324 Winthrop<br>SB-118(33-35)<br>10/3/2020<br>33 - 35 ft | SB-118<br>324 Winthrop<br>SB-118(48-50)<br>10/3/2020<br>48 - 50 ft | SB-118<br>324 Winthrop<br>SB-118(66-68)<br>10/4/2020<br>66 - 68 ft | SB-118<br>324 Winthrop<br>SB-118(83-85)<br>10/4/2020<br>83 - 85 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0010 U | **0.0030** | **0.012** | < 0.0013 U | < 0.0012 U | **0.0012** | **0.012** | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0010 U | **0.00039 J** | **0.0024** | < 0.0013 U | < 0.0012 U | **0.00077 J** | **0.028** | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.016** | < 0.0012 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0010 U | **0.00085 J** | **0.0046** | < 0.0013 U | < 0.0012 U | **0.0013** | **0.078** | **0.00056** | **0.00029** | < 0.0012 UJ | **0.02** | < 0.0012 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0010 U | **0.00045 J** | **0.0030** | < 0.0013 U | < 0.0012 U | **0.00070 J** | **0.049** | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.025** | < 0.0012 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.001 U | **0.0013** | **0.0076** | < 0.0013 U | < 0.0012 U | **0.0020** | **0.13** | **0.00056** | **0.00029** | < 0.0012 U | **0.045** | < 0.0012 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0010 U | **0.00094 J** | **0.0097** | < 0.0013 U | < 0.0012 U | **0.00036 J** | **0.031** | **0.00079** | **0.00047** | < 0.0012 UJ | **0.00060 J** | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.001 U | **0.0056** | **0.032** | < 0.0013 U | < 0.0012 U | **0.0043** | **0.2** | **0.0014** | **0.00076** | < 0.0012 U | **0.062** | < 0.0012 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0010 U | < 0.0012 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0012 UJ | < 0.0012 UJ | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0010 U | < 0.0012 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0012 UJ | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | **0.0011** | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.021 U | < 0.024 U | < 0.025 U | < 0.025 U | < 0.025 U | < 0.023 U | < 0.031 | < 0.022 | < 0.026 | < 0.025 UJ | < 0.021 U | < 0.025 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0052 U | **0.0036 J** | < 0.0061 U | < 0.0063 U | < 0.0062 U | **0.0092** | < 0.0078 | < 0.0055 | < 0.0066 | < 0.0062 UJ | < 0.0053 U | < 0.0062 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0052 U | < 0.0061 U | < 0.0061 U | < 0.0063 U | < 0.0062 U | < 0.0058 U | < 0.0078 | < 0.0055 | < 0.0066 | < 0.0062 UJ | < 0.0053 U | < 0.0062 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.01 U | < 0.012 U | < 0.012 U | < 0.013 U | < 0.012 U | < 0.012 U | < 0.016 | < 0.011 | < 0.013 | < 0.012 UJ | < 0.011 U | < 0.012 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0052 U | < 0.0061 U | < 0.0061 U | < 0.0063 U | < 0.0062 U | < 0.0058 U | < 0.0078 | < 0.0055 | < 0.0066 | < 0.0062 UJ | < 0.0053 U | < 0.0062 U |
| Acetone | 67-64-1 | 100 | 500 | **0.0091** | **0.021** | **0.014** | < 0.0075 U | < 0.0074 U | **0.071** | **0.01** | < 0.0066 | < 0.0079 | < 0.0074 UJ | **0.0092** | < 0.0075 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0010 UJ | < 0.0012 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0012 UJ | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.00036 J** | **0.0077** | **0.0045** | < 0.0013 U | < 0.0012 U | **0.0030** | **0.0064** | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.0037** | < 0.0012 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0010 U | < 0.0012 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0012 UJ | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | **0.0020** |
| Chloromethane | 74-87-3 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 UJ | < 0.0012 UJ |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0010 U | **0.00059 J** | **0.00053 J** | < 0.0013 U | < 0.0012 U | < 0.0012 U | **0.0060** | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0010 U | **0.00077 J** | **0.0042** | < 0.0013 U | < 0.0012 U | **0.0012** | **0.0067** | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.12** | < 0.0012 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0052 U | < 0.0061 U | < 0.0061 U | < 0.0063 U | < 0.0062 U | < 0.0058 U | < 0.0078 | < 0.0055 | < 0.0066 | < 0.0062 UJ | < 0.0053 U | < 0.0062 UJ |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0010 U | **0.00088 J** | **0.00080 J** | < 0.0013 U | < 0.0012 U | < 0.0012 U | **0.0061** | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.0029** | < 0.0012 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | **0.0017** | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | **0.0013** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | < 0.0010 U | < 0.0012 U | **0.0015** | < 0.0013 U | < 0.0012 U | < 0.0012 U | **0.036** | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.0031** | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.0019** | **0.00070 J** |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | **0.00027 J** | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0010 U | < 0.0012 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0010 U | < 0.0012 UJ | < 0.0012 UJ | < 0.0013 UJ | < 0.0012 UJ | < 0.0012 U | < 0.0016 | < 0.0011 | < 0.0013 | < 0.0012 UJ | < 0.0011 U | < 0.0012 UJ |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.0095** | **0.04** | **0.057** | < 0.025 U | < 0.025 U | **0.089** | **0.27** | **0.0014** | **0.00076** | < 0.025 U | **0.2** | **0.0040** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-119<br>324 Winthrop<br>SB-119(2-4)091920<br>9/19/2020<br>2 - 4 ft | SB-119<br>324 Winthrop<br>SB-119 (5-7)<br>10/7/2020<br>5 - 7 ft | SB-119<br>324 Winthrop<br>SB-119 (13-15)<br>10/7/2020<br>13 - 15 ft | SB-119<br>324 Winthrop<br>SB-119 (33-35)<br>10/7/2020<br>33 - 35 ft | SB-119<br>324 Winthrop<br>SB-119 (47-49)<br>10/7/2020<br>47 - 49 ft | SB-119<br>324 Winthrop<br>SB-119 (66-68)<br>10/8/2020<br>66 - 68 ft | SB-119<br>324 Winthrop<br>SB-119 (83-85)<br>10/8/2020<br>83 - 85 ft | SB-119 DUP<br>324 Winthrop<br>DUPE-19-100820<br>10/8/2020<br>66 - 68 ft | SB-120<br>324 Winthrop<br>SB-120(2-4)091320<br>9/13/2020<br>2 - 4 ft | SB-120<br>324 Winthrop<br>SB-120(5-7)<br>10/5/2020<br>5 - 7 ft | SB-120<br>324 Winthrop<br>SB-120(13-15)<br>10/5/2020<br>13 - 15 ft | SB-120<br>324 Winthrop<br>SB-120(33-35)<br>10/5/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0011 U | **0.0025** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0011 U | **0.071** | < 0.0012 U | < 0.0012 U | < 0.0012 U | **24 J** | < 0.0012 U | **0.89 J** | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0011 U | **0.49** | < 0.0012 U | **0.00084 J** | < 0.0012 U | **300 J** | **0.00073 J** | **11 J** | < 0.0011 U | **0.00027 J** | < 0.0017 U | < 0.0011 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0011 U | **0.23** | < 0.0012 U | **0.00032 J** | < 0.0012 U | **110 J** | **0.00045 J** | **4.1 J** | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0011 U | **0.72** | < 0.0012 U | **0.0012** | < 0.0012 U | **410** | **0.0012** | **15** | < 0.0011 U | **0.00027** | < 0.0017 U | < 0.0011 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0011 U | **0.19** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | **0.0054** | < 0.0017 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0011 U | **0.98** | < 0.0012 U | **0.0012** | < 0.0012 U | **430** | **0.0012** | **16** | < 0.0011 U | **0.0057** | < 0.0017 U | < 0.0011 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 UJ | < 0.0012 UJ | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.023 U | < 0.027 U | < 0.024 U | < 0.025 U | < 0.024 U | < 62 U | < 0.023 U | < 8 U | < 0.022 U | < 0.027 U | < 0.034 U | < 0.023 U |
| 2-Butanone | 78-93-3 | 100 | 500 | **0.0040 J** | < 0.0069 U | < 0.0060 U | < 0.0062 U | < 0.0059 U | < 6.2 U | < 0.0058 U | < 0.8 U | < 0.0054 U | < 0.0067 U | < 0.0086 U | < 0.0057 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0056 U | < 0.0069 U | < 0.0060 U | < 0.0062 U | < 0.0059 U | < 6.2 U | < 0.0058 U | < 0.8 U | < 0.0054 U | < 0.0067 U | < 0.0086 U | < 0.0057 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.011 U | < 0.014 UJ | < 0.012 U | < 0.012 U | < 0.012 U | < 12 U | < 0.012 U | < 1.6 U | < 0.011 U | < 0.013 U | < 0.017 U | < 0.011 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0056 U | < 0.0069 U | < 0.0060 U | < 0.0062 U | < 0.0059 U | < 6.2 U | < 0.0058 U | < 0.8 U | < 0.0054 U | < 0.0067 U | < 0.0086 U | < 0.0057 U |
| Acetone | 67-64-1 | 100 | 500 | **0.03** | **0.029** | **0.012** | **0.014** | < 0.0071 U | **16 J** | < 0.0070 U | < 0.8 UJ | < 0.0065 U | **0.11** | < 0.01 U | < 0.0069 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.00097 J** | **0.0084** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | **0.0012** | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 UJ | < 0.0017 UJ | < 0.0011 UJ |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 UJ | < 0.0017 U | < 0.0011 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0011 U | **0.0010 J** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0011 U | **0.0032** | < 0.0012 U | < 0.0012 U | < 0.0012 U | **2.2** | **0.00086 J** | **0.13 J** | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0056 U | < 0.0069 U | < 0.0060 UJ | < 0.0062 UJ | < 0.0059 U | < 6.2 U | < 0.0058 U | < 0.8 U | < 0.0054 U | < 0.0067 U | < 0.0086 U | < 0.0057 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0011 U | **0.0025** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | **0.0016** | < 0.0017 U | < 0.0011 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Styrene | 100-42-5 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | **36 J** | **0.00047 J** | **1.1 J** | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | **0.00020 J** | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0011 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0011 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 1.2 U | < 0.0012 U | < 0.16 U | < 0.0011 U | < 0.0013 U | < 0.0017 UJ | < 0.0011 UJ |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.035** | **1** | **0.012** | **0.015** | < 0.024 U | **490** | **0.0039** | **17** | < 0.022 U | **0.12** | < 0.034 U | < 0.023 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-120<br>324 Winthrop<br>SB-120(48-50)<br>10/5/2020<br>48 - 50 ft | SB-120<br>324 Winthrop<br>SB-120(62-64)<br>10/6/2020<br>62 - 64 ft | SB-120<br>324 Winthrop<br>SB-120(83-85)<br>10/6/2020<br>83 - 85 ft | SB-120 DUP<br>324 Winthrop<br>DUPE-18-100620<br>10/6/2020<br>62 - 64 ft | SB-121<br>324 Winthrop<br>SB-121(2-4)091320<br>9/13/2020<br>2 - 4 ft | SB-121<br>324 Winthrop<br>SB-121 (5-6)092020<br>9/20/2020<br>5 - 6 ft | SB-121<br>324 Winthrop<br>SB-121 (13-15)092020<br>9/20/2020<br>13 - 15 ft | SB-121<br>324 Winthrop<br>SB-121 (18-20)092020<br>9/20/2020<br>18 - 20 ft | SB-121<br>324 Winthrop<br>SB-121 (33-35)092020<br>9/20/2020<br>33 - 35 ft | SB-121 DUP<br>324 Winthrop<br>DUPE-8-092020<br>9/20/2020<br>5 - 6 ft | SB-122<br>324 Winthrop<br>SB-122(2-4)<br>8/29/2020<br>2 - 4 ft | SB-122<br>324 Winthrop<br>SB-122(6-8)<br>8/29/2020<br>6 - 8 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | **0.00058 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.00063 J** | < 0.00096 U | **0.00080 J** |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | **0.0062 J** | < 0.0011 U | **0.0011 J** | < 0.0010 U | **0.0014** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0018** | < 0.00096 U | < 0.0010 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0012 U | **0.076 J** | **0.00055 J** | **0.01 J** | < 0.0010 U | **0.0010 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0013** | < 0.00096 U | < 0.0010 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | **0.071 J** | < 0.0011 U | **0.017 J** | < 0.0010 U | **0.00056 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.00072 J** | < 0.00096 U | < 0.0010 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0012 U | **0.15** | **0.00055** | **0.027** | < 0.001 U | **0.0016** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0020** | < 0.00096 U | < 0.001 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0014 U | **0.00061 J** | < 0.0011 U | < 0.0010 U | **0.00099 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0012** | < 0.00096 U | **0.00076 J** |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0012 U | **0.15** | **0.0012** | **0.028** | < 0.001 U | **0.0045** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0057** | < 0.00096 U | **0.0016** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 UJ | < 0.0011 UJ | < 0.0012 UJ | < 0.0012 UJ | < 0.0012 UJ | < 0.00096 U | < 0.0010 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.024 U | < 0.028 U | < 0.021 U | < 0.023 U | < 0.02 U | < 0.023 U | < 0.023 U | < 0.024 U | < 0.023 U | < 0.023 U | < 0.019 U | < 0.021 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0059 U | < 0.0070 U | < 0.0053 U | < 0.0057 U | < 0.0051 U | **0.0038 J** | < 0.0057 U | < 0.0060 U | < 0.0058 U | **0.0036 J** | < 0.0048 U | < 0.0052 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0059 U | < 0.0070 U | < 0.0053 U | < 0.0057 U | < 0.0051 U | < 0.0058 U | < 0.0057 U | < 0.0060 U | < 0.0058 U | < 0.0059 U | < 0.0048 U | < 0.0052 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.012 U | < 0.014 U | < 0.011 U | < 0.011 U | < 0.01 U | < 0.012 U | < 0.011 U | < 0.012 U | < 0.012 U | < 0.012 U | < 0.0096 U | < 0.01 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0059 U | < 0.0070 U | < 0.0053 U | < 0.0057 U | < 0.0051 U | < 0.0058 U | < 0.0057 U | < 0.0060 U | < 0.0058 U | < 0.0059 U | < 0.0048 U | < 0.0052 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0071 U | **0.014 J+** | < 0.0063 U | < 0.0068 U | < 0.0061 U | **0.026** | < 0.0068 U | < 0.0072 U | < 0.0069 U | **0.024** | < 0.0057 U | **0.0070** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | **0.0012 J+** | < 0.0011 U | **0.0014** | < 0.0010 U | **0.0065** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0063** | < 0.00096 U | **0.00049 J** |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 UJ | < 0.0014 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | **0.56 J** | < 0.0011 U | **0.12 J** | < 0.0010 U | **0.00025 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.00028 J** | < 0.00096 U | < 0.0010 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0059 U | < 0.0070 U | < 0.0053 U | < 0.0057 U | < 0.0051 U | < 0.0058 U | < 0.0057 U | < 0.0060 U | < 0.0058 U | < 0.0059 U | < 0.0048 U | < 0.0052 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | **0.0044** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0055** | < 0.00096 U | < 0.0010 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0014 U | **0.0014 J+** | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0011 U | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 UJ | < 0.0014 UJ | < 0.0011 U | < 0.0011 UJ | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.00096 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.024 U | **0.73** | **0.0026** | **0.15** | < 0.02 U | **0.045** | < 0.023 U | < 0.024 U | < 0.023 U | **0.045** | < 0.019 U | **0.0091** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-122<br>324 Winthrop<br>SB-122(11-13)<br>8/29/2020<br>11 - 13 ft | SB-122<br>324 Winthrop<br>SB-122(22-24)<br>8/29/2020<br>22 - 24 ft | SB-122<br>324 Winthrop<br>SB-122(33-35)<br>8/29/2020<br>33 - 35 ft | SB-122 DUP<br>324 Winthrop<br>DUP-1-082920<br>8/29/2020<br>6 - 8 ft | SB-123<br>324 Winthrop<br>SB-123(2-4)<br>8/30/2020<br>2 - 4 ft | SB-123<br>324 Winthrop<br>SB-123 (5-7)091520<br>9/15/2020<br>5 - 7 ft | SB-123<br>324 Winthrop<br>SB-123 (10-12)091520<br>9/15/2020<br>10 - 12 ft | SB-123<br>324 Winthrop<br>SB-123 (20-22)091520<br>9/15/2020<br>20 - 22 ft | SB-123<br>324 Winthrop<br>SB-123 (51-53)091620<br>9/16/2020<br>51 - 53 ft | SB-123<br>324 Winthrop<br>SB-123 (63-65)091620<br>9/16/2020<br>63 - 65 ft | SB-123<br>324 Winthrop<br>SB-123 (83-85)091620<br>9/16/2020<br>83 - 85 ft | SB-124<br>324 Winthrop<br>SB-124(2-4)<br>8/30/2020<br>2 - 4 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | **0.00031 J** | < 0.0011 U | < 0.0012 U | **0.0010** | < 0.0013 U | **0.03** | **0.0057** | **0.0018** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.00094 U | < 0.0011 U | < 0.0012 U | **0.00023 J** | < 0.0013 U | **0.00047 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | **0.00029 J** |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.0027** | **0.00050 J** | **0.00062 J** | < 0.0012 U | < 0.0010 U | < 0.0011 U | **0.00026 J** |
| o-Xylene | 95-47-6 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.0020** | **0.00039 J** | **0.00050 J** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.0047** | **0.00089** | **0.0011** | < 0.0012 U | < 0.001 U | < 0.0011 U | **0.00026** |
| Toluene | 108-88-3 | 100 | 500 | **0.00034 J** | < 0.0011 U | < 0.0012 U | **0.0011** | < 0.0013 U | **0.0075** | **0.0015** | **0.00062 J** | < 0.0012 U | **0.00039 J** | < 0.0011 U | < 0.0013 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **0.00065** | < 0.0011 U | < 0.0012 U | **0.0023** | < 0.0013 U | **0.043** | **0.0081** | **0.0035** | < 0.0012 U | **0.00039** | < 0.0011 U | **0.00055** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.00045 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.0015** | < 0.0011 U | **0.00042 J** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.019 U | < 0.022 U | < 0.023 U | < 0.019 U | < 0.027 U | < 0.02 U | < 0.023 U | < 0.023 U | < 0.023 U | < 0.021 U | < 0.023 U | < 0.027 U |
| 2-Butanone | 78-93-3 | 100 | 500 | **0.0050** | < 0.0056 U | < 0.0058 U | < 0.0048 U | < 0.0067 U | **0.0047 J** | < 0.0057 U | **0.0037 J** | < 0.0059 U | < 0.0051 U | < 0.0056 U | **0.01** |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0047 U | < 0.0056 U | < 0.0058 U | < 0.0048 U | < 0.0067 U | < 0.0051 U | < 0.0057 U | < 0.0058 U | < 0.0059 U | < 0.0051 U | < 0.0056 U | < 0.0067 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.0094 U | < 0.011 U | < 0.012 U | < 0.0096 U | **0.0071 J** | < 0.01 U | < 0.011 U | < 0.012 U | < 0.012 U | < 0.01 U | < 0.011 U | < 0.013 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0047 U | < 0.0056 U | < 0.0058 U | < 0.0048 U | < 0.0067 U | < 0.0051 U | < 0.0057 U | < 0.0058 U | < 0.0059 U | < 0.0051 U | < 0.0056 U | < 0.0067 U |
| Acetone | 67-64-1 | 100 | 500 | **0.029** | < 0.0067 U | < 0.0069 U | **0.0082** | **0.049** | **0.032** | **0.021** | **0.028** | < 0.0070 U | < 0.0062 U | < 0.0068 U | **0.083** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Bromoform | 75-25-2 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.00092 J** | < 0.0011 U | < 0.0012 U | **0.00064 J** | **0.00084 J** | **0.0034 J+** | **0.0031 J+** | **0.00090 J+** | < 0.0012 U | < 0.0010 U | < 0.0011 U | **0.0017** |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | **0.00041 J** | < 0.0013 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | **0.00061 J** |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.0011** | **0.0023** | **0.0015** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Freon TF | 76-13-1 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.0028** | **0.00095 J** | **0.0014** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0047 U | < 0.0056 U | < 0.0058 U | < 0.0048 U | < 0.0067 U | < 0.0051 U | < 0.0057 U | < 0.0058 U | < 0.0059 U | < 0.0051 U | < 0.0056 U | < 0.0067 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.00080 J** | **0.0020** | **0.0016** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.00072 J** | < 0.0011 U | < 0.0013 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Styrene | 100-42-5 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | **0.00096 J** | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0018** | < 0.0011 U | < 0.0013 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | **0.0037** | **0.00049 J** | < 0.0013 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.00094 U | < 0.0011 U | < 0.0012 U | < 0.00096 U | < 0.0013 U | < 0.0010 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.036** | < 0.022 U | < 0.023 U | **0.011** | **0.057** | **0.09** | **0.037** | **0.041** | < 0.023 U | **0.0066** | **0.00090** | **0.096** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-124<br>324 Winthrop<br>SB-124(5-7)091320<br>9/13/2020<br>5 - 7 ft | SB-124<br>324 Winthrop<br>SB-124(13-15)091320<br>9/13/2020<br>13 - 15 ft | SB-124<br>324 Winthrop<br>SB-124(33-35)091320<br>9/13/2020<br>33 - 35 ft | SB-124<br>324 Winthrop<br>SB-124(47.5-49.5)091320<br>9/13/2020<br>47.5 - 49.5 ft | SB-124<br>324 Winthrop<br>SB-124(68-70)091420<br>9/14/2020<br>68 - 70 ft | SB-124<br>324 Winthrop<br>SB-124(83-85)091420<br>9/14/2020<br>83 - 85 ft | SB-124 DUP<br>324 Winthrop<br>DUPE-6-091320<br>9/13/2020<br>5 - 7 ft | SB-125<br>324 Winthrop<br>SB-125(2-4)090820<br>9/8/2020<br>2 - 4 ft | SB-125<br>324 Winthrop<br>SB-125(6-8)090920<br>9/9/2020<br>6 - 8 ft | SB-125<br>324 Winthrop<br>SB-125(10-12)090920<br>9/9/2020<br>10 - 12 ft | SB-125<br>324 Winthrop<br>SB-125(28-30)090920<br>9/9/2020<br>28 - 30 ft | SB-125<br>324 Winthrop<br>SB-125(48-50)090920<br>9/9/2020<br>48 - 50 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | **0.63** | **0.0045** | **0.00075 J** | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | **0.54** | < 0.0012 U | < 0.0011 U | **0.0087** | < 0.0011 U | < 0.0010 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | **30** | **0.048** | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | **33** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | **30** | **0.048** | **0.00022 J** | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | **34** | < 0.0012 U | < 0.0011 U | **0.0012** | < 0.0011 U | < 0.0010 U |
| o-Xylene | 95-47-6 | NL | NL | **14** | **0.024** | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | **15** | < 0.0012 U | < 0.0011 U | **0.00054 J** | < 0.0011 U | < 0.0010 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | **44** | **0.072** | **0.00022** | < 0.0017 U | < 0.001 U | < 0.0013 U | **49** | < 0.0012 U | < 0.0011 U | **0.0017** | < 0.0011 U | < 0.001 U |
| Toluene | 108-88-3 | 100 | 500 | **1.4** | **0.0033** | **0.00040 J** | < 0.0017 U | **0.0013** | < 0.0013 U | **1.3** | < 0.0012 U | < 0.0011 U | **0.0035** | < 0.0011 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **76** | **0.13** | **0.0014** | < 0.0017 U | **0.0013** | < 0.0013 U | **84** | < 0.0012 U | < 0.0011 U | **0.014** | < 0.0011 U | < 0.001 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.12 UJ | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.12 UJ | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 6.2 U | < 0.019 U | < 0.024 U | < 0.033 U | < 0.021 U | < 0.026 U | < 7.3 U | < 0.023 U | < 0.023 U | < 0.024 U | < 0.023 U | < 0.02 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.62 U | < 0.0048 U | < 0.0060 U | < 0.0083 U | < 0.0052 U | < 0.0066 U | < 0.73 U | **0.0043 J** | < 0.0057 U | < 0.0059 U | < 0.0056 U | < 0.0050 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.62 U | < 0.0048 U | < 0.0060 U | < 0.0083 U | < 0.0052 U | < 0.0066 U | < 0.73 U | < 0.0059 U | < 0.0057 U | < 0.0059 U | < 0.0056 U | < 0.0050 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 1.2 U | < 0.0095 U | < 0.012 U | < 0.017 U | < 0.01 UJ | < 0.013 U | < 1.5 U | < 0.012 U | < 0.011 U | < 0.012 U | < 0.011 U | < 0.01 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.62 U | < 0.0048 U | < 0.0060 U | < 0.0083 U | < 0.0052 U | < 0.0066 U | < 0.73 U | < 0.0059 U | < 0.0057 U | < 0.0059 U | < 0.0056 U | < 0.0050 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.62 U | **0.011** | < 0.0072 U | < 0.01 U | **0.012** | < 0.0079 U | < 0.73 U | **0.034** | < 0.0069 U | **0.0097** | < 0.0068 U | < 0.0060 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Bromoform | 75-25-2 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.12 U | **0.00058 J** | < 0.0012 U | < 0.0017 U | **0.0043** | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | **0.0062** | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.12 UJ | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Cyclohexane | 110-82-7 | NL | NL | **0.13** | **0.00075 J** | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | **0.29** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 UJ |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.12 UJ | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Freon TF | 76-13-1 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 UJ |
| Isopropylbenzene | 98-82-8 | NL | NL | **8.6** | **0.015** | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | **9.8** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.62 UJ | < 0.0048 U | < 0.0060 U | < 0.0083 U | < 0.0052 U | < 0.0066 U | **0.12 J** | < 0.0059 U | < 0.0057 U | < 0.0059 U | < 0.0056 U | < 0.0050 U |
| Methylcyclohexane | 108-87-2 | NL | NL | **0.48** | **0.0016** | < 0.0012 U | < 0.0017 U | **0.0038 J-** | < 0.0013 U | **0.63** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 UJ |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 UJ |
| Styrene | 100-42-5 | NL | NL | **0.19** | **0.00055 J** | < 0.0012 U | < 0.0017 U | **0.0027 J-** | < 0.0013 U | **0.14 J** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | **0.045 J-** | **0.013** | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 UJ | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.12 U | < 0.00095 U | < 0.0012 U | < 0.0017 U | **0.00019 J** | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.12 UJ | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.12 UJ | < 0.00095 U | < 0.0012 U | < 0.0017 U | < 0.0010 U | < 0.0013 U | < 0.15 U | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0011 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **85** | **0.16** | **0.0014** | < 0.033 U | **0.069** | **0.019** | **95** | **0.038** | < 0.023 U | **0.024** | < 0.023 U | < 0.02 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-125<br>324 Winthrop<br>SB-125(68-70)090920<br>9/9/2020<br>68 - 70 ft | SB-125<br>324 Winthrop<br>SB-125(83-85)090920<br>9/9/2020<br>83 - 85 ft | SB-125 DUP<br>324 Winthrop<br>DUPE-5-090920<br>9/9/2020<br>68 - 70 ft | SB-126<br>324 Winthrop<br>SB-126(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-126<br>324 Winthrop<br>SB-126 (5-7)<br>9/30/2020<br>5 - 7 ft | SB-126<br>324 Winthrop<br>SB-126 (13-15)<br>9/30/2020<br>13 - 15 ft | SB-126<br>324 Winthrop<br>SB-126 (33-35)<br>9/30/2020<br>33 - 35 ft | SB-126<br>324 Winthrop<br>SB-126 (48-50)<br>9/30/2020<br>48 - 50 ft | SB-126<br>324 Winthrop<br>SB-126 (68-70)<br>10/1/2020<br>68 - 70 ft | SB-126<br>324 Winthrop<br>SB-126 (83-85)<br>10/1/2020<br>83 - 85 ft | SB-126 DUP<br>324 Winthrop<br>DUPE-16-100120<br>10/1/2020<br>68 - 70 ft | SB-126 DUP<br>324 Winthrop<br>DUPE-17-100120<br>10/1/2020<br>83 - 85 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.0050** | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | **0.00027 J+** | < 0.00097 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.032** | < 0.0020 U | < 0.0011 U | < 0.0013 U | **0.0077 J** | < 0.0010 U | **0.016 J** | **0.00047 J** |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.021** | < 0.0020 U | < 0.0011 U | < 0.0013 U | **0.05** | **0.00024 J** | **0.062 J+** | **0.00067 J** |
| o-Xylene | 95-47-6 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.025** | < 0.0020 U | < 0.0011 U | < 0.0013 U | **0.023 J** | < 0.0010 U | **0.044 J** | **0.00046 J** |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 U | **0.046** | < 0.002 U | < 0.0011 U | < 0.0013 U | **0.073** | **0.00024** | **0.11** | **0.0011** |
| Toluene | 108-88-3 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.0079** | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | **0.00072 J+** | < 0.00097 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 U | **0.091** | < 0.002 U | < 0.0011 U | < 0.0013 U | **0.081** | **0.00024** | **0.12** | **0.0016** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.00096 J+** | **0.0016 J+** | **0.00072 J+** | **0.00053 J+** | < 0.0012 U | **0.00043 J** | < 0.00099 U | **0.00039 J** |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.12 UJ | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.12 UJ | < 0.0011 U | < 0.12 UJ | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.12 UJ | < 0.0011 U | < 0.12 UJ | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 5.8 U | < 0.022 U | < 5.8 U | < 0.027 UJ | < 0.027 U | < 0.039 U | < 0.021 U | < 0.026 U | < 0.023 U | < 0.02 U | < 0.02 U | < 0.019 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.58 U | < 0.0056 U | < 0.58 U | < 0.0068 UJ | < 0.0068 U | < 0.0099 U | < 0.0053 U | < 0.0065 U | < 0.0058 U | < 0.0051 U | < 0.0050 U | < 0.0049 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.58 U | < 0.0056 U | < 0.58 U | < 0.0068 UJ | < 0.0068 U | < 0.0099 U | < 0.0053 U | < 0.0065 U | < 0.0058 U | < 0.0051 U | < 0.0050 U | < 0.0049 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 1.2 U | < 0.011 U | < 1.2 U | < 0.014 UJ | < 0.014 U | < 0.02 U | < 0.011 U | < 0.013 U | < 0.012 U | < 0.01 U | < 0.0099 U | < 0.0097 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.58 U | < 0.0056 U | < 0.58 U | < 0.0068 UJ | < 0.0068 U | < 0.0099 U | < 0.0053 U | < 0.0065 U | < 0.0058 U | < 0.0051 U | < 0.0050 U | < 0.0049 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.58 U | < 0.0067 U | < 0.58 U | < 0.0082 UJ | **0.012** | < 0.012 U | < 0.0063 U | < 0.0078 U | < 0.0070 U | < 0.0061 U | **0.0093 J+** | < 0.0058 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Bromoform | 75-25-2 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 UJ | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.12 U | **0.00035 J** | < 0.12 U | < 0.0014 UJ | **0.0019** | < 0.0020 U | < 0.0011 U | < 0.0013 U | **0.00053 J** | **0.0013** | **0.00041 J+** | **0.0016** |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.12 U | **0.00044 J** | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | **0.00042 J** | < 0.00099 U | **0.0012** |
| Chloromethane | 74-87-3 | NL | NL | < 0.12 UJ | < 0.0011 U | < 0.12 UJ | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.0028** | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.12 UJ | < 0.0011 U | < 0.12 UJ | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Freon TF | 76-13-1 | NL | NL | < 0.12 UJ | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Isopropylbenzene | 98-82-8 | NL | NL | **0.58 J** | < 0.0011 U | **1.4 J** | < 0.0014 UJ | **0.0053** | < 0.0020 U | < 0.0011 U | < 0.0013 U | **0.0048** | < 0.0010 U | **0.0077 J+** | **0.00029 J** |
| Methyl acetate | 79-20-9 | NL | NL | < 0.58 U | < 0.0056 U | < 0.58 UJ | < 0.0068 UJ | < 0.0068 U | < 0.0099 U | < 0.0053 U | < 0.0065 U | < 0.0058 U | < 0.0051 U | < 0.0050 U | < 0.0049 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.0068** | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | **0.00077 J** | **0.0017** | **0.00089 J+** | **0.00067 J** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Styrene | 100-42-5 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | **0.0025** | < 0.0020 U | < 0.0011 U | < 0.0013 U | **0.0059** | **0.00037 J** | **0.0072 J+** | **0.00083 J** |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.12 U | **0.00029 J** | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.12 U | < 0.0011 U | < 0.12 U | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.12 UJ | < 0.0011 U | < 0.12 UJ | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.12 UJ | < 0.0011 U | < 0.12 UJ | < 0.0014 UJ | < 0.0014 U | < 0.0020 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.00099 U | < 0.00097 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.58** | **0.0011** | **1.4** | < 0.027 U | **0.12** | **0.0016** | **0.00072** | **0.00053** | **0.093** | **0.0045** | **0.15** | **0.0066** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-127<br>324 Winthrop<br>SB-127(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-127<br>324 Winthrop<br>SB-127 (5-7)092820<br>9/28/2020<br>5 - 7 ft | SB-127<br>324 Winthrop<br>SB-127 (13-15)092820<br>9/28/2020<br>13 - 15 ft | SB-127<br>324 Winthrop<br>SB-127 (33-35)092820<br>9/28/2020<br>33 - 35 ft | SB-127<br>324 Winthrop<br>SB-127(48-50)<br>9/29/2020<br>48 - 50 ft | SB-127<br>324 Winthrop<br>SB-127(67-69)<br>9/29/2020<br>67 - 69 ft | SB-127<br>324 Winthrop<br>SB-127(83-85)<br>9/29/2020<br>83 - 85 ft | SB-127 DUP<br>324 Winthrop<br>DUPE-15-092920<br>9/29/2020<br>66 - 68 ft | SB-128<br>324 Winthrop<br>SB-128(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-128<br>324 Winthrop<br>SB-128(5-7)091920<br>9/19/2020<br>5 - 7 ft | SB-128<br>324 Winthrop<br>SB-128(13-15)091920<br>9/19/2020<br>13 - 15 ft | SB-128<br>324 Winthrop<br>SB-128(18-20)091920<br>9/19/2020<br>18 - 20 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | **0.035** | < 0.0014 U | **0.04 J-** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | **0.028** | **0.00051 J** | **0.036 J-** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | **0.089** | **0.00033 J** | **0.12 J-** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 U | < 0.0014 U | < 0.0013 U | **0.12** | **0.00084** | **0.16** | < 0.0013 U | < 0.001 U | < 0.001 U | < 0.00094 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | **0.00049 J** | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 U | < 0.0014 U | < 0.0013 U | **0.15** | **0.00084** | **0.2** | **0.00049** | < 0.001 U | < 0.001 U | < 0.00094 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 UJ | < 0.0011 U | < 0.0014 UJ | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 UJ | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 UJ | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 UJ | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 UJ | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.024 U | < 0.025 U | < 0.033 UJ | < 0.027 U | < 0.026 U | < 0.023 U | < 0.028 U | < 0.022 UJ | < 0.025 U | < 0.021 U | < 0.02 U | < 0.019 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0060 U | < 0.0062 U | < 0.0083 UJ | < 0.0068 U | < 0.0065 U | < 0.0057 U | < 0.0071 U | < 0.0055 UJ | < 0.0063 U | < 0.0052 U | < 0.0050 U | < 0.0047 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0060 U | < 0.0062 U | < 0.0083 UJ | < 0.0068 U | < 0.0065 U | < 0.0057 U | < 0.0071 U | < 0.0055 UJ | < 0.0063 U | < 0.0052 U | < 0.0050 U | < 0.0047 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.012 U | < 0.012 U | < 0.017 UJ | < 0.014 U | < 0.013 U | < 0.011 U | < 0.014 U | < 0.011 UJ | < 0.013 U | < 0.01 U | < 0.01 U | < 0.0094 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0060 U | < 0.0062 U | < 0.0083 UJ | < 0.0068 U | < 0.0065 U | < 0.0057 U | < 0.0071 U | < 0.0055 UJ | < 0.0063 U | < 0.0052 U | < 0.0050 U | < 0.0047 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0072 U | < 0.0075 U | < 0.0099 UJ | < 0.0081 U | < 0.0078 U | **0.0075** | **0.018** | **0.0085 J-** | < 0.0075 U | < 0.0062 U | < 0.0060 U | < 0.0057 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 UJ | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 UJ | < 0.0010 UJ | < 0.0010 UJ | < 0.00094 UJ |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | **0.00041 J** | **0.0037** | **0.00061 J-** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 UJ | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 UJ | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 UJ | < 0.0011 U | **0.00097 J-** | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 UJ | < 0.0011 U | < 0.0014 UJ | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | **0.084 J+** | **0.00032 J** | **0.11 J** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0060 U | < 0.0062 U | < 0.0083 UJ | < 0.0068 U | < 0.0065 U | < 0.0057 U | < 0.0071 U | < 0.0055 UJ | < 0.0063 U | < 0.0052 U | < 0.0050 U | < 0.0047 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 UJ | **0.0011** | **0.00098 J-** | **0.0011 J-** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | **0.00052 J-** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | **0.0024** | < 0.0014 U | **0.0037 J-** | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 UJ | < 0.0011 U | < 0.0014 UJ | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 UJ | < 0.0012 U | < 0.0017 UJ | < 0.0014 U | < 0.0013 U | < 0.0011 U | < 0.0014 U | < 0.0011 UJ | < 0.0013 UJ | < 0.0010 U | < 0.0010 U | < 0.00094 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.024 U | < 0.025 U | < 0.033 U | < 0.027 U | < 0.026 U | **0.25** | **0.025** | **0.32** | **0.00049** | < 0.021 U | < 0.02 U | < 0.019 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-128<br>324 Winthrop<br>SB-128(33-35)091920<br>9/19/2020<br>33 - 35 ft | SB-129<br>324 Winthrop<br>SB-129(2-4)<br>9/3/2020<br>2 - 4 ft | SB-129<br>324 Winthrop<br>SB-129(5-7)<br>9/3/2020<br>5 - 7 ft | SB-129<br>324 Winthrop<br>SB-129(12-14)<br>9/3/2020<br>12 - 14 ft | SB-130<br>324 Winthrop<br>SB-130 (2-4)<br>9/2/2020<br>2 - 4 ft | SB-130<br>324 Winthrop<br>SB-130(5-7)<br>9/3/2020<br>5 - 7 ft | SB-130<br>324 Winthrop<br>SB-130(12-14)<br>9/3/2020<br>12 - 14 ft | SB-130 DUP<br>324 Winthrop<br>DUPE-3-090320<br>9/3/2020<br>5 - 7 ft | SB-131<br>324 Winthrop<br>SB-131(3-5)<br>9/3/2020<br>3 - 5 ft | SB-131<br>324 Winthrop<br>SB-131(8-10)<br>9/3/2020<br>8 - 10 ft | SB-131<br>324 Winthrop<br>SB-131(12-14)<br>9/3/2020<br>12 - 14 ft | SB-132<br>324 Winthrop<br>SB-132 (2-4)<br>9/2/2020<br>2 - 4 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0013 U | **0.32** | < 0.0012 U | **0.00079 J** | **0.0070** | < 0.0012 U | **0.0092** | **0.0015** | **0.00056 J** | < 0.0011 U | < 0.0010 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | **0.00027 J** | **6.5** | < 0.0012 U | < 0.0013 U | **0.17 J** | < 0.0012 U | **0.098 J** | **0.00076 J** | < 0.0010 U | **0.00032 J** | < 0.0010 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0012 U | < 0.0013 U | **7.9** | < 0.0012 U | < 0.0013 U | **0.2** | < 0.0012 U | **0.13** | **0.0022** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | **0.00035 J** | **2** | < 0.0012 U | < 0.0013 U | **0.12 J** | < 0.0012 U | **0.068 J** | **0.00098 J** | < 0.0010 U | **0.00035 J** | < 0.0010 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0012 U | **0.00035** | **9.9** | < 0.0012 U | < 0.0013 U | **0.32** | < 0.0012 U | **0.2** | **0.0032** | < 0.001 U | **0.00035** | < 0.001 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | **0.00049 J** | **0.38** | < 0.0012 U | < 0.0013 U | **0.016** | < 0.0012 U | **0.011** | **0.0011 J** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0012 U | **0.0011** | **17** | < 0.0012 U | **0.00079** | **0.51** | < 0.0012 U | **0.32** | **0.0065** | **0.00056** | **0.00067** | < 0.001 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0013 U | **0.073 J** | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0013 U | **0.046 J** | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0013 U | **0.15** | < 0.0012 U | < 0.0013 U | **0.00088 J** | < 0.0012 U | **0.00071 J** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.024 U | < 0.025 U | < 5.8 U | < 0.025 U | < 0.025 U | < 0.03 U | < 0.024 U | < 0.033 U | < 0.023 U | < 0.02 U | < 0.022 U | < 0.021 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0060 U | < 0.0064 U | < 0.58 U | < 0.0061 U | **0.0062 J** | **0.015** | < 0.0059 U | < 0.0084 U | **0.0073** | < 0.0051 U | < 0.0056 U | < 0.0052 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0060 U | < 0.0064 U | < 0.58 U | < 0.0061 U | < 0.0063 U | < 0.0075 U | < 0.0059 U | < 0.0084 U | < 0.0058 U | < 0.0051 U | < 0.0056 U | < 0.0052 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.012 U | < 0.013 U | < 1.2 U | < 0.012 U | < 0.013 U | < 0.015 U | < 0.012 U | < 0.017 U | < 0.012 U | < 0.01 U | < 0.011 U | < 0.01 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0060 U | < 0.0064 U | < 0.58 U | < 0.0061 U | < 0.0063 U | < 0.0075 U | < 0.0059 U | < 0.0084 U | < 0.0058 U | < 0.0051 U | < 0.0056 U | < 0.0052 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0072 U | **0.031** | < 0.58 U | < 0.0074 U | **0.041** | **0.072 J** | **0.0078** | **0.02 J** | **0.039** | **0.0099** | < 0.0067 U | < 0.0063 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 UJ | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 UJ | < 0.0015 U | < 0.0012 U | < 0.0017 UJ | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 UJ |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | **0.0022** | < 0.12 U | < 0.0012 U | **0.00087 J** | **0.0092 J** | < 0.0012 U | **0.0015 J** | **0.0030** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0013 U | **0.13** | < 0.0012 U | < 0.0013 U | **0.0036** | < 0.0012 U | **0.0053** | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 UJ | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | < 0.0013 U | **4.1** | < 0.0012 U | **0.00019 J** | **0.17** | < 0.0012 U | **0.11** | **0.0011 J** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0060 U | < 0.0064 U | **0.38 J** | < 0.0061 U | < 0.0063 U | < 0.0075 U | < 0.0059 U | < 0.0084 U | < 0.0058 U | < 0.0051 U | < 0.0056 U | < 0.0052 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | **0.00087 J** | **0.45** | < 0.0012 U | **0.00085 J** | **0.0087** | < 0.0012 U | **0.0088** | **0.00064 J** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | **0.00072 J** | < 0.0012 U | < 0.0017 U | **0.00086 J** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0013 U | **0.11 J** | < 0.0012 U | < 0.0013 U | **0.0012 J** | < 0.0012 U | **0.00097 J** | **0.00032 J** | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0013 U | < 0.12 U | < 0.0012 U | < 0.0013 U | < 0.0015 U | < 0.0012 U | < 0.0017 U | < 0.0012 U | < 0.0010 U | < 0.0011 U | < 0.0010 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.024 U | **0.035** | **23** | < 0.025 U | **0.05** | **0.79** | **0.0078** | **0.46** | **0.059** | **0.01** | **0.00067** | < 0.021 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-132<br>324 Winthrop<br>SB-132(6-8)<br>9/3/2020<br>6 - 8 ft | SB-132<br>324 Winthrop<br>SB-132(12-14)<br>9/3/2020<br>12 - 14 ft | SB-133<br>324 Winthrop<br>SB-133 (2-4)091620<br>9/16/2020<br>2 - 4 ft | SB-133<br>324 Winthrop<br>SB-133(5-7)<br>9/4/2020<br>5 - 7 ft | SB-133<br>324 Winthrop<br>SB-133(12-14)<br>9/4/2020<br>12 - 14 ft | SB-134<br>324 Winthrop<br>SB-134(5-7)<br>9/4/2020<br>5 - 7 ft | SB-134<br>324 Winthrop<br>SB-134(12-14)<br>9/4/2020<br>12 - 14 ft | SB-135<br>324 Winthrop<br>SB-135 (3-5)092120<br>9/21/2020<br>3 - 5 ft | SB-135<br>324 Winthrop<br>SB-135 (7-9)092220<br>9/22/2020<br>7 - 9 ft | SB-135<br>324 Winthrop<br>SB-135 (12-14)092220<br>9/22/2020<br>12 - 14 ft | SB-135<br>324 Winthrop<br>SB-135 (22.5-24.5)09222<br>9/22/2020<br>22.5 - 24.5 ft | SB-135<br>324 Winthrop<br>SB-135 (48-50)092220<br>9/22/2020<br>48 - 50 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0011 U | **0.0027** | **0.011** | < 0.0013 U | **0.23** | < 0.0015 U | **0.0068** | **0.2** | **0.017** | **34** | < 0.0016 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | < 0.0011 U | **0.0017** | **0.00035 J** | < 0.0013 U | **3.3** | < 0.0015 U | **0.013** | **2.2 J** | **0.0071** | **440** | < 0.0016 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0012 U | < 0.0011 U | **0.0026** | **0.0020** | < 0.0013 U | **4.8** | < 0.0015 U | **0.0043** | **2.1 J** | **0.011** | **120** | < 0.0016 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | < 0.0011 U | **0.0013** | **0.0010 J** | < 0.0013 U | **2.1** | < 0.0015 U | **0.0045** | **0.84 J** | **0.0072** | **96** | < 0.0016 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0012 U | < 0.0011 U | **0.0039** | **0.0030** | < 0.0013 U | **6.9** | < 0.0015 U | **0.0088** | **2.9** | **0.018** | **220** | < 0.0016 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0011 U | **0.0017** | **0.0028** | < 0.0013 U | **0.3** | < 0.0015 U | **0.0016** | **0.089 J** | **0.013** | **61** | < 0.0016 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0012 U | < 0.0011 U | **0.01** | **0.017** | < 0.0013 U | **11** | < 0.0015 U | **0.03** | **5.4** | **0.055** | **750** | < 0.0016 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 UJ | < 0.0013 U | < 2.3 UJ | < 0.0016 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 UJ | < 0.0013 U | < 2.3 UJ | < 0.0016 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 UJ | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0011 U | **0.0015** | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | **0.00076 J** | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.023 U | < 0.022 U | < 0.026 U | < 0.033 U | < 0.025 U | < 8.2 U | < 0.029 U | < 0.026 U | < 7.4 U | < 0.026 U | < 110 U | < 0.033 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0058 U | < 0.0055 U | **0.017** | < 0.0083 U | < 0.0063 U | < 0.82 U | < 0.0073 U | **0.026** | < 0.74 U | < 0.0064 U | < 11 U | < 0.0081 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0058 U | < 0.0055 U | < 0.0064 U | < 0.0083 U | < 0.0063 U | < 0.82 U | < 0.0073 U | < 0.0064 U | < 0.74 U | < 0.0064 U | < 11 U | < 0.0081 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.012 U | < 0.011 U | < 0.013 U | < 0.017 U | < 0.013 U | < 1.6 U | < 0.015 U | < 0.013 U | < 1.5 U | < 0.013 U | < 23 U | < 0.016 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0058 U | < 0.0055 U | < 0.0064 U | < 0.0083 U | < 0.0063 U | < 0.82 U | < 0.0073 U | < 0.0064 U | < 0.74 U | < 0.0064 U | < 11 U | < 0.0081 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0070 U | < 0.0066 U | **0.099** | **0.021** | **0.02** | < 0.82 U | < 0.0088 U | **0.16** | **0.77** | **0.02** | < 11 U | < 0.0098 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 UJ | < 0.0013 U | < 2.3 UJ | < 0.0016 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 UJ | < 0.0013 UJ | < 0.16 U | < 0.0015 UJ | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | < 0.0011 U | **0.0015 J+** | **0.0066** | **0.00045 J** | < 0.16 U | **0.00048 J** | **0.0062** | < 0.15 U | **0.0021** | < 2.3 U | < 0.0016 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 UJ | < 0.0013 U | < 2.3 UJ | < 0.0016 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 UJ | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0011 U | **0.0013** | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | **0.0048** | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0011 U | **0.0024** | **0.0031** | < 0.0013 U | **0.16** | < 0.0015 U | **0.0035** | **0.061 J** | < 0.0013 U | **16** | < 0.0016 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 UJ | < 0.0013 U | < 2.3 UJ | < 0.0016 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 UJ | < 0.0013 U | < 2.3 UJ | < 0.0016 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | < 0.0011 U | **0.00026 J** | **0.0035** | < 0.0013 U | **2.2** | < 0.0015 U | **0.0027** | **0.97 J** | **0.00092 J** | **29** | < 0.0016 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0058 U | < 0.0055 U | < 0.0064 U | < 0.0083 U | < 0.0063 U | < 0.82 U | < 0.0073 U | < 0.0064 U | < 0.74 U | < 0.0064 U | < 11 U | < 0.0081 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0011 U | **0.0035** | **0.0044** | < 0.0013 U | **0.51** | < 0.0015 U | **0.0060** | **0.18** | **0.00077 J** | **51** | < 0.0016 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | **0.00072 J** | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0011 U | **0.00050 J** | < 0.0017 U | < 0.0013 U | **0.075 J** | < 0.0015 U | **0.00079 J** | < 0.15 U | **0.0014** | **14** | < 0.0016 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0011 U | **0.00025 J** | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 UJ | < 0.0013 U | < 2.3 UJ | < 0.0016 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0011 U | **0.00032 J** | < 0.0017 U | < 0.0013 U | < 0.16 U | < 0.0015 U | **0.00023 J** | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 UJ | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0011 U | < 0.0013 U | < 0.0017 U | < 0.0013 U | < 0.16 UJ | < 0.0015 U | < 0.0013 U | < 0.15 U | < 0.0013 U | < 2.3 U | < 0.0016 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.023 U | < 0.022 U | **0.14** | **0.056** | **0.02** | **14** | **0.0012** | **0.24** | **7.4** | **0.08** | **860** | < 0.033 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-135<br>324 Winthrop<br>SB-135 (68-70)092320<br>9/23/2020<br>68 - 70 ft | SB-135<br>324 Winthrop<br>SB-135 (83-85)092320<br>9/23/2020<br>83 - 85 ft | SB-135 DUP<br>324 Winthrop<br>DUPE-10-092220<br>9/22/2020<br>7 - 9 ft | SB-135 DUP<br>324 Winthrop<br>DUPE-11-092320<br>9/23/2020<br>68 - 70 ft | SB-136<br>324 Winthrop<br>SB-136 (2-4)091620<br>9/16/2020<br>2 - 4 ft | SB-136<br>324 Winthrop<br>SB-136 (5-7)091720<br>9/17/2020<br>5 - 7 ft | SB-136<br>324 Winthrop<br>SB-136 (13-15)091720<br>9/17/2020<br>13 - 15 ft | SB-136<br>324 Winthrop<br>SB-136 (33-35)091720<br>9/17/2020<br>33 - 35 ft | SB-136<br>324 Winthrop<br>SB-136 (47.5-49.5)09172<br>9/17/2020<br>47.5 - 49.5 ft | SB-136<br>324 Winthrop<br>SB-136 (63-65)092120<br>9/21/2020<br>63 - 65 ft | SB-136<br>324 Winthrop<br>SB-136 (83-85)092120<br>9/21/2020<br>83 - 85 ft | SB-136 DUP<br>324 Winthrop<br>DUPE-7-091720<br>9/17/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0011 U | **0.23** | < 0.0012 U | < 0.0013 U | **0.014** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | < 0.0011 U | **4.5 J** | < 0.0012 U | < 0.0013 U | **0.0039** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0012 U | < 0.0011 U | **4 J** | < 0.0012 U | < 0.0013 U | **0.0069** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0012 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | < 0.0011 U | **1.5 J** | < 0.0012 U | < 0.0013 U | **0.0057** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0012 U | < 0.0011 U | **5.5** | < 0.0012 U | < 0.0013 U | **0.013** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0011 U | **0.17** | < 0.0012 U | < 0.0013 U | **0.0057** | < 0.0011 U | < 0.0011 U | < 0.0011 U | **0.0066** | < 0.0012 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0012 U | < 0.0011 U | **10** | < 0.0012 U | < 0.0013 U | **0.036** | < 0.0011 U | < 0.0011 U | < 0.0011 U | **0.0066** | < 0.0012 U | < 0.0012 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0011 U | < 0.15 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0012 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0012 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0012 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.024 UJ | < 0.022 U | < 7.7 U | < 0.023 UJ | < 0.025 U | < 0.023 U | < 0.022 U | < 0.022 U | < 0.022 U | < 0.023 U | < 0.023 U | < 0.023 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0061 U | < 0.0054 U | < 0.77 U | < 0.0058 U | **0.0046 J** | < 0.0059 U | < 0.0056 U | < 0.0055 U | < 0.0056 U | < 0.0059 U | < 0.0058 U | < 0.0059 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0061 U | < 0.0054 U | < 0.77 U | < 0.0058 U | < 0.0063 U | < 0.0059 U | < 0.0056 U | < 0.0055 U | < 0.0056 U | < 0.0059 U | < 0.0058 U | < 0.0059 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.012 U | < 0.011 U | < 1.5 U | < 0.012 U | < 0.013 U | < 0.012 U | < 0.011 U | < 0.011 U | < 0.011 U | < 0.012 U | < 0.012 U | < 0.012 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0061 U | < 0.0054 U | < 0.77 U | < 0.0058 U | < 0.0063 U | < 0.0059 U | < 0.0056 U | < 0.0055 U | < 0.0056 U | < 0.0059 U | < 0.0058 U | < 0.0059 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0073 U | < 0.0065 U | **1** | < 0.0069 U | **0.037** | **0.02** | < 0.0067 U | < 0.0066 U | < 0.0067 U | < 0.0070 U | < 0.0070 U | < 0.0070 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 UJ | < 0.0011 UJ | < 0.0011 U | < 0.0012 U | < 0.0012 UJ | < 0.0012 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | **0.0013 J+** | **0.0038** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0011 U | < 0.15 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.0012 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0011 U | **0.12 J** | < 0.0012 U | < 0.0013 U | **0.0015** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0011 UJ | < 0.15 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | < 0.0011 U | **1.9 J** | < 0.0012 U | < 0.0013 U | **0.01** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0061 U | < 0.0054 U | < 0.77 U | < 0.0058 U | < 0.0063 U | < 0.0059 U | < 0.0056 U | < 0.0055 U | < 0.0056 U | < 0.0059 U | < 0.0058 U | < 0.0059 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0011 U | **0.32** | < 0.0012 U | < 0.0013 U | **0.0024** | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | **0.00089 J** | < 0.0013 U | **0.0013** | < 0.0011 U | < 0.0011 U | < 0.0011 U | **0.025 J-** | < 0.0012 U | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | **0.0022** | **0.0026** | < 0.15 U | **0.0044** | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | **0.00054 J** | **0.00076 J** | < 0.0012 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.15 UJ | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0011 U | < 0.15 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.0022** | **0.0026** | **14** | **0.0053** | **0.043** | **0.075** | < 0.022 U | < 0.022 U | < 0.022 U | **0.032** | **0.00076** | < 0.023 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-136 DUP<br>324 Winthrop<br>DUPE-9-092120<br>9/21/2020<br>63 - 65 ft | SB-137<br>324 Winthrop<br>SB-137 (5-7)092420<br>9/24/2020<br>5 - 7 ft | SB-137<br>324 Winthrop<br>SB-137 (10-12)092420<br>9/24/2020<br>10 - 12 ft | SB-137<br>324 Winthrop<br>SB-137 (18-20)092420<br>9/24/2020<br>18 - 20 ft | SB-137 DUP<br>324 Winthrop<br>DUPE-12-092420<br>9/24/2020<br>5 - 7 ft | SB-138<br>324 Winthrop<br>SB-138 (1-3)091720<br>9/17/2020<br>1 - 3 ft | SB-138<br>324 Winthrop<br>SB-138(5-7)092620<br>9/26/2020<br>5 - 7 ft | SB-138<br>324 Winthrop<br>SB-138(13-15)092620<br>9/26/2020<br>13 - 15 ft | SB-138<br>324 Winthrop<br>SB-138(33-35)092620<br>9/26/2020<br>33 - 35 ft | SB-138<br>324 Winthrop<br>SB-138(48-50)092620<br>9/26/2020<br>48 - 50 ft | SB-138<br>324 Winthrop<br>SB-138 (68-70)092720<br>9/27/2020<br>68 - 70 ft | SB-138<br>324 Winthrop<br>SB-138 (83-85)092720<br>9/27/2020<br>83 - 85 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0011 U | **0.0036** | < 0.0012 U | < 0.00094 U | **0.0026** | **0.0011 J** | **0.0030** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0011 U | **0.0015** | **0.0012 J** | < 0.00094 U | **0.00095 J** | **0.0019** | **0.0013 J** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0011 U | **0.0017** | **0.0016 J** | < 0.00094 U | **0.0011** | **0.00066 J** | **0.0015** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0011 U | **0.00060 J** | **0.00059 J** | < 0.00094 U | **0.00038 J** | **0.00093 J** | **0.0018** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0011 U | **0.0023** | **0.0022** | < 0.00094 U | **0.0015** | **0.0016** | **0.0033** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Toluene | 108-88-3 | 100 | 500 | **0.0056** | **0.00059 J** | < 0.0012 U | < 0.00094 U | **0.00042 J** | **0.00031 J** | **0.00053 J** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **0.0056** | **0.0080** | **0.0034** | < 0.00094 U | **0.0054** | **0.0049** | **0.0081** | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0011 UJ | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | **0.00083 J** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.022 U | < 0.022 U | < 0.023 U | < 0.019 U | < 0.02 U | < 0.024 U | < 0.029 U | < 0.025 U | < 0.022 UJ | < 0.023 U | < 0.024 U | < 0.023 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0056 U | < 0.0055 U | < 0.0059 U | < 0.0047 U | < 0.0051 U | **0.0052 J** | < 0.0073 U | < 0.0061 U | < 0.0054 UJ | < 0.0058 U | < 0.0060 U | < 0.0058 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0056 U | < 0.0055 U | < 0.0059 U | < 0.0047 U | < 0.0051 U | < 0.0060 U | < 0.0073 U | < 0.0061 U | < 0.0054 UJ | < 0.0058 U | < 0.0060 U | < 0.0058 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.011 U | < 0.011 U | < 0.012 U | < 0.0094 U | < 0.01 U | < 0.012 U | < 0.015 U | < 0.012 U | < 0.011 UJ | < 0.012 U | < 0.012 U | < 0.012 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0056 U | < 0.0055 UJ | < 0.0059 UJ | < 0.0047 UJ | < 0.0051 UJ | < 0.0060 U | < 0.0073 U | < 0.0061 U | < 0.0054 UJ | < 0.0058 U | < 0.0060 UJ | < 0.0058 UJ |
| Acetone | 67-64-1 | 100 | 500 | < 0.0067 U | **0.017** | < 0.0070 U | < 0.0056 U | **0.018** | **0.03** | **0.042** | < 0.0074 U | < 0.0065 UJ | < 0.0069 U | < 0.0071 U | < 0.0069 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0011 U | **0.0016** | < 0.0012 U | < 0.00094 U | **0.0020** | **0.00078 J** | **0.00083 J** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | **0.0023** |
| Chloromethane | 74-87-3 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0011 U | < 0.0011 UJ | < 0.0012 UJ | < 0.00094 UJ | < 0.0010 UJ | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0011 U | **0.00095 J-** | < 0.0012 UJ | < 0.00094 UJ | **0.00076 J-** | **0.0012** | **0.0038** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0011 U | < 0.0011 UJ | < 0.0012 UJ | < 0.00094 UJ | < 0.0010 UJ | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0011 U | **0.00071 J** | **0.00035 J** | < 0.00094 U | **0.00041 J** | **0.0013** | **0.0022** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0056 U | < 0.0055 U | < 0.0059 UJ | < 0.0047 U | < 0.0051 U | < 0.0060 U | < 0.0073 U | < 0.0061 U | < 0.0054 UJ | < 0.0058 U | < 0.0060 U | < 0.0058 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0011 U | **0.0011** | < 0.0012 UJ | < 0.00094 U | **0.00086 J** | **0.0020** | **0.0067** | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0011 U | < 0.0011 UJ | < 0.0012 UJ | < 0.00094 UJ | < 0.0010 UJ | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Styrene | 100-42-5 | NL | NL | **0.022** | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | **0.0014** | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | **0.00034 J** | **0.0027 J** |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0012 UJ | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0011 U | < 0.0011 U | < 0.0012 U | < 0.00094 U | < 0.0010 U | < 0.0012 U | < 0.0015 U | < 0.0012 U | < 0.0011 UJ | < 0.0012 U | < 0.0012 U | < 0.0012 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.029** | **0.029** | **0.0037** | < 0.019 U | **0.027** | **0.045** | **0.064** | < 0.025 U | < 0.022 U | < 0.023 U | **0.00034** | **0.0050** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-138 DUP<br>324 Winthrop<br>DUPE-13-092620<br>9/26/2020<br>13 - 15 ft | SB-139<br>324 Winthrop<br>SB-139(2-4)<br>10/18/2020<br>2 - 4 ft | SB-139<br>324 Winthrop<br>SB-139(5-6.5)<br>10/18/2020<br>5 - 6.5 ft | SB-139<br>324 Winthrop<br>SB-139(12-14)<br>10/18/2020<br>12 - 14 ft | SB-139<br>324 Winthrop<br>SB-139(23-25)<br>10/18/2020<br>23 - 25 ft | SB-139<br>324 Winthrop<br>SB-139(33-35)<br>10/18/2020<br>33 - 35 ft | SB-139 DUP<br>324 Winthrop<br>DUPE-23-101820<br>10/18/2020<br>23 - 25 ft | SB-201<br>329 Clarkson<br>SB-201(02-04)<br>8/21/2021<br>2-4 ft | SB-201<br>329 Clarkson<br>SB-201(08-10)<br>8/29/2021<br>8-10 ft | SB-201<br>329 Clarkson<br>DUPE-04-082921<br>8/29/2021<br>8-10 ft | SB-201<br>329 Clarkson<br>SB-201(23-25)<br>8/30/2021<br>23-25 ft | SB-201<br>329 Clarkson<br>SB-201(48-50)<br>8/30/2021<br>48-50 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | **0.00094 J** | **0.032** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | **0.0075** | **0.0081** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0012 U | **0.0010 J** | **0.0094** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | **0.0011 J** | **0.0043** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0012 U | **0.0021** | **0.014** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | **0.00069 J** | **0.0019** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0012 U | **0.011** | **0.056** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 UJ | < 0.0014 UJ |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0014 U | **0.00019 J** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 UJ | < 0.0014 UJ |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0014 U | **0.00041 J** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.023 U | < 0.029 U | < 0.023 U | < 0.024 U | < 0.024 U | < 0.025 U | < 0.024 U | < 0.024 UJ | < 0.020 UJ | < 0.020 U | < 0.019 U | < 0.028 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0058 U | **0.0099** | **0.0049 J** | < 0.0060 U | < 0.0059 U | < 0.0062 U | < 0.0061 U | < 0.0059 UJ | < 0.0050 U | < 0.0051 U | < 0.0049 U | < 0.0071 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0058 U | < 0.0072 U | < 0.0058 U | < 0.0060 U | < 0.0059 U | < 0.0062 U | < 0.0061 U | < 0.0059 UJ | < 0.0050 U | < 0.0051 U | < 0.0049 U | < 0.0071 UJ |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | < 0.012 U | < 0.014 U | **0.0047 J** | < 0.012 U | < 0.012 U | < 0.012 U | < 0.012 U | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0058 U | < 0.0072 U | < 0.0058 U | < 0.0060 U | < 0.0059 U | < 0.0062 U | < 0.0061 U | < 0.0059 UJ | < 0.0050 U | < 0.0051 U | < 0.0049 U | < 0.0071 UJ |
| Acetone | 67-64-1 | 100 | 500 | < 0.0070 U | **0.057** | **0.03** | **0.0084 J+** | < 0.0071 U | < 0.0074 U | < 0.0073 U | **0.012 J** | **0.0062** | < 0.0061 U | < 0.0058 U | < 0.0085 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0024 UJ | < 0.0020 U | < 0.0020 U | < 0.0019 U | < 0.0028 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | **0.0021** | **0.0020** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0014 U | **0.00025 J** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | **0.0021** | **0.0095** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 UJ | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | **0.00071 J** | **0.013** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0058 U | < 0.0072 U | < 0.0058 U | < 0.0060 U | < 0.0059 U | < 0.0062 U | < 0.0061 U | < 0.0059 UJ | < 0.0050 U | < 0.0051 U | < 0.0049 U | < 0.0071 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | **0.0036** | **0.014** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0024 UJ | < 0.0020 U | < 0.0020 U | < 0.0019 U | < 0.0028 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0014 U | **0.00075 J** | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 UJ |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 UJ | < 0.0010 UJ | < 0.00097 U | < 0.0014 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 U | < 0.0012 UJ | < 0.00099 U | < 0.0010 U | < 0.00097 U | < 0.0014 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.023 U | **0.087** | **0.14** | **0.0084** | < 0.024 U | < 0.025 U | < 0.024 U | **0.012 J** | **0.0062** | < 0.020 U | < 0.019 U | < 0.028 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-202<br>329 Clarkson<br>SB-202(03-05)<br>8/21/2021<br>3-5 ft | SB-202<br>329 Clarkson<br>SB-202(13-15)<br>8/31/2021<br>13-15 ft | SB-202<br>329 Clarkson<br>SB-202(17-19)<br>8/31/2021<br>17-19 ft | SB-202<br>329 Clarkson<br>SB-202(47.5-49.5)<br>8/31/2021<br>47.5-49.5 ft | SB-203<br>329 Clarkson<br>SB-203(03-05)<br>8/21/2021<br>3-5 ft | SB-203<br>329 Clarkson<br>SB-203(08-10)<br>8/28/2021<br>8-10 ft | SB-203<br>329 Clarkson<br>SB-203(18-24)<br>8/28/2021<br>18-24 ft | SB-203<br>329 Clarkson<br>DUPE-02-082821<br>8/28/2021<br>18-24 ft | SB-204<br>329 Clarkson<br>SB-204(03-05)<br>8/23/2021<br>3-5 ft | SB-204<br>329 Clarkson<br>SB-204(08-10)<br>9/8/2021<br>8-10 ft | SB-204<br>329 Clarkson<br>DUPE-07-090821<br>9/8/2021<br>8-10 ft | SB-204<br>329 Clarkson<br>SB-204(23-25)<br>9/8/2021<br>23-25 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0013 UJ | < 0.0011 UJ | < 0.0010 UJ | < 0.0012 UJ | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0013 UJ | < 0.0011 UJ | < 0.0010 UJ | < 0.0012 UJ | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.026 UJ | < 0.022 U | < 0.021 U | < 0.024 U | < 0.024 UJ | < 0.022 U | < 0.022 U | < 0.022 U | < 0.026 U | < 0.024 U | < 0.021 U | < 0.022 U |
| 2-Butanone | 78-93-3 | 100 | 500 | **0.0043 J** | < 0.0055 U | < 0.0052 U | < 0.0059 U | < 0.0060 UJ | < 0.0054 U | < 0.0054 U | < 0.0055 U | < 0.0065 U | **0.0032 J** | **0.0042 J** | < 0.0054 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0066 UJ | < 0.0055 U | < 0.0052 U | < 0.0059 U | < 0.0060 UJ | < 0.0054 U | < 0.0054 U | < 0.0055 U | < 0.0065 U | < 0.0059 U | < 0.0053 U | < 0.0054 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0066 UJ | < 0.0055 U | < 0.0052 U | < 0.0059 U | < 0.0060 UJ | < 0.0054 U | < 0.0054 U | < 0.0055 U | < 0.0065 U | < 0.0059 U | < 0.0053 U | < 0.0054 U |
| Acetone | 67-64-1 | 100 | 500 | **0.025 J** | < 0.0066 U | < 0.0062 U | < 0.0071 U | < 0.0072 UJ | < 0.0065 U | **0.010** | < 0.0065 U | **0.011** | **0.019** | **0.023** | < 0.0065 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0026 UJ | < 0.0022 U | < 0.0021 U | < 0.0024 U | < 0.0024 UJ | < 0.0022 U | < 0.0022 U | < 0.0022 U | < 0.0026 U | < 0.0024 U | < 0.0021 U | < 0.0022 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.00064 J** | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0013 UJ | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0066 UJ | < 0.0055 U | < 0.0052 U | < 0.0059 U | < 0.0060 UJ | < 0.0054 U | < 0.0054 U | < 0.0055 U | < 0.0065 U | < 0.0059 U | < 0.0053 U | < 0.0054 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0026 UJ | < 0.0022 U | < 0.0021 U | < 0.0024 U | < 0.0024 UJ | < 0.0022 U | < 0.0022 U | < 0.0022 U | < 0.0026 U | < 0.0024 U | < 0.0021 U | < 0.0022 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Styrene | 100-42-5 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | **0.0052 J** | **0.00050 J** | **0.00049 J** | **0.00062 J** | **0.0013** | < 0.0012 U | < 0.0011 U | **0.00036 J** |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0013 UJ | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0013 UJ | < 0.0011 U | < 0.0010 U | < 0.0012 U | < 0.0012 UJ | < 0.0011 U | < 0.0011 U | < 0.0011 U | < 0.0013 U | < 0.0012 U | < 0.0011 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.02994 J** | < 0.022 U | < 0.021 U | < 0.024 U | **0.0052 J** | **0.00050 J** | **0.01049 J** | **0.00062 J** | **0.0123** | **0.0222 J** | **0.0272 J** | **0.00036 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

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**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-204<br>329 Clarkson<br>SB-204(33-35)<br>9/8/2021<br>33-35 ft | SB-204<br>329 Clarkson<br>SB-204(78-80)<br>9/9/2021<br>78-80 ft | SB-205<br>329 Clarkson<br>SB-205(03-05)<br>8/23/2021<br>3-5 ft | SB-205<br>329 Clarkson<br>SB-205(13-15)<br>8/24/2021<br>13-15 ft | SB-205<br>329 Clarkson<br>SB-205(18-20)<br>8/24/2021<br>18-20 ft | SB-206<br>329 Clarkson<br>SB-206(01-03)<br>8/23/2021<br>1-3 ft | SB-206<br>329 Clarkson<br>DUPE-01-082321<br>8/23/2021<br>1-3 ft | SB-206<br>329 Clarkson<br>SB-206(13-15)<br>8/24/2021<br>13-15 ft | SB-206<br>329 Clarkson<br>SB-206(18-20)<br>8/24/2021<br>18-20 ft | SB-207<br>329 Clarkson<br>SB-207(02-04)<br>9/1/2021<br>2-4 ft | SB-207<br>329 Clarkson<br>DUPE-05-090121<br>9/1/2021<br>2-4 ft | SB-207<br>329 Clarkson<br>SB-207(07-09)<br>9/7/2021<br>7-9 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0011 U | **0.004** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | **0.0019** | < 0.0013 U | < 0.0022 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0011 U | **0.00070 J** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0011 U | **0.00068 J** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0011 U | **0.00064 J** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0011 U | **0.00132** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0011 U | **0.0085** | **0.00059 J** | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | **0.00061** | < 0.0013 U | < 0.0022 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0011 U | **0.01452 J** | **0.00059 J** | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | **0.00251** | < 0.0013 U | < 0.0022 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0011 U | < 0.00097 UJ | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0011 U | **0.00039 J** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0011 U | < 0.00097 UJ | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.022 U | < 0.019 U | < 0.036 U | < 0.023 U | < 0.022 U | < 0.031 U | < 0.039 U | < 0.023 U | < 0.021 U | < 0.027 U | < 0.027 U | < 0.044 U |
| 2-Butanone | 78-93-3 | 100 | 500 | **0.017** | **0.0041 J** | < 0.0091 U | < 0.0057 U | < 0.0056 U | < 0.0078 U | < 0.0098 U | < 0.0058 U | < 0.0052 U | < 0.0067 U | < 0.0066 U | < 0.011 U |
| 2-Hexanone | 591-78-6 | NL | NL | **0.0034 J** | < 0.0048 U | < 0.0091 U | < 0.0057 U | < 0.0056 U | < 0.0078 U | < 0.0098 U | < 0.0058 U | < 0.0052 U | < 0.0067 U | < 0.0066 U | < 0.011 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0056 U | < 0.0048 U | < 0.0091 U | < 0.0057 U | < 0.0056 U | < 0.0078 U | < 0.0098 U | < 0.0058 U | < 0.0052 UJ | < 0.0067 U | < 0.0066 U | < 0.011 U |
| Acetone | 67-64-1 | 100 | 500 | **0.031** | < 0.0058 U | < 0.011 U | < 0.0069 U | < 0.0067 U | **0.024** | **0.034** | < 0.0070 U | < 0.0063 U | < 0.0080 U | < 0.0080 U | < 0.013 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0011 U | < 0.00097 UJ | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0011 U | < 0.00097 UJ | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0022 U | < 0.0019 U | < 0.0036 U | < 0.0023 U | < 0.0022 U | < 0.0031 U | < 0.0039 U | < 0.0023 U | < 0.0021 U | < 0.0027 U | < 0.0027 U | < 0.0044 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0011 U | < 0.00097 UJ | < 0.0018 UJ | < 0.0011 U | < 0.0011 U | < 0.0016 UJ | < 0.0020 UJ | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0011 U | < 0.00097 UJ | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 UU | < 0.0013 U | < 0.0022 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0056 U | < 0.0048 U | < 0.0091 U | < 0.0057 U | < 0.0056 U | < 0.0078 U | < 0.0098 U | < 0.0058 U | < 0.0052 U | < 0.0067 U | < 0.0066 U | < 0.011 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0022 U | < 0.0019 U | < 0.0036 U | < 0.0023 U | < 0.0022 U | < 0.0031 U | < 0.0039 U | < 0.0023 U | < 0.0021 U | < 0.0027 U | < 0.0027 U | < 0.0044 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Styrene | 100-42-5 | NL | NL | < 0.0011 U | **0.00046 J** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 UJ | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0011 U | **0.0056** | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0011 U | < 0.00097 U | < 0.0018 UJ | < 0.0011 U | < 0.0011 U | < 0.0016 UJ | < 0.0020 UJ | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0011 U | < 0.00097 U | < 0.0018 U | < 0.0011 U | < 0.0011 U | < 0.0016 U | < 0.0020 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.0022 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.0514 J** | **0.01055 J** | < 0.0018 U | < 0.023 U | < 0.022 U | **0.024** | **0.034** | < 0.023 U | < 0.021 U | < 0.0013 U | < 0.027 U | < 0.044 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-207<br>329 Clarkson<br>DUPE-06-090721<br>9/7/2021<br>7-9 ft | SB-207<br>329 Clarkson<br>SB-207(18-20)<br>9/7/2021<br>18-20 ft | SB-208<br>329 Clarkson<br>SB-208(01-03)<br>9/1/2021<br>1-3 ft | SB-208<br>329 Clarkson<br>SB-208(08-10)<br>9/2/2021<br>8-10 ft | SB-208<br>329 Clarkson<br>SB-208(18-20)<br>9/2/2021<br>18-20 ft | SB-209<br>329 Clarkson<br>SB-209(01-03)<br>8/23/2021<br>1-3 ft | SB-209<br>329 Clarkson<br>SB-209(08-10)<br>8/25/2021<br>8-10 ft | SB-209<br>329 Clarkson<br>SB-209(16-18)<br>8/25/2021<br>16-18 ft | SB-210<br>329 Clarkson<br>SB-210(01-03)<br>8/21/2021<br>1-3 ft | SB-210<br>329 Clarkson<br>SB-210(08-10)<br>8/28/2021<br>8-10 ft | SB-210<br>329 Clarkson<br>SB-210(22-24)<br>8/28/2021<br>22-24 ft | SB-211<br>329 Clarkson<br>SB-211(01-03)<br>8/21/2021<br>1-3 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | **0.00036 J** |
| o-Xylene | 95-47-6 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 UJ | < 0.0011 UJ | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 UJ | < 0.0011 UJ | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | **0.00036 J** |
| Toluene | 108-88-3 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | **0.00041 J** | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | **0.00094 J** |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | **0.00041 J** | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | **0.0013 J** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.036 U | < 0.042 U | < 0.027 U | < 0.023 U | < 0.021 U | < 0.030 U | < 0.020 U | < 0.021 U | < 0.028 UJ | < 0.021 U | < 0.021 U | < 0.033 UJ |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0091 U | < 0.010 U | < 0.0066 U | < 0.0057 U | < 0.0052 U | **0.0087** | < 0.0049 U | < 0.0053 U | < 0.0069 UJ | < 0.0052 U | < 0.0052 U | < 0.0083 UJ |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0091 U | < 0.010 U | < 0.0066 U | < 0.0057 U | < 0.0052 U | < 0.0075 U | < 0.0049 U | < 0.0053 U | < 0.0069 UJ | < 0.0052 U | < 0.0052 U | < 0.0083 UJ |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0091 U | < 0.010 U | < 0.0066 U | < 0.0057 U | < 0.0052 U | < 0.0075 U | < 0.0049 U | < 0.0053 U | < 0.0069 UJ | < 0.0052 U | < 0.0052 U | < 0.0083 UJ |
| Acetone | 67-64-1 | 100 | 500 | < 0.011 U | **0.017** | **0.031** | **0.0086** | **0.016** | **0.040** | < 0.0059 U | **0.013** | < 0.0083 UJ | < 0.0062 U | **0.0074** | **0.053 J** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Bromoform | 75-25-2 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Bromomethane | 74-83-9 | NL | NL | < 0.0036 U | < 0.0042 U | < 0.0027 U | < 0.0023 U | < 0.0021 U | < 0.0030 U | < 0.0020 U | < 0.0021 U | < 0.0028 UJ | < 0.0021 U | < 0.0021 U | < 0.0033 UJ |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | **0.00065 J** | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Chloroethane | 75-00-3 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Chloromethane | 74-87-3 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 UJ | < 0.00098 UJ | < 0.0011 UJ | < 0.0014 UJ | < 0.0010 UJ | < 0.0010 U | < 0.0017 UJ |
| Freon TF | 76-13-1 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0091 U | < 0.010 U | < 0.0066 U | < 0.0057 U | < 0.0052 U | < 0.0075 U | < 0.0049 U | < 0.0053 U | < 0.0069 UJ | < 0.0052 U | < 0.0052 U | < 0.0083 UJ |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0036 U | < 0.0042 U | < 0.0027 U | < 0.0023 U | < 0.0021 U | < 0.0030 U | < 0.0020 U | < 0.0021 U | < 0.0028 UJ | < 0.0021 U | < 0.0021 U | < 0.0033 UJ |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Styrene | 100-42-5 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 UJ | < 0.0011 UJ | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 UJ | < 0.0011 UJ | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | **0.0021 J** | < 0.0010 U | **0.00034 J** | < 0.0017 UJ |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 UJ | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 UJ | < 0.0010 UJ | < 0.0017 UJ |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0018 U | < 0.0021 U | < 0.0013 U | < 0.0011 U | < 0.0010 U | < 0.0015 U | < 0.00098 U | < 0.0011 U | < 0.0014 UJ | < 0.0010 U | < 0.0010 U | < 0.0017 UJ |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.036 U | **0.017** | **0.031** | **0.00925 J** | **0.016** | **0.0487 J** | < 0.020 U | **0.013** | **0.0021 J** | < 0.021 U | **0.00774** | **0.053 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-211<br>329 Clarkson<br>SB-211(13-15)<br>9/11/2021<br>13-15 ft | SB-211<br>329 Clarkson<br>SB-211(18-20)<br>9/11/2021<br>18-20 ft | SB-212<br>329 Clarkson<br>SB-212(01-03)<br>8/24/2021<br>1-3 ft | SB-212<br>329 Clarkson<br>SB-212(12-14)<br>9/2/2021<br>12-14 ft | SB-212<br>329 Clarkson<br>SB-212(17-19)<br>9/2/2021<br>17-19 ft | SB-213<br>329 Clarkson<br>SB-213(02-04)<br>8/23/2021<br>2-4 ft | SB-213<br>329 Clarkson<br>SB-213(08-10)<br>8/25/2021<br>8-10 ft | SB-213<br>329 Clarkson<br>SB-213(18-20)<br>8/25/2021<br>18-20 ft | SB-214<br>329 Clarkson<br>SB-214(02-04)<br>8/24/2021<br>2-4 ft | SB-214<br>329 Clarkson<br>SB-214(06-08)<br>8/26/2021<br>6-8 ft | SB-214<br>329 Clarkson<br>SB-214(18-20)<br>8/26/2021<br>18-20 ft | SB-215<br>329 Clarkson<br>SB-215(03-05)<br>8/24/2021<br>3-5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 UJ | < 0.0011 UJ | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 UJ |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 UJ | < 0.0011 UJ | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 UJ |
| Toluene | 108-88-3 | 100 | 500 | **0.00026 J** | < 0.0012 U | < 0.0013 U | **0.00028 J** | **0.00035 J** | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **0.00026 J** | < 0.0012 U | < 0.0013 U | **0.00028 J** | **0.00035 J** | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.022 U | < 0.023 U | < 0.026 U | < 0.021 U | < 0.020 U | < 0.026 U | < 0.022 U | < 0.022 U | < 0.028 U | < 0.021 U | < 0.022 U | < 0.026 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0054 U | < 0.0058 U | < 0.0064 U | < 0.0052 U | < 0.0050 U | < 0.0065 U | < 0.0054 U | < 0.0055 U | < 0.0070 U | < 0.0052 U | < 0.0054 U | < 0.0064 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0054 U | < 0.0058 U | < 0.0064 U | < 0.0052 U | < 0.0050 U | < 0.0065 U | < 0.0054 U | < 0.0055 U | < 0.0070 U | < 0.0052 U | < 0.0054 U | < 0.0064 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0054 U | < 0.0058 U | < 0.0064 U | < 0.0052 U | < 0.0050 U | < 0.0065 U | < 0.0054 U | < 0.0055 U | < 0.0070 U | < 0.0052 U | < 0.0054 U | < 0.0064 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0065 U | < 0.0070 U | < 0.0077 U | **0.052** | **0.051** | **0.016** | < 0.0065 U | **0.0084** | **0.0090** | < 0.0063 U | < 0.0065 U | < 0.0077 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0022 U | < 0.0023 U | < 0.0026 U | < 0.0021 U | < 0.0020 U | < 0.0026 U | < 0.0022 U | < 0.0022 U | < 0.0028 U | < 0.0021 U | < 0.0022 U | < 0.0026 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | **0.00037 J** | < 0.0013 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 UJ | < 0.0011 UJ | < 0.0011 UJ | < 0.0014 U | < 0.0010 UJ | < 0.0011 UJ | < 0.0013 UJ |
| Freon TF | 76-13-1 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0054 U | < 0.0058 U | < 0.0064 U | < 0.0052 U | < 0.0050 U | < 0.0065 U | < 0.0054 U | < 0.0055 U | < 0.0070 U | < 0.0052 U | < 0.0054 U | < 0.0064 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | **0.0033** | **0.0025** | < 0.0026 U | < 0.0021 U | < 0.0020 U | < 0.0026 U | < 0.0022 U | < 0.0022 U | < 0.0028 U | < 0.0021 U | < 0.0022 U | < 0.0026 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Styrene | 100-42-5 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 UJ | < 0.0011 UJ | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 UJ |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 UJ | < 0.0011 UJ | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 UJ |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 UJ | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0011 U | < 0.0012 U | < 0.0013 U | < 0.0010 U | < 0.0010 U | < 0.0013 U | < 0.0011 U | < 0.0011 U | < 0.0014 U | < 0.0010 U | < 0.0011 U | < 0.0013 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.0033 J** | **0.0025** | < 0.026 U | **0.052** | **0.051 J** | **0.016** | < 0.022 U | **0.0084** | **0.009** | < 0.021 U | **0.00037 J** | < 0.026 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-215<br>329 Clarkson<br>SB-215(12-14)<br>8/26/2021<br>12-14 ft | SB-215<br>329 Clarkson<br>SB-215(21-23)<br>8/26/2021<br>21-23 ft | SB-216<br>329 Clarkson<br>SB-216(18-20)<br>9/7/2021<br>18-20 ft | SB-217<br>329 Clarkson<br>SB-217(03-05)<br>9/11/2021<br>3-5 ft | SB-217<br>329 Clarkson<br>SB-217(06-08)<br>9/11/2021<br>6-8 ft | SB-217<br>329 Clarkson<br>SB-217(16-18)<br>9/11/2021<br>16-18 ft | SB-218<br>329 Clarkson<br>SB-218(02-04)<br>9/11/2021<br>2-4 ft | SB-218<br>329 Clarkson<br>SB-218(10-12)<br>9/11/2021<br>10-12 ft | SB-218<br>329 Clarkson<br>SB-218(15-17)<br>9/11/2021<br>15-17 ft | SB-219<br>329 Clarkson<br>SB-219(01-03)<br>9/11/2021<br>1-3 ft | SB-219<br>329 Clarkson<br>SB-219(13-15)<br>9/11/2021<br>13-15 ft | SB-219<br>329 Clarkson<br>SB-219(18-20)<br>9/11/2021<br>18-20 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | **0.00045 J** | **0.0010 J** | < 0.0015 U | < 0.0017 U | < 0.0021 U | **0.0018 J** |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | **0.00056 J** | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | **0.00056 J** | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | **0.00043 J** | **0.00065 J** | < 0.0015 U | **0.00047 J** | < 0.0021 U | **0.0019 J** |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | **0.00088 J** | **0.00165 J** | **0.00056 J** | **0.00047 J** | < 0.0021 U | **0.0037 J** |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.021 U | < 0.022 U | < 0.035 U | < 0.020 U | < 0.025 U | < 0.023 U | < 0.031 U | < 0.032 U | < 0.029 U | < 0.033 U | < 0.042 U | < 0.053 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0053 U | < 0.0055 U | < 0.0086 U | < 0.0050 U | < 0.0062 U | < 0.0057 U | < 0.0078 U | **0.0064 J** | < 0.0073 U | **0.0050 J** | **0.049** | **0.026** |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0053 U | < 0.0055 U | < 0.0086 U | < 0.0050 U | < 0.0062 U | < 0.0057 U | < 0.0078 U | < 0.0079 U | < 0.0073 U | < 0.0083 U | < 0.011 U | < 0.013 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0053 U | < 0.0055 UJ | < 0.0086 U | < 0.0050 U | < 0.0062 U | < 0.0057 U | < 0.0078 U | < 0.0079 U | < 0.0073 U | < 0.0083 U | < 0.011 U | < 0.013 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.0064 U | < 0.0066 U | < 0.010 U | < 0.0060 U | **0.0087** | < 0.0068 U | **0.018** | **0.048** | **0.033** | **0.041** | **0.31** | **0.24** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0021 U | < 0.0022 U | < 0.0035 U | < 0.0020 U | < 0.0025 U | < 0.0023 U | < 0.0031 U | < 0.0032 U | < 0.0029 U | < 0.0033 U | < 0.0042 U | < 0.0053 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | **0.00038 J** | < 0.0016 U | **0.00058 J+** | < 0.0015 U | < 0.0017 U | **0.00086 J** | **0.0014 J** |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0011 UJ | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0053 U | < 0.0055 U | < 0.0086 U | < 0.0050 U | < 0.0062 U | < 0.0057 U | < 0.0078 U | < 0.0079 U | < 0.0073 U | < 0.0083 U | < 0.011 U | < 0.013 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0021 U | < 0.0022 U | < 0.0035 U | **0.012** | **0.0058** | < 0.0023 U | **0.018** | **0.0042** | **0.0053** | < 0.0033 U | **0.0087** | **0.022** |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Styrene | 100-42-5 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | **0.00093 J** | **0.0024 J** |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0011 U | < 0.0011 UJ | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0011 U | < 0.0011 U | < 0.0017 U | < 0.0010 U | < 0.0012 U | < 0.0011 U | < 0.0016 U | < 0.0016 U | < 0.0015 U | < 0.0017 U | < 0.0021 U | < 0.0027 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | < 0.021 U | < 0.022 U | < 0.035 U | **0.012** | **0.0145** | **0.00038 J** | **0.036** | **0.05918 J** | **0.0383** | **0.046** | **0.36949 J** | **0.2918 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | TP-1<br>760 Parkside<br>TP-1(8)062311<br>6/23/2011<br>0 - 8 ft | TP-1<br>760 Parkside<br>NSIDE NO VALVE HO,)(<br>6/23/2011<br>0 - 0 ft | TP-1<br>760 Parkside<br>TP-1(1-2)062311<br>6/23/2011<br>1 - 2 ft | TP-2<br>760 Parkside<br>TP-2(8')062311<br>6/23/2011<br>0 - 8 ft | TP-101<br>324 Winthrop<br>TP-101 (2-3)<br>8/31/2020<br>2 - 3 ft | TP-101<br>324 Winthrop<br>TP-101 (5-6)<br>8/31/2020<br>5 - 6 ft | TP-101<br>324 Winthrop<br>TP-101 (8-10)<br>8/31/2020<br>8 - 10 ft | TP-101A<br>324 Winthrop<br>TP-101A (6-8)<br>9/2/2020<br>6 - 8 ft | TP-102<br>324 Winthrop<br>TP-102(6-7)<br>8/27/2020<br>6 - 7 ft | TP-102<br>324 Winthrop<br>TP-102(8-10)<br>8/27/2020<br>8 - 10 ft | TP-102 Ash<br>324 Winthrop<br>TP-102-ASH<br>8/27/2020 | TP-103<br>324 Winthrop<br>TP-103 (8-10)<br>9/1/2020<br>8 - 10 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | **0.00048 J** | **0.00073 J** | < 0.00093 U | **0.00080 J** | **0.017** | **0.0031** | **0.0042** | < 0.0011 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | **0.00047 J** | **0.00058 J** | < 0.0017 U | < 0.0011 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | < 0.0023 U | < 0.0022 U | < 0.0024 U | < 0.0020 U | < 0.0013 U | **0.00025 J** | < 0.00093 U | **0.00026 J** | **0.0019** | **0.0018** | **0.00057 J** | < 0.0011 U |
| o-Xylene | 95-47-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | **0.00023 J** | **0.00073 J** | **0.00079 J** | < 0.0017 U | < 0.0011 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | < 0.0023 U | < 0.0022 U | < 0.0024 U | < 0.0020 U | < 0.0013 U | **0.00025** | < 0.00093 U | **0.00049** | **0.0026** | **0.0026** | **0.00057** | < 0.0011 U |
| Toluene | 108-88-3 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | **0.0045** | **0.00061 J** | < 0.0017 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | < 0.0023 U | < 0.0022 U | < 0.0024 U | < 0.0020 U | **0.00048** | **0.00098** | < 0.00093 U | **0.0013** | **0.025** | **0.0069** | **0.0048** | < 0.0011 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | NS | NS | NS | NS | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.058 U | < 0.056 UJ | < 0.06 UJ | < 0.051 UJ | < 0.027 U | < 0.027 U | < 0.019 U | < 0.021 U | < 0.036 U | < 0.025 U | < 0.035 U | < 0.021 U |
| 2-Butanone | 78-93-3 | 100 | 500 | R | R | R | R | **0.015** | **0.019** | **0.0050** | **0.0052 J** | **0.024** | **0.0097** | **0.021** | **0.0042 J** |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.012 U | < 0.011 U | < 0.012 U | < 0.01 U | < 0.0067 U | < 0.0067 U | < 0.0046 U | < 0.0053 U | < 0.0090 U | < 0.0062 U | < 0.0087 U | < 0.0053 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | NS | NS | NS | NS | < 0.013 U | < 0.013 U | < 0.0093 U | < 0.011 U | < 0.018 U | < 0.012 U | < 0.017 U | < 0.011 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.012 U | < 0.011 U | < 0.012 U | < 0.01 U | < 0.0067 U | < 0.0067 U | < 0.0046 U | < 0.0053 U | < 0.0090 U | < 0.0062 U | < 0.0087 U | < 0.0053 U |
| Acetone | 67-64-1 | 100 | 500 | < 0.012 U | R | < 0.012 U | R | **0.1** | **0.12** | **0.031** | **0.029** | **0.15** | **0.055** | **0.12** | **0.032** |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0012 UJ | < 0.0011 U | < 0.0012 UJ | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0012 UJ | < 0.0011 UJ | < 0.0012 UJ | < 0.0010 UJ | < 0.0013 UJ | < 0.0013 UJ | < 0.00093 UJ | < 0.0011 UJ | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 UJ |
| Bromomethane | 74-83-9 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Carbon disulfide | 75-15-0 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | **0.00078 J** | **0.00052 J** | < 0.00093 U | **0.00036 J** | **0.0019** | **0.0011 J** | **0.0020** | < 0.0011 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0012 UJ | < 0.0011 U | < 0.0012 UJ | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Cyclohexane | 110-82-7 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0012 UJ | < 0.0011 U | < 0.0012 UJ | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Isopropylbenzene | 98-82-8 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | **0.00026 J** | **0.00064 J** | **0.00073 J** | **0.00039 J** | < 0.0011 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0012 U | R | < 0.0012 U | R | < 0.0067 U | < 0.0067 U | < 0.0046 U | < 0.0053 U | < 0.0090 U | < 0.0062 U | < 0.0087 U | < 0.0053 U |
| Methylcyclohexane | 108-87-2 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | **0.00058 J** | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Styrene | 100-42-5 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | **0.00057 J** | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | **0.00063 J** | < 0.0011 U | **0.0012** | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0012 U | < 0.0011 U | < 0.0012 U | < 0.0010 U | < 0.0013 U | < 0.0013 U | < 0.00093 U | < 0.0011 U | < 0.0018 U | < 0.0012 U | < 0.0017 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.00063** | < 0.056 UJ | **0.0012** | < 0.051 UJ | **0.12** | **0.14** | **0.037** | **0.036** | **0.2** | **0.073** | **0.15** | **0.036** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | TP-104<br>324 Winthrop<br>TP-104 (8-9)<br>10/14/2020<br>8 - 9 ft | TP-104<br>324 Winthrop<br>TP-104 (9-10)<br>10/14/2020<br>9 - 10 ft | TP-105<br>324 Winthrop<br>TP-105 (6-7)<br>10/15/2020<br>6 - 7 ft | TP-105<br>324 Winthrop<br>TP-105 (7-8)<br>10/15/2020<br>7 - 8 ft | TP-106<br>324 Winthrop<br>TP-106(5-7)091420<br>9/14/2020<br>5 - 7 ft | TP-107<br>324 Winthrop<br>TP-107 (5-7)091520<br>9/15/2020<br>5 - 7 ft | TP-108<br>324 Winthrop<br>TP-108(3-5)<br>9/28/2020<br>3 - 5 ft | TP-108<br>324 Winthrop<br>TP-108(4-5)<br>9/28/2020<br>4 - 5 ft | TP-108<br>324 Winthrop<br>TP-108(6-7)<br>9/28/2020<br>6 - 7 ft | TP-201<br>329 Clarkson<br>TP-201(06-07)<br>9/14/2021<br>6-7 ft | TP-202<br>329 Clarkson<br>TP-202(01-03)<br>9/15/2021<br>1-3 ft | TP-202<br>329 Clarkson<br>TP-202(05-06)<br>9/15/2021<br>5-6 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (mg/Kg)** | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 4.8 | 44 | **0.0097** | **0.0075** | **0.058** | < 0.0012 U | **0.00037 J** | **0.022** | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Ethylbenzene | 100-41-4 | 41 | 390 | **0.021** | **0.018** | **0.018** | < 0.0012 U | < 0.0014 U | **0.03** | < 0.0013 U | < 0.0012 U | **0.00082 J** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| m&p-Xylene | 1330-20-7-M,P | NL | NL | **0.047** | **0.03** | **0.12** | < 0.0012 U | < 0.0014 U | **0.041** | **0.00037 J** | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| o-Xylene | 95-47-6 | NL | NL | **0.027** | **0.016** | **0.05** | < 0.0012 U | < 0.0014 U | **0.013** | **0.00026 J** | < 0.0012 U | **0.00057 J** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Total Xylenes | CALC-Xylenes | 100 | 500 | **0.074** | **0.046** | **0.17** | < 0.0012 U | < 0.0014 U | **0.054** | **0.00063** | < 0.0012 U | **0.00057** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Toluene | 108-88-3 | 100 | 500 | **0.021** | **0.0096** | **0.16** | < 0.0012 U | < 0.0014 U | **0.0033** | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total BTEX** | CALC-BTEX | NL | NL | **0.13** | **0.081** | **0.41** | < 0.0012 U | **0.00037** | **0.11** | **0.00063** | < 0.0012 U | **0.0014** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| **VOCs (mg/Kg)** | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | NA | NA | NA |
| 1,1,1-Trichloroethane | 71-55-6 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,1,2-Trichloroethane | 79-00-5 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,1-Dichloroethane | 75-34-3 | 26 | 240 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,1-Dichloroethene | 75-35-4 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 UJ | < 0.0012 UJ | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,2-Dibromoethane | 106-93-4 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,2-Dichlorobenzene | 95-50-1 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,2-Dichloroethane | 107-06-2 | 3.1 | 30 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,2-Dichloropropane | 78-87-5 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,3-Dichlorobenzene | 541-73-1 | 49 | 280 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | **0.00020 J** | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,4-Dichlorobenzene | 106-46-7 | 13 | 130 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | **0.00060 J** | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| 1,4-Dioxane | 123-91-1 | NL | NL | < 0.03 U | < 0.025 U | < 0.02 U | < 0.024 U | < 0.028 U | < 0.024 U | < 0.026 U | < 0.023 U | < 0.02 U | < 0.031 U | < 0.040 U | < 0.022 U |
| 2-Butanone | 78-93-3 | 100 | 500 | < 0.0076 U | < 0.0063 U | **0.0034 J** | < 0.0059 U | **0.0072** | **0.0077** | < 0.0066 U | < 0.0058 U | < 0.0050 U | < 0.0078 U | < 0.010 U | < 0.0055 U |
| 2-Hexanone | 591-78-6 | NL | NL | < 0.0076 U | < 0.0063 U | < 0.0050 U | < 0.0059 U | < 0.0070 U | < 0.0059 U | < 0.0066 U | < 0.0058 U | < 0.0050 U | < 0.0078 U | < 0.010 U | < 0.0055 U |
| 2-Methyl-2-propanol | 75-65-0 | NL | NL | **0.024** | **0.028** | < 0.01 U | **0.014** | < 0.014 U | < 0.012 U | < 0.013 U | < 0.012 U | < 0.01 U | NA | NA | NA |
| 4-Methyl-2-pentanone | 108-10-1 | NL | NL | < 0.0076 U | < 0.0063 U | < 0.0050 U | < 0.0059 U | < 0.0070 U | < 0.0059 U | < 0.0066 U | < 0.0058 U | < 0.0050 U | < 0.0078 U | < 0.010 U | < 0.0055 U |
| Acetone | 67-64-1 | 100 | 500 | **0.011 J+** | **0.018 J+** | **0.02 J+** | **0.018 J+** | **0.041** | **0.038** | **0.018** | **0.015** | < 0.0060 U | < 0.0094 U | < 0.012 U | < 0.0066 U |
| Bromochloromethane | 74-97-5 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Bromodichloromethane | 75-27-4 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Bromoform | 75-25-2 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Bromomethane | 74-83-9 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0031 U | < 0.0040 U | < 0.0022 U |
| Carbon disulfide | 75-15-0 | NL | NL | **0.0024** | **0.0031** | **0.00040 J** | < 0.0012 U | < 0.0014 U | **0.0016 J+** | **0.0010 J** | **0.0045** | **0.00051 J** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Carbon tetrachloride | 56-23-5 | 2.4 | 22 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Chlorobenzene | 108-90-7 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Chloroethane | 75-00-3 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Chloroform | 67-66-3 | 49 | 350 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | **0.00056 J** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Chloromethane | 74-87-3 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| cis-1,2-Dichloroethene | 156-59-2 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| cis-1,3-Dichloropropene | 10061-01-5 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Cyclohexane | 110-82-7 | NL | NL | **0.0021** | **0.0029** | < 0.0010 U | < 0.0012 U | **0.00062 J** | **0.0040** | **0.00082 J-** | < 0.0012 UJ | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Dibromochloromethane | 124-48-1 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Dichlorodifluoromethane | 75-71-8 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Freon TF | 76-13-1 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 UJ | < 0.0012 UJ | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Isopropylbenzene | 98-82-8 | NL | NL | **0.0022** | **0.0031** | **0.00071 J** | < 0.0012 U | < 0.0014 U | **0.019** | < 0.0013 U | < 0.0012 U | **0.00037 J+** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Methyl acetate | 79-20-9 | NL | NL | < 0.0076 U | < 0.0063 U | < 0.0050 U | < 0.0059 UJ | < 0.0070 U | < 0.0059 U | < 0.0066 U | < 0.0058 U | < 0.0050 U | < 0.0078 U | < 0.010 U | < 0.0055 U |
| Methylcyclohexane | 108-87-2 | NL | NL | **0.0022** | **0.0036** | < 0.0010 U | < 0.0012 U | **0.0013 J** | **0.0056** | **0.00088 J-** | < 0.0012 UJ | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Methylene Chloride | 75-09-2 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0031 U | < 0.0040 U | < 0.0022 U |
| MTBE | 1634-04-4 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Styrene | 100-42-5 | NL | NL | **0.0099** | **0.0049** | **0.0014** | < 0.0012 U | < 0.0014 U | **0.00082 J** | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Tetrachloroethene | 127-18-4 | 19 | 150 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | **0.00050 J** | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| trans-1,2-Dichloroethene | 156-60-5 | 100 | 500 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| trans-1,3-Dichloropropene | 10061-02-6 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Trichloroethene | 79-01-6 | 21 | 200 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 UJ | < 0.0012 UJ | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Trichlorofluoromethane | 75-69-4 | NL | NL | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| Vinyl chloride | 75-01-4 | 0.9 | 13 | < 0.0015 U | < 0.0013 U | < 0.0010 U | < 0.0012 U | < 0.0014 U | < 0.0012 U | < 0.0013 U | < 0.0012 U | < 0.0010 U | < 0.0016 U | < 0.0020 U | < 0.0011 U |
| | | | | | | | | | | | | | | | |
| **Total VOC** | CALC-VOC | NL | NL | **0.18** | **0.14** | **0.43** | **0.032** | **0.05** | **0.19** | **0.021** | **0.02** | **0.0033** | < 0.0016 U | < 0.0020 U | < 0.0011 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results
VOC - Volatile Organic Compounds

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-01<br>324 Winthrop<br>SB-1(4.5-5)012411<br>1/24/2011<br>4.5 - 5 ft | SB-01<br>324 Winthrop<br>SB-1(44-46.5)012411<br>1/24/2011<br>44 - 46.5 ft | SB-01 DUP<br>324 Winthrop<br>DUP-2-012411<br>1/24/2011<br>44 - 46.5 ft | SB-01<br>324 Winthrop<br>SB-1(59-61.5)012411<br>1/24/2011<br>59 - 61.5 ft | SB-02<br>324 Winthrop<br>SB-2(3.5-12)012511<br>1/25/2011<br>3.5 - 12 ft | SB-02<br>324 Winthrop<br>SB-2(46.5-49)012511<br>1/25/2011<br>46.5 - 49 ft | SB-02<br>324 Winthrop<br>SB-2(56.5-59)012611<br>1/26/2011<br>56.5 - 59 ft | SB-03<br>324 Winthrop<br>SB-3(1.5-3)020811<br>2/8/2011<br>1.5 - 3 ft | SB-03<br>324 Winthrop<br>SB-3(31.5-34)020911<br>2/9/2011<br>31.5 - 34 ft | SB-03<br>324 Winthrop<br>SB-3(46.5-49)020911<br>2/9/2011<br>46.5 - 49 ft | SB-03<br>324 Winthrop<br>SB-3(56.5-59)020911<br>2/9/2011<br>56.5 - 59 ft | SB-03 DUP<br>324 Winthrop<br>DUP-3-020911<br>2/9/2011<br>56.5 - 59 ft | SB-04<br>324 Winthrop<br>SB-4(2.5-5)021011<br>2/10/2011<br>2.5 - 5 ft | SB-04<br>324 Winthrop<br>SB-4 (47.5-50)021011<br>2/10/2011<br>47.5 - 50 ft | SB-04<br>324 Winthrop<br>SB-4 (64-67)021011<br>2/10/2011<br>64 - 67 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **0.28 J** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **0.76** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | **1.9** | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | **1.5** | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **0.011 J** | < 0.036 U | < 0.036 U | < 0.042 U | **1.6** | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **1.6** | < 0.35 U | < 0.44 U | < 0.46 UJ | < 0.37 UJ | < 0.35 UJ | < 0.41 UJ | < 0.41 UJ | < 0.36 UJ | < 0.39 U | < 0.39 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | **0.56** | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **2.1** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | **0.23** | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **3.9** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **0.25 J** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | **1.6** | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **3.8** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **3.1** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **0.011** | < 0.36 U | < 0.36 U | < 0.42 U | **23** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 UJ | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 1.1 UJ | < 1.1 U | < 1.1 U | < 1.3 U | < 1.1 U | < 1 U | < 1.3 UJ | < 1.4 U | < 1.1 UJ | < 1.1 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.2 UJ | < 1.2 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.08 U | < 0.079 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.08 U | < 0.079 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.74 U | < 0.73 U | < 0.72 U | < 0.85 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.93 U | < 0.75 U | < 0.71 U | < 0.84 U | < 0.84 U | < 0.72 U | < 0.8 U | < 0.79 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.74 U | < 0.73 U | < 0.72 U | < 0.85 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.93 U | < 0.75 U | < 0.71 U | < 0.84 U | < 0.84 U | < 0.72 U | < 0.8 U | < 0.79 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.74 U | < 0.73 U | < 0.72 U | < 0.85 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.93 U | < 0.75 U | < 0.71 U | < 0.84 U | < 0.84 U | < 0.72 U | < 0.8 U | < 0.79 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 1.1 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1.1 U | < 1 U | < 1.3 UJ | < 1.4 U | < 1.1 UJ | < 1.1 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.2 U | < 1.2 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 UJ | < 0.37 UJ | < 0.35 UJ | < 0.41 UJ | < 0.41 UJ | < 0.36 UJ | < 0.39 U | < 0.39 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.74 U | < 0.73 U | < 0.72 U | < 0.85 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.93 U | < 0.75 U | < 0.71 U | < 0.84 U | < 0.84 U | < 0.72 U | < 0.8 U | < 0.79 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 1.1 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1.1 U | < 1 U | < 1.3 U | < 1.4 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.2 U | < 1.2 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.36 UJ | < 0.36 UJ | < 0.36 UJ | < 0.42 UJ | < 0.37 UJ | < 0.35 UJ | < 0.44 UJ | < 0.46 UJ | < 0.37 UJ | < 0.35 UJ | < 0.41 UJ | < 0.41 UJ | < 0.36 UJ | < 0.39 UJ | < 0.39 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | < 0.037 U | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 UJ | < 0.39 UJ |
| Carbazole | 86-74-8 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **0.24 J** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | **0.14 J** | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | < 0.037 U | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.08 U | < 0.079 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | < 0.037 U | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| Isophorone | 78-59-1 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | < 0.037 U | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.036 U | < 0.036 U | < 0.036 U | < 0.042 U | < 0.037 U | < 0.035 U | < 0.044 U | < 0.046 U | < 0.037 U | < 0.035 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.039 U | < 0.039 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 1.1 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1.1 U | < 1 U | < 1.3 U | < 1.4 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.2 U | < 1.2 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.36 U | < 0.42 U | < 0.37 U | < 0.35 U | < 0.44 U | < 0.46 U | < 0.37 U | < 0.35 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.39 U | < 0.39 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **0.011** | < 1.1 U | < 1.1 U | < 1.3 U | **24** | < 1 U | < 1.3 U | < 1.4 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.2 U | < 1.2 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-05<br>760 Parkside<br>SB/MW-5(4.5-5)010411<br>1/4/2011<br>4.5 - 5 ft | SB-05<br>760 Parkside<br>SB-5 (31-33)011911<br>1/19/2011<br>31 - 33 ft | SB-05<br>760 Parkside<br>SB-5 (47-49)011911<br>1/19/2011<br>47 - 49 ft | SB-05<br>760 Parkside<br>SB-5 (69-71)011911<br>1/19/2011<br>69 - 71 ft | SB-06<br>329 Clarkson<br>SB-6 (4.5-5)011711<br>1/17/2011<br>4.5 - 5 ft | SB-06<br>329 Clarkson<br>SB-6(50-52)011811<br>1/18/2011<br>50 - 52 ft | SB-06<br>329 Clarkson<br>SB-6(66.5-69)011811<br>1/18/2011<br>66.5 - 69 ft | SB-07<br>329 Clarkson<br>SB-7 (4.5-5)012011<br>1/20/2011<br>4.5 - 5 ft | SB-07<br>329 Clarkson<br>SB-7 (51.5-54)012111<br>1/20/2011<br>51.5 - 54 ft | SB-07<br>329 Clarkson<br>SB-7 (66.5-69)012011<br>1/20/2011<br>66.5 - 69 ft | SB-08<br>329 Clarkson<br>SB-8 (3-5)021611<br>2/16/2011<br>3 - 5 ft | SB-08<br>329 Clarkson<br>SB-8 (43-46)021611<br>2/16/2011<br>43 - 46 ft | SB-08<br>329 Clarkson<br>SB-8 (56-59)021611<br>2/16/2011<br>56 - 59 ft | SB-09<br>324 Winthrop<br>SB-9(2-3)012811<br>1/28/2011<br>2 - 3 ft | SB-09<br>324 Winthrop<br>SB-9(6-7)012811<br>1/28/2011<br>6 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | **0.17 J** | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.098 J** | **0.54** |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | **0.13 J** |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.13 J** | < 0.42 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.18 J** | **0.16 J** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.12** | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | **0.45** | **0.39** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.11** | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | **0.059** | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | **0.55** | **0.34** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **0.14** | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | **0.065** | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | **0.78 J** | **0.43 J** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.061 J** | < 0.035 U | < 0.034 U | < 0.38 UJ | < 0.41 U | < 0.36 U | < 0.36 U | **0.048 J** | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.24 J** | **0.25 J** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.054** | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | **0.3** | **0.22** |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.11 J** | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | **0.6** | **0.5** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | **0.089** | **0.063** |
| Fluoranthene | 206-44-0 | **100** | **500** | **0.15 J** | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.58** | **0.61** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.12 J** | **0.23 J** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.078** | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | **0.052** | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | **0.26** | **0.23** |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | **0.18 J** | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.14 J** | **1.6** |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.84** | **0.64** |
| Pyrene | 129-00-0 | **100** | **500** | **0.13 J** | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.71** | **0.93** |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **0.953** | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | **0.35 J** | < 0.36 U | **0.224 J** | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **6.1** | **7.3** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 1.3 U | < 1.1 U | < 1 U | < 1.1 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1 U | < 1.1 U | < 1.1 U | < 1.3 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.084 U | < 0.071 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.077 U | < 0.075 U | < 0.086 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.084 U | < 0.071 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.077 U | < 0.075 U | < 0.086 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.84 U | < 0.71 U | < 0.69 U | < 0.76 U | < 0.83 U | < 0.72 U | < 0.72 U | < 0.71 U | < 0.74 U | < 0.76 U | < 0.85 U | < 0.7 U | < 0.77 U | < 0.75 U | < 0.86 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.84 U | < 0.71 U | < 0.69 U | < 0.76 U | < 0.83 U | < 0.72 U | < 0.72 U | < 0.71 U | < 0.74 U | < 0.76 U | < 0.85 U | < 0.7 U | < 0.77 U | < 0.75 U | < 0.86 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.84 U | < 0.71 U | < 0.69 U | < 0.76 U | < 0.83 U | < 0.72 U | < 0.72 U | < 0.71 U | < 0.74 U | < 0.76 U | < 0.85 U | < 0.7 U | < 0.77 U | < 0.75 U | < 0.86 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 1.3 U | < 1.1 U | < 1 U | < 1.1 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1 U | < 1.1 U | < 1.1 U | < 1.3 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.84 U | < 0.71 U | < 0.69 U | < 0.76 U | < 0.83 U | < 0.72 U | < 0.72 U | < 0.71 U | < 0.74 U | < 0.76 U | < 0.85 U | < 0.7 U | < 0.77 U | < 0.75 U | < 0.86 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 1.3 U | < 1.1 UJ | < 1 U | < 1.1 U | < 1.2 UJ | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 UJ | < 1.1 U | < 1.3 U | < 1 U | < 1.1 U | < 1.1 UJ | < 1.3 UJ |
| Acetophenone | 98-86-2 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.42 UJ | < 0.35 UJ | < 0.34 UJ | < 0.38 UJ | < 0.41 U | < 0.36 UJ | < 0.36 U | < 0.35 UJ | < 0.36 UJ | < 0.37 UJ | < 0.42 UJ | < 0.34 UJ | < 0.38 UJ | < 0.37 UJ | < 0.42 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.042 U | < 0.035 UJ | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | < 0.037 U | < 0.042 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | **0.17 J** |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Carbazole | 86-74-8 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.067 J** | < 0.42 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **0.07 J** | **0.13 J** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 UJ | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | **0.16 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | < 0.037 U | < 0.042 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.084 U | < 0.071 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.077 U | < 0.075 U | < 0.086 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 UJ | < 0.42 UJ |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | < 0.037 U | < 0.042 U |
| Isophorone | 78-59-1 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.042 U | < 0.035 UJ | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 UJ | < 0.034 U | < 0.038 U | < 0.037 UJ | < 0.042 UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.041 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.034 U | < 0.038 U | < 0.037 U | < 0.042 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 1.3 U | < 1.1 U | < 1 U | < 1.1 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1 U | < 1.1 U | < 1.1 U | < 1.3 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | < 0.37 U | < 0.42 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 1.3 U | < 1.1 UJ | < 1 U | < 1.1 U | < 0.41 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.34 U | < 0.38 U | **6.2** | **7.7** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-09<br>324 Winthrop<br>SB-9(8-10)012811<br>1/28/2011<br>8 - 10 ft | SB-10<br>324 Winthrop<br>SB-10(1.5-3)020111<br>2/1/2011<br>1.5 - 3 ft | SB-10<br>324 Winthrop<br>SB-10(5-7.5)020111<br>2/1/2011<br>5 - 7.5 ft | SB-10<br>324 Winthrop<br>SB-10(60-62.5)020211<br>2/2/2011<br>60 - 62.5 ft | SB-10<br>324 Winthrop<br>SB-10(80-82.5)020211<br>2/2/2011<br>80 - 82.5 ft | SB-11<br>324 Winthrop<br>SB-11(1-2)013111<br>1/31/2011<br>1 - 2 ft | SB-11<br>324 Winthrop<br>SB-11(35.6-40)013111<br>1/31/2011<br>35.6 - 40 ft | SB-11<br>324 Winthrop<br>SB-11(40.6-43)013111<br>1/31/2011<br>40.6 - 43 ft | SB-12<br>324 Winthrop<br>SB-12(3.5-4.5)020311<br>2/3/2011<br>3.5 - 4.5 ft | SB-12<br>324 Winthrop<br>SB-12(69-72)020411<br>2/4/2011<br>69 - 72 ft | SB-12<br>324 Winthrop<br>SB-12(75-77)020411<br>2/4/2011<br>75 - 77 ft | SB-13<br>324 Winthrop<br>SB-13(0-1.5)020411<br>2/4/2011<br>0 - 1.5 ft | SB-13<br>324 Winthrop<br>SB-13(64-66.5)020711<br>2/7/2011<br>64 - 66.5 ft | SB-13<br>324 Winthrop<br>SB-13(77-79)020711<br>2/7/2011<br>77 - 79 ft | SB-14<br>760 Parkside<br>SB-14(5-5.5)010311<br>1/3/2011<br>5 - 5.5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.36 U | < 0.42 U | **0.6** | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **0.98** | < 0.38 U | < 0.38 U | < 0.37 U | **5** | < 0.4 U | < 0.38 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.36 U | < 0.42 U | < 0.4 U | **0.15 J** | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **1.2** | < 0.38 U | < 0.38 U | **0.23 J** | < 0.77 U | < 0.4 U | < 0.38 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **0.13 J** | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.36 U | < 0.42 U | < 0.4 U | **0.86** | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **2.6** | < 0.38 U | < 0.38 U | **0.63** | < 0.77 U | < 0.4 U | < 0.38 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.036 U | **0.74** | **0.077** | **0.88** | < 0.036 U | **0.14** | < 0.034 U | < 0.034 U | **3.5** | < 0.038 U | < 0.038 U | **1.9** | < 0.077 U | < 0.04 U | **0.18** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.036 U | **0.62** | **0.063** | **0.7** | < 0.036 U | **0.14** | < 0.034 U | < 0.034 U | **3.8** | < 0.038 U | < 0.038 U | **1.7** | < 0.077 U | < 0.04 U | **0.17** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.036 U | **0.63** | **0.087** | **0.57** | < 0.036 U | **0.15** | < 0.034 U | < 0.034 U | **3.6** | < 0.038 U | < 0.038 U | **1.9** | < 0.077 U | < 0.04 U | **0.26** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.36 U | **0.32 J** | < 0.4 U | **0.52** | < 0.36 U | **0.11 J** | < 0.34 U | < 0.34 U | **2.6** | < 0.38 U | < 0.38 U | **1.3** | < 0.77 U | < 0.4 U | **0.15 J** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.036 U | **0.18** | < 0.04 U | < 0.036 U | < 0.036 U | **0.071** | < 0.034 U | < 0.034 U | **1.6** | < 0.038 U | < 0.038 U | **0.84** | < 0.077 U | < 0.04 U | < 0.038 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.36 U | **0.99** | **0.087 J** | **0.75** | < 0.36 U | **0.15 J** | < 0.34 U | < 0.34 U | **3.5** | < 0.38 U | < 0.38 U | **1.8** | < 0.77 U | < 0.4 U | **0.21 J** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.036 U | **0.18** | < 0.04 U | **0.063** | < 0.036 U | < 0.037 U | < 0.034 U | < 0.034 U | **0.49** | < 0.038 U | < 0.038 U | **0.17** | < 0.077 U | < 0.04 U | < 0.038 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.36 U | **0.57** | **0.17 J** | **1.9** | < 0.36 U | **0.15 J** | < 0.34 U | < 0.34 U | **6.6** | < 0.38 U | < 0.38 U | **4.2** | < 0.77 U | < 0.4 U | **0.35 J** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.36 U | < 0.42 U | < 0.4 U | **0.33 J** | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **1.4** | < 0.38 U | < 0.38 U | **0.24 J** | < 0.77 U | < 0.4 U | < 0.38 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.036 U | **0.16** | < 0.04 U | **0.37** | < 0.036 U | **0.1** | < 0.034 U | < 0.034 U | **2.1** | < 0.038 U | < 0.038 U | **1.7** | < 0.077 U | < 0.04 U | **0.16** |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.36 U | < 0.42 U | **2** | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **4.1** | < 0.38 U | < 0.38 U | **0.07 J** | **12** | < 0.4 U | < 0.38 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.36 U | **0.35 J** | **0.14 J** | **2.6** | < 0.36 U | **0.18 J** | < 0.34 U | < 0.34 U | **9.1** | < 0.38 U | < 0.38 U | **2.5** | < 0.77 U | < 0.4 U | **0.22 J** |
| Pyrene | 129-00-0 | **100** | **500** | < 0.36 U | **0.49** | **0.15 J** | **2.3** | < 0.36 U | **0.18 J** | < 0.34 U | < 0.34 U | **7** | < 0.38 U | < 0.38 U | **3** | < 0.77 U | < 0.4 U | **0.3 J** |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.36 U | **5.2** | **3.4** | **12** | < 0.36 U | **1.4** | < 0.34 U | < 0.34 U | **54** | < 0.38 U | < 0.38 U | **22** | **17** | < 0.4 U | **2** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 1.1 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1 U | < 1 U | < 2.4 U | < 1.2 U | < 1.1 U | < 1.1 U | < 2.3 U | < 1.2 U | < 1.2 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.07 U | < 0.16 U | < 0.078 U | < 0.076 U | < 0.076 U | < 0.16 U | < 0.081 U | < 0.078 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.07 U | < 0.16 U | < 0.078 U | < 0.076 U | < 0.076 U | < 0.16 U | < 0.081 U | < 0.078 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.72 U | < 0.84 U | < 0.81 U | < 0.74 U | < 0.74 U | < 0.75 U | < 0.69 U | < 0.7 U | < 1.6 U | < 0.78 U | < 0.76 U | < 0.76 U | < 1.6 U | < 0.81 U | < 0.78 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.72 U | < 0.84 U | < 0.81 U | < 0.74 U | < 0.74 U | < 0.75 U | < 0.69 U | < 0.7 U | < 1.6 U | < 0.78 U | < 0.76 U | < 0.76 U | < 1.6 U | < 0.81 U | < 0.78 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.72 U | < 0.84 U | < 0.81 U | < 0.74 U | < 0.74 U | < 0.75 U | < 0.69 U | < 0.7 U | < 1.6 U | < 0.78 U | < 0.76 U | < 0.76 U | < 1.6 U | < 0.81 U | < 0.78 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 1.1 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1 U | < 1 U | < 2.4 U | < 1.2 U | < 1.1 U | < 1.1 U | < 2.3 U | < 1.2 U | < 1.2 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.72 U | < 0.84 U | < 0.81 U | < 0.74 U | < 0.74 U | < 0.75 UJ | < 0.69 U | < 0.7 U | < 1.6 U | < 0.78 U | < 0.76 U | < 0.76 U | < 1.6 U | < 0.81 U | < 0.78 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 1.1 UJ | < 1.3 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1 U | < 1 U | < 2.4 U | < 1.2 UJ | < 1.1 UJ | < 1.1 U | < 2.3 U | < 1.2 U | < 1.2 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.36 UJ | < 0.42 UJ | < 0.4 UJ | < 0.36 UJ | < 0.36 UJ | < 0.37 UJ | < 0.34 UJ | < 0.34 UJ | < 0.8 UJ | < 0.38 UJ | < 0.38 UJ | < 0.37 UJ | < 0.77 UJ | < 0.4 UJ | < 0.38 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.036 UJ | < 0.042 U | < 0.04 U | < 0.036 U | < 0.036 U | < 0.037 U | < 0.034 U | < 0.034 U | < 0.08 U | < 0.038 U | < 0.038 U | < 0.037 U | < 0.077 U | < 0.04 U | < 0.038 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.36 U | **0.14 J** | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 UJ | < 0.77 U | < 0.4 UJ | < 0.38 U |
| Carbazole | 86-74-8 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **1.3** | < 0.38 U | < 0.38 U | **0.2 J** | < 0.77 U | < 0.4 U | < 0.38 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.36 U | < 0.42 U | < 0.4 U | **0.18 J** | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **1.4** | < 0.38 U | < 0.38 U | **0.13 J** | < 0.77 U | < 0.4 U | < 0.38 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 UJ | < 0.77 U | < 0.4 UJ | < 0.38 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | **0.2 J** | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | **0.3 J** | < 0.38 U | < 0.38 U | < 0.37 U | **0.14 J** | < 0.4 U | < 0.38 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.036 U | < 0.042 U | < 0.04 U | < 0.036 U | < 0.036 U | < 0.037 U | < 0.034 U | < 0.034 U | < 0.08 U | < 0.038 U | < 0.038 U | < 0.037 U | < 0.077 U | < 0.04 U | < 0.038 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.07 U | < 0.16 U | < 0.078 U | < 0.076 U | < 0.076 U | < 0.16 U | < 0.081 U | < 0.078 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 UJ | < 0.36 UJ | < 0.37 UJ | < 0.34 U | < 0.34 U | < 0.8 UJ | < 0.38 U | < 0.38 U | < 0.37 UJ | < 0.77 U | < 0.4 UJ | < 0.38 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.036 U | < 0.042 U | < 0.04 U | < 0.036 U | < 0.036 U | < 0.037 U | < 0.034 U | < 0.034 U | < 0.08 U | < 0.038 U | < 0.038 U | < 0.037 U | < 0.077 U | < 0.04 U | < 0.038 U |
| Isophorone | 78-59-1 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.036 UJ | < 0.042 U | < 0.04 U | < 0.036 U | < 0.036 U | < 0.037 UJ | < 0.034 U | < 0.034 U | < 0.08 U | < 0.038 U | < 0.038 U | < 0.037 U | < 0.077 U | < 0.04 U | < 0.038 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.036 U | < 0.042 U | < 0.04 U | < 0.036 U | < 0.036 U | < 0.037 U | < 0.034 U | < 0.034 U | < 0.08 U | < 0.038 U | < 0.038 U | < 0.037 U | < 0.077 U | < 0.04 U | < 0.038 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 1.1 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1 U | < 1 U | < 2.4 U | < 1.2 U | < 1.1 U | < 1.1 U | < 2.3 U | < 1.2 U | < 1.2 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.36 U | < 0.42 U | < 0.4 U | < 0.36 U | < 0.36 U | < 0.37 U | < 0.34 U | < 0.34 U | < 0.8 U | < 0.38 U | < 0.38 U | < 0.37 U | < 0.77 U | < 0.4 U | < 0.38 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 1.1 U | **5.4** | **3.4** | **12** | < 1.1 U | **1.4** | < 1 U | < 1 U | **57** | < 1.2 U | < 1.1 U | **23** | **17** | < 1.2 U | < 1.2 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-14<br>760 Parkside<br>SB-14(48-50)010511<br>1/5/2011<br>48 - 50 ft | SB-14<br>760 Parkside<br>SB-14(56-58)010611<br>1/6/2011<br>56 - 58 ft | SB-15<br>760 Parkside<br>SB-15(4-5.5)010311<br>1/3/2011<br>4 - 5.5 ft | SB-15<br>760 Parkside<br>SB-15(66-68)011011<br>1/10/2011<br>66 - 68 ft | SB-15<br>760 Parkside<br>SB-15(78-80)011011<br>1/11/2011<br>78 - 80 ft | SB-16<br>329 Clarkson<br>SB-16(4-5)012211<br>1/22/2011<br>4-5 | SB-16<br>329 Clarkson<br>SB-16(47-50)012211<br>1/22/2011<br>47-50 | SB-16<br>329 Clarkson<br>SB-16(68-70)012211<br>1/22/2011<br>68-70 | SB-17<br>760 Parkside<br>SB-17(4.5-5)010411<br>1/4/2011<br>4.5 - 5 ft | SB-17<br>760 Parkside<br>SB-17(31-33)011711<br>1/17/2011<br>31 - 33 ft | SB-17<br>760 Parkside<br>SB-17(49-51)011711<br>1/17/2011<br>49 - 51 ft | SB-17<br>760 Parkside<br>SB-17(67-69)011711<br>1/17/2011<br>67 - 69 ft | SB-18<br>760 Parkside<br>SB-18(4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-18<br>760 Parkside<br>SB-18(27.5-30)062411<br>6/27/2011<br>27.5 - 30 ft | SB-18<br>760 Parkside<br>SB-18(42.5-45)062411<br>6/27/2011<br>42.5 - 45 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | **76** | **0.37 J** | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | **8.5 DJ** | **1.3** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.39 U | < 0.37 U | < 0.39 U | **68** | **0.55** | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | **7.3 D** | **0.44** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.39 U | < 0.37 U | < 0.39 U | **8.7 J** | **0.086 J** | < 0.35 U | < 0.34 U | < 0.41 U | **0.21 J** | **27 DJ** | **1.6** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.39 U | < 0.37 U | < 0.39 U | **33** | **0.43** | < 0.35 U | < 0.34 U | < 0.41 U | **0.21 J** | **21 D** | **1.9** | **0.081 J** | < 0.38 U | < 0.34 U | < 0.36 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.039 U | < 0.037 U | **0.29** | **23** | **0.31** | **0.023 J** | < 0.034 U | < 0.041 U | **1.7 J** | **48 DJ** | **2.3** | **0.14** | < 0.038 U | < 0.034 U | < 0.036 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.039 U | < 0.037 U | **0.39** | **18** | **0.24** | < 0.035 U | < 0.034 U | < 0.041 U | **2.6 J** | **37 DJ** | **1.9** | **0.098** | **0.032 J** | < 0.034 U | < 0.036 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.039 U | < 0.037 U | **0.45** | **16** | **0.2** | **0.029 J** | < 0.034 U | < 0.041 U | **2.9 J** | **31 DJ** | **2** | **0.1** | **0.053** | < 0.034 U | < 0.036 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.39 U | < 0.37 U | **0.22 J** | **10 J** | **0.12 J** | < 0.35 U | < 0.34 U | < 0.41 U | **2.9 J** | **30 DJ** | **1 J** | **0.05 J** | < 0.38 U | < 0.34 U | < 0.36 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.039 U | < 0.037 U | **0.15** | **3.4** | **0.05** | **0.024 J** | < 0.034 U | < 0.041 U | **1.1 J** | **11 DJ** | **0.72** | **0.046** | < 0.038 U | < 0.034 U | < 0.036 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.39 U | < 0.37 U | **0.31 J** | **24** | **0.31 J** | < 0.35 U | < 0.34 U | < 0.41 U | **1.9 J** | **45 DJ** | **2** | **0.13 J** | < 0.38 U | < 0.34 U | < 0.36 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.039 U | < 0.037 U | < 0.039 U | < 1.9 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.041 U | **0.54 J** | **6.9 DJ** | **0.24** | < 0.043 U | < 0.038 U | < 0.034 U | < 0.036 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.39 U | < 0.37 U | **0.38 J** | **34** | **0.44** | < 0.35 U | < 0.34 U | < 0.41 U | **2.1 J** | **72 DJ** | **4.7** | **0.23 J** | < 0.38 U | < 0.34 U | < 0.36 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.39 U | < 0.37 U | < 0.39 U | **42** | **0.4** | < 0.35 U | < 0.34 U | < 0.41 U | **0.079 J** | **19 D** | **1.6** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.039 U | < 0.037 U | **0.27** | **8.7** | **0.099** | < 0.035 U | < 0.034 U | < 0.041 U | **2.8 J** | **25 DJ** | **1** | **0.059** | < 0.038 U | < 0.034 U | < 0.036 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.39 U | < 0.37 U | < 0.39 U | **220** | **0.78** | < 0.35 U | < 0.34 U | < 0.41 U | **0.17 J** | **2.3 JD** | **1.8** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.39 U | < 0.37 U | **0.093 J** | **120** | **1.5** | < 0.35 U | < 0.34 U | < 0.41 U | **0.62 J** | **84 D** | **6.5** | **0.34 J** | < 0.38 U | < 0.34 U | < 0.36 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.39 U | < 0.37 U | **0.37 J** | **59** | **0.71** | < 0.35 U | < 0.34 U | < 0.41 U | **2.5 J** | **86 DJ** | **3.8** | **0.26 J** | < 0.38 U | < 0.34 U | < 0.36 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.39 U | < 0.37 U | **2.923** | **763.8** | **6.595** | **0.076 J** | < 0.34 U | < 0.41 U | **22.329** | **561** | **34.8** | **1.534** | **0.085** | 0 | 0 |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 1.2 U | < 1.1 U | < 1.2 U | < 58 U | < 1.2 U | < 1.1 U | < 1 U | < 1.2 U | < 1.1 U | < 11 UJ | < 1.1 U | < 1.3 U | < 1.2 U | < 1 U | < 1.1 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.078 U | < 0.075 U | < 0.08 U | < 3.9 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.75 UJ | < 0.071 U | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.078 U | < 0.075 U | < 0.08 U | < 3.9 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.75 UJ | < 0.071 U | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.78 U | < 0.75 U | < 0.8 U | < 39 U | < 0.79 U | < 0.71 U | < 0.69 U | < 0.83 U | < 0.75 U | < 7.5 UJ | < 0.71 U | < 0.86 U | < 0.77 U | < 0.69 U | < 0.73 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.78 U | < 0.75 U | < 0.8 U | < 39 U | < 0.79 U | < 0.71 U | < 0.69 U | < 0.83 U | < 0.75 U | < 7.5 UJ | < 0.71 U | < 0.86 U | < 0.77 U | < 0.69 U | < 0.73 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.78 U | < 0.75 U | < 0.8 U | < 39 UJ | < 0.79 UJ | < 0.71 U | < 0.69 U | < 0.83 U | < 0.75 U | < 7.5 UJ | < 0.71 U | < 0.86 U | < 0.77 U | < 0.69 U | < 0.73 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 1.2 U | < 1.1 U | < 1.2 U | < 58 U | < 1.2 U | < 1.1 U | < 1 U | < 1.2 U | < 1.1 U | < 11 UJ | < 1.1 U | < 1.3 U | < 1.2 U | < 1 U | < 1.1 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.78 U | < 0.75 U | < 0.8 U | < 39 U | < 0.79 U | < 0.71 U | < 0.69 U | < 0.83 U | < 0.75 U | < 7.5 UJ | < 0.71 U | < 0.86 U | < 0.77 U | < 0.69 U | < 0.73 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 1.2 U | < 1.1 U | < 1.2 U | < 58 U | < 1.2 U | < 1.1 U | < 1 U | < 1.2 U | < 1.1 U | < 11 UJ | < 1.1 U | < 1.3 UJ | < 1.2 U | < 1 U | < 1.1 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 UJ | < 19 U | < 0.39 U | < 0.35 UJ | < 0.34 UJ | < 0.41 UJ | < 0.37 UJ | < 3.7 UJ | < 0.35 UJ | < 0.43 UJ | < 0.38 UJ | < 0.34 UJ | < 0.36 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.039 U | < 0.037 U | < 0.039 U | < 1.9 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.041 U | < 0.037 U | < 0.37 UJ | < 0.035 U | < 0.043 U | < 0.038 U | < 0.034 U | < 0.036 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.39 U | < 0.37 U | **0.11 J** | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | **1.3** |
| Carbazole | 86-74-8 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | **4.7 J** | **0.072 J** | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | **0.61 JD** | **0.75** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.39 U | < 0.37 U | < 0.39 U | **13 J** | **0.13 J** | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | **4.4 DJ** | **1.5** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | **23** | **0.17 J** | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | **0.36** | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.039 U | < 0.037 U | < 0.039 U | < 1.9 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.041 U | < 0.037 U | < 0.37 UJ | < 0.035 U | < 0.043 U | < 0.038 U | < 0.034 U | < 0.036 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.078 U | < 0.075 U | < 0.08 U | < 3.9 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.75 UJ | < 0.071 U | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.039 U | < 0.037 U | < 0.039 U | < 1.9 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.041 U | < 0.037 U | < 0.37 UJ | < 0.035 U | < 0.043 U | < 0.038 U | < 0.034 U | < 0.036 U |
| Isophorone | 78-59-1 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.039 U | < 0.037 U | < 0.039 U | < 1.9 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.041 U | < 0.037 U | < 0.37 UJ | < 0.035 U | < 0.043 U | < 0.038 U | < 0.034 U | < 0.036 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.039 U | < 0.037 U | < 0.039 U | < 1.9 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.041 U | < 0.037 U | < 0.37 UJ | < 0.035 U | < 0.043 U | < 0.038 U | < 0.034 U | < 0.036 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 1.2 U | < 1.1 U | < 1.2 U | < 58 U | < 1.2 U | < 1.1 U | < 1 U | < 1.2 U | < 1.1 U | < 11 UJ | < 1.1 U | < 1.3 U | < 1.2 U | < 1 U | < 1.1 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.39 U | < 0.37 U | < 0.39 U | < 19 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.41 U | < 0.37 U | < 3.7 UJ | < 0.35 U | < 0.43 U | < 0.38 U | < 0.34 U | < 0.36 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 1.2 U | 0 | **0.11** | **40.7** | **0.372** | < 0.35 U | < 0.34 U | < 0.41 U | < 1.1 U | **5.01** | **2.61** | < 1.3 UJ | < 1.2 U | < 1 U | **1.3** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-18<br>760 Parkside<br>SB-18(70-72.5)062411<br>6/27/2011<br>70 - 72.5 ft | SB-19<br>760 Parkside<br>SB-19(4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-19<br>760 Parkside<br>SB-19(72.5-75)062411<br>6/24/2011<br>72.5 - 75 ft | SB-19<br>760 Parkside<br>SB-19(75-77.5)062411<br>6/24/2011<br>75 - 77.5 ft | SB-20<br>760 Parkside<br>SB-20 (4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-20<br>760 Parkside<br>SB-20(15-17.5)062411<br>6/28/2011<br>15 - 17.5 ft | SB-20<br>760 Parkside<br>SB-20(62.5-65)062411<br>6/28/2011<br>62.5 - 65 ft | SB-20<br>760 Parkside<br>SB-20(87.5-90)062411<br>6/29/2011<br>87.5 - 90 ft | SB-21<br>760 Parkside<br>SB-21(4.5-5)062311<br>6/23/2011<br>4.5 - 5 ft | SB-21<br>760 Parkside<br>SB-21(72.5-75)062411<br>6/29/2011<br>72.5 - 75 ft | SB-21<br>760 Parkside<br>SB-21(92.5-95)062411<br>6/29/2011<br>92.5 - 95 ft | SB-22<br>329 Clarkson<br>SB-22(1-2)062411<br>7/6/2011<br>1 - 2 ft | SB-22<br>329 Clarkson<br>SB-22(82.5-85)062411<br>7/6/2011<br>82.5 - 85 ft | SB-22<br>329 Clarkson<br>SB-22(92.5-95)062411<br>7/6/2011<br>92.5 - 95 ft | SB-23<br>329 Clarkson<br>SB-23(77.5-80)062411<br>7/13/2011<br>77.5 - 80 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | **2.7 J** | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | **22** | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | **9.8** | **3 J** | < 0.42 U | **0.79** | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.38 U | **0.11 J** | < 0.43 U | < 0.41 U | < 0.38 U | **24** | **20** | < 0.42 U | **0.18 J** | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.038 U | **0.71** | < 0.043 U | < 0.041 U | < 0.038 U | **45** | **15** | < 0.042 U | **0.31** | < 0.042 U | < 0.042 U | **0.053** | < 0.043 U | < 0.041 U | < 0.037 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.038 U | **0.72** | < 0.043 U | < 0.041 U | < 0.038 U | **53** | **12** | < 0.042 U | **1.1** | < 0.042 U | < 0.042 U | **0.042** | < 0.043 U | < 0.041 U | < 0.037 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.038 U | **0.94** | < 0.043 U | < 0.041 U | < 0.038 U | **47** | **10** | < 0.042 U | **0.87** | < 0.042 U | < 0.042 U | **0.042** | < 0.043 U | < 0.041 U | < 0.037 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.38 U | **0.53** | < 0.43 U | < 0.41 U | < 0.38 U | **36** | **5.6** | < 0.42 U | **6.8** | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.038 U | **0.33** | < 0.043 U | < 0.041 U | < 0.038 U | **14** | **5.1** | < 0.042 U | **0.24** | < 0.042 U | < 0.042 U | < 0.04 U | < 0.043 U | < 0.041 U | < 0.037 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.38 U | **0.8** | < 0.43 U | < 0.41 U | < 0.38 U | **51** | **13** | < 0.42 U | **0.35 J** | < 0.42 U | < 0.42 U | **0.073 J** | < 0.43 U | < 0.41 U | < 0.37 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.038 U | **0.1** | < 0.043 U | < 0.041 U | < 0.038 U | **6.8** | **1.1** | < 0.042 U | **0.36** | < 0.042 U | < 0.042 U | < 0.04 U | < 0.043 U | < 0.041 U | < 0.037 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.38 U | **1.2** | < 0.43 U | < 0.41 U | < 0.38 U | **60** | **29** | < 0.42 U | **0.33 J** | < 0.42 U | < 0.42 U | **0.1 J** | < 0.43 U | < 0.41 U | < 0.37 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | **2.3 J** | **19** | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.038 U | **0.52** | < 0.043 U | < 0.041 U | < 0.038 U | **34** | **4.8** | < 0.042 U | **2** | < 0.042 U | < 0.042 U | **0.031 J** | < 0.043 U | < 0.041 U | < 0.037 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | **6.7 J** | < 3.8 U | < 0.42 U | **0.057 J** | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.38 U | **0.64** | < 0.43 U | < 0.41 U | < 0.38 U | **12** | **65** | < 0.42 U | **0.14 J** | < 0.42 U | < 0.42 U | **0.2 J** | < 0.43 U | < 0.41 U | < 0.37 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.38 U | **1.4** | < 0.43 U | < 0.41 U | < 0.38 U | **79** | **34** | < 0.42 U | **0.41** | < 0.42 U | < 0.42 U | **0.087 J** | < 0.43 U | < 0.41 U | < 0.37 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | 0 | **8** | < 0.43 U | < 0.41 U | < 0.38 U | **483.3** | **258.6** | < 0.42 U | **13.937** | < 0.42 U | < 0.42 U | **0.628 J** | < 0.43 U | < 0.41 U | < 0.37 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 1.2 U | < 1.4 U | < 1.3 U | < 1.3 U | < 1.1 U | < 22 U | < 12 U | < 1.3 U | < 1.1 U | < 1.3 U | < 1.3 U | < 1.2 U | R | < 1.2 U | < 1.1 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.077 U | < 1.5 U | < 0.78 U | < 0.086 U | < 0.074 U | < 0.085 U | < 0.086 U | < 0.082 U | < 0.086 U | < 0.083 U | < 0.076 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.077 U | < 1.5 U | < 0.78 U | < 0.086 U | < 0.074 U | < 0.085 U | < 0.086 U | < 0.082 U | < 0.086 U | < 0.083 U | < 0.076 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.78 U | < 0.91 U | < 0.86 U | < 0.84 U | < 0.77 U | < 15 U | < 7.8 U | < 0.86 U | < 0.74 U | < 0.85 U | < 0.86 U | < 0.82 U | < 0.86 U | < 0.83 U | < 0.76 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.78 U | < 0.91 U | < 0.86 U | < 0.84 U | < 0.77 U | < 15 U | < 7.8 U | < 0.86 U | < 0.74 U | < 0.85 U | < 0.86 U | < 0.82 U | < 0.86 U | < 0.83 U | < 0.76 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.78 U | < 0.91 U | < 0.86 U | < 0.84 U | < 0.77 U | < 15 U | < 7.8 U | < 0.86 U | < 0.74 U | < 0.85 U | < 0.86 U | < 0.82 U | < 0.86 U | < 0.83 U | < 0.76 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 1.2 U | < 1.4 U | < 1.3 U | < 1.3 U | < 1.1 U | < 22 U | < 12 U | < 1.3 U | < 1.1 U | < 1.3 U | < 1.3 U | < 1.2 U | < 1.3 U | < 1.2 U | < 1.1 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.78 U | < 0.91 U | < 0.86 U | < 0.84 U | < 0.77 U | < 15 U | < 7.8 U | < 0.86 U | < 0.74 U | < 0.85 U | < 0.86 U | < 0.82 U | < 0.86 U | < 0.83 U | < 0.76 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 1.2 U | < 1.4 U | < 1.3 U | < 1.3 U | < 1.1 U | < 22 U | < 12 U | < 1.3 U | < 1.1 U | < 1.3 U | < 1.3 U | < 1.2 U | < 1.3 U | < 1.2 U | < 1.1 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.38 UJ | < 0.45 UJ | < 0.43 UJ | < 0.41 UJ | < 0.38 UJ | < 7.4 UJ | < 3.8 UJ | < 0.42 UJ | < 0.36 UJ | < 0.42 UJ | < 0.42 UJ | < 0.4 UJ | < 0.43 UJ | < 0.41 UJ | < 0.37 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.038 U | < 0.045 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.74 U | < 0.38 U | < 0.042 U | < 0.036 U | < 0.042 U | < 0.042 U | < 0.04 U | < 0.043 U | < 0.041 U | < 0.037 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | **0.11 J** | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | **0.85** | < 0.43 U | < 0.41 U | < 0.37 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | **0.12 J** | < 0.43 U | < 0.41 U | < 0.37 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Carbazole | 86-74-8 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | **1.2 J** | **9.2** | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | **8.8** | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.038 U | < 0.045 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.74 U | < 0.38 U | < 0.042 U | < 0.036 U | < 0.042 U | < 0.042 U | < 0.04 U | < 0.043 U | < 0.041 U | < 0.037 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.077 U | < 1.5 U | < 0.78 U | < 0.086 U | < 0.074 U | < 0.085 U | < 0.086 U | < 0.082 U | < 0.086 U | < 0.083 U | < 0.076 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.038 U | < 0.045 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.74 U | < 0.38 U | < 0.042 U | < 0.036 U | < 0.042 U | < 0.042 U | < 0.04 U | < 0.043 U | < 0.041 U | < 0.037 U |
| Isophorone | 78-59-1 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.038 U | < 0.045 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.74 U | < 0.38 U | < 0.042 U | < 0.036 U | < 0.042 U | < 0.042 U | < 0.04 U | < 0.043 U | < 0.041 U | < 0.037 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.038 U | < 0.045 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.74 U | < 0.38 U | < 0.042 U | < 0.036 U | < 0.042 U | < 0.042 U | < 0.04 U | < 0.043 U | < 0.041 U | < 0.037 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 1.2 U | < 1.4 U | < 1.3 U | < 1.3 U | < 1.1 U | < 22 U | < 12 U | < 1.3 U | < 1.1 U | < 1.3 U | < 1.3 U | < 1.2 U | < 1.3 U | < 1.2 U | < 1.1 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.38 U | < 0.45 U | < 0.43 U | < 0.41 U | < 0.38 U | < 7.4 U | < 3.8 U | < 0.42 U | < 0.36 U | < 0.42 U | < 0.42 U | < 0.4 U | < 0.43 U | < 0.41 U | < 0.37 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 1.2 U | < 1.4 U | < 1.3 U | **0.11** | < 1.1 U | **1.2** | **18** | < 1.3 U | < 1.1 U | < 1.3 U | < 1.3 U | **0.97 J** | < 0.43 U | < 0.41 U | < 0.37 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-23<br>329 Clarkson<br>SB-23(92.5-95)062411<br>7/13/2011<br>92.5 - 95 ft | SB-24<br>760 Parkside<br>SB-24(4-5)062411<br>6/30/2011<br>4 - 5 ft | SB-24<br>760 Parkside<br>SB-24(32.5-35)062411<br>6/30/2011<br>32.5 - 35 ft | SB-25<br>324 Winthrop<br>SB-25(4-5)062411<br>7/7/2011<br>4 - 5 ft | SB-25<br>324 Winthrop<br>SB-25(82.5-85)062411<br>7/11/2011<br>82.5 - 85 ft | SB-25<br>324 Winthrop<br>SB-25(90-92.5)062411<br>7/11/2011<br>90 - 92.5 ft | SB-101<br>324 Winthrop<br>SB-101(2-4)<br>8/24/2020<br>2 - 4 ft | SB-101<br>324 Winthrop<br>SB-101(7-9)<br>8/25/2020<br>7 - 9 ft | SB-101<br>324 Winthrop<br>SB-101(12-14)<br>8/25/2020<br>12 - 14 ft | SB-101<br>324 Winthrop<br>SB-101(22-24)<br>8/26/2020<br>22 - 24 ft | SB-101<br>324 Winthrop<br>SB-101(33-35)<br>8/26/2020<br>33 - 35 ft | SB-102<br>324 Winthrop<br>SB-102(2-4)<br>8/26/2020<br>2 - 4 ft | SB-102<br>324 Winthrop<br>SB-102(6-8)<br>8/26/2020<br>6 - 8 ft | SB-102<br>324 Winthrop<br>SB-102(12-14)<br>8/26/2020<br>12 - 14 ft | SB-102<br>324 Winthrop<br>SB-102(22-24)<br>8/26/2020<br>22 - 24 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **19** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **27** | < 0.38 UJ | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.42 U | **0.17 J** | < 0.34 U | < 0.44 U | < 0.43 U | **3.3 J** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | **0.023 J** | < 0.35 U | < 0.35 U | < 0.38 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **32** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.042 U | **0.15** | < 0.034 U | < 0.044 U | < 0.043 U | **26** | **0.045 J-** | < 0.038 UJ | < 0.035 U | < 0.043 U | < 0.041 U | **0.12** | < 0.035 U | < 0.035 U | < 0.038 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.042 U | **0.56** | < 0.034 U | < 0.044 U | < 0.043 U | **21** | **0.058** | < 0.038 U | < 0.035 U | < 0.043 U | < 0.041 U | **0.18 J+** | < 0.035 U | < 0.035 U | < 0.038 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.042 U | **0.39** | < 0.034 U | < 0.044 U | < 0.043 U | **17** | **0.072** | < 0.038 U | < 0.035 U | < 0.043 U | < 0.041 U | **0.22** | < 0.035 U | < 0.035 U | < 0.038 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.42 U | **0.55** | < 0.34 U | < 0.44 U | < 0.43 U | **9.1** | **0.039 J** | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | **0.095 J** | < 0.35 U | < 0.35 U | < 0.38 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.042 U | **0.15** | < 0.034 U | < 0.044 U | < 0.043 U | **6.6** | **0.03 J-** | < 0.038 U | < 0.035 U | < 0.043 U | < 0.041 U | **0.074** | < 0.035 U | < 0.035 U | < 0.038 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.42 U | **0.19 J** | < 0.34 U | < 0.44 U | < 0.43 U | **23** | **0.047 J-** | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | **0.11 J** | < 0.35 U | < 0.35 U | < 0.38 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.042 U | **0.1** | < 0.034 U | < 0.044 U | < 0.043 U | **1.7** | < 0.038 U | < 0.038 U | < 0.035 U | < 0.043 U | < 0.041 U | **0.032 J** | < 0.035 U | < 0.035 U | < 0.038 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.42 U | **0.065 J** | < 0.34 U | < 0.44 U | < 0.43 U | **43** | **0.046 J-** | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | **0.16 J** | < 0.35 U | < 0.35 U | < 0.38 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **24** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.042 U | **0.46** | < 0.034 U | < 0.044 U | < 0.043 U | **7.7** | **0.042** | < 0.038 U | < 0.035 U | < 0.043 U | < 0.041 U | **0.12** | < 0.035 U | < 0.035 U | < 0.038 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **11** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **100** | **0.015 J-** | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | **0.055 J** | < 0.35 U | < 0.35 U | < 0.38 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.42 U | **0.14 J** | < 0.34 U | < 0.44 U | < 0.43 U | **64** | **0.051 J-** | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | **0.18 J** | < 0.35 U | < 0.35 U | < 0.38 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.42 U | **2.925** | < 0.34 U | < 0.44 U | < 0.43 U | **440** | **0.45** | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | **1.4** | < 0.35 U | < 0.35 U | < 0.38 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.15 U | < 0.14 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.15 UJ | < 0.14 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 1.3 U | < 1.1 U | < 1 U | < 1.3 U | < 1.3 U | < 24 U | NA R | < 0.3 U | < 0.28 U | < 0.34 U | < 0.33 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.31 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 1.6 U | < 0.078 UJ | < 0.077 U | < 0.072 U | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 1.6 U | < 0.078 UJ | < 0.077 U | < 0.072 U | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.86 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.87 U | < 16 U | < 0.38 UJ | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.86 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.87 U | < 16 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.86 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.87 U | < 16 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 1.3 U | < 1.1 U | < 1 U | < 1.3 U | < 1.3 U | < 24 U | NA R | < 0.3 U | < 0.28 U | < 0.34 U | < 0.33 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.31 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.86 U | < 0.76 U | < 0.7 U | < 0.89 U | < 0.87 U | < 16 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 1.3 U | < 1.1 U | < 1 U | < 1.3 U | < 1.3 U | < 24 U | NA R | < 0.77 U | < 0.72 U | < 0.87 U | < 0.82 U | < 0.77 U | < 0.71 U | < 0.71 U | < 0.77 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.42 UJ | < 0.37 UJ | < 0.34 UJ | < 0.44 UJ | < 0.43 UJ | < 8 UJ | < 0.38 UJ | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.042 U | < 0.037 U | < 0.034 U | < 0.044 U | < 0.043 U | < 0.8 U | < 0.038 UJ | < 0.038 UJ | < 0.035 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.035 U | < 0.035 U | < 0.038 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Carbazole | 86-74-8 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **3.8 J** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **9.6** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | **6.7 J** | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.042 U | < 0.037 U | < 0.034 U | < 0.044 U | < 0.043 U | < 0.8 U | < 0.038 UJ | < 0.038 UJ | < 0.035 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.035 U | < 0.035 U | < 0.038 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 1.6 U | < 0.078 UJ | < 0.077 U | < 0.072 U | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 U | < 0.38 UJ | < 0.35 UJ | < 0.43 UJ | < 0.41 UJ | < 0.38 UJ | < 0.35 UJ | < 0.35 UJ | < 0.38 UJ |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.042 U | < 0.037 U | < 0.034 U | < 0.044 U | < 0.043 U | < 0.8 U | < 0.038 UJ | < 0.038 U | < 0.035 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.035 U | < 0.035 U | < 0.038 U |
| Isophorone | 78-59-1 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.15 UJ | < 0.15 UJ | < 0.14 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.042 U | < 0.037 U | < 0.034 U | < 0.044 U | < 0.043 U | < 0.8 U | < 0.038 UJ | < 0.038 UJ | < 0.035 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.035 U | < 0.035 U | < 0.038 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.042 U | < 0.037 U | < 0.034 U | < 0.044 U | < 0.043 U | < 0.8 U | < 0.038 UJ | < 0.038 UJ | < 0.035 U | < 0.043 U | < 0.041 U | < 0.038 U | < 0.035 U | < 0.035 U | < 0.038 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | < 0.38 UJ | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 1.3 U | < 1.1 U | < 1 U | < 1.3 U | < 1.3 U | < 24 U | NA R | < 0.3 U | < 0.28 U | < 0.34 U | < 0.33 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.31 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.42 U | < 0.37 U | < 0.34 U | < 0.44 U | < 0.43 U | < 8 U | NA R | < 0.38 UJ | < 0.35 U | < 0.43 U | < 0.41 U | < 0.38 U | < 0.35 U | < 0.35 U | < 0.38 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.42 U | < 1.1 U | < 1 U | < 1.3 U | < 1.3 U | **460** | **0.45** | < 0.77 U | < 0.72 U | < 0.87 U | < 0.82 U | **1.4** | < 0.71 U | < 0.71 U | < 0.77 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-102<br>324 Winthrop<br>SB-102(33-35)<br>8/26/2020<br>33 - 35 ft | SB-103<br>324 Winthrop<br>SB-103(2-4)<br>8/25/2020<br>2 - 4 ft | SB-103<br>324 Winthrop<br>SB-103(6-8)<br>8/27/2020<br>6 - 8 ft | SB-103<br>324 Winthrop<br>SB-103(12-14)<br>8/27/2020<br>12 - 14 ft | SB-103<br>324 Winthrop<br>SB-103(22-24)<br>8/27/2020<br>22 - 24 ft | SB-103<br>324 Winthrop<br>SB-103(33-35)<br>8/27/2020<br>33 - 35 ft | SB-104<br>324 Winthrop<br>SB-104(2-4)<br>8/25/2020<br>2 - 4 ft | SB-104<br>324 Winthrop<br>SB-104(6-8)<br>8/30/2020<br>6 - 8 ft | SB-104<br>324 Winthrop<br>SB-104(12-14)<br>8/30/2020<br>12 - 14 ft | SB-104<br>324 Winthrop<br>SB-104(22-24)<br>8/30/2020<br>22 - 24 ft | SB-104<br>324 Winthrop<br>SB-104(33-35)<br>8/30/2020<br>33 - 35 ft | SB-108<br>324 Winthrop<br>SB-108(2-4)<br>8/24/2020<br>2 - 4 ft | SB-108<br>324 Winthrop<br>SB-108(6-8)<br>8/25/2020<br>6 - 8 ft | SB-108<br>324 Winthrop<br>SB-108(10-12)<br>8/25/2020<br>10 - 12 ft | SB-108<br>324 Winthrop<br>SB-108(22-24)<br>8/25/2020<br>22 - 24 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **0.59 J** | **25** | **4.7** | < 0.35 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **1 J** | **0.65 J** | **0.33 J** | < 0.35 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **0.026 J** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **0.6 J** | **0.41 J** | **0.21 J** | < 0.35 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **3.4** | **0.44 J** | **0.73 J** | < 0.35 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.034 U | **0.031 J** | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | **0.13** | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | **11** | **0.24 J** | **1.7** | < 0.035 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.034 U | **0.031 J** | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | **0.16** | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | **13** | **0.18 J** | **2** | < 0.035 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.034 U | **0.038 J** | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | **0.21** | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | **16** | **0.28 J** | **2.3** | < 0.035 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.34 U | **0.021 J** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **0.095 J** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **5.8** | **1.2 J** | **0.74 J** | < 0.35 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.034 U | **0.015 J** | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | **0.072** | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | **6.6** | < 0.4 U | **0.88** | < 0.035 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.34 U | **0.026 J** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **0.12 J** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **12** | **0.23 J** | **1.7 J** | < 0.35 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.034 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | **0.029 J** | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | **1.9** | < 0.4 U | **0.2** | < 0.035 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.34 U | **0.045 J** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **0.2 J** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **21** | **0.44 J** | **3.5** | < 0.35 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **1.6 J** | **1.2 J** | **0.56 J** | < 0.35 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.034 U | **0.022 J** | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | **0.1** | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | **6.3** | **0.94** | **1** | < 0.035 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.34 U | **0.012 J** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **0.019 J** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **1.1 J** | **97** | **18** | < 0.35 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.34 U | **0.033 J** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **0.06 J** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **12** | **0.68 J** | **2.4** | < 0.35 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.34 U | **0.046 J** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **0.19 J** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **23** | **0.36 J** | **3.1** | < 0.35 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.34 U | **0.32** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | **1.4** | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **140** | **130** | **44** | < 0.35 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.81 U | < 1.6 U | < 0.81 U | < 0.14 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.81 U | < 1.6 U | < 0.81 U | < 0.14 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **0.12 J** | < 4 U | < 2 U | < 0.35 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.28 U | < 0.32 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.31 U | < 0.28 U | < 0.31 U | < 0.28 U | < 1.6 U | < 3.2 U | < 1.6 U | < 0.28 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U | < 0.071 U | < 0.078 U | < 0.071 U | < 0.41 U | < 0.82 U | < 0.41 U | < 0.07 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U | < 0.071 U | < 0.078 U | < 0.071 U | < 0.41 U | < 0.82 U | < 0.41 U | < 0.07 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.81 U | < 1.6 U | < 0.81 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.28 U | < 0.32 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.31 U | < 0.28 U | < 0.31 U | < 0.28 U | < 1.6 U | < 3.2 U | < 1.6 U | < 0.28 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.69 U | < 0.8 U | < 0.71 U | < 0.7 U | < 0.7 U | < 0.7 U | < 0.73 U | < 0.78 U | < 0.71 U | < 0.78 U | < 0.71 U | < 4.1 U | < 8.2 U | < 4.1 U | < 0.7 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.81 U | < 1.6 U | < 0.81 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.34 U | < 0.39 UJ | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 UJ | < 0.38 UJ | < 0.35 UJ | < 0.38 UJ | < 0.35 UJ | < 2 UJ | < 4 UJ | < 2 UJ | < 0.35 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.034 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | < 0.2 U | < 0.4 U | < 0.2 U | < 0.035 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.34 U | **0.022 J** | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **8.1** | < 4 U | **0.68 J** | < 0.35 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **1.8 J** | < 4 U | **0.27 J** | < 0.35 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Carbazole | 86-74-8 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **1.7 J** | < 4 U | **0.27 J** | < 0.35 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | **0.77 J** | **0.47 J** | **0.2 J** | < 0.35 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | **1.3 J** | **0.27 J** | < 0.35 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.034 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | < 0.2 U | < 0.4 U | < 0.2 U | < 0.035 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U | < 0.071 U | < 0.078 U | < 0.071 U | < 0.41 U | < 0.82 U | < 0.41 U | < 0.07 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.34 UJ | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.034 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | < 0.2 U | < 0.4 U | < 0.2 U | < 0.035 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.81 U | < 1.6 U | < 0.81 U | < 0.14 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.034 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | < 0.2 U | < 0.4 U | < 0.2 U | < 0.035 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.034 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.035 U | < 0.038 U | < 0.035 U | < 0.2 U | < 0.4 U | < 0.2 U | < 0.035 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.28 U | < 0.32 UJ | < 0.28 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.29 UJ | < 0.31 U | < 0.28 U | < 0.31 U | < 0.28 U | < 1.6 UJ | < 3.2 U | < 1.6 U | < 0.28 UJ |
| Phenol | 108-95-2 | 100 | 500 | < 0.34 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.35 U | < 0.38 U | < 0.35 U | < 2 U | < 4 U | < 2 U | < 0.35 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.69 U | **0.34** | < 0.71 U | < 0.7 U | < 0.7 U | < 0.7 U | **1.4** | < 0.78 U | < 0.71 U | < 0.78 U | < 0.71 U | **150** | **130** | **46** | < 0.7 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-108<br>324 Winthrop<br>SB-108(33-35)<br>8/25/2020<br>33 - 35 ft | SB-109<br>324 Winthrop<br>SB-109(1-3)<br>8/26/2020<br>1 - 3 ft | SB-109<br>324 Winthrop<br>SB-109 (5-7)<br>9/1/2020<br>5 - 7 ft | SB-109<br>324 Winthrop<br>SB-109 (12-14)<br>9/1/2020<br>12 - 14 ft | SB-109<br>324 Winthrop<br>SB-109 (27-29)<br>9/1/2020<br>27 - 29 ft | SB-109<br>324 Winthrop<br>SB-109 (48-50)<br>9/1/2020<br>48 - 50 ft | SB-109<br>324 Winthrop<br>SB-109 (70-72)<br>9/2/2020<br>70 - 72 ft | SB-109<br>324 Winthrop<br>SB-109 (83-85)<br>9/2/2020<br>83 - 85 ft | SB-110<br>324 Winthrop<br>SB-110(1-3)<br>8/26/2020<br>1 - 3 ft | SB-110<br>324 Winthrop<br>SB-110 (5-7)<br>8/31/2020<br>5 - 7 ft | SB-110<br>324 Winthrop<br>SB-110 (20-22)<br>8/31/2020<br>20 - 22 ft | SB-110<br>324 Winthrop<br>SB-110 (33-35)<br>8/31/2020<br>33 - 35 ft | SB-110 DUP<br>324 Winthrop<br>DUPE-2-083120<br>8/31/2020<br>5 - 7 ft | SB-111<br>324 Winthrop<br>SB-111(2-4)<br>10/4/2020<br>2 - 4 ft | SB-111<br>324 Winthrop<br>SB-111(5-7)<br>10/17/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.34 U | **0.024 J** | **0.71 J** | < 0.35 U | **0.05 J** | < 0.35 U | < 0.39 U | < 0.42 U | **0.27 J** | **13** | < 0.4 U | < 0.41 UJ | **15** | **0.079 J** | **0.35 J** |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.34 U | < 0.41 U | **4.8 J** | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | **0.19 J** | **0.36 J** | < 0.4 U | < 0.41 UJ | < 10 U | **0.099 J** | **0.38** |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.34 U | **0.072 J** | < 21 U | < 0.35 U | **0.021 J** | < 0.35 U | < 0.39 U | < 0.42 U | **0.73** | **0.18 J** | < 0.4 U | < 0.41 UJ | **0.5 J** | **0.032 J** | **0.094 J** |
| Anthracene | 120-12-7 | 100 | 500 | < 0.34 U | **0.12 J** | **22** | < 0.35 U | **0.043 J** | < 0.35 U | < 0.39 UJ | < 0.42 U | **1.4** | < 4.1 U | < 0.4 U | < 0.41 UJ | **0.95 J** | **0.19 J** | **1.2** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.034 U | **0.61** | **51** | < 0.035 U | **0.12** | < 0.035 U | < 0.039 UJ | < 0.042 U | **3.1** | **0.38 J** | < 0.04 U | < 0.041 UJ | **2.5 J** | **0.67** | **2.4** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.034 U | **0.76 J+** | **35 J+** | < 0.035 U | **0.14** | < 0.035 U | < 0.039 U | < 0.042 U | **2.8** | **0.29 J+** | < 0.04 U | < 0.041 UJ | **1.4 J+** | **0.76** | **2.6** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.034 U | **1** | **50 J+** | < 0.035 U | **0.18** | < 0.035 U | < 0.039 U | < 0.042 U | **3.7** | **0.4 J** | < 0.04 U | < 0.041 UJ | **2.5 J** | **0.88** | **2.9** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.34 U | **0.4 J** | **14 J** | < 0.35 U | **0.095 J** | < 0.35 U | < 0.39 U | < 0.42 U | **1.5** | < 4.1 U | < 0.4 U | < 0.41 UJ | **0.79 J** | **0.4** | **1.3** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.034 U | **0.4** | **19** | < 0.035 U | **0.066** | < 0.035 U | < 0.039 U | < 0.042 U | **1.3** | **0.12 J** | < 0.04 U | < 0.041 UJ | **0.87 J** | **0.34** | **1.2** |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.34 U | **0.66** | **43** | < 0.35 U | **0.12 J** | < 0.35 U | < 0.39 UJ | < 0.42 U | **3** | **0.33 J** | < 0.4 U | < 0.41 UJ | **2 J** | **0.59** | **2.3** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.034 U | **0.12** | **5** | < 0.035 U | **0.023 J** | < 0.035 U | < 0.039 U | < 0.042 U | **0.49** | < 0.41 U | < 0.04 U | < 0.041 UJ | < 1 U | **0.11** | **0.32** |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.34 U | **0.91** | **120** | < 0.35 U | **0.28 J** | < 0.35 U | < 0.39 U | < 0.42 U | **7.6** | **0.65 J** | < 0.4 U | < 0.41 UJ | **5.8 J** | **1.4** | **5.6** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.34 U | **0.04 J** | **7.4 J** | < 0.35 U | **0.035 J** | < 0.35 U | < 0.39 U | < 0.42 U | **1.3** | **0.86 J** | < 0.4 U | < 0.41 UJ | **1.3 J** | **0.1 J** | **0.6** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.034 U | **0.47** | **17** | < 0.035 U | **0.1** | < 0.035 U | < 0.039 U | < 0.042 U | **1.7** | **0.2 J** | < 0.04 U | < 0.041 UJ | **1.1** | **0.51** | **1.7** |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.34 U | **0.042 J** | **2 J** | < 0.35 U | **0.094 J** | < 0.35 U | < 0.39 UJ | < 0.42 U | **0.5** | **40** | < 0.4 U | < 0.41 UJ | **50** | **0.51** | **1.2** |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.34 U | **0.43** | **74** | < 0.35 U | **0.14 J** | < 0.35 U | < 0.39 UJ | < 0.42 U | **8.3** | **0.63 J** | < 0.4 U | < 0.41 UJ | **8.5 J** | **0.8** | **4.2** |
| Pyrene | 129-00-0 | **100** | **500** | < 0.34 U | **0.95** | **96** | < 0.35 U | **0.25 J** | < 0.35 U | < 0.39 UJ | < 0.42 U | **6.5** | **0.64 J** | < 0.4 U | < 0.41 UJ | **4.3 J** | **1.1** | **4.2** |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.34 U | **7** | **560** | < 0.35 U | **1.8** | < 0.35 U | < 0.39 U | < 0.42 U | **44** | **58** | < 0.4 U | < 0.41 U | **98** | **8.6** | **33** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.16 U | < 8.4 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.15 U | < 1.6 U | < 0.16 U | < 0.17 UJ | < 4.1 U | < 0.15 U | < 0.15 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.16 U | < 8.4 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.15 U | < 1.6 U | < 0.16 U | < 0.17 UJ | < 4.1 U | < 0.15 U | < 0.15 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.27 U | < 0.33 U | < 17 U | < 0.28 U | < 0.32 U | < 0.28 U | < 0.32 U | < 0.34 U | < 0.3 U | < 3.3 U | < 0.32 U | < 0.33 UJ | < 8.1 U | < 0.29 U | < 0.3 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.069 U | < 0.083 U | < 4.2 U | < 0.07 U | < 0.081 U | < 0.071 U | < 0.08 U | < 0.084 U | < 0.076 U | < 0.82 U | < 0.081 U | < 0.084 UJ | < 2 U | < 0.073 U | < 0.075 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.069 U | < 0.083 U | < 4.2 U | < 0.07 U | < 0.081 U | < 0.071 U | < 0.08 U | < 0.084 U | < 0.076 U | < 0.82 U | < 0.081 U | < 0.084 UJ | < 2 U | < 0.073 U | < 0.075 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.16 U | < 8.4 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.15 U | < 1.6 U | < 0.16 U | < 0.17 U | < 4.1 U | < 0.15 U | < 0.15 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 U | < 10 U | < 0.36 U | < 0.37 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.27 U | < 0.33 U | < 17 U | < 0.28 U | < 0.32 U | < 0.28 U | < 0.32 U | < 0.34 U | < 0.3 U | < 3.3 U | < 0.32 U | < 0.33 UJ | < 8.1 U | < 0.29 U | < 0.3 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 U | < 10 U | < 0.36 U | < 0.37 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.69 U | < 0.83 U | < 42 U | < 0.7 U | < 0.81 U | < 0.71 U | < 0.8 U | < 0.84 U | < 0.76 U | < 8.2 U | < 0.81 U | < 0.84 U | < 20 U | < 0.73 U | < 0.75 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | **0.065 J** |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.16 U | < 8.4 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.15 U | < 1.6 U | < 0.16 U | < 0.17 U | < 4.1 U | < 0.15 U | < 0.15 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.34 UJ | < 0.41 U | < 21 UJ | < 0.35 UJ | < 0.4 UJ | < 0.35 UJ | < 0.39 UJ | < 0.42 UJ | < 0.38 UJ | < 4.1 UJ | < 0.4 UJ | < 0.41 UJ | < 10 UJ | < 0.36 UJ | < 0.37 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.034 U | < 0.041 U | < 2.1 U | < 0.035 U | < 0.04 U | < 0.035 U | < 0.039 UJ | < 0.042 U | < 0.038 U | < 0.41 U | < 0.04 U | < 0.041 UJ | < 1 U | < 0.036 U | < 0.037 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | **0.13 J** | < 0.35 U | < 0.39 UJ | < 0.42 U | **0.26 J** | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | **0.027 J** | **0.028 J** |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.34 U | **1.5** | **1.4 J** | < 0.35 U | **0.065 J** | < 0.35 U | < 0.39 UJ | < 0.42 U | **2.8** | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | **0.028 J** |
| Caprolactam | 105-60-2 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| Carbazole | 86-74-8 | NL | NL | < 0.34 U | **0.042 J** | **6.5 J** | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | **0.86** | < 4.1 U | < 0.4 U | < 0.41 UJ | **0.49 J** | **0.069 J** | **0.33 J** |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.34 U | **0.019 J** | **2.6 J** | < 0.35 U | **0.019 J** | < 0.35 U | < 0.39 U | < 0.42 U | **0.63** | **0.31 J** | < 0.4 U | < 0.41 UJ | **1.2 J** | **0.059 J** | **0.33 J** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | **0.086 J** | **0.75 J** | < 0.4 U | < 0.41 UJ | **0.97 J** | **0.024 J** | **0.068 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.034 U | < 0.041 U | < 2.1 U | < 0.035 U | < 0.04 U | < 0.035 U | < 0.039 UJ | < 0.042 U | < 0.038 U | < 0.41 U | < 0.04 U | < 0.041 UJ | < 1 U | < 0.036 U | < 0.037 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.069 U | < 0.083 U | < 4.2 U | < 0.07 U | < 0.081 U | < 0.071 U | < 0.08 U | < 0.084 U | < 0.076 U | < 0.82 U | < 0.081 U | < 0.084 UJ | < 2 U | < 0.073 U | < 0.075 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.34 U | < 0.41 UJ | < 21 UJ | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 U | < 0.42 U | < 0.38 U | < 4.1 UJ | < 0.4 U | < 0.41 UJ | < 10 UJ | < 0.36 U | < 0.37 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.034 U | < 0.041 U | < 2.1 U | < 0.035 U | < 0.04 U | < 0.035 U | < 0.039 UJ | < 0.042 U | < 0.038 U | < 0.41 U | < 0.04 U | < 0.041 UJ | < 1 U | < 0.036 U | < 0.037 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.16 U | < 8.4 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.16 UJ | < 0.17 U | < 0.15 U | < 1.6 U | < 0.16 U | < 0.17 UJ | < 4.1 U | < 0.15 U | < 0.15 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.034 U | < 0.041 U | < 2.1 U | < 0.035 U | < 0.04 U | < 0.035 U | < 0.039 UJ | < 0.042 U | < 0.038 U | < 0.41 U | < 0.04 U | < 0.041 UJ | < 1 U | < 0.036 U | < 0.037 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.034 U | < 0.041 U | < 2.1 U | < 0.035 U | < 0.04 U | < 0.035 U | < 0.039 UJ | < 0.042 U | < 0.038 U | < 0.41 U | < 0.04 U | < 0.041 UJ | < 1 U | < 0.036 U | < 0.037 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.34 U | < 0.41 U | **1.5 J** | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.27 UJ | < 0.33 U | < 17 U | < 0.28 UJ | < 0.32 U | < 0.28 UJ | < 0.32 U | < 0.34 U | < 0.3 U | < 3.3 U | < 0.32 UJ | < 0.33 UJ | < 8.1 U | < 0.29 U | < 0.3 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.34 U | < 0.41 U | < 21 U | < 0.35 U | < 0.4 U | < 0.35 U | < 0.39 UJ | < 0.42 U | < 0.38 U | < 4.1 U | < 0.4 U | < 0.41 UJ | < 10 U | < 0.36 U | < 0.37 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.69 U | **8.6** | **570** | < 0.7 U | **2** | < 0.71 U | < 0.8 U | < 0.84 U | **49** | **59** | < 0.81 U | < 0.84 U | **100** | **8.7** | **33** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-111<br>324 Winthrop<br>SB-111(13-15)<br>10/17/2020<br>13 - 15 ft | SB-111<br>324 Winthrop<br>SB-111(28-30)<br>10/17/2020<br>28 - 30 ft | SB-111<br>324 Winthrop<br>SB-111(33-35)<br>10/17/2020<br>33 - 35 ft | SB-111 DUP<br>324 Winthrop<br>DUPE-21-101720<br>10/17/2020<br>13 - 15 ft | SB-112<br>324 Winthrop<br>SB-112(2-4)<br>10/4/2020<br>2 - 4 ft | SB-112<br>324 Winthrop<br>SB-112(5-7)<br>10/10/2020<br>5 - 7 ft | SB-112<br>324 Winthrop<br>SB-112(13-15)<br>10/10/2020<br>13 - 15 ft | SB-112<br>324 Winthrop<br>SB-112(33-35)<br>10/10/2020<br>33 - 35 ft | SB-112<br>324 Winthrop<br>SB-112(48-50)<br>10/10/2020<br>48 - 50 ft | SB-112<br>324 Winthrop<br>SB-112(66-68)<br>10/11/2020<br>66 - 68 ft | SB-112<br>324 Winthrop<br>SB-112(83-85)<br>10/11/2020<br>83 - 85 ft | SB-113<br>324 Winthrop<br>SB-113(2-4)<br>10/3/2020<br>2 - 4 ft | SB-113<br>324 Winthrop<br>SB-113 (8-10)<br>10/14/2020<br>8 - 10 ft | SB-113<br>324 Winthrop<br>SB-113 (13-15)<br>10/14/2020<br>13 - 15 ft | SB-113<br>324 Winthrop<br>SB-113 (36-38)<br>10/14/2020<br>36 - 38 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.34 U | **1.9** | **0.16 J** | < 0.34 U | **0.04 J** | **14** | < 0.34 U | **0.048 J** | **0.02 J** | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.1 J** | **1.7 J** | < 0.34 U | **0.029 J** | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.031 J** | **0.52 J** | < 0.34 U | **0.011 J** | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Anthracene | 120-12-7 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.22 J** | **1.2 J** | < 0.34 U | **0.085 J** | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.51** | **1.7** | < 0.034 U | **0.12** | < 0.034 U | < 0.038 U | < 0.04 U | **0.27** | < 0.039 U | < 0.038 U | < 0.035 UJ |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.6** | **1.5** | < 0.034 U | **0.12** | < 0.034 U | < 0.038 U | < 0.04 U | **0.32** | < 0.039 U | < 0.038 U | < 0.035 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.72** | **2.1** | < 0.034 U | **0.14** | **0.01 J** | < 0.038 U | < 0.04 U | **0.41** | < 0.039 U | < 0.038 U | < 0.035 UJ |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.31 J** | **0.51 J** | < 0.34 U | **0.068 J** | < 0.34 U | < 0.38 U | < 0.4 U | **0.14** | < 0.39 U | < 0.38 U | **0.160 J** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.27** | **0.62** | < 0.034 U | **0.054** | < 0.034 U | < 0.038 U | < 0.04 U | **0.16** | < 0.039 U | < 0.038 U | < 0.035 UJ |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.46** | **1.8 J-** | < 0.34 UJ | **0.1 J-** | **0.0072 J-** | < 0.38 U | < 0.4 U | **0.26** | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.082** | **0.16 J** | < 0.034 U | **0.02 J** | < 0.034 U | < 0.038 U | < 0.04 U | < 0.18 | < 0.039 U | < 0.038 U | **0.063 J** |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **1.1** | **5.9** | < 0.34 U | **0.27 J** | **0.019 J** | < 0.38 U | < 0.4 U | **0.35** | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Fluorene | 86-73-7 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.094 J** | **3.1** | < 0.34 U | **0.066 J** | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.38** | **0.61** | < 0.034 U | **0.074** | < 0.034 U | < 0.038 U | < 0.04 U | **0.19** | < 0.039 U | < 0.038 U | **0.071 J** |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.34 U | **2.2** | **0.082 J** | < 0.34 U | **0.14 J** | **34** | < 0.34 U | **0.16 J** | **0.051 J** | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.34 U | **0.011 J** | < 0.34 U | < 0.34 U | **0.89** | **7** | < 0.34 U | **0.32 J** | **0.021 J** | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Pyrene | 129-00-0 | **100** | **500** | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.9** | **4.1** | < 0.34 U | **0.22 J** | **0.017 J** | < 0.38 U | < 0.4 U | **0.31** | < 0.39 U | < 0.38 U | < 0.35 UJ |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.34 U | **4.1** | **0.24** | < 0.34 U | **6.8** | **81** | < 0.34 U | **1.9** | **0.15** | < 0.38 U | < 0.4 U | **2.4** | < 0.39 U | < 0.38 U | **0.294** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 UJ | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.96 U | NA R | < 0.15 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.72 | < 0.16 U | < 0.15 U | < 0.14 UJ |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.96 U | NA R | < 0.15 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.72 | < 0.16 U | < 0.15 U | < 0.14 UJ |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | **0.018 J** | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.28 U | < 0.28 U | < 0.27 U | < 0.28 U | < 0.29 U | < 1.9 U | NA R | < 0.3 U | < 0.28 U | < 0.3 U | < 0.32 U | < 1.4 | < 0.31 U | < 0.31 U | < 0.31 UJ |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.07 U | < 0.07 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.49 U | < 0.069 U | < 0.075 U | < 0.07 U | < 0.077 U | < 0.081 U | < 0.36 | < 0.079 U | < 0.078 U | < 0.071 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.07 U | < 0.07 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.49 U | < 0.069 U | < 0.075 U | < 0.07 U | < 0.077 U | < 0.081 U | < 0.36 | < 0.079 U | < 0.078 U | < 0.071 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.96 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.72 | < 0.16 U | < 0.15 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.28 U | < 0.28 U | < 0.27 U | < 0.28 U | < 0.29 U | < 1.9 U | NA R | < 0.3 U | < 0.28 U | < 0.3 U | < 0.32 U | < 1.4 | < 0.31 U | < 0.31 U | < 0.28 UJ |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.34 U | **0.037 J** | **0.031 J** | < 0.34 U | < 0.36 U | **0.18 J** | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.7 U | < 0.7 U | < 0.69 U | < 0.7 U | < 0.73 U | < 4.9 U | NA R | < 0.75 U | < 0.7 U | < 0.77 U | < 0.81 U | < 3.6 | < 0.79 U | < 0.78 U | < 0.71 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.34 U | **0.54** | **0.37** | < 0.34 U | < 0.36 U | **2 J** | < 0.34 U | **0.13 J** | **0.09 J** | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.96 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.72 | < 0.16 U | < 0.15 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.34 UJ | **0.7 J** | **0.44 J** | < 0.34 UJ | < 0.36 UJ | **4 J** | < 0.34 UJ | **0.51 J** | **0.23 J** | < 0.38 UJ | < 0.4 UJ | < 1.8 | < 0.39 UJ | < 0.38 UJ | < 0.35 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | < 0.036 U | < 0.24 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.038 U | < 0.04 U | < 0.18 | < 0.039 U | < 0.038 U | < 0.035 UJ |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.052 J** | **0.33 J** | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.027 J** | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Caprolactam | 105-60-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| Carbazole | 86-74-8 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.11 J** | **1.1 J** | < 0.34 U | **0.048 J** | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.13 J** | **1.6 J** | < 0.34 U | **0.044 J** | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.34 U | **0.071 J** | **0.019 J** | < 0.34 U | **0.024 J** | **1.8 J** | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | < 0.036 U | < 0.24 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.038 U | < 0.04 U | < 0.18 | < 0.039 U | < 0.038 U | < 0.035 UJ |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.07 U | < 0.07 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.49 U | < 0.069 U | < 0.075 U | < 0.07 U | < 0.077 U | < 0.081 U | < 0.36 | < 0.079 U | < 0.078 U | < 0.071 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | < 0.036 U | < 0.24 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.038 U | < 0.04 U | < 0.18 | < 0.039 U | < 0.038 U | < 0.035 UJ |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.96 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.72 | < 0.16 U | < 0.15 U | < 0.14 UJ |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | < 0.036 U | < 0.24 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.038 U | < 0.04 U | < 0.18 | < 0.039 U | < 0.038 U | < 0.035 UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.034 U | < 0.034 U | < 0.034 U | < 0.034 U | < 0.036 U | < 0.24 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.038 U | < 0.04 U | < 0.18 | < 0.039 U | < 0.038 U | < 0.035 UJ |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.28 U | < 0.28 U | < 0.27 U | < 0.28 U | < 0.29 U | < 1.9 U | NA R | < 0.3 U | < 0.28 U | < 0.3 U | < 0.32 UJ | < 1.4 | < 0.31 U | < 0.31 U | < 0.31 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.36 U | < 2.4 U | NA R | < 0.37 U | < 0.34 U | < 0.38 U | < 0.4 U | < 1.8 | < 0.39 U | < 0.38 U | < 0.35 UJ |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.7 U | **5.5** | **1.1** | < 0.7 U | **7.2** | **92** | < 0.34 U | **2.7** | **0.47** | < 0.77 U | < 0.81 U | **2.4** | < 0.79 U | < 0.78 U | < 0.71 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-113<br>324 Winthrop<br>SB-113 (48-50)<br>10/14/2020<br>48 - 50 ft | SB-113<br>324 Winthrop<br>SB-113 (68-70)<br>10/15/2020<br>68 - 70 ft | SB-113<br>324 Winthrop<br>SB-113 (83-85)<br>10/15/2020<br>83 - 85 ft | SB-113 DUP<br>324 Winthrop<br>DUPE-20-101520<br>10/15/2020<br>68 - 70 ft | SB-114<br>324 Winthrop<br>SB-114(2-4)<br>10/3/2020<br>2 - 4 ft | SB-114<br>324 Winthrop<br>SB-114(5-7)<br>10/13/2020<br>5 - 7 ft | SB-114<br>324 Winthrop<br>SB-114(13-15)<br>10/13/2020<br>13 - 15 ft | SB-114<br>324 Winthrop<br>SB-114(23-25)<br>10/13/2020<br>23 - 25 ft | SB-114<br>324 Winthrop<br>SB-114(33-35)<br>10/13/2020<br>33 - 35 ft | SB-115<br>324 Winthrop<br>SB-115(2-4)<br>8/29/2020<br>2 - 4 ft | SB-115<br>324 Winthrop<br>SB-115(5-7)090820<br>9/8/2020<br>5 - 7 ft | SB-115<br>324 Winthrop<br>SB-115(11-13)090820<br>9/8/2020<br>11 - 13 ft | SB-115<br>324 Winthrop<br>SB-115(15-17)090820<br>9/8/2020<br>15 - 17 ft | SB-115<br>324 Winthrop<br>SB-115(33-35)090820<br>9/8/2020<br>33 - 35 ft | SB-115 DUP<br>324 Winthrop<br>DUPE-4-090820<br>9/9/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | **0.047 J** | **94** | **0.02 J** | **13** | < 0.35 U | **59** |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | **0.15 J** | **2.3 J** | < 0.35 U | **0.45 J** | < 0.35 U | **1.6 J** |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | **0.011 J** | < 0.35 U | < 0.35 U | < 0.34 U | **0.058 J** | **1.5 J** | < 0.35 U | **0.16 J** | < 0.35 U | **0.84 J** |
| Anthracene | 120-12-7 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | **0.38** | **1.6 J** | < 0.35 U | **0.37 J** | < 0.35 UJ | < 22 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | **0.29** | **0.16** | < 0.035 U | < 0.035 U | < 0.034 U | **1.6** | **1.5 J** | < 0.035 U | **1.1** | < 0.035 UJ | < 2.2 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | **0.33** | **0.16** | **0.014 J** | < 0.035 U | < 0.034 U | **1.8** | **2.3 J** | < 0.035 U | **1.1** | < 0.035 U | < 2.2 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | **0.43** | **0.21** | < 0.035 U | < 0.035 U | < 0.034 U | **2.3** | **0.83 J** | < 0.035 U | **1.3** | < 0.035 U | < 2.2 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | **0.22** | **0.1 J** | **0.5** | **0.055 J** | < 0.34 U | **0.71** | **8.5 J** | < 0.35 U | **0.21 J** | < 0.35 U | **1.6 J** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | **0.13** | **0.081** | < 0.035 U | < 0.035 U | < 0.034 U | **0.98** | < 2.6 U | < 0.035 U | **0.55** | < 0.035 U | < 2.2 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | **0.27** | **0.13 J** | < 0.35 U | < 0.35 U | < 0.34 U | **1.6** | < 26 U | < 0.35 U | **1 J** | < 0.35 UJ | < 22 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | < 0.18 | **0.035 J** | **0.37** | < 0.035 U | < 0.034 U | **0.25** | < 2.6 U | < 0.035 U | < 0.38 U | < 0.035 U | < 2.2 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | **0.45** | **0.21 J** | < 0.35 U | < 0.35 U | < 0.34 U | **2.8** | **2.2 J** | < 0.35 U | **2 J** | < 0.35 U | **1.2 J** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | **0.01 J** | < 0.35 U | < 0.35 U | < 0.34 U | **0.14 J** | **3.9 J** | < 0.35 U | **0.65 J** | < 0.35 U | **2.4 J** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | **0.25** | **0.11** | **0.37** | **0.034 J** | < 0.034 U | **0.82** | **6.5 J** | < 0.035 U | **0.35 J** | < 0.035 U | < 2.2 UJ |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | **0.012 J** | < 0.35 U | < 0.35 U | < 0.34 U | **0.092 J** | **430** | **0.064 J** | **61** | < 0.35 U | **270** |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | **0.21** | **0.12 J** | < 0.35 U | < 0.35 U | < 0.34 U | **1.4** | **2.5 J** | < 0.35 U | **1.3 J** | < 0.35 UJ | **1.4 J** |
| Pyrene | 129-00-0 | **100** | **500** | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | **0.4** | **0.25 J** | < 0.35 U | < 0.35 U | < 0.34 U | **2.6** | **1.7 J** | < 0.35 U | **1.5 J** | < 0.35 UJ | < 22 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.40 U | < 0.38 U | < 0.4 U | < 0.37 U | **3** | **1.6** | **1.3** | **0.089** | < 0.34 U | **18** | **560** | **0.084** | **86** | < 0.35 U | **340** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.16 U | < 0.15 U | < 0.16 UJ | < 0.15 U | < 0.72 | < 0.15 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 11 U | < 0.14 U | < 1.5 U | < 0.14 U | < 8.8 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.16 U | < 0.15 U | < 0.16 UJ | < 0.15 U | < 0.72 | < 0.15 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 11 U | < 0.14 U | < 1.5 U | < 0.14 U | < 8.8 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.32 U | < 0.31 U | < 0.32 UJ | < 0.3 U | < 1.4 | < 0.3 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.3 U | < 21 U | < 0.28 U | < 3.1 U | < 0.28 U | < 18 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.080 U | < 0.077 U | < 0.081 UJ | < 0.076 U | < 0.36 | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 5.3 U | < 0.071 U | < 0.77 U | < 0.07 U | < 4.5 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.080 U | < 0.077 U | < 0.081 UJ | < 0.076 U | < 0.36 | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 5.3 U | < 0.071 U | < 0.77 U | < 0.07 U | < 4.5 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.72 | < 0.15 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 11 U | < 0.14 U | < 1.5 U | < 0.14 U | < 8.8 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 U | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.32 U | < 0.31 U | < 0.32 UJ | < 0.3 U | < 1.4 | < 0.3 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.3 U | < 21 U | < 0.28 U | < 3.1 U | < 0.28 U | < 18 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 U | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | **0.028 J** | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.80 U | < 0.77 U | < 0.81 UJ | < 0.76 U | < 3.6 | < 0.75 U | < 0.71 U | < 0.71 U | < 0.7 U | < 0.77 U | < 53 U | < 0.71 U | < 7.7 U | < 0.7 U | < 45 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.72 | < 0.15 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 11 U | < 0.14 U | < 1.5 U | < 0.14 U | < 8.8 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.40 UJ | < 0.38 UJ | < 0.4 UJ | < 0.37 UJ | < 1.8 | < 0.37 UJ | < 0.35 UJ | < 0.35 UJ | < 0.34 UJ | < 0.38 UJ | < 26 UJ | < 0.35 UJ | < 3.8 UJ | < 0.35 UJ | < 22 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | < 0.18 | < 0.037 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 2.6 U | < 0.035 U | < 0.38 U | < 0.035 U | < 2.2 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | **0.038 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | **0.15 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | **0.26 J** | < 0.35 UJ | < 22 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 U | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| Carbazole | 86-74-8 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | **0.16 J** | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | **0.081 J** | **1.6 J** | < 0.35 U | **0.28 J** | < 0.35 U | **1.1 J** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | **4.3 J** | < 0.35 U | **0.58 J** | < 0.35 U | **2.8 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | < 0.18 | < 0.037 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 2.6 U | < 0.035 U | < 0.38 U | < 0.035 UJ | < 2.2 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.080 U | < 0.077 U | < 0.081 UJ | < 0.076 U | < 0.36 | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 5.3 U | < 0.071 U | < 0.77 U | < 0.07 U | < 4.5 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 U | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 U | < 22 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | < 0.18 | < 0.037 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 2.6 U | < 0.035 U | < 0.38 U | < 0.035 U | < 2.2 U |
| Isophorone | 78-59-1 | NL | NL | < 0.16 U | < 0.15 U | < 0.16 UJ | < 0.15 U | < 0.72 | < 0.15 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 11 U | < 0.14 U | < 1.5 U | < 0.14 U | < 8.8 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | < 0.18 | < 0.037 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 2.6 U | < 0.035 U | < 0.38 U | < 0.035 U | < 2.2 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.040 U | < 0.038 U | < 0.04 UJ | < 0.037 U | < 0.18 | < 0.037 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 2.6 U | < 0.035 U | < 0.38 U | < 0.035 U | < 2.2 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.32 U | < 0.31 U | < 0.32 UJ | < 0.3 U | < 1.4 | < 0.3 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.3 U | < 21 U | < 0.28 U | < 3.1 U | < 0.28 U | < 18 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.40 U | < 0.38 U | < 0.4 UJ | < 0.37 U | < 1.8 | < 0.37 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 26 U | < 0.35 U | < 3.8 U | < 0.35 UJ | < 22 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.80 U | < 0.77 U | < 0.81 U | < 0.76 U | **3** | **1.8** | **1.3** | **0.089** | < 0.7 U | **18** | **570** | **0.084** | **87** | < 0.7 U | **340** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-116<br>324 Winthrop<br>SB-116(2-4)<br>8/29/2020<br>2 - 4 ft | SB-116<br>324 Winthrop<br>SB-116(5-7)090820<br>9/8/2020<br>5 - 7 ft | SB-110<br>324 Winthrop<br>SB-110-083120<br>8/31/2020<br>1 - 3 ft | SB-116<br>324 Winthrop<br>SB-116(12-14)090820<br>9/8/2020<br>12 - 14 ft | SB-116<br>324 Winthrop<br>SB-116(22-24)090820<br>9/8/2020<br>22 - 24 ft | SB-116<br>324 Winthrop<br>SB-116(33-35)090820<br>9/8/2020<br>33 - 35 ft | SB-117<br>324 Winthrop<br>SB-117(2-4)090920<br>9/9/2020<br>2 - 4 ft | SB-117<br>324 Winthrop<br>SB-117(5-7)091220<br>9/12/2020<br>5 - 7 ft | SB-117<br>324 Winthrop<br>SB-117(10-12)091220<br>9/12/2020<br>10 - 12 ft | SB-117<br>324 Winthrop<br>SB-117(22-24)091220<br>9/12/2020<br>22 - 24 ft | SB-117<br>324 Winthrop<br>SB-117(33-35)091220<br>9/12/2020<br>33 - 35 ft | SB-118<br>324 Winthrop<br>SB-118 (2-4)092020<br>9/20/2020<br>2 - 4 ft | SB-118<br>324 Winthrop<br>SB-118(5-7)<br>10/3/2020<br>5 - 7 ft | SB-118<br>324 Winthrop<br>SB-118(13-15)<br>10/3/2020<br>13 - 15 ft | SB-118<br>324 Winthrop<br>SB-118(33-35)<br>10/3/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | **0.15 J** | **16** | | **0.018 J** | < 0.41 U | < 0.34 U | **0.055 J** | **0.19 J** | **0.22 J** | < 0.35 U | < 0.34 UJ | **0.19 J** | **1.6** | < 0.34 | < 0.34 |
| Acenaphthene | 83-32-9 | 100 | 500 | **0.24 J** | **0.79 J** | | < 0.37 U | < 0.41 U | < 0.34 U | **0.062 J** | **0.085 J** | **0.041 J** | < 0.35 U | < 0.34 UJ | **0.19 J** | **1.3** | < 0.34 | < 0.34 |
| Acenaphthylene | 208-96-8 | 100 | 500 | **0.084 J** | **0.35 J** | | < 0.37 U | < 0.41 U | < 0.34 U | **0.054 J** | **0.061 J** | **0.049 J** | < 0.35 U | < 0.34 UJ | **0.14 J** | **0.19** | < 0.34 | < 0.34 |
| Anthracene | 120-12-7 | 100 | 500 | **0.52** | **0.63 J** | | < 0.37 U | < 0.41 U | < 0.34 U | **0.23 J** | **0.28 J** | **0.086 J** | < 0.35 U | < 0.34 UJ | **0.48** | **1.8** | < 0.34 | < 0.34 |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.89** | **1.1** | | **0.048** | < 0.041 U | < 0.034 U | **1.2** | **0.68** | **0.21** | < 0.035 U | < 0.034 UJ | **1.2** | **2.8** | < 0.034 | < 0.034 |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.93** | **1.2** | | **0.044** | < 0.041 U | < 0.034 U | **1.3** | **0.71** | **0.23** | < 0.035 U | < 0.034 UJ | **1.5** | **2.9** | < 0.034 | < 0.034 |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **1.1** | **1.5** | | **0.049** | < 0.041 U | < 0.034 U | **1.5** | **0.85** | **0.28** | < 0.035 U | < 0.034 UJ | **1.8** | **3.5** | < 0.034 | < 0.034 |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.38** | < 3.9 U | | **0.023 J** | < 0.41 U | < 0.34 U | **0.69** | **0.38** | **0.13 J** | < 0.35 U | < 0.34 UJ | **0.5** | **1.2** | < 0.34 | < 0.34 |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.44** | **0.67** | | **0.019 J** | < 0.041 U | < 0.034 U | **0.6** | **0.32** | **0.12** | < 0.035 U | < 0.034 UJ | **0.57** | **1** | < 0.034 | < 0.034 |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.8** | **1.2 J** | | **0.046 J** | < 0.41 U | < 0.34 U | **1.1** | **0.69** | **0.21 J** | < 0.35 U | < 0.34 UJ | **1.1** | **2.6** | < 0.34 | < 0.34 |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | **0.1** | < 0.39 U | | < 0.037 U | < 0.041 U | < 0.034 U | **0.18** | **0.1** | **0.034 J** | < 0.035 U | < 0.034 UJ | **0.17** | **0.39** | < 0.034 | < 0.034 |
| Fluoranthene | 206-44-0 | **100** | **500** | **2** | **3.1 J** | | **0.08 J** | < 0.41 U | < 0.34 U | **2.5** | **1.6** | **0.55** | < 0.35 U | < 0.34 UJ | **2.2** | **6.7** | < 0.34 | < 0.34 |
| Fluorene | 86-73-7 | 100 | 500 | **0.4** | **1.6 J** | | < 0.37 U | < 0.41 U | < 0.34 U | **0.086 J** | **0.17 J** | **0.13 J** | < 0.35 U | < 0.34 UJ | **0.31 J** | **2.2** | < 0.34 | < 0.34 |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.4** | < 0.39 U | | **0.025 J** | < 0.041 U | < 0.034 U | **0.9** | **0.48** | **0.14** | < 0.035 U | < 0.034 UJ | **0.69** | **1.6** | < 0.034 | < 0.034 |
| Naphthalene | 91-20-3 | **100** | **500** | **0.57** | **45** | | **0.039 J** | < 0.41 U | < 0.34 U | **0.14 J** | **0.42** | **0.47** | < 0.35 U | < 0.34 UJ | **0.9** | **6.6** | < 0.34 | < 0.34 |
| Phenanthrene | 85-01-8 | **100** | **500** | **2** | **2.9 J** | | **0.07 J** | < 0.41 U | < 0.34 U | **0.7** | **1** | **0.54** | < 0.35 U | < 0.34 UJ | **1.8** | **7.4** | < 0.34 | < 0.34 |
| Pyrene | 129-00-0 | **100** | **500** | **1.7** | **2.7 J** | | **0.075 J** | < 0.41 U | < 0.34 U | **2.1** | **1.4** | **0.4** | < 0.35 U | < 0.34 UJ | **1.9** | **5** | < 0.34 | < 0.34 |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **13** | **79** | | **0.54** | < 0.41 U | < 0.34 U | **13** | **9.4** | **3.8** | < 0.35 U | < 0.34 U | **16** | **49** | < 0.34 U | < 0.34 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.15 U | < 1.6 U | | < 0.15 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 0.14 U | < 0.14 UJ | < 0.15 U | < 0.9 | < 0.14 | < 0.14 |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.15 U | < 1.6 U | | < 0.15 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 0.14 U | < 0.14 UJ | < 0.15 U | < 0.9 | < 0.14 | < 0.14 |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.3 U | < 3.2 U | | < 0.3 U | < 0.33 U | < 0.27 U | < 0.31 U | < 0.31 U | < 0.31 U | < 0.28 U | < 0.27 U | < 0.3 U | < 1.8 | < 0.27 | < 0.27 |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.074 U | < 0.8 U | | < 0.076 U | < 0.083 U | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 UJ | < 0.076 U | < 0.45 | < 0.069 | < 0.069 |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.074 U | < 0.8 U | | < 0.076 U | < 0.083 U | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 UJ | < 0.076 U | < 0.45 | < 0.069 | < 0.069 |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.15 U | < 1.6 U | | < 0.15 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.9 | < 0.14 | < 0.14 |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.3 U | < 3.2 U | | < 0.3 U | < 0.33 U | < 0.27 U | < 0.31 U | < 0.31 U | < 0.31 U | < 0.28 U | < 0.27 UJ | < 0.3 U | < 1.8 | < 0.27 | < 0.27 |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.74 U | < 8 U | | < 0.76 U | < 0.83 U | < 0.69 U | < 0.78 U | < 0.78 U | < 0.79 U | < 0.7 U | < 0.69 UJ | < 0.76 U | < 4.5 | < 0.69 | < 0.69 |
| Acetophenone | 98-86-2 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | **0.1 J** | < 2.2 | < 0.34 | < 0.34 |
| Atrazine | 1912-24-9 | NL | NL | < 0.15 U | < 1.6 U | | < 0.15 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.9 | < 0.14 | < 0.14 |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.37 UJ | < 3.9 UJ | | < 0.37 UJ | < 0.41 UJ | < 0.34 UJ | < 0.39 UJ | < 0.38 UJ | < 0.39 UJ | < 0.35 UJ | < 0.34 UJ | **0.19 J** | **0.33** | < 0.34 | < 0.34 |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.037 U | < 0.39 U | | < 0.037 U | < 0.041 U | < 0.034 U | < 0.039 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 UJ | < 0.037 U | < 0.22 | < 0.034 | < 0.034 |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | **0.041 J** | **0.05 J** | < 0.35 U | < 0.34 UJ | **0.6** | < 2.2 | < 0.34 | < 0.34 |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | **0.14 J** | < 0.39 U | < 0.35 U | < 0.34 UJ | **0.03 J** | < 2.2 | < 0.34 | < 0.34 |
| Caprolactam | 105-60-2 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Carbazole | 86-74-8 | NL | NL | **0.29 J** | **0.41 J** | | < 0.37 U | < 0.41 U | < 0.34 U | **0.058 J** | **0.11 J** | **0.063 J** | < 0.35 U | < 0.34 UJ | **0.27 J** | **1.2** | < 0.34 | < 0.34 |
| Dibenzofuran | 132-64-9 | 59 | 350 | **0.32 J** | **0.61 J** | | < 0.37 U | < 0.41 U | < 0.34 U | **0.088 J** | **0.12 J** | **0.051 J** | < 0.35 U | < 0.34 UJ | **0.18 J** | **1.8** | < 0.34 | < 0.34 |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Diphenyl | 92-52-4 | NL | NL | **0.07 J** | **0.99 J** | | < 0.37 U | < 0.41 U | < 0.34 U | **0.026 J** | **0.031 J** | **0.023 J** | < 0.35 U | < 0.34 UJ | **0.044 J** | **0.37** | < 0.34 | < 0.34 |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.037 U | < 0.39 U | | < 0.037 U | < 0.041 U | < 0.034 U | < 0.039 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 UJ | < 0.037 U | < 0.22 | < 0.034 | < 0.034 |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.074 U | < 0.8 U | | < 0.076 U | < 0.083 U | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 UJ | < 0.076 U | < 0.45 | < 0.069 | < 0.069 |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.037 U | < 0.39 U | | < 0.037 U | < 0.041 U | < 0.034 U | < 0.039 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 UJ | < 0.037 U | < 0.22 | < 0.034 | < 0.034 |
| Isophorone | 78-59-1 | NL | NL | < 0.15 U | < 1.6 U | | < 0.15 U | < 0.16 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 0.14 U | < 0.14 UJ | < 0.15 U | < 0.9 | < 0.14 | < 0.14 |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.037 U | < 0.39 U | | < 0.037 U | < 0.041 U | < 0.034 U | < 0.039 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 UJ | < 0.037 U | < 0.22 | < 0.034 | < 0.034 |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.037 U | < 0.39 U | | < 0.037 U | < 0.041 U | < 0.034 U | < 0.039 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 UJ | < 0.037 U | < 0.22 | < 0.034 | < 0.034 |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.3 U | < 3.2 U | | < 0.3 U | < 0.33 U | < 0.27 U | < 0.31 U | < 0.31 U | < 0.31 U | < 0.28 U | < 0.27 U | < 0.3 U | < 1.8 | < 0.27 | < 0.27 |
| Phenol | 108-95-2 | 100 | 500 | < 0.37 U | < 3.9 U | | < 0.37 U | < 0.41 U | < 0.34 U | < 0.39 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 UJ | < 0.37 U | < 2.2 | < 0.34 | < 0.34 |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **13** | **81** | | **0.54** | < 0.83 U | < 0.69 U | **14** | **9.9** | **4** | < 0.7 U | < 0.69 U | **17** | **52** | < 0.69 U | < 0.69 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-118<br>324 Winthrop<br>SB-118(48-50)<br>10/3/2020<br>48 - 50 ft | SB-118<br>324 Winthrop<br>SB-118(66-68)<br>10/4/2020<br>66 - 68 ft | SB-118<br>324 Winthrop<br>SB-118(83-85)<br>10/4/2020<br>83 - 85 ft | SB-119<br>324 Winthrop<br>SB-119(2-4)091920<br>9/19/2020<br>2 - 4 ft | SB-119<br>324 Winthrop<br>SB-119 (5-7)<br>10/7/2020<br>5 - 7 ft | SB-119<br>324 Winthrop<br>SB-119 (13-15)<br>10/7/2020<br>13 - 15 ft | SB-119<br>324 Winthrop<br>SB-119 (33-35)<br>10/7/2020<br>33 - 35 ft | SB-119<br>324 Winthrop<br>SB-119 (47-49)<br>10/7/2020<br>47 - 49 ft | SB-119<br>324 Winthrop<br>SB-119 (66-68)<br>10/8/2020<br>66 - 68 ft | SB-119<br>324 Winthrop<br>SB-119 (83-85)<br>10/8/2020<br>83 - 85 ft | SB-119 DUP<br>324 Winthrop<br>DUPE-19-100820<br>10/8/2020<br>66 - 68 ft | SB-120<br>324 Winthrop<br>SB-120(2-4)091320<br>9/13/2020<br>2 - 4 ft | SB-120<br>324 Winthrop<br>SB-120(5-7)<br>10/5/2020<br>5 - 7 ft | SB-120<br>324 Winthrop<br>SB-120(13-15)<br>10/5/2020<br>13 - 15 ft | SB-120<br>324 Winthrop<br>SB-120(33-35)<br>10/5/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | **0.018 J** | **2.3** | < 0.41 U | < 0.38 U | < 0.34 U | **7.1 J** | **0.012 J** | **24 J** | < 0.35 U | **0.044 J** | < 0.34 U | < 0.34 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | **0.032 J** | **2.9** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | **0.062 J** | < 0.34 U | < 0.34 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | **0.044 J** | **0.54 J** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | **0.026 J** | < 0.34 U | < 0.34 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | **0.095 J** | **7** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | **0.03 J** | **0.16 J** | < 0.34 U | < 0.34 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.034 U | < 0.038 U | < 0.04 U | **0.33** | **8.3** | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | **0.25** | **0.32** | < 0.034 U | < 0.034 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.034 U | < 0.038 U | < 0.04 U | **0.39 J+** | **7.5** | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | **0.29** | **0.34** | < 0.034 U | < 0.034 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.034 U | < 0.038 U | < 0.04 U | **0.44** | **8.8** | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | **0.39** | **0.39** | < 0.034 U | < 0.034 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | **0.2 J** | **3.5** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | **0.18 J** | **0.2 J** | < 0.34 U | < 0.34 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.034 U | < 0.038 U | < 0.04 U | **0.2** | **3.2** | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | **0.12** | **0.19** | < 0.034 U | < 0.034 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.34 U | < 0.38 U | < 0.4 U | **0.29 J** | **6.4** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | **0.24 J** | **0.33 J** | < 0.34 U | < 0.34 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.034 U | < 0.038 U | < 0.04 U | **0.053** | **0.94** | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | **0.054** | **0.048** | < 0.034 U | < 0.034 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.34 U | < 0.38 U | < 0.4 U | **0.6** | **21** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | **0.39** | **0.68** | < 0.34 U | < 0.34 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | **0.04 J** | **5.7** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | **0.12 J** | < 0.34 U | < 0.34 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.034 U | < 0.038 U | < 0.04 U | **0.21** | **3.9** | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | **0.23** | **0.21** | < 0.034 U | < 0.034 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.34 U | **0.023 J** | < 0.4 U | **0.049 J** | **8.7** | < 0.41 U | **0.051 J** | < 0.34 U | **83 J** | **0.052 J** | **290 J** | < 0.35 U | **0.16 J** | < 0.34 U | < 0.34 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.34 U | **0.011 J** | < 0.4 U | **0.32 J** | **29** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | **0.14 J** | **0.68** | < 0.34 U | < 0.34 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.34 U | < 0.38 U | < 0.4 U | **0.47** | **17** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | **0.36** | **0.67** | < 0.34 U | < 0.34 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.34 U | **0.034** | < 0.4 U | **3.8** | **140** | < 0.41 U | **0.051** | < 0.34 U | **90** | **0.064** | **310** | **2.7** | **4.6** | < 0.34 U | < 0.34 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 UJ | < 0.38 UJ | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.8 U | < 0.16 U | < 0.15 U | < 0.14 U | < 1.6 U | < 0.17 U | < 8.2 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.8 U | < 0.16 U | < 0.15 U | < 0.14 U | < 1.6 U | < 0.17 U | < 8.2 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.28 U | < 0.31 U | < 0.32 U | < 0.3 U | < 1.6 U | < 0.33 U | < 0.31 U | < 0.27 UJ | < 3.2 U | < 0.33 UJ | < 16 U | < 0.29 U | < 0.31 U | < 0.28 U | < 0.27 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U | < 0.4 U | < 0.082 U | < 0.078 U | < 0.069 U | < 0.81 U | < 0.084 U | < 4.1 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U | < 0.4 U | < 0.082 U | < 0.078 U | < 0.069 U | < 0.81 U | < 0.084 U | < 4.1 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 UJ | < 4 U | < 0.41 UJ | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.8 U | < 0.16 U | < 0.15 U | < 0.14 U | < 1.6 U | < 0.17 U | < 8.2 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.28 U | < 0.31 U | < 0.32 U | < 0.3 U | < 1.6 U | < 0.33 U | < 0.31 U | < 0.27 U | < 3.2 U | < 0.33 U | < 16 U | < 0.29 U | < 0.31 U | < 0.28 U | < 0.27 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.69 U | < 0.78 U | < 0.82 U | < 0.74 U | < 4 U | < 0.82 U | < 0.78 U | < 0.69 U | < 8.1 U | < 0.84 U | < 41 U | < 0.72 U | < 0.78 U | < 0.7 U | < 0.69 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.8 U | < 0.16 U | < 0.15 U | < 0.14 U | < 1.6 U | < 0.17 U | < 8.2 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.34 UJ | < 0.38 UJ | < 0.4 UJ | **0.078 J** | < 2 UJ | < 0.41 UJ | < 0.38 UJ | < 0.34 UJ | < 4 UJ | < 0.41 UJ | < 20 UJ | < 0.35 UJ | **0.026 J** | < 0.34 UJ | < 0.34 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.034 U | < 0.038 U | < 0.04 U | < 0.037 U | < 0.2 U | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | < 0.035 U | < 0.038 U | < 0.034 U | < 0.034 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | **0.24 J** | < 0.34 U | < 0.34 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | **0.079 J** | < 0.34 U | < 0.34 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Carbazole | 86-74-8 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | **0.033 J** | **3.9** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | **0.067 J** | < 0.34 U | < 0.34 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.34 U | < 0.38 U | < 0.4 U | **0.032 J** | **4.4** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | **0.08 J** | < 0.34 U | < 0.34 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | **0.7 J** | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.034 U | < 0.038 U | < 0.04 U | < 0.037 U | < 0.2 U | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | < 0.035 U | < 0.038 U | < 0.034 U | < 0.034 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U | < 0.4 U | < 0.082 U | < 0.078 U | < 0.069 U | < 0.81 U | < 0.084 U | < 4.1 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 UJ | < 0.38 U | < 0.34 U | < 0.34 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.034 U | < 0.038 U | < 0.04 U | < 0.037 U | < 0.2 U | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | < 0.035 U | < 0.038 U | < 0.034 U | < 0.034 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.8 U | < 0.16 U | < 0.15 U | < 0.14 U | < 1.6 U | < 0.17 U | < 8.2 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.034 U | < 0.038 U | < 0.04 U | < 0.037 U | < 0.2 U | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | < 0.035 U | < 0.038 U | < 0.034 U | < 0.034 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.034 U | < 0.038 U | < 0.04 U | < 0.037 U | < 0.2 U | < 0.041 U | < 0.038 U | < 0.034 U | < 0.4 U | < 0.041 U | < 2 U | < 0.035 U | < 0.038 U | < 0.034 U | < 0.034 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.28 U | < 0.31 U | < 0.32 U | < 0.3 U | < 1.6 U | < 0.33 U | < 0.31 U | < 0.27 U | < 3.2 U | < 0.33 U | < 16 U | < 0.29 UJ | < 0.31 U | < 0.28 U | < 0.27 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.34 U | < 0.38 U | < 0.4 U | < 0.37 U | < 2 U | < 0.41 U | < 0.38 U | < 0.34 U | < 4 U | < 0.41 U | < 20 U | < 0.35 U | < 0.38 U | < 0.34 U | < 0.34 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.69 U | **0.034** | < 0.82 U | **3.9** | **150** | < 0.82 U | **0.051** | < 0.69 U | **90** | **0.064** | **310** | **2.7** | **5.1** | < 0.7 U | < 0.69 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-120<br>324 Winthrop<br>SB-120(48-50)<br>10/5/2020<br>48 - 50 ft | SB-120<br>324 Winthrop<br>SB-120(62-64)<br>10/6/2020<br>62 - 64 ft | SB-120<br>324 Winthrop<br>SB-120(83-85)<br>10/6/2020<br>83 - 85 ft | SB-120 DUP<br>324 Winthrop<br>DUPE-18-100620<br>10/6/2020<br>62 - 64 ft | SB-121<br>324 Winthrop<br>SB-121(2-4)091320<br>9/13/2020<br>2 - 4 ft | SB-121<br>324 Winthrop<br>SB-121 (5-6)092020<br>9/20/2020<br>5 - 6 ft | SB-121<br>324 Winthrop<br>SB-121 (13-15)092020<br>9/20/2020<br>13 - 15 ft | SB-121<br>324 Winthrop<br>SB-121 (18-20)092020<br>9/20/2020<br>18 - 20 ft | SB-121<br>324 Winthrop<br>SB-121 (33-35)092020<br>9/20/2020<br>33 - 35 ft | SB-121 DUP<br>324 Winthrop<br>DUPE-8-092020<br>9/20/2020<br>5 - 6 ft | SB-122<br>324 Winthrop<br>SB-122(2-4)<br>8/29/2020<br>2 - 4 ft | SB-122<br>324 Winthrop<br>SB-122(6-8)<br>8/29/2020<br>6 - 8 ft | SB-122<br>324 Winthrop<br>SB-122(11-13)<br>8/29/2020<br>11 - 13 ft | SB-122<br>324 Winthrop<br>SB-122(22-24)<br>8/29/2020<br>22 - 24 ft | SB-122<br>324 Winthrop<br>SB-122(33-35)<br>8/29/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.36 U | **2.8** | < 0.4 U | **2.3** | **0.038 J** | **0.11 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.28 J** | **0.016 J** | **0.012 J** | **0.047 J** | < 0.38 U | < 0.35 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **0.16 J** | **0.12 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.38** | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **0.083 J** | **0.015 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.034 J** | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **1.1** | **0.2 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.66** | **0.074 J** | < 0.35 U | **0.03 J** | < 0.38 U | < 0.35 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.036 U | < 0.2 U | < 0.04 UJ | < 0.2 U | **3.3** | **0.24 J** | < 0.035 U | < 0.034 U | < 0.038 U | **0.74 J** | **0.51** | < 0.035 U | **0.1** | < 0.038 U | < 0.035 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.036 U | < 0.2 U | < 0.04 U | < 0.2 U | **3.2** | **0.26 J** | < 0.035 U | < 0.034 U | < 0.038 U | **0.75 J** | **0.62** | < 0.035 U | **0.11** | < 0.038 U | < 0.035 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.036 U | < 0.2 U | < 0.04 U | < 0.2 U | **3.5** | **0.3 J** | < 0.035 U | < 0.034 U | < 0.038 U | **0.92 J** | **0.76** | < 0.035 U | **0.13** | < 0.038 U | < 0.035 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **1.5** | **0.11 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.22 J** | **0.27 J** | < 0.35 U | **0.057 J** | < 0.38 U | < 0.35 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.036 U | < 0.2 U | < 0.04 U | < 0.2 U | **1.7** | **0.1 J** | < 0.035 U | < 0.034 U | < 0.038 U | **0.3 J** | **0.31** | < 0.035 U | **0.041** | < 0.038 U | < 0.035 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.36 U | < 2 U | < 0.4 UJ | < 2 U | **3** | **0.23 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.71** | **0.5** | < 0.35 U | **0.098 J** | < 0.38 U | < 0.35 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.036 U | < 0.2 U | < 0.04 U | < 0.2 U | **0.49** | **0.036** | < 0.035 U | < 0.034 U | < 0.038 U | **0.074** | **0.099** | < 0.035 U | < 0.04 U | < 0.038 U | < 0.035 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **6.1** | **0.6 J** | < 0.35 U | < 0.34 U | < 0.38 U | **2 J** | **0.67** | < 0.35 U | **0.19 J** | < 0.38 U | < 0.35 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **0.16 J** | **0.16 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.58** | **0.018 J** | < 0.35 U | **0.011 J** | < 0.38 U | < 0.35 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.036 U | < 0.2 U | < 0.04 U | < 0.2 U | **1.7** | **0.14 J** | < 0.035 U | < 0.034 U | < 0.038 U | **0.31 J** | **0.31** | < 0.035 U | **0.071** | < 0.038 U | < 0.035 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.36 U | **31** | < 0.4 UJ | **23** | **0.11 J** | **0.54** | < 0.35 U | < 0.34 U | < 0.38 U | **1.1** | **0.026 J** | **0.049 J** | **0.14 J** | < 0.38 U | < 0.35 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **4.3** | **0.76 J** | < 0.35 U | < 0.34 U | < 0.38 U | **2.6 J** | **0.3 J** | < 0.35 U | **0.11 J** | < 0.38 U | < 0.35 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **5.8** | **0.47 J** | < 0.35 U | < 0.34 U | < 0.38 U | **1.5 J** | **0.67** | < 0.35 U | **0.16 J** | < 0.38 U | < 0.35 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.36 U | **34** | < 0.4 U | **25** | **36** | **4.4** | < 0.35 U | < 0.34 U | < 0.38 U | **13** | **5.2** | **0.061** | **1.3** | < 0.38 U | < 0.35 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.36 U | < 2 UJ | < 0.4 U | < 2 UJ | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.79 U | < 0.16 U | < 0.81 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.14 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.79 U | < 0.16 U | < 0.81 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.14 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.29 U | < 1.6 U | < 0.32 UJ | < 1.6 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.32 U | < 0.31 U | < 0.28 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.073 U | < 0.4 U | < 0.08 U | < 0.41 U | < 0.073 U | < 0.072 U | < 0.07 U | < 0.07 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.072 U | < 0.082 U | < 0.077 U | < 0.071 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.073 U | < 0.4 U | < 0.08 U | < 0.41 U | < 0.073 U | < 0.072 U | < 0.07 U | < 0.07 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.072 U | < 0.082 U | < 0.077 U | < 0.071 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.79 U | < 0.16 U | < 0.81 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.29 U | < 1.6 U | < 0.32 UJ | < 1.6 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.32 U | < 0.31 U | < 0.28 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.73 U | < 4 U | < 0.8 U | < 4.1 U | < 0.73 U | < 0.72 U | < 0.7 U | < 0.7 U | < 0.77 U | < 0.73 U | < 0.73 U | < 0.72 U | < 0.82 U | < 0.77 U | < 0.71 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.79 U | < 0.16 U | < 0.81 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.36 UJ | < 2 UJ | < 0.4 UJ | < 2 UJ | < 0.36 UJ | < 0.35 UJ | < 0.35 UJ | < 0.34 UJ | < 0.38 UJ | < 0.36 UJ | < 0.36 UJ | < 0.35 UJ | < 0.4 UJ | < 0.38 UJ | < 0.35 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.036 U | < 0.2 U | < 0.04 UJ | < 0.2 U | < 0.036 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.035 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | **0.03 J** | **0.14 J** | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Carbazole | 86-74-8 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **0.19 J** | **0.13 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.43** | **0.055 J** | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | **0.12 J** | **0.14 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.46** | **0.016 J** | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | **0.11 J** | < 0.36 U | **0.033 J** | < 0.35 U | < 0.34 U | < 0.38 U | **0.079 J** | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.036 U | < 0.2 U | < 0.04 UJ | < 0.2 U | < 0.036 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.035 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.073 U | < 0.4 U | < 0.08 UJ | < 0.41 U | < 0.073 U | < 0.072 U | < 0.07 U | < 0.07 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.072 U | < 0.082 U | < 0.077 U | < 0.071 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.036 U | < 0.2 U | < 0.04 UJ | < 0.2 U | < 0.036 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.035 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.79 U | < 0.16 U | < 0.81 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.14 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.036 U | < 0.2 U | < 0.04 UJ | < 0.2 U | < 0.036 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.035 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.036 U | < 0.2 U | < 0.04 U | < 0.2 U | < 0.036 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.036 U | < 0.036 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.035 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.29 U | < 1.6 U | < 0.32 U | < 1.6 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.32 U | < 0.31 U | < 0.28 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.36 U | < 2 U | < 0.4 U | < 2 U | < 0.36 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.38 U | < 0.36 U | < 0.36 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.35 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.73 U | **34** | < 0.8 U | **25** | **37** | **4.7** | < 0.7 U | < 0.7 U | < 0.77 U | **14** | **5.4** | **0.061** | **1.3** | < 0.77 U | < 0.71 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-122 DUP<br>324 Winthrop<br>DUP-1-082920<br>8/29/2020<br>6 - 8 ft | SB-123<br>324 Winthrop<br>SB-123(2-4)<br>8/30/2020<br>2 - 4 ft | SB-123<br>324 Winthrop<br>SB-123 (5-7)091520<br>9/15/2020<br>5 - 7 ft | SB-123<br>324 Winthrop<br>SB-123 (10-12)091520<br>9/15/2020<br>10 - 12 ft | SB-123<br>324 Winthrop<br>SB-123 (20-22)091520<br>9/15/2020<br>20 - 22 ft | SB-123<br>324 Winthrop<br>SB-123 (51-53)091620<br>9/16/2020<br>51 - 53 ft | SB-123<br>324 Winthrop<br>SB-123 (63-65)091620<br>9/16/2020<br>63 - 65 ft | SB-123<br>324 Winthrop<br>SB-123 (83-85)091620<br>9/16/2020<br>83 - 85 ft | SB-124<br>324 Winthrop<br>SB-124(2-4)<br>8/30/2020<br>2 - 4 ft | SB-124<br>324 Winthrop<br>SB-124(5-7)091320<br>9/13/2020<br>5 - 7 ft | SB-124<br>324 Winthrop<br>SB-124(13-15)091320<br>9/13/2020<br>13 - 15 ft | SB-124<br>324 Winthrop<br>SB-124(33-35)091320<br>9/13/2020<br>33 - 35 ft | SB-124<br>324 Winthrop<br>SB-124(47.5-49.5)09132<br>9/13/2020<br>47.5 - 49.5 ft | SB-124<br>324 Winthrop<br>SB-124(68-70)091420<br>9/14/2020<br>68 - 70 ft | SB-124<br>324 Winthrop<br>SB-124(83-85)091420<br>9/14/2020<br>83 - 85 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | **0.012 J** | < 0.36 U | **0.12 J** | **0.028 J** | **0.027 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.19 J** | **24** | **0.15 J** | **0.069 J** | < 0.35 U | **4 J-** | < 0.42 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.36 U | < 0.36 U | **0.27 J** | **0.39 J** | **0.039 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.47** | **0.62 J** | < 0.38 U | **0.13 J** | < 0.35 U | **0.048 J-** | < 0.42 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.36 U | < 0.36 U | **0.065 J** | **0.057 J** | **0.03 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.25 J** | **0.57 J** | **0.22 J** | **0.016 J** | < 0.35 U | **0.073 J-** | < 0.42 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.36 U | **0.039 J** | **0.62** | **2.1** | **0.11 J** | < 0.35 U | < 0.39 U | < 0.39 U | **1.3** | **0.37 J** | **0.29 J** | **0.27 J** | < 0.35 U | **0.32 J-** | < 0.42 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.036 U | **0.16** | **1.5** | **4.8** | **0.32** | < 0.035 U | < 0.039 U | < 0.039 U | **3.6** | **0.45 J** | **0.99** | **0.46** | < 0.035 U | **0.3 J-** | < 0.042 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.036 U | **0.18** | **1.4** | **3.9** | **0.33** | < 0.035 U | < 0.039 U | < 0.039 U | **4.3** | **0.3 J** | **1.3** | **0.55** | < 0.035 U | **0.28 J-** | < 0.042 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.036 U | **0.21** | **1.6** | **4.9** | **0.35** | < 0.035 U | < 0.039 U | < 0.039 U | **5.3** | **0.42 J** | **1.4** | **0.66** | < 0.035 U | **0.23 J-** | < 0.042 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.36 U | **0.096 J** | **0.6** | **1.5** | **0.17 J** | < 0.35 U | < 0.39 U | < 0.39 U | **1.7** | < 8.1 U | **0.86** | **0.36** | < 0.35 U | **0.15 J-** | < 0.42 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.036 U | **0.085** | **0.74** | **1.7** | **0.2** | < 0.035 U | < 0.039 U | < 0.039 U | **2.2** | **0.18 J** | **0.59** | **0.27** | < 0.035 U | **0.096 J-** | < 0.042 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.36 U | **0.17 J** | **1.3** | **4.4** | **0.28 J** | < 0.35 U | < 0.39 U | < 0.39 U | **3.9** | **0.33 J** | **0.94** | **0.43** | < 0.35 U | **0.25 J-** | < 0.42 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.036 U | **0.025 J** | **0.21** | **0.56** | **0.059** | < 0.035 U | < 0.039 U | < 0.039 U | **0.52** | < 0.81 U | **0.21** | **0.074** | < 0.035 U | **0.035 J-** | < 0.042 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.36 U | **0.28 J** | **2.9** | **12** | **0.55** | < 0.35 U | < 0.39 U | < 0.39 U | **7.5** | < 8.1 U | **1.3** | **1** | < 0.35 U | **0.58 J-** | < 0.42 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.36 U | < 0.36 U | **0.35 J** | **0.64 J** | **0.057 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.78** | **1.2 J** | **0.096 J** | **0.13 J** | < 0.35 U | **0.24 J-** | < 0.42 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.036 U | **0.11** | **0.68** | **1.8** | **0.19** | < 0.035 U | < 0.039 U | < 0.039 U | **1.9** | < 0.81 U | **0.85** | **0.33** | < 0.035 U | **0.13 J-** | < 0.042 U |
| Naphthalene | 91-20-3 | **100** | **500** | **0.043 J** | **0.018 J** | **0.16 J** | < 0.82 U | **0.043 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.35 J** | **88** | **0.66** | **0.18 J** | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.36 U | **0.17 J** | **2.1** | **5.2** | **0.36 J** | < 0.35 U | < 0.39 U | < 0.39 U | **5.3** | **0.91 J** | **0.66** | **1** | < 0.35 U | **1.2 J-** | < 0.42 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.36 U | **0.27 J** | **3.6** | **9.1** | **0.68** | < 0.35 U | < 0.39 U | < 0.39 U | **6.6** | **0.72 J** | **1.4** | **0.95** | < 0.35 U | **0.82 J-** | < 0.42 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **0.055** | **1.8** | **18** | **53** | **3.8** | < 0.35 U | < 0.39 U | < 0.39 U | **46** | **120** | **12** | **6.9** | < 0.35 U | **8.8** | < 0.42 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.14 U | < 0.15 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 3.3 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 UJ | < 0.17 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.14 U | < 0.15 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 3.3 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 UJ | < 0.17 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | **0.029 J** | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.29 U | < 0.29 U | < 0.31 U | < 0.66 U | < 0.3 U | < 0.28 U | < 0.31 U | < 0.31 U | < 0.31 U | < 6.5 U | < 0.31 U | < 0.29 U | < 0.28 U | < 0.3 UJ | < 0.34 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.072 U | < 0.072 U | < 0.078 U | < 0.17 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.078 U | < 1.6 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 UJ | < 0.085 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.072 U | < 0.072 U | < 0.078 U | < 0.17 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.078 U | < 1.6 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 UJ | < 0.085 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.14 U | < 0.15 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 3.3 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.17 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.42 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.29 U | < 0.29 U | < 0.31 U | < 0.66 U | < 0.3 U | < 0.28 U | < 0.31 U | < 0.31 U | < 0.31 U | < 6.5 U | < 0.31 U | < 0.29 U | < 0.28 U | < 0.3 UJ | < 0.34 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.42 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.72 U | < 0.72 U | < 0.78 U | < 1.7 U | < 0.76 U | < 0.7 U | < 0.79 U | < 0.79 U | < 0.78 U | < 16 U | < 0.78 U | < 0.74 U | < 0.7 U | < 0.76 UJ | < 0.85 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | **0.04 J** | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.14 U | < 0.15 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 3.3 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.17 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.36 UJ | < 0.36 UJ | **0.047 J** | < 0.82 UJ | **0.016 J** | < 0.35 UJ | **0.032 J** | < 0.39 UJ | < 0.39 UJ | < 8.1 UJ | < 0.38 UJ | < 0.36 UJ | < 0.35 UJ | < 0.37 UJ | < 0.42 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.036 U | < 0.036 U | < 0.038 U | < 0.082 U | < 0.037 U | < 0.035 U | < 0.039 U | < 0.039 U | < 0.039 U | < 0.81 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 UJ | < 0.042 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.36 U | < 0.36 U | **0.73** | < 0.82 U | **0.12 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.43** | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.36 U | < 0.36 U | **0.11 J** | < 0.82 U | **0.12 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.062 J** | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.42 U |
| Carbazole | 86-74-8 | NL | NL | < 0.36 U | < 0.36 U | **0.14 J** | **0.31 J** | **0.024 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.48** | < 8.1 U | **0.032 J** | **0.069 J** | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.36 U | < 0.36 U | **0.15 J** | **0.19 J** | **0.025 J** | < 0.35 U | < 0.39 U | < 0.39 U | **0.43** | **0.51 J** | **0.068 J** | **0.1 J** | < 0.35 U | **0.053 J-** | < 0.42 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | **0.086 J** | **1.4 J** | **0.029 J** | < 0.36 U | < 0.35 U | **0.1 J-** | < 0.42 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.036 U | < 0.036 U | < 0.038 U | < 0.082 U | < 0.037 U | < 0.035 U | < 0.039 U | < 0.039 U | < 0.039 U | < 0.81 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 UJ | < 0.042 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.072 U | < 0.072 U | < 0.078 U | < 0.17 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.078 U | < 1.6 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 UJ | < 0.085 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.42 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.036 U | < 0.036 U | < 0.038 U | < 0.082 U | < 0.037 U | < 0.035 U | < 0.039 U | < 0.039 U | < 0.039 U | < 0.81 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 UJ | < 0.042 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.14 U | < 0.15 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U | < 0.16 U | < 3.3 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 UJ | < 0.17 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.036 U | < 0.036 U | < 0.038 U | < 0.082 U | < 0.037 U | < 0.035 U | < 0.039 U | < 0.039 U | < 0.039 U | < 0.81 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 UJ | < 0.042 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.036 U | < 0.036 U | < 0.038 U | < 0.082 U | < 0.037 U | < 0.035 U | < 0.039 U | < 0.039 U | < 0.039 U | < 0.81 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 UJ | < 0.042 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.36 U | < 0.36 U | **0.091 J** | **0.032 J** | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.29 U | < 0.29 U | < 0.31 U | < 0.66 U | < 0.3 U | < 0.28 U | < 0.31 U | < 0.31 U | < 0.31 U | < 6.5 U | < 0.31 U | < 0.29 U | < 0.28 U | < 0.3 UJ | < 0.34 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.36 U | < 0.36 U | < 0.38 U | < 0.82 U | < 0.37 U | < 0.35 U | < 0.39 U | < 0.39 U | < 0.39 U | < 8.1 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 UJ | < 0.42 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **0.055** | **1.8** | **19** | **54** | **4.1** | < 0.7 U | **0.061** | < 0.79 U | **48** | **120** | **12** | **7** | < 0.7 U | **8.9** | < 0.85 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-124 DUP 324 Winthrop DUPE-6-091320 9/13/2020 5 - 7 ft | SB-125 324 Winthrop SB-125(2-4)090820 9/8/2020 2 - 4 ft | SB-125 324 Winthrop SB-125(6-8)090920 9/9/2020 6 - 8 ft | SB-125 324 Winthrop SB-125(10-12)090920 9/9/2020 10 - 12 ft | SB-125 324 Winthrop SB-125(28-30)090920 9/9/2020 28 - 30 ft | SB-125 324 Winthrop SB-125(48-50)090920 9/9/2020 48 - 50 ft | SB-125 324 Winthrop SB-125(68-70)090920 9/9/2020 68 - 70 ft | SB-125 324 Winthrop SB-125(83-85)090920 9/9/2020 83 - 85 ft | SB-125 DUP 324 Winthrop DUPE-5-090920 9/9/2020 68 - 70 ft | SB-126 324 Winthrop SB-126(2-4)091220 9/12/2020 2 - 4 ft | SB-126 324 Winthrop SB-126 (5-7) 9/30/2020 5 - 7 ft | SB-126 324 Winthrop SB-126 (13-15) 9/30/2020 13 - 15 ft | SB-126 324 Winthrop SB-126 (33-35) 9/30/2020 33 - 35 ft | SB-126 324 Winthrop SB-126 (48-50) 9/30/2020 48 - 50 ft | SB-126 324 Winthrop SB-126 (68-70) 10/1/2020 68 - 70 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | **19** | **0.015 J** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | **5.5** | < 0.38 U | **6.2** | **0.018 J** | **1.8 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | **0.078 J** |
| Acenaphthene | 83-32-9 | 100 | 500 | **0.48 J** | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | **0.27 J** | < 0.38 U | **0.29 J** | **0.04 J** | **0.62 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | **0.18 J** | **0.063 J** | < 0.39 U | < 0.38 U | **0.0088 J** | < 0.35 U | **0.64** | < 0.38 U | **0.72** | **0.1 J** | **0.23 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Anthracene | 120-12-7 | 100 | 500 | < 4.1 U | **0.023 J** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | **0.96** | < 0.38 U | **1.1** | **0.16 J** | **1.6 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.33 J** | **0.089** | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 UJ | **0.78** | < 0.038 U | **0.84** | **0.73** | **3 J-** | < 0.034 U | < 0.034 UJ | < 0.036 U | < 0.04 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.3 J** | **0.16** | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | **0.73** | < 0.038 U | **0.83** | **0.96** | **3.2 J-** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.04 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **0.33 J** | **0.18** | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | **0.58** | < 0.038 U | **0.63** | **1.1** | **3.5 J-** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.04 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.2 J** | **0.12 J** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | **0.35 J** | < 0.38 U | **0.39 J** | **0.54** | **1.6 J-** | < 0.34 U | < 0.34 U | < 0.36 U | < 0.4 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.13 J** | **0.076** | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | **0.2** | < 0.038 U | **0.22** | **0.44** | **1.9 J-** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.04 U |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.26 J** | **0.097 J** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | **0.63** | < 0.38 U | **0.7** | **0.69** | **2.7 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.41 U | **0.031 J** | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | **0.061** | < 0.038 U | **0.084** | **0.13** | **0.49 J-** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.04 U |
| Fluoranthene | 206-44-0 | **100** | **500** | **0.54 J** | **0.085 J** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | **1.5** | < 0.38 U | **1.8** | **1.2** | **6.4 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Fluorene | 86-73-7 | 100 | 500 | **0.9 J** | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | **0.86** | < 0.38 U | **1** | **0.052 J** | **1 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.23 J** | **0.16** | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | **0.33** | < 0.038 U | **0.39** | **0.65** | **1.7 J-** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.04 U |
| Naphthalene | 91-20-3 | **100** | **500** | **75** | **0.051 J** | < 0.39 U | **0.025 J** | < 0.34 U | < 0.35 U | **7.1 J** | < 0.38 U | **3.3 J** | **0.056 J** | **4 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | **1** |
| Phenanthrene | 85-01-8 | **100** | **500** | **0.61 J** | **0.031 J** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | **3.5** | < 0.38 U | **4** | **0.54** | **5.7 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Pyrene | 129-00-0 | **100** | **500** | **0.55 J** | **0.096 J** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | **2.1** | < 0.38 U | **2.4** | **1.1** | **5.9 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 UJ |
| | | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **99** | **1.3** | < 0.39 U | **0.025** | **0.0088** | < 0.35 U | **26** | < 0.38 U | **25** | **8.5** | **45** | < 0.34 U | < 0.34 U | < 0.36 U | **1.1** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.47 U | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.47 U | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 1.7 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.19 U | < 0.14 U | < 0.14 UJ | < 0.15 U | < 0.16 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 1.7 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.19 U | < 0.14 U | < 0.14 UJ | < 0.15 U | < 0.16 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | **0.023 J** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 3.3 UJ | < 0.35 U | < 0.31 U | < 0.3 U | < 0.27 U | < 0.28 U | < 0.32 U | < 0.31 U | < 0.32 U | < 0.29 U | < 0.38 U | < 0.28 U | < 0.27 U | < 0.29 U | < 0.32 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.83 U | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | NA R | < 0.069 U | < 0.069 UJ | < 0.074 U | < 0.081 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.83 U | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | NA R | < 0.069 U | < 0.069 UJ | < 0.074 U | < 0.081 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.47 U | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.47 U | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 4.1 UJ | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.47 U | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 1.7 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.14 U | NA R | < 0.14 U | < 0.14 U | < 0.15 U | < 0.16 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 U | < 0.36 U | < 0.4 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 3.3 U | < 0.35 U | < 0.31 U | < 0.3 U | < 0.27 U | < 0.28 U | < 0.32 U | < 0.31 U | < 0.32 U | < 0.29 U | < 0.38 U | < 0.28 U | < 0.27 UJ | < 0.29 U | < 0.32 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.47 U | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 U | < 0.36 U | < 0.4 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | **0.036 J** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 U | < 0.36 U | < 0.4 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 8.3 U | < 0.87 U | < 0.78 U | < 0.77 U | < 0.69 U | < 0.71 U | < 0.82 U | < 0.77 U | < 0.81 U | < 0.73 U | < 0.96 U | < 0.69 U | < 0.69 U | < 0.74 U | < 0.81 U |
| Acetophenone | 98-86-2 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | **0.39 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Atrazine | 1912-24-9 | NL | NL | < 1.7 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.14 U | NA R | < 0.14 U | < 0.14 U | < 0.15 U | < 0.16 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 4.1 UJ | < 0.43 UJ | < 0.39 UJ | < 0.38 UJ | < 0.34 UJ | < 0.35 UJ | < 0.4 UJ | < 0.38 UJ | < 0.4 UJ | < 0.36 UJ | **0.44 J-** | < 0.34 UJ | < 0.34 UJ | < 0.36 UJ | < 0.4 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.41 U | < 0.043 U | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.04 U | < 0.036 U | NA R | < 0.034 U | < 0.034 UJ | < 0.036 U | < 0.04 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | **0.28 J** | **0.96** | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | **0.12 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Caprolactam | 105-60-2 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 U | < 0.36 U | < 0.4 U |
| Carbazole | 86-74-8 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | < 0.4 U | < 0.38 U | < 0.4 U | **0.057 J** | **0.58 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | **0.37 J** | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | **0.25 J** | < 0.38 U | **0.26 J** | **0.059 J** | **0.64 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 U | < 0.36 U | < 0.4 U |
| Diphenyl | 92-52-4 | NL | NL | **1.1 J** | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | **0.49** | < 0.38 U | **0.53** | < 0.36 U | **0.33 J-** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.41 U | < 0.043 U | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 UJ | < 0.04 U | < 0.038 U | < 0.04 U | < 0.036 U | NA R | < 0.034 U | < 0.034 UJ | < 0.036 U | < 0.04 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.83 U | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | NA R | < 0.069 U | < 0.069 UJ | < 0.074 U | < 0.081 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 4.1 UJ | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 U | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.41 U | < 0.043 U | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.04 U | < 0.036 U | NA R | < 0.034 U | < 0.034 UJ | < 0.036 U | < 0.04 U |
| Isophorone | 78-59-1 | NL | NL | < 1.7 U | < 0.17 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.14 U | NA R | < 0.14 U | < 0.14 UJ | < 0.15 U | < 0.16 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.41 U | < 0.043 U | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.04 U | < 0.036 U | NA R | < 0.034 U | < 0.034 UJ | < 0.036 U | < 0.04 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.41 U | < 0.043 U | < 0.039 U | < 0.038 U | < 0.034 U | < 0.035 U | < 0.04 U | < 0.038 U | < 0.04 U | < 0.036 U | NA R | < 0.034 U | < 0.034 UJ | < 0.036 U | < 0.04 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | NA R | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 3.3 UJ | < 0.35 U | < 0.31 U | < 0.3 U | < 0.27 U | < 0.28 U | < 0.32 U | < 0.31 U | < 0.32 U | < 0.29 U | < 0.38 U | < 0.28 U | < 0.27 U | < 0.29 U | < 0.32 U |
| Phenol | 108-95-2 | 100 | 500 | < 4.1 U | < 0.43 U | < 0.39 U | < 0.38 U | < 0.34 U | < 0.35 UJ | < 0.4 U | < 0.38 U | < 0.4 U | < 0.36 U | **0.059 J** | < 0.34 U | < 0.34 UJ | < 0.36 U | < 0.4 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **100** | **2.2** | < 0.78 U | **0.025** | **0.0088** | < 0.71 U | **27** | < 0.77 U | **26** | **8.6** | **48** | < 0.69 U | < 0.69 U | < 0.74 U | **1.1** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-126<br>324 Winthrop<br>SB-126 (83-85)<br>10/1/2020<br>83 - 85 ft | SB-126 DUP<br>324 Winthrop<br>DUPE-16-100120<br>10/1/2020<br>68 - 70 ft | SB-126 DUP<br>324 Winthrop<br>DUPE-17-100120<br>10/1/2020<br>83 - 85 ft | SB-127<br>324 Winthrop<br>SB-127(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-127<br>324 Winthrop<br>SB-127 (5-7)092820<br>9/28/2020<br>5 - 7 ft | SB-127<br>324 Winthrop<br>SB-127 (13-15)092820<br>9/28/2020<br>13 - 15 ft | SB-127<br>324 Winthrop<br>SB-127 (33-35)092820<br>9/28/2020<br>33 - 35 ft | SB-127<br>324 Winthrop<br>SB-127(48-50)<br>9/29/2020<br>48 - 50 ft | SB-127<br>324 Winthrop<br>SB-127(67-69)<br>9/29/2020<br>67 - 69 ft | SB-127<br>324 Winthrop<br>SB-127(83-85)<br>9/29/2020<br>83 - 85 ft | SB-127 DUP<br>324 Winthrop<br>DUPE-15-092920<br>9/29/2020<br>66 - 68 ft | SB-128<br>324 Winthrop<br>SB-128(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-128<br>324 Winthrop<br>SB-128(5-7)091920<br>9/19/2020<br>5 - 7 ft | SB-128<br>324 Winthrop<br>SB-128(13-15)091920<br>9/19/2020<br>13 - 15 ft | SB-128<br>324 Winthrop<br>SB-128(18-20)091920<br>9/19/2020<br>18 - 20 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.43 U | **0.044 J** | < 0.38 U | **0.013 J** | **2** | < 0.4 UJ | < 0.37 U | < 0.34 U | **0.017 J** | **0.43** | **0.033 J** | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | **0.075 J** | **1.8** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.28 J** | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | **0.59 J** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.063 J** | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | **0.12 J** | **4.6** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.48** | < 0.39 U | < 0.35 U | **0.022 J** | < 0.35 U | < 0.34 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.043 U | < 0.039 U | < 0.038 U | **0.33** | **6.5** | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | **0.6** | < 0.039 U | **0.017 J** | **0.081** | < 0.035 U | < 0.034 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.043 U | < 0.039 U | < 0.038 U | **0.34** | **6.7** | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | **0.67** | < 0.039 U | **0.017 J** | **0.091 J+** | < 0.035 U | < 0.034 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.043 U | < 0.039 U | < 0.038 U | **0.43** | **7.5** | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | **0.76** | < 0.039 U | **0.02 J** | **0.12** | < 0.035 U | < 0.034 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | **0.19 J** | **3.8** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.35 J** | < 0.39 U | < 0.35 U | **0.053 J** | < 0.35 U | < 0.34 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.043 U | < 0.039 U | < 0.038 U | **0.19** | **3.2** | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | **0.23** | < 0.039 U | **0.0077 J** | **0.048** | < 0.035 U | < 0.034 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.43 U | < 0.39 U | < 0.38 U | **0.33 J** | **5.9** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.56** | < 0.39 U | **0.012 J** | **0.09 J** | < 0.35 U | < 0.34 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.043 U | < 0.039 U | < 0.038 U | **0.044** | **0.98** | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | **0.11** | < 0.039 U | < 0.035 U | **0.018 J** | < 0.035 U | < 0.034 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.43 U | < 0.39 U | < 0.38 U | **0.77** | **16** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **1.4** | < 0.39 U | **0.014 J** | **0.13 J** | < 0.35 U | < 0.34 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | **0.044 J** | **3.3** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.56** | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.043 U | < 0.039 U | < 0.038 U | **0.25** | **3.9** | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | **0.44** | < 0.039 U | < 0.035 U | **0.056** | < 0.035 U | < 0.034 U |
| Naphthalene | 91-20-3 | **100** | **500** | **0.025 J** | **0.55** | **0.026 J** | **0.02 J** | **7.1** | < 0.4 UJ | < 0.37 U | < 0.34 U | **1.8** | **3.6** | **1.8** | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.43 U | < 0.39 U | < 0.38 U | **0.54** | **17** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **1.9** | < 0.39 U | < 0.35 U | **0.11 J** | < 0.35 U | < 0.34 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.43 UJ | < 0.39 UJ | < 0.38 UJ | **0.57** | **12** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **1.2** | < 0.39 U | < 0.35 U | **0.12 J** | < 0.35 U | < 0.34 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **0.025** | **0.59** | **0.026** | **4.3** | **100** | < 0.4 U | < 0.37 U | < 0.34 U | **1.8** | **14** | **1.8** | **0.088** | **0.94** | < 0.35 U | < 0.34 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.17 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.32 U | < 0.16 UJ | < 0.15 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.17 U | < 0.14 U | < 0.14 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.17 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.32 U | < 0.16 UJ | < 0.15 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.17 U | < 0.14 U | < 0.14 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.34 U | < 0.32 U | < 0.31 U | < 0.29 U | < 0.63 U | NA R | < 0.3 U | < 0.27 U | < 0.32 U | < 0.33 U | < 0.31 U | < 0.28 U | < 0.33 U | < 0.28 U | < 0.28 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.16 U | < 0.081 UJ | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U | < 0.07 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.16 U | < 0.081 UJ | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U | < 0.07 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.17 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.32 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.17 U | < 0.14 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 U | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.34 U | < 0.32 U | < 0.31 U | < 0.29 U | < 0.63 U | NA R | < 0.3 U | < 0.27 U | < 0.32 U | < 0.33 U | < 0.31 U | < 0.28 U | < 0.33 U | < 0.28 U | < 0.28 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 U | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 U | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.87 U | < 0.8 U | < 0.77 U | < 0.73 U | < 1.6 U | < 0.81 UJ | < 0.75 U | < 0.69 U | < 0.82 U | < 0.84 U | < 0.78 U | < 0.71 U | < 0.83 U | < 0.7 U | < 0.7 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | **0.17 J** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.17 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.32 U | < 0.16 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.17 U | < 0.14 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.43 UJ | < 0.39 UJ | < 0.38 UJ | < 0.36 UJ | **0.31 J** | < 0.4 UJ | < 0.37 UJ | < 0.34 UJ | < 0.4 UJ | **0.089 J** | < 0.39 UJ | < 0.35 UJ | < 0.41 UJ | < 0.35 UJ | < 0.34 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.043 U | < 0.039 U | < 0.038 U | < 0.036 U | < 0.078 U | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | < 0.041 U | < 0.039 U | < 0.035 U | < 0.041 U | < 0.035 U | < 0.034 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.19 J** | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 U | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Carbazole | 86-74-8 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | **0.059 J** | **2.6** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.51** | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.43 U | < 0.39 U | < 0.38 U | **0.029 J** | **2.4** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | **0.44** | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | **0.46 J** | < 0.4 UJ | < 0.37 U | < 0.34 U | **0.037 J** | **0.11 J** | **0.021 J** | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.043 U | < 0.039 U | < 0.038 U | < 0.036 U | < 0.078 U | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | < 0.041 U | < 0.039 U | < 0.035 U | < 0.041 U | < 0.035 U | < 0.034 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.16 U | < 0.081 UJ | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U | < 0.07 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | < 0.78 U | < 0.4 UJ | < 0.37 UJ | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.043 U | < 0.039 U | < 0.038 U | < 0.036 U | < 0.078 U | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | < 0.041 U | < 0.039 U | < 0.035 U | < 0.041 U | < 0.035 U | < 0.034 U |
| Isophorone | 78-59-1 | NL | NL | < 0.17 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.32 U | < 0.16 UJ | < 0.15 U | < 0.14 U | < 0.16 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.17 U | < 0.14 U | < 0.14 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.043 U | < 0.039 U | < 0.038 U | < 0.036 U | < 0.078 U | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | < 0.041 U | < 0.039 U | < 0.035 U | < 0.041 U | < 0.035 U | < 0.034 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.043 U | < 0.039 U | < 0.038 U | < 0.036 U | < 0.078 U | < 0.04 UJ | < 0.037 U | < 0.034 U | < 0.04 U | < 0.041 U | < 0.039 U | < 0.035 U | < 0.041 U | < 0.035 U | < 0.034 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | **0.074 J** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.34 U | < 0.32 U | < 0.31 U | < 0.29 U | < 0.63 U | < 0.32 UJ | < 0.3 UJ | < 0.27 U | < 0.32 U | < 0.33 U | < 0.31 U | < 0.28 U | < 0.33 U | < 0.28 U | < 0.28 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.43 U | < 0.39 U | < 0.38 U | < 0.36 U | **0.1 J** | < 0.4 UJ | < 0.37 U | < 0.34 U | < 0.4 U | < 0.41 U | < 0.39 U | < 0.35 U | < 0.41 U | < 0.35 U | < 0.34 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **0.025** | **0.59** | **0.026** | **4.3** | **110** | < 0.81 U | < 0.75 U | < 0.69 U | **1.9** | **15** | **1.9** | **0.088** | **0.94** | < 0.7 U | < 0.7 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-128<br>324 Winthrop<br>SB-128(33-35)091920<br>9/19/2020<br>33 - 35 ft | SB-129<br>324 Winthrop<br>SB-129(2-4)<br>9/3/2020<br>2 - 4 ft | SB-129<br>324 Winthrop<br>SB-129(5-7)<br>9/3/2020<br>5 - 7 ft | SB-129<br>324 Winthrop<br>SB-129(12-14)<br>9/3/2020<br>12 - 14 ft | SB-130<br>324 Winthrop<br>SB-130 (2-4)<br>9/2/2020<br>2 - 4 ft | SB-130<br>324 Winthrop<br>SB-130(5-7)<br>9/3/2020<br>5 - 7 ft | SB-130<br>324 Winthrop<br>SB-130(12-14)<br>9/3/2020<br>12 - 14 ft | SB-130 DUP<br>324 Winthrop<br>DUPE-3-090320<br>9/3/2020<br>5 - 7 ft | SB-131<br>324 Winthrop<br>SB-131(3-5)<br>9/3/2020<br>3 - 5 ft | SB-131<br>324 Winthrop<br>SB-131(8-10)<br>9/3/2020<br>8 - 10 ft | SB-131<br>324 Winthrop<br>SB-131(12-14)<br>9/3/2020<br>12 - 14 ft | SB-132<br>324 Winthrop<br>SB-132 (2-4)<br>9/2/2020<br>2 - 4 ft | SB-132<br>324 Winthrop<br>SB-132(6-8)<br>9/3/2020<br>6 - 8 ft | SB-132<br>324 Winthrop<br>SB-132(12-14)<br>9/3/2020<br>12 - 14 ft | SB-133<br>324 Winthrop<br>SB-133 (2-4)091620<br>9/16/2020<br>2 - 4 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.35 U | **0.17 J** | **16** | < 0.35 U | **0.31 J** | **5** | < 0.35 U | **6.3** | **0.1 J** | < 0.35 U | < 0.34 U | **0.045 J** | < 0.34 U | < 0.35 U | **0.94 J** |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.35 U | **0.33 J** | **0.59 J** | < 0.35 U | **0.23 J** | **0.37 J** | < 0.35 U | **0.3 J** | **0.12 J** | < 0.35 U | < 0.34 U | **0.13 J** | < 0.34 U | < 0.35 U | **3.4** |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.35 U | **0.13 J** | **0.33 J** | < 0.35 U | **0.52** | **1.5** | < 0.35 U | **0.23 J** | **0.22 J** | < 0.35 U | < 0.34 U | **0.099 J** | < 0.34 U | < 0.35 U | **0.55 J** |
| Anthracene | 120-12-7 | 100 | 500 | < 0.35 U | **0.89** | **0.76 J** | < 0.35 U | **0.76** | **3.8 J** | < 0.35 U | **0.48 J** | **0.45** | < 0.35 U | < 0.34 U | **0.48** | < 0.34 U | < 0.35 U | **13** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.035 U | **2.4** | **1.4** | < 0.035 U | **2.2** | **6.1 J** | < 0.035 U | **0.42 J** | **0.88** | < 0.035 U | < 0.034 U | **1.5** | < 0.034 U | < 0.035 U | **21** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.035 U | **2.4** | **1.4** | < 0.035 U | **2.9** | **4.8 J** | < 0.035 U | **0.37 J** | **1** | < 0.035 U | < 0.034 U | **1.7** | < 0.034 U | < 0.035 U | **22 J+** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.035 U | **2.8** | **1.8** | < 0.035 U | **3.4** | **7.1 J** | < 0.035 U | **0.52 J** | **1.2** | < 0.035 U | < 0.034 U | **1.9** | < 0.034 U | < 0.035 U | **26** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.35 U | **1.1** | **0.51 J** | < 0.35 U | **1.5** | **1.9 J** | < 0.35 U | **0.16 J** | **0.59** | < 0.35 U | < 0.34 U | **0.86** | < 0.34 U | < 0.35 U | **6.8** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.035 U | **1.1** | **0.66** | < 0.035 U | **1.2** | **2.9 J** | < 0.035 U | **0.25 J** | **0.48** | < 0.035 U | < 0.034 U | **0.84** | < 0.034 U | < 0.035 U | **10** |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.35 U | **2.1** | **1.3 J** | < 0.35 U | **2.2** | **5.5 J** | < 0.35 U | **0.42 J** | **0.87** | < 0.35 U | < 0.34 U | **1.5** | < 0.34 U | < 0.35 U | **20** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.035 U | **0.36** | < 0.2 U | < 0.035 U | **0.46** | **0.27** | < 0.035 U | < 0.082 U | **0.2** | < 0.035 U | < 0.034 U | **0.24** | < 0.034 U | < 0.035 U | **2.4** |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.35 U | **4.9** | **3.4** | < 0.35 U | **4** | **16 J** | < 0.35 U | **1.4 J** | **1.8** | < 0.35 U | < 0.34 U | **3.9** | < 0.34 U | < 0.35 U | **42** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.35 U | **0.36 J** | **1.2 J** | < 0.35 U | **0.61** | **2.7** | < 0.35 U | **1.1** | **0.23 J** | < 0.35 U | < 0.34 U | **0.23 J** | < 0.34 U | < 0.35 U | **6.7** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.035 U | **1.4** | **0.52** | < 0.035 U | **1.8** | **2.3 J** | < 0.035 U | **0.18 J** | **0.73** | < 0.035 U | < 0.034 U | **1.1** | < 0.034 U | < 0.035 U | **8.8** |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.35 U | **0.89** | **48** | < 0.35 U | **0.52** | **12** | < 0.35 U | **14** | **0.22 J** | < 0.35 U | < 0.34 U | **0.063 J** | < 0.34 U | < 0.35 U | **1.6 J** |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.35 U | **3.1** | **3.1** | < 0.35 U | **3.6** | **17 J** | < 0.35 U | **2.4 J** | **2** | < 0.35 U | < 0.34 U | **3** | < 0.34 U | < 0.35 U | **44** |
| Pyrene | 129-00-0 | **100** | **500** | < 0.35 U | **4.2** | **3.1** | < 0.35 U | **3.9** | **11 J** | < 0.35 U | **1 J** | **1.7** | < 0.35 U | < 0.34 U | **2.9** | < 0.34 U | < 0.35 U | **30** |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.35 U | **29** | **84** | < 0.35 U | **30** | **100** | < 0.35 U | **30** | **13** | < 0.35 U | < 0.34 U | **20** | < 0.34 U | < 0.35 U | **260** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.15 U | < 0.82 U | < 0.14 U | < 0.15 U | < 0.34 U | < 0.14 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.79 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.15 U | < 0.82 U | < 0.14 U | < 0.15 U | < 0.34 U | < 0.14 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.79 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | **0.1 J** |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.28 U | < 0.3 U | < 1.6 U | < 0.28 U | < 0.29 U | < 0.69 U | < 0.28 U | < 0.66 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 U | < 0.28 U | < 1.6 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.071 U | < 0.076 U | < 0.41 U | < 0.071 U | < 0.074 U | < 0.17 U | < 0.071 U | < 0.17 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U | < 0.07 U | < 0.4 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.071 U | < 0.076 U | < 0.41 U | < 0.071 U | < 0.074 U | < 0.17 U | < 0.071 U | < 0.17 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U | < 0.07 U | < 0.4 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.15 U | < 0.82 U | < 0.14 U | < 0.15 U | < 0.34 U | < 0.14 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.79 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.28 U | < 0.3 U | < 1.6 U | < 0.28 U | < 0.29 U | < 0.69 U | < 0.28 U | < 0.66 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 U | < 0.28 U | < 1.6 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.71 U | < 0.76 U | < 4.1 U | < 0.71 U | < 0.74 U | < 1.7 U | < 0.71 U | < 1.7 U | < 0.78 U | < 0.71 U | < 0.7 U | < 0.74 U | < 0.7 U | < 0.7 U | < 4 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | **0.11 J** |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.15 U | < 0.82 U | < 0.14 U | < 0.15 U | < 0.34 U | < 0.14 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.79 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.35 UJ | < 0.37 UJ | < 2 UJ | < 0.35 UJ | < 0.37 UJ | < 0.85 UJ | < 0.35 UJ | < 0.82 UJ | < 0.38 UJ | < 0.35 UJ | < 0.34 UJ | < 0.36 UJ | < 0.34 UJ | < 0.35 UJ | **0.25 J** |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.035 U | < 0.037 U | < 0.2 U | < 0.035 U | < 0.037 U | < 0.085 U | < 0.035 U | < 0.082 U | < 0.038 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.035 U | < 0.2 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.35 U | < 0.37 U | **0.36 J** | < 0.35 U | **0.85** | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | **0.24 J** | < 0.34 U | < 0.35 U | **1.4 J** |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | **0.28 J** | < 0.85 U | < 0.35 U | < 0.82 U | **0.051 J** | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | **1 J** |
| Caprolactam | 105-60-2 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Carbazole | 86-74-8 | NL | NL | < 0.35 U | **0.15 J** | **0.37 J** | < 0.35 U | **0.24 J** | **0.99** | < 0.35 U | **0.39 J** | **0.15 J** | < 0.35 U | < 0.34 U | **0.31 J** | < 0.34 U | < 0.35 U | **6.6** |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.35 U | **0.41** | **0.52 J** | < 0.35 U | **0.29 J** | **1** | < 0.35 U | **0.53 J** | **0.19 J** | < 0.35 U | < 0.34 U | **0.18 J** | < 0.34 U | < 0.35 U | **3.1** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.35 U | **0.1 J** | **0.95 J** | < 0.35 U | **0.083 J** | **0.44 J** | < 0.35 U | **0.52 J** | **0.037 J** | < 0.35 U | < 0.34 U | **0.019 J** | < 0.34 U | < 0.35 U | **0.27 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.035 U | < 0.037 U | < 0.2 U | < 0.035 U | < 0.037 U | < 0.085 U | < 0.035 U | < 0.082 U | < 0.038 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.035 U | < 0.2 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.071 U | < 0.076 U | < 0.41 U | < 0.071 U | < 0.074 U | < 0.17 U | < 0.071 U | < 0.17 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U | < 0.07 U | < 0.4 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.035 U | < 0.037 U | < 0.2 U | < 0.035 U | < 0.037 U | < 0.085 U | < 0.035 U | < 0.082 U | < 0.038 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.035 U | < 0.2 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.15 U | < 0.82 U | < 0.14 U | < 0.15 U | < 0.34 U | < 0.14 U | < 0.33 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.79 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.035 U | < 0.037 U | < 0.2 U | < 0.035 U | < 0.037 U | < 0.085 U | < 0.035 U | < 0.082 U | < 0.038 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.035 U | < 0.2 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.035 U | < 0.037 U | < 0.2 U | < 0.035 U | < 0.037 U | < 0.085 U | < 0.035 U | < 0.082 U | < 0.038 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.035 U | < 0.2 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.28 U | < 0.3 U | < 1.6 U | < 0.28 U | < 0.29 U | < 0.69 U | < 0.28 U | < 0.66 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 U | < 0.28 U | < 1.6 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.35 U | < 0.37 U | < 2 U | < 0.35 U | < 0.37 U | < 0.85 U | < 0.35 U | < 0.82 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.35 U | < 2 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.71 U | **29** | **86** | < 0.71 U | **32** | **100** | < 0.71 U | **31** | **13** | < 0.71 U | < 0.7 U | **21** | < 0.7 U | < 0.7 U | **270** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-133<br>324 Winthrop<br>SB-133(5-7)<br>9/4/2020<br>5 - 7 ft | SB-133<br>324 Winthrop<br>SB-133(12-14)<br>9/4/2020<br>12 - 14 ft | SB-134<br>324 Winthrop<br>SB-134(5-7)<br>9/4/2020<br>5 - 7 ft | SB-134<br>324 Winthrop<br>SB-134(12-14)<br>9/4/2020<br>12 - 14 ft | SB-135<br>324 Winthrop<br>SB-135 (3-5)092120<br>9/21/2020<br>3 - 5 ft | SB-135<br>324 Winthrop<br>SB-135 (7-9)092220<br>9/22/2020<br>7 - 9 ft | SB-135<br>324 Winthrop<br>SB-135 (12-14)092220<br>9/22/2020<br>12 - 14 ft | SB-135<br>324 Winthrop<br>SB-135 (22.5-24.5)0922<br>9/22/2020<br>22.5 - 24.5 ft | SB-135<br>324 Winthrop<br>SB-135 (48-50)092220<br>9/22/2020<br>48 - 50 ft | SB-135<br>324 Winthrop<br>SB-135 (68-70)092320<br>9/23/2020<br>68 - 70 ft | SB-135<br>324 Winthrop<br>SB-135 (83-85)092320<br>9/23/2020<br>83 - 85 ft | SB-135 DUP<br>324 Winthrop<br>DUPE-10-092220<br>9/22/2020<br>7 - 9 ft | SB-135 DUP<br>324 Winthrop<br>DUPE-11-092320<br>9/23/2020<br>68 - 70 ft | SB-136<br>324 Winthrop<br>SB-136 (2-4)091620<br>9/16/2020<br>2 - 4 ft | SB-136<br>324 Winthrop<br>SB-136 (5-7)091720<br>9/17/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | **0.11 J** | < 0.35 U | **4.3** | < 0.34 U | **0.79** | **0.24 J** | **0.045 J** | **35** | < 0.41 U | < 0.42 U | < 0.42 U | **2.4 J** | < 0.41 U | **0.12 J** | **1.5** |
| Acenaphthene | 83-32-9 | 100 | 500 | **0.25 J** | < 0.35 U | **0.17 J** | < 0.34 U | **0.38** | **0.17 J** | < 0.4 U | **10** | < 0.41 U | < 0.42 U | < 0.42 U | **0.26 J** | < 0.41 U | **0.075 J** | **0.14 J** |
| Acenaphthylene | 208-96-8 | 100 | 500 | **0.1 J** | < 0.35 U | **0.13 J** | < 0.34 U | **0.35 J** | **0.062 J** | **0.016 J** | **32** | < 0.41 U | < 0.42 U | < 0.42 U | **0.052 J** | < 0.41 U | **0.083 J** | **0.17 J** |
| Anthracene | 120-12-7 | 100 | 500 | **0.73** | < 0.35 U | **0.11 J** | < 0.34 U | **0.85** | **0.5** | **0.054 J** | **65** | < 0.41 U | < 0.42 U | < 0.42 U | **0.34 J** | < 0.41 U | **0.24 J** | **0.31 J** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **1.8** | **0.015 J** | **0.25** | < 0.034 U | **1.7** | **1.1 J** | **0.13** | **62** | < 0.041 U | < 0.042 U | < 0.042 U | **0.55 J** | **0.023 J** | **0.84** | **0.85** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **1.9** | **0.012 J** | **0.3** | < 0.034 U | **2.1** | **1.2 J** | **0.21** | **55** | < 0.041 U | < 0.042 U | < 0.042 U | **0.53 J** | **0.016 J** | **1.1 J+** | **0.93** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **2.4** | **0.013 J** | **0.51** | < 0.034 U | **2.5** | **1.3 J** | **0.21** | **61** | < 0.041 U | < 0.042 U | < 0.042 U | **0.58 J** | **0.011 J** | **1.3** | **1.2** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **1.1** | < 0.35 U | **0.16 J** | < 0.34 U | **0.88** | **0.7** | **0.19 J** | **20** | < 0.41 U | < 0.42 U | < 0.42 U | **0.31 J** | < 0.41 U | **0.4** | **0.49** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.88** | < 0.035 U | **0.16 J** | < 0.034 U | **0.8** | **0.48 J** | **0.08** | **26** | < 0.041 U | < 0.042 U | < 0.042 U | **0.25 J** | < 0.041 U | **0.48** | **0.48** |
| Chrysene | 218-01-9 | **3.9** | **56** | **1.7** | **0.01 J** | **0.31 J** | < 0.34 U | **1.9** | **1.1** | **0.16 J** | **41** | < 0.41 U | < 0.42 U | < 0.42 U | **0.59 J** | **0.014 J** | **0.88** | **0.86** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | **0.34** | < 0.035 U | < 0.19 U | < 0.034 U | **0.26** | **0.17** | **0.047** | **8.5** | < 0.041 U | < 0.042 U | < 0.042 U | **0.084** | < 0.041 U | **0.12** | **0.12** |
| Fluoranthene | 206-44-0 | **100** | **500** | **3.6** | **0.02 J** | **0.55 J** | < 0.34 U | **3.6** | **2.3** | **0.22 J** | **130** | < 0.41 U | < 0.42 U | < 0.42 U | **1.2** | **0.029 J** | **1.5** | **2.1** |
| Fluorene | 86-73-7 | 100 | 500 | **0.37 J** | < 0.35 U | **0.39 J** | < 0.34 U | **0.62** | **0.28 J** | < 0.4 U | **55** | < 0.41 U | < 0.42 U | < 0.42 U | **0.29 J** | < 0.41 U | **0.14 J** | **0.37 J** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **1.1** | < 0.035 U | **0.23** | < 0.034 U | **1.1** | **0.68 J** | **0.16** | **26** | < 0.041 U | < 0.042 U | < 0.042 U | **0.3 J** | < 0.041 U | **0.51** | **0.59** |
| Naphthalene | 91-20-3 | **100** | **500** | **0.29 J** | < 0.35 U | **14** | < 0.34 U | **1.9** | **0.8 J** | **0.16 J** | **170** | < 0.41 U | < 0.42 U | < 0.42 U | **13 J** | < 0.41 U | **0.36 J** | **2.8** |
| Phenanthrene | 85-01-8 | **100** | **500** | **2.6** | **0.019 J** | **0.46 J** | < 0.34 U | **3.3** | **2** | **0.21 J** | **190** | < 0.41 U | < 0.42 U | < 0.42 U | **1.4** | < 0.41 U | **0.98** | **1.6** |
| Pyrene | 129-00-0 | **100** | **500** | **3.3** | **0.017 J** | **0.43 J** | < 0.34 U | **3.2** | **2.4** | **0.26 J** | **110** | < 0.41 U | < 0.42 U | < 0.42 U | **1.5** | **0.056 J** | **1.4** | **1.7** |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **23** | **0.11** | **22** | < 0.34 U | **26** | **15** | **2.2** | **1100** | < 0.41 U | < 0.42 U | < 0.42 U | **24** | **0.15** | **11** | **16** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.17 U | < 0.14 U | < 0.79 U | < 0.14 U | < 0.15 U | < 0.18 U | < 0.16 U | < 3.9 U | < 0.17 U | < 0.17 U | < 0.17 U | < 0.32 U | < 0.16 U | < 0.15 U | < 0.17 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.17 U | < 0.14 U | < 0.79 U | < 0.14 U | < 0.15 U | < 0.18 U | < 0.16 U | < 3.9 U | < 0.17 U | < 0.17 U | < 0.17 U | < 0.32 U | < 0.16 U | < 0.15 U | < 0.17 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | **1.3** | < 0.44 U | < 0.4 U | **0.93 J** | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.34 U | < 0.28 U | < 1.6 U | < 0.28 U | < 0.3 U | < 0.36 U | < 0.32 U | < 7.8 U | < 0.33 U | < 0.33 U | < 0.34 U | < 0.65 U | < 0.33 U | < 0.3 U | < 0.34 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.085 U | < 0.071 U | < 0.4 U | < 0.069 U | < 0.075 U | < 0.09 U | < 0.081 U | < 2 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.16 U | < 0.083 U | < 0.076 U | < 0.085 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.085 U | < 0.071 U | < 0.4 U | < 0.069 U | < 0.075 U | < 0.09 U | < 0.081 U | < 2 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.16 U | < 0.083 U | < 0.076 U | < 0.085 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | **0.37** | < 0.44 U | < 0.4 U | **2 J** | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.42 UJ | < 0.35 UJ | < 1.9 U | < 0.34 UJ | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.17 U | < 0.14 U | < 0.79 U | < 0.14 U | < 0.15 U | < 0.18 U | < 0.16 U | < 3.9 U | < 0.17 U | < 0.17 U | < 0.17 U | < 0.32 U | < 0.16 U | < 0.15 U | < 0.17 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.34 U | < 0.28 U | < 1.6 U | < 0.28 U | < 0.3 U | < 0.36 U | < 0.32 U | < 7.8 U | < 0.33 U | < 0.33 U | < 0.34 U | < 0.65 U | < 0.33 U | < 0.3 U | < 0.34 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | **1.1** | < 0.44 U | < 0.4 U | **4.8 J** | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.85 U | < 0.71 U | < 4 U | < 0.69 U | < 0.75 U | < 0.9 U | < 0.81 U | < 20 U | < 0.84 U | < 0.84 U | < 0.84 U | < 1.6 U | < 0.83 U | < 0.76 U | < 0.85 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | **0.53** | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | **0.076 J** | **0.12 J** |
| Atrazine | 1912-24-9 | NL | NL | < 0.17 U | < 0.14 U | < 0.79 U | < 0.14 U | < 0.15 U | < 0.18 U | < 0.16 U | < 3.9 U | < 0.17 U | < 0.17 U | < 0.17 U | < 0.32 U | < 0.16 U | < 0.15 U | < 0.17 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.42 UJ | < 0.35 UJ | < 1.9 UJ | < 0.34 UJ | **0.49 J** | < 0.44 UJ | < 0.4 UJ | < 9.7 UJ | < 0.41 UJ | < 0.42 UJ | < 0.42 UJ | < 0.8 UJ | < 0.41 UJ | **0.15 J** | < 0.42 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.042 U | < 0.035 U | < 0.19 U | < 0.034 U | < 0.037 U | < 0.044 U | < 0.04 U | < 0.97 U | < 0.041 U | < 0.042 U | < 0.042 U | < 0.08 U | < 0.041 U | < 0.037 U | < 0.042 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | **0.056 J** | < 0.35 U | < 1.9 U | < 0.34 U | **0.44** | **0.49** | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | **1.2** | < 0.41 U | **0.3 J** | **0.23 J** |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | **0.044 J** | < 0.35 U | < 1.9 U | < 0.34 U | **0.4** | **0.083 J** | **0.019 J** | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | **0.13 J** | < 0.41 U | < 0.37 U | **0.2 J** |
| Caprolactam | 105-60-2 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| Carbazole | 86-74-8 | NL | NL | **0.22 J** | < 0.35 U | < 1.9 U | < 0.34 U | **0.36 J** | **0.16 J** | **0.02 J** | **17** | < 0.41 U | < 0.42 U | < 0.42 U | **0.12 J** | < 0.41 U | **0.071 J** | **0.17 J** |
| Dibenzofuran | 132-64-9 | 59 | 350 | **0.23 J** | < 0.35 U | **0.17 J** | < 0.34 U | **0.28 J** | **0.17 J** | **0.015 J** | **43** | < 0.41 U | < 0.42 U | < 0.42 U | **0.21 J** | < 0.41 U | **0.086 J** | **0.21 J** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | < 0.37 U | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| Diphenyl | 92-52-4 | NL | NL | **0.046 J** | < 0.35 U | **0.36 J** | < 0.34 U | **0.17 J** | **0.041 J** | < 0.4 U | **11** | < 0.41 U | < 0.42 U | < 0.42 U | **0.17 J** | < 0.41 U | **0.037 J** | **0.18 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.042 U | < 0.035 U | < 0.19 U | < 0.034 U | < 0.037 U | < 0.044 U | < 0.04 U | < 0.97 U | < 0.041 U | < 0.042 U | < 0.042 U | < 0.08 U | < 0.041 U | < 0.037 U | < 0.042 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.085 U | < 0.071 U | < 0.4 U | < 0.069 U | < 0.075 U | < 0.09 U | < 0.081 U | < 2 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.16 U | < 0.083 U | < 0.076 U | < 0.085 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 UJ | < 0.34 U | < 0.37 U | < 0.44 UJ | < 0.4 UJ | < 9.7 U | < 0.41 UJ | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.042 U | < 0.035 U | < 0.19 U | < 0.034 U | < 0.037 U | < 0.044 U | < 0.04 U | < 0.97 U | < 0.041 U | < 0.042 U | < 0.042 U | < 0.08 U | < 0.041 U | < 0.037 U | < 0.042 U |
| Isophorone | 78-59-1 | NL | NL | < 0.17 U | < 0.14 U | < 0.79 U | < 0.14 U | < 0.15 U | < 0.18 U | < 0.16 U | < 3.9 U | < 0.17 U | < 0.17 U | < 0.17 U | < 0.32 U | < 0.16 U | < 0.15 U | < 0.17 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.042 U | < 0.035 U | < 0.19 U | < 0.034 U | < 0.037 U | < 0.044 U | < 0.04 U | < 0.97 U | < 0.041 U | < 0.042 U | < 0.042 U | < 0.08 U | < 0.041 U | < 0.037 U | < 0.042 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.042 U | < 0.035 U | < 0.19 U | < 0.034 U | < 0.037 U | < 0.044 U | < 0.04 U | < 0.97 U | < 0.041 U | < 0.042 U | < 0.042 U | < 0.08 U | < 0.041 U | < 0.037 U | < 0.042 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | **0.082 J** | < 0.44 U | < 0.4 U | < 9.7 U | < 0.41 U | < 0.42 U | < 0.42 U | **0.26 J** | < 0.41 U | < 0.37 U | < 0.42 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.34 U | < 0.28 U | < 1.6 UJ | < 0.28 U | < 0.3 U | < 0.36 U | < 0.32 U | < 7.8 U | < 0.33 U | < 0.33 U | < 0.34 U | < 0.65 U | < 0.33 U | < 0.3 U | < 0.34 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.42 U | < 0.35 U | < 1.9 U | < 0.34 U | **0.74** | < 0.44 U | < 0.4 U | **6.7 J** | < 0.41 U | < 0.42 U | < 0.42 U | < 0.8 U | < 0.41 U | < 0.37 U | < 0.42 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **23** | **0.11** | **23** | < 0.69 U | **32** | **16** | **2.2** | **1200** | < 0.84 U | < 0.84 U | < 0.84 U | **26** | **0.15** | **11** | **17** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-136<br>324 Winthrop<br>SB-136 (13-15)091720<br>9/17/2020<br>13 - 15 ft | SB-136<br>324 Winthrop<br>SB-136 (33-35)091720<br>9/17/2020<br>33 - 35 ft | SB-136<br>324 Winthrop<br>SB-136 (47.5-49.5)0917<br>9/17/2020<br>47.5 - 49.5 ft | SB-136<br>324 Winthrop<br>SB-136 (63-65)092120<br>9/21/2020<br>63 - 65 ft | SB-136<br>324 Winthrop<br>SB-136 (83-85)092120<br>9/21/2020<br>83 - 85 ft | SB-136 DUP<br>324 Winthrop<br>DUPE-7-091720<br>9/17/2020<br>33 - 35 ft | SB-136 DUP<br>324 Winthrop<br>DUPE-9-092120<br>9/21/2020<br>63 - 65 ft | SB-137<br>324 Winthrop<br>SB-137 (5-7)092420<br>9/24/2020<br>5 - 7 ft | SB-137<br>324 Winthrop<br>SB-137 (10-12)092420<br>9/24/2020<br>10 - 12 ft | SB-137<br>324 Winthrop<br>SB-137 (18-20)092420<br>9/24/2020<br>18 - 20 ft | SB-137 DUP<br>324 Winthrop<br>DUPE-12-092420<br>9/24/2020<br>5 - 7 ft | SB-138<br>324 Winthrop<br>SB-138 (1-3)091720<br>9/17/2020<br>1 - 3 ft | SB-138<br>324 Winthrop<br>SB-138(5-7)092620<br>9/26/2020<br>5 - 7 ft | SB-138<br>324 Winthrop<br>SB-138(13-15)092620<br>9/26/2020<br>13 - 15 ft | SB-138<br>324 Winthrop<br>SB-138(33-35)092620<br>9/26/2020<br>33 - 35 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.15 J** | **0.18 J-** | < 0.34 U | **0.041 J** | **0.56** | **0.79** | < 0.35 U | < 0.35 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.32 J** | < 0.35 UJ | < 0.34 U | **0.095 J** | **0.56** | **0.57** | < 0.35 U | < 0.35 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.1 J** | < 0.35 UJ | < 0.34 U | **0.059 J** | **0.32 J** | **0.48** | < 0.35 U | < 0.35 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.75** | **0.03 J-** | < 0.34 U | **0.3 J** | **0.94** | **1.3** | < 0.35 U | < 0.35 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | **2.4 J** | **0.13 J-** | < 0.034 U | **1.2 J** | **3.3** | **3.4** | < 0.035 U | < 0.035 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | **2.5 J** | **0.15 J** | < 0.034 U | **1.4 J** | **4.6** | **4.6 J+** | **0.018 J+** | < 0.035 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | **2.8 J** | **0.18 J-** | < 0.034 U | **1.6 J** | **6.2** | **5.7** | **0.024 J** | < 0.035 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 U | < 0.37 U | < 0.39 U | < 0.38 U | **1.4** | **0.1 J-** | < 0.34 U | **0.9** | **1.8** | **2.7** | **0.01 J** | < 0.35 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | **1.3 J** | **0.06 J-** | < 0.034 U | **0.71 J** | **2** | **2.4** | **0.0094 J** | < 0.035 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **2.2 J** | **0.11 J-** | < 0.34 U | **1.2 J** | **3.4** | **3.6** | **0.023 J** | < 0.35 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 U | < 0.037 U | < 0.039 U | < 0.038 U | **0.45** | **0.025 J-** | < 0.034 U | **0.28** | **0.55** | **0.83** | < 0.035 U | < 0.035 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **3.9 J** | **0.23 J-** | < 0.34 U | **1.9 J** | **6.2** | **6.8** | **0.028 J** | < 0.35 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.34 J** | **0.022 J-** | < 0.34 U | **0.11 J** | **0.81** | **0.9** | < 0.35 U | < 0.35 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 U | < 0.037 U | < 0.039 U | < 0.038 U | **1.5** | **0.11 J-** | < 0.034 U | **0.93** | **2.3** | **3** | < 0.035 U | < 0.035 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | **0.012 J** | **0.51** | **0.68 J-** | < 0.34 U | **0.1 J** | **0.72** | **1.1** | < 0.35 U | < 0.35 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **2.7 J** | **0.14 J-** | < 0.34 U | **1.1 J** | **4.1** | **5.2** | **0.017 J** | < 0.35 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **4.8 J** | **0.24 J-** | < 0.34 U | **2.2 J** | **6.2** | **7.1** | **0.032 J** | < 0.35 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 U | < 0.37 U | < 0.39 U | **0.012** | **28** | **2.4** | < 0.34 U | **14** | **45** | **50** | **0.16** | < 0.35 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 UJ | < 0.15 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.14 UJ | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 UJ | < 0.15 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.14 UJ | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.28 U | < 0.27 U | < 0.29 U | < 0.31 UJ | < 0.3 U | < 0.31 U | < 0.31 U | < 0.3 U | < 0.28 UJ | < 0.27 UJ | < 0.3 U | < 0.3 U | < 0.3 UJ | < 0.29 UJ | < 0.28 UJ |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 UJ | < 0.075 U | < 0.079 U | < 0.077 U | < 0.076 U | < 0.071 UJ | < 0.069 U | < 0.075 U | < 0.076 U | < 0.076 U | < 0.072 U | < 0.07 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 UJ | < 0.075 U | < 0.079 U | < 0.077 U | < 0.076 U | < 0.071 UJ | < 0.069 U | < 0.075 U | < 0.076 U | < 0.076 U | < 0.072 U | < 0.07 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.38 U | **0.02 J** | < 0.35 U | < 0.35 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 U | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.28 U | < 0.27 U | < 0.29 U | < 0.31 UJ | < 0.3 U | < 0.31 U | < 0.31 U | < 0.3 U | < 0.28 UJ | < 0.27 U | < 0.3 U | < 0.3 U | < 0.3 U | < 0.29 U | < 0.28 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 U | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | **0.032 J** | **0.066 J** | < 0.35 U | < 0.35 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 U | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.7 U | < 0.69 U | < 0.73 U | < 0.78 U | < 0.75 U | < 0.79 U | < 0.77 U | < 0.76 U | < 0.71 U | < 0.69 U | < 0.75 U | < 0.76 U | < 0.76 U | < 0.72 U | < 0.7 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.025 J** | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | **0.15 J** | < 0.35 U | < 0.35 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.34 UJ | < 0.34 UJ | < 0.36 UJ | < 0.39 UJ | < 0.37 UJ | < 0.39 UJ | < 0.38 UJ | **0.048 J** | < 0.35 UJ | < 0.34 UJ | **0.027 J** | < 0.38 UJ | < 0.38 UJ | < 0.35 UJ | < 0.35 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | < 0.038 U | < 0.035 UJ | < 0.034 U | < 0.037 U | < 0.038 U | < 0.038 U | < 0.035 U | < 0.035 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.73** | < 0.35 UJ | < 0.34 U | **0.45** | **0.68** | **0.44** | < 0.35 U | < 0.35 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.73** | **0.049 J-** | < 0.34 U | **0.72** | < 0.38 U | **0.23 J** | < 0.35 U | < 0.35 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 U | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| Carbazole | 86-74-8 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.25 J** | **0.013 J-** | < 0.34 U | **0.097 J** | **0.44** | **0.56** | < 0.35 U | < 0.35 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | **0.16 J** | < 0.35 UJ | < 0.34 U | **0.059 J** | **0.42** | **0.58** | < 0.35 U | < 0.35 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | **0.38** | < 0.35 U | < 0.35 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | **0.022 J-** | < 0.37 U | < 0.39 U | **0.034 J** | **0.043 J** | < 0.35 UJ | < 0.34 U | < 0.37 U | **0.15 J** | **0.17 J** | < 0.35 U | < 0.35 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | < 0.038 U | < 0.035 UJ | < 0.034 U | < 0.037 U | < 0.038 U | < 0.038 U | < 0.035 U | < 0.035 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 UJ | < 0.075 U | < 0.079 U | < 0.077 U | < 0.076 U | < 0.071 UJ | < 0.069 U | < 0.075 U | < 0.076 U | < 0.076 U | < 0.072 U | < 0.07 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 U | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | < 0.038 U | < 0.035 UJ | < 0.034 U | < 0.037 U | < 0.038 U | < 0.038 U | < 0.035 U | < 0.035 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 UJ | < 0.15 U | < 0.16 U | < 0.15 U | < 0.15 U | < 0.14 UJ | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.14 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | < 0.038 U | < 0.035 UJ | < 0.034 U | < 0.037 U | < 0.038 U | < 0.038 U | < 0.035 U | < 0.035 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.034 U | < 0.034 U | < 0.036 U | < 0.039 UJ | < 0.037 U | < 0.039 U | < 0.038 U | < 0.038 U | < 0.035 U | < 0.034 U | < 0.037 U | < 0.038 U | < 0.038 U | < 0.035 U | < 0.035 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 UJ | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.28 U | < 0.27 U | < 0.29 U | < 0.31 U | < 0.3 U | < 0.31 U | < 0.31 U | < 0.3 U | < 0.28 UJ | < 0.27 U | < 0.3 U | < 0.3 U | < 0.3 U | < 0.29 U | < 0.28 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.34 U | < 0.34 U | < 0.36 U | < 0.39 UJ | < 0.37 U | < 0.39 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.38 U | < 0.38 U | < 0.35 U | < 0.35 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.7 U | < 0.69 U | < 0.73 U | **0.022** | < 0.75 U | < 0.79 U | **0.046** | **30** | **2.4** | < 0.69 U | **15** | **46** | **53** | **0.16** | < 0.7 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-138<br>324 Winthrop<br>SB-138(48-50)092620<br>9/26/2020<br>48 - 50 ft | SB-138<br>324 Winthrop<br>SB-138 (68-70)092720<br>9/27/2020<br>68 - 70 ft | SB-138<br>324 Winthrop<br>SB-138 (83-85)092720<br>9/27/2020<br>83 - 85 ft | SB-138 DUP<br>324 Winthrop<br>DUPE-13-092620<br>9/26/2020<br>13 - 15 ft | SB-139<br>324 Winthrop<br>SB-139(2-4)<br>10/18/2020<br>2 - 4 ft | SB-139<br>324 Winthrop<br>SB-139(5-6.5)<br>10/18/2020<br>5 - 6.5 ft | SB-139<br>324 Winthrop<br>SB-139(12-14)<br>10/18/2020<br>12 - 14 ft | SB-139<br>324 Winthrop<br>SB-139(23-25)<br>10/18/2020<br>23 - 25 ft | SB-139<br>324 Winthrop<br>SB-139(33-35)<br>10/18/2020<br>33 - 35 ft | SB-139 DUP<br>324 Winthrop<br>DUPE-23-101820<br>10/18/2020<br>23 - 25 ft | SB-201<br>329 Clarkson<br>SB-201(02-04)<br>8/21/2021<br>2-4 ft | SB-201<br>329 Clarkson<br>SB-201(08-10)<br>8/29/2021<br>8-10 ft | SB-201<br>329 Clarkson<br>DUPE-04-082921<br>8/29/2021<br>8-10 ft | SB-201<br>329 Clarkson<br>SB-201(23-25)<br>8/30/2021<br>23-25 ft | SB-201<br>329 Clarkson<br>SB-201(48-50)<br>8/30/2021<br>48-50 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.16 J** | **0.19 J** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.048 J** | **0.58** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.048 J** | **0.13 J** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.11 J** | **1.2** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | **0.32** | **2.5** | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | **0.028 J** | < 0.035 U | **0.014 J** | < 0.036 U | < 0.035 UJ |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | **0.39** | **2.4** | < 0.036 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.031 J** | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 UJ |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | **0.49** | **3.1** | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | **0.041** | < 0.035 U | **0.012 J** | < 0.036 U | < 0.035 UJ |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.24 J** | **1.2** | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.017 J** | **0.010 J** | **0.017 J** | < 0.36 U | < 0.35 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | **0.17** | **1** | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | **0.017 J** | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 UJ |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.33 J** | **2.4** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | **0.024 J** | < 0.35 U | **0.014 J** | < 0.36 U | < 0.35 UJ |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | **0.069** | **0.32** | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.62** | **5.6** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | **0.030 J** | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Fluorene | 86-73-7 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.081 J** | **0.52** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | **0.24** | **1.3** | < 0.036 U | < 0.034 U | < 0.034 U | < 0.034 U | **0.023 J** | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.61** | **0.57** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | **0.0088 J** | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.41** | **3.6** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | **0.0069 J** | **0.013 J** | < 0.36 U | < 0.35 UJ |
| Pyrene | 129-00-0 | **100** | **500** | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.6** | **5.6** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | **0.030 J** | **0.012 J** | **0.015 J** | < 0.36 U | < 0.35 UJ |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **4.9** | **32** | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | **0.2498 J** | **0.0289 J** | **0.085 J** | < 0.36 U | < 0.35 UJ |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.14 UJ | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 UJ |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.14 UJ | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 UJ |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.29 UJ | < 0.33 U | < 0.33 U | < 0.29 UJ | < 0.31 U | < 0.32 U | < 0.29 UJ | < 0.27 U | < 0.27 U | < 0.27 U | < 0.32 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 UJ |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 0.081 U | < 0.073 UJ | < 0.069 U | < 0.068 U | < 0.069 U | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 UJ |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 0.081 U | < 0.073 UJ | < 0.069 U | < 0.068 U | < 0.069 U | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 UJ |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.29 U | < 0.33 U | < 0.33 U | < 0.29 U | < 0.31 U | < 0.32 U | < 0.29 UJ | < 0.27 U | < 0.27 U | < 0.27 U | < 0.32 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 UJ |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.72 U | < 0.84 U | < 0.83 U | < 0.73 U | < 0.77 U | < 0.81 U | < 0.73 U | < 0.69 U | < 0.68 U | < 0.69 U | < 0.81 U | < 0.70 U | < 0.70 U | < 0.73 U | < 0.71 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.067 J** | **0.044 J** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.36 UJ | < 0.41 UJ | < 0.41 UJ | < 0.36 UJ | < 0.38 UJ | **0.057 J** | < 0.36 UJ | < 0.34 UJ | < 0.34 UJ | < 0.34 UJ | < 0.40 UJ | < 0.35 UJ | < 0.35 UJ | < 0.36 UJ | < 0.35 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.038 U | < 0.04 U | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 UJ |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.058 J** | **1.3** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | **0.070 J** | **0.065 J** | < 0.36 U | < 0.35 UJ |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | **0.59** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Caprolactam | 105-60-2 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| Carbazole | 86-74-8 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.028 J** | **0.33 J** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.037 J** | **0.26 J** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | **0.30 J** | **0.31 J** | **0.6** | **0.48** |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Diphenyl | 92-52-4 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | **0.035 J** | **0.048 J** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.038 U | < 0.04 U | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 0.081 U | < 0.073 UJ | < 0.069 U | < 0.068 U | < 0.069 U | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 UJ |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.36 U | < 0.41 UJ | < 0.41 UJ | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 U | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.038 U | < 0.04 U | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 UJ |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.17 U | < 0.16 U | < 0.14 U | < 0.15 U | < 0.16 U | < 0.14 UJ | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.14 UJ |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.038 U | < 0.04 U | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.036 U | < 0.041 U | < 0.041 U | < 0.036 U | < 0.038 U | < 0.04 U | < 0.036 UJ | < 0.034 U | < 0.034 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.036 U | < 0.035 UJ |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | < 0.4 U | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.29 U | < 0.33 UJ | < 0.33 UJ | < 0.29 U | < 0.31 U | < 0.32 U | < 0.29 U | < 0.27 U | < 0.27 U | < 0.27 U | < 0.32 UJ | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.36 U | < 0.41 U | < 0.41 U | < 0.36 U | < 0.38 U | **0.036 J** | < 0.36 UJ | < 0.34 U | < 0.34 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.36 U | < 0.35 UJ |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.72 U | < 0.84 U | < 0.83 U | < 0.73 U | **5.2** | **35** | < 0.73 U | < 0.69 U | < 0.68 U | < 0.69 U | < 0.40 U | **0.37 J** | **0.375 J** | **0.6** | **0.48** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-202<br>329 Clarkson<br>SB-202(03-05)<br>8/21/2021<br>3-5 ft | SB-202<br>329 Clarkson<br>SB-202(13-15)<br>8/31/2021<br>13-15 ft | SB-202<br>329 Clarkson<br>SB-202(17-19)<br>8/31/2021<br>17-19 ft | SB-202<br>329 Clarkson<br>SB-202(47.5-49.5)<br>8/31/2021<br>47.5-49.5 ft | SB-203<br>329 Clarkson<br>SB-203(03-05)<br>8/21/2021<br>3-5 ft | SB-203<br>329 Clarkson<br>SB-203(08-10)<br>8/28/2021<br>8-10 ft | SB-203<br>329 Clarkson<br>SB-203(18-24)<br>8/28/2021<br>18-24 ft | SB-203<br>329 Clarkson<br>DUPE-02-082821<br>8/28/2021<br>18-24 ft | SB-204<br>329 Clarkson<br>SB-204(03-05)<br>8/23/2021<br>3-5 ft | SB-204<br>329 Clarkson<br>SB-204(08-10)<br>9/8/2021<br>8-10 ft | SB-204<br>329 Clarkson<br>DUPE-07-090821<br>9/8/2021<br>8-10 ft | SB-204<br>329 Clarkson<br>SB-204(23-25)<br>9/8/2021<br>23-25 ft | SB-204<br>329 Clarkson<br>SB-204(33-35)<br>9/8/2021<br>33-35 ft | SB-204<br>329 Clarkson<br>SB-204(78-80)<br>9/9/2021<br>78-80 ft | SB-205<br>329 Clarkson<br>SB-205(03-05)<br>8/23/2021<br>3-5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.013 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.14 J** |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.053 J** |
| Acenaphthylene | 208-96-8 | 100 | 500 | **0.023 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.14 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **1.2** |
| Anthracene | 120-12-7 | 100 | 500 | **0.021 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.11 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **1.3** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.15** | < 0.035 U | < 0.035 U | < 0.034 U | **0.017 J** | < 0.035 U | < 0.035 U | < 0.035 U | **0.77** | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | **10** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.19** | < 0.035 U | < 0.035 U | < 0.034 U | **0.011 J** | < 0.035 U | < 0.035 U | < 0.035 U | **0.88** | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | **12** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **0.25** | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | **1.2** | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | **15** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.12 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.42** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **5.1** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.092** | < 0.035 U | < 0.035 U | < 0.034 U | **0.011 J** | < 0.035 U | < 0.035 U | < 0.035 U | **0.46** | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | **6** |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.16 J** | < 0.35 U | < 0.35 U | < 0.34 U | **0.0090 J** | < 0.35 U | < 0.35 U | < 0.35 U | **0.67** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **8.4** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | **0.029 J** | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | **0.13** | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | **1.8** |
| Fluoranthene | 206-44-0 | **100** | **500** | **0.25 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.97** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **11** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.014 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.16 J** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.14** | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | **0.52** | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | **6.7** |
| Naphthalene | 91-20-3 | **100** | **500** | **0.025 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.041 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.61** |
| Phenanthrene | 85-01-8 | **100** | **500** | **0.15 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.22 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **2.8** |
| Pyrene | 129-00-0 | **100** | **500** | **0.24 J** | < 0.35 U | < 0.35 U | < 0.34 U | **0.011 J** | < 0.35 U | < 0.35 U | < 0.35 U | **0.95** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **12** |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **1.84 J** | < 0.35 U | < 0.35 U | < 0.34 U | **0.059 J** | < 0.35 U | < 0.35 U | < 0.35 U | **7.508 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **94.263 J** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.032 J** |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.32 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.32 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.29 U | < 0.30 U | < 0.31 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.038 J** |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 UJ | < 0.36 UJ | < 0.34 UJ | < 0.36 UJ | < 0.38 U | < 0.38 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.32 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.32 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.29 U | < 0.28 U | < 0.29 U | < 0.30 U | < 0.31 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.12 J** |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.80 U | < 0.71 U | < 0.70 U | < 0.70 U | < 0.81 U | < 0.70 U | < 0.71 U | < 0.71 U | < 0.78 U | < 0.74 UJ | < 0.73 UJ | < 0.70 UJ | < 0.74 UJ | < 0.77 U | < 0.78 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.39 UJ | < 0.35 UJ | < 0.35 UJ | < 0.34 UJ | < 0.40 UJ | < 0.35 UJ | < 0.35 UJ | < 0.35 UJ | < 0.38 UJ | < 0.37 UJ | < 0.36 UJ | < 0.34 UJ | < 0.36 UJ | < 0.38 UJ | < 0.38 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.039 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.038 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.39 U | **0.049 J** | **0.37** | < 0.34 U | < 0.40 U | < 0.35 U | **0.21 J** | **0.23 J** | < 0.38 U | **0.030 J** | **0.060 J** | < 0.34 U | **0.088 J** | < 0.38 U | < 0.38 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Carbazole | 86-74-8 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.030 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.27 J** |
| Dibenzofuran | 132-64-9 | 59 | 350 | **0.0064 J** | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.011 J** | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.18 J** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.39 U | **0.36** | **0.44** | **0.69** | < 0.40 U | **0.14 J** | **0.46** | **0.060 J** | < 0.38 U | **0.35 J** | **0.34 J** | **0.31 J** | **0.30 J** | < 0.38 U | < 0.38 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.031 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.039 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.038 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.039 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.038 U |
| Isophorone | 78-59-1 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.039 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.038 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.039 U | < 0.035 U | < 0.035 U | < 0.034 U | < 0.040 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.036 U | < 0.034 U | < 0.036 U | < 0.038 U | < 0.038 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | < 0.38 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.32 UJ | < 0.28 U | < 0.28 U | < 0.28 U | < 0.32 UJ | < 0.28 U | < 0.28 U | < 0.28 U | < 0.31 UJ | < 0.29 U | < 0.29 U | < 0.28 U | < 0.29 U | < 0.30 U | < 0.31 UJ |
| Phenol | 108-95-2 | 100 | 500 | < 0.39 U | < 0.35 U | < 0.35 U | < 0.34 U | < 0.40 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.36 U | < 0.34 U | < 0.36 U | < 0.38 U | **0.14 J** |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **0.0064 J** | **0.409 J** | **0.81** | **0.69** | < 0.40 U | **0.14 J** | **0.67 J** | **0.29 J** | **0.041 J** | **0.38 J** | **0.40 J** | **0.31 J** | **0.388 J** | < 0.38 U | **0.811 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-205<br>329 Clarkson<br>SB-205(13-15)<br>8/24/2021<br>13-15 ft | SB-205<br>329 Clarkson<br>SB-205(18-20)<br>8/24/2021<br>18-20 ft | SB-206<br>329 Clarkson<br>SB-206(01-03)<br>8/23/2021<br>1-3 ft | SB-206<br>329 Clarkson<br>DUPE-01-082321<br>8/23/2021<br>1-3 ft | SB-206<br>329 Clarkson<br>SB-206(13-15)<br>8/24/2021<br>13-15 ft | SB-206<br>329 Clarkson<br>SB-206(18-20)<br>8/24/2021<br>18-20 ft | SB-207<br>329 Clarkson<br>SB-207(02-04)<br>9/1/2021<br>2-4 ft | SB-207<br>329 Clarkson<br>DUPE-05-090121<br>9/1/2021<br>2-4 ft | SB-207<br>329 Clarkson<br>DUPE-06-090721<br>9/7/2021<br>7-9 ft | SB-207<br>329 Clarkson<br>SB-207(07-09)<br>9/7/2021<br>7-9 ft | SB-207<br>329 Clarkson<br>SB-207(18-20)<br>9/7/2021<br>18-20 ft | SB-208<br>329 Clarkson<br>SB-208(01-03)<br>9/1/2021<br>1-3 ft | SB-208<br>329 Clarkson<br>SB-208(08-10)<br>9/2/2021<br>8-10 ft | SB-208<br>329 Clarkson<br>SB-208(18-20)<br>9/2/2021<br>18-20 ft | SB-209<br>329 Clarkson<br>SB-209(01-03)<br>8/23/2021<br>1-3 ft | SB-209<br>329 Clarkson<br>SB-209(08-10)<br>8/25/2021<br>8-10 ft | SB-209<br>329 Clarkson<br>SB-209(16-18)<br>8/25/2021<br>16-18 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.35 U | < 0.36 U | **0.034 J** | **0.056 J** | < 0.35 U | < 0.34 U | **0.076 J** | **21 J** | < 0.35 U | < 0.35 U | < 0.35 U | **0.025 J** | < 0.35 U | **0.026 J** | **0.045 J** | < 0.34 U | < 0.37 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | **0.27 J** | **110 J** | < 0.35 U | < 0.35 U | **0.020 J** | **0.013 J** | < 0.35 U | < 0.34 U | **0.049 J** | < 0.34 U | < 0.37 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.35 U | < 0.36 U | **0.090 J** | **0.037 J** | < 0.35 U | < 0.34 U | **0.11 J** | **1.2 J** | < 0.35 U | < 0.35 U | **0.0072 J** | **0.12 J** | < 0.35 U | < 0.34 U | **0.20 J** | < 0.34 U | < 0.37 U |
| Anthracene | 120-12-7 | 100 | 500 | < 0.35 U | < 0.36 U | **0.071 J** | **0.042 J** | < 0.35 U | < 0.34 U | **0.32 J** | **110 J** | < 0.35 U | < 0.35 U | **0.034 J** | **0.062 J** | < 0.35 U | < 0.34 U | **0.13 J** | < 0.34 U | < 0.37 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | < 0.035 U | < 0.036 U | **0.51 J** | **0.20 J** | < 0.035 U | < 0.034 U | **1.1 J** | **190 J** | < 0.035 U | < 0.035 U | **0.1** | **0.33** | < 0.035 U | **0.013 J** | **0.49** | < 0.034 U | < 0.037 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | < 0.035 U | < 0.036 U | **0.66 J** | **0.23 J** | < 0.035 U | < 0.034 U | **1.1 J** | **170 J** | < 0.035 U | < 0.035 U | **0.1** | **0.44** | < 0.035 U | **0.010 J** | **0.58** | < 0.034 U | < 0.037 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | < 0.035 U | < 0.036 U | **0.82 J** | **0.33 J** | < 0.035 U | < 0.034 U | **1.4 J** | **220 J** | < 0.035 U | < 0.035 U | **0.12** | **0.63** | < 0.035 U | **0.013 J** | **0.79** | < 0.034 U | < 0.037 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | < 0.35 U | < 0.36 U | **0.31 J** | **0.10 J** | < 0.35 U | < 0.34 U | **0.45 J** | **63 J** | < 0.35 U | < 0.35 U | **0.065 J** | **0.31 J** | < 0.35 U | < 0.34 U | **0.30 J** | < 0.34 U | < 0.37 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | < 0.035 U | < 0.036 U | **0.33 J** | **0.12 J** | < 0.035 U | < 0.034 U | **0.55 J** | **66 J** | < 0.035 U | < 0.035 U | **0.046** | **0.21** | < 0.035 U | < 0.034 U | **0.24** | < 0.034 U | < 0.037 U |
| Chrysene | 218-01-9 | **3.9** | **56** | < 0.35 U | < 0.36 U | **0.52** | **0.21 J** | < 0.35 U | < 0.34 UJ | **1.0 J** | **170 J** | < 0.35 U | < 0.35 U | **0.12 J** | **0.4** | < 0.35 U | < 0.34 U | **0.51** | < 0.34 U | < 0.37 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | < 0.035 U | < 0.036 U | **0.11 J** | **0.033 J** | < 0.035 U | < 0.034 U | **0.14 J** | **20 J** | < 0.035 U | < 0.035 U | **0.020 J** | **0.086** | < 0.035 U | < 0.034 U | **0.096** | < 0.034 U | < 0.037 U |
| Fluoranthene | 206-44-0 | **100** | **500** | < 0.35 U | < 0.36 U | **0.52** | **0.27 J** | < 0.35 U | < 0.34 U | **1.9 J** | **430 J** | < 0.35 U | < 0.35 U | **0.23 J** | **0.54** | < 0.35 U | < 0.34 U | **0.75** | < 0.34 U | < 0.37 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.35 U | < 0.36 U | **0.015 J** | **0.016 J** | < 0.35 U | < 0.34 U | **0.17 J** | **65 J** | < 0.35 U | < 0.35 U | **0.019 J** | **0.020 J** | < 0.35 U | < 0.34 U | **0.056 J** | < 0.34 U | < 0.37 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | < 0.035 U | < 0.036 U | **0.39 J** | **0.12 J** | < 0.035 U | < 0.034 U | **0.54 J** | **81 J** | < 0.035 U | < 0.035 U | **0.07** | **0.33** | < 0.035 U | < 0.034 U | **0.33** | < 0.034 U | < 0.037 U |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.35 U | < 0.36 U | **0.072 J** | **0.10 J** | < 0.35 U | < 0.34 U | **0.24 J** | **80 J** | < 0.35 U | < 0.35 U | **0.017 J** | **0.13 J** | < 0.35 U | < 0.34 U | **0.31 J** | < 0.34 U | < 0.37 U |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.35 U | < 0.36 U | **0.20 J** | **0.20 J** | < 0.35 U | < 0.34 U | **1.4 J** | **370 J** | < 0.35 U | < 0.35 U | **0.19 J** | **0.26 J** | < 0.35 U | < 0.34 U | **0.59** | < 0.34 U | < 0.37 U |
| Pyrene | 129-00-0 | **100** | **500** | < 0.35 U | < 0.36 U | **0.66** | **0.28 J** | < 0.35 U | < 0.34 U | **1.7 J** | **310 J** | < 0.35 U | < 0.35 U | **0.22 J** | **0.55** | < 0.35 U | **0.012 J** | **0.79** | < 0.34 U | < 0.37 U |
| | | | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | < 0.35 U | < 0.36 U | **5.312 J** | **2.344 J** | < 0.35 U | < 0.34 U | **12.466 J** | **2477.2 J** | < 0.35 U | < 0.35 U | **0.9422 J** | **0.94 J** | < 0.35 U | **0.074 J** | **6.256 J** | < 0.34 U | < 0.37 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.14 U | < 0.15 U | < 0.15 U | < 0.17 U | < 0.14 U | < 0.14 U | < 0.15 U | < 1.5 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.14 U | < 0.15 U | < 0.15 U | < 0.17 U | < 0.14 U | < 0.14 U | < 0.15 U | < 1.5 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | **0.63 J** | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.28 U | < 0.29 U | < 0.30 U | < 0.34 U | < 0.28 U | < 0.27 UJ | < 0.30 U | < 3.1 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.30 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 U | < 0.30 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.77 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 UJ | < 0.077 U | < 0.77 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | **0.039 J** | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | **0.17 J** | < 0.34 U | < 0.37 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | **0.56 J** | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 UJ | < 0.35 UJ | < 0.35 UJ | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.14 U | < 0.15 U | < 0.15 U | < 0.17 U | < 0.14 U | < 0.14 U | < 0.15 U | < 1.5 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.28 U | < 0.29 U | < 0.30 U | < 0.34 U | < 0.28 U | < 0.27 U | < 0.30 U | < 3.1 U | < 0.28 U | < 0.28 U | < 0.28 U | < 0.30 U | < 0.28 U | < 0.28 U | < 0.29 U | < 0.28 U | < 0.30 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | **1.8 J** | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.71 U | < 0.74 U | < 0.76 U | < 0.86 U | < 0.70 U | < 0.68 U | < 0.77 U | < 7.7 U | < 0.70 UJ | < 0.71 UJ | < 0.71 UJ | < 0.75 U | < 0.71 U | < 0.69 U | < 0.74 U | < 0.69 U | < 0.75 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | **0.032 J** | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.14 U | < 0.15 U | < 0.15 U | < 0.17 U | < 0.14 U | < 0.14 U | < 0.15 U | < 1.5 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.35 UJ | < 0.36 UJ | < 0.37 UJ | < 0.42 UJ | < 0.35 UJ | < 0.34 UJ | < 0.38 UJ | < 3.8 UJ | < 0.35 UJ | < 0.35 UJ | < 0.35 UJ | < 0.37 UJ | < 0.35 UJ | < 0.34 UJ | < 0.36 UJ | < 0.34 UJ | < 0.37 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.38 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.037 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.037 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | **0.056 J** | **0.026 J** | **1.1** | **0.21 J** | < 0.35 U | **0.47** | < 0.36 U | < 0.34 U | **0.24 J** |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | **0.054 J** | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Carbazole | 86-74-8 | NL | NL | < 0.35 U | < 0.36 U | **0.023 J** | **0.021 J** | < 0.35 U | < 0.34 U | **0.18 J** | **62 J** | < 0.35 U | < 0.35 U | **0.018 J** | **0.023 J** | < 0.35 U | < 0.34 U | **0.048 J** | < 0.34 U | < 0.37 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.35 U | < 0.36 U | **0.013 J** | **0.020 J** | < 0.35 U | < 0.34 U | **0.096 J** | **37 J** | < 0.35 U | < 0.35 U | **0.015 J** | **0.013 J** | < 0.35 U | < 0.34 U | **0.038 J** | < 0.34 U | < 0.37 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | **0.44** | **0.45 J** | **0.37** | **0.38** | **0.42** | **0.47** | **0.45** | **0.57** | < 0.36 U | < 0.34 U | < 0.37 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.35 U | < 0.36 U | **0.0064 J** | **0.012 J** | < 0.35 U | < 0.34 U | **0.018 J** | **4.6** | < 0.35 U | < 0.35 U | < 0.35 U | **0.0099 J** | < 0.35 U | < 0.34 U | **0.018 J** | < 0.34 U | < 0.37 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.38 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.037 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.037 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.77 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.38 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.037 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.037 U |
| Isophorone | 78-59-1 | NL | NL | < 0.14 U | < 0.15 U | < 0.15 U | < 0.17 U | < 0.14 U | < 0.14 U | < 0.15 U | < 1.5 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.15 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.38 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.037 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.037 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.035 U | < 0.036 U | < 0.037 U | < 0.042 U | < 0.035 U | < 0.034 U | < 0.038 U | < 0.38 U | < 0.035 U | < 0.035 U | < 0.035 U | < 0.037 U | < 0.035 U | < 0.034 U | < 0.036 U | < 0.034 U | < 0.037 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | < 3.8 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.28 U | < 0.29 U | < 0.30 UJ | < 0.34 UJ | < 0.28 U | < 0.27 U | < 0.30 UJ | < 3.1 UJ | < 0.28 U | < 0.28 U | < 0.28 U | < 0.30 UJ | < 0.28 UJ | < 0.28 UJ | < 0.29 UJ | < 0.28 U | < 0.30 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.35 U | < 0.36 U | < 0.37 U | < 0.42 U | < 0.35 U | < 0.34 U | < 0.38 U | **1.3 J** | < 0.35 U | < 0.35 U | < 0.35 U | < 0.37 U | < 0.35 U | < 0.34 U | < 0.36 U | < 0.34 U | < 0.37 U |
| | | | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.35 U | < 0.36 U | **0.0424 J** | **0.085 J** | < 0.35 U | < 0.34 U | **0.773 J** | **108.34 J** | **0.426 J** | **0.406 J** | **1.553 J** | **0.7799 J** | **0.45** | **1.04** | **0.274 J** | < 0.34 U | **0.24 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-210<br>329 Clarkson<br>SB-210(01-03)<br>8/21/2021<br>1-3 ft | SB-210<br>329 Clarkson<br>SB-210(08-10)<br>8/28/2021<br>8-10 ft | SB-210<br>329 Clarkson<br>SB-210(22-24)<br>8/28/2021<br>22-24 ft | SB-211<br>329 Clarkson<br>SB-211(01-03)<br>8/21/2021<br>1-3 ft | SB-211<br>329 Clarkson<br>SB-211(13-15)<br>9/11/2021<br>13-15 ft | SB-211<br>329 Clarkson<br>SB-211(18-20)<br>9/11/2021<br>18-20 ft | SB-212<br>329 Clarkson<br>SB-212(01-03)<br>8/24/2021<br>1-3 ft | SB-212<br>329 Clarkson<br>SB-212(12-14)<br>9/2/2021<br>12-14 ft | SB-212<br>329 Clarkson<br>SB-212(17-19)<br>9/2/2021<br>17-19 ft | SB-213<br>329 Clarkson<br>SB-213(02-04)<br>8/23/2021<br>2-4 ft | SB-213<br>329 Clarkson<br>SB-213(08-10)<br>8/25/2021<br>8-10 ft | SB-213<br>329 Clarkson<br>SB-213(18-20)<br>8/25/2021<br>18-20 ft | SB-214<br>329 Clarkson<br>SB-214(02-04)<br>8/24/2021<br>2-4 ft | SB-214<br>329 Clarkson<br>SB-214(06-08)<br>8/26/2021<br>6-8 ft | SB-214<br>329 Clarkson<br>SB-214(18-20)<br>8/26/2021<br>18-20 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.13 J** | **0.025 J** | **0.017 J** | **0.043 J** | < 0.35 U | < 0.34 U | **0.054 J** | < 0.34 U | < 0.34 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.070 J** | < 0.38 U | < 0.38 U | **0.015 J** | < 0.35 U | < 0.34 U | **0.044 J** | < 0.34 U | < 0.34 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | **0.0093 J** | < 0.34 U | < 0.34 U | **0.010 J** | < 0.33 U | < 0.34 U | **0.72** | **0.029 J** | **0.037 J** | **0.38 J** | < 0.35 U | < 0.34 U | **0.064 J** | < 0.34 U | < 0.34 U |
| Anthracene | 120-12-7 | 100 | 500 | **0.013 J** | < 0.34 U | < 0.34 U | **0.020 J** | < 0.33 U | < 0.34 U | **0.85** | **0.042 J** | **0.042 J** | **0.31 J** | < 0.35 U | < 0.34 U | **0.14 J** | < 0.34 U | < 0.34 U |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.1** | < 0.034 U | < 0.034 U | **0.088** | < 0.033 U | < 0.034 U | **4.5** | **0.29** | **0.48** | **2.1** | < 0.035 U | < 0.034 U | **1** | < 0.034 U | < 0.034 U |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.16** | < 0.034 U | < 0.034 U | **0.096** | **0.012 J** | < 0.034 U | **4.4** | **0.53** | **0.62** | **2.7** | < 0.035 U | < 0.034 U | **1.1** | < 0.034 U | < 0.034 U |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **0.2** | < 0.034 U | < 0.034 U | **0.12** | **0.0095 J** | < 0.034 U | **5.8** | **0.68** | **0.79** | **3.5** | < 0.035 U | < 0.034 U | **1.3** | < 0.034 U | < 0.034 U |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.12 J** | < 0.34 U | < 0.34 U | **0.057 J** | **0.37** | < 0.34 U | **1.8** | **0.43** | **0.5** | **1.4** | < 0.35 U | < 0.34 U | **0.61** | < 0.34 U | < 0.34 U |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.082** | < 0.034 U | < 0.034 U | **0.042** | < 0.033 U | < 0.034 U | **2.2** | **0.22** | **0.34** | **1.5** | < 0.035 U | < 0.034 U | **0.49** | < 0.034 U | < 0.034 U |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.11 J** | < 0.34 U | < 0.34 U | **0.084 J** | **0.0088 J** | < 0.34 U | **4.2** | **0.31** | **0.46** | **2** | < 0.35 U | < 0.34 U | **1.1** | < 0.34 U | < 0.34 U |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | **0.030 J** | < 0.034 U | < 0.034 U | **0.018 J** | **0.2** | < 0.034 U | **0.67** | **0.12** | **0.17** | **0.4** | < 0.035 U | < 0.034 U | **0.21** | < 0.034 U | < 0.034 U |
| Fluoranthene | 206-44-0 | **100** | **500** | **0.12 J** | < 0.34 U | < 0.34 U | **0.14 J** | < 0.33 U | < 0.34 U | **9.7** | **0.28 J** | **0.44** | **2.5** | < 0.35 U | < 0.34 U | **1.4** | < 0.34 U | < 0.34 U |
| Fluorene | 86-73-7 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.27 J** | < 0.38 U | < 0.38 U | **0.047 J** | < 0.35 U | < 0.34 U | **0.063 J** | < 0.34 U | < 0.34 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.13** | < 0.034 U | < 0.034 U | **0.067** | **0.29** | < 0.034 U | **2.4** | **0.49** | **0.55** | **1.7** | < 0.035 U | < 0.034 U | **0.68** | < 0.034 U | < 0.034 U |
| Naphthalene | 91-20-3 | **100** | **500** | **0.015 J** | < 0.34 U | < 0.34 U | **0.010 J** | < 0.33 U | < 0.34 U | **0.37 J** | **0.029 J** | **0.048 J** | **0.15 J** | < 0.35 U | < 0.34 U | **0.090 J** | < 0.34 U | < 0.34 U |
| Phenanthrene | 85-01-8 | **100** | **500** | **0.055 J** | < 0.34 U | < 0.34 U | **0.10 J** | **0.0090 J** | < 0.34 U | **7.1** | **0.14 J** | **0.11 J** | **0.64** | < 0.35 U | < 0.34 U | **0.92** | < 0.34 U | < 0.34 U |
| Pyrene | 129-00-0 | **100** | **500** | **0.15 J** | < 0.34 U | < 0.34 U | **0.15 J** | < 0.33 U | < 0.34 U | **7.8** | **0.30 J** | **0.47** | **2.6** | < 0.35 U | < 0.34 U | **2** | < 0.34 U | < 0.34 U |
| | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **1.2943 J** | < 0.34 U | < 0.34 U | **1.002 J** | **0.8993 J** | < 0.34 U | **52.98 J** | **3.915 J** | **5.074 J** | **21.985 J** | < 0.35 U | < 0.34 U | **11.265 J** | < 0.34 U | < 0.34 U |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.13 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.13 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.32 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.27 U | < 0.27 U | < 0.31 U | < 0.31 U | < 0.31 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.30 U | < 0.28 U | < 0.28 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.13 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.32 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.27 U | < 0.27 U | < 0.31 U | < 0.31 U | < 0.31 U | < 0.31 U | < 0.28 U | < 0.28 U | < 0.30 U | < 0.28 U | < 0.28 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.050 J** | < 0.38 U | < 0.38 U | **0.030 J** | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.80 U | < 0.70 U | < 0.69 U | < 0.78 U | < 0.67 U | < 0.68 U | < 0.77 U | < 0.78 U | < 0.78 U | < 0.78 U | < 0.70 U | < 0.70 U | < 0.76 U | < 0.70 U | < 0.69 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.019 J** | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.16 U | < 0.14 UU | < 0.14 U | < 0.15 U | < 0.13 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.40 UJ | < 0.34 UJ | < 0.34 UJ | < 0.38 UJ | < 0.33 UJ | < 0.34 UJ | < 0.38 UJ | < 0.38 UJ | < 0.38 UJ | < 0.39 UJ | < 0.35 UJ | < 0.34 UJ | < 0.37 UJ | < 0.34 UJ | < 0.34 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.038 U | < 0.033 U | < 0.034 U | < 0.038 U | < 0.038 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.034 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.40 U | < 0.34 U | **0.86** | **0.13 J** | **0.11 J** | < 0.34 U | **0.045 J** | **0.20 J** | **0.15 J** | < 0.39 U | < 0.35 U | **0.10 J** | < 0.37 U | < 0.34 U | < 0.34 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Carbazole | 86-74-8 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.42** | < 0.38 U | < 0.38 U | **0.066 J** | < 0.35 U | < 0.34 U | **0.088 J** | < 0.34 U | < 0.34 U |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.4** | **0.011 J** | **0.0089 J** | **0.044 J** | < 0.35 U | < 0.34 U | **0.052 J** | < 0.34 U | < 0.34 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.40 U | **0.22 J** | **0.42** | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | **0.14 J** | **0.33 J** | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | **0.086 J** | **0.070 J** |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.063 J** | < 0.38 U | < 0.38 U | **0.0089 J** | < 0.35 U | < 0.34 U | **0.012 J** | < 0.34 U | < 0.34 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.040 U | < 0.034 U | < 0.034 U | < 0.038 U | < 0.033 U | < 0.034 U | < 0.038 U | < 0.038 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.034 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.038 U | < 0.033 U | < 0.034 U | < 0.038 U | < 0.038 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.034 U |
| Isophorone | 78-59-1 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.13 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.038 U | < 0.033 U | < 0.034 U | < 0.038 U | < 0.038 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.034 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.038 U | < 0.033 U | < 0.034 U | < 0.038 U | < 0.038 U | < 0.038 U | < 0.039 U | < 0.035 U | < 0.034 U | < 0.037 U | < 0.034 U | < 0.034 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | < 0.38 U | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.32 UJ | < 0.28 U | < 0.28 U | < 0.31 UJ | < 0.27 U | < 0.27 U | < 0.31 U | < 0.31 UJ | < 0.31 UJ | < 0.31 UJ | < 0.28 U | < 0.28 U | < 0.30 U | < 0.28 U | < 0.28 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.38 U | < 0.33 U | < 0.34 U | **0.045 J** | < 0.38 U | < 0.38 U | < 0.39 U | < 0.35 U | < 0.34 U | < 0.37 U | < 0.34 U | < 0.34 U |
| | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.40 U | **0.22 J** | **0.42** | **0.13 J** | **0.11 J** | < 0.34 U | **1.042 J** | **0.351 J** | **0.4889 J** | **0.1489 J** | < 0.35 U | **0.10 J** | **0.152 J** | **0.086 J** | **0.070 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-215<br>329 Clarkson<br>SB-215(03-05)<br>8/24/2021<br>3-5 ft | SB-215<br>329 Clarkson<br>SB-215(12-14)<br>8/26/2021<br>12-14 ft | SB-215<br>329 Clarkson<br>SB-215(21-23)<br>8/26/2021<br>21-23 ft | SB-216<br>329 Clarkson<br>SB-216(18-20)<br>9/7/2021<br>18-20 ft | SB-217<br>329 Clarkson<br>SB-217(03-05)<br>9/11/2021<br>3-5 ft | SB-217<br>329 Clarkson<br>SB-217(06-08)<br>9/11/2021<br>6-8 ft | SB-217<br>329 Clarkson<br>SB-217(16-18)<br>9/11/2021<br>16-18 ft | SB-218<br>329 Clarkson<br>SB-218(02-04)<br>9/11/2021<br>2-4 ft | SB-218<br>329 Clarkson<br>SB-218(10-12)<br>9/11/2021<br>10-12 ft | SB-218<br>329 Clarkson<br>SB-218(15-17)<br>9/11/2021<br>15-17 ft | SB-219<br>329 Clarkson<br>SB-219(01-03)<br>9/11/2021<br>1-3 ft | SB-219<br>329 Clarkson<br>SB-219(13-15)<br>9/11/2021<br>13-15 ft | SB-219<br>329 Clarkson<br>SB-219(18-20)<br>9/11/2021<br>18-20 ft | TP-1<br>760 Parkside<br>TP-1(8)062311<br>6/23/2011<br>0 - 8 ft | TP-1<br>760 Parkside<br>SIDE NO VALVE HO.<br>6/23/2011<br>0 - 0 ft | TP-1<br>760 Parkside<br>TP-1(1-2)062311<br>6/23/2011<br>1 - 2 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | **0.033 J** | **0.023 J** | **0.084 J** | **0.013 J** | **0.013 J** | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | **0.015 J** | < 0.35 U | **0.020 J** | **0.023 J** | **0.36** | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Acenaphthylene | 208-96-8 | 100 | 500 | **0.012 J** | < 0.34 U | < 0.34 U | < 0.35 U | **0.012 J** | **0.0092 J** | < 0.35 U | **0.15 J** | **0.029 J** | **0.0075 J** | **0.035 J** | **0.018 J** | **0.0079 J** | **0.15 J** | < 0.37 U | **0.072 J** |
| Anthracene | 120-12-7 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | **0.029 J** | **0.034 J** | < 0.35 U | **0.19 J** | **0.049 J** | **0.52** | **0.049 J** | **0.025 J** | < 0.50 U | **0.22 J** | < 0.37 U | **0.1 J** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.093** | < 0.034 U | < 0.034 U | **0.066** | **0.39** | **0.33** | < 0.035 U | **1.7** | **0.19** | **0.63** | **0.46** | **0.1** | **0.044 J** | **1.4** | **0.32** | **0.62** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.15** | < 0.034 U | < 0.034 U | **0.069** | **0.73** | **0.57** | < 0.035 U | **2.2** | **0.23** | **0.47** | **0.51** | **0.065** | **0.021 J** | **2.2** | **0.43** | **0.68** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **0.21** | < 0.034 U | < 0.034 U | **0.082** | **0.97** | **0.66** | < 0.035 U | **2.6** | **0.29** | **0.76** | **0.6** | **0.11** | **0.032 J** | **2.2** | **0.47** | **0.87** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.11 J** | < 0.34 U | < 0.34 U | **0.047 J** | **0.48** | **0.53** | < 0.35 U | **0.88** | **0.30 J** | **0.13 J** | **0.20 J** | **0.066 J** | < 0.50 U | **1.6** | **0.32 J** | **0.63** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.065** | < 0.034 U | < 0.034 U | **0.028 J** | **0.35** | **0.3** | < 0.035 U | **1.1** | **0.11** | **0.3** | **0.23** | **0.048** | < 0.050 U | **0.86** | **0.21** | **0.28** |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.12 J** | < 0.34 U | < 0.34 U | **0.065 J** | **0.41** | **0.33 J** | < 0.35 U | **1.6** | **0.19 J** | **0.52** | **0.52** | **0.18 J** | **0.095 J** | **1.4** | **0.38** | **0.74** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | **0.029 J** | < 0.034 U | < 0.034 U | < 0.035 U | **0.089** | **0.09** | < 0.035 U | **0.2** | **0.049** | **0.045** | **0.059** | < 0.037 U | < 0.050 U | **0.37** | **0.064** | **0.14** |
| Fluoranthene | 206-44-0 | **100** | **500** | **0.10 J** | < 0.34 U | < 0.34 U | **0.13 J** | **0.33 J** | **0.35 J** | < 0.35 U | **2.3** | **0.022 J** | **1.8** | **0.59** | **0.11 J** | **0.025 J** | **1.7** | **0.51** | **1.1** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | **0.025 J** | **0.021 J** | **0.45** | **0.013 J** | < 0.37 U | < 0.50 U | **0.074 J** | < 0.37 U | < 0.4 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.13** | < 0.034 U | < 0.034 U | **0.051** | **0.58** | **0.64** | < 0.035 U | **1.2** | **0.29** | **0.24** | **0.25** | **0.06** | < 0.050 U | **1.6** | **0.32** | **0.61** |
| Naphthalene | 91-20-3 | **100** | **500** | **0.022 J** | < 0.34 U | < 0.34 U | < 0.35 U | **0.013 J** | **0.017 J** | < 0.35 U | **0.10 J** | **0.038 J** | **0.074 J** | **0.025 J** | **0.026 J** | **0.018 J** | **0.16 J** | < 0.37 U | **0.081 J** |
| Phenanthrene | 85-01-8 | **100** | **500** | **0.050 J** | < 0.34 U | < 0.34 U | **0.067 J** | **0.096 J** | **0.14 J** | < 0.35 U | **0.54** | **0.17 J** | **2.3** | **0.23 J** | **0.11 J** | **0.023 J** | **0.59** | **0.2 J** | **0.7** |
| Pyrene | 129-00-0 | **100** | **500** | **0.13 J** | < 0.34 U | < 0.34 U | **0.13 J** | **0.30 J** | **0.31 J** | < 0.35 U | **2** | **0.27 J** | **1.2** | **0.64** | **0.16 J** | **0.036 J** | **2.1** | **0.49** | **1** |
| | | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **1.221 J** | < 0.34 U | < 0.34 U | **0.735 J** | **4.779 J** | **3.7552 J** | < 0.35 U | **16.838 J** | **2.294 J** | **9.8905 J** | **4.424 J** | **1.091 J** | **0.3019 J** | **16.624** | **3.714** | **7.623** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.20 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.20 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.32 U | < 0.27 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.28 U | < 0.30 U | < 0.30 U | < 0.28 U | < 0.30 U | < 0.30 U | < 0.40 U | < 1.2 U | < 1.1 U | < 1.2 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.081 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.081 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 UJ | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.79 U | < 0.75 U | < 0.81 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.20 U | < 0.79 U | < 0.75 U | < 0.81 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.79 U | < 0.75 U | < 0.81 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.32 U | < 0.27 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.28 U | < 0.30 U | < 0.30 U | < 0.28 U | < 0.30 U | < 0.30 U | < 0.40 U | < 1.2 U | < 1.1 U | < 1.2 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.79 U | < 0.75 U | < 0.81 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.81 U | < 0.69 U | < 0.69 U | < 0.70 UJ | < 0.78 U | < 0.73 U | < 0.71 U | < 0.76 U | < 0.74 U | < 0.71 U | < 0.76 U | < 0.76 U | < 1.0 U | < 1.2 U | < 1.1 U | < 1.2 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.20 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.40 UJ | < 0.34 UJ | < 0.34 UJ | < 0.35 UJ | < 0.38 UJ | < 0.36 UJ | < 0.35 UJ | < 0.37 UJ | < 0.37 UJ | < 0.35 UJ | < 0.38 UJ | < 0.37 UJ | < 0.50 UJ | < 0.39 UJ | < 0.37 UJ | < 0.4 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.035 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 U | < 0.037 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.050 U | < 0.039 U | < 0.037 U | < 0.04 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.40 U | **0.082 J** | **0.24 J** | **0.15 J** | < 0.38 U | **0.21 J** | < 0.35 U | < 0.37 U | **0.052 J** | < 0.35 U | **0.21 J** | **0.32 J** | **0.66** | < 0.39 U | < 0.37 U | < 0.4 U |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Carbazole | 86-74-8 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | **0.015 J** | < 0.35 U | **0.055 J** | < 0.37 U | **0.20 J** | **0.020 J** | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | **0.064 J** |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | **0.0079 J** | < 0.35 U | **0.029 J** | **0.013 J** | **0.30 J** | **0.011 J** | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.40 U | **0.10 J** | **0.15 J** | **0.21 J** | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | **0.0082 J** | < 0.37 U | **0.034 J** | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.040 U | < 0.034 U | < 0.034 U | < 0.035 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 U | < 0.037 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.050 U | < 0.039 U | < 0.037 U | < 0.04 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.081 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.035 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 U | < 0.037 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.050 U | < 0.039 U | < 0.037 U | < 0.04 U |
| Isophorone | 78-59-1 | NL | NL | < 0.16 U | < 0.14 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.14 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.14 U | < 0.15 U | < 0.15 U | < 0.20 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.035 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 U | < 0.037 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.050 U | < 0.039 U | < 0.037 U | < 0.04 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.040 U | < 0.034 U | < 0.034 U | < 0.035 U | < 0.038 U | < 0.036 U | < 0.035 U | < 0.037 U | < 0.037 U | < 0.035 U | < 0.038 U | < 0.037 U | < 0.050 U | < 0.039 U | < 0.037 U | < 0.04 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.32 U | < 0.27 U | < 0.28 U | < 0.28 U | < 0.31 U | < 0.29 U | < 0.28 U | < 0.30 U | < 0.30 U | < 0.28 U | < 0.30 U | < 0.30 U | < 0.40 U | < 1.2 U | < 1.1 U | < 1.2 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.40 U | < 0.34 U | < 0.34 U | < 0.35 U | < 0.38 U | < 0.36 U | < 0.35 U | < 0.37 U | < 0.37 U | < 0.35 U | < 0.38 U | < 0.37 U | < 0.50 U | < 0.39 U | < 0.37 U | < 0.4 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 0.40 U | **0.182 J** | **0.39 J** | **0.36 J** | < 0.38 U | **0.2329 J** | < 0.35 U | **0.0922 J** | **0.065 J** | **0.534 J** | **0.241 J** | **0.32 J** | **0.66** | < 1.2 U | < 1.1 U | **0.064** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | TP-2<br>760 Parkside<br>TP-2(8')062311<br>6/23/2011<br>0 - 8 ft | TP-101<br>324 Winthrop<br>TP-101 (2-3)<br>8/31/2020<br>2 - 3 ft | TP-101<br>324 Winthrop<br>TP-101 (5-6)<br>8/31/2020<br>5 - 6 ft | TP-101<br>324 Winthrop<br>TP-101 (8-10)<br>8/31/2020<br>8 - 10 ft | TP-101A<br>324 Winthrop<br>TP-101A (6-8)<br>9/2/2020<br>6 - 8 ft | TP-102<br>324 Winthrop<br>TP-102(6-7)<br>8/27/2020<br>6 - 7 ft | TP-102<br>324 Winthrop<br>TP-102(8-10)<br>8/27/2020<br>8 - 10 ft | TP-102 Ash<br>324 Winthrop<br>TP-102-ASH<br>8/27/2020 | TP-103<br>324 Winthrop<br>TP-103 (8-10)<br>9/1/2020<br>8 - 10 ft | TP-104<br>324 Winthrop<br>TP-104 (8-9)<br>10/14/2020<br>8 - 9 ft | TP-104<br>324 Winthrop<br>TP-104 (9-10)<br>10/14/2020<br>9 - 10 ft | TP-105<br>324 Winthrop<br>TP-105 (6-7)<br>10/15/2020<br>6 - 7 ft | TP-105<br>324 Winthrop<br>TP-105 (7-8)<br>10/15/2020<br>7 - 8 ft | TP-106<br>324 Winthrop<br>TP-106(5-7)091420<br>9/14/2020<br>5 - 7 ft | TP-107<br>324 Winthrop<br>TP-107 (5-7)091520<br>9/15/2020<br>5 - 7 ft | TP-108<br>324 Winthrop<br>TP-108(3-5)<br>9/28/2020<br>3 - 5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | < 0.37 U | **0.04 J** | **0.03 J** | **0.018 J** | **0.067 J** | **1.2** | **0.033 J** | < 0.4 U | **0.029 J** | **1.2** | **0.29 J** | **0.038 J** | **0.016 J** | **0.047 J** | **0.69** | **1.7 J** |
| Acenaphthene | 83-32-9 | 100 | 500 | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | **0.029 J** | **0.071 J** | < 0.37 U | < 0.4 U | < 0.35 U | **1.2** | **0.27 J** | < 0.37 U | < 0.4 U | **0.039 J** | **0.18 J** | **2.1** |
| Acenaphthylene | 208-96-8 | 100 | 500 | < 0.37 U | **0.013 J** | < 0.48 U | < 0.37 U | **0.15 J** | **0.17 J** | **0.026 J** | < 0.4 U | < 0.35 U | **0.42 J** | **0.032 J** | **0.03 J** | **0.058 J** | **0.09 J** | **0.084 J** | **0.38 J** |
| Anthracene | 120-12-7 | 100 | 500 | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | **0.081 J** | **0.16 J** | **0.068 J** | < 0.4 U | < 0.35 U | **3.8** | **0.5** | **0.059 J** | **0.12 J** | **0.17 J** | **0.39 J** | **4.7** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.11** | **0.11** | **0.11** | **0.015 J** | **0.3** | **0.91** | **0.17** | **0.055** | **0.027 J** | **5.3** | **0.56** | **0.26** | **0.48** | **0.67** | **1.2** | **6.4** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.14** | **0.14 J+** | **0.12 J+** | **0.013 J+** | **1** | **1.4** | **0.21** | **0.061** | **0.049** | **4.9** | **0.59** | **0.26** | **0.55** | **0.88** | **1.3** | **6.5** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **0.13** | **0.16 J+** | **0.16 J+** | **0.02 J+** | **1** | **1.7** | **0.24** | **0.077** | **0.048** | **6.1** | **0.74** | **0.31** | **0.64** | **1** | **1.5** | **7.4** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.089 J** | **0.086 J** | **0.084 J** | < 0.37 U | **0.86** | **0.88** | **0.11 J** | **0.033 J** | **0.039 J** | **2** | **0.32 J** | **0.17 J** | **0.37 J** | **0.6** | **0.59** | **3.8** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.057** | **0.066** | **0.048** | < 0.037 U | **0.38** | **0.59** | **0.11** | **0.031 J** | **0.023 J** | **2.3** | **0.28** | **0.15** | **0.33** | **0.36** | **0.94** | **3.1** |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.13 J** | **0.12 J** | **0.1 J** | **0.0098 J** | **0.37 J** | **1** | **0.16 J** | **0.052 J** | **0.026 J** | **4.5** | **0.51** | **0.22 J** | **0.46** | **0.63** | **1.2** | **5.4** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | **0.017 J** | **0.026 J** | **0.026 J** | < 0.037 U | **0.17** | **0.22** | **0.033 J** | < 0.04 U | < 0.035 U | **0.68** | **0.088** | **0.042** | **0.09** | **0.17** | **0.2** | **1.1** |
| Fluoranthene | 206-44-0 | **100** | **500** | **0.12 J** | **0.2 J** | **0.21 J** | **0.014 J** | **0.25 J** | **1.5** | **0.35 J** | **0.09 J** | **0.044 J** | **13** | **1.5** | **0.45** | **0.91** | **1.1** | **2.2** | **16** |
| Fluorene | 86-73-7 | 100 | 500 | < 0.37 U | **0.021 J** | **0.033 J** | < 0.37 U | **0.047 J** | **0.085 J** | **0.033 J** | < 0.4 U | < 0.35 U | **2.1** | **0.44** | **0.022 J** | **0.039 J** | **0.087 J** | **0.26 J** | **3.6** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.086** | **0.081** | **0.081** | < 0.037 U | **0.86** | **1.1** | **0.14** | **0.04** | **0.041** | **2.3** | **0.35** | **0.18** | **0.37** | **0.61** | **0.66** | **4.1** |
| Naphthalene | 91-20-3 | **100** | **500** | < 0.37 U | **0.092 J** | **0.086 J** | **0.048 J** | **0.24 J** | **6.8** | **0.12 J** | < 0.4 U | **0.12 J** | **6.6** | **1.8** | **0.38** | **0.048 J** | **0.11 J** | **3.2** | **7.7** |
| Phenanthrene | 85-01-8 | **100** | **500** | < 0.37 U | **0.13 J** | **0.19 J** | < 0.37 U | **0.26 J** | **0.61** | **0.21 J** | **0.04 J** | **0.038 J** | **13** | **1.9** | **0.26 J** | **0.54** | **0.57** | **1.2** | **20** |
| Pyrene | 129-00-0 | **100** | **500** | **0.17 J** | **0.21 J** | **0.21 J** | < 0.37 U | **0.33 J** | **1.2** | **0.29 J** | **0.073 J** | **0.04 J** | **9.7** | **1.3** | **0.44** | **0.91** | **1** | **2.8** | **14** |
| | | | | | | | | | | | | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **1.049** | **1.5** | **1.5** | **0.14** | **6.4** | **20** | **2.3** | **0.55** | **0.52** | **79** | **11** | **3.3** | **5.9** | **8.1** | **19** | **110** |
| **SVOCs (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.37 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.16 U | < 0.18 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.33 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.17 U | < 0.76 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.37 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.16 U | < 0.18 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.33 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.17 U | < 0.76 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 1.1 U | < 0.32 U | < 0.39 U | < 0.29 U | < 0.31 U | < 0.37 U | < 0.3 U | < 0.32 U | < 0.28 U | < 0.65 U | < 0.32 U | < 0.3 U | < 0.32 U | < 0.31 U | < 0.34 U | < 1.5 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.075 U | < 0.081 U | < 0.098 U | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.16 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.085 U | < 0.38 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.075 U | < 0.081 U | < 0.098 U | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.16 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.085 U | < 0.38 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | **0.021 J** | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.75 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.75 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.16 U | < 0.18 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.33 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.17 U | < 0.76 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.75 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 1.1 U | < 0.32 U | < 0.39 U | < 0.29 U | < 0.31 U | < 0.37 U | < 0.3 U | < 0.32 U | < 0.28 U | < 0.65 U | < 0.32 U | < 0.3 U | < 0.32 U | < 0.31 U | < 0.34 U | < 1.5 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | **0.034 J** | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.75 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 1.1 U | < 0.81 U | < 0.98 U | < 0.74 U | < 0.78 U | < 0.92 U | < 0.75 U | < 0.81 U | < 0.71 U | < 1.6 U | < 0.81 U | < 0.75 U | < 0.8 U | < 0.77 U | < 0.85 U | < 3.8 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | **0.049 J** | **0.21 J** | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | **0.02 J** | < 0.37 U | < 0.4 U | < 0.38 U | **0.1 J** | < 1.9 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.37 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.16 U | < 0.18 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.33 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.17 U | < 0.76 U |
| Benzaldehyde | 100-52-7 | NL | NL | < 0.37 UJ | < 0.4 UJ | **0.038 J** | < 0.37 UJ | < 0.38 UJ | **0.36 J** | < 0.37 U | < 0.4 U | < 0.35 UJ | < 0.81 UJ | < 0.4 UJ | < 0.37 UJ | **0.049 J** | < 0.38 UJ | < 0.42 UJ | < 1.9 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.037 U | < 0.04 U | < 0.048 U | < 0.037 U | < 0.038 U | < 0.045 U | < 0.037 U | < 0.04 U | < 0.035 U | < 0.081 U | < 0.04 U | < 0.037 U | < 0.04 U | < 0.038 U | < 0.042 U | < 0.19 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | **0.078 J** | < 0.4 U | < 0.37 U | **0.031 J** | **0.052 J** | **0.17 J** | **0.15 J** |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | **0.025 J** | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Carbazole | 86-74-8 | NL | NL | < 0.37 U | < 0.4 U | **0.039 J** | < 0.37 U | < 0.38 U | **0.056 J** | < 0.37 U | < 0.4 U | < 0.35 U | **1.8** | **0.27 J** | **0.03 J** | **0.06 J** | **0.043 J** | **0.11 J** | **2.8** |
| Dibenzofuran | 132-64-9 | 59 | 350 | < 0.37 U | **0.012 J** | **0.024 J** | < 0.37 U | **0.051 J** | **0.09 J** | **0.015 J** | < 0.4 U | < 0.35 U | **1.7** | **0.35 J** | **0.017 J** | **0.021 J** | **0.057 J** | **0.12 J** | **3** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Diphenyl | 92-52-4 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | **0.022 J** | **0.1 J** | < 0.37 U | < 0.4 U | < 0.35 U | **0.32 J** | **0.067 J** | < 0.37 U | < 0.4 U | < 0.38 U | **0.095 J** | **0.57 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.037 U | < 0.04 U | < 0.048 U | < 0.037 U | < 0.038 U | < 0.045 U | < 0.037 U | < 0.04 U | < 0.035 U | < 0.081 U | < 0.04 U | < 0.037 U | < 0.04 U | < 0.038 U | < 0.042 U | < 0.19 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.075 U | < 0.081 U | < 0.098 U | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.16 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.085 U | < 0.38 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.037 U | < 0.04 U | < 0.048 U | < 0.037 U | < 0.038 U | < 0.045 U | < 0.037 U | < 0.04 U | < 0.035 U | < 0.081 U | < 0.04 U | < 0.037 U | < 0.04 U | < 0.038 U | < 0.042 U | < 0.19 U |
| Isophorone | 78-59-1 | NL | NL | < 0.37 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.16 U | < 0.18 U | < 0.15 U | < 0.16 U | < 0.14 U | < 0.33 U | < 0.16 U | < 0.15 U | < 0.16 U | < 0.15 U | < 0.17 U | < 0.76 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.037 U | < 0.04 U | < 0.048 U | < 0.037 U | < 0.038 U | < 0.045 U | < 0.037 U | < 0.04 U | < 0.035 U | < 0.081 U | < 0.04 U | < 0.037 U | < 0.04 U | < 0.038 U | < 0.042 U | < 0.19 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.037 U | < 0.04 U | < 0.048 U | < 0.037 U | < 0.038 U | < 0.045 U | < 0.037 U | < 0.04 U | < 0.035 U | < 0.081 U | < 0.04 U | < 0.037 U | < 0.04 U | < 0.038 U | < 0.042 U | < 0.19 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 1.1 U | < 0.32 UJ | < 0.39 UJ | < 0.29 UJ | < 0.31 U | < 0.37 U | < 0.3 U | < 0.32 U | < 0.28 U | < 0.65 U | < 0.32 U | < 0.3 U | < 0.32 U | < 0.31 U | < 0.34 U | < 1.5 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.37 U | < 0.4 U | < 0.48 U | < 0.37 U | < 0.38 U | < 0.45 U | < 0.37 U | < 0.4 U | < 0.35 U | < 0.81 U | < 0.4 U | < 0.37 U | < 0.4 U | < 0.38 U | < 0.42 U | < 1.9 U |
| | | | | | | | | | | | | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | < 1.1 U | **1.5** | **1.6** | **0.14** | **6.5** | **20** | **2.3** | **0.55** | **0.55** | **83** | **12** | **3.3** | **6.1** | **8.3** | **19** | **110** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | TP-108<br>324 Winthrop<br>TP-108(4-5)<br>9/28/2020<br>4 - 5 ft | TP-108<br>324 Winthrop<br>TP-108(6-7)<br>9/28/2020<br>6 - 7 ft | TP-201<br>329 Clarkson<br>TP-201(06-07)<br>9/14/2021<br>6-7 ft | TP-202<br>329 Clarkson<br>TP-202(01-03)<br>9/15/2021<br>1-3 ft | TP-202<br>329 Clarkson<br>TP-202(05-06)<br>9/15/2021<br>5-6 ft |
|---|---|---|---|---|---|---|---|---|
| **PAH (mg/Kg)** | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | NL | **0.81** | < 0.38 U | **0.013 J** | **0.042 J** | **0.12 J** |
| Acenaphthene | 83-32-9 | 100 | 500 | **0.83** | < 0.38 U | < 0.34 U | **0.023 J** | **0.018 J** |
| Acenaphthylene | 208-96-8 | 100 | 500 | **0.067 J** | < 0.38 U | **0.0076 J** | **0.087 J** | **1.1** |
| Anthracene | 120-12-7 | 100 | 500 | **0.64** | < 0.38 U | **0.011 J** | **0.069 J** | **0.58** |
| Benzo[a]anthracene | 56-55-3 | **1** | **5.6** | **0.91** | < 0.038 U | **0.063** | **0.39** | **9.9** |
| Benzo[a]pyrene | 50-32-8 | **1** | **1** | **0.96** | < 0.038 U | **0.092** | **0.43** | **16** |
| Benzo[b]fluoranthene | 205-99-2 | **1** | **5.6** | **1.1** | < 0.038 U | **0.094** | **0.6** | **20** |
| Benzo[g,h,i]perylene | 191-24-2 | 100 | 500 | **0.42** | < 0.38 U | **0.10 J** | **0.31 J** | **9.3** |
| Benzo[k]fluoranthene | 207-08-9 | **3.9** | **56** | **0.31** | < 0.038 U | **0.034** | **0.24** | **7** |
| Chrysene | 218-01-9 | **3.9** | **56** | **0.84** | < 0.38 U | **0.070 J** | **0.46** | **8.4** |
| Dibenz(a,h)anthracene | 53-70-3 | **0.33** | **0.56** | **0.14** | < 0.038 U | **0.026 J** | **0.1** | **3.8** |
| Fluoranthene | 206-44-0 | **100** | **500** | **1.8** | < 0.38 U | **0.050 J** | **0.7** | **6.4** |
| Fluorene | 86-73-7 | 100 | 500 | **1.3** | < 0.38 U | < 0.34 U | **0.026 J** | **0.072 J** |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | **0.5** | **5.6** | **0.58** | < 0.038 U | **0.088** | **0.35** | **10** |
| Naphthalene | 91-20-3 | **100** | **500** | **3.8** | **0.073 J** | **0.025 J** | **0.12 J** | **0.53** |
| Phenanthrene | 85-01-8 | **100** | **500** | **2.7** | < 0.38 U | **0.039 J** | **0.34 J** | **0.83** |
| Pyrene | 129-00-0 | **100** | **500** | **1.5** | < 0.38 U | **0.087 J** | **0.69** | **7.5** |
| | | | | | | | | |
| **Total PAH** | CALC-PAH | NL | NL | **19** | **0.073** | **0.7996 J** | **4.977 J** | **101.55 J** |
| **SVOCs (mg/Kg)** | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | NL | < 0.16 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U |
| 2,4-Dichlorophenol | 120-83-2 | NL | NL | < 0.16 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U |
| 2,4-Dimethylphenol | 105-67-9 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | **0.018 J** |
| 2,4-Dinitrophenol | 51-28-5 | NL | NL | < 0.33 U | < 0.3 U | < 0.28 U | < 0.32 U | < 0.31 U |
| 2,4-Dinitrotoluene | 121-14-2 | NL | NL | < 0.083 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| 2,6-Dinitrotoluene | 606-20-2 | NL | NL | < 0.083 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| 2-Chloronaphthalene | 91-58-7 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 2-Chlorophenol | 95-57-8 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 2-Methylphenol | 95-48-7 | 100 | 500 | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | **0.019 J** |
| 2-Nitroaniline | 88-74-4 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 UJ | < 0.40 UJ | < 0.39 UJ |
| 2-Nitrophenol | 88-75-5 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | NL | NL | < 0.16 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U |
| 3-Nitroaniline | 99-09-2 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | NL | < 0.33 U | < 0.3 U | < 0.28 U | < 0.32 U | < 0.31 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 4-Chloroaniline | 106-47-8 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 4-Methylphenol | 106-44-5 | 100 | 500 | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | **0.056 J** |
| 4-Nitroaniline | 100-01-6 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| 4-Nitrophenol | 100-02-7 | NL | NL | < 0.83 U | < 0.76 U | < 0.70 U | < 0.81 U | < 0.78 U |
| Acetophenone | 98-86-2 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Atrazine | 1912-24-9 | NL | NL | < 0.16 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U |
| Benzaldehyde | 100-52-7 | NL | NL | **0.035 J** | < 0.38 UJ | < 0.34 UJ | < 0.40 UJ | < 0.39 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Bis(2-chloroethyl)ether | 111-44-4 | NL | NL | < 0.041 U | < 0.038 U | < 0.034 U | < 0.040 U | < 0.039 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | NL | NL | **0.16 J** | < 0.38 U | < 0.34 U | < 0.40 U | **0.068 J** |
| Butyl benzyl phthalate | 85-68-7 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Caprolactam | 105-60-2 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Carbazole | 86-74-8 | NL | NL | **1.8** | < 0.38 U | < 0.34 U | **0.025 J** | **0.12 J** |
| Dibenzofuran | 132-64-9 | 59 | 350 | **0.94** | < 0.38 U | < 0.34 U | **0.027 J** | **0.12 J** |
| Diethyl phthalate | 84-66-2 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Dimethyl phthalate | 131-11-3 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Di-n-butyl phthalate | 84-74-2 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Di-n-octyl phthalate | 117-84-0 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Diphenyl | 92-52-4 | NL | NL | **0.24 J** | < 0.38 U | < 0.34 U | **0.012 J** | **0.029 J** |
| Hexachlorobenzene | 118-74-1 | 1.2 | 6 | < 0.041 U | < 0.038 U | < 0.034 U | < 0.040 U | < 0.039 U |
| Hexachlorobutadiene | 87-68-3 | NL | NL | < 0.083 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Hexachlorocyclopentadiene | 77-47-4 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Hexachloroethane | 67-72-1 | NL | NL | < 0.041 U | < 0.038 U | < 0.034 U | < 0.040 U | < 0.039 U |
| Isophorone | 78-59-1 | NL | NL | < 0.16 U | < 0.15 U | < 0.14 U | < 0.16 U | < 0.16 U |
| Nitrobenzene | 98-95-3 | NL | NL | < 0.041 U | < 0.038 U | < 0.034 U | < 0.040 U | < 0.039 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | NL | < 0.041 U | < 0.038 U | < 0.034 U | < 0.040 U | < 0.039 U |
| N-Nitrosodiphenylamine | 86-30-6 | NL | NL | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| Pentachlorophenol | 87-86-5 | 6.7 | 6.7 | < 0.33 U | < 0.3 U | < 0.28 U | < 0.32 U | < 0.31 U |
| Phenol | 108-95-2 | 100 | 500 | < 0.41 U | < 0.38 U | < 0.34 U | < 0.40 U | < 0.39 U |
| | | | | | | | | |
| **Total SVOC** | CALC-SVOC | NL | NL | **22** | **0.073** | < 0.34 U | **0.064 J** | **0.43 J** |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram
NA = Not Analyzed
ND = Non Detect
NL = No Limit
SVOC - Semivolatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbon
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-01<br>324 Winthrop<br>SB-1(4.5-5)012411<br>1/24/2011<br>4.5 - 5 ft | SB-01<br>324 Winthrop<br>SB-1(44-46.5)012411<br>1/24/2011<br>44 - 46.5 ft | SB-01 DUP<br>324 Winthrop<br>DUP-2-012411<br>1/24/2011<br>44 - 46.5 ft | SB-01<br>324 Winthrop<br>SB-1(59-61.5)012411<br>1/24/2011<br>59 - 61.5 ft | SB-02<br>324 Winthrop<br>SB-2(3.5-12)012511<br>1/25/2011<br>3.5 - 12 ft | SB-02<br>324 Winthrop<br>SB-2(46.5-49)012511<br>1/25/2011<br>46.5 - 49 ft | SB-02<br>324 Winthrop<br>SB-2(56.5-59)012611<br>1/26/2011<br>56.5 - 59 ft | SB-03<br>324 Winthrop<br>SB-3(1.5-3)020811<br>2/8/2011<br>1.5 - 3 ft | SB-03<br>324 Winthrop<br>SB-3(31.5-34)020911<br>2/9/2011<br>31.5 - 34 ft | SB-03<br>324 Winthrop<br>SB-3(46.5-49)020911<br>2/9/2011<br>46.5 - 49 ft | SB-03<br>324 Winthrop<br>SB-3(56.5-59)020911<br>2/9/2011<br>56.5 - 59 ft | SB-03 DUP<br>324 Winthrop<br>DUP-3-020911<br>2/9/2011<br>56.5 - 59 ft | SB-04<br>324 Winthrop<br>SB-4(2.5-5)021011<br>2/10/2011<br>2.5 - 5 ft | SB-04<br>324 Winthrop<br>SB-4 (47.5-50)021011<br>2/10/2011<br>47.5 - 50 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **7370** | **2840** | **3080** | **2130** | **7430** | **2830** | **2360** | **16400** | **2670** | **3410** | **2390** | **2140** | **6990** | **2260** |
| Antimony | 7440-36-0 | NL | NL | < 2.2 U | < 2.2 U | < 2.1 U | < 2.5 U | < 2.2 U | < 2.1 U | < 2.6 U | < 2.5 U | < 2.1 U | < 2.1 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Arsenic | 7440-38-2 | **16** | **16** | **5.2** | **1.1** | **0.95 J** | **1.6** | **2.2** | < 1.0 U | < 1.3 U | **6.6** | **0.89 J** | **1.1** | **1.0 J** | **1.2** | **2.7** | < 1.1 U |
| Barium | 7440-39-3 | **400** | **400** | **48.1** | < 43.5 U | < 51.5 U | < 50.6 U | **102** | **18.4 J** | **14.7 J** | **65.0** | **22.0 J** | **21.1 J** | **14.4 J** | **15.1 J** | **58.9** | **17.0 J** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.42 J** | < 0.44 U | < 0.41 U | < 0.51 U | **0.30 J** | < 0.42 U | < 0.53 U | **0.65** | **0.20 J** | **0.21 J** | **0.21 J** | < 0.48 U | **0.38 J** | **0.20 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.39 J** | < 1.1 U | < 1.0 U | < 1.3 U | < 1.1 U | < 1.0 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.0 U | < 1.1 U | < 1.2 U | < 1.1 U | < 1.1 U |
| Calcium | 7440-70-2 | NL | NL | **1940** | **940 J** | **1010 J** | **805 J** | **55900** | < 1040 U | < 1320 U | **1390** | **752 J** | **1180** | **1290** | **1170 J** | **2410** | **785 J** |
| Chromium | 7440-47-3 | **180** | **1500** | **31.7** | **19.2** | **16.6** | **8.9** | **14.6** | **8.1** | **8.8** | **19.4** | **9.0** | **9.4** | **7.7** | **7.5** | **18.6** | **5.4** |
| Cobalt | 7440-48-4 | NL | NL | **5.7 J** | **3.4 J** | **3.6 J** | **3.4 J** | **8.8 J** | **3.6 J** | **3.5 J** | **5.4 J** | **3.3 J** | **4.1 J** | **4.8 J** | **5.2 J** | **7.8 J** | **2.4 J** |
| Copper | 7440-50-8 | **270** | **270** | **25.4** | **9.5** | **10.4** | **16.2** | **23.2** | **11.6** | **8.4** | **15.6** | **10.1** | **9.2** | **8.4** | **7.8** | **51.2** | **6.4** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **17700** | **8340** | **8060** | **6480** | **13100** | **8570** | **6170** | **19900** | **7920** | **7500** | **7940** | **7730** | **17300** | **6200** |
| Lead | 7439-92-1 | **400** | **1000** | **246** | **4.1** | **4.1** | **4.6** | **98.5** | **4.0** | **2.9** | **66.7** | **2.8** | **3.6** | **3.1** | **3.0** | **83.6** | **2.9** |
| Magnesium | 7439-95-4 | NL | NL | **2760** | **1680** | **1870** | **3370** | **15500** | **2420** | **3650** | **2290** | **1960** | **3220** | **5530** | **5550** | **3750** | **1810** |
| Manganese | 7439-96-5 | **2000** | 10000 | **242** | **126** | **131** | **83.3** | **245** | **230** | **165** | **213 J+** | **173 J+** | **206 J+** | **208 J+** | **202 J+** | **510** | **77.0** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.072** | < 0.033 U | < 0.031 U | < 0.040 U | **0.60** | < 0.031 U | < 0.044 U | **0.11** | < 0.037 U | < 0.034 U | < 0.041 U | < 0.041 U | **0.033** | < 0.038 U |
| Nickel | 7440-02-0 | 310 | 310 | **20.1** | **13.8** | **14.3** | **25.0** | **23.1** | **17.2** | **32.7** | **13.7** | **15.2** | **33.1** | **49.1** | **52.3** | **27.4** | **10.1** |
| Potassium | 7440-09-7 | NL | NL | **945 J** | **728 J** | **922 J** | **571 J** | **666 J** | **644 J** | **533 J** | **675 J** | **708 J** | **711 J** | **498 J** | **482 J** | **1650** | **519 J** |
| Selenium | 7782-49-2 | 180 | 1500 | < 2.2 U | < 2.2 U | < 2.1 U | < 2.5 U | < 2.2 U | < 2.1 U | < 2.6 U | < 2.5 U | < 2.1 U | < 2.1 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Silver | 7440-22-4 | 180 | 1500 | < 2.2 U | < 2.2 U | < 2.1 U | < 2.5 U | < 2.2 U | < 2.1 U | < 2.6 U | < 2.5 U | < 2.1 U | < 2.1 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Sodium | 7440-23-5 | NL | NL | < 1080 U | < 1090 U | < 1030 U | < 1270 U | **723 J** | **86.5 J** | **102 J** | **116 J** | **241 J** | **284 J** | **95.9 J** | **87.5 J** | **264 J** | < 1140 U |
| Thallium | 7440-28-0 | NL | NL | < 2.2 U | < 2.2 U | < 2.1 U | < 2.5 U | < 2.2 U | < 2.1 U | < 2.6 U | < 2.5 U | < 2.1 U | < 2.1 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Vanadium | 7440-62-2 | NL | NL | **31.8** | **10.9** | **11.8** | **9.5 J** | **28.9** | **11.1** | **8.4 J** | **30.2** | **11.8** | **12.0** | **11.2 J** | **11.7 J** | **27.3** | **6.5 J** |
| Zinc | 7440-66-6 | **10000** | **10000** | **157** | **30.8** | **29.7** | **27.0** | **187** | **20.3** | **15.1** | **171 J+** | **20.0 J+** | **20.6 J+** | **15.7 J+** | **14.7 J+** | **133** | **12.4** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | **1.2** | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | **0.52** | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| Total PCB | CALC-PCB | **1** | **1** | **0.52** | < 0.073 U | < 0.072 U | < 0.085 U | **1.2** | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.079 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| Cyanide, Total | 57-12-5 | **27** | **27** | **0.50 J** | < 0.54 U | < 0.54 U | < 0.63 U | **0.41 J** | < 0.52 U | < 0.66 U | < 0.70 U | < 0.56 U | < 0.53 U | < 0.63 U | < 0.63 U | < 0.54 U | < 0.59 U |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | **0.015 J** | < 0.0073 U | < 0.0072 U | < 0.0085 U | **0.079** | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | **0.045** | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | **0.037** | < 0.0073 U | < 0.0072 U | < 0.0085 U | **0.13** | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Chlordane | 57-74-9 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.08 U |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | **0.017** | < 0.0073 U | < 0.0072 U | < 0.0085 U | **0.034 NJ** | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | **0.012 J** | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | **0.011** | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | **0.034** | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | < 0.0076 U | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0074 U | < 0.0073 U | < 0.0072 U | < 0.0085 U | **0.03 J** | < 0.0070 U | < 0.0089 U | < 0.0093 U | < 0.0075 U | < 0.0071 U | < 0.0084 U | < 0.0084 U | < 0.0072 U | < 0.0080 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.072 U | < 0.085 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.093 U | < 0.075 U | < 0.071 U | < 0.084 U | < 0.084 U | < 0.072 U | < 0.08 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-T | 93-76-5 | NL | NE | < 0.019 U | < 0.019 U | < 0.018 U | < 0.022 U | < 0.019 U | < 0.018 U | < 0.023 U | < 0.024 U | < 0.019 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.018 U | < 0.02 U |
| 2,4-D | 94-75-7 | NL | NE | < 0.019 U | < 0.019 U | < 0.018 U | < 0.022 U | < 0.019 U | < 0.018 U | < 0.023 U | < 0.024 U | < 0.019 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.018 U | < 0.02 U |
| Picloram | 1918-02-1 | NL | NE | < 0.019 U | < 0.019 U | < 0.018 U | < 0.022 U | < 0.019 U | < 0.018 U | < 0.023 U | < 0.024 U | < 0.019 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.018 U | < 0.02 U |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | < 0.019 U | < 0.019 U | < 0.018 U | < 0.022 U | < 0.019 U | < 0.018 U | < 0.023 U | < 0.024 U | < 0.019 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.018 U | < 0.02 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-04<br>324 Winthrop<br>SB-4 (64-67)021011<br>2/10/2011<br>64 - 67 ft | SB-05<br>760 Parkside<br>SB/MW-5(4.5-5)010411<br>1/4/2011<br>4.5 - 5 ft | SB-05<br>760 Parkside<br>SB-5 (31-33)011911<br>1/19/2011<br>31 - 33 ft | SB-05<br>760 Parkside<br>SB-5 (47-49)011911<br>1/19/2011<br>47 - 49 ft | SB-05<br>760 Parkside<br>SB-5 (69-71)011911<br>1/19/2011<br>69 - 71 ft | SB-06<br>329 Clarkson<br>SB-6 (4.5-5)011711<br>1/17/2011<br>4.5 - 5 ft | SB-06<br>329 Clarkson<br>SB-6(50-52)011811<br>1/18/2011<br>50 - 52 ft | SB-06<br>329 Clarkson<br>SB-6(66.5-69)011811<br>1/18/2011<br>66.5 - 69 ft | SB-07<br>329 Clarkson<br>SB-7 (4.5-5)012011<br>1/20/2011<br>4.5 - 5 ft | SB-07<br>329 Clarkson<br>SB-7 (51.5-54)012111<br>1/20/2011<br>51.5 - 54 ft | SB-07<br>329 Clarkson<br>SB-7 (66.5-69)012011<br>1/20/2011<br>66.5 - 69 ft | SB-08<br>329 Clarkson<br>SB-8 (3-5)021611<br>2/16/2011<br>3 - 5 ft | SB-08<br>329 Clarkson<br>SB-8 (43-46)021611<br>2/16/2011<br>43 - 46 ft | SB-08<br>329 Clarkson<br>SB-8 (56-59)021611<br>2/16/2011<br>56 - 59 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **3000** | **14700** | **2700** | **2120** | **2140** | **15700** | **2050** | **2140** | **3530** | **1960** | **2230** | **8680** | **2340** | **1930** |
| Antimony | 7440-36-0 | NL | NL | < 2.2 U | < 2.3 U | < 2.1 U | < 2.0 U | < 2.2 U | < 2.4 U | < 2.0 U | < 2.1 U | < 2.1 U | < 2.2 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Arsenic | 7440-38-2 | **16** | **16** | **1.5** | **7.6** | **0.91 J** | **0.99 J** | **0.90 J** | **5.0** | **0.84 U** | < 1.0 U | **1.2** | < 1.1 U | < 1.1 U | **4.5** | < 1.0 U | < 1.1 U |
| Barium | 7440-39-3 | **400** | **400** | **24.7 J** | **40.3 J** | **19.3 J** | < 39.9 U | < 43.1 U | **49.4** | **12.3 J** | **11.7 J** | < 41.6 U | < 44.0 U | < 45.5 U | **62.1** | < 41.7 U | < 45.3 U |
| Beryllium | 7440-41-7 | 72 | 590 | **0.22 J** | **0.54** | **0.22 J** | **0.19 J** | < 0.43 U | **0.74** | < 0.40 U | < 0.41 U | < 0.42 U | < 0.44 U | < 0.46 U | **0.45 J** | < 0.42 U | < 0.45 U |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | < 1.2 U | < 1.0 U | < 1.0 U | < 1.1 U | < 1.2 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.1 U | < 1.1 U | < 1.2 U | < 1.0 U | < 1.1 U |
| Calcium | 7440-70-2 | NL | NL | **1140** | **841 J** | **959 J** | **760 J** | **1470** | **794 J** | **713 J** | **1020 J** | **614 J** | **725 J** | **3520** | **17100** | < 1040 U | < 1130 U |
| Chromium | 7440-47-3 | **180** | **1500** | **10.4** | **19.3** | **7.0** | **6.3** | **5.9** | **25.4** | **8.9** | **5.9** | **7.3** | **5.3** | **5.4** | **16.5** | **9.7** | **6.1** |
| Cobalt | 7440-48-4 | NL | NL | **5.1 J** | **6.9 J** | **4.8 J** | **3.3 J** | **3.0 J** | **11.1 J** | **3.7 J** | **4.8 J** | **3.1 J** | **2.5 J** | **2.7 J** | **6.5 J** | **3.1 J** | **3.4 J** |
| Copper | 7440-50-8 | **270** | **270** | **10.7** | **18.2** | **11.0** | **6.9** | **6.4** | **16.1** | **8.1** | **6.4** | **10.5** | **5.6** | **4.7 J** | **28.8** | **7.4** | **7.1** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **11100** | **23900** | **8040** | **5700** | **6390** | **27700** | **6190** | **7410** | **8530** | **5610** | **5500** | **15600** | **6140** | **6300** |
| Lead | 7439-92-1 | **400** | **1000** | **4.2** | **22.5** | **4.4** | **3.1** | **2.8** | **12.2** | **2.4** | **3.0** | **4.7** | **2.6** | **2.9** | **70.4** | **3.3** | **2.9** |
| Magnesium | 7439-95-4 | NL | NL | **2090** | **2190** | **2320 J+** | **2760 J+** | **2610 J+** | **3110** | **4010** | **1750** | **1580** | **1900 J+** | **2310 J+** | **3180** | **2400** | **3310** |
| Manganese | 7439-96-5 | **2000** | 10000 | **270** | **169** | **189** | **144** | **196** | **527** | **77.5** | **201** | **154 J+** | **67.9** | **580** | **253** | **187** | **67.0** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.039 U | **0.055** | < 0.032 U | < 0.032 U | < 0.035 U | **0.029 J** | < 0.033 U | < 0.032 U | < 0.032 U | < 0.036 U | < 0.038 U | **0.20** | < 0.034 U | < 0.036 U |
| Nickel | 7440-02-0 | 310 | 310 | **25.7** | **13.8** | **25.5** | **27.3** | **22.7** | **23.5** | **32.7** | **10.1** | **13.4** | **14.9** | **13.1** | **22.0** | **21.4** | **27.2** |
| Potassium | 7440-09-7 | NL | NL | **678 J** | **524 J** | **497 J** | **432 J** | **494 J** | **752 J** | **432 J** | **289 J** | **416 J** | **480 J** | **553 J** | **942 J** | **551 J** | **407 J** |
| Selenium | 7782-49-2 | 180 | 1500 | < 2.2 U | < 2.3 U | < 2.1 U | < 2.0 U | < 2.2 U | **2.6** | < 2.0 U | < 2.1 U | < 2.1 U | < 2.2 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Silver | 7440-22-4 | 180 | 1500 | < 2.2 U | < 2.3 U | < 2.1 U | < 2.0 U | < 2.2 U | < 2.4 U | < 2.0 U | < 2.1 U | < 2.1 U | < 2.2 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Sodium | 7440-23-5 | NL | NL | **114 J** | < 1170 U | < 1050 U | < 997 U | < 1080 U | **686 J** | **195 J** | **109 J** | < 1040 U | < 1100 U | < 1140 U | **285 J** | **90.2 J** | **93.2 J** |
| Thallium | 7440-28-0 | NL | NL | < 2.2 U | < 2.3 U | < 2.1 U | < 2.0 U | < 2.2 U | < 2.4 U | < 2.0 U | < 2.1 U | < 2.1 U | < 2.2 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.3 U |
| Vanadium | 7440-62-2 | NL | NL | **26.8** | **30.4** | **11.1** | **9.6 J** | **9.4 J** | **39.8** | **11.1** | **10.2 U** | **15.7** | **8.0 J** | **6.9 J** | **26.2** | **8.4 J** | **8.9 J** |
| Zinc | 7440-66-6 | **10000** | **10000** | **17.9** | **49.5** | **25.6** | **19.7** | **14.5** | **38.8** | **14.1** | **13.6** | **18.6** | **11.1** | **12.7** | **54.5** | **12.8** | **12.3** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | < 0.50 U | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| Cyanide, Total | 57-12-5 | **27** | **27** | < 0.59 U | NA | < 0.52 U | < 0.52 U | < 0.57 U | < 0.62 U | < 0.54 U | < 0.54 U | **0.21 J** | < 0.55 U | < 0.57 U | < 0.63 U | < 0.52 U | < 0.57 U |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | < 0.62 U | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Chlordane | 57-74-9 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.073 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0079 U | < 0.0084 U | < 0.0070 U | < 0.0069 U | < 0.0076 U | < 0.0083 U | < 0.0072 U | < 0.0072 U | < 0.0071 U | < 0.0073 U | < 0.0076 U | < 0.0085 U | < 0.0070 U | < 0.0076 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.079 U | < 0.084 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.083 U | < 0.072 U | < 0.072 U | < 0.071 U | < 0.073 U | < 0.076 U | < 0.085 U | < 0.07 U | < 0.076 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | ND | < 0.021 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.019 U | < 0.022 U | < 0.018 U | < 0.019 U |
| 2,4,5-T | 93-76-5 | NL | NE | < 0.02 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.019 U | < 0.022 U | < 0.018 U | < 0.019 U |
| 2,4-D | 94-75-7 | NL | NE | < 0.02 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.019 U | < 0.022 U | < 0.018 U | < 0.019 U |
| Picloram | 1918-02-1 | NL | NE | < 0.02 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.019 U | < 0.022 U | < 0.018 U | < 0.019 U |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | < 0.02 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.021 U | < 0.018 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.019 U | < 0.022 U | < 0.018 U | < 0.019 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-09<br>324 Winthrop<br>SB-9(2-3)012811<br>1/28/2011<br>2 - 3 ft | SB-09<br>324 Winthrop<br>SB-9(6-7)012811<br>1/28/2011<br>6 - 7 ft | SB-09<br>324 Winthrop<br>SB-9(8-10)012811<br>1/28/2011<br>8 - 10 ft | SB-10<br>324 Winthrop<br>SB-10(1.5-3)020111<br>2/1/2011<br>1.5 - 3 ft | SB-10<br>324 Winthrop<br>SB-10(5-7.5)020111<br>2/1/2011<br>5 - 7.5 ft | SB-10<br>324 Winthrop<br>SB-10(60-62.5)020211<br>2/2/2011<br>60 - 62.5 ft | SB-10<br>324 Winthrop<br>SB-10(80-82.5)020211<br>2/2/2011<br>80 - 82.5 ft | SB-11<br>324 Winthrop<br>SB-11(1-2)013111<br>1/31/2011<br>1 - 2 ft | SB-11<br>324 Winthrop<br>SB-11(35.6-40)013111<br>1/31/2011<br>35.6 - 40 ft | SB-11<br>324 Winthrop<br>SB-11(40.6-43)013111<br>1/31/2011<br>40.6 - 43 ft | SB-12<br>324 Winthrop<br>SB-12(3.5-4.5)020311<br>2/3/2011<br>3.5 - 4.5 ft | SB-12<br>324 Winthrop<br>SB-12(69-72)020411<br>2/4/2011<br>69 - 72 ft | SB-12<br>324 Winthrop<br>SB-12(75-77)020411<br>2/4/2011<br>75 - 77 ft | SB-13<br>324 Winthrop<br>SB-13(0-1.5)020411<br>2/4/2011<br>0 - 1.5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **7410** | **6130** | **6590** | **5280** | **5540** | **1880** | **2730** | **10200** | **2760** | **2030** | **8720** | **2260** | **2590** | **5840** |
| Antimony | 7440-36-0 | NL | NL | < 2.2 U | **4.3** | < 2.1 U | **2.1 J** | **1.3 J** | < 2.1 U | < 2.1 U | **1.4 J** | < 2.0 U | < 2.0 U | < 2.3 U | < 2.2 U | < 2.2 U | < 2.3 U |
| Arsenic | 7440-38-2 | **16** | **16** | **4.1** | **18.3** | **3.7** | **6.6** | **3.3** | **1.5** | **1.1** | **7.0** | **0.98 J** | **0.71 J** | **3.4** | **0.77 J** | **0.85 J** | **2.9** |
| Barium | 7440-39-3 | **400** | **400** | **148** | **150** | **56.8** | **2750** | **143** | **12.0 J** | **19.3 J** | **124** | < 39.7 U | < 40.3 U | **373** | **14.9 J** | **16.0 J** | **179** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.34 J** | **0.28 J** | **0.41 J** | **0.20 J** | < 0.48 U | < 0.42 U | < 0.43 U | **0.47** | **0.17 J** | < 0.40 U | **0.23 J** | **0.20 J** | < 0.44 U | **0.23 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | **2.4** | < 1.1 U | **1.3** | **0.68 J** | < 1.0 U | < 1.1 U | **1.2** | < 0.99 U | < 1.0 U | **0.32 J** | < 1.1 U | < 1.1 U | **0.49 J** |
| Calcium | 7440-70-2 | NL | NL | **34300** | **44800** | **2660** | **47600** | **107000** | < 1040 U | **5580** | **7670** | **930 J** | **898 J** | **77100** | **5310** | **6120** | **18000** |
| Chromium | 7440-47-3 | **180** | **1500** | **21.5** | **3040** | **19.9** | **315** | **300** | **6.9 J** | **17.0 J** | **113** | **7.9** | **5.6** | **24.6** | **5.3** | **6.1** | **101** |
| Cobalt | 7440-48-4 | NL | NL | **10.8** | **6.6 J** | **9.6 J** | **7.7 J** | **3.6 J** | **3.2 J** | **4.1 J** | **7.3 J** | **4.1 J** | **3.0 J** | **7.7 J** | **3.2 J** | **3.7 J** | **5.5 J** |
| Copper | 7440-50-8 | **270** | **270** | **21.2** | **40.8** | **45.5** | **97.6** | **34.2** | **6.6** | **7.4** | **53.5** | **11.9** | **8.0** | **44.0** | **5.8** | **8.2** | **242** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **15000** | **41000** | **23700** | **31400** | **12400** | **5340 J** | **7600 J** | **21800** | **8710** | **5650** | **17200** | **5570** | **7530** | **12300** |
| Lead | 7439-92-1 | **400** | **1000** | **93.3** | **3240** | **14.7** | **1150** | **429** | **3.1** | **3.5** | **765** | **3.8** | **2.6** | **80.1** | **3.7** | **4.0** | **231** |
| Magnesium | 7439-95-4 | NL | NL | **9410** | **8230** | **3560** | **2570** | **35700** | **2530** | **3760** | **2940** | **2280** | **1580** | **4940** | **2250** | **3140** | **3590** |
| Manganese | 7439-96-5 | **2000** | 10000 | **280** | **339** | **687** | **297** | **242** | **53.6 J** | **173 J** | **354** | **216** | **272** | **238** | **187** | **188** | **207** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.18** | < 0.041 U | < 0.034 U | < 0.041 U | **0.47** | < 0.033 U | < 0.034 U | **0.36** | < 0.034 U | < 0.031 U | **0.12** | < 0.038 U | < 0.036 U | **0.26** |
| Nickel | 7440-02-0 | 310 | 310 | **17.7** | **25.4** | **52.3** | **15.9** | **11.8** | **23.7** | **27.9** | **20.3** | **22.8** | **15.8** | **15.8** | **11.3** | **18.9** | **21.1** |
| Potassium | 7440-09-7 | NL | NL | **1130** | **907 J** | **1350** | **785 J** | **747 J** | **382 J** | **553 J** | **678 J** | **605 J** | **422 J** | **976 J** | **548 J** | **433 J** | **722 J** |
| Selenium | 7782-49-2 | 180 | 1500 | < 2.2 U | < 2.5 U | < 2.1 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.1 U | < 2.1 U | < 2.0 U | < 2.0 U | < 2.3 U | < 2.2 U | < 2.2 U | < 2.3 U |
| Silver | 7440-22-4 | 180 | 1500 | < 2.2 U | < 2.5 U | < 2.1 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.1 U | < 2.1 U | < 2.0 U | < 2.0 U | < 2.3 U | < 2.2 U | < 2.2 U | < 2.3 U |
| Sodium | 7440-23-5 | NL | NL | **317 J** | **460 J** | **358 J** | **587 J** | **295 J** | **71.4 J** | **181 J** | **158 J** | **118 J** | **68.1 J** | **328 J** | **70.1 J** | **76.7 J** | **177 J** |
| Thallium | 7440-28-0 | NL | NL | < 2.2 U | < 2.5 U | < 2.1 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.1 U | < 2.1 U | < 2.0 U | < 2.0 U | < 2.3 U | < 2.2 U | < 2.2 U | < 2.3 U |
| Vanadium | 7440-62-2 | NL | NL | **29.8** | **20.1** | **44.8** | **30.7** | **12.8** | **7.5 J** | **11.2** | **30.9** | **12.4** | **8.8 J** | **46.3** | **6.5 J** | **8.8 J** | **21.0** |
| Zinc | 7440-66-6 | **10000** | **10000** | **80.2** | **1170** | **56.0** | **1790** | **295** | **12.6** | **15.9** | **593** | **16.4** | **14.3** | **312** | **13.0** | **15.9** | **231** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.075 U | < 0.086 U | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 U | < 0.075 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.075 U | < 0.086 U | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 U | < 0.075 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.075 U | < 0.086 U | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 U | < 0.075 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.075 U | < 0.086 U | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | **0.4** | < 0.078 U | < 0.076 U | < 0.075 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.075 U | **0.41** | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 U | < 0.075 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | **0.062 J** | **0.78 J** | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | **0.19** | < 0.078 U | < 0.076 U | **0.086** |
| Aroclor 1260 | 11096-82-5 | NL | NL | **0.054 J** | **0.7 J** | < 0.072 U | **0.43 J** | **0.3 J** | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 U | < 0.075 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.075 UJ | < 0.086 UJ | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | **1.6 J** | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 U | < 0.075 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.075 UJ | < 0.086 UJ | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 U | < 0.075 U |
| Total PCB | CALC-PCB | **1** | **1** | **0.12** | **1.9** | < 0.072 U | **0.43** | **0.3** | < 0.074 U | < 0.074 U | **1.6** | < 0.069 U | < 0.069 U | **0.59** | < 0.078 U | < 0.076 U | **0.086** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | **0.78** | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | **0.18 J** | < 0.50 U | < 0.50 U | **0.32 J** |
| Cyanide, Total | 57-12-5 | **27** | **27** | **0.17 J** | **72.9** | **0.24 J** | **0.38 J** | **19.5** | < 0.55 U | < 0.55 U | **2.6** | < 0.52 U | < 0.52 U | **0.95** | < 0.58 U | < 0.57 U | **0.63** |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0075 U | **0.067** | < 0.0072 U | < 0.0084 U | **0.038** | < 0.0074 U | < 0.0074 U | **0.1 J** | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0075 U | **0.024 J** | < 0.0072 U | **0.13 J** | **0.012** | < 0.0074 U | < 0.0074 U | **0.031 J** | < 0.0069 U | < 0.0069 U | < 0.0081 U | **0.012 NJ** | < 0.0076 UJ | < 0.0075 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | **0.0049 J** | **0.11** | < 0.0072 U | **0.057** | **0.038** | < 0.0074 U | < 0.0074 U | **0.12 J** | < 0.0069 U | < 0.0069 U | < 0.0081 U | **0.027 NJ** | < 0.0076 UJ | **0.0069 J** |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | **0.024 J** | **0.013 J** | **0.031 NJ** | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | **0.022 J** | < 0.0076 UJ | < 0.0075 U |
| Chlordane | 57-74-9 | NL | NL | < 0.075 U | < 0.086 U | < 0.072 U | **0.25** | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 UJ | < 0.075 U |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | **0.041 J** | < 0.0076 UJ | < 0.0075 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0075 U | **0.026 J** | < 0.0072 U | **0.053** | **0.0081 NJ** | < 0.0074 U | < 0.0074 U | **0.027 J** | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | **0.0050 J** | **0.0098 J** | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | **0.015 NJ** | < 0.0069 U | < 0.0069 U | < 0.0081 U | **0.014 NJ** | < 0.0076 UJ | < 0.0075 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | **0.09** | < 0.0069 U | < 0.0069 U | < 0.0081 U | **0.014** | < 0.0076 UJ | < 0.0075 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | **0.029 J** | < 0.0086 U | **0.048 J** | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0075 U | < 0.0086 U | < 0.0072 U | < 0.0084 U | < 0.0081 U | < 0.0074 U | < 0.0074 U | < 0.0075 U | < 0.0069 U | < 0.0069 U | < 0.0081 U | < 0.0078 U | < 0.0076 UJ | < 0.0075 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.075 U | < 0.086 U | < 0.072 U | < 0.084 U | < 0.081 U | < 0.074 U | < 0.074 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.081 U | < 0.078 U | < 0.076 UJ | < 0.075 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4,5-T | 93-76-5 | NL | NE | < 0.019 U | < 0.022 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.019 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.02 U | < 0.019 U | < 0.019 U |
| 2,4-D | 94-75-7 | NL | NE | < 0.019 U | < 0.022 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.019 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.02 U | < 0.019 U | < 0.019 U |
| Picloram | 1918-02-1 | NL | NE | < 0.019 U | < 0.022 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.019 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.02 U | < 0.019 U | < 0.019 U |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | < 0.019 U | < 0.022 U | < 0.018 U | < 0.021 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.019 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.02 U | < 0.019 U | < 0.019 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-13<br>324 Winthrop<br>SB-13(64-66.5)020711<br>2/7/2011<br>64 - 66.5 ft | SB-13<br>324 Winthrop<br>SB-13(77-79)020711<br>2/7/2011<br>77 - 79 ft | SB-14<br>760 Parkside<br>SB-14(5-5.5)010311<br>1/3/2011<br>5 - 5.5 ft | SB-14<br>760 Parkside<br>SB-14(48-50)010511<br>1/5/2011<br>48 - 50 ft | SB-14<br>760 Parkside<br>SB-14(56-58)010611<br>1/6/2011<br>56 - 58 ft | SB-15<br>760 Parkside<br>SB-15(4-5.5)010311<br>1/3/2011<br>4 - 5.5 ft | SB-15<br>760 Parkside<br>SB-15(66-68)011011<br>1/10/2011<br>66 - 68 ft | SB-15<br>760 Parkside<br>SB-15(78-80)011011<br>1/11/2011<br>78 - 80 ft | SB-16<br>329 Clarkson<br>SB-16(4-5)012211<br>1/22/2011<br>4-5 | SB-16<br>329 Clarkson<br>SB-16(47-50)012211<br>1/22/2011<br>47-50 | SB-16<br>329 Clarkson<br>SB-16(68-70)012211<br>1/22/2011<br>68-70 | SB-17<br>760 Parkside<br>SB-17(4.5-5)010411<br>1/4/2011<br>4.5 - 5 ft | SB-17<br>760 Parkside<br>SB-17(31-33)011711<br>1/17/2011<br>31 - 33 ft | SB-17<br>760 Parkside<br>SB-17(49-51)011711<br>1/17/2011<br>49 - 51 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **1990** | **2590** | **4680** | **2840** | **1880** | **6960** | **2750** | **2520** | **10000** | **3200** | **1910** | **7070** | **2380** | **2850** |
| Antimony | 7440-36-0 | NL | NL | < 2.3 U | < 2.4 U | **1.6 J** | < 2.3 U | < 2.1 U | < 2.3 U | < 2.2 U | < 2.3 U | < 2.0 U | < 2.0 U | < 2.4 U | < 2.2 U | < 2.1 U | < 2.0 U |
| Arsenic | 7440-38-2 | **16** | **16** | < 1.2 U | **0.93 J** | **10.1** | **0.88 J** | **0.79 J** | **4.3** | **1.2** | **1.1 J** | **3.2** | **0.71 J** | < 1.2 U | **9.3** | **1.0 J** | < 1.0 U |
| Barium | 7440-39-3 | **400** | **400** | **12.0 J** | **19.4 J** | **164** | **18.2 J** | **12.4 J** | **43.7 J** | **19.9 J** | **17.6 J** | **41.9** | **20.0 J** | **16.1 J** | **51.8** | **17.7 J** | **12.0 J** |
| Beryllium | 7440-41-7 | 72 | 590 | < 0.47 U | < 0.48 U | **0.38 J** | < 0.45 U | < 0.43 U | **0.36 J** | < 0.44 U | < 0.46 U | **0.61** | **0.18 J** | < 0.48 U | **0.45** | < 0.43 U | < 0.40 U |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.2 U | < 1.2 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.2 U | < 1.1 U | < 1.2 U | < 0.99 U | < 1.0 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.0 U |
| Calcium | 7440-70-2 | NL | NL | **924 J** | **6360** | **12700** | **1650** | **658 J** | **3060** | **9650** | **5800** | **3870** | **1260** | **4930** | **2510 J** | **1090** | **1010 J** |
| Chromium | 7440-47-3 | **180** | **1500** | **6.3** | **6.1** | **15.9** | **11.4** | **4.8** | **15.4** | **6.6** | **7.3** | **22.2** | **10.1** | **5.8** | **15.9** | **6.0** | **22.9** |
| Cobalt | 7440-48-4 | NL | NL | **2.9 J** | **4.2 J** | **7.4 J** | **4.1 J** | **2.8 J** | **7.0 J** | **2.5 J** | **2.6 J** | **8.8 J** | **3.7 J** | **2.7 J** | **7.8 J** | **3.9 J** | **7.3 J** |
| Copper | 7440-50-8 | **270** | **270** | **7.0** | **8.0** | **58.7** | **9.8** | **5.8** | **18.2** | **6.6** | **6.5** | **20.1** | **7.7** | < 6.0 U | **33.5 J** | **11.4** | **8.8** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **5260** | **7490** | **21300** | **7890** | **4900** | **14900** | **7230** | **7450** | **22900** | **7720** | **6020** | **18300** | **7410** | **7910** |
| Lead | 7439-92-1 | **400** | **1000** | **2.1** | **3.5** | **514** | **4.2** | **2.9** | **125** | **6.3** | **3.8** | **12.3** | **4.2** | **3.6** | **103 J** | **3.4** | **4.4** |
| Magnesium | 7439-95-4 | NL | NL | **2720** | **3620** | **2660** | **3870** | **1590** | **2970** | **2670** | **3210** | **4290** | **2960** | **2470** | **2460** | **5380** | **3180** |
| Manganese | 7439-96-5 | **2000** | 10000 | **56.6** | **202** | **300** | **107** | **87.4** | **408** | **236** | **278** | **624** | **230** | **352** | **388** | **193** | **89.9** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.037 U | < 0.034 U | **0.63** | < 0.035 U | < 0.033 U | **0.050** | < 0.038 U | < 0.033 U | < 0.033 U | < 0.034 U | < 0.038 U | **0.19 J** | **0.034** | < 0.031 U |
| Nickel | 7440-02-0 | 310 | 310 | **24.1** | **19.3** | **23.5** | **39.5** | **11.1** | **20.7** | **9.9** | **18.3** | **25.5** | **24.6** | **10.3** | **22.9** | **45.6** | **98.2** |
| Potassium | 7440-09-7 | NL | NL | **511 J** | **498 J** | **765 J** | **801 J** | **400 J** | **759 J** | **686 J** | **419 J** | **1540** | **885 J** | **512 J** | **790 J** | **466 J** | **547 J** |
| Selenium | 7782-49-2 | 180 | 1500 | < 2.3 U | < 2.4 U | **1.3 J** | < 2.3 U | < 2.1 U | < 2.3 U | < 2.2 U | < 2.3 U | < 2.0 U | < 2.0 U | < 2.4 U | < 2.2 U | < 2.1 U | < 2.0 U |
| Silver | 7440-22-4 | 180 | 1500 | < 2.3 U | < 2.4 U | < 2.3 U | < 2.3 U | < 2.1 U | < 2.3 U | < 2.2 U | < 2.3 U | < 2.0 U | < 2.0 U | < 2.4 U | < 2.2 U | < 2.1 U | < 2.0 U |
| Sodium | 7440-23-5 | NL | NL | < 1170 U | < 1190 U | **250 J** | **118 J** | **78.7 J** | **106 J** | **111 J** | **94.1 J** | **261 J** | **214 J** | **76.0 J** | < 1100 U | **82.1 J** | **113 J** |
| Thallium | 7440-28-0 | NL | NL | < 2.3 U | < 2.4 U | < 2.3 U | < 2.3 U | < 2.1 U | < 2.3 U | < 2.2 U | < 2.3 U | < 2.0 U | < 2.0 U | < 2.4 U | < 2.2 U | < 2.1 U | < 2.0 U |
| Vanadium | 7440-62-2 | NL | NL | **8.2 J** | **8.3 J** | **21.0** | **10.6 J** | **6.1 J** | **24.2** | **9.6 J** | **10.2 J** | **34.9** | **11.6** | **7.9 J** | **29.3** | **8.7 J** | **8.9 J** |
| Zinc | 7440-66-6 | **10000** | **10000** | **12.7** | **16.9** | **283** | **17.9** | **10.3** | **46.6** | **14.8** | **15.0** | **54.8** | **16.5** | **11.5** | **91.9 J** | **18.9** | **20.1** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.078 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 U | < 0.071 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | < 0.50 U | < 0.50 U | NA | NA | NA | NA | NA | NA | < 0.50 U | < 0.50 U | < 0.50 U | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | < 0.58 U | < 0.61 U | NA | NA | NA | NA | NA | NA | < 0.53 U | < 0.52 U | < 0.62 U | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | < 0.55 U | < 0.57 U | < 0.54 U | < 0.59 U | < 0.55 U | < 0.58 U | NA | NA | NA | < 0.54 U | **1.1** | **0.11** |
| Cyanide, Free | 57-12-5-F | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Chlordane | 57-74-9 | NL | NL | < 0.078 U | < 0.082 U | **0.038 J** | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 UJ | < 0.071 U |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | **0.0083** | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | **0.016 J** | < 0.0071 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | **0.0080 NJ** | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0078 U | < 0.0082 U | < 0.0078 U | < 0.0078 U | < 0.0075 U | < 0.0079 U | < 0.0077 U | < 0.0079 U | < 0.0071 U | < 0.0069 U | < 0.0083 U | < 0.0075 U | < 0.0075 UJ | < 0.0071 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.078 U | < 0.082 U | < 0.078 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.079 U | < 0.071 U | < 0.069 U | < 0.083 U | < 0.075 U | < 0.075 UJ | < 0.071 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | ND | ND | < 0.02 U | < 0.02 U | < 0.019 U | < 0.02 U | < 0.02 U | < 0.02 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.018 U |
| 2,4,5-T | 93-76-5 | NL | NE | < 0.02 U | < 0.021 U | < 0.02 U | < 0.02 U | < 0.019 U | < 0.02 U | < 0.02 U | < 0.02 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.018 U |
| 2,4-D | 94-75-7 | NL | NE | < 0.02 U | < 0.021 U | < 0.02 U | < 0.02 U | < 0.019 U | < 0.02 U | < 0.02 U | < 0.02 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.018 U |
| Picloram | 1918-02-1 | NL | NE | < 0.02 U | < 0.021 U | < 0.02 U | < 0.02 U | < 0.019 U | < 0.02 U | < 0.02 U | < 0.02 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.018 U |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | < 0.02 U | < 0.021 U | < 0.02 U | < 0.02 U | < 0.019 U | < 0.02 U | < 0.02 U | < 0.02 U | < 0.018 U | < 0.018 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.018 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-17<br>760 Parkside<br>SB-17(67-69)011711<br>1/17/2011<br>67 - 69 ft | SB-18<br>760 Parkside<br>SB-18(4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-18<br>760 Parkside<br>SB-18(27.5-30)062411<br>6/27/2011<br>27.5 - 30 ft | SB-18<br>760 Parkside<br>SB-18(42.5-45)062411<br>6/27/2011<br>42.5 - 45 ft | SB-18<br>760 Parkside<br>SB-18(70-72.5)062411<br>6/27/2011<br>70 - 72.5 ft | SB-19<br>760 Parkside<br>SB-19(4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-19<br>760 Parkside<br>SB-19(72.5-75)062411<br>6/24/2011<br>72.5 - 75 ft | SB-19<br>760 Parkside<br>SB-19(75-77.5)062411<br>6/24/2011<br>75 - 77.5 ft | SB-20<br>760 Parkside<br>SB-20 (4-5)062311<br>6/23/2011<br>4 - 5 ft | SB-20<br>760 Parkside<br>SB-20(15-17.5)062411<br>6/28/2011<br>15 - 17.5 ft | SB-20<br>760 Parkside<br>SB-20(62.5-65)062411<br>6/28/2011<br>62.5 - 65 ft | SB-20<br>760 Parkside<br>SB-20(87.5-90)062411<br>6/29/2011<br>87.5 - 90 ft | SB-21<br>760 Parkside<br>SB-21(4.5-5)062311<br>6/23/2011<br>4.5 - 5 ft | SB-21<br>760 Parkside<br>SB-21(72.5-75)062411<br>6/29/2011<br>72.5 - 75 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **2950** | **4150** | **3010** | **3040** | **2230** | **10800** | **3980** | **1950** | **12100** | **4530** | **2580** | **2570** | **11600** | **2220** |
| Antimony | 7440-36-0 | NL | NL | < 2.5 U | < 5.7 UJ | < 2.0 U | < 2.1 U | < 2.2 U | < 2.6 UJ | < 2.5 UJ | < 2.5 UJ | < 2.2 UJ | < 2.1 U | < 2.1 U | < 2.5 U | < 2.1 UJ | < 2.4 U |
| Arsenic | 7440-38-2 | **16** | **16** | < 1.2 U | **47.8** | **1.9** | **1.3** | **1.0 J** | **11.3** | **3.0** | < 1.2 U | **3.6** | **1.8** | **0.90 J** | **0.92 J** | **4.4** | < 1.2 U |
| Barium | 7440-39-3 | **400** | **400** | **13.0 J** | **28.6 J** | **23.5 J** | **19.9 J** | **15.0 J** | **100** | **38.2 J** | **17.1 J** | **27.5 J** | **30.4 J** | **16.5 J** | **20.3 J** | **48.3** | **15.8 J** |
| Beryllium | 7440-41-7 | 72 | 590 | < 0.49 U | < 1.1 U | **0.22 J** | < 0.42 U | < 0.43 U | **0.57** | **0.24 J** | < 0.50 U | **0.47** | **0.46** | **0.21 J** | < 0.51 U | **0.52** | < 0.48 U |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.2 U | < 2.9 U | < 1.0 U | < 1.1 U | < 1.1 U | < 1.3 U | < 1.2 U | < 1.2 U | < 1.1 U | **0.17 J** | < 1.1 U | < 1.3 U | < 1.0 U | < 1.2 U |
| Calcium | 7440-70-2 | NL | NL | **647 J** | **677 J** | **620 J** | **1620** | **4790** | **3060** | **4240** | **3870** | **576 J** | **1520** | **913 J** | **6390** | **1440** | **4100** |
| Chromium | 7440-47-3 | **180** | **1500** | **5.4** | **17.7 J+** | **7.1** | **7.1** | **5.1** | **28.6 J+** | **8.2 J+** | **5.5 J+** | **25.3 J+** | **13.5** | **7.4** | **4.4** | **21.8 J+** | **5.1** |
| Cobalt | 7440-48-4 | NL | NL | **3.9 J** | < 28.5 U | **4.5 J** | **3.0 J** | **2.8 J** | **9.5 J** | **4.6 J** | **2.5 J** | **7.6 J** | **5.1 J** | **3.3 J** | **2.8 J** | **9.8 J** | **2.2 J** |
| Copper | 7440-50-8 | **270** | **270** | **8.5** | **22.3** | **12.6** | **6.8** | **6.8** | **87.9** | **13.3** | **11.1** | **16.2** | **22.3** | **6.6** | **6.9** | **31.5** | **6.0** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **6160** | **53000** | **11600** | **6090** | **7240** | **24800** | **15200** | **6090** | **22900** | **12000** | **7970** | **6600** | **20800** | **7640** |
| Lead | 7439-92-1 | **400** | **1000** | **3.7** | **17.1** | **2.8** | **2.6** | **2.4** | **298** | **8.6** | **1.6** | **9.9** | **6.8** | **3.3** | **2.6** | **21.9** | **2.5** |
| Magnesium | 7439-95-4 | NL | NL | **1740** | **1530 J** | **1510** | **2530** | **2050** | **2810 J+** | **3570 J+** | **1940 J+** | **2810 J+** | **2350** | **1790** | **2920** | **3890 J+** | **2090** |
| Manganese | 7439-96-5 | **2000** | 10000 | **178** | **212 J** | **323** | **211** | **199** | **317 J** | **462 J** | **195 J** | **355 J** | **252** | **52.8** | **198** | **379 J** | **140** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.041 U | **0.041** | < 0.034 U | < 0.036 U | < 0.036 U | **0.48** | < 0.041 U | < 0.041 U | < 0.038 U | **0.32** | < 0.035 U | < 0.043 U | **0.073** | < 0.040 U |
| Nickel | 7440-02-0 | 310 | 310 | **15.4** | **7.7 J** | **12.1** | **23.4** | **9.4** | **31.6** | **14.1** | **9.3 J** | **18.8** | **19.9** | **22.0** | **6.4 J** | **27.5** | **7.9 J** |
| Potassium | 7440-09-7 | NL | NL | **452 J** | **925 J** | **379 J** | **702 J** | **376 J** | **1050 J** | **1060 J** | **284 J** | **691 J** | **1220** | **785 J** | **429 J** | **1000 J** | **310 J** |
| Selenium | 7782-49-2 | 180 | 1500 | < 2.5 U | < 5.7 U | < 2.0 U | < 2.1 U | < 2.2 U | **1.2 J** | < 2.5 U | < 2.5 U | < 2.2 U | < 2.1 U | < 2.1 U | < 2.5 U | < 2.1 U | < 2.4 U |
| Silver | 7440-22-4 | 180 | 1500 | < 2.5 U | < 5.7 U | < 2.0 U | < 2.1 U | < 2.2 U | < 2.6 U | < 2.5 U | < 2.5 U | < 2.2 U | < 2.1 U | < 2.1 U | < 2.5 U | < 2.1 U | < 2.4 U |
| Sodium | 7440-23-5 | NL | NL | < 1230 U | **194 J** | < 1010 U | **477 J** | < 1080 U | **186 J** | **79.3 J** | < 1240 U | < 1100 U | **184 J** | **105 J** | < 1260 U | < 1040 U | < 1210 U |
| Thallium | 7440-28-0 | NL | NL | < 2.5 U | < 5.7 U | < 2.0 U | < 2.1 U | < 2.2 U | < 2.6 U | < 2.5 U | < 2.5 U | < 2.2 U | < 2.1 U | < 2.1 U | < 2.5 U | < 2.1 U | < 2.4 U |
| Vanadium | 7440-62-2 | NL | NL | **7.8 J** | **38.3** | **12.3** | **8.9 J** | **8.3 J** | **34.4** | **18.1** | **5.8 J** | **32.5** | **19.7** | **9.7 J** | **5.8 J** | **30.7** | **9.2 J** |
| Zinc | 7440-66-6 | **10000** | **10000** | **18.6** | **21.9** | **26.4** | **18.5** | **13.4** | **201** | **41.2** | **11.8** | **30.0** | **50.7** | **13.2** | **13.3** | **52.1** | **13.8** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.076 U | < 0.074 U | < 0.078 U | < 0.086 U | < 0.074 U | < 0.085 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | **0.34 J** | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | **0.35 J** | < 0.50 U |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | < 0.58 U | < 0.52 U | < 0.55 U | < 0.58 U | **0.34 J** | < 0.65 U | < 0.63 U | **0.63** | **21.5** | < 0.58 U | < 0.64 U | **0.35 J** | **0.91** |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | **0.067 J** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0086 U | < 0.0077 U | < 0.0069 UJ | < 0.0073 U | < 0.0078 U | **0.0058 J** | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Chlordane | 57-74-9 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.077 U | < 0.075 UJ | < 0.078 UJ | < 0.086 U | < 0.074 U | < 0.085 U |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0086 U | < 0.0077 U | < 0.0069 U | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0086 U | < 0.0077 U | < 0.0069 UJ | < 0.0073 U | < 0.0078 U | < 0.0091 U | < 0.0086 U | < 0.0084 U | < 0.0077 U | < 0.0075 UJ | < 0.0078 UJ | < 0.0086 U | < 0.0074 U | < 0.0085 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.086 U | < 0.077 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.091 U | < 0.086 U | < 0.084 U | < 0.077 U | < 0.075 UJ | < 0.078 UJ | < 0.086 U | < 0.074 U | < 0.085 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | < 0.022 U | < 0.02 U | < 0.018 U | < 0.019 U | < 0.02 U | < 0.023 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.02 U | < 0.022 U | < 0.019 U | < 0.022 U |
| 2,4,5-T | 93-76-5 | NL | NE | < 0.022 U | < 0.02 U | < 0.018 U | < 0.019 U | < 0.02 U | < 0.023 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.02 U | < 0.022 U | < 0.019 U | < 0.022 U |
| 2,4-D | 94-75-7 | NL | NE | < 0.022 U | < 0.02 U | < 0.018 U | < 0.019 U | < 0.02 U | < 0.023 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.02 U | < 0.022 U | < 0.019 U | < 0.022 U |
| Picloram | 1918-02-1 | NL | NE | < 0.022 U | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | < 0.022 U | < 0.02 U | < 0.018 U | < 0.019 U | < 0.02 U | < 0.023 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.019 U | < 0.02 U | < 0.022 U | < 0.019 U | < 0.022 U |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID: | | | | SB-21 | SB-22 | SB-22 | SB-22 | SB-23 | SB-23 | SB-24 | SB-24 | SB-25 | SB-25 | SB-25 | SB-101 | SB-101 | SB-101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Property: | | NYSDEC PART | NYSDEC PART | 760 Parkside | 329 Clarkson | 329 Clarkson | 329 Clarkson | 329 Clarkson | 329 Clarkson | 760 Parkside | 760 Parkside | 324 Winthrop | 324 Winthrop | 324 Winthrop | 324 Winthrop | 324 Winthrop | 324 Winthrop |
| Sample ID: | CAS# | 375-6 | 375-6 | SB-21(92.5-95)062411 | SB-22(1-2)062411 | SB-22(82.5-85)062411 | SB-22(92.5-95)062411 | SB-23(77.5-80)062411 | SB-23(92.5-95)062411 | SB-24(4-5)062411 | SB-24(32.5-35)062411 | SB-25(4-5)062411 | SB-25(82.5-85)062411 | SB-25(90-92.5)062411 | SB-101(2-4) | SB-101(7-9) | SB-101(12-14) |
| Sample Date: | | RESTRICTED-RES | COMMERCIAL | 6/29/2011 | 7/6/2011 | 7/6/2011 | 7/6/2011 | 7/13/2011 | 7/13/2011 | 6/30/2011 | 6/30/2011 | 7/7/2011 | 7/11/2011 | 7/11/2011 | 8/24/2020 | 8/25/2020 | 8/25/2020 |
| Depth Interval (ft bgs): | | | | 92.5 - 95 ft | 1 - 2 ft | 82.5 - 85 ft | 92.5 - 95 ft | 77.5 - 80 ft | 92.5 - 95 ft | 4 - 5 ft | 32.5 - 35 ft | 4 - 5 ft | 82.5 - 85 ft | 90 - 92.5 ft | 2 - 4 ft | 7 - 9 ft | 12 - 14 ft |
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **2520** | **12200** | **2300** | **1820** | **1670** | **2040** | **10700** | **2800** | **14100** | **2580** | **2080** | **14100** | **4420** | **7680** |
| Antimony | 7440-36-0 | NL | NL | < 2.3 U | < 2.4 U | < 2.6 U | < 2.5 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.1 U | < 2.5 U | < 2.6 U | < 2.4 U | < 0.96 UJ | < 0.99 U | < 0.74 U |
| Arsenic | 7440-38-2 | **16** | **16** | < 1.2 U | **6.5** | **1.2 J** | < 1.2 U | **0.98 J** | **1.9** | **3.5** | **1.9** | **6.7** | **1.3** | **1.2** | **5.1** | **2.7** | **2.6** |
| Barium | 7440-39-3 | **400** | **400** | **20.1 J** | **69.2** | **16.6 J** | **16.3 J** | **11.3 J** | **16.7 J** | **57.2** | **22.0 J** | **45.3 J** | **23.9 J** | **16.9 J** | **49.4** | **102** | **56.3** |
| Beryllium | 7440-41-7 | 72 | 590 | < 0.47 U | **0.56** | < 0.52 U | < 0.49 U | < 0.45 U | < 0.49 U | **0.49** | **0.19 J** | **0.44 J** | < 0.51 U | < 0.49 U | **0.54** | **0.44** | **0.50** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.2 U | < 1.2 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.2 U | < 1.0 U | < 1.0 U | < 1.2 U | < 1.3 U | < 1.2 U | < 0.96 U | **0.34 J** | **0.13 J** |
| Calcium | 7440-70-2 | NL | NL | **5250** | **2780 J-** | **6730 J-** | **3580 J-** | **4550** | **4010** | **4560** | **1060** | **990 J** | **6960** | **4420** | **963** | **1050** | **2250** |
| Chromium | 7440-47-3 | **180** | **1500** | **6.0** | **16.1** | **4.1** | **3.8** | **3.9** | **5.8** | **22.5** | **9.4** | **19.9** | **5.6** | **7.2** | **25.8** | **15.5** | **19.7** |
| Cobalt | 7440-48-4 | NL | NL | **1.9 J** | **5.5 J** | **2.6 J** | **2.1 J** | **1.9 J** | **2.2 J** | **8.2 J** | **3.9 J** | **6.6 J** | **3.2 J** | **2.9 J** | **7.6** | **14.5** | **7.9** |
| Copper | 7440-50-8 | **270** | **270** | **7.1** | **13.4** | **6.5** | **5.0 J** | **5.0 J** | **6.4** | **23.7** | **10.3** | **12.2** | **7.6** | **6.4** | **14.3** | **22.9** | **26.1** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **6100** | **19300** | **6070** | **4880** | **4980** | **6290** | **20400** | **11700** | **19600** | **7200** | **5900** | **20600** | **12200** | **16800** |
| Lead | 7439-92-1 | **400** | **1000** | **2.2** | **64.7** | **2.2** | **1.7** | **2.3** | **2.1** | **22.9** | **4.4** | **17.5** | **2.2** | **2.7** | **62.5** | **4.6** | **4.5** |
| Magnesium | 7439-95-4 | NL | NL | **2430** | **1910 J+** | **3070 J+** | **2100 J+** | **1940** | **2280** | **4470** | **2320** | **2460 J+** | **3130** | **2590** | **2750** | **3810** | **4560** |
| Manganese | 7439-96-5 | **2000** | 10000 | **172** | **294 J-** | **162 J-** | **144 J-** | **118** | **184** | **465** | **196** | **139 J-** | **191** | **188** | **216** | **3520** | **1240** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.040 U | **0.35** | < 0.043 U | < 0.036 U | < 0.035 U | < 0.041 U | **0.024 J** | < 0.031 U | **0.038 J** | < 0.043 U | < 0.039 U | **0.026 J+** | **0.0075 J** | **0.0071 J** |
| Nickel | 7440-02-0 | 310 | 310 | **6.0 J** | **11.0 J+** | **6.8 J** | **5.7 J** | **10** | **6.0 J** | **29.1** | **21.8** | **14.0 J+** | **7.4 J** | **19.2** | **15.2** | **33.4** | **29.2** |
| Potassium | 7440-09-7 | NL | NL | **494 J** | **484 J** | **190 J** | **196 J** | **233 J** | **344 J** | **1260** | **568 J** | **445 J** | **407 J** | **353 J** | **744** | **445** | **2020** |
| Selenium | 7782-49-2 | 180 | 1500 | < 2.3 U | < 2.4 U | < 2.6 U | < 2.5 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.1 U | < 2.5 U | < 2.6 U | < 2.4 U | **0.41 J** | < 1.2 U | **0.24 J** |
| Silver | 7440-22-4 | 180 | 1500 | < 2.3 U | **0.19 J** | < 2.6 U | < 2.5 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.1 U | < 2.5 U | < 2.6 U | < 2.4 U | < 0.96 U | < 0.99 U | < 0.74 U |
| Sodium | 7440-23-5 | NL | NL | **75.2 J** | **128 J** | **105 J** | < 1230 U | < 1130 U | < 1220 U | **64.1 J** | **90.6 J** | **201 J** | < 1280 U | < 1210 U | **225** | **159** | **291** |
| Thallium | 7440-28-0 | NL | NL | < 2.3 U | < 2.4 U | < 2.6 U | < 2.5 U | < 2.3 U | < 2.4 U | < 2.1 U | < 2.1 U | < 2.5 U | < 2.6 U | < 2.4 U | **0.14 J** | **0.091 J** | **0.17 J** |
| Vanadium | 7440-62-2 | NL | NL | **5.8 J** | **26.8** | **5.7 J** | **5.5 J** | **6.5 J** | **7.4 J** | **34.8** | **13.8** | **32.4** | **8.7 J** | **6.8 J** | **31.2** | **22.7** | **27.7** |
| Zinc | 7440-66-6 | **10000** | **10000** | **12.4** | **38.7** | **13.1** | **8.8** | **11.5** | **10.3** | **57.0** | **45.3** | **38.5** | **14.2** | **13.3** | **80.8** | **25.7** | **49.2** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | **0.066 J** | < 0.077 U | < 0.072 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | < 0.078 U | < 0.077 U | < 0.072 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.076 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | **0.066** | < 0.077 U | < 0.072 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | **1.7** | NA | NA | NA | **0.41 J** | **0.17 J** | < 0.50 U | < 0.50 U | NA | < 0.50 U | < 0.50 U | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | **3.8** | < 0.61 U | < 0.65 U | < 0.62 U | **0.41 J** | **0.17 J** | **1.4** | **1.2** | < 0.66 U | < 0.65 U | < 0.61 U | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **0.40 J** | < 1.2 U | < 1.2 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | **0.011** | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.075 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0086 U | < 0.0082 U | < 0.0086 U | < 0.0082 U | < 0.0076 U | < 0.0086 U | < 0.0075 U | < 0.0070 U | < 0.0089 U | < 0.0087 U | < 0.0081 U | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | < 0.086 U | < 0.082 U | < 0.086 U | < 0.082 U | < 0.076 U | < 0.086 U | < 0.075 U | < 0.07 U | < 0.089 U | < 0.087 U | < 0.081 U | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | < 0.022 U | < 0.021 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.022 U | < 0.019 U | < 0.018 U | ND | ND | ND | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | < 0.022 U | < 0.021 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.022 U | < 0.019 U | < 0.018 U | < 0.022 U | < 0.022 U | < 0.021 U | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | < 0.022 U | < 0.021 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.022 U | < 0.019 U | < 0.018 U | < 0.022 U | < 0.022 U | < 0.021 U | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NS | NA | NA | NA | NA | NA | NS | NS | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | < 0.022 U | < 0.021 U | < 0.022 U | < 0.021 U | < 0.019 U | < 0.022 U | < 0.019 U | < 0.018 U | < 0.022 U | < 0.022 U | < 0.021 U | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-101<br>324 Winthrop<br>SB-101(22-24)<br>8/26/2020<br>22 - 24 ft | SB-101<br>324 Winthrop<br>SB-101(33-35)<br>8/26/2020<br>33 - 35 ft | SB-102<br>324 Winthrop<br>SB-102(2-4)<br>8/26/2020<br>2 - 4 ft | SB-102<br>324 Winthrop<br>SB-102(6-8)<br>8/26/2020<br>6 - 8 ft | SB-102<br>324 Winthrop<br>SB-102(12-14)<br>8/26/2020<br>12 - 14 ft | SB-102<br>324 Winthrop<br>SB-102(22-24)<br>8/26/2020<br>22 - 24 ft | SB-102<br>324 Winthrop<br>SB-102(33-35)<br>8/26/2020<br>33 - 35 ft | SB-103<br>324 Winthrop<br>SB-103(2-4)<br>8/25/2020<br>2 - 4 ft | SB-103<br>324 Winthrop<br>SB-103(6-8)<br>8/27/2020<br>6 - 8 ft | SB-103<br>324 Winthrop<br>SB-103(12-14)<br>8/27/2020<br>12 - 14 ft | SB-103<br>324 Winthrop<br>SB-103(22-24)<br>8/27/2020<br>22 - 24 ft | SB-103<br>324 Winthrop<br>SB-103(33-35)<br>8/27/2020<br>33 - 35 ft | SB-104<br>324 Winthrop<br>SB-104(2-4)<br>8/25/2020<br>2 - 4 ft | SB-104<br>324 Winthrop<br>SB-104(6-8)<br>8/30/2020<br>6 - 8 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **2930** | **2760** | **13400** | **7140** | **6640** | **3390** | **2470** | **15600** | **9020** | **4710** | **2820** | **2960** | **8480** | **5410** |
| Antimony | 7440-36-0 | NL | NL | < 1.0 U | < 1.0 U | **0.28 J** | < 0.93 U | < 0.95 U | < 0.97 U | < 0.70 U | **0.17 J** | < 0.97 UJ | < 0.72 U | < 0.93 U | < 0.92 U | **0.13 J** | < 1.1 U |
| Arsenic | 7440-38-2 | **16** | **16** | **1.2** | **0.98 J** | **6.9** | **1.5** | **3.2** | **2.3** | **1.2** | **3.9** | **3.0** | **2.0** | **1.4** | **0.95** | **3.2** | **2.6** |
| Barium | 7440-39-3 | **400** | **400** | **20.8** | **16.6** | **87.6** | **54.2** | **56.8** | **24.5** | **17.1** | **45.9** | **53.3** | **31.2** | **28.7** | **19.3** | **66.9** | **31.5** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.21 J** | **0.18 J** | **0.61** | **0.46** | **0.28 J** | **0.26 J** | **0.19 J** | **0.68** | **0.48** | **0.49** | **0.23 J** | **0.23 J** | **0.55** | **0.58** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.16 J** | < 1.0 U | **0.80 J** | < 0.93 U | < 0.95 U | < 0.97 U | < 0.70 U | < 0.95 U | < 0.97 U | **0.14 J** | < 0.93 U | < 0.92 U | **0.17 J** | < 1.1 U |
| Calcium | 7440-70-2 | NL | NL | **959** | **1250** | **3960** | **1810** | **2050** | **1160** | **883** | **1220** | **1720 J** | **1320** | **1300** | **940** | **2970** | **1160** |
| Chromium | 7440-47-3 | **180** | **1500** | **8.0** | **8.6** | **32.5** | **22.7** | **14.5** | **11.7** | **9.4** | **28.1** | **25.0 J** | **12.6** | **9.1** | **8.7** | **26.0** | **13.9** |
| Cobalt | 7440-48-4 | NL | NL | **3.4** | **3.7** | **6.5** | **6.9** | **11.5** | **5.7** | **3.6** | **10.4** | **10.8 J-** | **5.9** | **4.8** | **3.9** | **8.1** | **5.9** |
| Copper | 7440-50-8 | **270** | **270** | **8.5** | **8.2** | **22.7** | **25.1** | **20.9** | **10.5** | **8.4** | **18.8** | **35.5 J-** | **25.0** | **14.7** | **10.0** | **31.1** | **20.1** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **8730** | **8040** | **19500** | **14200** | **16800** | **11700** | **8850** | **24000** | **19000** | **14800** | **10500** | **7120** | **16700** | **14100** |
| Lead | 7439-92-1 | **400** | **1000** | **3.7** | **2.8** | **474** | **4.6** | **4.2** | **4.5** | **2.3** | **39.0** | **8.1** | **7.3** | **3.5** | **3.9** | **89.6** | **6.6** |
| Magnesium | 7439-95-4 | NL | NL | **2040** | **2390** | **2710** | **4110** | **3950** | **2120** | **2560** | **3120** | **4280** | **2690** | **1730** | **2130** | **3390** | **2240** |
| Manganese | 7439-96-5 | **2000** | 10000 | **219** | **183** | **260** | **370** | **474** | **251** | **190** | **413** | **573** | **621** | **263** | **176** | **489** | **570** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.0068 J** | **0.0059 J** | **0.10** | **0.0060 J** | **0.0046 J** | **0.0046 J** | < 0.016 U | **0.031** | < 0.017 U | < 0.017 U | < 0.017 U | < 0.017 U | **0.033** | < 0.018 U |
| Nickel | 7440-02-0 | 310 | 310 | **14.2** | **22.2** | **15.3** | **27.9** | **16.7** | **25.4** | **21.3** | **18.3** | **33.9 J** | **23.3** | **19.7** | **20.5** | **39.8** | **22.5** |
| Potassium | 7440-09-7 | NL | NL | **611** | **699** | **771** | **1500** | **1890** | **800** | **542** | **673** | **2310** | **985** | **402** | **593** | **1210** | **777** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.3 U | < 1.3 U | **0.45 J** | < 1.2 U | < 1.2 U | < 1.2 U | < 0.87 U | **0.34 J** | < 1.2 U | < 0.90 U | < 1.2 U | < 1.2 U | **0.23 J** | < 1.4 U |
| Silver | 7440-22-4 | 180 | 1500 | < 1.0 U | < 1.0 U | **0.11 J** | < 0.93 U | < 0.95 U | < 0.97 U | < 0.70 U | < 0.95 U | < 0.97 U | < 0.72 U | < 0.93 U | < 0.92 U | < 0.82 U | < 1.1 U |
| Sodium | 7440-23-5 | NL | NL | **102** | **96.9 J** | **291** | **198** | **642** | **108** | **91.6** | **228** | **312** | **153** | **153** | **93.2** | **176** | **179** |
| Thallium | 7440-28-0 | NL | NL | **0.048 J** | **0.049 J** | **0.14 J** | **0.11 J** | **0.14 J** | **0.072 J** | **0.035 J** | **0.13 J** | **0.10 J** | **0.072 J** | < 0.37 U | < 0.37 U | **0.12 J** | **0.072 J** |
| Vanadium | 7440-62-2 | NL | NL | **12.9** | **9.3** | **28.4** | **24.3** | **37.7** | **17.1** | **11.3** | **41.6** | **38.4 J** | **23.5** | **16.0** | **10.1** | **32.0** | **20.4** |
| Zinc | 7440-66-6 | **10000** | **10000** | **47.9** | **17.4** | **174** | **33.2** | **35.5** | **24.7** | **14.6** | **54.7** | **45.9** | **36.1** | **27.3** | **21.1** | **73.7** | **41.8** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | **0.048 J** | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | **0.086** | < 0.078 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | < 0.08 U | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | < 0.073 U | < 0.078 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.087 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.071 U | < 0.077 U | < 0.069 U | **0.048** | < 0.071 U | < 0.07 U | < 0.07 U | < 0.07 U | **0.086** | < 0.078 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.4 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.1 U | < 1.2 U | < 1.1 U | **0.64 J** | < 1.1 U | < 1.1 U | < 1.1 U | **0.57 J** | **0.48 J** | < 1.3 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-104<br>324 Winthrop<br>SB-104(12-14)<br>8/30/2020<br>12 - 14 ft | SB-104<br>324 Winthrop<br>SB-104(22-24)<br>8/30/2020<br>22 - 24 ft | SB-104<br>324 Winthrop<br>SB-104(33-35)<br>8/30/2020<br>33 - 35 ft | SB-108<br>324 Winthrop<br>SB-108(2-4)<br>8/24/2020<br>2 - 4 ft | SB-108<br>324 Winthrop<br>SB-108(6-8)<br>8/25/2020<br>6 - 8 ft | SB-108<br>324 Winthrop<br>SB-108(10-12)<br>8/25/2020<br>10 - 12 ft | SB-108<br>324 Winthrop<br>SB-108(22-24)<br>8/25/2020<br>22 - 24 ft | SB-108<br>324 Winthrop<br>SB-108(33-35)<br>8/25/2020<br>33 - 35 ft | SB-109<br>324 Winthrop<br>SB-109(1-3)<br>8/26/2020<br>1 - 3 ft | SB-109<br>324 Winthrop<br>SB-109 (5-7)<br>9/1/2020<br>5 - 7 ft | SB-109<br>324 Winthrop<br>SB-109 (12-14)<br>9/1/2020<br>12 - 14 ft | SB-109<br>324 Winthrop<br>SB-109 (27-29)<br>9/1/2020<br>27 - 29 ft | SB-109<br>324 Winthrop<br>SB-109 (48-50)<br>9/1/2020<br>48 - 50 ft | SB-109<br>324 Winthrop<br>SB-109 (70-72)<br>9/2/2020<br>70 - 72 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **7100** | **2070** | **1950** | **7250** | **4530** | **8240** | **3620** | **3950** | 8580 | **4540** | **6820** | **4910** | **3450** | **1930 J** |
| Antimony | 7440-36-0 | NL | NL | < 0.99 U | < 1.2 U | < 0.98 U | **18.8** | **2.1** | **2.1** | < 0.81 U | < 0.79 U | 0.32 J | **22.0** | < 0.82 U | **0.92 J** | < 0.86 U | < 1.1 U |
| Arsenic | 7440-38-2 | **16** | **16** | **2.6** | **0.79 J** | **0.77 J** | **36.8** | **18.7** | **12.4** | **2.2** | **1.4** | 4.0 | **40.6** | **2.6** | **3.3** | **0.95** | **0.77 J** |
| Barium | 7440-39-3 | **400** | **400** | **54.3** | **13.8** | **15.8** | **1800** | **144** | **370** | **27.8** | **23.1** | 93.3 | **1090** | **47.0** | **71.8** | **22.2** | **11.2** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.70** | **0.12 J** | **0.11 J** | **0.58** | **0.22 J** | **0.35 J** | **0.32 J** | **0.24 J** | 0.41 | **0.23 J** | **0.41** | **0.35 J** | **0.20 J** | **0.14 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.18 J** | < 1.2 U | < 0.98 U | **24.4** | **6.9** | **4.4** | < 0.81 U | < 0.79 U | 0.44 J | **21.5** | < 0.82 U | **0.70 J** | < 0.86 U | < 1.1 U |
| Calcium | 7440-70-2 | NL | NL | **2340** | **498** | **788** | **52600** | **180000** | **69300** | **1700** | **1210** | 18000 | **10000** | **3720** | **5440** | **1270** | **1100 J** |
| Chromium | 7440-47-3 | **180** | **1500** | **50.4** | **6.5** | **4.7** | **344** | **4700** | **1570** | **11.8** | **11.8** | 27.8 | **137** | **18.9** | **72.3** | **17.8** | **35.3 J** |
| Cobalt | 7440-48-4 | NL | NL | **12.6** | **2.5** | **2.8** | **22.3** | **10.4** | **6.2** | **6.1** | **4.9** | 5.4 | **16.6** | **5.9** | **5.1** | **4.3** | **2.3** |
| Copper | 7440-50-8 | **270** | **270** | **32.6** | **6.2** | **7.7** | **1010** | **57.6** | **97.1** | **19.5** | **11.7** | 33.5 | **1140** | **28.4** | **53.3** | **11.5** | **11.7 J** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | 0.75 J | **3.8** | < 2.1 U | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **23000** | **5410** | **5910** | **166000** | **37300** | **28700** | **15800** | **9860** | 14300 | < 58.8 U | **14500** | **20800** | **8120** | **8340 J** |
| Lead | 7439-92-1 | **400** | **1000** | **9.7** | **2.7** | **2.1** | **14500** | **8850** | **4940** | **6.0** | **3.4 J+** | 187 | **5100** | **9.2** | **260** | **3.7** | **1.8** |
| Magnesium | 7439-95-4 | NL | NL | **4160** | **1080** | **1550** | **6590** | **30100** | **18000** | **2240** | **4320** | 9850 | **2440** | **3750** | **2930** | **3970** | **2030** |
| Manganese | 7439-96-5 | **2000** | 10000 | **752** | **132** | **159** | **1000** | **480** | **301** | **337** | **219** | 193 | **626** | **169** | **184** | **208** | **118 J** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.016 U | < 0.019 U | < 0.018 UJ | **8.6** | **1.1** | **1.5** | < 0.016 U | < 0.017 U | 0.44 | **3.6** | < 0.018 U | **0.083** | < 0.018 U | < 0.019 U |
| Nickel | 7440-02-0 | 310 | 310 | **42.3** | **12.2** | **14.3** | **160** | **13.7** | **25.9** | **22.2** | **31.1** | 14.7 | **180** | **17.7** | **35.1** | **33.9** | **12.5 J** |
| Potassium | 7440-09-7 | NL | NL | **1440** | **367** | **404** | **636** | **255** | **1050** | **666** | **1190** | 641 | **332** | **1570** | **1190** | **880** | **359 J** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.2 U | < 1.4 U | < 1.2 U | **1.8** | **0.90 J** | **0.72 J** | < 1.0 U | < 0.99 U | 0.27 J | **2.9** | < 1.0 U | < 1.4 U | < 1.1 U | < 1.4 U |
| Silver | 7440-22-4 | 180 | 1500 | < 0.99 U | < 1.2 U | < 0.98 U | **4.0** | **0.33 J** | **0.38 J** | < 0.81 U | < 0.79 U | 0.10 J | **2.3** | < 0.82 U | < 1.1 U | < 0.86 U | < 1.1 U |
| Sodium | 7440-23-5 | NL | NL | **251** | **55.6 J** | **92.2 J** | **453** | **204** | **526** | **165** | **312** | 172 | **276** | **363** | **228** | **268** | **77.3 J** |
| Thallium | 7440-28-0 | NL | NL | **0.13 J** | < 0.46 U | < 0.39 U | **0.11 J** | **0.15 J** | **0.10 J** | **0.076 J** | **0.073 J** | 0.097 J | **0.29 J** | **0.097 J** | **0.066 J** | **0.042 J** | < 0.45 U |
| Vanadium | 7440-62-2 | NL | NL | **41.1** | **7.1** | **8.2** | **111** | **17.2** | **27.2** | **28.1** | **15.1** | 22.4 | **153** | **25.8** | **26.4** | **11.1** | **6.9** |
| Zinc | 7440-66-6 | **10000** | **10000** | **51.3** | **12.0** | **11.2** | **6270** | **2910** | **1340** | **27.4** | **19.1** | 150 | **47900** | **38.3** | **1250** | **17.6** | **11.2** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | < 0.082 U | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | < 0.84 U | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | < 0.082 U | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | < 0.84 U | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | < 0.082 U | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | < 0.84 U | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | < 0.082 U | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | **5.7** | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | < 0.082 U | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | < 0.84 U | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | **32** | < 0.082 U | **1.7** | < 0.07 U | < 0.069 U | 1.4 | **11** | < 0.07 U | **0.000036** | < 0.071 U | < 0.08 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | **0.1** | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | < 0.84 U | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | < 0.082 U | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | < 0.84 U | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.071 U | < 0.078 U | < 0.071 U | < 2 U | < 0.082 U | < 0.16 U | < 0.07 U | < 0.069 U | < 0.17 U | < 0.84 U | < 0.07 U | < 0.0000081 U | < 0.071 U | < 0.08 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.071 U | < 0.078 U | < 0.071 U | **32** | **0.1** | **1.7** | < 0.07 U | < 0.069 U | 1.4 | **17** | < 0.07 U | **0.000036** | < 0.071 U | < 0.08 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.1 U | < 1.3 U | < 1.2 U | **0.41 J** | **2.1** | **0.41 J** | **0.46 J** | **0.35 J** | < 1.3 U | < 1.4 U | < 1.1 U | < 1.3 U | < 1.2 U | < 1.3 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-109<br>324 Winthrop<br>SB-109 (83-85)<br>9/2/2020<br>83 - 85 ft | SB-110<br>324 Winthrop<br>SB-110(1-3)<br>8/26/2020<br>1 - 3 ft | SB-110<br>324 Winthrop<br>SB-110 (5-7)<br>8/31/2020<br>5 - 7 ft | SB-110<br>324 Winthrop<br>SB-110 (20-22)<br>8/31/2020<br>20 - 22 ft | SB-110<br>324 Winthrop<br>SB-110 (33-35)<br>8/31/2020<br>33 - 35 ft | SB-110 DUP<br>324 Winthrop<br>DUPE-2-083120<br>8/31/2020<br>5 - 7 ft | SB-111<br>324 Winthrop<br>SB-111(2-4)<br>10/4/2020<br>2 - 4 ft | SB-111<br>324 Winthrop<br>SB-111(5-7)<br>10/17/2020<br>5 - 7 ft | SB-111<br>324 Winthrop<br>SB-111(13-15)<br>10/17/2020<br>13 - 15 ft | SB-111<br>324 Winthrop<br>SB-111(28-30)<br>10/17/2020<br>28 - 30 ft | SB-111<br>324 Winthrop<br>SB-111(33-35)<br>10/17/2020<br>33 - 35 ft | SB-111 DUP<br>324 Winthrop<br>DUPE-21-101720<br>10/17/2020<br>13 - 15 ft | SB-112<br>324 Winthrop<br>SB-112(2-4)<br>10/4/2020<br>2 - 4 ft | SB-112<br>324 Winthrop<br>SB-112(5-7)<br>10/10/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **2810** | **8330** | **6680** | **4000** | **2670** | **6580** | **6700** | **7520** | **3900** | **3430** | **2380** | **4430** | **6230** | **2950** |
| Antimony | 7440-36-0 | NL | NL | < 1.1 U | **2.1** | **2.0** | < 0.91 U | < 1.3 U | **2.0** | **0.43 J** | **0.17 J** | < 1.0 U | < 0.96 U | < 0.96 U | < 0.98 U | **0.59 J** | **3.2 J** |
| Arsenic | 7440-38-2 | **16** | **16** | **0.93 J** | **16.9** | **47.9** | **2.0** | **1.0 J** | **33.7** | **5.8** | **4.9** | **1.8** | **4.0** | **1.1** | **1.9** | **3.8** | **47.0** |
| Barium | 7440-39-3 | **400** | **400** | **20.3** | **315** | **218** | **29.2** | **20.7 J** | **227** | **127** | **118** | **35.5 J** | **26.3** | **18.0** | **36.9** | **106** | **1040** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.18 J** | **0.43** | **0.35 J** | **0.34 J** | **0.20 J** | **0.35 J** | **0.49** | **0.43 J** | **0.39 J** | **0.24 J** | **0.17 J** | **0.33 J** | **0.38 J** | < 2.9 U |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | **3.6** | **6.6** | **0.20 J** | **0.16 J** | **6.9** | **0.72 J** | **0.69 J** | < 1.0 U | < 0.96 U | < 0.96 U | < 0.98 U | **1.0** | **15.7** |
| Calcium | 7440-70-2 | NL | NL | **6210** | **32100** | **24900** | **1180** | **792 J** | **30300** | **18500** | **121000** | **1110 J** | **1220** | **1020** | **1260** | **25100** | **19800** |
| Chromium | 7440-47-3 | **180** | **1500** | **7.3** | **583** | **8180** | **20.0** | **7.4 J** | **8630** | **51.9** | **834** | **22.4** | **9.1** | **6.8** | **22.0** | **43.9** | **51000** |
| Cobalt | 7440-48-4 | NL | NL | **3.8** | **7.0** | **7.8** | **7.8** | **3.4** | **7.1** | **7.6** | **4.7** | **4.9** | **5.4** | **3.6** | **5.6** | **6.2** | **28.6** |
| Copper | 7440-50-8 | **270** | **270** | **6.7** | **120** | **65.8** | **18.7** | **10** | **59.8** | **40.6** | **20.0** | **18.9 J** | **13.0** | **8.4** | **20.2** | **46.8** | **158** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **7170** | **29800** | **55200** | **13200** | **7610** | **57100** | **36500** | **16300** | **13500** | **10800** | **7240** | **12900** | **15300** | **235000** |
| Lead | 7439-92-1 | **400** | **1000** | **2.7** | **3370** | **6940** | **12.6** | **3.2** | **7560** | **350** | **985** | **13.4 J** | **3.7** | **3.0** | **8.7** | **442** | **17500** |
| Magnesium | 7439-95-4 | NL | NL | **4230** | **4900** | **3870** | **2480** | **1660 J** | **4490** | **7650** | **33300** | **1910 J** | **2900** | **2560** | **2200** | **4230** | **2200** |
| Manganese | 7439-96-5 | **2000** | 10000 | **231** | **323** | **338** | **184** | **194 J** | **335** | **357** | **261** | **318** | **334** | **178** | **294** | **223** | **902** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.020 U | **2.8** | **2.2** | < 0.020 U | < 0.019 U | **2.0** | **0.38** | **0.21** | < 0.017 U | < 0.017 U | < 0.016 U | < 0.016 U | **2.9** | **0.75** |
| Nickel | 7440-02-0 | 310 | 310 | **26.0** | **30.4** | **24.1** | **29.5** | **24.6 J** | **19.1** | **19.3** | **14.0** | **21.6 J** | **26.7** | **21.7** | **23.9** | **31.8** | **39.6** |
| Potassium | 7440-09-7 | NL | NL | **451** | **1000** | **813** | **1210** | **491 J** | **1070** | **666** | **1110** | **726** | **939** | **467** | **824** | **850** | **580 J** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.4 U | **0.63 J** | **1.3** | < 1.1 U | < 1.6 U | **1.2** | **0.22 J** | **0.18 J** | < 1.3 U | < 1.2 U | < 1.2 U | < 1.2 U | **0.21 J** | **2.3 J** |
| Silver | 7440-22-4 | 180 | 1500 | < 1.1 U | **0.61 J** | **0.32 J** | < 0.91 U | < 1.3 U | **0.33 J** | < 1.0 U | < 1.1 U | < 1.0 U | < 0.96 U | < 0.96 U | < 0.98 U | **0.14 J** | < 7.2 U |
| Sodium | 7440-23-5 | NL | NL | **106 J** | **632** | **542** | **165** | **116 J** | **515** | **588** | **518** | **96.9 J** | **136** | **78.7 J** | **150** | **309** | **512 J** |
| Thallium | 7440-28-0 | NL | NL | < 0.46 U | **0.13 J** | **0.26 J** | **0.079 J** | < 0.50 U | **0.23 J** | **0.086 J** | **0.046 J** | **0.060 J** | **0.074 J** | **0.041 J** | **0.059 J** | **0.076 J** | < 2.9 U |
| Vanadium | 7440-62-2 | NL | NL | **8.2** | **36.1** | **29.3** | **31.4** | **8.3 J** | **27.8** | **41.2** | **24.8** | **20.6** | **13.8** | **8.5** | **19.2** | **38.1** | **49.9** |
| Zinc | 7440-66-6 | **10000** | **10000** | **15.1** | **1160** | **2600** | **45.3** | **23.9** | **2860** | **203** | **305** | **27.8** | **21.0** | **14.8** | **30.5** | **265** | **7930** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.084 U | < 0.76 U | < 0.082 U | < 0.081 U | < 0.084 U | < 0.082 U | < 0.073 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.48 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.084 U | < 0.76 U | < 0.082 U | < 0.081 U | < 0.084 U | < 0.082 U | < 0.073 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.48 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.084 U | < 0.76 U | < 0.082 U | < 0.081 U | < 0.084 U | < 0.082 U | < 0.073 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.48 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.084 U | < 0.76 U | **0.22** | < 0.081 U | < 0.084 U | **0.19** | < 0.073 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | **0.55** |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.084 U | < 0.76 U | < 0.082 U | < 0.081 U | < 0.084 U | < 0.082 U | < 0.073 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.48 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.084 U | **10** | **0.88** | < 0.081 U | < 0.084 U | **0.65** | **0.31** | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | **0.74** | < 0.48 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.084 U | < 0.76 U | < 0.082 U | < 0.081 U | < 0.084 U | < 0.082 U | < 0.073 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.48 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.084 U | < 0.76 U | < 0.082 U | < 0.081 U | < 0.084 U | < 0.082 U | < 0.073 U | **0.27** | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | **3.6** |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.084 U | < 0.76 U | < 0.082 U | < 0.081 U | < 0.084 U | < 0.082 U | < 0.073 U | < 0.075 U | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | < 0.073 U | < 0.48 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.084 U | **10** | **1.1** | < 0.081 U | < 0.084 U | **0.84** | **0.31** | **0.27** | < 0.069 U | < 0.069 U | < 0.069 U | < 0.07 U | **0.74** | **4.2** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.4 U | < 1.2 U | **3.1** | < 1.3 U | < 1.4 U | **3.8** | **0.50 J** | **0.67 J** | < 1.1 U | < 1.1 U | < 1.1 U | **0.40 J** | **0.49 J** | **4.5** |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-112<br>324 Winthrop<br>SB-112(13-15)<br>10/10/2020<br>13 - 15 ft | SB-112<br>324 Winthrop<br>SB-112(33-35)<br>10/10/2020<br>33 - 35 ft | SB-112<br>324 Winthrop<br>SB-112(48-50)<br>10/10/2020<br>48 - 50 ft | SB-112<br>324 Winthrop<br>SB-112(66-68)<br>10/11/2020<br>66 - 68 ft | SB-112<br>324 Winthrop<br>SB-112(83-85)<br>10/11/2020<br>83 - 85 ft | SB-113<br>324 Winthrop<br>SB-113(2-4)<br>10/3/2020<br>2 - 4 ft | SB-113<br>324 Winthrop<br>SB-113(8-10)<br>10/14/2020<br>8 - 10 ft | SB-113<br>324 Winthrop<br>SB-113 (13-15)<br>10/14/2020<br>13 - 15 ft | SB-113<br>324 Winthrop<br>SB-113(36-38)<br>10/14/2020<br>36 - 38 ft | SB-113<br>324 Winthrop<br>SB-113(48-50)<br>10/14/2020<br>48 - 50 ft | SB-113<br>324 Winthrop<br>SB-113 (68-70)<br>10/15/2020<br>68 - 70 ft | SB-113<br>324 Winthrop<br>SB-113 (83-85)<br>10/15/2020<br>83 - 85 ft | SB-113 DUP<br>324 Winthrop<br>DUPE-20-101520<br>10/15/2020<br>68 - 70 ft | SB-114<br>324 Winthrop<br>SB-114(2-4)<br>10/3/2020<br>2 - 4 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **6070** | **3880** | **3430** | **2920** | **2720** | **7430** | **5920** | **4120** | **2620** | **2030** | **2180** | **2330** | **2700** | **7570** |
| Antimony | 7440-36-0 | NL | NL | < 1.0 U | < 1.1 U | < 1.0 U | < 1.1 U | < 1.1 U | < 0.99 | < 0.87 | < 0.98 U | < 0.83 | < 1.2 | < 1.1 U | < 1.2 U | < 1.1 U | **0.17** |
| Arsenic | 7440-38-2 | **16** | **16** | **2.7** | **1.5** | **1.4** | **0.85 J** | **0.89 J** | **2.6** | **1.4** | **2.5** | **1.0** | **0.62** | **0.68 J** | **0.96 J** | **0.80 J** | **3.9** |
| Barium | 7440-39-3 | **400** | **400** | **60.1** | **34.5** | **25.3** | **15.3** | **15.3** | **43.5** | **42.4** | **31.9** | **16.0** | **18.2** | **18.5** | **18.7** | **16.8** | **89.2** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.33 J** | **0.21 J** | **0.21 J** | **0.19 J** | **0.16 J** | **0.26** | **0.40** | **0.29 J** | **0.17** | **0.16** | **0.17 J** | **0.17 J** | **0.21 J** | **0.34** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.0 U | < 1.1 U | < 1.0 U | < 1.1 U | < 1.1 U | **0.22** | < 0.87 | < 0.98 U | < 0.83 | < 1.2 | < 1.1 U | < 1.2 U | < 1.1 U | **0.44** |
| Calcium | 7440-70-2 | NL | NL | **106000** | **6620** | **1740** | **1080** | **5680** | **46300** | **3460** | **1870** | **1010** | **857** | **4400** | **5080** | **5040** | **29100** |
| Chromium | 7440-47-3 | **180** | **1500** | **12.1** | **180** | **33.7** | **12.4** | **6.4** | **10.6** | **22.5** | **9.9** | **6.6** | **4.9** | **9.7** | **6.7** | **12.8** | **17.3** |
| Cobalt | 7440-48-4 | NL | NL | **4.0** | **3.7** | **7.9** | **3.7** | **3.3** | **6.9** | **5.7** | **5.2** | **3.4** | **2.3** | **2.5** | **2.9** | **3.0** | **6.4** |
| Copper | 7440-50-8 | **270** | **270** | **9.5** | **29.8** | **20.4** | **12.5** | **6.5** | **38.1** | **19.6** | **16.3** | **9.2** | **6.4** | **5.7** | **7.4** | **7.3** | **35.8** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **11200** | **9510** | **9800** | **6630** | **7220** | **16000** | **10200** | **12400** | **7340** | **5060** | **5550** | **7160** | **6820** | **15200** |
| Lead | 7439-92-1 | **400** | **1000** | **5.2** | **72.2** | **10.6** | **3.7** | **2.6** | **72.5** | **8.1** | **4.9** | **4.6** | **2.0 J+** | **2.3 J+** | **2.5 J+** | **2.7 J+** | **189** |
| Magnesium | 7439-95-4 | NL | NL | **33500** | **3570** | **3030** | **3450** | **3220** | **16600** | **3770** | **2840** | **2840** | **1430** | **2420** | **2300** | **2950** | **5840** |
| Manganese | 7439-96-5 | **2000** | 10000 | **428** | **173** | **220** | **72.3** | **145** | **209** | **274** | **391** | **152** | **136** | **172** | **247** | **221** | **221** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.016 U | **0.048** | < 0.017 U | < 0.019 U | < 0.018 U | **1.4** | < 0.019 | < 0.018 U | < 0.017 | < 0.020 | < 0.019 U | < 0.020 U | < 0.018 U | **0.97** |
| Nickel | 7440-02-0 | 310 | 310 | **12.3** | **17.2** | **28.7** | **30.7** | **16.8** | **24.1** | **20.2** | **21.3** | **20.5** | **10.9** | **13.2** | **10.4** | **15.4** | **31.1** |
| Potassium | 7440-09-7 | NL | NL | **1170** | **1030** | **840** | **700** | **450** | **612** | **1140** | **993** | **566** | **441** | **595** | **476** | **766** | **787** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.3 U | < 1.4 U | < 1.3 U | < 1.3 U | < 1.4 U | < 1.2 | < 1.1 | < 1.2 U | < 1.0 | < 1.4 | < 1.3 U | < 1.5 U | < 1.4 U | **0.20** |
| Silver | 7440-22-4 | 180 | 1500 | < 1.0 U | < 1.1 U | < 1.0 U | < 1.1 U | < 1.1 U | < 0.99 | < 0.87 | < 0.98 U | < 0.83 | < 1.2 | < 1.1 U | < 1.2 U | < 1.1 U | **0.10** |
| Sodium | 7440-23-5 | NL | NL | **503** | **299** | **214** | **167** | **102 J** | **670** | **341 J+_** | **165 J+** | **115 J+** | 115 U | **123 J+** | < 121 U | **133 J+** | **472** |
| Thallium | 7440-28-0 | NL | NL | **0.066 J** | **0.049 J** | **0.043 J** | < 0.42 U | < 0.45 U | **0.052** | **0.059** | **0.061 J** | < 0.33 | < 0.46 | < 0.43 U | < 0.48 U | < 0.44 U | **0.085** |
| Vanadium | 7440-62-2 | NL | NL | **16.2** | **16.8** | **18.9** | **8.8** | **9.7** | **42.6** | **16.0** | **17.9** | **9.9** | **8.0** | **6.9** | **7.6** | **9.0** | **33.8** |
| Zinc | 7440-66-6 | **10000** | **10000** | **20.7** | **52.2** | **35.5** | **18.7** | **14.8** | **108** | **22.9** | **21.1** | **18.5** | **11.9** | **10.5** | **13.9** | **12.7** | **141** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.069 U | **0.11 J+** | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.069 U | < 0.075 U | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 |
| Total PCB | CALC-PCB | **1** | **1** | < 0.069 U | **0.11** | < 0.07 U | < 0.076 U | < 0.081 U | < 0.072 U | < 0.079 U | < 0.078 U | < 0.071 U | < 0.080 U | < 0.077 U | < 0.081 U | < 0.076 U | < 0.073 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.1 U | < 1.2 U | < 1.1 U | < 1.2 U | < 1.3 U | **0.60** | < 1.3 U | < 1.3 U | < 1.1 U | **0.46** | < 1.2 U | < 1.3 U | < 1.2 U | **0.71** |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-114<br>324 Winthrop<br>SB-114(5-7)<br>10/13/2020<br>5 - 7 ft | SB-114<br>324 Winthrop<br>SB-114(13-15)<br>10/13/2020<br>13 - 15 ft | SB-114<br>324 Winthrop<br>SB-114(23-25)<br>10/13/2020<br>23 - 25 ft | SB-114<br>324 Winthrop<br>SB-114(33-35)<br>10/13/2020<br>33 - 35 ft | SB-115<br>324 Winthrop<br>SB-115(2-4)<br>8/29/2020<br>2 - 4 ft | SB-115<br>324 Winthrop<br>SB-115(5-7)090820<br>9/8/2020<br>5 - 7 ft | SB-115<br>324 Winthrop<br>SB-115(11-13)090820<br>9/8/2020<br>11 - 13 ft | SB-115<br>324 Winthrop<br>SB-115(15-17)090820<br>9/8/2020<br>15 - 17 ft | SB-115<br>324 Winthrop<br>SB-115(33-35)090820<br>9/8/2020<br>33 - 35 ft | SB-115 DUP<br>324 Winthrop<br>DUPE-4-090820<br>9/9/2020<br>5 - 7 ft | SB-116<br>324 Winthrop<br>SB-116(2-4)<br>8/29/2020<br>2 - 4 ft | SB-116<br>324 Winthrop<br>SB-116(5-7)090820<br>9/8/2020<br>5 - 7 ft | SB-116<br>324 Winthrop<br>SB-116(12-14)090820<br>9/8/2020<br>12 - 14 ft | SB-116<br>324 Winthrop<br>SB-116(22-24)090820<br>9/8/2020<br>22 - 24 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **7350** | **6300** | **3720** | **3190** | **8660** | **5140** | **7970** | **8340** | **3230** | **4250** | **8200** | **6240** | **7830** | **3270** |
| Antimony | 7440-36-0 | NL | NL | **0.20 J** | < 0.98 U | < 0.76 U | < 1.0 U | **0.47 J** | **11.0 J** | < 0.92 U | **0.83 J** | < 1.0 UJ | **2.3 J** | **0.34 J** | **1.1** | < 0.97 U | < 0.92 U |
| Arsenic | 7440-38-2 | **16** | **16** | **3.9** | **2.2** | **2.9** | **1.5** | **22.8** | **57.2** | **2.4** | **19.5** | **1.3** | **53.7** | **4.2** | **14.8** | **2.6** | **2.3** |
| Barium | 7440-39-3 | **400** | **400** | **79.1** | **76.9** | **33.0** | **21.0** | **105** | **634 J** | **57.7** | **122** | **21.3 J** | **263 J** | **137** | **163** | **44.5** | **21.6** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.52** | **0.34 J** | **0.32** | **0.23 J** | **0.40** | **0.32 J** | **0.46** | **0.39** | **0.25 J** | **0.23 J** | **0.33 J** | **0.33** | **0.51** | **0.31 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.48 J** | < 0.98 U | **0.097 J** | < 1.0 U | **0.91 J** | **26.1 J** | **0.12 J** | **3.1** | < 1.0 U | **9.7 J** | **0.82 J** | **4.5** | < 0.97 U | < 0.92 U |
| Calcium | 7440-70-2 | NL | NL | **25500** | **3440** | **1330** | **1200** | **35800** | **19500** | **3010** | **32200** | **1310** | **18600** | **40900** | **24500** | **3720** | **1240** |
| Chromium | 7440-47-3 | **180** | **1500** | **23.9** | **18.4** | **11.5** | **8.4** | **34.9** | **21100 J** | **28.2** | **1720** | **12.4 J** | **7950 J** | **203** | **3710** | **26.5** | **8.8** |
| Cobalt | 7440-48-4 | NL | NL | **7.9** | **8.8** | **5.1** | **3.9** | **7.1** | **15.3 J** | **7.1** | **8.8** | **5.3** | **7.8 J** | **7.6** | **5.9** | **6.3** | **4.2** |
| Copper | 7440-50-8 | **270** | **270** | **30.2** | **30.7** | **15.1** | **12.1** | **74.0** | **126 J** | **35.4** | **65.5** | **12.6** | **61.3 J** | **179** | **52.5** | **41.0** | **25.5** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | < 2.6 U | < 2.2 U | < 2.4 U | NA | NA |
| Iron | 7439-89-6 | NL | NL | **16800** | **16500** | **12500** | **10200** | **14800** | **127000** | **17500** | **29900** | **9690** | **93900** | **21400** | **35900** | **15600** | **12200** |
| Lead | 7439-92-1 | **400** | **1000** | **113** | **6.8** | **6.8** | **9.4** | **578** | **59800 J** | **17.0** | **3550** | **4.3 J** | **17100 J** | **427** | **5240** | **13.1** | **4.7** |
| Magnesium | 7439-95-4 | NL | NL | **12000** | **4350** | **2670** | **2640** | **4870** | **3430** | **4780** | **6830** | **4190** | **2490** | **6620** | **7430** | **4030** | **2350** |
| Manganese | 7439-96-5 | **2000** | 10000 | **346** | **425** | **340** | **244** | **198** | **428** | **372** | **460** | **236** | **373** | **274** | **290** | **336** | **253** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.48** | < 0.018 U | < 0.017 U | < 0.017 U | **3.7** | **2.6** | **0.0049 J** | **1.7** | < 0.016 U | **1.7** | **0.19** | **1.5** | **0.0091 J** | < 0.019 U |
| Nickel | 7440-02-0 | 310 | 310 | **40.3** | **33.4** | **23.6** | **22.2** | **20.8** | **23.5** | **19.5** | **23.6** | **45.9** | **18.5** | **19.5** | **32.3** | **21.1** | **22.3** |
| Potassium | 7440-09-7 | NL | NL | **1570** | **1880** | **962** | **665** | **707** | **497** | **1680** | **956** | **796** | **405** | **864** | **698** | **1490** | **710** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.3 U | < 1.2 U | < 0.95 U | < 1.3 U | **0.96 J** | **2.3** | < 1.1 U | **0.61 J** | < 1.3 U | **0.99 J** | **0.17 J** | **0.58 J** | < 1.2 U | < 1.1 U |
| Silver | 7440-22-4 | 180 | 1500 | < 1.1 U | < 0.98 U | < 0.76 U | < 1.0 U | **0.18 J** | **0.90 J** | < 0.92 U | **0.15 J** | < 1.0 U | **0.41 J** | **0.10 J** | **0.30 J** | < 0.97 U | < 0.92 U |
| Sodium | 7440-23-5 | NL | NL | **288 J+** | **241 J+** | **153 J+** | **119 J+** | **961** | **430** | **396** | **668** | **131** | **375** | **574** | **533** | **624** | **117** |
| Thallium | 7440-28-0 | NL | NL | **0.12 J** | **0.14 J** | **0.065 J** | < 0.40 U | **0.34 J** | < 9.5 U | **0.13 J** | **0.24 J** | **0.054 J** | **0.15 J** | **0.087 J** | **0.11 J** | **0.11 J** | **0.060 J** |
| Vanadium | 7440-62-2 | NL | NL | **27.8** | **27.3** | **19.0** | **11.5** | **22.9** | **43.6 J** | **34.6** | **34.0** | **13.7 J** | **20.9 J** | **49.8** | **23.7** | **42.0** | **13.4** |
| Zinc | 7440-66-6 | **10000** | **10000** | **169** | **35.9** | **35.5** | **22.8** | **315** | **12400 J** | **45.2** | **1040** | **22.2** | **4760 J** | **323** | **1470** | **32.0** | **27.9** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | **0.082** | < 0.071 U | < 0.071 U | < 0.07 U | **1.1** | **0.32** | < 0.071 U | **0.45** | < 0.07 U | **0.22 J-** | **0.63** | **2.4** | < 0.076 U | < 0.083 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.075 U | < 0.071 U | < 0.071 U | < 0.07 U | < 0.077 U | < 0.11 U | < 0.071 U | < 0.077 U | < 0.07 U | < 0.089 UJ | < 0.074 U | < 0.16 U | < 0.076 U | < 0.083 U |
| Total PCB | CALC-PCB | **1** | **1** | **0.082** | < 0.071 U | < 0.071 U | < 0.07 U | **1.1** | **0.32** | < 0.071 U | **0.45** | < 0.07 U | **0.22** | **0.63** | **2.4** | < 0.076 U | < 0.083 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.2 U | **16.1** | < 1.2 U | **2.2** | < 1.1 U | **10.1** | < 1.2 U | **0.97 J** | < 1.2 U | < 1.3 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-116<br>324 Winthrop<br>SB-116(33-35)090820<br>9/8/2020<br>33 - 35 ft | SB-117<br>324 Winthrop<br>SB-117(2-4)090920<br>9/9/2020<br>2 - 4 ft | SB-117<br>324 Winthrop<br>SB-117(5-7)091220<br>9/12/2020<br>5 - 7 ft | SB-117<br>324 Winthrop<br>SB-117(10-12)091220<br>9/12/2020<br>10 - 12 ft | SB-117<br>324 Winthrop<br>SB-117(22-24)091220<br>9/12/2020<br>22 - 24 ft | SB-117<br>324 Winthrop<br>SB-117(33-35)091220<br>9/12/2020<br>33 - 35 ft | SB-118<br>324 Winthrop<br>SB-118 (2-4)092020<br>9/20/2020<br>2 - 4 ft | SB-118<br>324 Winthrop<br>SB-118(5-7)<br>10/3/2020<br>5 - 7 ft | SB-118<br>324 Winthrop<br>SB-118(13-15)<br>10/3/2020<br>13 - 15 ft | SB-118<br>324 Winthrop<br>SB-118(33-35)<br>10/3/2020<br>33 - 35 ft | SB-118<br>324 Winthrop<br>SB-118(48-50)<br>10/3/2020<br>48 - 50 ft | SB-118<br>324 Winthrop<br>SB-118(66-68)<br>10/4/2020<br>66 - 68 ft | SB-118<br>324 Winthrop<br>SB-118(83-85)<br>10/4/2020<br>83 - 85 ft | SB-119<br>324 Winthrop<br>SB-119(2-4)091920<br>9/19/2020<br>2 - 4 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **2590** | **6450** | **6390** | **9220** | **5450** | **3140** | **5820** | **11800** | **10700** | **3290** | **2570** | **2320** | **2300** | **5240** |
| Antimony | 7440-36-0 | NL | NL | < 0.89 U | < 1.1 U | **0.47 J** | **0.26 J** | < 0.72 U | < 0.69 U | **0.87 J** | **0.99** | < 0.99 | < 0.95 | < 0.97 U | < 1.1 U | < 1.1 U | **0.25 J** |
| Arsenic | 7440-38-2 | **16** | **16** | **1.2** | **3.7** | **5.5** | **3.7** | **2.8** | **1.2** | **10.1** | **13.0** | **3.6** | **0.87** | **1.0** | **0.64 J** | **0.86 J** | **3.8** |
| Barium | 7440-39-3 | **400** | **400** | **18.4** | **107** | **178** | **82.2** | **31.5** | **18.3** | **536** | **687** | **54.7** | **16.0** | **15.2** | **13.3** | **13.1** | **295** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.19 J** | **0.37 J** | **0.36 J** | **0.46** | **0.44** | **0.20 J** | **0.29 J** | **0.52** | **0.44** | **0.18** | **0.19 J** | **0.17 J** | **0.15 J** | **0.29 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 0.89 U | **0.43 J** | **1.0** | **0.30 J** | < 0.72 U | < 0.69 U | **3.5** | **4.0** | < 0.99 | < 0.95 | < 0.97 U | < 1.1 U | < 1.1 U | **0.68 J** |
| Calcium | 7440-70-2 | NL | NL | **844** | **25400** | **27600** | **27500** | **1250** | **904** | **36400** | **78200** | **5180** | **1110** | **910** | **4470** | **5220** | **26100** |
| Chromium | 7440-47-3 | **180** | **1500** | **9.7** | **313** | **398** | **124** | **14.3** | **16.4** | **1750** | **9740** | **27.6** | **11.4** | **6.9** | **6.0** | **42.5** | **61.3** |
| Cobalt | 7440-48-4 | NL | NL | **3.3** | **5.2** | **6.4** | **6.4** | **3.8** | **6.7** | **9.8** | **10.1** | **9.0** | **3.2** | **2.9** | **2.8** | **3.0** | **4.1** |
| Copper | 7440-50-8 | **270** | **270** | **9.7** | **21.4** | **68.7** | **43.7** | **19.5** | **13.7** | **84.5** | **84.7** | **33.3** | **8.4** | **9.6** | **5.9** | **29.5** | **24.0** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | **1.0 J** | < 2.4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **8030** | **12900** | **16300** | **18500** | **16800** | **9250** | **74900** | **64200** | **19700** | **7170** | **6640** | **6130** | **10000** | **14000** |
| Lead | 7439-92-1 | **400** | **1000** | **2.9** | **329** | **704** | **214** | **5.7** | **3.8** | **5270** | **5330** | **8.6** | **2.9** | **2.9** | **2.3** | **2.5** | **512** |
| Magnesium | 7439-95-4 | NL | NL | **2060** | **4140** | **6890** | **8140** | **3500** | **2960** | **5470** | **5200** | **5810** | **2750** | **2110** | **2900** | **2680** | **3720** |
| Manganese | 7439-96-5 | **2000** | 10000 | **222** | **246** | **257** | **267** | **220** | **107** | **419** | **466** | **431** | **143** | **132** | **265** | **154** | **225** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.017 U | **0.15** | **0.40** | **0.12** | < 0.017 U | < 0.017 U | **0.47** | **0.27** | < 0.018 | < 0.017 | **0.0047 J** | **0.0058 J** | **0.0053 J** | **0.12** |
| Nickel | 7440-02-0 | 310 | 310 | **21.6** | **24.0** | **29.1** | **19.5** | **26.7** | **81.8** | **33.0** | **20.4** | **28.0** | **18.9** | **15.7** | **15.3** | **15.7** | **12.7** |
| Potassium | 7440-09-7 | NL | NL | **448** | **964** | **726** | **1630** | **1940** | **553** | **577** | **1640** | **3140** | **778** | **571** | **530** | **412** | **751** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.1 U | **0.14 J** | **0.29 J** | **0.098 J** | < 0.89 U | < 0.86 U | **0.47 J** | **0.73** | < 1.2 | < 1.2 | < 1.2 U | < 1.4 U | < 1.4 U | **0.19 J** |
| Silver | 7440-22-4 | 180 | 1500 | < 0.89 U | < 1.1 U | **0.14 J** | < 0.80 U | < 0.72 U | < 0.69 U | **0.26 J** | **0.25** | < 0.99 | < 0.95 | < 0.97 U | < 1.1 U | < 1.1 U | < 1.0 U |
| Sodium | 7440-23-5 | NL | NL | **108** | **407** | **383** | **926** | **172** | **109** | **440** | **1200** | **868** | **372** | **133** | **91.8 J** | **68.4 J** | **462** |
| Thallium | 7440-28-0 | NL | NL | < 0.36 U | **0.075 J** | **0.062 J** | **0.084 J** | **0.11 J** | < 0.28 U | < 0.36 U | **0.16** | **0.20** | **0.048** | **0.040 J** | < 0.44 U | < 0.46 U | **0.061 J** |
| Vanadium | 7440-62-2 | NL | NL | **10.1** | **17.0** | **20.7** | **29.6** | **24.6** | **15.9** | **29.2** | **42.0** | **39.2** | **12.1** | **10.2** | **8.0** | **7.8** | **23.4** |
| Zinc | 7440-66-6 | **10000** | **10000** | **17.7** | **234** | **423** | **125** | **33.7** | **17.4** | **2060** | **2330** | **43.3** | **17.4** | **14.7** | **11.3** | **13.0** | **319** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.069 U | **0.2** | **1.1** | **0.4** | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | **0.17** |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | **0.78** | **2.5** | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.069 U | < 0.078 U | < 0.078 U | < 0.079 U | < 0.07 U | < 0.069 U | < 0.076 U | < 0.18 | < 0.069 | < 0.069 | < 0.069 U | < 0.078 U | < 0.082 U | < 0.074 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.069 U | **0.2** | **1.1** | **0.4** | < 0.07 U | < 0.069 U | **0.78** | **2.5** | < 0.069 U | < 0.069 U | < 0.069 U | < 0.078 U | < 0.082 U | **0.17** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.1 U | < 1.3 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.1 U | < 1.2 U | **0.89** | **0.57** | **0.47** | **0.37 J** | **0.41 J** | **0.56 J** | < 1.2 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-119<br>324 Winthrop<br>SB-119 (5-7)<br>10/7/2020<br>5 - 7 ft | SB-119<br>324 Winthrop<br>SB-119 (13-15)<br>10/7/2020<br>13 - 15 ft | SB-119<br>324 Winthrop<br>SB-119 (33-35)<br>10/7/2020<br>33 - 35 ft | SB-119<br>324 Winthrop<br>SB-119 (47-49)<br>10/7/2020<br>47 - 49 ft | SB-119<br>324 Winthrop<br>SB-119 (66-68)<br>10/8/2020<br>66 - 68 ft | SB-119<br>324 Winthrop<br>SB-119 (83-85)<br>10/8/2020<br>83 - 85 ft | SB-119 DUP<br>324 Winthrop<br>DUPE-19-100820<br>10/8/2020<br>66 - 68 ft | SB-120<br>324 Winthrop<br>SB-120(2-4)091320<br>9/13/2020<br>2 - 4 ft | SB-120<br>324 Winthrop<br>SB-120(5-7)<br>10/5/2020<br>5 - 7 ft | SB-120<br>324 Winthrop<br>SB-120(13-15)<br>10/5/2020<br>13 - 15 ft | SB-120<br>324 Winthrop<br>SB-120(33-35)<br>10/5/2020<br>33 - 35 ft | SB-120<br>324 Winthrop<br>SB-120(48-50)<br>10/5/2020<br>48 - 50 ft | SB-120<br>324 Winthrop<br>SB-120(62-64)<br>10/6/2020<br>62 - 64 ft | SB-120<br>324 Winthrop<br>SB-120(83-85)<br>10/6/2020<br>83 - 85 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **6020** | **7430** | **3000** | **3540** | **2690** | **2790** | **3100** | **7040** | **5180** | **4900** | **3100** | **3640** | **2760** | **2360 J** |
| Antimony | 7440-36-0 | NL | NL | **0.23 J** | < 1.2 U | < 1.2 U | < 0.96 U | < 1.1 U | < 1.2 U | < 1.2 U | < 1.0 U | **7.0** | < 0.99 U | < 0.97 U | < 1.0 U | < 1.1 U | < 1.2 U |
| Arsenic | 7440-38-2 | **16** | **16** | **4.2** | **1.6** | **1.0 J** | **1.2** | **0.70 J** | **0.92 J** | **0.75 J** | **2.7** | **4.3** | **1.9** | **1.1** | **1.3** | **0.86 J** | **0.88 J** |
| Barium | 7440-39-3 | **400** | **400** | **246** | **56.9** | **23.9** | **25.5** | **16.1** | **16.7** | **18.3** | **60.9** | **237** | **37.7** | **18.2** | **27.7** | **16.6** | **15.4** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.28 J** | **0.33 J** | **0.22 J** | **0.20 J** | **0.18 J** | **0.16 J** | **0.22 J** | **0.36 J** | **0.29 J** | **0.35 J** | **0.17 J** | **0.25 J** | **0.22 J** | **0.15 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.56 J** | < 1.2 U | < 1.2 U | < 0.96 U | < 1.1 U | < 1.2 U | < 1.2 U | **0.19 J** | **0.68 J** | < 0.99 U | < 0.97 U | < 1.0 U | < 1.1 U | < 1.2 U |
| Calcium | 7440-70-2 | NL | NL | **53200** | **3160** | **957** | **2060** | **4850** | **5410** | **5320** | **14100** | **28000** | **1400** | **998** | **1250** | **1040** | **5040** |
| Chromium | 7440-47-3 | **180** | **1500** | **218** | **15.2** | **11.6** | **21.2** | **8.2** | **7.5** | **8.0** | **29.9** | **46.8** | **11.2** | **9.4** | **20.7** | **8.1** | **5.9** |
| Cobalt | 7440-48-4 | NL | NL | **4.4** | **7.1** | **3.0** | **4.1** | **3.1** | **3.5** | **3.4** | **6.7** | **2.7** | **5.7** | **3.3** | **4.3** | **4.0** | **3.3** |
| Copper | 7440-50-8 | **270** | **270** | **23.3** | **30.0** | **12.1** | **12.7** | **6.6** | **6.9** | **6.8** | **22.1** | **19.7** | **19.4** | **8.7** | **14.0** | **7.5** | **6.2** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **14100** | **13700** | **7420** | **10000** | **6480** | **7390** | **6880** | **13300** | **13800** | **12600** | **7790** | **10400** | **7050** | **6420** |
| Lead | 7439-92-1 | **400** | **1000** | **445** | **8.1** | **5.4** | **3.5** | **2.9** | **3.3** | **2.7** | **105** | **532** | **5.1** | **4.5** | **4.2** | **3.2** | **2.4** |
| Magnesium | 7439-95-4 | NL | NL | **14200** | **3620** | **1970** | **3550** | **3170** | **3550** | **3180** | **5740** | **3350** | **2430** | **2850** | **2840** | **3660** | **3810** |
| Manganese | 7439-96-5 | **2000** | 10000 | **268** | **590** | **158** | **246** | **271** | **159** | **256** | **271** | **193** | **291** | **178** | **239** | **74.0** | **178 J** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.13** | < 0.019 U | < 0.019 U | < 0.017 U | < 0.018 U | < 0.020 U | < 0.021 U | **0.090** | **0.090** | < 0.017 U | < 0.016 U | < 0.018 U | < 0.020 U | < 0.019 U |
| Nickel | 7440-02-0 | 310 | 310 | **12.7** | **25.6** | **15.0** | **21.6** | **18.1** | **21.6** | **14.7** | **42.0** | **8.0** | **20.4** | **16.9** | **21.5** | **29.2** | **27.6 J** |
| Potassium | 7440-09-7 | NL | NL | **755** | **1650** | **956** | **854** | **679** | **540** | **850** | **1300** | **672** | **854** | **912** | **826** | **660** | **420** |
| Selenium | 7782-49-2 | 180 | 1500 | **0.27 J** | < 1.5 U | < 1.5 U | < 1.2 U | < 1.4 U | < 1.5 U | < 1.5 U | < 1.3 U | **0.19 J** | < 1.2 U | < 1.2 U | < 1.3 U | < 1.4 U | < 1.5 U |
| Silver | 7440-22-4 | 180 | 1500 | < 1.2 U | < 1.2 U | < 1.2 U | < 0.96 U | < 1.1 U | < 1.2 U | < 1.2 U | < 1.0 U | < 1.1 U | < 0.99 U | < 0.97 U | < 1.0 U | < 1.1 U | < 1.2 U |
| Sodium | 7440-23-5 | NL | NL | **441** | **422** | **146** | **221** | **153** | **127** | **176** | **296** | **489** | **232** | **149** | **236** | **141** | **88.3 J** |
| Thallium | 7440-28-0 | NL | NL | **0.088 J** | **0.18 J** | **0.075 J** | **0.068 J** | **0.071 J** | **0.055 J** | **0.067 J** | **0.096 J** | **0.046 J** | **0.092 J** | **0.061 J** | **0.054 J** | < 0.45 U | < 0.48 U |
| Vanadium | 7440-62-2 | NL | NL | **20.8** | **26.2** | **9.6** | **11.9** | **8.7** | **9.0** | **10.8** | **27.7** | **16.9** | **23.4** | **12.8** | **16.1** | **10.1** | **8.3** |
| Zinc | 7440-66-6 | **10000** | **10000** | **281** | **33.7** | **16.7** | **16.5** | **11.7** | **15.0** | **12.8** | **85.5** | **776** | **23.3** | **17.0** | **22.0** | **16.0** | **13.8** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | **0.37** | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | **0.19** | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | **0.075** | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.081 U | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | < 0.072 U | < 0.078 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| Total PCB | CALC-PCB | **1** | **1** | **0.19** | < 0.082 U | < 0.078 U | < 0.068 U | < 0.081 U | < 0.084 U | < 0.083 U | **0.075** | **0.37** | < 0.07 U | < 0.069 U | < 0.073 U | < 0.08 U | < 0.08 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.3 U | < 1.3 U | < 1.3 U | < 1.1 U | < 1.3 U | < 1.4 U | < 1.3 U | < 1.2 U | < 1.3 U | **0.47 J** | < 1.1 U | **1.5** | < 1.3 U | < 1.3 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-120 DUP<br>324 Winthrop<br>DUPE-18-100620<br>10/6/2020<br>62 - 64 ft | SB-121<br>324 Winthrop<br>SB-121(2-4)091320<br>9/13/2020<br>2 - 4 ft | SB-121<br>324 Winthrop<br>SB-121 (5-6)092020<br>9/20/2020<br>5 - 6 ft | SB-121<br>324 Winthrop<br>SB-121 (13-15)092020<br>9/20/2020<br>13 - 15 ft | SB-121<br>324 Winthrop<br>SB-121 (18-20)092020<br>9/20/2020<br>18 - 20 ft | SB-121<br>324 Winthrop<br>SB-121 (33-35)092020<br>9/20/2020<br>33 - 35 ft | SB-121 DUP<br>324 Winthrop<br>DUPE-8-092020<br>9/20/2020<br>5 - 6 ft | SB-122<br>324 Winthrop<br>SB-122(2-4)<br>8/29/2020<br>2 - 4 ft | SB-122<br>324 Winthrop<br>SB-122(6-8)<br>8/29/2020<br>6 - 8 ft | SB-122<br>324 Winthrop<br>SB-122(11-13)<br>8/29/2020<br>11 - 13 ft | SB-122<br>324 Winthrop<br>SB-122(22-24)<br>8/29/2020<br>22 - 24 ft | SB-122<br>324 Winthrop<br>SB-122(33-35)<br>8/29/2020<br>33 - 35 ft | SB-122 DUP<br>324 Winthrop<br>DUP-1-082920<br>8/29/2020<br>6 - 8 ft | SB-123<br>324 Winthrop<br>SB-123(2-4)<br>8/30/2020<br>2 - 4 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **3380** | **5980** | **4590** | **4450** | **6380** | **3370** | **5360** | **6940** | **5380** | **8140** | **3590** | **5320** | **6020** | **4250** |
| Antimony | 7440-36-0 | NL | NL | < 1.1 U | < 1.0 U | < 0.84 U | < 0.77 U | < 0.77 U | < 0.92 U | < 0.81 U | **0.15 J** | < 0.77 U | < 0.87 U | < 0.85 U | < 1.0 U | < 0.79 U | **0.23 J** |
| Arsenic | 7440-38-2 | **16** | **16** | **1.1** | **2.6** | **2.8** | **1.5** | **1.5** | **1.0** | **5.9** | **4.6** | **2.4** | **2.8** | **1.4** | **1.5** | **2.8** | **1.9** |
| Barium | 7440-39-3 | **400** | **400** | **23.5** | **52.4** | **49.2** | **33.0** | **41.0** | **18.6** | **51.1** | **50.5** | **35.7** | **59.3** | **23.7** | **30.4** | **39.4** | **259** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.22 J** | **0.38 J** | **0.23 J** | **0.29 J** | **0.33** | **0.21 J** | **0.27 J** | **0.49** | **0.36** | **0.53** | **0.22 J** | **0.31 J** | **0.36** | **0.19 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | **0.13 J** | < 0.84 U | < 0.77 U | < 0.77 U | < 0.92 U | **0.16 J** | **0.32 J** | < 0.77 U | **0.22 J** | < 0.85 U | < 1.0 U | < 0.79 U | **0.19 J** |
| Calcium | 7440-70-2 | NL | NL | **1560** | **5670** | **97600** | **957** | **2530** | **1120** | **72700** | **4230** | **1840** | **2870** | **1780** | **1830** | **2680** | **8530** |
| Chromium | 7440-47-3 | **180** | **1500** | **9.2** | **19.4** | **53.3 J** | **13.0** | **15.3** | **9.5** | **92.1 J** | **32.5** | **15.2** | **35.2** | **18.8** | **13.7** | **15.8** | **9.3** |
| Cobalt | 7440-48-4 | NL | NL | **5.0** | **8.0** | **4.3** | **4.3** | **6.0** | **3.7** | **4.1** | **6.6** | **5.3** | **7.2** | **5.1** | **6.1** | **5.7** | **3.0** |
| Copper | 7440-50-8 | **270** | **270** | **12.9** | **20.8** | **16.9** | **10.1** | **20.2** | **9.8** | **13.6** | **22.8** | **22.3** | **27.8** | **14.0** | **14.4** | **24.9** | **20.6** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | < 2.2 U |
| Iron | 7439-89-6 | NL | NL | **8450** | **13100** | **10600 J** | **11100** | **15300** | **7810** | **46700 J** | **14500** | **16300** | **15700** | **11200** | **11500** | **15800** | **8170** |
| Lead | 7439-92-1 | **400** | **1000** | **3.3** | **48.7** | **48.7** | **3.5** | **5.0** | **3.5** | **80.0** | **120** | **39.3 J** | **102** | **5.2** | **4.6** | **171 J** | **73.1** |
| Magnesium | 7439-95-4 | NL | NL | **4360** | **3330** | **45800 J** | **2340** | **3350** | **3310** | **26400 J** | **3540** | **2520** | **3540** | **2390** | **3750** | **2450** | **1970** |
| Manganese | 7439-96-5 | **2000** | 10000 | **121** | **299** | **288** | **264** | **370** | **150** | **266** | **294** | **176** | **214** | **242** | **253** | **210** | **178** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.019 U | **0.036** | **0.018** | **0.0057 J** | **0.0040 J** | **0.0043 J** | **0.017** | **0.20** | < 0.016 U | **0.021** | < 0.019 U | < 0.017 U | < 0.017 U | **0.057** |
| Nickel | 7440-02-0 | 310 | 310 | **37.4** | **56.6** | **12.8** | **16.5** | **21.0** | **27.7** | **11.8** | **24.9** | **16.6** | **26.6** | **20.6** | **38.0** | **19.8** | **6.9** |
| Potassium | 7440-09-7 | NL | NL | **661** | **1260** | **1020** | **1060** | **1590** | **718** | **671** | **1270** | **945** | **1580** | **903** | **1320** | **1060** | **324** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.4 U | < 1.3 U | < 1.0 U | < 0.96 U | < 0.96 U | < 1.2 U | < 1.0 U | < 0.96 U | < 0.97 U | **0.10 J** | < 1.1 U | < 1.3 U | < 0.99 U | < 1.3 U |
| Silver | 7440-22-4 | 180 | 1500 | < 1.1 U | < 1.0 U | < 0.84 U | < 0.77 U | < 0.77 U | < 0.92 U | < 0.81 U | < 0.77 U | < 0.77 U | < 0.87 U | < 0.85 U | < 1.0 U | < 0.79 U | < 1.0 U |
| Sodium | 7440-23-5 | NL | NL | **265** | **156** | **394** | **117** | **422** | **148** | **513** | **316** | **236** | **401** | **242** | **261** | **325** | **114** |
| Thallium | 7440-28-0 | NL | NL | < 0.46 U | **0.089 J** | < 0.34 U | < 0.31 U | **0.055 J** | < 0.37 U | < 0.32 U | **0.12 J** | **0.067 J** | **0.12 J** | **0.054 J** | **0.071 J** | **0.072 J** | < 0.41 U |
| Vanadium | 7440-62-2 | NL | NL | **13.0** | **21.3** | **20.0** | **15.9** | **26.8** | **11.0** | **22.2** | **24.4** | **21.8** | **28.2** | **20.8** | **16.8** | **22.8** | **14.8** |
| Zinc | 7440-66-6 | **10000** | **10000** | **17.0** | **56.3** | **54.1** | **19.7** | **30.0** | **19.2** | **59.5** | **107** | **33.5** | **69.0** | **36.5** | **24.7** | **37.4** | **141** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | **0.52** | < 0.071 U | **0.12** | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | < 0.073 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.081 U | < 0.072 U | < 0.072 U | < 0.07 U | < 0.069 U | < 0.077 U | < 0.073 U | **0.52** | < 0.071 U | **0.12** | < 0.077 U | < 0.071 U | < 0.072 U | < 0.072 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | **0.42 J** | < 1.2 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.2 U | < 1.2 U | < 1.2 U | < 1.2 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.2 U | < 1.2 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-123<br>324 Winthrop<br>SB-123 (5-7)091520<br>9/15/2020<br>5 - 7 ft | SB-123<br>324 Winthrop<br>SB-123 (10-12)091520<br>9/15/2020<br>10 - 12 ft | SB-123<br>324 Winthrop<br>SB-123 (20-22)091520<br>9/15/2020<br>20 - 22 ft | SB-123<br>324 Winthrop<br>SB-123 (51-53)091620<br>9/16/2020<br>51 - 53 ft | SB-123<br>324 Winthrop<br>SB-123 (63-65)091620<br>9/16/2020<br>63 - 65 ft | SB-123<br>324 Winthrop<br>SB-123 (83-85)091620<br>9/16/2020<br>83 - 85 ft | SB-124<br>324 Winthrop<br>SB-124(2-4)<br>8/30/2020<br>2 - 4 ft | SB-124<br>324 Winthrop<br>SB-124(5-7)091320<br>9/13/2020<br>5 - 7 ft | SB-124<br>324 Winthrop<br>SB-124(13-15)091320<br>9/13/2020<br>13 - 15 ft | SB-124<br>324 Winthrop<br>SB-124(33-35)091320<br>9/13/2020<br>33 - 35 ft | SB-124<br>324 Winthrop<br>B-124(47.5-49.5)09132<br>9/13/2020<br>47.5 - 49.5 ft | SB-124<br>324 Winthrop<br>SB-124(68-70)091420<br>9/14/2020<br>68 - 70 ft | SB-124<br>324 Winthrop<br>SB-124(83-85)091420<br>9/14/2020<br>83 - 85 ft | SB-124 DUP<br>324 Winthrop<br>DUPE-6-091320<br>9/13/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **5790** | **7070** | **7980** | **2360** | **2820** | **2320** | **6290** | **5270** | **9010** | **7390** | **2980** | **2480** | **2210** | **6410** |
| Antimony | 7440-36-0 | NL | NL | **1.7** | **0.51 J** | **0.36 J** | < 0.81 U | < 0.85 U | < 0.83 U | **3.2** | **1.5** | < 1.1 U | < 1.0 U | < 1.1 UJ | < 1.1 U | < 1.2 U | **1.5** |
| Arsenic | 7440-38-2 | **16** | **16** | **11.6** | **6.8** | **4.8** | **0.64 J** | **0.76 J** | **2.4** | **12.2** | **13.3 J** | **4.1** | **5.5** | **0.93 J** | **0.64 J** | **0.66 J** | **35.8 J** |
| Barium | 7440-39-3 | **400** | **400** | **402** | **337** | **377** | **15.6** | **18.0** | **17.4** | **616** | **255** | **64.5** | **75.4** | **19.9** | **15.7** | **15.4** | **247** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.31 J** | **0.34 J** | **0.43** | **0.16 J** | **0.19 J** | **0.17 J** | **0.34 J** | **0.27 J** | **0.52** | **0.50** | **0.20 J** | **0.20 J** | **0.14 J** | **0.34 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **2.6** | **0.73 J** | **0.63 J** | < 0.81 U | < 0.85 U | < 0.83 U | **6.1** | **4.2** | **0.14 J** | **0.12 J** | < 1.1 U | < 1.1 U | < 1.2 U | **3.0** |
| Calcium | 7440-70-2 | NL | NL | **39100** | **35600** | **26100** | **872** | **1090** | **6550** | **49800** | **45600 J** | **73400** | **5030** | **1040 J** | **3650** | **5020** | **26700 J** |
| Chromium | 7440-47-3 | **180** | **1500** | **192** | **45.9** | **51.6** | **10.9** | **7.6** | **6.9** | **1450** | **4980 J** | **14.5** | **23.0** | **8.3** | **10.3 J** | **4.3** | **3290 J** |
| Cobalt | 7440-48-4 | NL | NL | **6.8** | **5.0** | **6.4** | **3.0** | **3.1** | **4.0** | **8.5** | **4.6** | **6.7** | **9.3** | **4.0** | **2.8** | **2.4** | **5.6** |
| Copper | 7440-50-8 | **270** | **270** | **98.9** | **37.8** | **36.3** | **7.3** | **6.5** | **7.0** | **227** | **41.5** | **28.1** | **27.5** | **9.7** | **8.0** | **5.8** | **46.8** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | **0.93 J** | NA | NA | NA | NA | NA | **1.4 J** | < 2.5 U | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **26300** | **16300** | **14800** | **5800** | **6410** | **9200** | **47800** | **43600** | **13700** | **29200** | **6880** | **5730** | **5370** | **48000** |
| Lead | 7439-92-1 | **400** | **1000** | **1920** | **310** | **338** | **3.1** | **2.8** | **2.9** | **4600** | **4480 J** | **103** | **24.0** | **3.3** | **2.7** | **2.1** | **2710 J** |
| Magnesium | 7439-95-4 | NL | NL | **6220** | **4980** | **8800** | **2520** | **2700** | **2530** | **14200** | **4440** | **22900** | **5300** | **3550** | **2640** | **2420** | **5250** |
| Manganese | 7439-96-5 | **2000** | 10000 | **311** | **638** | **261** | **168** | **151** | **164** | **407** | **388** | **298** | **1040** | **601** | **211** | **157** | **333** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **1.4** | **0.25** | **0.22** | < 0.017 U | < 0.019 U | < 0.020 U | **1.7** | **0.34** | **0.044** | **0.023** | < 0.018 U | < 0.018 U | < 0.020 U | **0.46** |
| Nickel | 7440-02-0 | 310 | 310 | **32.0** | **17.6** | **27.9** | **19.7** | **18.3** | **9.2** | **49.7** | **14.3** | **21.9** | **34.9** | **27.6** | **14.1 J** | **11.5** | **20.6** |
| Potassium | 7440-09-7 | NL | NL | **611** | **760** | **1120** | **523** | **640** | **319** | **638** | **527** | **1510** | **1880** | **632** | **635** | **343** | **624** |
| Selenium | 7782-49-2 | 180 | 1500 | **0.39 J** | **0.27 J** | **0.21 J** | < 1.0 U | < 1.1 U | < 1.0 U | **0.59 J** | **0.57 J** | **0.22 J** | **0.50 J** | < 1.3 U | < 1.4 U | < 1.5 U | **0.43 J** |
| Silver | 7440-22-4 | 180 | 1500 | **0.39 J** | **0.088 J** | **0.094 J** | < 0.81 U | < 0.85 U | < 0.83 U | **0.76 J** | **0.21 J** | < 1.1 U | < 1.0 U | < 1.1 U | < 1.1 U | < 1.2 U | **0.16 J** |
| Sodium | 7440-23-5 | NL | NL | **323** | **269** | **413** | **104** | **93.7** | **76.2 J** | **378** | **491** | **537** | **257** | **139** | **130** | **71.1 J** | **616** |
| Thallium | 7440-28-0 | NL | NL | **0.10 J** | **0.11 J** | **0.089 J** | **0.035 J** | **0.040 J** | < 0.33 U | < 0.43 U | **0.062 J** | **0.074 J** | **0.23 J** | **0.044 J** | < 0.45 U | < 0.47 U | **0.064 J** |
| Vanadium | 7440-62-2 | NL | NL | **25.3** | **24.0** | **31.1** | **7.8** | **8.9** | **18.4** | **52.2** | **20.0** | **19.5** | **30.2** | **10.1** | **8.9** | **5.8** | **21.3** |
| Zinc | 7440-66-6 | **10000** | **10000** | **871** | **256** | **282** | **12.4** | **13.9** | **14.8** | **1880** | **1840** | **68.5** | **52.2** | **16.6** | **12.8** | **11.9** | **1230** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.78 U | < 0.083 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.78 U | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.78 U | < 0.083 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.78 U | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.78 U | < 0.083 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.78 U | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.78 U | < 0.083 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.78 U | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.78 U | < 0.083 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.78 U | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | **6.4** | **0.86** | **1.1** | < 0.07 U | < 0.079 U | **0.053 J** | < 0.78 U | **0.78** | **0.089** | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | **0.63** |
| Aroclor 1260 | 11096-82-5 | NL | NL | **2.9** | **0.45** | **0.62** | < 0.07 U | < 0.079 U | < 0.079 U | **7.4** | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.78 U | < 0.083 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.78 U | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.78 U | < 0.083 U | < 0.076 U | < 0.07 U | < 0.079 U | < 0.079 U | < 0.78 U | < 0.082 U | < 0.078 U | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | < 0.083 U |
| Total PCB | CALC-PCB | **1** | **1** | **9.3** | **1.3** | **1.7** | < 0.07 U | < 0.079 U | **0.053** | **7.4** | **0.78** | **0.089** | < 0.074 U | < 0.07 U | < 0.076 U | < 0.085 U | **0.63** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.3 U | < 1.3 U | **0.46 J** | < 1.1 U | < 1.3 U | < 1.3 U | < 1.3 U | **1.7** | **0.47 J** | < 1.2 U | < 1.1 U | < 1.2 U | < 1.4 U | **1.3** |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
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UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
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**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-125<br>324 Winthrop<br>SB-125(2-4)090820<br>9/8/2020<br>2 - 4 ft | SB-125<br>324 Winthrop<br>SB-125(6-8)090920<br>9/9/2020<br>6 - 8 ft | SB-125<br>324 Winthrop<br>SB-125(10-12)090920<br>9/9/2020<br>10 - 12 ft | SB-125<br>324 Winthrop<br>SB-125(28-30)090920<br>9/9/2020<br>28 - 30 ft | SB-125<br>324 Winthrop<br>SB-125(48-50)090920<br>9/9/2020<br>48 - 50 ft | SB-125<br>324 Winthrop<br>SB-125(68-70)090920<br>9/9/2020<br>68 - 70 ft | SB-125<br>324 Winthrop<br>SB-125(83-85)090920<br>9/9/2020<br>83 - 85 ft | SB-125 DUP<br>324 Winthrop<br>DUPE-5-090920<br>9/9/2020<br>68 - 70 ft | SB-126<br>324 Winthrop<br>SB-126(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-126<br>324 Winthrop<br>SB-126 (5-7)<br>9/30/2020<br>5 - 7 ft | SB-126<br>324 Winthrop<br>SB-126 (13-15)<br>9/30/2020<br>13 - 15 ft | SB-126<br>324 Winthrop<br>SB-126 (33-35)<br>9/30/2020<br>33 - 35 ft | SB-126<br>324 Winthrop<br>SB-126 (48-50)<br>9/30/2020<br>48 - 50 ft | SB-126<br>324 Winthrop<br>SB-126 (68-70)<br>10/1/2020<br>68 - 70 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **4870** | **11900** | **12100** | **3060** | **4040 J** | **2180** | **1990** | **2400** | **6270** | **7220** | **6110** | **2850** | **2340** | **2820** |
| Antimony | 7440-36-0 | NL | NL | < 0.92 U | < 0.89 U | < 1.1 U | < 0.81 U | < 1.0 UJ | < 1.1 U | < 0.94 U | < 1.0 U | **0.19 J** | **0.63 J** | < 0.98 U | < 1.0 U | < 1.0 U | < 0.93 U |
| Arsenic | 7440-38-2 | **16** | **16** | **50.1** | **14.7** | **5.1** | **1.9** | **1.2** | **0.63 J** | **0.69 J** | **0.62 J** | **3.3** | **6.6** | **1.5** | **1.3** | **0.94 J** | **1.0** |
| Barium | 7440-39-3 | **400** | **400** | **39.5** | **74.7** | **66.5** | **22.1** | **22.4 J** | **16.9** | **14.3** | **15.0** | **169** | **343** | **39.9** | **19.6** | **14.7** | **23.2** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.14 J** | **0.71** | **1.0** | **0.31 J** | **0.40 J** | **0.18 J** | **0.13 J** | **0.19 J** | **0.37** | **0.31 J** | **0.34 J** | **0.18 J** | **0.16 J** | **0.21 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 0.92 U | **0.21 J** | **0.31 J** | < 0.81 U | < 1.0 U | < 1.1 U | < 0.94 U | < 1.0 U | **0.36 J** | **1.4** | < 0.98 U | < 1.0 U | < 1.0 U | < 0.93 U |
| Calcium | 7440-70-2 | NL | NL | **1650** | **10100** | **27200** | **983** | **1130 J** | **4890** | **4820** | **5600** | **26000** | **55600** | **2360** | **1040** | **829** | **4730** |
| Chromium | 7440-47-3 | **180** | **1500** | **13.6** | **16.9** | **11.2** | **7.9** | **12.4 J** | **6.1** | **9.2** | **6.5** | **51.4** | **4040** | **20.0** | **7.2** | **5.6** | **7.0** |
| Cobalt | 7440-48-4 | NL | NL | **2.3** | **7.4** | **12.4** | **4.5** | **5.4 J** | **2.5** | **2.7** | **3.0** | **5.4** | **7.4** | **5.9** | **3.9** | **3.7** | **3.4** |
| Copper | 7440-50-8 | **270** | **270** | **17.3** | **27.4** | **16.9** | **13.7** | **18.8 J** | **5.2** | **7.8** | **5.4** | **22.8** | **51.3** | **27.9** | **11.4** | **8.9** | **7.9** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | < 2.6 U | < 2.3 U | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **34700** | **23300** | **10300** | **12300** | **8860** | **5080** | **5720** | **5650** | **11800** | **28700** | **13300** | **8450** | **6540** | **7630** |
| Lead | 7439-92-1 | **400** | **1000** | **72.4** | **22.6** | **13.5** | **4.6** | **3.8 J** | **2.6** | **2.3** | **3.3** | **184** | **1620** | **9.3** | **3.4** | **2.5** | **3.1** |
| Magnesium | 7439-95-4 | NL | NL | **1740** | **6930** | **14800** | **2370** | **4880 J** | **2890** | **2940** | **3040** | **6020** | **6080** | **3070** | **2670** | **3490** | **3290** |
| Manganese | 7439-96-5 | **2000** | 10000 | **67.1** | **441** | **877** | **307** | **323** | **249** | **144** | **243** | **227** | **264** | **358** | **221** | **105** | **1130** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.14** | **0.0060 J** | < 0.019 U | < 0.017 U | < 0.018 U | < 0.019 U | < 0.018 U | < 0.018 U | **0.12** | **0.17** | < 0.017 U | < 0.016 U | < 0.018 U | < 0.018 U |
| Nickel | 7440-02-0 | 310 | 310 | **6.1** | **22.4** | **30.8** | **17.4** | **39.4 J** | **12.8** | **49.3** | **13.6** | **27.7** | **20.4** | **18.8** | **25.4** | **28.6** | **14.8** |
| Potassium | 7440-09-7 | NL | NL | **857** | **1790** | **1100** | **659** | **842 J** | **581** | **329** | **653** | **1190** | **1040** | **1160** | **554** | **537** | **580** |
| Selenium | 7782-49-2 | 180 | 1500 | **2.1** | **0.46 J** | < 1.3 U | < 1.0 U | < 1.3 U | < 1.3 U | < 1.2 U | < 1.3 U | **0.14 J** | **0.40 J** | < 1.2 U | < 1.3 U | < 1.3 U | < 1.2 U |
| Silver | 7440-22-4 | 180 | 1500 | < 0.92 U | < 0.89 U | < 1.1 U | < 0.81 U | < 1.0 U | < 1.1 U | < 0.94 U | < 1.0 U | < 0.76 U | < 1.3 U | < 0.98 U | < 1.0 U | < 1.0 U | < 0.93 U |
| Sodium | 7440-23-5 | NL | NL | **189** | **1040** | **1300** | **93.5** | **141** | **104 J** | **65.8 J** | **104** | **553** | **425** | **395** | **140** | **94.4 J** | **148** |
| Thallium | 7440-28-0 | NL | NL | **0.075 J** | **0.077 J** | **0.052 J** | **0.054 J** | **0.065 J** | < 0.42 U | < 0.38 U | < 0.40 U | **0.071 J** | **0.076 J** | **0.086 J** | **0.042 J** | < 0.42 U | < 0.37 U |
| Vanadium | 7440-62-2 | NL | NL | **22.6** | **26.2** | **25.5** | **13.3** | **15.7 J** | **6.1** | **7.0** | **7.3** | **23.2** | **32.7** | **28.3** | **10.5** | **7.7** | **12.6** |
| Zinc | 7440-66-6 | **10000** | **10000** | **35.4** | **59.3** | **52.5** | **28.7** | **25.6** | **11.4** | **11.5** | **21.8** | **182** | **735** | **34.8** | **18.3** | **13.7** | **14.7** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | < 0.096 U | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | < 0.096 U | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | < 0.096 U | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | **0.21** | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | < 0.096 U | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | **0.14** | < 0.096 U | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | < 0.096 U | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | **0.66** | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | < 0.073 U | < 0.096 U | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.087 U | < 0.078 U | < 0.077 U | < 0.069 U | < 0.071 U | < 0.082 U | < 0.077 U | < 0.081 U | **0.14** | **0.87** | < 0.069 U | < 0.069 U | < 0.074 U | < 0.081 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.4 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.2 UJ | < 1.3 U | < 1.3 U | < 1.3 U | < 1.2 U | < 1.6 U | < 1.1 U | < 1.1 U | < 1.2 U | **0.79 J** |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-126<br>324 Winthrop<br>SB-126 (83-85)<br>10/1/2020<br>83 - 85 ft | SB-126 DUP<br>324 Winthrop<br>DUPE-16-100120<br>10/1/2020<br>68 - 70 ft | SB-126 DUP<br>324 Winthrop<br>DUPE-17-100120<br>10/1/2020<br>83 - 85 ft | SB-127<br>324 Winthrop<br>SB-127(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-127<br>324 Winthrop<br>SB-127 (5-7)092820<br>9/28/2020<br>5 - 7 ft | SB-127<br>324 Winthrop<br>SB-127 (13-15)092820<br>9/28/2020<br>13 - 15 ft | SB-127<br>324 Winthrop<br>SB-127 (33-35)092820<br>9/28/2020<br>33 - 35 ft | SB-127<br>324 Winthrop<br>SB-127(48-50)<br>9/29/2020<br>48 - 50 ft | SB-127<br>324 Winthrop<br>SB-127(67-69)<br>9/29/2020<br>67 - 69 ft | SB-127<br>324 Winthrop<br>SB-127(83-85)<br>9/29/2020<br>83 - 85 ft | SB-127 DUP<br>324 Winthrop<br>DUPE-15-092920<br>9/29/2020<br>66 - 68 ft | SB-128<br>324 Winthrop<br>SB-128(2-4)091220<br>9/12/2020<br>2 - 4 ft | SB-128<br>324 Winthrop<br>SB-128(5-7)091920<br>9/19/2020<br>5 - 7 ft | SB-128<br>324 Winthrop<br>SB-128(13-15)091920<br>9/19/2020<br>13 - 15 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **2860** | **2040** | **2580** | **5390** | **8950** | **7630 J** | **2890** | **2250** | **2720** | **5530** | **2610** | **6620** | **13500** | **5670** |
| Antimony | 7440-36-0 | NL | NL | < 1.0 U | < 0.90 U | < 0.90 U | < 0.73 U | **0.25 J** | < 1.2 UJ | < 1.1 U | < 0.96 U | < 1.2 U | **0.41 J** | < 1.1 U | < 0.71 U | < 1.2 U | < 0.82 U |
| Arsenic | 7440-38-2 | **16** | **16** | **0.93 J** | **0.60 J** | **0.77 J** | **3.1** | **4.4** | **2.3** | **1.1** | **0.73 J** | **0.81 J** | **5.6** | **0.85 J** | **2.5** | **4.8** | **2.1** |
| Barium | 7440-39-3 | **400** | **400** | **17.6** | **10.5** | **16.3** | **62.9** | **251** | **52.7** | **21.0** | **13.7** | **16.9** | **313** | **16.0** | **45.7** | **50.9** | **45.8** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.18 J** | **0.14 J** | **0.15 J** | **0.36** | **0.48** | **0.43 J** | **0.15 J** | **0.14 J** | **0.19 J** | **0.27 J** | **0.19 J** | **0.49** | **0.57** | **0.43** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.0 U | < 0.90 U | < 0.90 U | **0.12 J** | **0.51 J** | < 1.2 U | < 1.1 U | < 0.96 U | < 1.2 U | **0.71 J** | < 1.1 U | **0.48 J** | < 1.2 U | < 0.82 U |
| Calcium | 7440-70-2 | NL | NL | **4990** | **2680** | **4170** | **5790** | **72500** | **2210 J** | **1060** | **708** | **1170 J** | **33400** | **2900 J** | **1820** | **1320** | **1790** |
| Chromium | 7440-47-3 | **180** | **1500** | **6.3** | **6.3** | **17.9** | **14.4** | **647** | **19.7** | **6.5** | **6.4** | **8.2** | **70.9** | **6.3** | **23.4** | **20.2** | **13.7** |
| Cobalt | 7440-48-4 | NL | NL | **3.2** | **2.4** | **4.6** | **5.6** | **6.5** | **7.6** | **3.8** | **2.7** | **3.1** | **4.0** | **2.5** | **6.9** | **6.4** | **4.9** |
| Copper | 7440-50-8 | **270** | **270** | **7.6** | **7.0** | **7.5** | **16.4** | **27.2** | **27.2 J** | **9.3** | **8.1** | **6.5** | **23.2** | **5.9** | **22.5** | **15.5** | **20.3** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **7060** | **4740** | **7010** | **11200** | **17000** | **16700** | **7900** | **6000** | **7100** | **13600** | **5990** | **16400** | **16600** | **13900** |
| Lead | 7439-92-1 | **400** | **1000** | **2.9** | **2.2** | **2.5** | **49.8** | **362** | **5.3** | **3.1** | **2.5** | **2.8** | **560** | **2.9** | **82.9** | **38.7** | **5.6** |
| Magnesium | 7439-95-4 | NL | NL | **2530** | **2430** | **2750** | **3570** | **8430** | **3650 J** | **2180** | **2060** | **2260** | **3350** | **2190** | **4080** | **2790** | **2900** |
| Manganese | 7439-96-5 | **2000** | 10000 | **156** | **576** | **134** | **250** | **280** | **439** | **185** | **134** | **74.8** | **245** | **138** | **363** | **194** | **467** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.022 U | < 0.020 U | < 0.019 U | **0.062** | **0.11** | < 0.019 U | **0.0093 J** | < 0.015 U | < 0.019 U | **0.098** | < 0.019 U | **0.055** | **0.042** | < 0.016 U |
| Nickel | 7440-02-0 | 310 | 310 | **11.5** | **14.7** | **18.0** | **34.3** | **20.2** | **27.3 J** | **19.6** | **17.8** | **15.2** | **8.7** | **10.9** | **26.6** | **15.8** | **16.1** |
| Potassium | 7440-09-7 | NL | NL | **453** | **439** | **557** | **907** | **1200** | **1460 J** | **594** | **427** | **648** | **793** | **657** | **1300** | **835** | **1390** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.3 U | < 1.1 U | < 1.1 U | < 0.92 U | **0.31 J** | < 1.5 U | < 1.3 U | < 1.2 U | < 1.5 U | **0.27 J** | < 1.4 U | **0.11 J** | **0.28 J** | < 1.0 U |
| Silver | 7440-22-4 | 180 | 1500 | < 1.0 U | < 0.90 U | < 0.90 U | < 0.73 U | < 1.2 U | < 1.2 U | < 1.1 U | < 0.96 U | < 1.2 U | < 1.2 U | < 1.1 U | < 0.71 U | < 1.2 U | < 0.82 U |
| Sodium | 7440-23-5 | NL | NL | **115** | **115** | **215** | **211** | **490** | **1350 J** | **106 J** | **78.4 J** | **119 J** | **455** | **110 J** | **130** | **173** | **285** |
| Thallium | 7440-28-0 | NL | NL | < 0.42 U | < 0.36 U | **0.11 J** | **0.069 J** | **0.083 J** | **0.10 J** | < 0.43 U | < 0.38 U | < 0.48 U | < 0.48 U | < 0.45 U | **0.10 J** | **0.13 J** | **0.088 J** |
| Vanadium | 7440-62-2 | NL | NL | **8.1** | **5.6** | **7.1** | **18.3** | **30.9** | **32.6** | **8.9** | **8.0** | **10.8** | **25.2** | **8.0** | **26.5** | **29.7** | **23.1** |
| Zinc | 7440-66-6 | **10000** | **10000** | **16.4** | **10.3** | **11.8** | **58.8** | **294** | **32.0** | **16.6** | **11.8** | **12.1** | **421** | **12.4** | **59.8** | **43.5** | **24.8** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.079 U | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.079 U | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.079 U | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | **0.17** | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.079 U | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.079 U | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | **0.43** | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | **0.15** | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.079 U | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | < 0.079 U | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.087 U | < 0.08 U | < 0.077 U | < 0.073 U | **0.32** | < 0.081 U | < 0.075 U | < 0.069 U | < 0.082 U | **0.43** | < 0.078 U | < 0.071 U | < 0.083 U | < 0.07 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | **0.72 J** | **0.66 J** | **0.52 J** | < 1.2 U | < 1.3 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.3 U | < 1.4 U | < 1.3 U | < 1.1 U | **0.64 J** | **0.32 J** |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-128<br>324 Winthrop<br>SB-128(18-20)091920<br>9/19/2020<br>18 - 20 ft | SB-128<br>324 Winthrop<br>SB-128(33-35)091920<br>9/19/2020<br>33 - 35 ft | SB-129<br>324 Winthrop<br>SB-129(2-4)<br>9/3/2020<br>2 - 4 ft | SB-129<br>324 Winthrop<br>SB-129(5-7)<br>9/3/2020<br>5 - 7 ft | SB-129<br>324 Winthrop<br>SB-129(12-14)<br>9/3/2020<br>12 - 14 ft | SB-130<br>324 Winthrop<br>SB-130 (2-4)<br>9/2/2020<br>2 - 4 ft | SB-130<br>324 Winthrop<br>SB-130(5-7)<br>9/3/2020<br>5 - 7 ft | SB-130<br>324 Winthrop<br>SB-130(12-14)<br>9/3/2020<br>12 - 14 ft | SB-130 DUP<br>324 Winthrop<br>DUPE-3-090320<br>9/3/2020<br>5 - 7 ft | SB-131<br>324 Winthrop<br>SB-131(3-5)<br>9/3/2020<br>3 - 5 ft | SB-131<br>324 Winthrop<br>SB-131(8-10)<br>9/3/2020<br>8 - 10 ft | SB-131<br>324 Winthrop<br>SB-131(12-14)<br>9/3/2020<br>12 - 14 ft | SB-132<br>324 Winthrop<br>SB-132 (2-4)<br>9/2/2020<br>2 - 4 ft | SB-132<br>324 Winthrop<br>SB-132(6-8)<br>9/3/2020<br>6 - 8 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **5370** | **3490** | **7190** | **8290** | **5750** | **7260** | **6240** | **11200** | **7880** | **9430** | **7770** | **10100** | **6330** | **7850** |
| Antimony | 7440-36-0 | NL | NL | < 0.82 U | < 0.82 U | **0.44 J** | **2.9 J** | < 0.90 U | **1.7** | **1.1 J** | < 0.96 U | **1.5 J** | **0.58 J** | < 0.91 U | < 0.81 U | < 1.1 U | < 0.90 U |
| Arsenic | 7440-38-2 | **16** | **16** | **2.3** | **1.4** | **4.5** | **23.6** | **2.0** | **9.3** | **12.5** | **3.8** | **19.3** | **6.7** | **3.5** | **3.7** | **3.3** | **2.9** |
| Barium | 7440-39-3 | **400** | **400** | **43.9** | **23.2** | **422** | **353** | **41.1** | **251** | **129** | **60.9** | **210** | **136** | **54.1** | **62.5** | **43.5** | **46.3** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.33** | **0.27 J** | **0.34 J** | **0.52 J** | **0.42** | **0.38 J** | **0.31 J** | **0.57** | **0.39 J** | **0.48** | **0.58** | **0.77** | **0.52** | **0.37** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.27 J** | < 0.82 U | **2.5** | **5.9** | < 0.90 U | **2.2** | **2.7** | **0.11 J** | **4.9 J** | **1.0** | < 0.91 U | **0.10 J** | **0.22 J** | < 0.90 U |
| Calcium | 7440-70-2 | NL | NL | **30100** | **1320** | **35100** | **17300** | **2400** | **26200** | **31500** | **3950** | **26000** | **31500** | **2330** | **3080** | **1000** | **3150** |
| Chromium | 7440-47-3 | **180** | **1500** | **28.7** | **11.7** | **295** | **3900** | **14.2** | **107** | **2810 J** | **27.5** | **5980 J** | **77.2** | **19.5** | **22.2** | **14.9** | **18.5** |
| Cobalt | 7440-48-4 | NL | NL | **5.9** | **5.6** | **5.9** | **8.3 J** | **9.3** | **7.1** | **5.8** | **10.8** | **8.5 J** | **4.3** | **24.3** | **13.4** | **6.5** | **8.6** |
| Copper | 7440-50-8 | **270** | **270** | **17.1** | **13.8** | **36.4** | **663** | **38.2** | **136** | **30.6** | **73.8** | **46.0** | **44.7** | **33.1** | **68.2** | **19.2** | **43.6** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **12100** | **11300** | **14500** | **59500** | **15800** | **26500** | **41900** | **25100** | **54700** | **15400** | **15100** | **28800** | **14100** | **17600** |
| Lead | 7439-92-1 | **400** | **1000** | **258** | **4.8** | **2880** | **6780** | **6.8** | **1010** | **2870 J** | **7.4** | **6460 J** | **423** | **19.5** | **6.0** | **52.1** | **8.3** |
| Magnesium | 7439-95-4 | NL | NL | **18000** | **2930** | **4550** | **3950** | **3000** | **4130** | **3600** | **5270** | **4700** | **4490** | **3690** | **5030** | **2870** | **4060** |
| Manganese | 7439-96-5 | **2000** | 10000 | **262** | **266** | **234** | **413** | **495** | **335** | **329** | **451** | **384** | **290** | **394** | **694** | **344** | **346** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.017 U | < 0.016 U | **0.15** | **3.7** | < 0.016 U | **1.4** | **0.84** | < 0.016 U | **0.55** | **0.84** | **0.0048 J** | **0.0075 J** | **0.014 J** | < 0.017 U |
| Nickel | 7440-02-0 | 310 | 310 | **17.0** | **37.5** | **17.9** | **31.2** | **22.4** | **31.0** | **16.0** | **30.0** | **24.5** | **14.9** | **25.7** | **37.7** | **26.0** | **27.7** |
| Potassium | 7440-09-7 | NL | NL | **1530** | **829** | **779** | **1210** | **1320** | **1000** | **749** | **3360** | **1130** | **1040** | **1010** | **2000** | **1200** | **1600** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.0 U | < 1.0 U | **0.25 J** | **0.86 J** | < 1.1 U | **0.51 J** | **0.44 J** | < 1.2 U | **0.78 J** | **0.38 J** | < 1.1 U | < 1.0 U | < 1.3 U | < 1.1 U |
| Silver | 7440-22-4 | 180 | 1500 | < 0.82 U | < 0.82 U | **0.15 J** | **0.78 J** | < 0.90 U | **0.30 J** | **0.11 J** | < 0.96 U | < 5.0 U | **0.19 J** | < 0.91 U | < 0.81 U | < 1.1 U | < 0.90 U |
| Sodium | 7440-23-5 | NL | NL | **343** | **122** | **487** | **497 J** | **261** | **485** | **612** | **600** | **659** | **1170** | **369** | **623** | **988** | **781** |
| Thallium | 7440-28-0 | NL | NL | **0.090 J** | **0.052 J** | **0.084 J** | < 2.1 U | **0.099 J** | **0.094 J** | **0.074 J** | **0.21 J** | < 2.0 U | **0.080 J** | **0.082 J** | **0.20 J** | **0.11 J** | **0.13 J** |
| Vanadium | 7440-62-2 | NL | NL | **24.8** | **14.9** | **24.6** | **31.2** | **31.0** | **31.0** | **20.5** | **45.0** | **25.3** | **27.5** | **36.3** | **50.7** | **22.0** | **44.8** |
| Zinc | 7440-66-6 | **10000** | **10000** | **85.8** | **22.5** | **984** | **2490** | **36.9** | **573** | **1210 J** | **50.1** | **2240 J** | **342** | **33.2** | **54.3** | **224** | **49.5** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.069 U | < 0.071 U | **0.55** | **14** | < 0.071 U | **1.4** | **0.2** | < 0.071 U | **0.13** | **0.96** | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.069 U | < 0.071 U | < 0.076 U | < 1.7 U | < 0.071 U | < 0.15 U | < 0.087 U | < 0.071 U | < 0.084 U | < 0.078 U | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.069 U | < 0.071 U | **0.55** | **14** | < 0.071 U | **1.4** | **0.2** | < 0.071 U | **0.13** | **0.96** | < 0.071 U | < 0.07 U | < 0.074 U | < 0.07 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | **0.53 J** | **0.55 J** | < 1.2 U | < 1.3 U | < 1.2 U | < 1.2 U | < 1.4 U | < 1.1 U | < 1.4 U | < 1.3 U | < 1.1 U | < 1.1 U | < 1.2 U | < 1.1 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-132<br>324 Winthrop<br>SB-132(12-14)<br>9/3/2020<br>12 - 14 ft | SB-133<br>324 Winthrop<br>SB-133 (2-4)091620<br>9/16/2020<br>2 - 4 ft | SB-133<br>324 Winthrop<br>SB-133(5-7)<br>9/4/2020<br>5 - 7 ft | SB-133<br>324 Winthrop<br>SB-133(12-14)<br>9/4/2020<br>12 - 14 ft | SB-134<br>324 Winthrop<br>SB-134(5-7)<br>9/4/2020<br>5 - 7 ft | SB-134<br>324 Winthrop<br>SB-134(12-14)<br>9/4/2020<br>12 - 14 ft | SB-135<br>324 Winthrop<br>SB-135 (3-5)092120<br>9/21/2020<br>3 - 5 ft | SB-135<br>324 Winthrop<br>SB-135 (7-9)092220<br>9/22/2020<br>7 - 9 ft | SB-135<br>324 Winthrop<br>SB-135 (12-14)092220<br>9/22/2020<br>12 - 14 ft | SB-135<br>324 Winthrop<br>B-135 (22.5-24.5)09222<br>9/22/2020<br>22.5 - 24.5 ft | SB-135<br>324 Winthrop<br>SB-135 (48-50)092220<br>9/22/2020<br>48 - 50 ft | SB-135<br>324 Winthrop<br>SB-135 (68-70)092320<br>9/23/2020<br>68 - 70 ft | SB-135<br>324 Winthrop<br>SB-135 (83-85)092320<br>9/23/2020<br>83 - 85 ft | SB-135 DUP<br>324 Winthrop<br>DUPE-10-092220<br>9/22/2020<br>7 - 9 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **4030** | **7420** | **10800** | **5610** | **7530** | **8210** | **8880** | **4200** | **7990** | **9020** | **2900** | **2310** | **2490** | **5110** |
| Antimony | 7440-36-0 | NL | NL | < 0.74 U | **10** | **0.63 J** | < 0.85 U | **0.81 J** | < 0.82 U | **4.9** | **0.74 J** | < 1.1 U | **0.49 J** | < 1.2 U | < 1.0 U | < 1.0 U | **2.6** |
| Arsenic | 7440-38-2 | **16** | **16** | **1.2** | **32.0** | **6.1** | **2.1** | **18.6** | **2.5** | **27.5** | **4.6** | **4.0** | **10** | **1.2** | **0.66 J** | **0.95 J** | **7.2** |
| Barium | 7440-39-3 | **400** | **400** | **37.8** | **1080** | **168** | **37.2** | **163** | **54.1** | **837** | **1350 J** | **94.3** | **572** | **20.0** | **14.3** | **20.8** | **780 J** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.32** | **0.45** | **0.54** | **0.37** | **0.50 J** | **0.52** | **0.39** | **0.21 J** | **0.60** | **0.44 J** | **0.21 J** | **0.16 J** | **0.15 J** | **0.24 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 0.74 U | **17.1** | **0.78 J** | < 0.85 U | **4.2 J** | < 0.82 U | **11.1** | **1.5** | **0.28 J** | **0.29 J** | < 1.2 U | < 1.0 U | < 1.0 U | **1.4** |
| Calcium | 7440-70-2 | NL | NL | **4040** | **17900** | **32000** | **2010** | **22400** | **3470** | **21100** | **119000 J** | **7760** | **10300** | **980** | **3740** | **7990** | **47400 J** |
| Chromium | 7440-47-3 | **180** | **1500** | **11.4** | **379** | **215** | **19.7** | **4020** | **21.3** | **1270** | **211** | **122** | **24.1** | **7.9** | **7.7** | **6.0** | **286** |
| Cobalt | 7440-48-4 | NL | NL | **5.4** | **18.2** | **6.0** | **6.6** | **9.0 J** | **10.2** | **16.7** | **4.4** | **9.7** | **8.7** | **3.6** | **2.6** | **3.3** | **5.2** |
| Copper | 7440-50-8 | **270** | **270** | **13.1** | **553** | **56.8** | **26.8** | **56.4** | **35.0** | **784** | **46.0** | **40.8** | **57.4** | **8.9** | **5.7** | **6.4** | **54.7** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **12300** | **121000** | **18200** | **11500** | **51600** | **19700** | **131000** | **12700** | **19700** | **38400** | **8180** | **5580** | **6640** | **13600** |
| Lead | 7439-92-1 | **400** | **1000** | **5.6** | **12000** | **480** | **5.8** | **4830** | **9.5** | **5530** | **577** | **145** | **1230** | **2.5** | **2.4** | **2.5** | **680** |
| Magnesium | 7439-95-4 | NL | NL | **3880** | **3390** | **5460** | **2290** | **5370** | **3820** | **4420** | **5150** | **5490** | **4440** | **2520** | **2500** | **3720** | **6790** |
| Manganese | 7439-96-5 | **2000** | 10000 | **328** | **712** | **304** | **241** | **483** | **448** | **843** | **300** | **667** | **391** | **229** | **259** | **168** | **290** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.016 U | **6.1** | **0.38** | < 0.016 U | **0.57** | < 0.017 U | **3.9** | **0.21** | **0.043** | **0.30** | < 0.020 U | < 0.021 U | < 0.019 U | **0.15** |
| Nickel | 7440-02-0 | 310 | 310 | **23.8** | **97.9** | **20.8** | **25.3** | **25.5** | **49.2** | **106** | **20.7** | **38.6** | **24.3** | **19.5** | **15.0** | **21.4** | **24.4** |
| Potassium | 7440-09-7 | NL | NL | **1040** | **508** | **1670** | **1160** | **1060** | **1200** | **579** | **747** | **1210** | **926** | **780** | **531** | **373** | **741** |
| Selenium | 7782-49-2 | 180 | 1500 | < 0.93 U | **1.0 J** | **0.26 J** | < 1.1 U | **0.72 J** | < 1.0 U | **1.1** | **0.42 J** | **0.24 J** | **1.3 J** | < 1.5 U | < 1.3 U | < 1.2 U | **0.28 J** |
| Silver | 7440-22-4 | 180 | 1500 | < 0.74 U | **2.3** | < 0.99 U | < 0.85 U | < 5.2 U | < 0.82 U | **2.8** | **0.39 J** | < 1.1 U | < 1.4 U | < 1.2 U | < 1.0 U | < 1.0 U | **0.40 J** |
| Sodium | 7440-23-5 | NL | NL | **463** | **273** | **1070** | **362** | **336 J** | **465** | **221** | **305** | **247** | **297** | **152** | **102** | **92.5 J** | **616** |
| Thallium | 7440-28-0 | NL | NL | **0.099 J** | **0.15 J** | **0.10 J** | **0.070 J** | < 2.1 U | **0.11 J** | **0.074 J** | < 0.51 U | < 0.45 U | < 0.54 U | < 0.48 U | < 0.41 U | < 0.40 U | < 0.47 U |
| Vanadium | 7440-62-2 | NL | NL | **16.9** | **96.0** | **32.5** | **20.2** | **36.8** | **30.7** | **74.3** | **16.5** | **25.2** | **21.9** | **10.2** | **6.8** | **7.5** | **25.1** |
| Zinc | 7440-66-6 | **10000** | **10000** | **23.3** | **6030** | **287** | **30.4** | **1880** | **49.1** | **2830** | **929** | **105** | **260** | **16.2** | **11.3** | **12.7** | **868** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.07 U | **43** | **0.44** | < 0.071 U | **0.24** | < 0.069 U | **9.1 J+** | **0.32** | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | **0.29** |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.07 U | < 4 U | < 0.085 U | < 0.071 U | < 0.079 U | < 0.069 U | < 0.75 U | < 0.09 U | < 0.081 UJ | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | < 0.081 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.07 U | **43** | **0.44** | < 0.071 U | **0.24** | < 0.069 U | **9.1** | **0.32** | < 0.081 U | < 0.098 U | < 0.084 U | < 0.084 U | < 0.084 U | **0.29** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.1 U | < 1.3 U | < 1.4 U | < 1.2 U | < 1.3 U | < 1.1 U | < 1.2 U | **1.3 J** | **0.90 J** | **3.4** | **0.93 J** | **3.5** | **1.5** | **1.3** |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-135 DUP<br>324 Winthrop<br>DUPE-11-092320<br>9/23/2020<br>68 - 70 ft | SB-136<br>324 Winthrop<br>SB-136 (2-4)091620<br>9/16/2020<br>2 - 4 ft | SB-136<br>324 Winthrop<br>SB-136 (5-7)091720<br>9/17/2020<br>5 - 7 ft | SB-136<br>324 Winthrop<br>SB-136 (13-15)091720<br>9/17/2020<br>13 - 15 ft | SB-136<br>324 Winthrop<br>SB-136 (33-35)091720<br>9/17/2020<br>33 - 35 ft | SB-136<br>324 Winthrop<br>SB-136 (47.5-49.5)09172<br>9/17/2020<br>47.5 - 49.5 ft | SB-136<br>324 Winthrop<br>SB-136 (63-65)092120<br>9/21/2020<br>63 - 65 ft | SB-136<br>324 Winthrop<br>SB-136 (83-85)092120<br>9/21/2020<br>83 - 85 ft | SB-136 DUP<br>324 Winthrop<br>DUPE-7-091720<br>9/17/2020<br>33 - 35 ft | SB-136 DUP<br>324 Winthrop<br>DUPE-9-092120<br>9/21/2020<br>63 - 65 ft | SB-137<br>324 Winthrop<br>SB-137 (5-7)092420<br>9/24/2020<br>5 - 7 ft | SB-137<br>324 Winthrop<br>SB-137 (10-12)092420<br>9/24/2020<br>10 - 12 ft | SB-137<br>324 Winthrop<br>SB-137 (18-20)092420<br>9/24/2020<br>18 - 20 ft | SB-137 DUP<br>324 Winthrop<br>DUPE-12-092420<br>9/24/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **2480** | **5580** | **8660** | **6810** | **3640** | **2760** | **2210** | **3470** | **2810** | **2150** | **8270** | **5840** | **8270** | **5910** |
| Antimony | 7440-36-0 | NL | NL | < 1.1 U | **1.1** | **0.58 J** | < 0.78 U | < 0.83 U | < 0.81 U | < 0.86 UJ | < 0.90 U | < 0.84 U | < 0.89 U | **6.5 J** | **0.32 J** | < 0.95 U | **30.8 J** |
| Arsenic | 7440-38-2 | **16** | **16** | **0.51 J** | **9.0** | **8.1** | **3.1** | **1.2** | **2.4** | **0.50 J** | **2.0** | **1.1** | **0.56 J** | **42.4 J** | **3.6 J** | **2.7** | **20.8 J** |
| Barium | 7440-39-3 | **400** | **400** | **13.1** | **292** | **194** | **63.7** | **24.0** | **15.8** | **13.3** | **27.4** | **20.2** | **15.5** | **225** | **74.1** | **60.2** | **210** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.16 J** | **0.32 J** | **0.45** | **0.59** | **0.23 J** | **0.19 J** | **0.16 J** | **0.25 J** | **0.19 J** | **0.16 J** | **0.37 J** | **0.41** | **0.49** | **0.31 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | **1.6** | **1.4** | < 0.78 U | < 0.83 U | < 0.81 U | < 0.86 U | < 0.90 U | < 0.84 U | < 0.89 U | **3.9** | **0.53 J** | < 0.95 U | **2.9** |
| Calcium | 7440-70-2 | NL | NL | **3960** | **47300** | **42700** | **2230** | **1300** | **842** | **2240** | **4220** | **1140** | **2030** | **28100** | **20100** | **2690** | **39200** |
| Chromium | 7440-47-3 | **180** | **1500** | **6.5** | **1740** | **652** | **19.1** | **10.7** | **7.6** | **10.2** | **21.6** | **7.8** | **10.5** | **100 J** | **75.8 J** | **24.2** | **493 J** |
| Cobalt | 7440-48-4 | NL | NL | **2.4** | **8.1** | **6.0** | **7.3** | **4.4** | **3.4** | **2.6** | **4.1** | **4.6** | **2.6** | **13.0** | **5.7** | **7.5** | **8.9** |
| Copper | 7440-50-8 | **270** | **270** | **5.1** | **122** | **41.9** | **43.2** | **11.3** | **8.2** | **8.7 J** | **10.9** | **10.5** | **6.9** | **401 J** | **35.7 J** | **22.5** | **170 J** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **5500** | **28100** | **29300** | **24300** | **9720** | **6930** | **5580** | **9790** | **7310** | **5420** | **48500** | **16300 J** | **16200** | **29900** |
| Lead | 7439-92-1 | **400** | **1000** | **2.4** | **2530** | **1160** | **9.2** | **3.9** | **4.6** | **2.2 J** | **3.7** | **3.0** | **2.6** | **1710** | **382 J** | **12.1** | **5160** |
| Magnesium | 7439-95-4 | NL | NL | **2090** | **15300** | **7240** | **3470** | **3180** | **3140** | **2730** | **4380** | **2480** | **2590** | **5740** | **8990** | **5180** | **5530** |
| Manganese | 7439-96-5 | **2000** | 10000 | **213** | **256** | **322** | **513** | **239** | **130** | **316** | **208** | **188** | **278** | **395** | **333 J** | **357** | **267** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.019 U | **0.45** | **0.34** | < 0.017 U | < 0.018 U | < 0.018 U | < 0.019 U | < 0.017 U | < 0.019 U | < 0.019 U | **1.9** | **0.27 J+** | < 0.018 U | **1.7** |
| Nickel | 7440-02-0 | 310 | 310 | **12.1** | **24.0** | **18.1** | **24.0** | **25.8** | **22.3** | **16.2** | **21.9** | **19.6** | **17.3** | **145 J** | **20.9 J** | **33.4** | **35.9 J** |
| Potassium | 7440-09-7 | NL | NL | **535** | **628** | **926** | **1510** | **1020** | **590** | **491** | **1000** | **679** | **498** | **612** | **1030 J** | **2710** | **505** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.4 U | **0.40 J** | **0.29 J** | < 0.97 U | < 1.0 U | < 1.0 U | < 1.1 U | < 1.1 U | < 1.1 U | < 1.1 U | **3.0** | **0.12 J** | < 1.2 U | **0.59 J** |
| Silver | 7440-22-4 | 180 | 1500 | < 1.1 U | < 0.98 U | **0.12 J** | < 0.78 U | < 0.83 U | < 0.81 U | < 0.86 U | < 0.90 U | < 0.84 U | < 0.89 U | **0.50 J** | **0.085 J** | < 0.95 U | **0.48 J** |
| Sodium | 7440-23-5 | NL | NL | **106 J** | **542** | **731** | **300** | **174** | **113** | **106** | **132** | **138** | **109** | **658** | **256** | **499** | **488** |
| Thallium | 7440-28-0 | NL | NL | < 0.46 U | **0.10 J** | **0.062 J** | **0.12 J** | **0.092 J** | **0.045 J** | **0.055 J** | < 0.36 U | **0.050 J** | < 0.36 U | **0.29 J** | **0.11 J** | **0.14 J** | **0.13 J** |
| Vanadium | 7440-62-2 | NL | NL | **6.5** | **23.1** | **24.4** | **28.7** | **14.2** | **10.4** | **6.6** | **13.2** | **9.4** | **8.4** | **29.4** | **22.6 J** | **37.6** | **28.2** |
| Zinc | 7440-66-6 | **10000** | **10000** | **11.2** | **679** | **504** | **40.0** | **21.5** | **18.3** | **10.3** | **17.6** | **23.3** | **10.6** | **846** | **178 J** | **52.1** | **992** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.083 U | < 0.075 U | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.083 U | < 0.075 U | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.083 U | < 0.075 U | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.083 U | < 0.075 U | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.083 U | < 0.075 U | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.083 U | < 0.075 U | **0.47** | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | **6.9 J** | **1 J** | < 0.069 U | **14 J** |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.083 U | **0.9** | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.083 U | < 0.075 U | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.083 U | < 0.075 U | < 0.085 U | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | < 0.76 U | < 0.071 U | < 0.069 U | < 1.5 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.083 U | **0.9** | **0.47** | < 0.07 U | < 0.069 U | < 0.073 U | < 0.078 U | < 0.075 U | < 0.079 U | < 0.077 U | **6.9** | **1** | < 0.069 U | **14** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | **0.56 J** | **0.57 J** | < 1.4 U | < 1.1 U | **0.53 J** | **0.67 J** | < 1.3 U | < 1.2 U | **0.48 J** | < 1.3 U | **0.76 J** | **1.0 J** | **0.58 J** | **0.63 J** |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-138<br>324 Winthrop<br>SB-138 (1-3)091720<br>9/17/2020<br>1 - 3 ft | SB-138<br>324 Winthrop<br>SB-138(5-7)092620<br>9/26/2020<br>5 - 7 ft | SB-138<br>324 Winthrop<br>SB-138(13-15)092620<br>9/26/2020<br>13 - 15 ft | SB-138<br>324 Winthrop<br>SB-138(33-35)092620<br>9/26/2020<br>33 - 35 ft | SB-138<br>324 Winthrop<br>SB-138(48-50)092620<br>9/26/2020<br>48 - 50 ft | SB-138<br>324 Winthrop<br>SB-138 (68-70)092720<br>9/27/2020<br>68 - 70 ft | SB-138<br>324 Winthrop<br>SB-138 (83-85)092720<br>9/27/2020<br>83 - 85 ft | SB-138 DUP<br>324 Winthrop<br>DUPE-13-092620<br>9/26/2020<br>13 - 15 ft | SB-139<br>324 Winthrop<br>SB-139(2-4)<br>10/18/2020<br>2 - 4 ft | SB-139<br>324 Winthrop<br>SB-139(5-6.5)<br>10/18/2020<br>5 - 6.5 ft | SB-139<br>324 Winthrop<br>SB-139(12-14)<br>10/18/2020<br>12 - 14 ft | SB-139<br>324 Winthrop<br>SB-139(23-25)<br>10/18/2020<br>23 - 25 ft | SB-139<br>324 Winthrop<br>SB-139(33-35)<br>10/18/2020<br>33 - 35 ft | SB-139 DUP<br>324 Winthrop<br>DUPE-23-101820<br>10/18/2020<br>23 - 25 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **6040** | **4820** | **5860** | **4690** | **3530** | **2370** | **2650** | **6770** | **5310** | **6560** | **6950** | **3670** | **2570** | **3410** |
| Antimony | 7440-36-0 | NL | NL | **3.3** | **3.8** | < 0.87 U | < 0.82 U | < 0.88 U | < 1.2 U | < 1.2 U | < 1.1 U | **0.33 J** | **5.5** | < 0.84 U | < 0.78 U | < 0.79 U | < 0.83 U |
| Arsenic | 7440-38-2 | **16** | **16** | **16.9** | **9.9** | **2.9** | **1.7** | **1.0** | **0.62 J** | **1.2** | **2.9** | **5.8** | **8.7** | **2.3** | **2.0** | **1.2** | **1.3** |
| Barium | 7440-39-3 | **400** | **400** | **584** | **638** | **37.8** | **28.5** | **20.7** | **13.4** | **17.8** | **34.1** | **198** | **150** | **47.7** | **29.2** | **19.4** | **26.6** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.29 J** | **0.28 J** | **0.53** | **0.28 J** | **0.20 J** | **0.14 J** | **0.16 J** | **0.55** | **0.31 J** | **0.21 J** | **0.39** | **0.29 J** | **0.16 J** | **0.27 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **3.9** | **3.8** | **0.84 J** | < 0.82 U | < 0.88 U | < 1.2 U | < 1.2 U | **0.73 J** | **0.86** | **5.6** | < 0.84 U | **0.096 J** | < 0.79 U | **0.13 J** |
| Calcium | 7440-70-2 | NL | NL | **29600** | **37500** | **2710** | **1690** | **1470** | **3240** | **6080** | **2870** | **101000** | **104000** | **3400** | **1260** | **2300** | **1070** |
| Chromium | 7440-47-3 | **180** | **1500** | **89.2** | **122** | **15.5** | **21.0** | **17.8** | **6.2** | **8.1** | **20.6** | **1080** | **156** | **14.1** | **13.7** | **8.4** | **8.7** |
| Cobalt | 7440-48-4 | NL | NL | **9.8** | **6.9** | **6.0** | **5.1** | **4.4** | **2.7** | **3.6** | **5.6** | **6.7** | **6.2** | **7.2** | **4.5** | **5.1** | **5.0** |
| Copper | 7440-50-8 | **270** | **270** | **657** | **463** | **30.7** | **15.0** | **14.7** | **6.9** | **6.4** | **32.0** | **25.7** | **180** | **28.6** | **13.4** | **9.2** | **14.2** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **87300** | **40700** | **16100** | **12400** | **8550** | **4920** | **6510** | **15800** | **16600** | **28100** | **17200** | **12300** | **8330** | **9880** |
| Lead | 7439-92-1 | **400** | **1000** | **4820** | **2850** | **132** | **5.1** | **4.9** | **2.3** | **3.6** | **133** | **1440** | **938** | **5.8** | **4.8** | **3.0 J+** | **8.3** |
| Magnesium | 7439-95-4 | NL | NL | **7230** | **13300** | **4520** | **3410** | **3140** | **2160** | **3790** | **4140** | **4280** | **6060** | **3450** | **2830** | **5870** | **2420** |
| Manganese | 7439-96-5 | **2000** | 10000 | **443** | **315** | **1010** | **268** | **206** | **151** | **178** | **993** | **301** | **307** | **471** | **356** | **238** | **421** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **2.5** | **3.9** | **0.0093 J** | < 0.016 U | < 0.016 U | **0.011 J** | **0.010 J** | **0.0076 J** | **0.25** | **1.9** | < 0.018 U | < 0.016 U | < 0.017 U | < 0.018 U |
| Nickel | 7440-02-0 | 310 | 310 | **32.4** | **29.2** | **19.1** | **27.4** | **25.2** | **12.3** | **27.4** | **17.9** | **32.2** | **80.2** | **26.3** | **26.5** | **49.2** | **28.3** |
| Potassium | 7440-09-7 | NL | NL | **620** | **633** | **1550** | **1080** | **836** | **571** | **462** | **1510** | **765** | **548** | **1500** | **887** | **501** | **954** |
| Selenium | 7782-49-2 | 180 | 1500 | **0.64 J** | **0.58 J** | < 1.1 U | < 1.0 U | < 1.1 U | < 1.5 U | < 1.5 U | < 1.4 U | **0.20 J** | **0.27 J** | < 1.1 U | < 0.98 U | < 0.99 U | < 1.0 U |
| Silver | 7440-22-4 | 180 | 1500 | **1.2 J** | **2.3** | < 0.87 U | < 0.82 U | < 0.88 U | < 1.2 U | < 1.2 U | < 1.1 U | < 0.86 U | **2.1** | < 0.84 U | < 0.78 U | < 0.79 U | < 0.83 U |
| Sodium | 7440-23-5 | NL | NL | **356** | **315** | **322** | **294** | **215** | **102 J** | **110 J** | **259** | < 865 U | < 920 U | **442 J+** | **122 J+** | < 79.2 U | **100 J+** |
| Thallium | 7440-28-0 | NL | NL | **0.087 J** | **0.067 J** | **0.097 J** | **0.067 J** | **0.049 J** | < 0.48 U | < 0.47 U | **0.081 J** | **0.048 J** | **0.039 J** | **0.11 J** | **0.049 J** | < 0.32 U | **0.052 J** |
| Vanadium | 7440-62-2 | NL | NL | **37.0** | **40.9** | **29.6** | **15.2** | **13.6** | **6.1** | **9.7** | **23.0** | **22.3** | **20.5** | **26.4** | **16.1** | **10** | **15.2** |
| Zinc | 7440-66-6 | **10000** | **10000** | **1010** | **1070** | **309** | **23.1** | **21.5** | **12.0** | **15.2** | **282** | **361** | **3080** | **29.2** | **35.5** | **17.2** | **29.5** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 1.6 U | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 1.6 U | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 1.6 U | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | **12** | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 1.6 U | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 1.6 U | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | **4.1** | **3.7** | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | **0.42** | **1.9** | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 1.6 U | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.38 U | < 0.38 U | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | < 0.077 U | < 1.6 U | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| Total PCB | CALC-PCB | **1** | **1** | **4.1** | **3.7** | < 0.072 U | < 0.07 U | < 0.072 U | < 0.084 U | < 0.083 U | < 0.073 U | **0.42** | **14** | < 0.073 U | < 0.069 U | < 0.068 U | < 0.069 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | **0.47 J** | **0.64 J** | **0.60 J** | **0.59 J** | < 1.2 U | < 1.4 U | < 1.3 U | < 1.2 U | < 1.2 U | < 1.3 U | < 1.2 U | < 1.1 U | < 1.1 U | < 1.1 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-201<br>329 Clarkson<br>SB-201(02-04)<br>8/21/2021<br>2-4 ft | SB-201<br>329 Clarkson<br>SB-201(08-10)<br>8/29/2021<br>8-10 ft | SB-201<br>329 Clarkson<br>DUPE-04-082921<br>8/29/2021<br>8-10 ft | SB-201<br>329 Clarkson<br>SB-201(23-25)<br>8/30/2021<br>23-25 ft | SB-201<br>329 Clarkson<br>SB-201(48-50)<br>8/30/2021<br>48-50 ft | SB-202<br>329 Clarkson<br>SB-202(03-05)<br>8/21/2021<br>3-5 ft | SB-202<br>329 Clarkson<br>SB-202(13-15)<br>8/31/2021<br>13-15 ft | SB-202<br>329 Clarkson<br>SB-202(17-19)<br>8/31/2021<br>17-19 ft | SB-202<br>329 Clarkson<br>SB-202(47.5-49.5)<br>8/31/2021<br>47.5-49.5 ft | SB-203<br>329 Clarkson<br>SB-203(03-05)<br>8/21/2021<br>3-5 ft | SB-203<br>329 Clarkson<br>SB-203(08-10)<br>8/28/2021<br>8-10 ft | SB-203<br>329 Clarkson<br>SB-203(18-24)<br>8/28/2021<br>18-24 ft | SB-203<br>329 Clarkson<br>DUPE-02-082821<br>8/28/2021<br>18-24 ft | SB-204<br>329 Clarkson<br>SB-204(03-05)<br>8/23/2021<br>3-5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | 15200 | 8340 | 8330 | 5270 | 3050 | 13500 | 6970 | 8230 | 2860 | 14300 | 6630 | 6330 | 6110 | 6720 |
| Antimony | 7440-36-0 | NL | NL | < 1.1 UJ | < 1.0 UJ | < 1.0 UJ | < 1.1 UJ | < 1.1 UJ | < 1.1 UJ | < 0.98 UJ | < 1.0 UJ | < 0.98 UJ | < 1.1 UJ | < 1.0 UJ | < 1.0 UJ | < 1.0 UJ | 0.21 J |
| Arsenic | 7440-38-2 | **16** | **16** | 6.6 | 2.7 | 3.1 | 1.9 | 0.88 J | 6.7 | 2.3 | 2.5 | 0.87 J | 4.7 | 2.0 | 2.1 | 2.3 | 7.2 |
| Barium | 7440-39-3 | **400** | **400** | 30.3 | 75.8 | 102 | 47.4 | 17.8 | 65.2 | 43.5 | 49.4 | 23.2 | 48.3 | 44.4 | 51.6 | 49.4 | 408 |
| Beryllium | 7440-41-7 | 72 | 590 | 0.65 | 0.59 | 0.68 | 0.34 J | 0.26 J | 0.65 | 0.47 | 0.47 | 0.21 J | 0.55 | 0.91 | 0.37 J | 0.41 | 0.37 J |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | < 1.0 U | 0.12 J | < 1.1 U | < 1.1 U | < 1.1 U | 0.14 J | < 1.0 U | < 0.98 U | < 1.1 U | 0.18 J | < 1.0 U | < 1.0 U | 0.47 J |
| Calcium | 7440-70-2 | NL | NL | 4480 | 1860 | 1670 | 1740 | 1180 | 4300 | 2340 | 3410 | 1140 | 1010 | 1490 | 1930 | 1860 | 38300 |
| Chromium | 7440-47-3 | **180** | **1500** | 20.3 | 15.8 | 17.0 | 12.1 | 9.1 | 17.4 | 19.2 | 28.5 | 8.7 | 19.9 | 16.5 | 23.9 | 21.0 | 17.0 |
| Cobalt | 7440-48-4 | NL | NL | 7.6 | 8.8 | 11.6 | 5.6 | 3.7 | 5.9 | 7.1 | 7.7 | 3.5 | 7.0 | 7.4 | 7.6 | 7.8 | 4.5 |
| Copper | 7440-50-8 | **270** | **270** | 27.1 | 31.1 | 36.5 | 18.3 | 10.1 | 68.8 | 23.1 | 30.0 | 8.1 | 13.9 | 27.4 | 31.8 | 26.1 | 31.7 |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | 23800 | 24400 | 27200 | 15200 | 7290 | 21300 | 16900 | 20900 | 6750 | 17500 | 25700 | 19300 | 20800 | 11300 |
| Lead | 7439-92-1 | **400** | **1000** | 30.1 | 7.7 | 9.7 | 4.2 | 3.0 | 70.4 | 6.4 | 8.0 | 2.6 | 33.1 | 7.8 | 5.8 | 6.7 | 839 |
| Magnesium | 7439-95-4 | NL | NL | 4310 | 3560 | 3230 | 3010 | 2740 | 3000 | 3970 | 4040 | 3510 | 2870 | 3040 | 3650 | 3180 | 5860 |
| Manganese | 7439-96-5 | **2000** | 10000 | 245 | 556 J | 1340 J | 484 | 205 | 156 | 539 | 402 | 200 | 180 | 625 | 398 | 468 | 275 |
| Mercury | 7439-97-6 | **0.81** | **2.8** | 0.052 | 0.0096 J | 0.0089 J | < 0.018 U | < 0.017 U | 0.19 | < 0.018 U | < 0.016 U | < 0.017 U | 0.031 | 0.0065 J | 0.0070 J | 0.0064 J | 0.41 |
| Nickel | 7440-02-0 | 310 | 310 | 15.2 | 30.9 | 31.3 | 18.7 | 22.2 | 14.4 | 26.5 | 25.1 | 26.8 | 15.1 | 41.4 | 25.3 | 25.2 | 16.6 |
| Potassium | 7440-09-7 | NL | NL | 703 | 1600 | 1650 | 1260 | 657 | 772 | 1800 | 1930 | 700 | 859 | 1020 | 1790 | 1530 | 1000 |
| Selenium | 7782-49-2 | 180 | 1500 | 0.59 J | 0.12 J | 0.12 J | < 1.3 U | < 1.3 U | 0.77 J | < 1.2 U | < 1.3 U | < 1.2 U | 0.44 J | < 1.3 U | < 1.3 U | < 1.3 U | 0.33 J |
| Silver | 7440-22-4 | 180 | 1500 | < 1.1 U | < 1.0 U | < 1.0 U | < 1.1 U | < 1.1 U | < 1.1 U | < 0.98 U | < 1.0 U | < 0.98 U | < 1.1 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.1 U |
| Sodium | 7440-23-5 | NL | NL | 715 | 192 | 229 | 156 | 168 | 468 | 343 | 668 | 139 | 135 | 182 | 248 | 239 | 786 |
| Thallium | 7440-28-0 | NL | NL | 0.12 J | 0.14 J | 0.19 J | 0.11 J | < 0.42 U | 0.12 J | 0.13 J | 0.15 J | 0.045 J | 0.12 J | 0.12 J | 0.12 J | 0.11 J | 0.073 J |
| Vanadium | 7440-62-2 | NL | NL | 32.1 | 32.7 | 31.1 | 16.8 | 9.4 | 27.4 | 32.3 | 32.5 | 9.9 | 29.1 | 24.2 | 39.1 | 31.2 | 24.8 |
| Zinc | 7440-66-6 | **10000** | **10000** | 38.9 | 62.0 | 63.1 | 43.0 | 21.2 | 71.2 | 35.6 | 41.8 | 15.7 | 63.0 | 49.7 | 40.8 | 36.8 | 485 |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | 0.73 | 1.3 | 1.3 | 0.78 | 0.76 | 0.72 | 0.87 | 0.63 | 0.51 | 1.1 | 1.5 J | 1.1 | 1.2 | 2.0 J+ |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | 0.0042 J |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0081 U | < 0.0070 U | < 0.0070 U | < 0.0073 U | < 0.0071 U | < 0.0080 U | < 0.0071 U | < 0.0070 U | < 0.0070 U | < 0.0081 U | < 0.0070 U | < 0.0071 U | < 0.0071 U | < 0.0078 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.081 U | < 0.070 U | < 0.070 U | < 0.073 U | < 0.071 U | < 0.080 U | < 0.071 U | < 0.070 U | < 0.070 U | < 0.081 U | < 0.070 U | < 0.071 U | < 0.071 U | < 0.078 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-204<br>329 Clarkson<br>SB-204(08-10)<br>9/8/2021<br>8-10 ft | SB-204<br>329 Clarkson<br>DUPE-07-090821<br>9/8/2021<br>8-10 ft | SB-204<br>329 Clarkson<br>SB-204(23-25)<br>9/8/2021<br>23-25 ft | SB-204<br>329 Clarkson<br>SB-204(33-35)<br>9/8/2021<br>33-35 ft | SB-204<br>329 Clarkson<br>SB-204(78-80)<br>9/9/2021<br>78-80 ft | SB-205<br>329 Clarkson<br>SB-205(03-05)<br>8/23/2021<br>3-5 ft | SB-205<br>329 Clarkson<br>SB-205(13-15)<br>8/24/2021<br>13-15 ft | SB-205<br>329 Clarkson<br>SB-205(18-20)<br>8/24/2021<br>18-20 ft | SB-206<br>329 Clarkson<br>SB-206(01-03)<br>8/23/2021<br>1-3 ft | SB-206<br>329 Clarkson<br>DUPE-01-082321<br>8/23/2021<br>1-3 ft | SB-206<br>329 Clarkson<br>SB-206(13-15)<br>8/24/2021<br>13-15 ft | SB-206<br>329 Clarkson<br>SB-206(18-20)<br>8/24/2021<br>18-20 ft | SB-207<br>329 Clarkson<br>SB-207(02-04)<br>9/1/2021<br>2-4 ft | SB-207<br>329 Clarkson<br>DUPE-05-090121<br>9/1/2021<br>2-4 ft | SB-207<br>329 Clarkson<br>SB-207(07-09)<br>9/7/2021<br>7-9 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | 5000 | 4260 | 5110 | 3050 | 2770 | 9600 | 6940 | 6340 | 7590 | 5050 | 4710 | 3220 | 8580 | 7760 | 8900 |
| Antimony | 7440-36-0 | NL | NL | < 1.1 UJ | < 1.1 UJ | < 0.99 UJ | < 1.1 UJ | < 0.88 UJ | < 1.1 UJ | < 0.99 UJ | < 1.0 UJ | 0.84 J | 0.49 J | < 1.0 UJ | < 1.0 UJ | 0.67 J | 0.75 J | < 0.98 UJ |
| Arsenic | 7440-38-2 | **16** | **16** | 2.0 | 1.7 | 2.1 | 1.6 | 0.93 | 7.1 | 3.6 | 2.9 | 13.1 | 11.6 | 1.6 | 2.0 | 11.4 | 13.2 | 2.6 |
| Barium | 7440-39-3 | **400** | **400** | 28.1 | 22.4 | 37.9 | 24.7 | 17.9 | 65.0 | 58.4 | 52.0 | 155 | 153 | 35.5 | 27.3 | 177 | 196 | 60.0 |
| Beryllium | 7440-41-7 | 72 | 590 | 0.43 | 0.35 J | 0.48 | 0.18 J | 0.18 J | 0.79 | 0.63 | 0.52 | 0.56 | 0.36 J | 0.30 J | 0.26 J | 0.52 | 0.56 | 0.54 |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | < 1.1 U | 0.11 J | < 1.1 U | < 0.88 U | 0.52 J | 0.19 J | 0.11 J | 0.74 J | 2.0 | < 1.0 U | < 1.0 U | 0.85 J | 1.1 | < 0.98 U |
| Calcium | 7440-70-2 | NL | NL | 959 | 826 | 1590 | 1030 | 4610 | 6520 | 1450 | 2110 | 27400 | 22900 | 3890 | 1310 | 20100 | 17100 | 1400 |
| Chromium | 7440-47-3 | **180** | **1500** | 14.0 | 12.4 | 14.7 | 9.3 | 12.7 | 14.4 | 22.9 | 19.2 | 17.8 | 13.7 | 12.9 | 9.9 | 18.9 | 20.8 | 20.3 |
| Cobalt | 7440-48-4 | NL | NL | 5.3 | 4.6 | 6.1 | 3.8 | 4.2 | 10.2 | 7.0 | 6.0 | 6.6 | 4.3 | 4.9 | 6.1 | 7.6 | 8.0 | 8.5 |
| Copper | 7440-50-8 | **270** | **270** | 15.9 | 14.3 | 17.8 | 10.1 | 8.5 | 29.1 | 24.1 | 22.8 | 70.5 | 78.8 | 13.9 | 17.4 | 119 | 135 | 24.1 |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | 15000 | 12700 | 15200 | 10200 | 6990 | 14700 | 28400 | 14800 | 16000 | 14200 | 13300 | 15600 | 19300 | 19200 | 18100 |
| Lead | 7439-92-1 | **400** | **1000** | 5.1 | 4.1 | 8.3 | 2.9 | 3.1 | 64.1 | 17.5 | 14.7 | 664 | 750 | 4.7 | 4.2 | 851 | 1250 | 5.9 |
| Magnesium | 7439-95-4 | NL | NL | 2020 | 1810 | 2900 | 2640 | 5620 | 2440 | 3630 | 3170 | 7020 J | 1780 J | 3430 | 1890 | 8180 | 7700 | 3950 |
| Manganese | 7439-96-5 | **2000** | 10000 | 284 | 277 | 550 | 267 | 219 | 383 | 561 | 539 | 264 | 201 | 347 | 376 | 260 | 259 | 1040 |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.018 U | < 0.017 U | < 0.017 U | < 0.018 U | < 0.018 U | 0.097 | < 0.016 U | < 0.018 U | 1.8 J | 5.6 J | < 0.018 U | < 0.017 U | 1.2 | 1.3 | 0.0041 J |
| Nickel | 7440-02-0 | 310 | 310 | 18.4 | 16.5 | 29.5 | 24.8 | 38.9 | 34.6 | 44.4 | 27.4 | 18.0 | 14.4 | 18.5 | 20.6 | 20.6 | 28.5 | 33.5 |
| Potassium | 7440-09-7 | NL | NL | 657 | 496 | 989 | 625 | 512 | 1070 | 1490 | 1730 | 974 | 917 | 882 | 630 | 733 | 627 | 1410 |
| Selenium | 7782-49-2 | 180 | 1500 | 0.14 J | 0.15 J | < 1.2 U | < 1.4 U | < 1.1 U | 0.80 J | < 1.2 U | < 1.3 U | 1.3 | 1.5 | < 1.3 U | < 1.3 U | 0.76 J | 0.97 J | < 1.2 U |
| Silver | 7440-22-4 | 180 | 1500 | < 1.1 U | < 1.1 U | < 0.99 U | < 1.1 U | < 0.88 U | < 1.1 U | < 0.99 U | < 1.0 U | 0.12 J | 0.15 J | < 1.0 U | < 1.0 U | 0.16 J | 0.19 J | < 0.98 U |
| Sodium | 7440-23-5 | NL | NL | 140 | 102 J | 222 | 124 | 135 | 177 | 142 | 202 | 443 J | 1600 J | 110 | 106 | 182 | 135 | 326 |
| Thallium | 7440-28-0 | NL | NL | 0.067 J | 0.062 J | 0.092 J | 0.048 J | < 0.35 U | 0.15 J | 0.13 J | 0.11 J | 0.18 J | 0.16 J | 0.067 J | 0.086 J | 0.21 J | 0.24 J | 0.11 J |
| Vanadium | 7440-62-2 | NL | NL | 21.4 | 17.1 | 22.4 | 12.9 | 7.7 | 24.2 | 34.3 | 28.3 | 22.3 | 20.3 | 19.9 | 21.1 | 25.5 | 26.5 | 35.3 |
| Zinc | 7440-66-6 | **10000** | **10000** | 24.2 | 21.5 | 33.9 | 17.5 | 15.5 | 109 | 48.8 | 59.2 | 434 | 323 | 21.7 | 27.3 | 370 | 554 | 38.6 |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | 1.0 | 0.59 | 0.86 | 1.2 J+ | 1.7 J+ | 0.83 | 0.48 | 0.75 | 0.93 | 0.77 | < 1.2 U | 0.93 | 0.80 | 0.92 | 0.88 |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0022 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0026 U | < 0.0021 U | < 0.0020 U | < 0.0023 U | < 0.0023 U | < 0.0021 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0022 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0026 U | < 0.0021 U | < 0.0020 U | < 0.0023 U | < 0.0023 U | < 0.0021 U |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0022 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0026 U | < 0.0021 U | < 0.0020 U | < 0.0023 U | < 0.0023 U | < 0.0021 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0022 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0026 U | < 0.0021 U | < 0.0020 U | < 0.0023 U | < 0.0023 U | < 0.0021 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0022 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0022 U | < 0.0023 U | < 0.0026 U | < 0.0021 U | < 0.0020 U | < 0.0023 U | < 0.0023 U | < 0.0021 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0074 U | < 0.0073 U | < 0.0070 U | < 0.0074 U | < 0.0077 U | < 0.0078 U | < 0.0071 U | < 0.0074 U | < 0.0076 U | < 0.0086 U | < 0.0070 U | < 0.0068 U | < 0.0077 U | < 0.0077 U | < 0.0071 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.074 U | < 0.073 U | < 0.070 U | < 0.074 U | < 0.077 U | < 0.078 U | < 0.071 U | < 0.074 U | < 0.076 U | < 0.086 U | < 0.070 U | < 0.068 U | < 0.077 U | < 0.077 U | < 0.071 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-207<br>329 Clarkson<br>DUPE-06-090721<br>9/7/2021<br>7-9 ft | SB-207<br>329 Clarkson<br>SB-207(18-20)<br>9/7/2021<br>18-20 ft | SB-208<br>329 Clarkson<br>SB-208(01-03)<br>9/1/2021<br>1-3 ft | SB-208<br>329 Clarkson<br>SB-208(08-10)<br>9/2/2021<br>8-10 ft | SB-208<br>329 Clarkson<br>SB-208(18-20)<br>9/2/2021<br>18-20 ft | SB-209<br>329 Clarkson<br>SB-209(01-03)<br>8/23/2021<br>1-3 ft | SB-209<br>329 Clarkson<br>SB-209(08-10)<br>8/25/2021<br>8-10 ft | SB-209<br>329 Clarkson<br>SB-209(16-18)<br>8/25/2021<br>16-18 ft | SB-210<br>329 Clarkson<br>SB-210(01-03)<br>8/21/2021<br>1-3 ft | SB-210<br>329 Clarkson<br>SB-210(08-10)<br>8/28/2021<br>8-10 ft | SB-210<br>329 Clarkson<br>SB-210(22-24)<br>8/28/2021<br>22-24 ft | SB-211<br>329 Clarkson<br>SB-211(01-03)<br>8/21/2021<br>1-3 ft | SB-211<br>329 Clarkson<br>SB-211(13-15)<br>9/11/2021<br>13-15 ft | SB-211<br>329 Clarkson<br>SB-211(18-20)<br>9/11/2021<br>18-20 ft | SB-212<br>329 Clarkson<br>SB-212(01-03)<br>8/24/2021<br>1-3 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | 8720 | 9300 | 5540 | 7770 | 6930 | 6280 | 8450 | 7570 | 15500 | 9760 | 7720 | 8480 | 4200 | 6490 | 8300 |
| Antimony | 7440-36-0 | NL | NL | < 1.0 UJ | < 1.0 UJ | 1.1 J | < 1.0 UJ | < 0.99 UJ | 0.35 J | < 0.97 UJ | < 1.1 UJ | 0.23 J | < 1.0 UJ | < 0.98 UJ | 0.43 J | < 0.94 UJ | < 0.94 UJ | 0.69 J |
| Arsenic | 7440-38-2 | **16** | **16** | 2.2 | 3.2 | 39.3 | 2.1 | 2.3 | 11.3 | 2.5 | 3.2 | 6.7 | 3.1 | 2.7 | 6.2 | 1.5 | 2.0 | A |
| Barium | 7440-39-3 | **400** | **400** | 60.5 | 65.4 | 201 | 38.6 | 54.2 | 131 | 62.9 | 46.9 | 108 | 40.1 J | 47.6 | 67.7 | 20.1 | 42.3 | 128 |
| Beryllium | 7440-41-7 | 72 | 590 | 0.49 | 0.55 | 0.37 J | 0.50 | 0.49 | 0.46 | 0.57 | 0.60 | 0.86 | 0.72 | 0.56 | 0.43 J | 0.30 J | 0.49 | 0.61 |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.0 U | 0.18 J | 1.1 | < 1.0 U | < 0.99 U | 0.69 J | < 0.97 U | 0.13 J | 0.13 J | 0.12 J | < 0.98 U | 0.19 J | < 0.94 U | < 0.94 U | 0.93 J |
| Calcium | 7440-70-2 | NL | NL | 1380 | 11300 | 15600 | 1290 | 1640 | 30800 | 2340 | 2660 | 3760 | 3580 | 2420 | 25800 | 4430 | 1270 | 18600 |
| Chromium | 7440-47-3 | **180** | **1500** | 19.6 | 90.8 | 38.6 | 25.2 | 24.2 | 13.3 | 18.4 | 25.7 | 17.7 | 20.6 | 33.1 | 12.5 | 15.8 | 19.8 | 21.7 |
| Cobalt | 7440-48-4 | NL | NL | 7.0 | 12.6 | 8.1 | 6.7 | 7.9 | 5.2 | 7.5 | 9.9 | 5.4 | 8.7 | 8.2 | 4.7 | 3.8 | 8.2 | 7.5 |
| Copper | 7440-50-8 | **270** | **270** | 22.0 | 52.8 | 225 | 24.3 | 37.6 | 67.0 | 25.2 | 30.6 | 26.9 | 32.6 J | 30.1 | 47.4 | 12.1 | 23.2 | 76.7 |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | 15800 | 27200 | 28600 | 13300 | 21900 | 13400 | 18600 | 23800 | 16600 | 21300 | 20300 | 11000 | 11700 | 16400 | 25000 |
| Lead | 7439-92-1 | **400** | **1000** | 5.7 | 43.7 | 1060 | 8.8 | 10.2 | 557 | 8.4 | 13.3 | 145 | 7.5 | 9.1 | 109 | 6.6 | 19.9 | 1100 |
| Magnesium | 7439-95-4 | NL | NL | 3930 | 10500 | 8460 | 3430 | 3030 | 5120 | 3770 | 4620 | 3100 | 4350 | 4240 | 2360 | 2960 | 3640 | 3630 |
| Manganese | 7439-96-5 | **2000** | 10000 | 841 | 507 | 190 | 365 | 465 | 215 | 479 | 742 | 487 | 571 | 451 | 213 | 250 | 491 | 280 |
| Mercury | 7439-97-6 | **0.81** | **2.8** | 0.0054 J | 0.040 | 0.74 | 0.0050 J | < 0.016 U | 1.8 | < 0.018 U | 0.030 | 0.19 | 0.0078 J | 0.0080 J | 0.17 | < 0.016 U | < 0.017 U | 2.2 |
| Nickel | 7440-02-0 | 310 | 310 | 31.6 | 53.0 | 69.0 | 39.7 | 25.6 | 15.4 | 30.5 | 39.4 | 14.7 | 29.9 | 41.2 | 13.3 | 14.9 | 33.6 | 22.7 |
| Potassium | 7440-09-7 | NL | NL | 1330 | 2460 | 967 | 1070 | 1290 | 913 | 1580 | 1130 | 1040 | 1280 J | 1440 | 856 | 674 | 1090 | 1040 |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.3 U | 0.12 J | 3.2 | < 1.3 U | < 1.2 U | 1.2 J | < 1.2 U | 0.19 J | 0.78 J | 0.13 J | < 1.2 U | 0.57 J | < 1.2 U | < 1.2 U | 3.4 |
| Silver | 7440-22-4 | 180 | 1500 | < 1.0 U | < 1.0 U | 0.16 J | < 1.0 U | < 0.99 U | 0.11 J | < 0.97 U | < 1.1 U | 0.13 J | < 1.0 U | < 0.98 U | 0.11 J | < 0.94 U | < 0.94 U | 0.29 J |
| Sodium | 7440-23-5 | NL | NL | 345 | 667 | 599 | 307 | 406 | 504 | 216 | 284 | 432 | 274 | 320 | 496 | 189 | 205 | 651 |
| Thallium | 7440-28-0 | NL | NL | 0.16 J | 0.15 J | 0.29 J | 0.069 J | 0.10 J | 0.18 J | 0.12 J | 0.12 J | 0.14 J | 0.16 J | 0.11 J | 0.092 J | 0.051 J | 0.11 J | 1.3 |
| Vanadium | 7440-62-2 | NL | NL | 30.0 | 34.6 | 26.9 | 28.1 | 35.3 | 18.3 | 34.1 | 36.7 | 31.8 | 34.4 | 39.9 | 17.4 | 14.0 | 27.8 | 27.7 |
| Zinc | 7440-66-6 | **10000** | **10000** | 37.5 | 67.1 | 455 | 33.2 | 35.0 | 336 | 39.7 | 44.2 | 60.7 | 44.9 | 39.0 | 84.3 | 20.1 | 35.1 | 420 |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | 0.77 | 0.77 | 0.67 | 0.63 | 0.93 | 0.54 | 1.2 | 1.2 | 1.8 J+ | 1.2 | 0.85 | 0.70 | < 1.1 U | 0.65 | 1.3 J+ |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | 0.067 |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0070 U | < 0.0071 U | 0.0034 J | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | 0.14 |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0020 U | < 0.0020 U | < 0.0023 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0020 U | < 0.0020 U | < 0.0023 U |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0020 U | < 0.0020 U | < 0.0023 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0020 U | < 0.0020 U | < 0.0023 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0021 U | < 0.0022 U | < 0.0021 U | < 0.0022 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0020 U | < 0.0020 U | < 0.0023 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0070 U | < 0.0071 U | < 0.0075 U | < 0.0071 U | < 0.0069 U | < 0.0074 U | < 0.0069 U | < 0.0075 U | < 0.0080 U | < 0.0070 U | < 0.0069 U | < 0.0078 U | < 0.0067 U | < 0.0068 U | < 0.0077 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.070 U | < 0.071 U | < 0.075 U | < 0.071 U | < 0.069 U | < 0.074 U | < 0.069 U | < 0.075 U | < 0.080 U | < 0.070 U | < 0.069 U | < 0.078 U | < 0.067 U | < 0.068 U | < 0.077 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-212<br>329 Clarkson<br>SB-212(12-14)<br>9/2/2021<br>12-14 ft | SB-212<br>329 Clarkson<br>SB-212(17-19)<br>9/2/2021<br>17-19 ft | SB-213<br>329 Clarkson<br>SB-213(02-04)<br>8/23/2021<br>2-4 ft | SB-213<br>329 Clarkson<br>SB-213(08-10)<br>8/25/2021<br>8-10 ft | SB-213<br>329 Clarkson<br>SB-213(18-20)<br>8/25/2021<br>18-20 ft | SB-214<br>329 Clarkson<br>SB-214(02-04)<br>8/24/2021<br>2-4 ft | SB-214<br>329 Clarkson<br>SB-214(06-08)<br>8/26/2021<br>6-8 ft | SB-214<br>329 Clarkson<br>SB-214(18-20)<br>8/26/2021<br>18-20 ft | SB-215<br>329 Clarkson<br>SB-215(03-05)<br>8/24/2021<br>3-5 ft | SB-215<br>329 Clarkson<br>SB-215(12-14)<br>8/26/2021<br>12-14 ft | SB-215<br>329 Clarkson<br>SB-215(21-23)<br>8/26/2021<br>21-23 ft | SB-216<br>329 Clarkson<br>SB-216(18-20)<br>9/7/2021<br>18-20 ft | SB-217<br>329 Clarkson<br>SB-217(03-05)<br>9/11/2021<br>3-5 ft | SB-217<br>329 Clarkson<br>SB-217(06-08)<br>9/11/2021<br>6-8 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | 5640 | 7100 | 10200 | 8230 | 8360 | 7000 | 8190 | 8690 | 14700 | 7710 | 7460 | 7450 | 11700 | 7940 |
| Antimony | 7440-36-0 | NL | NL | < 1.1 UJ | < 1.1 UJ | 0.41 J | < 0.99 UJ | < 0.97 UJ | 0.58 J | < 0.87 UJ | < 0.78 UJ | 0.27 J | < 0.81 UJ | < 0.82 UJ | < 1.1 UJ | < 1.1 UJ | 0.40 J |
| Arsenic | 7440-38-2 | **16** | **16** | 7.5 | 7.5 | 13.2 | 3.7 | 3.5 | 36.7 | 3.0 | 2.5 | 8.3 | 2.1 | 2.5 | 3.9 | 6.6 | 6.8 |
| Barium | 7440-39-3 | **400** | **400** | 39.6 | 50.5 | 112 | 53.4 | 59.6 | 282 | 33.3 | 51.5 | 112 | 45.6 | 43.0 | 42.3 | 64.4 | 52.4 |
| Beryllium | 7440-41-7 | 72 | 590 | 0.33 J | 0.38 J | 0.61 | 0.51 | 0.66 | 0.57 | 0.57 | 0.42 | 0.89 | 0.42 | 0.56 | 0.49 | 0.64 | 0.54 |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.1 U | 0.12 J | 0.74 J | < 0.99 U | 0.17 J | 1.3 | < 0.87 U | < 0.78 U | 0.20 J | 0.20 J | 0.097 J | 0.12 J | 0.14 J | 0.20 J |
| Calcium | 7440-70-2 | NL | NL | 11600 | 15100 | 21900 | 2160 | 2590 | 17400 | 1690 | 2240 | 4690 | 2210 | 2010 | 2880 | 3180 | 4770 |
| Chromium | 7440-47-3 | **180** | **1500** | 16.9 | 20.1 | 19.0 | 20.7 | 33.0 | 53.8 | 18.8 | 35.2 | 18.6 | 20.7 | 22.4 | 25.1 | 18.6 | 19.2 |
| Cobalt | 7440-48-4 | NL | NL | 3.6 | 4.8 | 8.7 | 8.2 | 9.0 | 9.1 | 6.5 | 9.1 | 11.0 | 7.7 | 7.7 | 6.6 | 8.0 | 7.4 |
| Copper | 7440-50-8 | **270** | **270** | 24.6 | 30.4 | 62.7 | 46.1 | 38.1 | 51.5 | 20.4 | 20.9 | 42.8 | 29.1 | 28.2 | 30.4 | 17.9 | 30.3 |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | 13500 | 16200 | 23200 | 20500 | 26000 | 32900 | 15500 | 15900 | 22300 | 16300 | 19200 | 16000 | 19200 | 18400 |
| Lead | 7439-92-1 | **400** | **1000** | 26.0 | 28.0 | 282 | 13.0 | 9.8 | 1410 | 10.5 | 6.8 | 218 | 78.9 | 29.3 | 43.5 | 64.8 | 147 |
| Magnesium | 7439-95-4 | NL | NL | 4260 | 3840 | 6030 | 4250 | 4070 | 3400 | 4050 | 5300 | 2660 | 3840 | 3920 | 4070 | 2360 | 3070 |
| Manganese | 7439-96-5 | **2000** | 10000 | 140 | 219 | 364 | 447 | 836 | 349 | 459 | 325 | 396 | 481 | 472 | 407 | 394 | 348 |
| Mercury | 7439-97-6 | **0.81** | **2.8** | 0.11 | 0.034 | 2.5 | < 0.017 U | < 0.016 U | 3.4 | < 0.017 U | < 0.016 U | 0.22 | 0.0087 J | 0.0072 J | 0.014 J | 0.11 | 0.24 |
| Nickel | 7440-02-0 | 310 | 310 | 18.7 | 23.2 | 21.7 | 31.1 | 37.9 | 29.7 | 23.6 | 60.3 | 22.1 | 29.8 | 35.3 | 25.5 | 17.2 | 26.8 |
| Potassium | 7440-09-7 | NL | NL | 1100 | 1130 | 1050 | 2140 | 2020 | 986 | 1310 | 2470 | 952 | 1480 | 1250 | 1530 | 871 | 1340 |
| Selenium | 7782-49-2 | 180 | 1500 | 0.61 J | 0.64 J | 1.4 | < 1.2 U | < 1.2 U | 2.0 | 0.10 J | < 0.97 U | 0.79 J | < 1.0 U | < 1.0 U | < 1.3 U | 0.45 J | 0.43 J |
| Silver | 7440-22-4 | 180 | 1500 | < 1.1 U | < 1.1 U | 0.12 J | < 0.99 U | < 0.97 U | 0.13 J | < 0.87 U | < 0.78 U | 0.11 J | < 0.81 U | < 0.82 U | < 1.1 U | < 1.1 U | < 1.0 U |
| Sodium | 7440-23-5 | NL | NL | 250 | 260 | 584 | 277 | 349 | 433 | 344 | 366 | 270 | 466 | 314 | 298 | 221 | 289 |
| Thallium | 7440-28-0 | NL | NL | 0.22 J | 0.26 J | 0.47 | 0.14 J | 0.22 J | 0.38 J | 0.10 J | 0.20 J | 0.20 J | 0.12 J | 0.10 J | 0.11 J | 0.29 J | 0.27 J |
| Vanadium | 7440-62-2 | NL | NL | 22.1 | 25.6 | 28.9 | 35.7 | 35.7 | 25.2 | 28.4 | 32.8 | 30.8 | 31.5 | 31.7 | 26.3 | 27.7 | 25.4 |
| Zinc | 7440-66-6 | **10000** | **10000** | 45.2 | 52.5 | 317 | 45.4 | 52.5 | 681 | 35.4 | 35.6 | 100 | 55.1 | 49.2 | 45.8 | 51.4 | 73.3 |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | 0.93 | 0.81 | 0.96 | 1.2 | 0.74 | 0.52 | 1.4 J | 1.2 | < 1.3 U | 1.2 | 1.2 | 1.1 J | 0.50 | 0.58 J |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | 0.0041 J | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0023 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0022 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0023 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0022 U |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0023 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0022 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0023 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0022 U |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Endrin | 72-20-8 | 11 | 89 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0023 U | < 0.0023 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0021 U | < 0.0021 U | < 0.0024 U | < 0.0021 U | < 0.0021 U | < 0.0021 U | < 0.0023 U | < 0.0022 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0078 U | < 0.0078 U | < 0.0078 U | < 0.0070 U | < 0.0070 U | < 0.0076 U | < 0.0070 U | < 0.0069 U | < 0.0081 U | < 0.0069 U | < 0.0069 U | < 0.0070 U | < 0.0078 U | < 0.0073 U |
| Toxaphene | 8001-35-2 | NL | NL | < 0.078 U | < 0.078 U | < 0.078 U | < 0.070 U | < 0.070 U | < 0.076 U | < 0.070 U | < 0.069 U | < 0.081 U | < 0.069 U | < 0.069 U | < 0.070 U | < 0.078 U | < 0.073 U |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | SB-217<br>329 Clarkson<br>SB-217(16-18)<br>9/11/2021<br>16-18 ft | SB-218<br>329 Clarkson<br>SB-218(02-04)<br>9/11/2021<br>2-4 ft | SB-218<br>329 Clarkson<br>SB-218(10-12)<br>9/11/2021<br>10-12 ft | SB-218<br>329 Clarkson<br>SB-218(15-17)<br>9/11/2021<br>15-17 ft | SB-219<br>329 Clarkson<br>SB-219(01-03)<br>9/11/2021<br>1-3 ft | SB-219<br>329 Clarkson<br>SB-219(13-15)<br>9/11/2021<br>13-15 ft | SB-219<br>329 Clarkson<br>SB-219(18-20)<br>9/11/2021<br>18-20 ft | TP-1<br>760 Parkside<br>TP-1(8)062311<br>6/23/2011<br>0 - 8 ft | TP-1<br>760 Parkside<br>NSIDE NO VALVE HO.)(<br>6/23/2011<br>0 - 0 ft | TP-1<br>760 Parkside<br>TP-1(1-2)062311<br>6/23/2011<br>1 - 2 ft | TP-2<br>760 Parkside<br>TP-2(8')062311<br>6/23/2011<br>0 - 8 ft | TP-101<br>324 Winthrop<br>TP-101 (2-3)<br>8/31/2020<br>2 - 3 ft | TP-101<br>324 Winthrop<br>TP-101 (5-6)<br>8/31/2020<br>5 - 6 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | 7330 | 8930 | 6670 | 5870 | 8030 | 6210 | 2840 | **10400** | **6110** | **8680** | **7400** | **9850** | **11200** |
| Antimony | 7440-36-0 | NL | NL | < 1.0 UJ | 0.84 J | 0.59 J | 0.16 J | 1.1 J | 0.39 J | < 1.5 UJ | < 2.3 UJ | < 2.1 UJ | < 2.4 UJ | < 2.1 UJ | **0.75 J** | **1.1** |
| Arsenic | 7440-38-2 | **16** | **16** | 2.6 | 43.7 | 27.6 | 4.4 | 10 | 7.8 | 6.5 | **5.2** | **12.0** | **10.6** | **7.9** | **7.0** | **8.3** |
| Barium | 7440-39-3 | **400** | **400** | 47.8 | 105 | 113 | 44.6 | 266 | 117 | 57.2 | **68.6** | **168** | **238** | **53.2** | **92.0** | **284** |
| Beryllium | 7440-41-7 | 72 | 590 | 0.55 | 0.67 | 0.37 J | 0.34 J | 0.47 | 0.40 J | 0.30 J | **0.56** | **0.37 J** | **0.58** | **0.54** | **0.63** | **0.60** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | < 1.0 U | 1.2 | 0.73 J | 0.17 J | 1.5 | 0.90 J | < 1.5 U | < 1.2 U | **0.49 J** | **0.90 J** | **0.44 J** | **0.69 J** | **2.6** |
| Calcium | 7440-70-2 | NL | NL | 1950 | 20200 | 54200 | 17500 | 29900 | 69400 | 34700 | **2680** | **17100** | **5660** | **3490** | **2850** | **2090** |
| Chromium | 7440-47-3 | **180** | **1500** | 23.6 | 21.6 | 27.0 | 16.6 | 24.2 | 20.4 | 15.0 | **15.4 J+** | **19.0 J+** | **29.5 J+** | **17.2 J+** | **49.1** | **161** |
| Cobalt | 7440-48-4 | NL | NL | 8.4 | 13.2 | 3.9 | 5.2 | 5.3 | 3.9 | 2.2 J | **7.3 J** | **6.6 J** | **8.3 J** | **8.0 J** | **7.6** | **7.3** |
| Copper | 7440-50-8 | **270** | **270** | 29.8 | 74.1 | 34.2 | 22.3 | 68.3 | 126 | 26.1 | **23.2** | **69.6** | **86.2** | **36.9** | **33.3** | **40.4** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | 20800 | 20700 | 13700 | 17900 | 17000 | 15200 | 6460 | **17900** | **20400** | **20100** | **22600** | **18200** | **23000** |
| Lead | 7439-92-1 | **400** | **1000** | 7.8 | 978 | 343 | 19.8 | 1300 | 146 | 35.7 | **220** | **1590** | **1080** | **85.7** | **1250** | **6160** |
| Magnesium | 7439-95-4 | NL | NL | 4020 | 4070 | 6530 | 7240 | 6190 | 9890 | 7610 | **2180 J+** | **5250 J+** | **2900 J+** | **3000 J+** | **2560** | **2530** |
| Manganese | 7439-96-5 | **2000** | 10000 | 492 | 350 | 204 | 208 | 255 | 203 | 82.8 | **377 J** | **264 J** | **307 J** | **484 J** | **233** | **274** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | < 0.018 U | 2.3 | 1.2 | 0.054 | 1.3 | 9.4 | 0.48 | **0.48** | **0.73** | **3.8** | **0.11** | **0.48** | **0.16** |
| Nickel | 7440-02-0 | 310 | 310 | 31.9 | 28.8 | 11.9 | 23.6 | 19.3 | 15.9 | 7.8 | **20.7** | **15.6** | **17.1** | **26.1** | **21.7** | **21.5** |
| Potassium | 7440-09-7 | NL | NL | 2040 | 1030 | 803 | 1310 | 991 | 793 | 492 | **660 J** | **752 J** | **757 J** | **758 J** | **624** | **659** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.3 U | 1.9 | 0.95 J | 0.21 J | 0.98 J | 1.0 J | 0.83 J | < 2.3 U | **2.4** | < 2.4 U | < 2.1 U | **0.53 J** | **0.74 J** |
| Silver | 7440-22-4 | 180 | 1500 | < 1.0 U | 0.20 J | 0.13 J | < 1.0 U | 0.22 J | < 1.1 U | < 1.5 U | < 2.3 U | < 2.1 U | < 2.4 U | < 2.1 U | **0.13 J** | **0.28 J** |
| Sodium | 7440-23-5 | NL | NL | 308 | 508 | 335 | 291 | 442 | 363 | 235 | < 1150 U | **119 J** | **101 J** | **77.0 J** | **125** | **152** |
| Thallium | 7440-28-0 | NL | NL | 0.15 J | 1.2 | 1.3 | 0.14 J | 0.15 J | 0.097 J | 0.14 J | < 2.3 U | < 2.1 U | < 2.4 U | < 2.1 U | **0.12 J** | **0.13 J** |
| Vanadium | 7440-62-2 | NL | NL | 33.1 | 26.3 | 13.6 | 23.8 | 23.7 | 13.3 | 7.7 | **23.0** | **23.5** | **22.3** | **30.2** | **29.2** | **41.5** |
| Zinc | 7440-66-6 | **10000** | **10000** | 42.8 | 453 | 237 | 69.1 | 526 | 207 | 28.3 | **82.0** | **542** | **468** | **109** | **409** | **896** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | **0.85** | **4.2** |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | < 0.08 U | < 0.49 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.08 U | < 0.075 U | **0.85** | **4.2** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | **1.2** | < 0.50 U | **0.59 J** | < 0.50 U | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | **4.5** | **1.2** | **0.59 J** | < 0.56 U | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.2 U | 1.8 J+ | < 1.2 U | 0.46 | 0.61 | < 1.3 U | < 1.7 U | NA | NA | NA | NA | < 1.3 U | < 1.6 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | **0.011 J** | < 0.0081 U | < 0.0075 UJ | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | < 0.0021 U | < 0.0023 U | < 0.0022 U | < 0.0021 U | < 0.0023 U | < 0.0023 U | < 0.0030 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | < 0.0021 U | < 0.0023 U | < 0.0022 U | < 0.0021 U | < 0.0023 U | < 0.0023 U | < 0.0030 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | < 0.079 U | **0.086 J** | < 0.081 U | < 0.075 U | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | < 0.0021 U | < 0.0023 U | < 0.0022 U | < 0.0021 U | < 0.0023 U | < 0.0023 U | < 0.0030 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | < 0.0021 U | < 0.0023 U | < 0.0022 U | < 0.0021 U | < 0.0023 U | < 0.0023 U | < 0.0030 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | **0.0059 J** | < 0.0081 U | < 0.0075 U | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | **0.0099** | < 0.0081 U | < 0.0075 U | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | < 0.0021 U | < 0.0023 U | < 0.0022 U | < 0.0021 U | < 0.0023 U | < 0.0023 U | < 0.0030 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 U | < 0.0081 U | < 0.0075 U | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | < 0.0071 U | < 0.0076 U | < 0.0074 U | < 0.0071 U | < 0.0076 U | < 0.0076 U | < 0.010 U | < 0.0079 U | < 0.0075 UJ | < 0.0081 U | < 0.0075 UJ | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | < 0.071 U | < 0.076 U | < 0.074 U | < 0.071 U | < 0.076 U | < 0.076 U | < 0.10 U | < 0.079 U | < 0.075 U | < 0.081 U | < 0.075 U | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | < 0.02 U | < 0.019 U | < 0.02 U | < 0.019 U | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | < 0.02 U | < 0.019 U | < 0.02 U | < 0.019 U | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | < 0.02 U | < 0.019 U | < 0.02 U | < 0.019 U | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NS | NS | NS | NS | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | < 0.02 U | < 0.019 U | < 0.02 U | < 0.019 U | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | TP-101<br>324 Winthrop<br>TP-101 (8-10)<br>8/31/2020<br>8 - 10 ft | TP-101A<br>324 Winthrop<br>TP-101A (6-8)<br>9/2/2020<br>6 - 8 ft | TP-102<br>324 Winthrop<br>TP-102(6-7)<br>8/27/2020<br>6 - 7 ft | TP-102<br>324 Winthrop<br>TP-102(8-10)<br>8/27/2020<br>8 - 10 ft | TP-102 Ash<br>324 Winthrop<br>TP-102-ASH<br>8/27/2020 | TP-103<br>324 Winthrop<br>TP-103 (8-10)<br>9/1/2020<br>8 - 10 ft | TP-104<br>324 Winthrop<br>TP-104 (8-9)<br>10/14/2020<br>8 - 9 ft | TP-104<br>324 Winthrop<br>TP-104 (9-10)<br>10/14/2020<br>9 - 10 ft | TP-105<br>324 Winthrop<br>TP-105 (6-7)<br>10/15/2020<br>6 - 7 ft | TP-105<br>324 Winthrop<br>TP-105 (7-8)<br>10/15/2020<br>7 - 8 ft | TP-106<br>324 Winthrop<br>TP-106(5-7)091420<br>9/14/2020<br>5 - 7 ft | TP-107<br>324 Winthrop<br>TP-107 (5-7)091520<br>9/15/2020<br>5 - 7 ft | TP-108<br>324 Winthrop<br>TP-108(3-5)<br>9/28/2020<br>3 - 5 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **6520** | **11500** | **3400** | **9170** | **7500** | **6810** | **7250** | **4690** | **6270** | **5750** | **5940** | **6210** | **7460** |
| Antimony | 7440-36-0 | NL | NL | < 0.83 U | **0.18 J** | **2.0 J** | **0.16 J** | **0.21 J** | **0.86 J** | **0.23 J** | **0.28 J** | < 1.1 U | **0.27 J** | **0.49 J** | **2.5** | **0.42 J** |
| Arsenic | 7440-38-2 | **16** | **16** | **2.5** | **7.1** | **35.3** | **3.1** | **5.1** | **8.0** | **4.1** | **3.4** | **4.9** | **6.0** | **5.6** | **9.4** | **4.4** |
| Barium | 7440-39-3 | **400** | **400** | **58.0** | **87.5** | **80.8** | **92.0** | **64.7** | **69.3** | **203** | **186** | **135** | **422** | **168** | **480** | **309** |
| Beryllium | 7440-41-7 | 72 | 590 | **0.45** | **0.70** | **0.36 J** | **0.65** | **0.55** | **0.89** | **0.42 J** | **0.24 J** | **0.47** | **0.36 J** | **0.34 J** | **0.46** | **0.40 J** |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.11 J** | **1.1** | **0.38 J** | **0.62 J** | **0.65 J** | **0.32 J** | **0.47 J** | **0.68 J** | **0.33 J** | **0.98 J** | **0.91 J** | **3.9** | **0.99 J** |
| Calcium | 7440-70-2 | NL | NL | **1190** | **4570** | **3350** | **3110** | **2700** | **1730** | **52700** | **28400** | **9070** | **29200** | **30400** | **30000** | **37700** |
| Chromium | 7440-47-3 | **180** | **1500** | **16.4** | **87.5** | **38.0** | **40.2** | **15.8** | **92.9** | **93.9** | **88.7** | **55.6** | **431** | **125** | **784** | **118** |
| Cobalt | 7440-48-4 | NL | NL | **6.1** | **7.8** | **9.8** | **7.0** | **5.7** | **10.6** | **5.1** | **4.0** | **8.4** | **4.5** | **5.4** | **11.9** | **5.0** |
| Copper | 7440-50-8 | **270** | **270** | **41.5** | **31.7** | **194** | **30.7** | **32.5** | **41.3** | **27.5** | **26.3** | **27.0** | **22.5** | **42.6** | **67.6** | **50.9** |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | < 2.3 U | **0.90 J** | NA |
| Iron | 7439-89-6 | NL | NL | **15200** | **21000** | **142000** | **16500** | **13600** | **50600** | **14200** | **12000** | **15200** | **14600** | **16300** | **23700** | **14300** |
| Lead | 7439-92-1 | **400** | **1000** | **95.3** | **415** | **12900** | **559** | **194** | **104** | **271** | **392** | **279** | **1040** | **405** | **4300** | **730** |
| Magnesium | 7439-95-4 | NL | NL | **2680** | **4380** | **790** | **5490** | **1680** | **3110** | **8090** | **4100** | **3810** | **3760** | **6330** | **16800** | **4770** |
| Manganese | 7439-96-5 | **2000** | 10000 | **179** | **325** | **658** | **454** | **118** | **1220** | **209** | **176** | **316** | **218** | **232** | **585** | **256** |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.011 J** | **0.31** | **0.24** | **0.055** | **0.12** | **0.030** | **0.12** | **0.19** | **0.52** | **0.16** | **0.36** | **0.78** | **0.19** |
| Nickel | 7440-02-0 | 310 | 310 | **18.4** | **29.3** | **27.6** | **33.1** | **15.0** | **39.1** | **9.8** | **9.4** | **51.4** | **14.8** | **24.2** | **42.7** | **12.6** |
| Potassium | 7440-09-7 | NL | NL | **1020** | **1570** | **226 J** | **1760** | **515** | **943** | **828** | **527** | **1250** | **662** | **676** | **1670** | **683** |
| Selenium | 7782-49-2 | 180 | 1500 | < 1.0 U | **0.45 J** | **2.3 J** | **0.19 J** | **0.51 J** | **0.15 J** | **0.19 J** | **0.21 J** | **0.14 J** | **0.20 J** | **0.19 J** | **0.55 J** | **0.30 J** |
| Silver | 7440-22-4 | 180 | 1500 | < 0.83 U | < 0.90 U | **0.33 J** | < 0.78 U | **0.087 J** | < 1.0 U | < 1.2 U | < 1.2 U | < 1.1 U | < 1.1 U | **0.12 J** | **0.30 J** | **0.15 J** |
| Sodium | 7440-23-5 | NL | NL | **74.8 J** | **151** | **162 J** | **161** | **169** | **98.6 J** | **473 J+** | **354 J+** | **180 J+** | **468 J+** | **225** | **190** | **326** |
| Thallium | 7440-28-0 | NL | NL | **0.13 J** | **0.18 J** | < 0.91 U | **0.15 J** | **0.083 J** | **0.12 J** | < 0.48 U | < 0.46 U | < 0.42 U | < 0.44 U | **0.079 J** | **0.23 J** | **0.10 J** |
| Vanadium | 7440-62-2 | NL | NL | **26.0** | **37.0** | **15.0** | **37.1** | **24.1** | **30.9** | **24.9** | **17.5** | **24.2** | **29.1** | **20.4** | **31.9** | **28.2** |
| Zinc | 7440-66-6 | **10000** | **10000** | **60.2** | **979** | **177** | **303** | **185** | **109** | **315** | **435** | **154** | **528** | **254** | **1620** | **370** |
| **PCBs (mg/Kg)** | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.082 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.85 U | < 0.077 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.082 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.85 U | < 0.077 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.082 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.85 U | < 0.077 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | **0.14** | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.85 U | < 0.077 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.082 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.85 U | < 0.077 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | < 0.074 U | **0.062 J** | < 0.092 U | **0.15** | < 0.081 U | **0.051 J** | **0.23** | **0.44** | **0.14** | < 0.08 U | < 0.077 U | **6.8** | **0.8** |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.082 U | < 0.081 U | < 0.075 U | **0.37** | **1.2** | **2.9** | < 0.077 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.082 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.85 U | < 0.077 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.074 U | < 0.078 U | < 0.092 U | < 0.075 U | < 0.081 U | < 0.071 U | < 0.082 U | < 0.081 U | < 0.075 U | < 0.08 U | < 0.077 U | < 0.85 U | < 0.077 U |
| Total PCB | CALC-PCB | **1** | **1** | < 0.074 U | **0.062** | < 0.092 U | **0.15** | < 0.081 U | **0.051** | **0.37** | **0.44** | **0.14** | **0.37** | **1.2** | **9.7** | **0.8** |
| **Cyanide (mg/Kg)** | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.2 U | < 1.3 U | **0.49 J** | < 1.2 U | **0.55 J** | < 1.2 U | < 1.3 U | < 1.3 U | < 1.2 U | < 1.3 U | **0.79 J** | **0.77 J** | < 1.2 U |
| **Pesticides (mg/Kg)** | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chlordane | 57-74-9 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Herbicides (mg/Kg)** | | | | | | | | | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

**Table 2-3**
**Summary of Soil Analytical Data**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL | TP-108<br>324 Winthrop<br>TP-108(4-5)<br>9/28/2020<br>4 - 5 ft | TP-108<br>324 Winthrop<br>TP-108(6-7)<br>9/28/2020<br>6 - 7 ft | TP-201<br>329 Clarkson<br>TP-201(06-07)<br>9/14/2021<br>6 - 7 ft | TP-202<br>329 Clarkson<br>TP-202(01-03)<br>9/15/2021<br>1 - 3 ft | TP-202<br>329 Clarkson<br>TP-202(05-06)<br>9/15/2021<br>5-6 ft |
|---|---|---|---|---|---|---|---|---|
| **Metals (mg/Kg)** | | | | | | | | |
| Aluminum | 7429-90-5 | NL | NL | **4840** | **3500** | 8070 | 6710 | 12600 |
| Antimony | 7440-36-0 | NL | NL | **0.44 J** | < 1.1 U | < 1.0 UJ | 1.3 J | 0.22 J |
| Arsenic | 7440-38-2 | **16** | **16** | **4.9** | **0.97 J** | 3.9 | 33.9 | 10.2 |
| Barium | 7440-39-3 | **400** | **400** | **287** | **23.2** | 44.3 | 182 | 71.9 |
| Beryllium | 7440-41-7 | 72 | 590 | **0.24 J** | **0.21 J** | 0.63 | 0.63 | 0.59 |
| Cadmium | 7440-43-9 | **4.3** | **9.3** | **0.70 J** | < 1.1 U | 0.12 J | 4.5 | 0.29 J |
| Calcium | 7440-70-2 | NL | NL | **38600** | **4840** | 1370 | 9820 | 4400 |
| Chromium | 7440-47-3 | **180** | **1500** | **26.5** | **16.6** | 27.9 | 22.5 | 19.3 |
| Cobalt | 7440-48-4 | NL | NL | **3.3** | **5.3** | 11.1 | 13.5 | 8.4 |
| Copper | 7440-50-8 | **270** | **270** | **14.3** | **10.1** | 48.9 | 358 | 31.8 |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | **110** | **400** | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NL | NL | **10900** | **7740** | 22400 | 41400 | 22500 |
| Lead | 7439-92-1 | **400** | **1000** | **798** | **4.7** | 48.8 | 720 | 122 |
| Magnesium | 7439-95-4 | NL | NL | **3180** | **4130** | 3920 | 2130 | 3400 |
| Manganese | 7439-96-5 | **2000** | 10000 | **239** | **183** | 377 | 546 | 362 |
| Mercury | 7439-97-6 | **0.81** | **2.8** | **0.069** | < 0.019 U | 0.23 J- | 4.6 | 0.41 |
| Nickel | 7440-02-0 | 310 | 310 | **7.9** | **27.8** | 46.3 | 37.7 | 19.6 |
| Potassium | 7440-09-7 | NL | NL | **860** | **813** | 814 | 668 | 875 |
| Selenium | 7782-49-2 | 180 | 1500 | **0.94 J** | < 1.3 U | 0.27 J | 3.0 | 0.54 J |
| Silver | 7440-22-4 | 180 | 1500 | < 1.2 U | < 1.1 U | < 1.0 U | 0.26 J | < 1.1 U |
| Sodium | 7440-23-5 | NL | NL | **488** | **157** | 97.9 J | 586 | 438 |
| Thallium | 7440-28-0 | NL | NL | < 0.47 U | < 0.43 U | 0.096 J | 0.42 J | 0.18 J |
| Vanadium | 7440-62-2 | NL | NL | **18.1** | **10.9** | 38.6 | 29.7 | 30.5 |
| Zinc | 7440-66-6 | **10000** | **10000** | **347** | **17.3** | 72.5 | 1500 | 168 |
| **PCBs (mg/Kg)** | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1221 | 11104-28-2 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1232 | 11141-16-5 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1242 | 53469-21-9 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1248 | 12672-29-6 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1254 | 11097-69-1 | NL | NL | **0.16** | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1260 | 11096-82-5 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1262 | 37324-23-5 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Aroclor 1268 | 11100-14-4 | NL | NL | < 0.082 U | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| Total PCB | CALC-PCB | **1** | **1** | **0.16** | < 0.076 U | < 0.070 U | < 0.081 U | < 0.078 U |
| **Cyanide (mg/Kg)** | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NL | NA | NA | NA | NA | NA |
| Cyanide, Total | 57-12-5 | **27** | **27** | NA | NA | NA | NA | NA |
| Cyanide, Weak Acid Dissociable | 57-12-5-WAD | NL | NL | NA | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | NL | < 1.3 U | < 1.2 U | < 1.1 U | < 1.3 U | 1.9 |
| **Pesticides (mg/Kg)** | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 13 | 92 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| 4,4'-DDE | 72-55-9 | 8.9 | 62 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| 4,4'-DDT | 50-29-3 | 7.9 | 47 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Aldrin | 309-00-2 | 0.097 | 0.68 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| alpha-BHC | 319-84-6 | 0.48 | 3.4 | NA | NA | < 0.0021 U | < 0.0024 U | < 0.0023 U |
| beta-BHC | 319-85-7 | 0.36 | 3 | NA | NA | < 0.0021 U | < 0.0024 U | < 0.0023 U |
| Chlordane | 57-74-9 | NL | NL | NA | NA | < 0.0021 U | < 0.0024 U | < 0.0023 U |
| delta-BHC | 319-86-8 | 100 | 500 | NA | NA | < 0.0021 U | < 0.0024 U | < 0.0023 U |
| Dieldrin | 60-57-1 | 0.2 | 1.4 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Endosulfan I | 959-98-8 | 24 | 200 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Endosulfan II | 33213-65-9 | 24 | 200 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Endosulfan sulfate | 1031-07-8 | 24 | 200 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Endrin | 72-20-8 | 11 | 89 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Endrin aldehyde | 7421-93-4 | NL | NL | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Endrin ketone | 53494-70-5 | NL | NL | NA | NA | < 0.0021 U | < 0.0024 U | < 0.0023 U |
| gamma-BHC (Lindane) | 58-89-9 | 1.3 | 9.2 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Heptachlor | 76-44-8 | 2.1 | 15 | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Heptachlor epoxide | 1024-57-3 | NL | NL | NA | NA | < 0.0070 U | < 0.0081 U | < 0.0078 U |
| Methoxychlor | 72-43-5 | NL | NL | NA | NA | < 0.070 U | < 0.081 U | < 0.078 U |
| Toxaphene | 8001-35-2 | NL | NL | NA | NA | | | |
| **Herbicides (mg/Kg)** | | | | | | | | |
| Total Herbicides | 93-76-5 | NL | NL | NA | NA | NA | NA | NA |
| 2,4,5-T | 93-76-5 | NL | NE | NA | NA | NA | NA | NA |
| 2,4-D | 94-75-7 | NL | NE | NA | NA | NA | NA | NA |
| Picloram | 1918-02-1 | NL | NE | NA | NA | NA | NA | NA |
| Silvex (2,4,5-TP) | 93-72-1 | 100 | 500 | NA | NA | NA | NA | NA |

**Notes:**
Gray Highlighted cells exceed NYSDEC PART 375-6 RESTRICTED-RES
Yellow Highlighted cells exceed NYSDEC PART 375-6 COMMERCIAL
Detections are in **bold** text.
mg/kg = milligram per kilogram ND = Non Detect
NA = Not Analyzed NL = No Limit
U = Non-detect at laboratory detection limit
UJ = Non-detect at laboratory detection limit. Detection limit is estimated.
J = Estimated Value (J- biased low and J+ biased high)
R = Rejected based on data validation results

# Table 2-4
## Summary of Groundwater Analytical Data
## Flatbush Station A & B Former Gas Holder Site
## Brooklyn, New York

| Location ID<br>Sample Date<br>Sample ID | CAS # | NYSDEC Groundwater Standard and Guidance Values | MW-01<br>3/9/2011<br>MW-1-030911 | MW-01<br>7/28/2011<br>MW-1-072811 | MW-02<br>3/9/2011<br>MW-2-030911 | MW-02<br>7/29/2011<br>MW-2-072911 | MW-03<br>3/10/2011<br>MW-3-031011 | MW-03<br>7/28/2011<br>MW-3-072811 | MW-04<br>3/10/2011<br>MW-4-031011 | MW-04<br>7/29/2011<br>MW-4-072911 | MW-05<br>3/9/2011<br>DUP-030911 | MW-05<br>3/9/2011<br>MW-5-030911 | MW-05<br>7/28/2011<br>MW-5-072811 | MW-06<br>3/10/2011<br>MW-6-031011 | MW-06<br>8/1/2011<br>MW-6-080111 | MW-07<br>3/9/2011<br>MW-7-030911 | MW-07<br>7/29/2011<br>MW-7-072911 | MW-08<br>3/9/2011<br>MW-8-030911 | MW-08<br>7/29/2011<br>MW-8-072911 | MW-09<br>8/1/2011<br>MW-9-080111 | MW-10<br>7/29/2011<br>MW-10-072911 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BTEX (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 1 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | **0.19 J** | **0.17 J** | <1.0 U | **0.42 J** |
| Ethylbenzene | 100-41-4 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **510** | **320** | <1.0 U | <1.0 U | **11** | **0.50 J** | **4.1** | **3.4** |
| Toluene | 108-88-3 | 5 s | <1.0 U | <1.0 U | **0.13 J** | <1.0 U | **0.22 J** | <1.0 U | <1.0 U | <1.0 U | **0.11 J** | **0.14 J** | <1.0 U | **5.6** | **2.8** | **0.22 J** | <1.0 U | **1.5** | **0.25 J** | **0.15 J** | **0.30 J** |
| m&p-Xylene | 1330-20-7-M,P | 5 s | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | **1.3 J** | <2.0 U | <2.0 U | <2.0 U | <2.0 U | **940** | **380** | <2.0 U | <2.0 U | **16** | **0.36 J** | **0.86 J** | **1.0 J** |
| o-Xylene | 95-47-6 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **1.1** | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **230** | **76** | <1.0 U | <1.0 U | **31** | **7.7** | **1.2** | **3.0** |
| Total Xylenes | CALC-Xylenes | 5 s | ND | ND | ND | ND | ND | ND | **2.4** | ND | ND | ND | ND | **1170** | **456** | ND | ND | **47** | **8.06** | **2.06** | **4.0** |
| | | | | | | | | | | | | | | | | | | | | | |
| **Total BTEX Compounds (ug/L)** | | NL | ND | ND | **0.13** | ND | **0.22** | ND | **2.4** | ND | **0.11** | **0.14** | ND | **1685.6** | **778.8** | **0.22** | ND | **59.69** | **8.98** | **6.31** | **8.12** |
| **Other VOCs (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,1,2-Trichloroethane | 79-00-5 | 1 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,1-Dichloroethane | 75-34-3 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,1-Dichloroethene | 75-35-4 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 UJ | <1.0 UJ | <1.0 U | <2.0 U | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 0.04 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 UJ | <1.0 UJ | <1.0 U | <2.0 U | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,2-Dibromoethane | 106-93-4 | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,2-Dichlorobenzene | 95-50-1 | 3 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,2-Dichloroethane | 107-06-2 | 0.6 | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,2-Dichloropropane | 78-87-5 | 1 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,3-Dichlorobenzene | 541-73-1 | 3 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,4-Dichlorobenzene | 106-46-7 | 3 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| 1,4-Dioxane | 123-91-1 | NL | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <100 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ | <50 UJ |
| 2-Butanone | 78-93-3 | 50 g | <10 UJ | R | <10 UJ | R | <10 U | R | <10 U | R | <10 U | <10 U | R | <20 U | <10 U | <10 U | R | <10 UJ | R | <10 U | R |
| 2-Hexanone | 591-78-6 | 50 g | R | <10 U | R | <10 U | <10 U | <10 U | <10 U | <10 U | R | R | <10 U | <20 U | R | R | <10 U | R | <10 U | R | <10 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | <10 UJ | <10 U | <10 UJ | <10 U | <10 U | <10 U | <10 U | <10 U | <10 U | <10 U | <10 U | <20 U | <10 U | <10 U | <10 U | <10 UJ | <10 U | <10 U | <10 U |
| Acetone | 67-64-1 | 50 | R | <10 U | R | <10 U | <10 U | <10 U | <10 U | <10 U | R | R | <10 U | **41** | R | R | <10 U | R | <10 U | R | <10 U |
| Bromochloromethane | 74-97-5 | 5 | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Bromodichloromethane | 75-27-4 | 50 g | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Bromoform | 75-25-2 | 50 g | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Bromomethane | 74-83-9 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Carbon disulfide | 75-15-0 | 60 g | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **0.15 J** | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **0.29 J** | <1.0 U |
| Carbon tetrachloride | 56-23-5 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Chlorobenzene | 108-90-7 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Chloroethane | 75-00-3 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 UJ | <1.0 UJ | <1.0 U | <2.0 U | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Chloroform | 67-66-3 | 7 s | **0.16 J** | <1.0 U | **1.4** | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **0.41 J** | **0.45 J** | <1.0 U | <2.0 U | <1.0 U | **0.82 J** | <1.0 U | <1.0 U | <1.0 U | **0.78 J** | **8.2** |
| Chloromethane | 74-87-3 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 UJ | <1.0 UJ | <1.0 U | <2.0 U | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| cis-1,2-Dichloroethene | 156-59-2 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | **0.52 J** | **0.50 J** | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| cis-1,3-Dichloropropene | 10061-01-5 | 0.4 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Cyclohexane | 110-82-7 | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **4.3** | **3.2** | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Dibromochloromethane | 124-48-1 | 50 | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Dichlorodifluoromethane | 75-71-8 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 UJ | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 UJ | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Freon TF | 76-13-1 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Isopropylbenzene | 98-82-8 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **2.9** | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **32** | **17** | <1.0 U | <1.0 U | **44** | **10** | **9.9** | **6.9** |
| Methyl acetate | 79-20-9 | NL | <2.0 UJ | <2.0 U | <2.0 UJ | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <4.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 UJ | <2.0 U | <2.0 U | <2.0 U |
| Methylcyclohexane | 108-87-2 | NL | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 UJ | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **2.9** | **2.4** | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Methylene Chloride | 75-09-2 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | **1.2** |
| Methyl tert-butyl ether | 1634-04-4 | 10 g | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Styrene | 100-42-5 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Tetrachloroethene | 127-18-4 | 5 s | **0.65 J** | **0.78 J** | <1.0 U | <1.0 U | **2.7** | **2.0** | <1.0 U | <1.0 U | **7.0** | **6.5** | **4.3** | <2.0 U | <1.0 U | **5.3** | **1.7** | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| trans-1,2-Dichloroethene | 156-60-5 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| trans-1,3-Dichloropropene | 10061-02-6 | 0.4 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Trichloroethene | 79-01-6 | 5 s | **0.26 J** | **0.22 J** | <1.0 U | <1.0 U | **0.32 J** | **0.21 J** | <1.0 U | <1.0 U | **0.63 J** | **0.46 J** | **0.26 J** | <2.0 U | <1.0 U | **4.4** | **4.6** | <1.0 U | <1.0 U | <1.0 U | **0.30 J** |
| Trichlorofluoromethane | 75-69-4 | 5 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| Vinyl chloride | 75-01-4 | 2 s | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <2.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |
| | | | | | | | | | | | | | | | | | | | | | |
| **Total VOCs (ug/L)** | CALC-VOC | NL | **1.07** | **1** | **1.53** | ND | **3.39** | **2.21** | **5.3** | ND | **8.15** | **7.55** | **4.56** | **1765.8** | **801.4** | **11.26** | **6.8** | **103.69** | **18.98** | **17.28** | **24.72** |

**Notes:**

ND = calculated totals are not detected

NL = Not listed

NS = Not Sampled

ug/L = microgram per liter

mg/L = milligram per liter

**Bold indicates compound was detected**

Yellow Shaded values exceed NYSDEC Groundwater Standard and Guidance Values

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

# Table 2-4
## Summary of Groundwater Analytical Data
## Flatbush Station A & B Former Gas Holder Site
## Brooklyn, New York

| Location ID<br>Sample Date<br>Sample ID | CAS # | NYSDEC Groundwater Standard and Guidance Values | MW-01<br>3/9/2011<br>MW-1-03091 | MW-01<br>7/28/2011<br>MW-1-07281 | MW-02<br>3/9/2011<br>MW-2-03091 | MW-02<br>7/29/2011<br>MW-2-07291 | MW-03<br>3/10/2011<br>MW-3-03101 | MW-03<br>7/28/2011<br>MW-3-07131 | MW-04<br>3/10/2011<br>MW-4-03101 | MW-04<br>7/29/2011<br>MW-4-07291 | MW-05<br>3/9/2011<br>DUP-030911 | MW-05<br>3/9/2011<br>MW-5-03091 | MW-05<br>7/28/2011<br>MW-5-07281 | MW-06<br>3/10/2011<br>MW-6-03101 | MW-06<br>8/1/2011<br>MW-6-08011 | MW-07<br>3/9/2011<br>MW-7-030911 | MW-07<br>7/29/2011<br>MW-7-072911 | MW-08<br>3/9/2011<br>MW-8-030911 | MW-08<br>7/29/2011<br>MW-8-072911 | MW-09<br>8/1/2011<br>MW-9-080111 | MW-10<br>7/29/2011<br>MW-10-072911 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAH (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | **8.9 J** | **3.5 J** | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Acenaphthene | 83-32-9 | 20 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | **26** | **7.4 J** | <10 U | <10 U |
| Acenaphthylene | 208-96-8 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | **98** | **26** | <10 U | <10 U |
| Anthracene | 120-12-7 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Benzo[a]anthracene | 56-55-3 | 0.002 g | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Benzo[a]pyrene | 50-32-8 | ND | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Benzo[b]fluoranthene | 205-99-2 | 0.002 g | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Benzo[g,h,i]perylene | 191-24-2 | NL | <11 UJ | <10 U | <11 UJ | <10 U | <11 U | <10 U | <11 U | <10 U | <11 UJ | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Benzo[k]fluoranthene | 207-08-9 | 0.002 g | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Chrysene | 218-01-9 | 0.002 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Dibenz(a,h)anthracene | 53-70-3 | NL | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Fluoranthene | 206-44-0 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Fluorene | 86-73-7 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | **4.1 J** | <10 U | <10 U | <10 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 0.002 g | <1.1 UJ | <1.0 U | <1.1 UJ | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 UJ | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Naphthalene | 91-20-3 | 10 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | **78** | **40** | <11 U | <10 U | **150** | <10 U | <10 U | **4.5 J** |
| Phenanthrene | 85-01-8 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | **15** | <10 U | <10 U | <10 U |
| Pyrene | 129-00-0 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| | | | | | | | | | | | | | | | | | | | | | |
| **Total PAHs (ug/L)** | CALC-PAH | NL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **86.9** | **43.5** | ND | ND | **293.1** | **33.4** | ND | **4.5** |
| **SVOC (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 5 | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2,4-Dichlorophenol | 120-83-2 | 1 | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2,4-Dimethylphenol | 105-67-9 | 1 | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2,4-Dinitrophenol | 51-28-5 | 1 | <32 U | <31 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <32 U | <32 U | <34 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <30 U | <30 U |
| 2,4-Dinitrotoluene | 121-14-2 | 5 s | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.1 U | <2.3 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.0 U | <2.0 U |
| 2,6-Dinitrotoluene | 606-20-2 | 5 | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.1 U | <2.3 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.0 U | <2.0 U |
| 2-Chloronaphthalene | 91-58-7 | 10 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2-Chlorophenol | 95-57-8 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2-Methylphenol | 95-48-7 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 2-Nitroaniline | 88-74-4 | 5 s | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <21 U | <23 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <20 U | <20 U |
| 2-Nitrophenol | 88-75-5 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | 5 s | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <21 UJ | <23 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <20 U | <20 U |
| 3-Nitroaniline | 99-09-2 | 5 s | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <21 U | <23 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <20 U | <20 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | <32 U | <31 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <32 U | <32 U | <34 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <30 U | <30 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 4-Chloroaniline | 106-47-8 | 5 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 4-Methylphenol | 106-44-5 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| 4-Nitroaniline | 100-01-6 | 5 s | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <21 U | <21 U | <23 U | <21 U | <20 U | <21 U | <20 U | <21 U | <20 U | <20 U | <20 U |
| 4-Nitrophenol | 100-02-7 | NL | <32 U | <31 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <32 U | <32 U | <34 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <30 U | <30 U |
| Acetophenone | 98-86-2 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | **37** | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Atrazine | 1912-24-9 | 7.5 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 UJ | <11 U | <10 U | <11 U | <10 U | <10 UJ | <10 U |
| Benzaldehyde | 100-52-7 | NL | <11 UJ | <10 UJ | <11 UJ | <10 UJ | <11 UJ | <10 UJ | <11 UJ | <10 UJ | <11 UJ | <11 UJ | <11 UJ | <11 UJ | <10 UJ | <11 UJ | <10 UJ | <11 UJ | <10 UJ | <10 UJ | <10 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | 5 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Bis(2-chloroethyl)ether | 111-44-4 | 1 s | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | 5 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Butyl benzyl phthalate | 85-68-7 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Caprolactam | 105-60-2 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Carbazole | 86-74-8 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | **5.7 J** |
| Dibenzofuran | 132-64-9 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | **11** | **4.1 J** | <10 U | <10 U |
| Diethyl phthalate | 84-66-2 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Dimethyl phthalate | 131-11-3 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Di-n-butyl phthalate | 84-74-2 | 50 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Di-n-octyl phthalate | 117-84-0 | NL | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Diphenyl | 92-52-4 | 5 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | **45** | **6.5 J** | <10 U | <10 U |
| Hexachlorobenzene | 118-74-1 | 0.4 s | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Hexachlorobutadiene | 87-68-3 | 0.5 s | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.1 U | <2.3 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.1 U | <2.0 U | <2.0 U | <2.0 U |
| Hexachlorocyclopentadiene | 77-47-4 | 5 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Hexachloroethane | 67-72-1 | 5 s | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| Isophorone | 78-59-1 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Nitrobenzene | 98-95-3 | 0.4 | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.1 U | <1.0 U | <1.0 U | <1.0 U |
| N-Nitrosodiphenylamine | 86-30-6 | 50 g | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| Pentachlorophenol | 87-86-5 | 1 s | <32 U | <31 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <32 U | <32 U | <34 U | <32 U | <30 U | <32 U | <30 U | <32 U | <30 U | <30 U | <30 U |
| Phenol | 108-95-2 | 1 s | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <11 U | <11 U | <11 U | <11 U | <10 U | <11 U | <10 U | <11 U | <10 U | <10 U | <10 U |
| | | | | | | | | | | | | | | | | | | | | | |
| **Total SVOCs (ug/L)** | CALC-SVOC | NL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **123.9** | **43.5** | ND | ND | **349.1** | **44** | ND | **10.2** |

**Notes:**

ND = calculated totals are not detected

NL = Not listed

NS = Not Sampled

ug/L = microgram per liter

mg/L = milligram per liter

**Bold indicates compound was detected**

Yellow Shaded values exceed NYSDEC Groundwater Standard and Guidance Values

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

# Table 2-4
## Summary of Groundwater Analytical Data
## Flatbush Station A & B Former Gas Holder Site
## Brooklyn, New York

| Location ID<br>Sample Date<br>Sample ID | CAS # | NYSDEC Groundwater Standard and Guidance Values | MW-01<br>3/9/2011<br>MW-1-030911 | MW-01<br>7/28/2011<br>MW-1-072811 | MW-02<br>3/9/2011<br>MW-2-030911 | MW-02<br>7/29/2011<br>MW-2-072911 | MW-03<br>3/10/2011<br>MW-3-031011 | MW-03<br>7/28/2011<br>MW-3-071311 | MW-04<br>3/10/2011<br>MW-4-031011 | MW-04<br>7/29/2011<br>MW-4-072911 | MW-05<br>3/9/2011<br>DUP-030911 | MW-05<br>3/9/2011<br>MW-5-030911 | MW-05<br>7/28/2011<br>MW-5-072811 | MW-06<br>3/10/2011<br>MW-6-031011 | MW-06<br>8/1/2011<br>MW-6-080111 | MW-07<br>3/9/2011<br>MW-7-030911 | MW-07<br>7/29/2011<br>MW-7-072911 | MW-08<br>3/9/2011<br>MW-8-030911 | MW-08<br>7/29/2011<br>MW-8-072911 | MW-09<br>8/1/2011<br>MW-9-080111 | MW-10<br>7/29/2011<br>MW-10-072911 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (mg/L)** | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | NL | **97.9 J** | <200 U | **230** | **1300** | **314** | **211** | **299** | <200 U | **101 J** | **104 J** | <200 U | **181 J** | <200 U | **142 J** | **762** | **192 J** | **228** | **206** | **3240** |
| Antimony | 7440-36-0 | 3 s | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U |
| Arsenic | 7440-38-2 | 25 s | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | **7.2** | <5.0 U | **4.5 J** |
| Barium | 7440-39-3 | 1,000 s | **121 J** | **130 J** | **98.7 J** | **63.1 J** | **37.4 J** | **53.9 J** | **60.6 J** | **97.4 J** | **113 J** | **115 J** | **106 J** | **186 J** | **124 J** | **131 J** | **128 J** | **95.3 J** | **118 J** | **110 J** | **115 J** |
| Beryllium | 7440-41-7 | 3 g | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U |
| Cadmium | 7440-43-9 | 5 s | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U |
| Calcium | 7440-70-2 | NL | **36500** | **55200** | **65600** | **36000** | **66300** | **43500** | **33000** | **42400** | **65700** | **65000** | **59500** | **42200** | **37200** | **55700** | **55200** | **27900** | **30900** | **35900** | **23400** |
| Chromium | 7440-47-3 | 50 s | <10.0 U | <10.0 U | <10.0 U | **6.7 J** | **6.4 J** | **3.4 J** | <10.0 U | <10.0 U | <10.0 U | <10.0 U | **16.9** | <10.0 U | **24.5** | **7.5 J** | **3.9 J** | <10.0 U | **10.6** | **3.9 J** | <10.0 U |
| Cobalt | 7440-48-4 | NL | **7.3 J** | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U | <50.0 U |
| Copper | 7440-50-8 | 200 s | <25.0 U | <25.0 U | <25.0 U | **33.2** | **22.1 J** | <25.0 U | **16.8 J** | <25.0 U | <25.0 U | <25.0 U | <25.0 U | <25.0 U | <25.0 U | <25.0 U | **43.1** | <25.0 U | <25.0 U | <25.0 U | **38.3** |
| Iron | 7439-89-6 | 300 s | **4800** | **139 J** | **413** | **1960** | **1880** | **418** | **549** | <150 U | <150 U | <150 U | **118 J** | **1780** | **1810** | **105 J** | **1210** | **5460** | **5880** | **2270** | **1800** |
| Lead | 7439-92-1 | 25 s | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | <5.0 U | **2.8 J** | <5.0 U | <5.0 U | <5.0 U | <5.0 U | **3.0 J** | <5.0 U | <5.0 U | **5.4** |
| Magnesium | 7439-95-4 | 35,000 s | **21800** | **36000** | **34400** | **19500** | **25200** | **24200** | **25600** | **30500** | **32800** | **32700** | **33700** | **14200** | **12100** | **21300** | **20200** | **19200** | **22000** | **13800** | **10400** |
| Manganese | 7439-96-5 | 300 s | **2060** | **83.4** | **618** | **47.8** | **2390** | **98.1** | **3010** | **2360** | **26.3** | **26.6** | **8.5 J** | **1120** | **812** | **432** | **49.9** | **1850** | **2030** | **1010** | **636** |
| Mercury | 7439-97-6 | 0.7 s | <0.20 UJ | <0.20 U | <0.20 UJ | <0.20 U | <0.20 U | <0.20 U | <0.20 U | <0.20 U | <0.20 UJ | <0.20 UJ | <0.20 U | <0.20 U | <0.20 U | <0.20 UJ | <0.20 U | <0.20 UJ | <0.20 U | <0.20 U | <0.20 U |
| Nickel | 7440-02-0 | 100 s | <40.0 U | **5.1 J** | **48.3** | **13.9 J** | **11.8 J** | **4.5 J** | **16.5 J** | **17.4 J** | **19.0 J** | **19.1 J** | **24.3 J** | **8.9 J** | **27.5 J** | **33.2 J** | **18.5 J** | <40.0 U | **6.1 J** | <40.0 U | **4.4 J** |
| Potassium | 7440-09-7 | NL | **18200** | **10000** | **3370 J** | **2500 J** | **5590** | **2930 J** | **3660 J** | **3390 J** | **3800 J** | **3820 J** | **3770 J** | **4410 J** | **3630 J** | **3720 J** | **3750 J** | **3290 J** | **3320 J** | **6380** | **3830 J** |
| Selenium | 7782-49-2 | 10 s | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U |
| Silver | 7440-22-4 | 50 s | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U |
| Sodium | 7440-23-5 | 20,000 s | **70200** | **108000** | **71800** | **57400** | **96900** | **119000** | **54000** | **63500** | **172000** | **172000** | **199000** | **238000** | **246000** | **142000** | **141000** | **163000** | **150000** | **133000** | **120000** |
| Thallium | 7440-28-0 | 0.5 | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U | <10.0 U |
| Vanadium | 7440-62-2 | NL | <50.0 U | <50.0 U | <50.0 U | **2.6 J** | **6.0 J** | <50.0 U | **6.0 J** | <50.0 U | <50.0 U | <50.0 U | <50.0 U | **2.9 J** | <50.0 U | <50.0 U | **2.1 J** | <50.0 U | <50.0 U | <50.0 U | **2.3 J** |
| Zinc | 7440-66-6 | 2,000 g | <30.0 U | **9.6 J** | <30.0 U | **6.0 J** | **11.8 J** | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | <30.0 U | **5.8 J** |
| **Cyanide (mg/L)** | | | | | | | | | | | | | | | | | | | | | |
| Cyanide, Amenable | 57-12-5-AMEN | NL | <0.010 U | NS | <0.010 U | NS | NS | NS | NS | NS | <0.010 U | **0.018** | NS | NS | NS | <0.010 U | NS | <0.010 U | NS | NS | NS |
| Cyanide, Total | 57-12-5 | 0.2 s | <0.010 U | <0.010 U | <0.010 U | <0.010 U | **0.014** | **0.028** | <0.010 U | <0.010 U | **0.015** | **0.018** | **0.023** | <0.010 U | <0.010 U | <0.010 U | <0.010 U | **0.017** | **0.011** | <0.010 U | **0.067** |
| **Pesticides (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| 4,4'-DDD | 72-54-8 | 0.3 | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| 4,4'-DDE | 72-55-9 | 0.2 | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| 4,4'-DDT | 50-29-3 | 0.2 | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Aldrin | 309-00-2 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| alpha-BHC | 319-84-6 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| beta-BHC | 319-85-7 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Chlordane | 57-74-9 | 0.05 | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.53 U | <0.51 U | <0.56 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.56 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| delta-BHC | 319-86-8 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Dieldrin | 60-57-1 | 0.004 | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Endosulfan I | 959-98-8 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Endosulfan II | 33213-65-9 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Endosulfan sulfate | 1031-07-8 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Endrin | 72-20-8 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Endrin aldehyde | 7421-93-4 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Endrin ketone | 53494-70-5 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| gamma-BHC (Lindane) | 58-89-9 | NL | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Heptachlor | 76-44-8 | 0.4 | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Heptachlor epoxide | 1024-57-3 | 0.03 | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Methoxychlor | 72-43-5 | 35 | <0.053 U | <0.051 U | <0.053 U | <0.050 U | <0.053 U | <0.051 U | <0.056 U | <0.050 U | <0.053 U | <0.083 U | <0.050 U | <0.056 U | <0.050 U | <0.056 U | <0.051 U | <0.053 U | <0.051 U | <0.051 U | <0.050 U |
| Toxaphene | 8001-35-2 | 0.06 | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.53 U | <0.51 U | <0.56 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.56 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| **PCBs (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1016 | 12674-11-2 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1221 | 11104-28-2 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1232 | 11141-16-5 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1242 | 53469-21-9 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1248 | 12672-29-6 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1254 | 11097-69-1 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1260 | 11096-82-5 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1262 | 37324-23-5 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| Aroclor 1268 | 11100-14-4 | NL | <0.53 U | <0.51 U | <0.53 U | <0.50 U | <0.51 U | <0.51 U | <0.51 U | <0.50 U | <0.53 U | <0.83 U | <0.50 U | <0.51 U | <0.50 U | <0.56 U | <0.51 U | <0.53 U | <0.51 U | <0.51 U | <0.50 U |
| PCB (Total) (ppm) | | NL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Herbicides (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| 2,4,5-T | 93-76-5 | NL | <0.51 U | <0.52 U | <0.51 U | <0.51 U | <0.51 U | <0.53 U | <0.51 U | <0.52 U | <0.51 U | <0.83 U | <0.51 U | <0.51 U | <0.54 U | <0.51 U | <0.52 U | <0.51 U | <0.51 U | <0.53 U | <0.53 U |
| 2,4-D | 94-75-7 | NL | <0.51 U | <0.52 UJ | <0.51 U | <0.51 UJ | <0.51 U | <0.53 UJ | <0.51 U | <0.52 UJ | <0.51 U | <0.83 U | <0.51 UJ | <0.51 U | <0.54 U | <0.51 U | <0.52 UJ | <0.51 U | <0.51 UJ | <0.53 U | <0.53 UJ |
| Picloram | 1918-02-1 | 50 | <0.51 U | NS | <0.51 U | NS | <0.51 U | NS | <0.51 U | NS | <0.51 U | <0.83 U | NS | <0.51 U | NS | <0.51 U | NS | <0.51 U | NS | NS | NS |
| Silvex (2,4,5-TP) | 93-72-1 | NL | <0.51 U | <0.52 U | <0.51 U | <0.51 U | <0.51 U | <0.53 U | <0.51 U | <0.52 U | <0.51 U | <0.83 U | <0.51 U | <0.51 U | <0.54 U | <0.51 U | <0.52 U | <0.51 U | <0.51 U | <0.53 U | <0.53 U |

**Notes:**

ND = calculated totals are not detected
NL = Not listed
NS = Not Sampled
ug/L = microgram per liter
mg/L = milligram per liter
**Bold indicates compound was detected**
Yellow Shaded values exceed NYSDEC Groundwater Standard (s) and Guidance (g) Values
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

# Table 2-4
# Summary of Groundwater Analytical Data
# Flatbush Station A and B Former Gas Holder Site
# Brooklyn, New York

| Location ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC Groundwater Standard and Guidance Values | GW-109<br>9/2/2020<br>50 - 55 ft | GW-112<br>10/11/2020<br>65 - 67 ft | GW-125<br>9/10/2020<br>65 - 70 ft | GW-125 DUP<br>9/10/2020<br>65 - 70 ft |
|---|---|---|---|---|---|---|
| **BTEX (ug/L)** | | | | | | |
| Benzene | 71-43-2 | 1 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Ethylbenzene | 100-41-4 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | **0.31 J** |
| Toluene | 108-88-3 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| m&p-Xylene | 1330-20-7-M,P | 5 s | < 1.0 U | < 1.0 U | **0.44 J** | **0.50 J** |
| o-Xylene | 95-47-6 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | **0.37 J** |
| Xylenes, Total | 1330-20-7 | 5 s | < 1 U | < 1 U | **0.44** | **0.87** |
| Total BTEX | CALC-BTEX | NL | < 1 U | < 1 U | 0.44 | 1.2 |
| **VOCs (µg/L)** | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,1,2-Trichloroethane | 79-00-5 | 1 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,1-Dichloroethane | 75-34-3 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,1-Dichloroethene | 75-35-4 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,2,3-Trichlorobenzene | 87-61-6 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,2,4-Trichlorobenzene | 120-82-1 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 0.04 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,2-Dibromoethane | 106-93-4 | NL | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,2-Dichlorobenzene | 95-50-1 | 3 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,2-Dichloroethane | 107-06-2 | 0.6 | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,2-Dichloropropane | 78-87-5 | 1 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,3-Dichlorobenzene | 541-73-1 | 3 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,4-Dichlorobenzene | 106-46-7 | 3 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| 1,4-Dioxane | 123-91-1 | NL | < 50 U | < 50 U | < 50 U | < 50 U |
| 2-Butanone | 78-93-3 | 50 g | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U |
| 2-Hexanone | 591-78-6 | 50 g | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U |
| 4-Methyl-2-pentanone | 108-10-1 | NL | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U |
| Acetone | 67-64-1 | 50 | **8.7** | < 5.0 U | **21** | **21** |
| Bromochloromethane | 74-97-5 | 5 | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Bromodichloromethane | 75-27-4 | 50 g | < 1.0 U | < 1.0 U | **1.6** | **1.6** |
| Bromoform | 75-25-2 | 50 g | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Bromomethane | 74-83-9 | 5 s | < 1.0 U | < 1.0 UJ | < 1.0 U | < 1.0 U |
| Carbon disulfide | 75-15-0 | 60 g | < 1.0 U | < 1.0 U | **1.4** | **1.4** |
| Carbon tetrachloride | 56-23-5 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Chlorobenzene | 108-90-7 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Chloroethane | 75-00-3 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Chloroform | 67-66-3 | 7 s | < 1.0 U | **4.8** | **59** | **57** |
| Chloromethane | 74-87-3 | 5 s | **1.0** | < 1.0 U | < 1.0 U | **1.1** |
| cis-1,2-Dichloroethene | 156-59-2 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| cis-1,3-Dichloropropene | 10061-01-5 | 0.4 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Cyclohexane | 110-82-7 | NL | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Dibromochloromethane | 124-48-1 | 50 | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Dichlorodifluoromethane | 75-71-8 | 5 s | < 1.0 UJ | < 1.0 U | < 1.0 U | < 1.0 U |
| Freon TF | 76-13-1 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Isopropylbenzene | 98-82-8 | 5 s | < 1.0 U | < 1.0 U | **120** | **120** |
| Methyl acetate | 79-20-9 | NL | < 5.0 UJ | < 5.0 U | < 5.0 U | < 5.0 U |
| Methylcyclohexane | 108-87-2 | NL | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Methylene Chloride | 75-09-2 | 5 s | **0.51 J** | < 1.0 U | < 1.0 U | < 1.0 U |
| MTBE | 1634-04-4 | 10 g | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Styrene | 100-42-5 | 5 s | < 1.0 U | < 1.0 U | **1.3** | **1.3** |
| Tetrachloroethene | 127-18-4 | 5 s | **0.95 J** | **1.8** | **3.4** | **3.3** |
| trans-1,2-Dichloroethene | 156-60-5 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| trans-1,3-Dichloropropene | 10061-02-6 | 0.4 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Trichloroethene | 79-01-6 | 5 s | < 1.0 U | < 1.0 U | **0.84 J** | **0.78 J** |
| Trichlorofluoromethane | 75-69-4 | 5 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| Vinyl chloride | 75-01-4 | 2 s | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| **Total VOCs** | CALC-VOC | NL | **11** | **6.6** | **210** | **210** |

**Notes:**

ND = calculated totals are not detected

NL = Not listed

NA = Not Analyzed

ug/L = microgram per liter

**Bold indicates compound was detected**

Yellow Shaded values exceed NYSDEC Groundwater Standard (s) and Guidance (g) Values

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. (J- biased low and J+ biased high)

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

# Table 2-4
# Summary of Groundwater Analytical Data
# Flatbush Station A and B Former Gas Holder Site
# Brooklyn, New York

| Location ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC Groundwater Standard and Guidance Values | GW-109<br>9/2/2020<br>50 - 55 ft | GW-112<br>10/11/2020<br>65 - 67 ft | GW-125<br>9/10/2020<br>65 - 70 ft | GW-125 DUP<br>9/10/2020<br>65 - 70 ft |
|---|---|---|---|---|---|---|
| **PAHs (µg/L)** | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | NL | < 10 U | < 10 U | **150** | **170** |
| Acenaphthene | 83-32-9 | 20 g | < 10 U | < 10 U | < 100 U | < 100 U |
| Acenaphthylene | 208-96-8 | NL | < 10 U | < 10 U | < 100 U | **8.4 J** |
| Anthracene | 120-12-7 | 50 g | < 10 U | < 10 U | **7.2 J** | **8.0 J** |
| Benzo[a]anthracene | 56-55-3 | 0.002 g | < 1.0 U | < 1.0 UJ | < 10 U | < 10 U |
| Benzo[a]pyrene | 50-32-8 | ND | < 1.0 U | < 1.0 U | < 10 U | < 10 U |
| Benzo[b]fluoranthene | 205-99-2 | 0.002 g | < 2.0 U | < 2.0 U | < 20 U | < 20 U |
| Benzo[g,h,i]perylene | 191-24-2 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| Benzo[k]fluoranthene | 207-08-9 | 0.002 g | < 1.0 U | < 1.0 U | < 10 U | < 10 U |
| Chrysene | 218-01-9 | 0.002 g | < 2.0 U | < 10 U | < 20 U | < 20 U |
| Dibenz(a,h)anthracene | 53-70-3 | NL | < 1.0 U | < 1.0 U | < 10 U | < 10 U |
| Fluoranthene | 206-44-0 | 50 g | < 10 U | < 10 U | **8.8 J** | **9.8 J** |
| Fluorene | 86-73-7 | 50 g | < 10 U | < 10 U | < 100 U | < 100 U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 0.002 g | < 2.0 U | < 2.0 U | < 20 U | < 20 U |
| Naphthalene | 91-20-3 | 10 g | < 2.0 U | < 2.0 U | **1300** | **1400** |
| Phenanthrene | 85-01-8 | 50 g | < 10 U | < 10 U | **29 J** | **32 J** |
| Pyrene | 129-00-0 | 50 g | < 10 U | < 10 U | < 100 U | < 100 U |
| **Total PAH** | CALC-PAH | NL | < 10 U | < 10 U | **1500** | **1600** |
| **SVOCs (µg/L)** | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | 5 | < 10 U | < 10 U | < 100 U | < 100 U |
| 1,4-Dioxane | 123-91-1 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 2,2'-oxybis[1-chloropropane] | 108-60-1 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 2,4,5-Trichlorophenol | 95-95-4 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 2,4,6-Trichlorophenol | 88-06-2 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 2,4-Dichlorophenol | 120-83-2 | 1 | < 10 U | < 10 U | < 100 U | < 100 U |
| 2,4-Dimethylphenol | 105-67-9 | 1 | < 10 U | < 10 U | < 100 U | < 100 U |
| 2,4-Dinitrophenol | 51-28-5 | 1 | < 20 U | < 30 U | < 200 U | < 200 U |
| 2,4-Dinitrotoluene | 121-14-2 | 5 s | < 2.0 U | < 2.0 U | < 20 U | < 20 U |
| 2,6-Dinitrotoluene | 606-20-2 | 5 | < 2.0 U | < 2.0 U | < 20 U | < 20 U |
| 2-Chloronaphthalene | 91-58-7 | 10 g | < 10 U | < 10 U | < 100 U | < 100 U |
| 2-Chlorophenol | 95-57-8 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 2-Methylphenol | 95-48-7 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 2-Nitroaniline | 88-74-4 | 5 s | < 10 U | < 20 U | < 100 U | < 100 U |
| 2-Nitrophenol | 88-75-5 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 3,3'-Dichlorobenzidine | 91-94-1 | 5 s | < 10 U | < 20 U | < 100 U | < 100 U |
| 3-Nitroaniline | 99-09-2 | 5 s | < 10 U | < 20 U | < 100 U | < 100 U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | NL | < 20 U | < 30 U | < 200 U | < 200 U |
| 4-Bromophenyl phenyl ether | 101-55-3 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 4-Chloro-3-methylphenol | 59-50-7 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 4-Chloroaniline | 106-47-8 | 5 s | < 10 U | < 2.0 U | < 100 U | < 100 U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 4-Methylphenol | 106-44-5 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| 4-Nitroaniline | 100-01-6 | 5 s | < 10 U | < 20 U | < 100 U | < 100 U |
| 4-Nitrophenol | 100-02-7 | NL | < 20 U | < 30 U | < 200 U | < 200 U |
| Acetophenone | 98-86-2 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| Atrazine | 1912-24-9 | 7.5 s | < 2.0 U | < 10 U | < 20 U | < 20 U |
| Benzaldehyde | 100-52-7 | NL | < 10 UJ | < 10 U | < 100 UJ | < 100 UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | 5 s | < 10 U | < 10 U | < 100 U | < 100 U |
| Bis(2-chloroethyl)ether | 111-44-4 | 1 s | < 1.0 U | < 1.0 U | < 10 U | < 10 U |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | 5 s | < 2.0 U | < 10 U | < 20 U | < 20 U |
| Butyl benzyl phthalate | 85-68-7 | 50 g | < 10 U | < 10 U | < 100 U | < 100 U |
| Caprolactam | 105-60-2 | NL | **550** | < 10 U | < 100 U | < 100 U |
| Carbazole | 86-74-8 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| Dibenzofuran | 132-64-9 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| Diethyl phthalate | 84-66-2 | 50 g | **5.1 J** | < 10 U | < 100 U | < 100 U |
| Dimethyl phthalate | 131-11-3 | 50 g | < 10 U | < 10 U | < 100 U | < 100 U |
| Di-n-butyl phthalate | 84-74-2 | 50 s | **0.88 J** | < 10 U | < 100 U | < 100 U |
| Di-n-octyl phthalate | 117-84-0 | NL | < 10 U | < 10 U | < 100 U | < 100 U |
| Diphenyl | 92-52-4 | 5 s | < 10 U | < 10 U | < 100 U | < 100 U |
| Hexachlorobenzene | 118-74-1 | 0.4 s | < 1.0 U | < 1.0 U | < 10 U | < 10 U |
| Hexachlorobutadiene | 87-68-3 | 0.5 s | < 1.0 U | < 2.0 U | < 10 U | < 10 U |
| Hexachlorocyclopentadiene | 77-47-4 | 5 s | < 10 U | < 10 U | < 100 U | < 100 U |
| Hexachloroethane | 67-72-1 | 5 s | < 2.0 U | < 2.0 U | < 20 U | < 20 U |
| Isophorone | 78-59-1 | 50 g | < 10 U | < 10 U | < 100 U | < 100 U |
| Nitrobenzene | 98-95-3 | 0.4 | < 1.0 U | < 1.0 U | < 10 U | < 10 U |
| N-Nitrosodi-n-propylamine | 621-64-7 | NL | < 1.0 U | < 1.0 U | < 10 U | < 10 U |
| N-Nitrosodiphenylamine | 86-30-6 | 50 g | < 10 U | < 10 U | < 100 U | < 100 U |
| Pentachlorophenol | 87-86-5 | 1 s | < 20 U | < 30 U | < 200 U | < 200 U |
| Phenol | 108-95-2 | 1 s | **3.2 J** | < 10 U | < 100 U | < 100 U |
| **Total SVOC** | CALC-SVOC | NL | **560** | < 30 U | **1500** | **1600** |

**Notes:**
ND = calculated totals are not detected
NL = Not listed
NA = Not Analyzed
ug/L = microgram per liter
**Bold indicates compound was detected**
Yellow Shaded values exceed NYSDEC Groundwater Standard (s) and Guidance (g) Values

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. (J- biased low and J+
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely

# Table 2-4
# Summary of Groundwater Analytical Data
# Flatbush Station A and B Former Gas Holder Site
# Brooklyn, New York

| Location ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC Groundwater Standard and Guidance Values | GW-109<br>9/2/2020<br>50 - 55 ft | GW-112<br>10/11/2020<br>65 - 67 ft | GW-125<br>9/10/2020<br>65 - 70 ft | GW-125 DUP<br>9/10/2020<br>65 - 70 ft |
|---|---|---|---|---|---|---|
| **Total Metals (µg/L)** | | | | | | |
| Aluminum | 7429-90-5 | NL | **9850** | **769** | **43500** | **43100** |
| Antimony | 7440-36-0 | 3 s | < 2.0 U | < 2.0 U | < 2.0 U | < 2.0 U |
| Arsenic | 7440-38-2 | 25 s | **3.3** | < 2.0 U | **14.3** | **14.7** |
| Barium | 7440-39-3 | 1,000 s | **172** | **54.7** | **464** | **475** |
| Beryllium | 7440-41-7 | 3 g | **0.55 J** | < 0.80 U | **3.2** | **3.2** |
| Cadmium | 7440-43-9 | 5 s | **0.48 J** | < 2.0 U | **0.99 J** | **1.1 J** |
| Calcium | 7440-70-2 | NL | **55000** | **51400** | **67800** | **66000** |
| Chromium | 7440-47-3 | 50 s | **68.9** | **4.8** | **275** | **272** |
| Cobalt | 7440-48-4 | NL | **19.8** | **1.8 J** | **44.5** | **44.1** |
| Copper | 7440-50-8 | 200 s | **73.2** | **9.0** | **312** | **394** |
| Iron | 7439-89-6 | 300 s | **19800** | **1390** | **96100** | **94700** |
| Lead | 7439-92-1 | 25 s | **58.4** | **2.9 J+** | **101** | **104** |
| Magnesium | 7439-95-4 | 35,000 s | **35700** | **25300** | **40300** | **39500** |
| Manganese | 7439-96-5 | 300 s | **5500** | **363** | **4430** | **4490** |
| Mercury | 7439-97-6 | 0.7 s | **0.10 J** | < 0.20 U | **0.12 J** | **0.12 J** |
| Nickel | 7440-02-0 | 100 s | **109** | **10.0** | **247** | **246** |
| Potassium | 7440-09-7 | NL | **9910** | **3380** | **13400** | **13200** |
| Selenium | 7782-49-2 | 10 s | **0.75 J** | **1.6 J** | **0.65 J** | **0.58 J** |
| Silver | 7440-22-4 | 50 s | < 2.0 U | < 2.0 U | **0.32 J** | **0.29 J** |
| Sodium | 7440-23-5 | 20,000 s | **64400** | **74500** | **17800** | **17200** |
| Thallium | 7440-28-0 | 0.5 | < 0.80 U | < 0.80 U | **0.58 J** | **0.55 J** |
| Vanadium | 7440-62-2 | NL | **22.4** | **2.2 J** | **99.9** | **100** |
| Zinc | 7440-66-6 | 2,000 g | **249** | **17.4** | **492** | **508** |
| **Cyanide (µg/L)** | | | | | | |
| Cyanide, Total | 57-12-5 | 200 | NA | NA | NA | NA |
| Cyanide, Free | 57-12-5-F | NL | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U |
| Cyanide, Amenable | 57-12-5-AMEN | NL | NA | NA | NA | NA |
| **Polychlorinated biphenyls (µg/L)** | | | | | | |
| Aroclor 1016 | 12674-11-2 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1221 | 11104-28-2 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1232 | 11141-16-5 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1242 | 53469-21-9 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1248 | 12672-29-6 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1254 | 11097-69-1 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1260 | 11096-82-5 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1262 | 37324-23-5 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| Aroclor 1268 | 11100-14-4 | 0.09 | < 0.40 U | < 0.40 U | < 0.40 U | < 0.40 U |
| **Total PCB** | CALC-PCB | 0.09 | < 0.4 U | < 0.4 U | < 0.4 U | < 0.4 U |

**Notes:**
ND = calculated totals are not detected
NL = Not listed
NA = Not Analyzed
ug/L = microgram per liter
**Bold indicates compound was detected**
Yellow Shaded values exceed NYSDEC Groundwater Standard (s) and Guidance (g) Values
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. (J- biased low and J+
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely

# Table 2-5
## Summary of Soil Vapor Analytical Data
## Flatbush Station A & B Former Gas Holder Site, Brooklyn, New York

| Type of Sample | CAS No. | Ambient | Soil Vapor | Soil Vapor | Soil Vapor | Background Indoor Air Concentrations (Non-Residential)[3] | Target Shallow Soil Gas Concentrations[4] |
|---|---|---|---|---|---|---|---|
| Sample ID | | AMB-1 | SV-1 | SV-2 | SV-3 | | |
| Sampling Date | | 6/22/2011 | 6/22/2011 | 6/22/2011 | 6/22/2011 | | |
| **Compound (µg/m³)** | | | | | | | |
| **Possibly MGP Related or Other Sources [1]** | | | | | | | |
| 1,2,4-Trimethylbenzene | 95-63-6 | **8.85** | **23.3** | **11.5** | **27.4** | 9.5 | 95 |
| 1,3,5-Trimethylbenzene | 108-67-8 | **2.95** | **5.95** | **3.64** | **7.82** | 3.7 | 37 |
| 2,2,4-Trimethylpentane | 540-84-1 | **1.17 J** | **6.91** | **3.92** | <3.74 U | NL | NL |
| 2,3-Dimethylpentane | 565-59-3 | <3.28 U | **1.68 J** | **1.02 J** | <3.28 U | NL | NL |
| 2-Methylpentane | 107-83-5 | **0.775 J** | **6.24 J** | **5.01 J** | <2.82 U | NL | NL |
| 4-Ethyltoluene | 622-96-8 | **2.21 J** | **8.36** | **3.39** | **4.97** | 3.6 | 36 |
| Benzene | 71-43-2 | **1.09** | **11.5** | **13.6** | **1.09** | 9.4 | 94 |
| Carbon Disulfide | 75-15-0 | <2.49 U | **0.654 J** | **0.592 J** | **1.81 J** | 4.2 | 42 |
| Cyclohexane | 110-82-7 | <2.75 U | **2.20 J** | **1.45 J** | < 2.75 U | NL | NL |
| Ethylbenzene | 100-41-4 | <0.695 U | **21.0** | **5.86** | **4.26** | 5.7 | 57 |
| Heptane | 142-82-5 | <3.28 U | **5.45 J** | **3.57 J** | **2.50 J** | NL | NL |
| Hexane | 110-54-3 | **0.670 J** | **8.11** | **5.89** | **0.916 J** | 10.2 | 102 |
| Indan | 496-11-7 | <3.87 U | **6.72** | **1.55 J** | **7.59** | NL | NL |
| Indene | 95-13-6 | <3.80 U | <3.80 U | <3.80 U | **1.09 J** | NL | NL |
| Isopentane | 78-784 | **7.91** | **14.4** | **20.1** | **2.63** | NL | NL |
| Naphthalene | 91-20-3 | <4.19 U | **2.25 J** | <4.19 U | **6.03** | 5.1 | 51 |
| Styrene | 100-42-5 | <0.682 U | **1.45** | <682 U | **2.73** | 1.9 | 19 |
| Thiophene | 110-02-1 | <2.75 U | <2.75 U | <2.75 U | <2.75 U | NL | NL |
| Toluene | 108-88-3 | **3.05** | **87.8** | **45.0** | **26.9** | 43 | 430 |
| m/p-Xylenes | 136777-61-2 | **2.26** | **75.3** | **21.7** | **14.5** | 22.2 | 222 |
| o-Xylene | 95-47-6 | **1.04** | **21.0** | **5.78** | **6.34** | 7.9 | 79 |
| 1,2,3-Trimethylbenzene | 526-73-8 | **1.87 J** | **5.51** | **2.51 J** | **13.2** | NL | NL |
| 1,2,4,5-Tetramethylbenzene | 95-93-2 | <4.39 U | **1.48 J** | <4.39 U | **3.68 J** | NL | NL |
| 1-Methylnaphthalene | 90-12-0 | <4.65 UJ | **0.931 J** | <4.65 UJ | **1.80 J** | NL | NL |
| 2-Chlorotoluene | 95-49-8 | NS | NS | NS | NS | NL | NL |
| 2-Methylnaphthalene | 91-57-6 | <4.65 U | **2.62 J** | **1.63** | **6.4** | NL | NL |
| **Not MGP Related [2]** | | | | | | | |
| 1,1,1-Trichloroethane (1,1,1-TCA) | 71-55-6 | <0.873 U | <0.873 U | <0.873 U | <0.873 U | 20.6 | 206 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <1.10 U | <1.10 U | <1.10 U | <1.10 U | NL | NL |
| 1,1,2-Trichloroethane | 79-00-5 | <0.873 U | <0.873 U | <0.873 U | <0.873 U | <1.5 | <15 |
| 1,1-Dichloroethane | 75-34-3 | <0.648 U | <0.648 U | <0.648 U | <0.648 U | <0.7 | <7 |
| 1,1-Dichloroethene | 75-35-4 | <0.634 U | <0.634 U | <0.634 U | <0.634 U | <1.4 | <14 |
| 1,2,4-Trichlorobenzene | 120-82-1 | <5.94 U | **1.63 J** | <5.94 U | **1.41 J** | <6.8 | <68 |
| 1,2-Dibromoethane (EDB) | 106-93-4 | <1.23 U | <1.23 U | <1.23 U | <1.23 U | <1.5 | <15 |
| 1,2-Dichlorobenzene | 95-50-1 | <0.962 U | **0.962** | <0.962 U | <0.962 U | <1.2 | <12 |
| 1,2-Dichloroethane | 107-06-2 | <0.648 U | <0.648 U | <0.648 U | <0.648 U | <0.9 | <9 |
| 1,2-Dichloropropane | 78-87-5 | <0.739 U | <0.739 U | <0.739 U | <0.739 U | <1.6 | <16 |
| 1,3-Butadiene | 106-99-0 | <1.77 U | <1.77 U | **0.420 J** | <1.77 U | <3.0 | <3 |
| 1.3-Dichlorobenzene | 541-73-1 | <0.962 U | <0.962 U | <0.962 U | <0.962 U | <2.4 | <24 |
| 1,4-Dichlorobenzene | 106-46-7 | **2.28** | **1.02** | **1.80** | **1.44** | 5.5 | 55 |
| 1,4-Dioxane | 123-91-1 | <2.88 U | <2.88 U | <2.88 U | <2.88 U | NL | NL |
| 2-Butanone (MEK) | 78-93-3 | **1.12 J** | **1.50 J** | **3.24** | **13.6** | 12 | 120 |
| 2-Hexanone | 591-78-6 | <3.28 U | **1.52 J** | **1.35 J** | **4.38** | NL | NL |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | <3.28 U | <3.28 U | <3.28 U | **0.984 J** | 6 | 60 |
| Acetone | 67-64-1 | **9.31 J** | **13.1 J** | **38.3** | **194** | 98.9 | 989 |
| Benzyl chloride | 100-44-7 | <0.828 U | <0.828 U | <0.828 U | <0.828 U | NL | NL |
| Bromodichloromethane | 75-27-4 | <5.36 U | <5.36 U | <5.36 U | <5.36 U | NL | NL |
| Bromoform | 75-25-2 | <8.27 U | <8.27 U | <8.27 U | <8.27 U | NL | NL |
| Bromomethane | 74-83-9 | <0.622 U | <0.622 U | <0.622 U | <0.622 U | <1.7 | <17 |
| Carbon Tetrachloride | 56-23-5 | <1.01 U | <1.01 U | <1.01 U | <1.01 U | <1.3 | <13 |
| Chlorobenzene | 108-90-7 | <0.737 U | <0.737 U | <0.737 U | <0.737 U | <0.9 | <9 |
| Chloroethane | 75-00-3 | <0.422 U | <0.422 U | <0.422 U | <0.422 U | <1.1 | <11 |
| Chloroform | 67-66-3 | <0.781 U | **2.00** | <0.781 U | **1.66** | 1.1 | 11 |
| Chloromethane | 74-87-3 | **1.20** | <0.330 U | **1.12** | < 0.330 U | 3.7 | 37 |
| cis-1,2-Dichloroethene | 156-59-2 | <0.634 U | <0.634 U | <0.634 U | <0.634 U | <1.9 | <19 |
| cis-1,3-Dichloropropene | 10061-01-5 | <0.726 U | <0.726 U | <0.726 U | <0.726 U | <2.3 | <23 |
| Dibromochloromethane | 124-48-1 | <6.81 U | <6.81 U | <6.81 U | <6.81 U | NL | NL |
| Ethanol | 64-17-5 | **13.6 J** | **9.04 J** | **27.5 J** | **15.4 J** | NL | NL |
| Trichlorofluoromethane (Freon 11) | 75-69-4 | **1.29** | **5.79** | **1.29** | **2.08** | 18.1 | 181 |
| 1,1,2-Trichlorotrifluoroethane (Freon 113) | 76-13-1 | <1.23 U | <1.23 U | <1.23 U | <1.23 U | NL | NL |
| 1,2-Dichlorotetrafluoroethane (Freon 114) | 76-14-2 | <1.12 U | <1.12 U | <1.12 U | <1.12 U | NL | NL |
| Dichlorodifluoromethane (Freon 12) | 75-71-8 | **1.88** | <0.791 U | **0.841** | <0.791 U | 16.5 | 165 |
| Hexachlorobutadiene (C-46) | 87-68-3 | <8.53 U | <8.53 U | <8.53 U | <8.53 U | <6.8 | <68 |
| Methyl tert-Butyl Ether (MTBE) | 1634-04-4 | <2.88 U | <2.88 U | <2.88 U | <2.88 U | 11.5 | 115 |
| Methylene Chloride (Dichloromethane) | 75-09-2 | **1.55 J** | **1.48 J** | **1.75 J** | **1.44 J** | 10 | 100 |
| 2-Propanol | 67-63-0 | **7.89** | **1.38 J** | **6.17** | **5.28** | NL | NL |
| Propene | 115-07-1 | **0.912 J** | <1.38 U | **2.98** | **0.757 J** | NL | NL |
| Tetrachloroethene (PCE) | 127-18-4 | <1.09 U | **6.92** | **1.56** | **9.43** | 15.9 | 159 |
| Tetrahydrofuran | 109-99-9 | <2.36 U | <2.36 U | <2.36 U | <2.36 U | NL | NL |
| trans-1,2-Dichloroethene | 156-60-5 | <3.17 U | <3.17 U | <3.17 U | <3.17 U | NL | NL |
| trans-1,3-Dichloropropene | 10061-02-6 | <0.726 U | <0.726 U | <0.726 U | <0.726 U | <1.3 | <13 |
| Trichloroethene (TCE) | 79-01-6 | <0.860 U | **9.57** | <0.860 U | <0.860 U | 4.2 | 42 |
| Vinyl Chloride | 75-01-4 | <0.409 U | <0.409 U | <0.409 U | <0.409 U | <1.9 | <19 |
| Helium (percent) | 7440-59-7 | NS | <0.01 U | <0.01 U | <0.01 U | NA | NA |

**Notes:**

All units in micrograms per cubic meter (µg/m³)

1 - These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carbureted water gas process. Non-MGP sources include gasoline, cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

2 - These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.

3 - Non-residential background indoor air concentrations are equal to the 90th percentile values observed by the USEPA in a 2001 study which are the values recommended for comparison in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006), Table C2.

4 - Target Shallow (< 5ft bgs) Soil Gas Concentrations calculated by dividing the NHSDOH background indoor air concentrations by the USEPA's default attenuation factor of 0.1 recommended in the November 2002 USEPA Draft Guidance for Evaluating the Vapor Instrusion to Indoor Air.

**Bold** - Compound detected in a concentration greater than the method detection limit.

**Exceeds NYSDOH Background Indoor Air Concentrations**

UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

NL - Not listed - data not available for background concentrations for these compounds.

U - The compound was analyzed for, but was not detected above the method reporting limit.

# Table 2-5
# Summary of Soil Vapor Analytical Data
# 329 Clarkson Avenue, Flatbush A and B Station Former Gas Holder Site
# Brooklyn, New York

| Sample Location | SV-202 | SV-204 | SV-205 | SV-206 | SV-207 | SV-209 | SV-210 | SV-212 | SV-215 | SV-216 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | SV-202 (18-20) | SV-204 (18-20) | SV-205 (18-20) | SV-206 (18-20) | SV-207 (18-20) | SV-209 (18-20) | SV-210 (18-20) | SV-212 (18-20) | SV-215 (18-20) | SV-216 (18-20) |
| Sampling Date | 10/10/2021 | 10/9/2021 | 10/9/2021 | 10/10/2021 | 10/9/2021 | 10/9/2021 | 10/10/2021 | 10/10/2021 | 10/10/2021 | 10/9/2021 |
| **Volatile Organic Compounds (µg/m³)** | | | | | | | | | | |
| 1,1,1-Trichloroethane (1,1,1-TCA) | < 4.3 | **2.1** | < 4.4 | **3.1** | < 470 | **4.5** | < 49 | **10** | **3.3** | < 4.4 |
| 1,1,2,2-Tetrachloroethane | < 5.4 | < 5.5 | < 5.5 | < 5.5 | < 590 | < 0.55 | < 61 | < 5.5 | < 5.5 | < 5.5 |
| 1,1,2-Trichloroethane | **0.69** | < 4.4 | < 4.4 | < 4.4 | < 470 | < 0.44 | < 49 | < 4.4 | < 4.4 | < 4.4 |
| 1,1-Dichloroethane | < 3.2 | < 3.2 | < 3.2 | < 3.2 | < 350 | < 0.32 | < 36 | < 3.2 | < 3.2 | < 3.2 |
| 1,1-Dichloroethene | < 3.1 | < 3.2 | < 3.2 | < 3.2 | < 340 | < 0.32 | < 35 | < 3.2 | < 3.2 | < 3.2 |
| 1,2,3-Trimethylbenzene | **2.1** | **4.9** | **3** | **2.5** | < 420 | **5** | < 44 | **2.2** | < 3.9 | **1.8** |
| 1,2,4,5-Tetramethylbenzene | < 4.4 | **3.4** | **2.5** | < 4.4 | < 470 | **3.6** | < 49 | **2.5** | < 4.4 | **2.4** |
| 1,2,4-Trichlorobenzene | < 29 | < 30 | < 30 | < 30 | < 3200 | < 3 | < 330 | < 30 | < 30 | < 30 |
| 1,2,4-Trimethylbenzene | **6** | **8** | **5.2** | **4.5** | < 420 | **7.5** | **14** | **4.5** | **2.3** | **3.3** |
| 1,2-Dibromoethane (EDB) | < 6.1 | < 6.1 | < 6.1 | < 6.1 | **61** | < 0.61 | < 69 | < 6.1 | < 6.1 | < 6.1 |
| 1,2-Dichlorobenzene | < 4.8 | < 4.8 | < 4.8 | < 4.8 | < 510 | < 0.48 | < 54 | < 4.8 | < 4.8 | < 4.8 |
| 1,2-Dichloroethane | < 3.2 | < 3.2 | < 3.2 | < 3.2 | < 350 | < 0.32 | **4.8** | < 3.2 | < 3.2 | **0.46** |
| 1,2-Dichloropropane | < 3.7 | < 3.7 | < 3.7 | < 3.7 | < 390 | < 0.37 | < 41 | < 3.7 | < 3.7 | < 3.7 |
| 1,2-Dichlorotetrafluoroethane (Freon 114) | < 5.5 | < 5.6 | < 5.6 | < 5.6 | < 600 | **0.12** | < 62 | < 5.6 | < 5.6 | < 5.6 |
| 1,3,5-Trimethylbenzene | **2.6** | **3.8** | **2.2** | **2.3** | < 420 | **2.7** | < 44 | **1.9** | < 3.9 | **1.5** |
| 1,3-Butadiene | < 3.5 | < 3.5 | < 3.5 | < 3.5 | < 380 | < 0.35 | < 40 | < 3.5 | < 3.5 | < 3.5 |
| 1,3-Dichlorobenzene | **1.4** | < 4.8 | < 4.8 | **1.2** | < 510 | **0.96** | < 54 | **1.4** | < 4.8 | **1.2** |
| 1,4-Dichlorobenzene | < 4.8 | < 4.8 | < 4.8 | < 4.8 | < 510 | **0.25** | < 54 | < 4.8 | < 4.8 | < 4.8 |
| 1,4-Dioxane | < 7.1 | < 7.2 | < 7.2 | < 7.2 | < 770 | **0.24** | < 81 | < 7.2 | < 7.2 | < 7.2 |
| 1-Methylnaphthalene | < 58 | < 58 | < 58 | < 58 | < 6200 | < 5.8 | < 650 | < 58 | < 58 | < 58 |
| 2,2,4-Trimethylpentane | **1.5** | **1.1** | < 9.3 | < 9.3 | **21000** | **0.28** | < 100 | < 9.3 | < 9.3 | < 9.3 |
| 2,3-Dimethylpentane | **1.1** | **2.4** | < 3.3 | < 3.3 | < 350 | < 0.33 | < 37 | < 3.3 | < 3.3 | < 3.3 |
| 2-Butanone (MEK) | **2.8** | **3.2** | **8.6** | **5.3** | < 1300 | **2.3** | < 130 | **2.8** | < 12 | **2.3** |
| 2-Chlorotoluene | < 8.2 | < 8.3 | < 8.3 | < 8.3 | < 880 | < 0.83 | < 93 | 0.88 | < 8.3 | < 8.3 |
| 2-Hexanone | **0.7** | **0.8** | **3.3** | **1.5** | < 880 | **0.48** | < 92 | < 8.2 | < 8.2 | < 8.2 |
| 2-Methylbutane | **44** | **35** | < 5.9 | < 5.9 | **470** | **0.61** | < 66 | < 5.9 | < 5.9 | < 5.9 |
| 2-Methylnaphthalene | < 59 | < 58 | < 58 | < 58 | < 6200 | < 64 | < 650 | < 58 | < 58 | < 58 |
| 2-Methylpentane | **8** | **6.5** | < 2.8 | < 2.8 | **63** | **0.15** | < 32 | < 2.8 | < 2.8 | < 2.8 |
| 2-Propanol | < 20 | **5** | **4** | **3.3** | < 2100 | **4.5** | < 220 | **5.9** | < 20 | **2.7** |
| 4-Ethyltoluene | **2** | **3.4** | **2.1** | **1.2** | < 840 | **2.2** | < 88 | **1.7** | < 7.9 | **1.3** |
| 4-Methyl-2-pentanone (MIBK) | < 8.1 | < 8.2 | < 8.2 | < 8.2 | < 870 | **0.64** | < 92 | < 8.2 | < 8.2 | < 8.2 |
| Acetone | < 47 | < 48 | **17** | < 48 | < 5100 | **13** | < 530 | **17** | < 48 | < 48 |
| Benzene | **1.1** | **2.2** | **1.1** | **3.5** | **32** | **2.9** | **3.4** | **0.47** | **0.61** | **0.56** |
| Benzyl chloride | < 8.2 | < 8.3 | < 8.3 | < 8.3 | < 880 | < 0.83 | < 93 | < 8.3 | < 8.3 | < 8.3 |
| Bromodichloromethane | < 5.3 | **2.4** | < 5.4 | < 5.4 | < 570 | < 0.54 | < 60 | < 5.4 | < 5.4 | < 5.4 |
| Bromoform | < 8.2 | < 8.3 | < 8.3 | < 8.3 | < 880 | **0.48** | < 92 | **4.4** | < 8.3 | < 8.3 |
| Bromomethane | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 330 | < 0.31 | < 35 | < 3.1 | < 3.1 | < 3.1 |
| Carbon Disulfide | **25** | **24** | **8** | **1.8** | **78** | **3.3** | < 70 | **4** | **3.7** | **3.5** |
| Carbon Tetrachloride | **0.62** | **0.82** | < 5 | < 5 | < 540 | **0.46** | < 56 | < 5 | < 5 | < 5 |
| Chlorobenzene | **0.85** | **1** | **0.83** | **0.81** | < 390 | **0.25** | < 41 | **0.98** | **0.79** | **0.73** |
| Chloroethane | < 2.1 | < 2.1 | < 2.1 | < 2.1 | < 230 | **0.077** | < 24 | < 2.1 | < 2.1 | < 2.1 |
| Chloroform | **130** | **62** | **9.7** | **5.4** | < 420 | **0.9** | **18** | **3.6** | **2.6** | **4.2** |
| Chloromethane | < 4.1 | < 4.1 | < 4.1 | < 4.1 | < 440 | **0.330** | < 46 | < 4.1 | < 4.1 | < 4.1 |
| cis-1,2-Dichloroethene | < 3.1 | < 3.2 | < 3.2 | < 3.2 | < 340 | < 0.32 | < 35 | < 3.2 | < 3.2 | < 3.2 |
| cis-1,3-Dichloropropene | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 390 | < 0.36 | < 41 | < 3.6 | < 3.6 | < 3.6 |
| Cyclohexane | **3.1** | **4.9** | **0.81** | **3.6** | < 730 | **5.8** | < 77 | **1.4** | **3** | **1.2** |
| Dibromochloromethane | < 6.8 | < 6.8 | < 6.8 | < 6.8 | < 730 | < 0.68 | < 76 | < 6.8 | < 6.8 | < 6.8 |
| Dichlorodifluoromethane (Freon 12) | < 3.9 | **1.9** | **2.1** | **2.4** | < 420 | **1.2** | < 44 | **1.8** | **2.2** | **2.5** |
| Ethanol | **160** | **410** | **210** | **190** | < 4000 | **460** | < 420 | **320** | **50** | **200** |
| Ethylbenzene | **3.9** | **4.9** | **1.8** | **1.9** | < 370 | **1.3** | < 39 | **1.8** | **0.93** | **0.96** |
| Freon TF | < 6.1 | < 6.1 | < 6.1 | < 6.1 | < 650 | **0.5** | < 69 | < 6.1 | < 6.1 | **0.71** |
| Heptane | **2.50** | **9.00** | < 8.2 | **0.74** | < 880 | **0.35** | < 92 | < 8.2 | < 8.2 | < 8.2 |
| Hexachlorobutadiene (C-46) | < 42 | < 43 | < 43 | < 43 | < 4600 | < 4.3 | < 480 | < 43 | < 43 | < 43 |
| Hexane | **11** | **19** | **0.66** | < 7 | **110** | **0.35** | < 79 | < 7 | **0.55** | < 7 |
| Indan | < 3.8 | < 3.9 | < 3.9 | < 3.9 | < 410 | **1.1** | < 43 | < 3.9 | < 3.9 | < 3.9 |
| Indene | < 7.5 | < 7.6 | < 7.6 | < 7.6 | < 810 | **0.22** | < 85 | < 7.6 | < 7.6 | < 7.6 |
| m/p-Xylenes | **13** | **10** | **5.2** | **6.2** | < 370 | **4.9** | < 39 | **5.3** | **2.3** | **3** |
| Methyl tert-Butyl Ether (MTBE) | < 14 | < 14 | < 14 | < 14 | < 1500 | < 1.4 | < 160 | < 14 | < 14 | < 14 |
| Methylene Chloride (Dichloromethane) | < 14 | < 14 | < 14 | < 14 | < 1500 | **9.4** | < 160 | < 14 | < 14 | < 14 |
| Naphthalene | < 10 | < 10 | < 10 | < 10 | < 1100 | **1.7** | < 120 | < 10 | < 10 | < 10 |
| o-Xylene | **5.7** | **5.9** | **2.8** | **3.4** | < 370 | **2.6** | < 39 | **2.7** | **1.2** | **1.4** |
| Propene | < 17 | **140** | < 17 | < 17 | < 1800 | **2.3** | < 190 | < 17 | < 17 | < 17 |
| Styrene | < 3.4 | **1.4** | < 3.4 | < 3.4 | < 360 | **0.4** | < 38 | < 3.4 | < 3.4 | < 3.4 |
| Tetrachloroethene (PCE) | **610** | **58** | **73** | **30** | **82** | **20** | **150** | **26** | **8.1** | **32** |
| Tetrahydrofuran | < 12 | < 12 | < 12 | < 12 | < 1300 | < 1.2 | < 130 | < 12 | < 12 | < 12 |
| Thiophene | < 2.7 | < 2.8 | < 2.8 | < 2.8 | < 290 | < 0.27 | < 31 | < 2.8 | < 2.8 | < 2.8 |
| Toluene | **13** | **84** | **7** | **4.1** | < 480 | **4.8** | < 51 | **4.8** | < 4.5 | < 4.5 |
| trans-1,2-Dichloroethene | < 3.1 | < 3.2 | < 3.2 | < 3.2 | < 340 | **0.38** | < 35 | < 3.2 | < 3.2 | **0.38** |
| trans-1,3-Dichloropropene | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 390 | < 0.36 | < 41 | < 3.6 | < 3.6 | < 3.6 |
| Trichloroethene (TCE) | **57** | **150** | **62** | **0.87** | < 230 | **0.31** | **3500** | **22** | < 2.1 | < 2.1 |
| Trichlorofluoromethane (Freon 11) | **2.7** | **3.2** | **2** | **1.5** | < 480 | **1.5** | **14** | **1.6** | **1.4** | **1.9** |
| Vinyl Chloride | < 1 | < 1 | < 1 | < 1 | < 110 | < 0.1 | < 11 | < 1 | < 1 | < 1 |
| Total VOCs | **1112.36** | **1074.22** | **434.9** | **281.12** | **21896** | **576.837** | **3704.2** | **451.63** | **82.98** | **270** |
| **Helium (%v/v)** | | | | | | | | | | |
| Helium | < 0.12 | < 0.12 | < 0.12 | < 0.12 | < 0.12 | < 0.13 | < 0.13 | < 0.12 | < 0.13 | < 0.12 |

**Notes:** µg/m³ - micrograms per cubic meter
%v/v - percent volume per volume
NS - Analyte was not measured because it was not part of the QAPP target compound list.
Detected concentration are in **bold.**

**Table 2-6**
**Summary of Indoor Air Analytical Data**
**Flatbush Station A & B Former Gas Holder Site**
**Brooklyn, NY**

| Sample Location | CAS No. | 760 Parkside Avenue | 760 Parkside Avenue | 760 Parkside Avenue | 760 Parkside Avenue | 760 Parkside Avenue | 760 Parkside Avenue | 760 Parkside Avenue | 760 Parkside Avenue | Typical Background Indoor Air Concentrations (Non-Residential)[3] |
|---|---|---|---|---|---|---|---|---|---|---|
| Type of Sample | | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Ambient Air | |
| Sample ID | | B01-IA1-20141218 | B01-IA2-20141218 | B01-IA3-20141218 | B01-IA4-20141218 | B01-IA5-20141218 | DUP-20141218 B01-IA5-20141218 | B01-IA6-20141218 | B01-OA1-20141218 | |
| Laboratory ID | | 140-2524-1 | 140-2524-2 | 140-2524-3 | 140-2524-4 | 140-2524-5 | 140-2524-8 | 140-2524-6 | 140-2524-7 | |
| Sampling Date | | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | |
| **Compound (µg/m³)** | | | | | | | | | | |
| **Possibly MGP Related or Other Sources [1]** | | | | | | | | | | |
| 1,2,3-Trimethylbenzene | 526-73-8 | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 UJ | NL |
| 1,2,4,5-Tetramethylbenzene | 95-93-2 | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 UJ | NL |
| 1,2,4-Trimethylbenzene | 95-63-6 | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 UJ | 9.5 |
| 1,3,5-Trimethylbenzene | 108-67-8 | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 UJ | 3.7 |
| 1-Methylnaphthalene | 90-12-0 | <15 U | <15 U | <15 U | <15 U | <15 U | <15 U | <15 U | <15 UJ | NL |
| 2,2,4-Trimethylpentane | 540-84-1 | **0.25 J** | **0.39 J** | **0.28 J** | **0.24 J** | **0.23 J** | **0.27 J** | **0.23 J** | **0.48 J** | NL |
| 2,3-Dimethylpentane | 565-59-3 | <0.82 U | <0.82 U | <0.82 U | <0.82 U | <0.82 U | <0.82 U | <0.82 U | <0.82 UJ | NL |
| 2-Chlorotoluene | 95-49-8 | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 UJ | NL |
| 2-Methylnaphthalene | 91-57-6 | <15 U | <15 U | <15 U | <15 U | <15 U | <15 U | <15 U | <15 UJ | NL |
| 2-Methylpentane | 107-83-5 | **1.1** | **1** | <0.70 U | **0.71** | <0.70 U | <0.70 U | <0.70 U | <0.70 UJ | NL |
| 4-Ethyltoluene | 622-96-8 | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 UJ | 3.6 |
| Benzene | 71-43-2 | **0.57 J** | **0.78** | **0.63 J** | **0.58 J** | **0.53 J** | **0.60 J** | **0.55 J** | **0.93 J** | 9.4 |
| Carbon disulfide | 75-15-0 | **0.13 J** | **0.11 J** | <1.6 U | **0.17 J** | <1.6 U | **0.12 J** | **0.11 J** | **0.11 J** | 4.2 |
| Cyclohexane | 110-82-7 | **0.32 J** | **0.25 J** | **0.15 J** | <1.7 U | **0.16 J** | **0.16 J** | **0.14 J** | **0.29 J** | NL |
| Ethylbenzene | 100-41-4 | **0.85** | **0.73 J** | **0.51 J** | **0.69 J** | **0.59 J** | **0.63 J** | **0.67 J** | <0.87 UJ | 5.7 |
| Heptane | 142-82-5 | **0.25 J** | **0.45 J** | **0.20 J** | **0.26 J** | **0.20 J** | <2.0 U | **0.20 J** | **0.25 J** | NL |
| Hexane | 110-54-3 | **0.55 J** | **1.1 J** | **0.67 J** | **0.58 J** | **0.58 J** | **0.68 J** | **0.64 J** | **0.88 J** | 10.2 |
| Indane | 496-11-7 | <0.97 U | <0.97 U | <0.97 U | <0.97 U | <0.97 U | <0.97 U | <0.97 U | <0.97 UJ | NL |
| Indene | 95-13-6 | <1.9 U | <1.9 U | <1.9 U | <1.9 U | <1.9 U | <1.9 U | <1.9 U | <1.9 UJ | NL |
| Naphthalene | 91-20-3 | <2.6 U | <2.6 U | <2.6 U | <2.6 U | <2.6 U | <2.6 U | <2.6 U | <2.6 UJ | 5.1 |
| Styrene | 100-42-5 | <0.85 U | <0.85 U | <0.85 U | <0.85 U | <0.85 U | <0.85 U | <0.85 U | <0.85 UJ | 1.9 |
| Thiophene | 110-02-1 | <0.69 U | <0.69 U | <0.69 U | <0.69 U | <0.69 U | <0.69 U | <0.69 U | <0.69 UJ | NL |
| Toluene | 108-88-3 | **1.2** | **1.4** | **1.2** | **0.99** | **0.99** | **1.1** | **0.93** | **1.2 J** | 43 |
| m&p-Xylene | 1330-20-7-M,P | **3.1** | **2.7** | **1.7** | **2.5** | **2.1** | **2.3** | **2.4** | <0.87 UJ | 22.2 |
| o-Xylene | 95-47-6 | **0.74 J** | **0.72 J** | **0.44 J** | **0.67 J** | **0.55 J** | **0.59 J** | **0.63 J** | <0.87 UJ | 7.9 |
| **Not MGP Related [2]** | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 UJ | 20.6 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 UJ | NL |
| 1,1,2-Trichloroethane | 79-00-5 | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 UJ | 1.5 |
| 1,1-Dichloroethane | 75-34-3 | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 UJ | 0.7 |
| 1,1-Dichloroethene | 75-35-4 | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 UJ | 1.4 |
| 1,2,4-Trichlorobenzene | 120-82-1 | <7.4 U | <7.4 U | <7.4 U | <7.4 U | <7.4 U | <7.4 U | <7.4 U | <7.4 UJ | 6.8 |
| 1,2-Dibromoethane | 106-93-4 | <1.5 U | <1.5 U | <1.5 U | <1.5 U | <1.5 U | <1.5 U | <1.5 U | <1.5 UJ | 1.5 |
| 1,2-Dichlorobenzene | 95-50-1 | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 UJ | 1.2 |
| 1,2-Dichloroethane | 107-06-2 | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 U | <0.81 UJ | 0.9 |
| 1,2-Dichloropropane | 78-87-5 | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 UJ | 1.6 |
| 1,2-Dichlorotetrafluoroethane (Freon 114) | 76-14-2 | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 U | <1.4 UJ | NL |
| 1,3-Butadiene | 106-99-0 | <0.88 U | <0.88 U | <0.88 U | <0.88 U | <0.88 U | <0.88 U | <0.88 U | <0.88 UJ | 3 |
| 1,3-Dichlorobenzene | 541-73-1 | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 UJ | 2.4 |
| 1,4-Dichlorobenzene | 106-46-7 | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 U | <1.2 UJ | 5.5 |
| 1,4-Dioxane | 123-91-1 | <1.8 U | <1.8 U | <1.8 U | <1.8 U | <1.8 U | <1.8 U | <1.8 U | <1.8 UJ | NL |
| 2-Butanone | 78-93-3 | **0.85 J** | **3.1** | **0.67 J** | **1.7 J** | **0.86 J** | **0.82 J** | **1.2 J** | **0.61 J** | 12 |
| 2-Hexanone | 591-78-6 | <2.0 U | **0.44 J** | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 UJ | NL |
| 2-Methylbutane | 78-78-4 | **5.1** | **8.7** | **7.4** | **8.1** | **8.8** | **11** | **5.2** | **3.3 J** | NL |
| 2-Propanol | 67-63-0 | **180** | **230** | **100** | **270** | **220** | **280** | **630** | **5.1 J** | NL |
| 4-Methyl-2-pentanone | 108-10-1 | **0.51 J** | **0.41 J** | <2.0 U | **4.5** | **0.46 J** | **0.74 J** | **9.6** | **1.9 J** | 6 |
| Acetone | 67-64-1 | **6.4 J** | **16** | **4.5 J** | **11 J** | **5.9 J** | **6.9 J** | **12** | **4.4 J** | 98.9 |
| Benzyl chloride | 100-44-7 | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 UJ | 6.8 |
| Bromodichloromethane | 75-27-4 | <1.3 U | <1.3 U | <1.3 U | <1.3 U | <1.3 U | <1.3 U | <1.3 U | <1.3 UJ | NL |
| Bromoform | 75-25-2 | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 U | <2.1 UJ | NL |
| Bromomethane | 74-83-9 | <0.78 U | <0.78 U | <0.78 U | <0.78 U | <0.78 U | <0.78 U | <0.78 U | <0.78 UJ | 1.7 |
| Carbon tetrachloride | 56-23-5 | **0.43 J** | **0.49 J** | **0.49 J** | **0.46 J** | **0.41 J** | **0.46 J** | **0.33 J** | **0.44 J** | 1.3 |
| Chlorobenzene | 108-90-7 | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 U | <0.92 UJ | 0.9 |
| Chloroethane | 75-00-3 | <0.53 U | <0.53 U | <0.53 U | <0.53 U | <0.53 U | <0.53 U | <0.53 U | <0.53 UJ | 1.1 |
| Chloroform | 67-66-3 | **0.34 J** | <0.98 U | <0.98 U | <0.98 U | <0.98 U | <0.98 U | **0.30 J** | <0.98 UJ | 1.1 |

**Table 2-6**
**Summary of Indoor Air Analytical Data**
**Flatbush Station A & B Former Gas Holder Site**
**Brooklyn, NY**

| Sample Location | CAS No. | 760 Parkside Avenue Indoor Air | 760 Parkside Avenue Indoor Air | 760 Parkside Avenue Indoor Air | 760 Parkside Avenue Indoor Air | 760 Parkside Avenue Indoor Air | 760 Parkside Avenue Indoor Air | 760 Parkside Avenue Indoor Air | 760 Parkside Avenue Ambient Air | Typical Background Indoor Air Concentrations (Non-Residential)[3] |
|---|---|---|---|---|---|---|---|---|---|---|
| Type of Sample | | | | | | | | | | |
| Sample ID | | B01-IA1-20141218 | B01-IA2-20141218 | B01-IA3-20141218 | B01-IA4-20141218 | B01-IA5-20141218 | DUP-20141218 B01-IA5-20141218 | B01-IA6-20141218 | B01-OA1-20141218 | |
| Laboratory ID | | 140-2524-1 | 140-2524-2 | 140-2524-3 | 140-2524-4 | 140-2524-5 | 140-2524-8 | 140-2524-6 | 140-2524-7 | |
| Sampling Date | | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | 12/18/2014 | |
| **Compound (µg/m³)** | | | | | | | | | | |
| Chloromethane | 74-87-3 | **1.1** | **1.2** | **1.2** | **1.2** | **1.3** | **1.4** | **1.4** | **1.2 J** | 3.7 |
| cis-1,2-Dichloroethene | 156-59-2 | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 UJ | 1.9 |
| cis-1,3-Dichloropropene | 10061-01-5 | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 UJ | 2.3 |
| Dibromochloromethane | 124-48-1 | <1.7 U | <1.7 U | <1.7 U | <1.7 U | <1.7 U | <1.7 U | <1.7 U | <1.7 UJ | NL |
| Dichlorodifluoromethane | 75-71-8 | **2.2** | **2.6** | **2.4** | **2.5** | **2.5** | **2.6** | **2.5** | **2.5 J** | 16.5 |
| Ethanol | 64-17-5 | **130** | **110** | **71** | **140** | **110** | **140** | **120** | **9.6 J** | NL |
| Freon TF | 76-13-1 | **0.53 J** | **0.61 J** | **0.56 J** | **0.58 J** | **0.55 J** | **0.58 J** | **0.58 J** | **0.58 J** | NL |
| Hexachlorobutadiene | 87-68-3 | <11 U | <11 U | <11 U | <11 U | <11 U | <11 U | <11 U | <11 UJ | 6.8 |
| Methylene Chloride | 75-09-2 | <1.7 U | <2.7 U | <3.0 U | <1.7 U | <1.7 U | <2.2 U | <1.7 U | **4.2 J** | 10 |
| MTBE | 1634-04-4 | <3.6 U | <3.6 U | <3.6 U | <3.6 U | <3.6 U | <3.6 U | <3.6 U | <3.6 UJ | 11.5 |
| Propene | 115-07-1 | <0.86 U | **2.9 J** | **1.9 J** | **2.2 J** | <0.86 U | **2.1 J** | <0.86 U | **2.0 J** | NL |
| Tetrachloroethene | 127-18-4 | **0.34 J** | **0.40 J** | **0.33 J** | **0.29 J** | <1.4 U | <1.4 U | <1.4 U | **0.33 J** | 15.9 |
| Tetrahydrofuran | 109-99-9 | <2.9 U | <2.9 U | <2.9 U | <2.9 U | <2.9 U | <2.9 U | <2.9 U | <2.9 UJ | NL |
| trans-1,2-Dichloroethene | 156-60-5 | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 U | <0.79 UJ | NL |
| trans-1,3-Dichloropropene | 10061-02-6 | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 U | <0.91 UJ | 1.3 |
| Trichloroethene | 79-01-6 | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 U | <1.1 UJ | 4.2 |
| Trichlorofluoromethane | 75-69-4 | **1.2** | **1.5** | **1.4** | **1.4** | **1.3** | **1.5** | **1.4** | **1.5 J** | 18.1 |
| Vinyl chloride | 75-01-4 | <0.51 U | <0.51 U | <0.51 U | <0.51 U | <0.51 U | <0.51 U | <0.51 U | <0.51 UJ | 1.9 |

**Notes:**

All units in micrograms per cubic meter (µg/m³)

1 - These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carbureted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

2 - These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.

3 - Typical non-residential background indoor air concentrations are equal to the 90th percentile values observed by the USEPA in a 2001 study which are the values recommended for comparison in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006), Table C2.

**Bold** - Compound detected in a concentration greater than the method reporting limits.

**Exceeds NYSDOH Background Indoor Air Concentrations**

DUP - As suffix on Sample ID indicates that the sample is a field duplicate.

NL - Not listed - data not available for background concentrations for these compounds.

U - The compound was analyzed for, but was not detected above the method reporting limit.

J - The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be UJ - inaccurate or imprecise.

**Table 2-7**
**Summary of Analytical Results for PFAS in Subsurface Soil**
**Flatbush A and B Station Former Gas Holder Site**
**Brooklyn, New York**

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED RESIDENTIAL CRITERIA[1] | NYSDEC PART 375-6 PROTECTIVE OF GROUNDWATER CRITERIA[1] | SB-102<br>324 Winthrop<br>SB-102 (6-8)<br>8/26/2020<br>6 - 8 ft | SB-112<br>324 Winthrop<br>SB-112 (2-4)<br>10/4/2020<br>2 - 4 ft | SB-112<br>324 Winthrop<br>SB-112 (5-7)<br>10/10/2020<br>5 - 7 ft | SB-113<br>324 Winthrop<br>SB-113 (8-10)<br>10/14/2020<br>8 - 10 ft | SB-123<br>324 Winthrop<br>SB-123 (2-4)<br>8/30/2020<br>2 - 4 ft | SB-127<br>324 Winthrop<br>SB-127 (5-7)<br>9/28/2020<br>5 - 7 ft | SB-127 DUP<br>324 Winthrop<br>DUPE-14-092820<br>9/28/2020<br>5 - 7 ft |
|---|---|---|---|---|---|---|---|---|---|---|
| **PFAS/PFOAS (ug/Kg)** | | | | | | | | | | |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 39108-34-4 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 27619-97-2 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 2991-50-6 | NL | NL | < 0.494 U | < 0.496 U | **0.198 J** | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 2355-31-9 | NL | NL | < 0.494 UJ | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorobutanesulfonic Acid (PFBS) | 375-73-5 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorobutanoic Acid (PFBA) | 375-22-4 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorodecanesulfonic Acid (PFDS) | 335-77-3 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorodecanoic Acid (PFDA) | 335-76-2 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorododecanoic Acid (PFDoA) | 307-55-1 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluoroheptanesulfonic Acid (PFHpS) | 375-92-8 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluoroheptanoic Acid (PFHpA) | 375-85-9 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorohexanesulfonic Acid (PFHxS) | 355-46-4 | NL | NL | < 0.494 U | < 0.496 UJ | **0.294 NJ** | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorohexanoic Acid (PFHxA) | 307-24-4 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorononanoic Acid (PFNA) | 375-95-1 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorooctanesulfonamide (FOSA) | 754-91-6 | NL | NL | < 0.494 U | < 0.496 UJ | < 0.665 UJ | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorooctanesulfonic Acid (PFOS) | 1763-23-1 | **44** | **3.7** | < 0.494 U | **0.134 J** | **0.402 NJ** | < 0.503 U | < 0.966 U | **0.140 J** | < 0.554 U |
| Perfluorooctanoic Acid (PFOA) | 335-67-1 | **33** | **1.1** | < 0.494 U | < 0.496 U | **0.308 J** | < 0.503 U | < 0.966 U | **0.060 NJ** | **0.058 J** |
| Perfluoropentanoic Acid (PFPeA) | 2706-90-3 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorotetradecanoic Acid (PFTA) | 376-06-7 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluorotridecanoic Acid (PFTrDA) | 72629-94-8 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| Perfluoroundecanoic Acid (PFUnA) | 2058-94-8 | NL | NL | < 0.494 U | < 0.496 U | < 0.665 U | < 0.503 U | < 0.966 U | < 0.540 U | < 0.554 U |
| ***Total PFOA/PFOS*** | *CALC-PFOA_PFOS* | *NL* | *NL* | *< 0.494 U* | ***0.134 J*** | ***0.710 NJ*** | *< 0.503 U* | *< 0.966 U* | ***0.200 NJ*** | ***0.058 J*** |
| ***Total-PFAS-5*** | *CALC-PFAS-5* | *NL* | *NL* | *< 0.494 U* | ***0.134 J*** | ***1.00*** | *< 0.503 U* | *< 0.966 U* | ***0.200*** | ***0.058*** |

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 Screening Levels[1] | SB-102<br>324 Winthrop<br>SB-102 (33-35)<br>8/26/2020<br>33 - 35 ft | SB-109<br>324 Winthrop<br>SB-109 (33-35)<br>9/1/2020<br>33 - 35 ft | SB-111<br>324 Winthrop<br>SB-111 (33-35)<br>10/17/2020<br>33 - 35 ft | SB-111 DUP<br>324 Winthrop<br>DUPE-22-101720<br>10/17/2020<br>33 - 35 ft | SB-112<br>324 Winthrop<br>SB-112 (33-35)<br>10/10/2020<br>33 - 35 ft | SB-112<br>324 Winthrop<br>SB-112 (45-47)<br>10/10/2020<br>45 - 47 ft | SB-113<br>324 Winthrop<br>SB-113 (36-38)<br>10/14/2020<br>36 - 38 ft | SB-113<br>324 Winthrop<br>SB-113 (48-50)<br>10/14/2020<br>48 - 50 ft | SB-123<br>324 Winthrop<br>SB-123 (33-35)<br>9/15/2020<br>33 - 35 ft | SB-125<br>324 Winthrop<br>SB-125 (48-50)<br>9/9/2020<br>48 - 50 ft | SB-127<br>324 Winthrop<br>SB-127 (33-35)<br>9/28/2020<br>33 - 35 ft | SB-127<br>324 Winthrop<br>SB-127 (48-50)<br>9/29/2020<br>48 - 50 ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PFAS/PFOAS-SPLP (ng/L)** | | | | | | | | | | | | | | |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 39108-34-4 | 100 | < 1.76 U | < 10.0 UJ | < 1.87 U | < 1.82 U | < 1.79 UJ | < 1.86 UJ | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 UJ | < 1.86 U | < 1.71 U |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | 757124-72-4 | 100 | < 1.76 U | NA | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | NA | NA | NA |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 27619-97-2 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | **1.24 NJ** | < 1.71 U |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 2991-50-6 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 2355-31-9 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| Perfluorobutanesulfonic Acid (PFBS) | 375-73-5 | 100 | < 1.76 U | **2.44 J** | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | **0.539 J** | < 1.86 U | < 1.71 U |
| Perfluorobutanoic Acid (PFBA) | 375-22-4 | 100 | < 1.76 U | **3.80 J** | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | **0.825 J** | < 1.86 U | < 1.71 U |
| Perfluorodecanesulfonic Acid (PFDS) | 335-77-3 | 100 | < 1.76 U | < 10.0 UJ | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 UJ | < 1.86 U | < 1.71 U |
| Perfluorodecanoic Acid (PFDA) | 335-76-2 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| Perfluorododecanoic Acid (PFDoA) | 307-55-1 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | **0.423 J** | < 1.86 U | < 1.71 U |
| Perfluoroheptanesulfonic Acid (PFHpS) | 375-92-8 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | **0.747 NJ** | < 1.86 U | < 1.71 U |
| Perfluoroheptanoic Acid (PFHpA) | 375-85-9 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | **0.337 J** | **0.320 J** | **0.315 J** | **0.347 J** | < 1.76 U | < 1.86 U | **0.369 J** | **0.209 J** |
| Perfluorohexanesulfonic Acid (PFHxS) | 355-46-4 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | **0.654 J** | < 1.86 U | < 1.71 U |
| Perfluorohexanoic Acid (PFHxA) | 307-24-4 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| Perfluorononanesulfonic Acid (PFNS) | 68259-12-1 | 100 | < 1.76 U | NA | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | NA | NA | NA |
| Perfluorononanoic Acid (PFNA) | 375-95-1 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | **0.305 J** | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| Perfluorooctanesulfonamide (FOSA) | 754-91-6 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| Perfluorooctanesulfonic Acid (PFOS) | 1763-23-1 | 10 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | **3.79 NJ** | **1.75 NJ** | **0.457 J** | < 1.84 U | < 1.76 U | < 2.23 U | < 1.86 U | < 1.71 U |
| Perfluorooctanoic Acid (PFOA) | 335-67-1 | 10 | **4.60** | < 10.0 U | **1.78 J** | **2.40 NJ** | **1.49 J** | **1.04 J** | **1.96 NJ** | **2.06 NJ** | < 1.76 U | **7.63** | **0.704 J** | < 1.71 U |
| Perfluoropentanesulfonic Acid (PFPeS) | 2706-91-4 | 100 | < 1.76 U | NA | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | NA | NA | NA |
| Perfluoropentanoic Acid (PFPeA) | 2706-90-3 | 100 | < 1.76 U | < 10.0 U | < 1.87 U | < 1.82 U | < 1.79 U | **0.692 J** | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| Perfluorotetradecanoic Acid (PFTA) | 376-06-7 | 100 | < 1.76 U | **2.04 J** | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | **0.279 J** | < 1.86 U | < 1.71 U |
| Perfluorotridecanoic Acid (PFTrDA) | 72629-94-8 | 100 | < 1.76 U | **1.90 J** | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| Perfluoroundecanoic Acid (PFUnA) | 2058-94-8 | 100 | < 1.76 U | **2.00 NJ** | < 1.87 U | < 1.82 U | < 1.79 U | < 1.86 U | < 1.73 U | < 1.84 U | < 1.76 U | < 1.86 U | < 1.86 U | < 1.71 U |
| ***Total-PFAS*** | *CALC-TOTAL-PFAS* | *500* | ***4.60*** | *< 10 U* | ***1.78*** | ***2.40*** | ***5.92*** | ***3.11*** | ***2.73*** | ***2.41*** | *< 1.76 U* | ***8.28 J*** | ***1.07 J*** | ***0.209*** |

# Table 2-7
# Summary of Analytical Results for PFAS in Subsurface Soil
# Flatbush A and B Station Former Gas Holder Site
# Brooklyn, New York

| Location ID:<br>Property:<br>Sample ID:<br>Sample Date:<br>Depth Interval (ft bgs): | CAS# | NYSDEC PART 375-6 RESTRICTED RESIDENTIAL CRITERIA[1] | NYSDEC PART 375-6 PROTECTIVE OF GROUNDWATER CRITERIA[1] | SB-202<br>329 Clarkson<br>SB-202 (03-05)<br>8/28/2021<br>3-5 ft | SB-202<br>329 Clarkson<br>SB-202 (47.5-49.5)<br>8/31/2021<br>47.5-49.5 ft | SB-204<br>329 Clarkson<br>SB-204(33-35)<br>9/8/2021<br>33-35 ft | SB-206<br>329 Clarkson<br>SB-206 (13-15)<br>8/28/2021<br>13-15 ft | SB-207<br>329 Clarkson<br>SB-207 (02-04)<br>9/1/2021<br>2-4 ft | SB-210<br>329 Clarkson<br>SB-210 (22-24)<br>8/28/2021<br>22-24 ft | SB-210<br>329 Clarkson<br>DUPE-03-082821<br>8/28/2021<br>22-24 ft |
|---|---|---|---|---|---|---|---|---|---|---|
| **PFAS (ng/g)** | | | | | | | | | | |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 39108-34-4 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 U | < 0.537 U | < 0.503 U | < 0.503 U |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 27619-97-2 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 U | < 0.537 U | < 0.503 U | < 0.503 U |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 2991-50-6 | NL | NL | < 0.584 UJ | < 0.471 U | < 0.531 U | < 1.88 UJ | < 0.537 UJ | < 0.503 UJ | < 0.503 UJ |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 2355-31-9 | NL | NL | < 0.584 UJ | < 0.471 U | < 0.531 U | < 0.461 UJ | < 0.537 U | < 0.503 UJ | < 0.503 UJ |
| Perfluorobutanesulfonic Acid (PFBS) | 375-73-5 | NL | NL | < 0.292 U | < 0.235 U | < 0.266 U | < 0.230 U | < 0.268 U | < 0.252 U | < 0.252 U |
| Perfluorobutanoic Acid (PFBA) | 375-22-4 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 UJ | **0.027 J** | < 0.503 U | < 0.503 U |
| Perfluorodecanesulfonic Acid (PFDS) | 335-77-3 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 U | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluorodecanoic Acid (PFDA) | 335-76-2 | NL | NL | < 0.292 U | < 0.235 U | < 0.266 U | < 0.230 UJ | < 0.268 U | < 0.252 U | < 0.252 U |
| Perfluorododecanoic Acid (PFDoA) | 307-55-1 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 UJ | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluoroheptanesulfonic Acid (PFHpS) | 375-92-8 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 U | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluoroheptanoic Acid (PFHpA) | 375-85-9 | NL | NL | < 0.292 U | < 0.235 U | < 0.266 U | < 0.230 UJ | < 0.268 U | < 0.252 U | < 0.252 U |
| Perfluorohexanesulfonic Acid (PFHxS) | 355-46-4 | NL | NL | **0.229 NJ** | < 0.235 U | < 0.266 UJ | < 0.230 U | < 0.268 U | < 0.252 U | < 0.252 U |
| Perfluorohexanoic Acid (PFHxA) | 307-24-4 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 UJ | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluorononanoic Acid (PFNA) | 375-95-1 | NL | NL | < 0.292 U | < 0.235 U | < 0.266 U | < 0.230 UJ | < 0.268 U | < 0.252 U | < 0.252 U |
| Perfluorooctanesulfonamide (FOSA) | 754-91-6 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 U | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluorooctanesulfonic Acid (PFOS) | 1763-23-1 | 44 | 3.7 | **0.648** | < 0.235 U | < 0.266 U | < 0.230 U | **0.488** | < 0.252 U | < 0.252 U |
| Perfluorooctanoic Acid (PFOA) | 335-67-1 | 33 | 1.1 | **0.488** | < 0.235 U | < 0.266 U | < 0.230 UJ | **0.308** | < 0.252 U | < 0.252 U |
| Perfluoropentanoic Acid (PFPeA) | 2706-90-3 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 UJ | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluorotetradecanoic Acid (PFTA) | 376-06-7 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 U | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluorotridecanoic Acid (PFTrDA) | 72629-94-8 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 U | < 0.537 U | < 0.503 U | < 0.503 U |
| Perfluoroundecanoic Acid (PFUnA) | 2058-94-8 | NL | NL | < 0.584 U | < 0.471 U | < 0.531 U | < 0.461 UJ | < 0.537 U | < 0.503 U | < 0.503 U |

**Notes:**

**Notes:**
ND = calculated totals are not detected
NL = Not listed
NA = Not Analyzed
ug/Kg = microgram per killogram
ng/L = nanograms per liter
**Bold indicates compound was detected**
PFAS - Per and Polyfluoroalkyl Substances

1 - NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluroalkyl Substances (PFAS) Under NYSDEC'S Part 375 Remedial Programs, January 2021.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. (J- biased low and J+ biased high)
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation
NJ = estimated maximum concentration, because of tentative compound identification

**Table 3-1**
**Matrix of Responsibility**
**Flatbush Station A B Former Gas Holder Site**
**Brooklyn, New York**

| Task | NYSDEC | National Grid | Property Owner[1] | Responsibility | | |
|---|---|---|---|---|---|---|
| | | | | NYSDEC | National Grid | Property Owner/Operator |
| **Access Agreement (AA)** | ✓ | ✓ | ✓ | If access is not granted to National Grid by the property owner, NYSDEC to intervene, if necessary. | AA will be executed between the Property Owner and National Grid for annual sampling and site inspection requirements defined in this SMP, oversight during redevelopment and associated intrusive activities, and future investigative work, if required. Reference to the SMP to be included in the text of the AA. National Grid will request NYSDEC intervention on their behalf, if necessary. | AA will be executed between the Property Owner/Operator and National Grid for annual sampling and site inspection requirements defined in this SMP, oversight during redevelopment and associated intrusive activities, and future investigative work, if required. Access to the site will be provided to National Grid and NYSDEC. |
| **Annual Report** | ✓ | ✓ | ✓ | Review and Comment. | National Grid will prepare the annual report and will submit to the NYSDEC. Report will include summary of groundwater sampling and intrusive work performed within the SMP area, if applicable. | If access is required for the annual inspection or groundwater sampling, grant access to the property for inspection. |
| **Community Air Monitoring Plan (CAMP)** | ✓ | ✓ | ✓ | Review and Comment. | National Grid's environmental professional consultants will follow Site-specific CAMP procedures during intrusive work in MGP impacted areas. | Owner's/Operator's contractors and consultants will abide by direction given by National Grid's environmental consultant based on Community Air Monitoring results. |
| **Engineering Controls (EC) - Composite Cover System** | | ✓ | | | Inspect ECs during annual inspection and when required by NYSDEC. Notify NYSDEC of known or observed damage or breaches to CCS. | |
| **Emergency Response due to EC Failure caused by Natural Disaster** | ✓ | ✓ | ✓ | Review, Comment, and Approve. | National Grid's contracted qualified environmental professional conducts an inspection within 5 days of event, or as soon as site access is possible. Written confirmation to NYSDEC within 7 days of event that summarizes event and actions taken. National Grid provides NYSDEC with follow-up status reports for ongoing responsive action within 45 days. | Verbal notice to National Grid and NYSDEC as soon as possible but at least by noon the following day. |
| **Field Activity not Pursuant to the EWP** | ✓ | ✓ | ✓ | Review and Comment. | 15-day advance notice to NYSDEC if conducted by National Grid. Review and comment if conducted by the Property Owner. | 15-day advance notice to National Grid and NYSDEC. |
| **Limited Intrusive Work (Small Scale)* performed under the Excavation Work Plan (EWP)** | ✓ | ✓ | ✓ | Review and Comment. | National Grid to review and decide if oversight is required. Following development, National Grid to update SMP and submit to NYSDEC. | Property Owner has to provide at a minimum 60-day notice to National Grid and NYSDEC and 15-day notice prior to work starting. All ground intrusive activities have to follow the SMP. |
| **Field Sampling Plan (FSP)** | ✓ | ✓ | | Review and Comment. | National Grid's environmental professional consultants will follow Site-specific NYSDEC-approved FSP procedures. | |
| **Future Property Development (Large Scale)[1]** | ✓ | ✓ | ✓ | Review and Comment. Review results of any further investigation and determine if remediation is required. | National Grid to review and decide if oversight is required. Following development, National Grid to update SMP and submit to NYSDEC. | Property Owner has to provide at a minimum 60-days notice to National Grid and NYSDEC and 30-days notice prior to work starting. Property Owner has to provide at a minimum 18-months notice to National Grid and NYSDEC of property redevelopment or demolition of structures. All ground intrusive activities have to follow the SMP. |
| **Future Site Subdivision** | | ✓ | ✓ | | Notify NYSDEC of the subdivision. | Notify NYSDEC of the subdivision. |

**Table 3-1**
**Matrix of Responsibility**
**Flatbush Station A B Former Gas Holder Site**
**Brooklyn, New York**

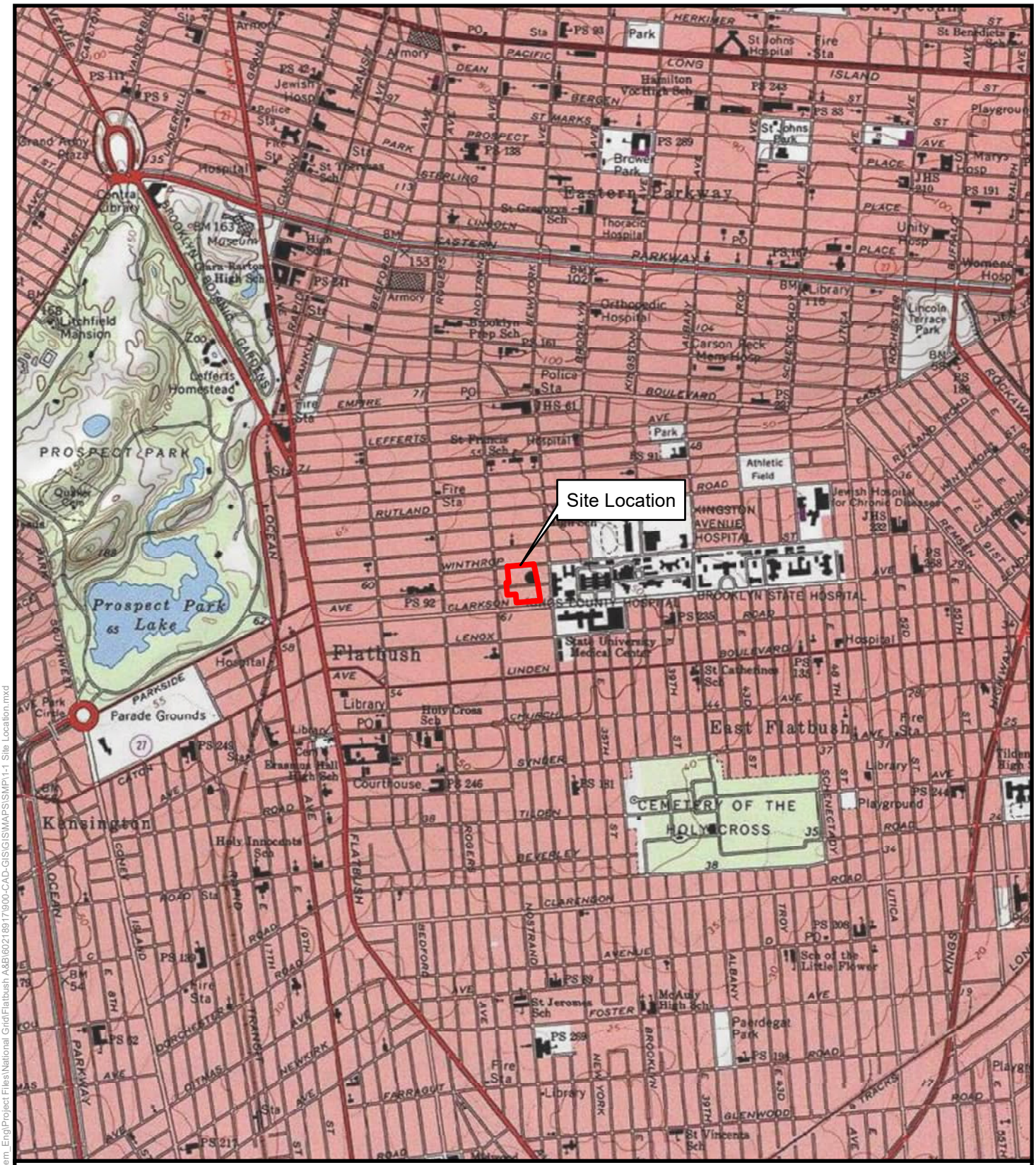
| Task | NYSDEC | National Grid | Property Owner[1] | Responsibility | | |
|---|---|---|---|---|---|---|
| | | | | NYSDEC | National Grid | Property Owner/Operator |
| **Groundwater Use and Fluids Management** | | ✓ | ✓ | | National Grid's contracted qualified environmental professional will containerize and coordinate off-site disposal of liquids generated from its groundwater monitoring such as purge water, development water, and decontamination fluids. | Property Owner/Operator is restricted from use of groundwater as a source of potable water or process water. Property Owner is responsible for fluids management during excavation in accordance with the EWP.<br><br>Discharge of water generated during large-scale construction activities will be performed according to a Remedial Plan.<br><br>Discharge of water generated during small-scale (i.e. limited excavations) construction activities will be performed according to SMP requirements. |
| **HASP** | ✓ | ✓ | ✓ | Review and Comment. | Develop a Site-specific HASP to be included in the SMP. Direct consultants and contractors to develop a Site-specific HASP for any subsurface work. | Direct consultants and contractors to develop a Site-specific HASP for any subsurface work. |
| **Inspections** | ✓ | ✓ | ✓ | Review and Comment. | National Grid will complete inspections once per year and after severe weather that may affect ECs and monitoring. A Site Management Form will be completed and provided to NYSDEC. | Property Owner/Operator will provide access. |
| **Institutional Control (IC) - Environmental Easement** | ✓ | ✓ | ✓ | The Environmental Notice was recorded at the New York City Department of Finance, Office of the City Register, by the NYSDEC. | The Environmental Notice requires compliance with the SMP and all ECs. | The Environmental Easement requires compliance with the SMP and all ECs. |
| **Metes and Bounds Survey** | | ✓ | ✓ | | National Grid will perform or review a Metes and Bounds (or similar) Survey to include in the SMP and Environmental Easement. | Property Owner will provide access. |
| **Monitoring Well Damage/Maintenance or Well Decommissioning** | ✓ | ✓ | | Review, Comment, and Approve. | National Grid will be responsible for any maintenance related to the groundwater monitoring well network. National Grid will notify NYSDEC and receive approval prior to properly repairing, replacing, or decommissioning wells. | Property Owner will provide access. |
| **Observed Damage or Defect to the ECs** | ✓ | ✓ | ✓ | Review, Comment, and Approve. | National Grid's contracted qualified environmental professional conducts an inspection within 5 days of notification. National Grid provides NYSDEC with follow-up status reports for ongoing responsive action within 45 days. | Once identified, notice to National Grid and NYSDEC within 48-hours identifying damage and mitigation actions taken. |
| **O&M of ECs - Composite Cover System** | | ✓ | ✓ | | Maintenance and repair of ECs. | Notify National Grid of damage. |
| **Post Remediation Media Monitoring and Sampling** | ✓ | ✓ | ✓ | Review, Comment, and Approve. | Media monitoring and sampling will be completed by National Grid as detailed in the SMP. Modification requires NYSDEC approval. | Property Owner will provide access. |
| **Property Use Change - 329 Clarkson will be restricted residential, other parcels are commercial/industrial.** | ✓ | ✓ | ✓ | Review and Comment. | Provide at a minimum 60 days notice to NYSDEC. National Grid to confer with NYSDEC if SMP revision and/or additional ICs are required. Following use change, National Grid to update SMP and submit to NYSDEC, if required. | Provide, at a minimum, 60 days notice to National Grid and NYSDEC. |
| **Property Ownership Change** | | ✓ | ✓ | | Provide, at a minimum, 60 days notice to NYSDEC. | Provide, at a minimum, 60 days notice to National Grid and NYSDEC.<br>Confirm in writing the new owners name, contact information within 15 days of transfer. |

**Table 3-1**
**Matrix of Responsibility**
**Flatbush Station A B Former Gas Holder Site**
**Brooklyn, New York**

| Task | NYSDEC | National Grid | Property Owner[1] | Responsibility | | |
|---|---|---|---|---|---|---|
| | | | | NYSDEC | National Grid | Property Owner/Operator |
| **Quality Assurance Project Plan (QAPP)** | ✓ | ✓ | | Review and Comment. | National Grid's environmental professional consultants will follow Site-specific NYSDEC-approved QAPP procedures. | |
| **Reporting** | ✓ | ✓ | | Review and Comment. | National Grid's contracted qualified environmental professional will prepare and provide reports to NYSDEC as follows:<br>- Groundwater sampling annually;<br>- Periodic Review Report annually, or other frequency approved by the NYSDEC. | |
| **Record Of Decision (ROD)** | ✓ | | | NYSDEC Submits ROD. | | |
| **Site Management Plan (SMP)** | ✓ | ✓ | ✓ | Review and Approve SMP and revisions. Append revisions to SMP. | Prepare the SMP and update when required. Implement the SMP. | Abide by the SMP for any ground intrusive work that will disturb cover system. |

Notes:
1 - The property owners are required to comply with the SMP including all notifications to NYSDEC and National Grid and provisions of the Excavation Work Plan. National Grid is only responsible for costs associated with MGP-related impacts. Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the Site.

# Figures




AECOM Environment
200 LIBERTY STREET
NEW YORK, NY 10281
(212) 798-8500
www.aecom.com

Site Location Map
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

Data Source: USGS Topographic Quadrangle - Brooklyn, 2009

| Scale: | Date: | Project Number: |
|---|---|---|
| 1 in = 2,000 ft | February 2025 | 60625627 |

Figure Number:

1-1

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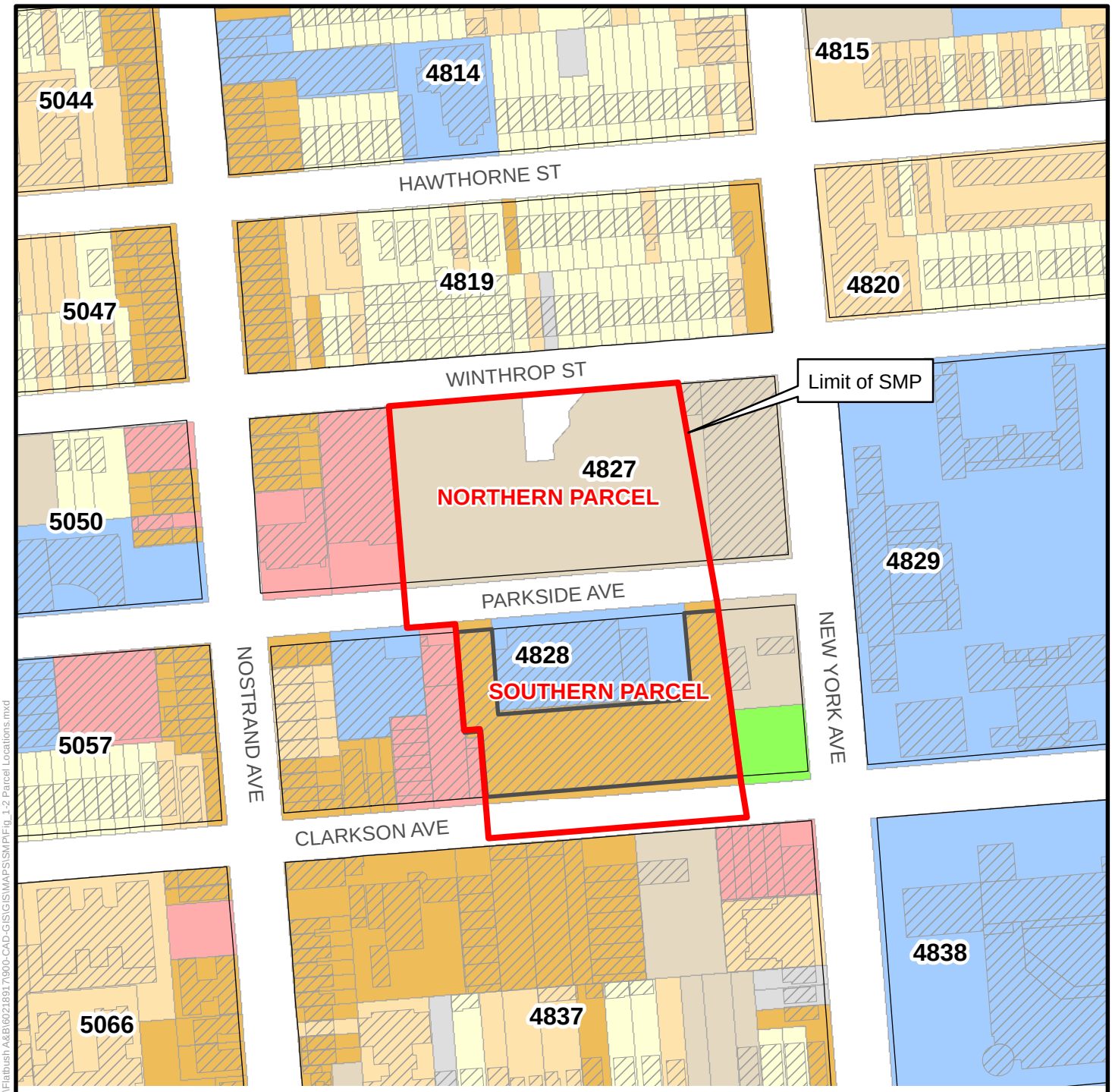


## Legend

- Limit of SMP
- Block Boundary
- Building
- 329 Clarkson Ave Property Boundary

**Land Use**

- One & Two Family Residential
- Multi Family Residential
- Multi Family Residential
- Mixed Use
- Commercial
- Industrial and Manufacturing
- Transportation, Utility and Parking
- Public Facilities and Institutions
- Open Space and Outdoor Recreation
- Transportation, Utility and Parking
- Vacant Lot

Note: Tax Block & Tax Lot files are copyrighted by the New York City Department of City Planning

AECOM Environment
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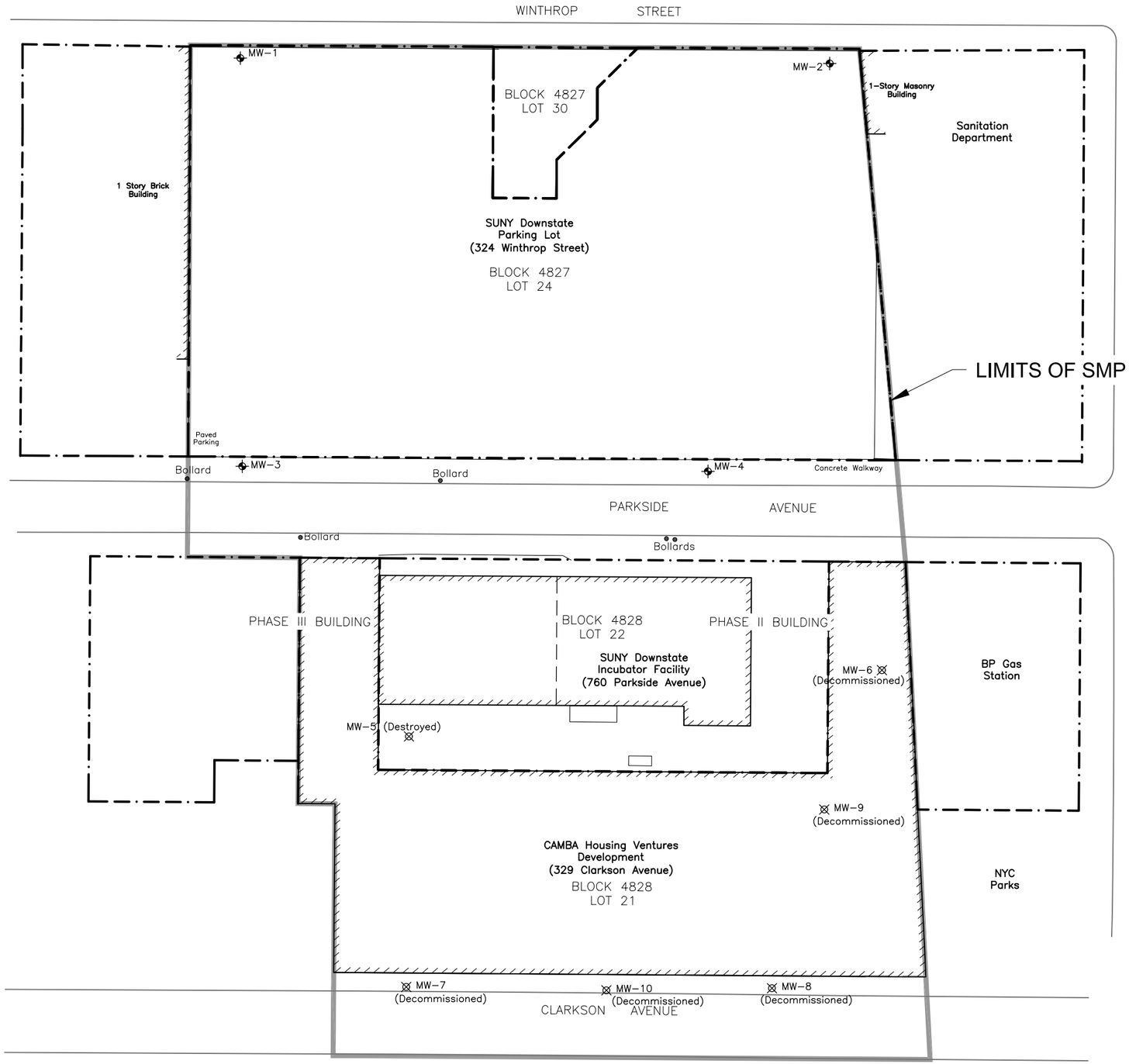
Parcel Locations
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

| Scale: | Date: | Project Number: |
|---|---|---|
| 1 in = 200 ft | April 2025 | 60625627 |

Figure Number:

1-2

L:\Legacy\USCHL1FP0001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\SMP\Fig_1-2 Parcel Locations.mxd




AECOM

- CURB LINE
- APPROXIMATE BOUNDARY OF EXISTING BUILDING
- PROPERTY BOUNDARY
- FENCE
- BOLLARD
- LIMITS OF SMP
- MW-4 MONITORING WELL
- MW-5 DESTROYED MONITORING WELL

NOTE: MONITORING WELL MW-5 DESTROYED DURING PHASE III CONSTRUCTION

N

35 0 70

GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

NOTE:

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

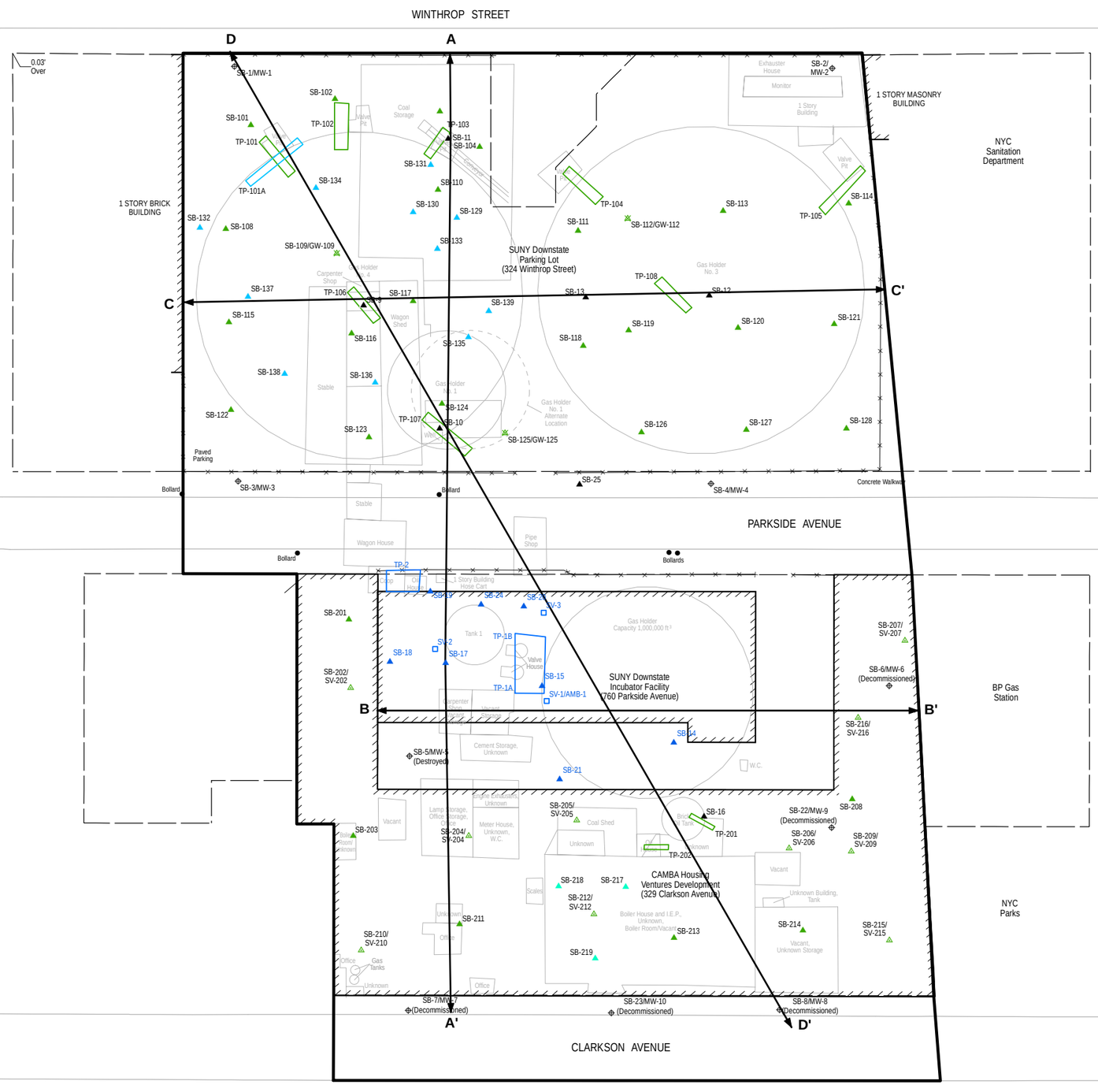
SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

| | | | | |
|---|---|---|---|---|
| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | **SITE LAYOUT AND EXTENT OF SMP** | |
| DATE: 04/04/2025 | DRWN: JB | JOB #: 60625627 | | **FIGURE 1-3** |

File: L:\Legacy\USCHL1FP001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\SMP\Updated_20250225\Figure 1-3 Site Characterization Investigation Locations.dwg Layout: Site Layout and SMP Extent User: Bourdeaul Plotted: Apr 04, 2025 - 1:59pm




## Legend

- SC Addendum Monitoring Well
- SC Addendum Soil Boring
- SC Addendum Test Pit
- SC Addendum Soil Vapor and Ambient Air Sample (Approximate Locations)
- 2021 RSOI Step Out Soil Boring
- 2021 RSOI Soil Boring
- 2021 RSOI Soil Boring and Soil Vapor Point
- 2011 SC Soil Boring
- 2011 SC Monitoring Well
- Geologic Cross Section Location
- Current Features and Property Boundary
- Fence
- Historic Structures
- Approximate Boundary of Existing Buildings
- RSOI Test Pit
- SSC Test Pit
- Properties where SMP shall be Implemented

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)
9. POSITION OF 2011 SC SOIL BORINGS AND WELLS WERE SURVEYED IN JULY 2011 BY CT MALE ASSOCIATES, INC. OF NY.
10. POSITION OF 2021 RSOI SOIL BORINGS, SOIL VAPOR POINTS, AND TEST PITS WERE SURVEYED IN SEPTEMBER 2021 BY GEOD CORPORATION OF NJ.

ACRONYMS:
ft bgs - Feet Below Ground Surface
I.E.P. - Independent Electric Plant
SC - Site Characterization
RSOI - Remedial System Optimization Investigation

40 0 40
Feet

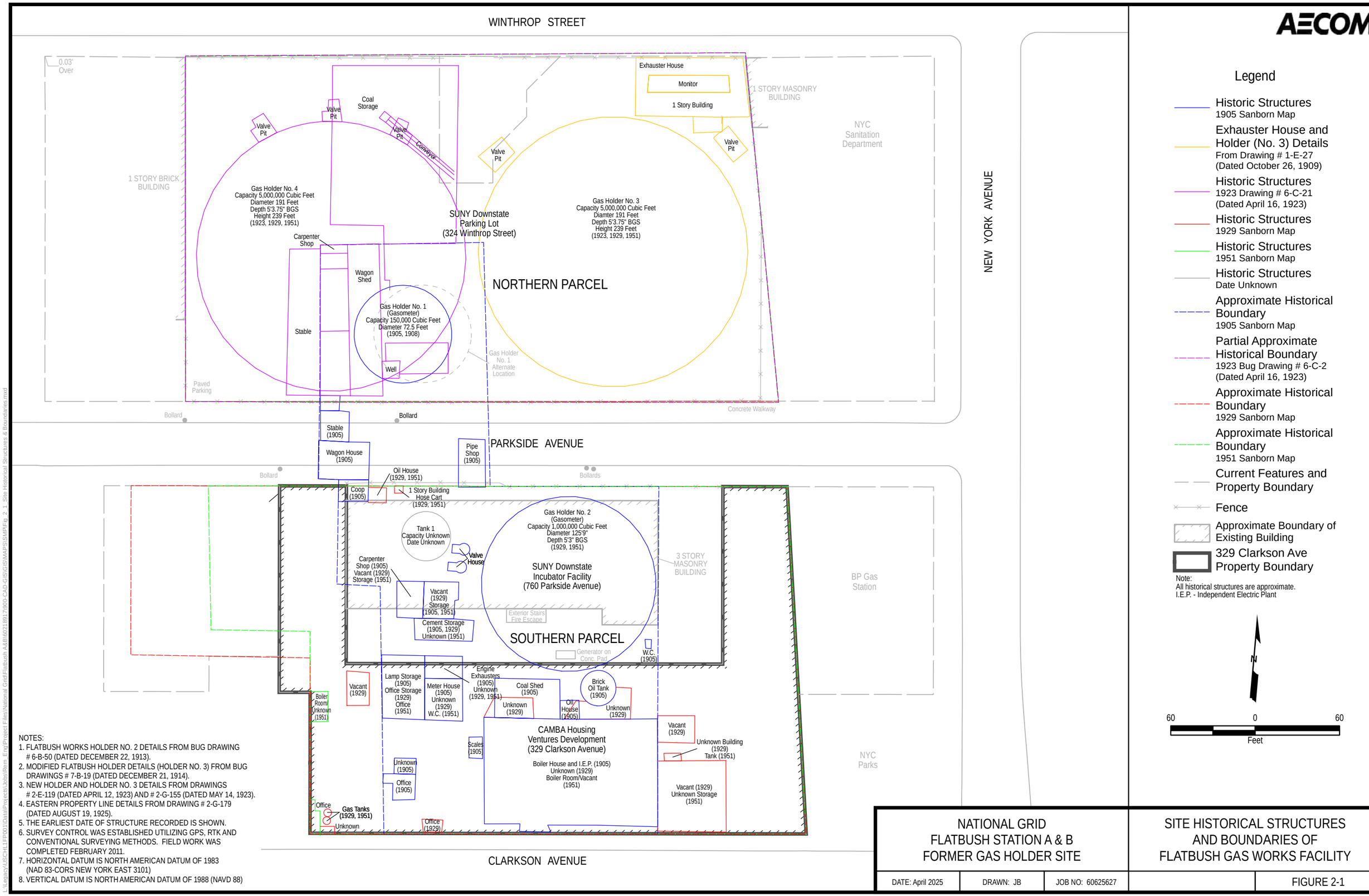
N

# NATIONAL GRID FLATBUSH STATION A & B FORMER GAS HOLDER SITE

# SITE CHARACTERIZATION AND REMEDIAL SYSTEM OPTIMIZATION INVESTIGATION LOCATIONS

DATE: April 2025 | DRAWN: JB | JOB NO: 60625627 | FIGURE 1-4

L:\Legacy\USCHL1FP001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917900-CAD-GIS\GIS\MAPS\SMP\Fig. 1-4 Site Characterization and RSO Investigation Loc.mxd




NOTES:
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4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

AECOM

## Legend

- Historic Structures — 1905 Sanborn Map
- Exhauster House and Holder (No. 3) Details — From Drawing # 1-E-27 (Dated October 26, 1909)
- Historic Structures — 1923 Drawing # 6-C-21 (Dated April 16, 1923)
- Historic Structures — 1929 Sanborn Map
- Historic Structures — 1951 Sanborn Map
- Historic Structures — Date Unknown
- Approximate Historical Boundary — 1905 Sanborn Map
- Partial Approximate Historical Boundary — 1923 Bug Drawing # 6-C-2 (Dated April 16, 1923)
- Approximate Historical Boundary — 1929 Sanborn Map
- Approximate Historical Boundary — 1951 Sanborn Map
- Current Features and Property Boundary
- Fence
- Approximate Boundary of Existing Building
- 329 Clarkson Ave Property Boundary

Note:
All historical structures are approximate.
I.E.P. - Independent Electric Plant

N

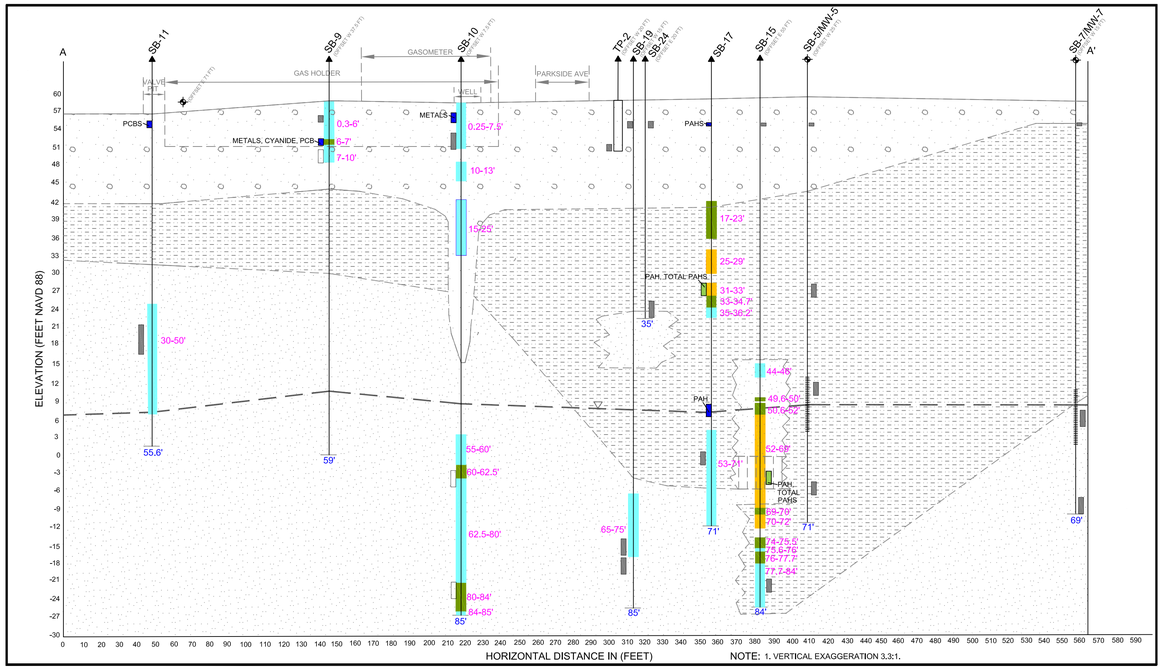
60 0 60
Feet

# NATIONAL GRID FLATBUSH STATION A & B FORMER GAS HOLDER SITE

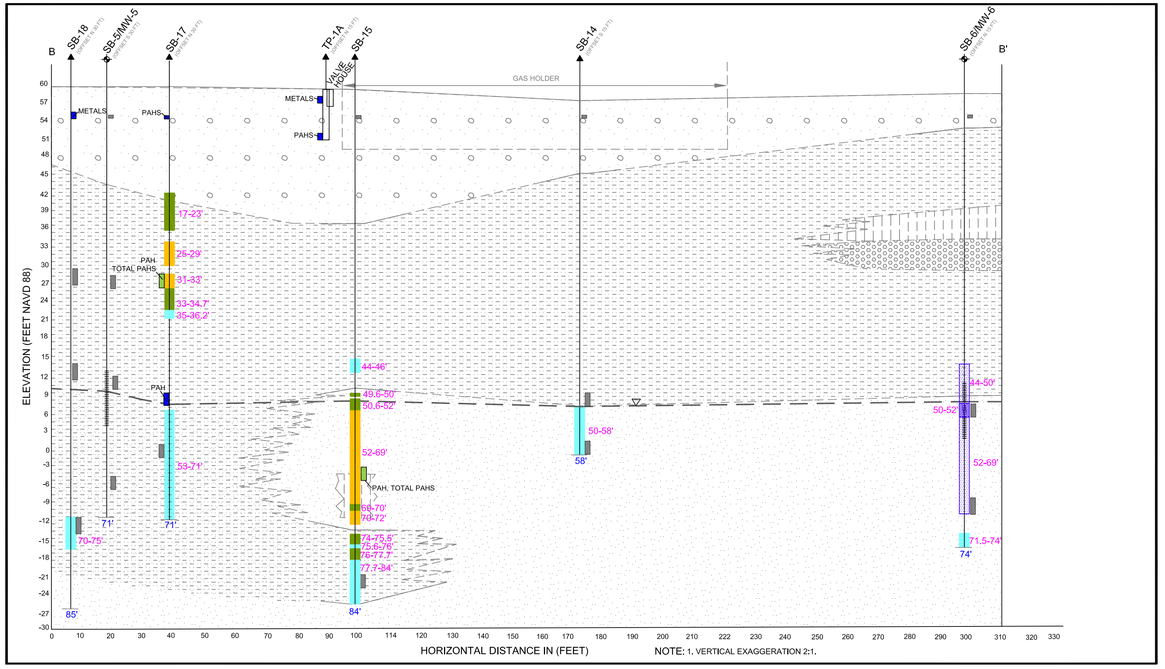
# SITE HISTORICAL STRUCTURES AND BOUNDARIES OF FLATBUSH GAS WORKS FACILITY

| DATE: April 2025 | DRAWN: JB | JOB NO: 60625627 | | FIGURE 2-1 |
|---|---|---|---|---|

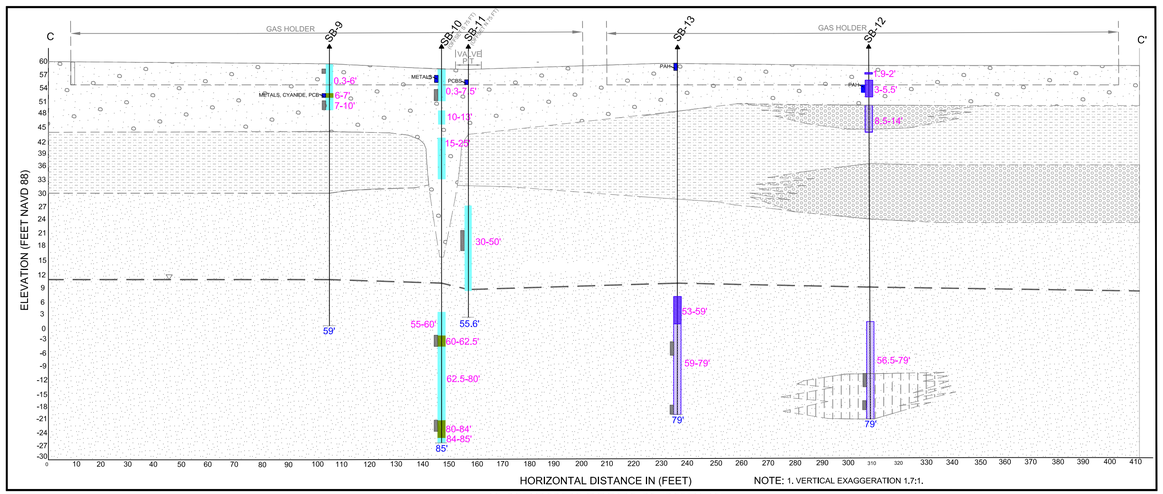
L:\Legacy\USCHL1FP001\Data\Projects\Jobs\Rem Env\Project Files\National Grid\Flatbush A&B\60218917900-CAD-GIS\GIS\MAPS\SMPFig 2_1 Site Historical Structures & Boundaries.mxd



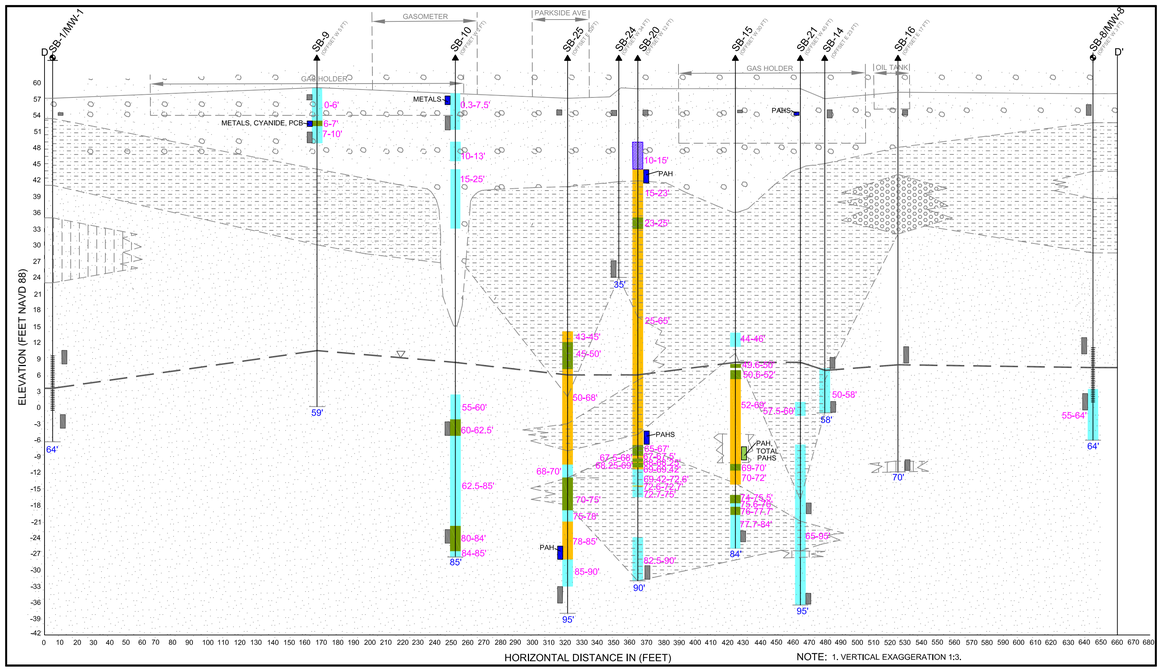

## GEOLOGIC CROSS SECTION A-A'



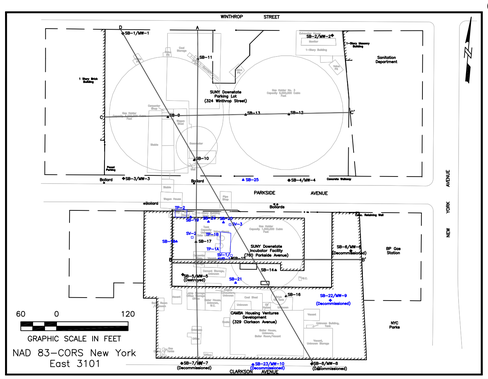

## GEOLOGIC CROSS SECTION B-B'




## GEOLOGIC CROSS SECTION C-C'




## GEOLOGIC CROSS SECTION D-D'




## GEOLOGIC CROSS SECTION

HISTORIC STRUCTURES
EXISTING BUILDING
CURRENT FEATURES AND PROPERTY BOUNDARY
FENCE
MW-3 SC MONITORING WELL
SB-10 SC SOIL BORING
BOLLARD
CROSS SECTION
TP-1A SUPPLEMENTAL SC TEST PIT
SV-1/AMB-1 SUPPLEMENTAL SC SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)
SC SITE CHARACTERIZATION
WELL SCREEN ZONE
SAMPLE INTERVAL
EXCEEDANCES FOR THE NYSDEC PART 376-6 COMMERCIAL USE CRITERIA
EXCEEDANCES FOR THE NYSDEC CP-51 ALTERNATE CRITERIA OF 500 MG/KG FOR TOTAL PAHS
GROUNDWATER
95' BORING COMPLETION DEPTH (BGS)
85-90' DEPTH RANGE OF VISUAL OLFACTORY IMPACTS (BGS)
BGS BELOW GRADE SURFACE

VISUAL AND OLFACTORY IMPACTS
TAR SHEEN/STAINING
BLEBS, TAR COATINGS
TAR/NAPHTHALENE-LIKE ODORS
PETROLEUM SHEEN/STAINING
PETROLEUM ODORS

STRATIGRAPHY
FILL
WELL GRADED GRAVEL
WELL GRADED SAND
POORLY GRADED SAND
SILTY SAND

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

AECOM

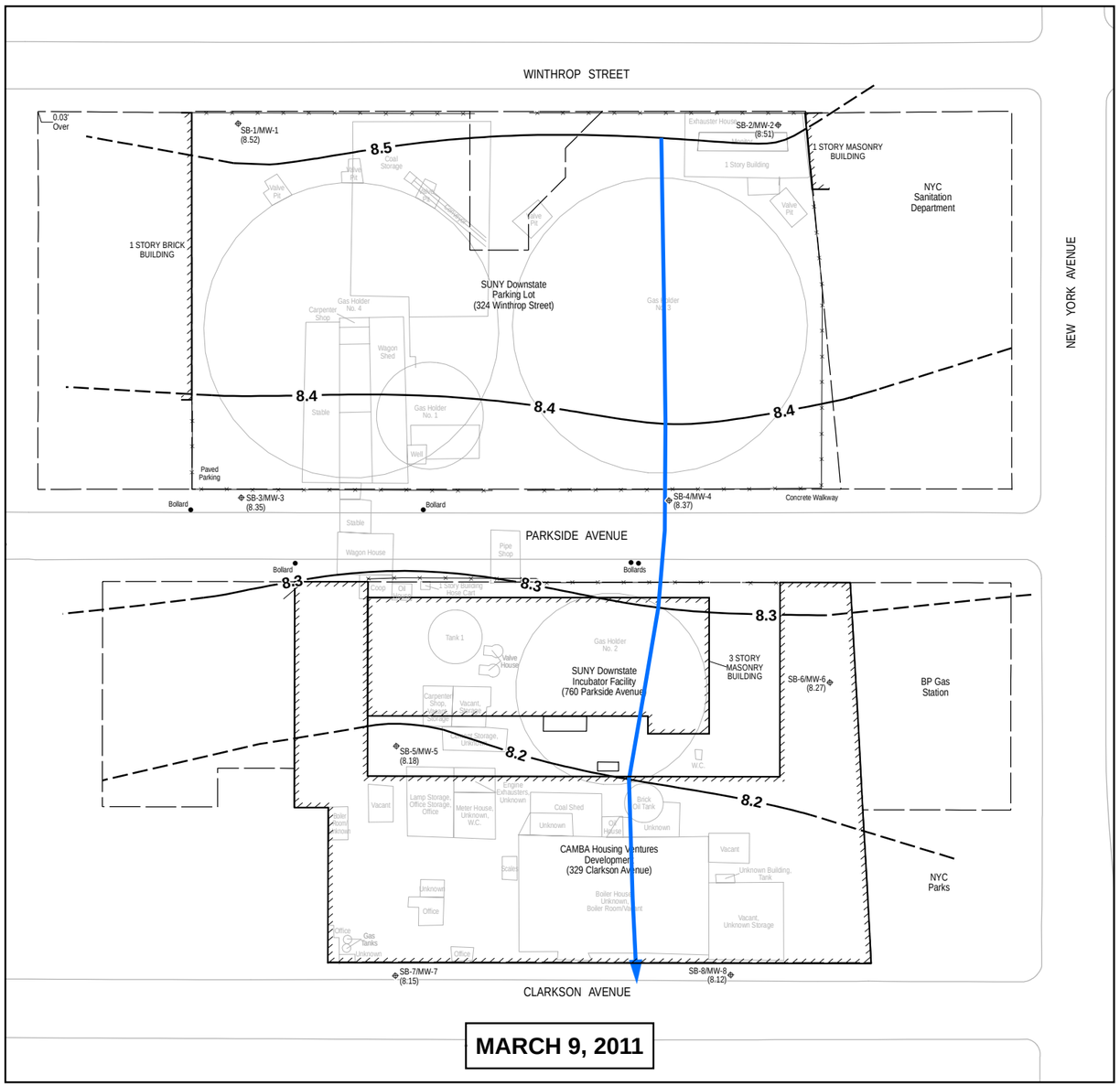
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**GEOLOGIC CROSS SECTIONS**

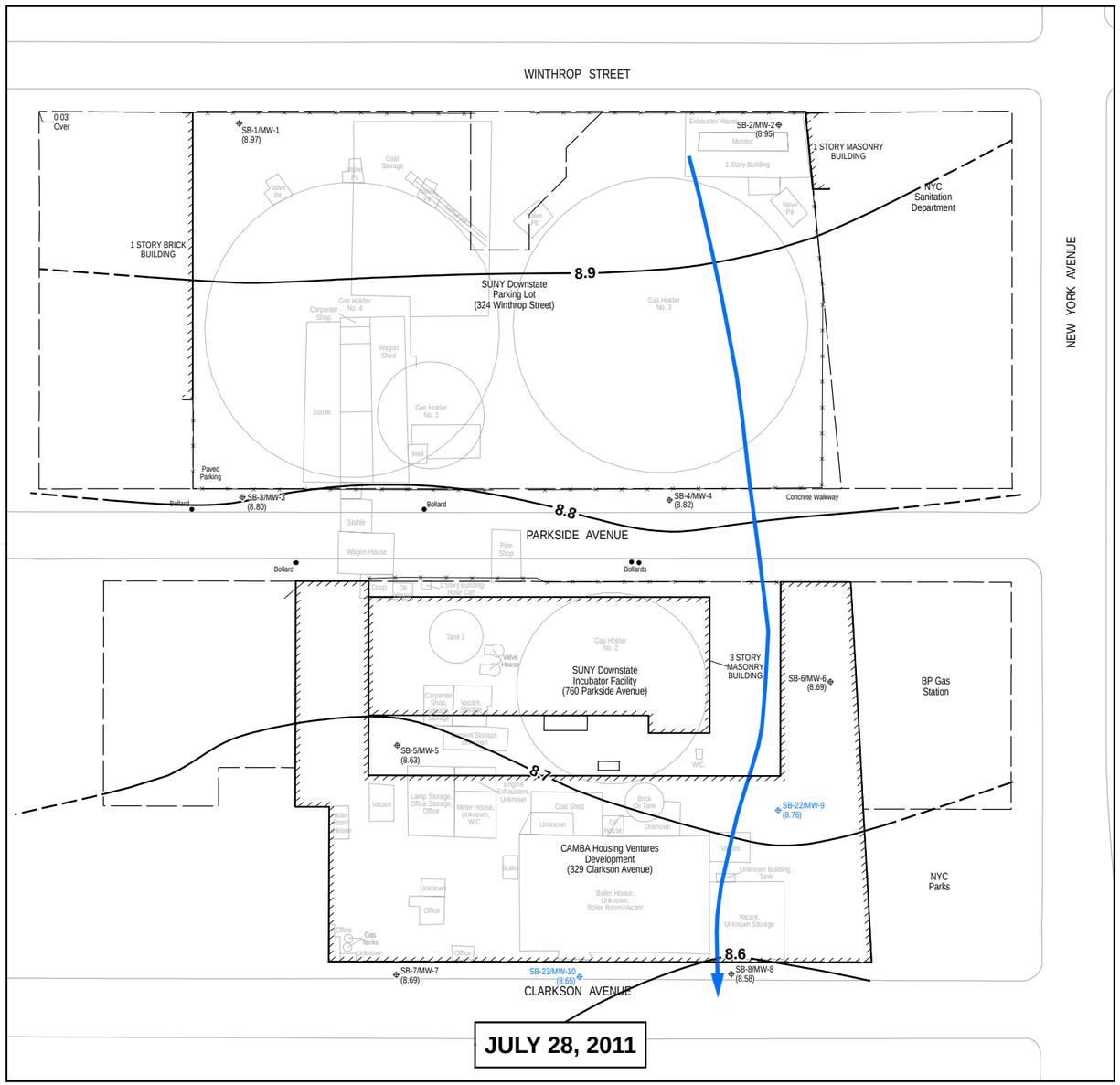
DATE: 02/14/2025 | DRWN: JB | JOB #: 60625627

**FIGURE 2-2**

AECOM




**MARCH 9, 2011**




**JULY 28, 2011**

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING #6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWING #7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS #2-E-119 (DATED APRIL 12, 1923) AND #2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)
9. TANK ON NORTHWEST CORNER OF 760 PARKSIDE AVENUE DISCOVERED DURING 2013 EXCAVATION ACTIVITIES.

## Legend

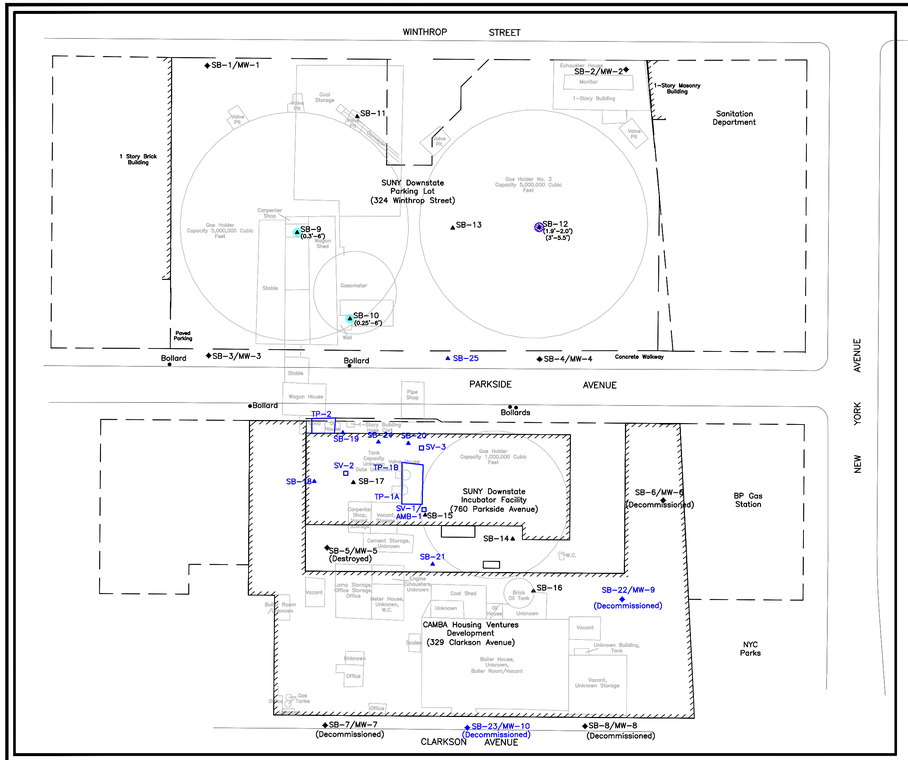
- Site Characterization (SC) Monitoring Well
- SC Addendum Monitoring Well
- MW-3 (8.35) — Groundwater Elevation (Feet NAVD 88)
- Direction of Groundwater Flow
- —8.8— Groundwater Contour
- Curb Line
- Current Features and Property Boundary
- Fence
- Historic Structures
- Approximate Boundary of Existing Building

N

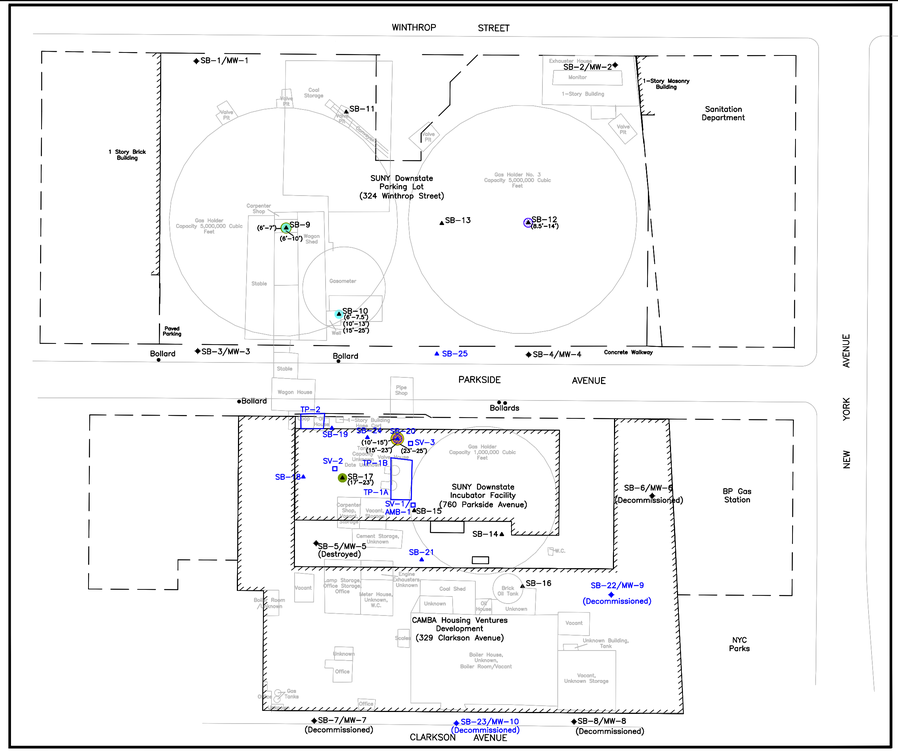
60 0 60
Feet

| NATIONAL GRID FLATBUSH STATION A & B FORMER GAS HOLDER SITE | | | 2011 GROUNDWATER ELEVATION CONTOURS | |
|---|---|---|---|---|
| DATE: April 2025 | DRAWN: JB | JOB NO: 60625627 | | FIGURE 2-3 |

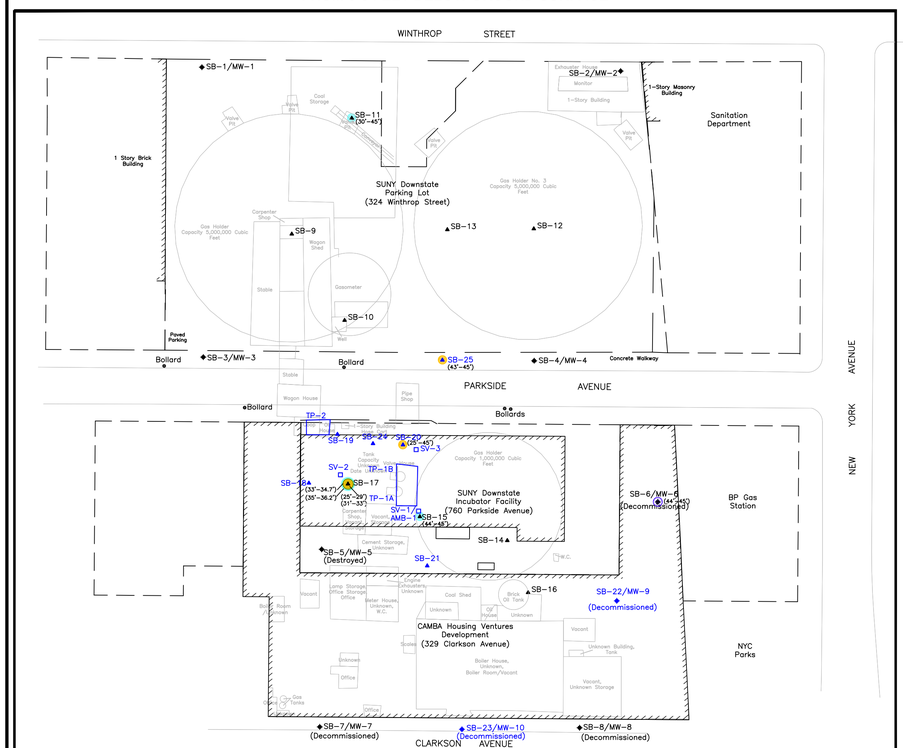
L:\Letajov\USCHL1FP001\Data\Projects\Jobs\Rem Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\SMPF\g 2_3 2011 Groundwater Elevation Contours.mxd



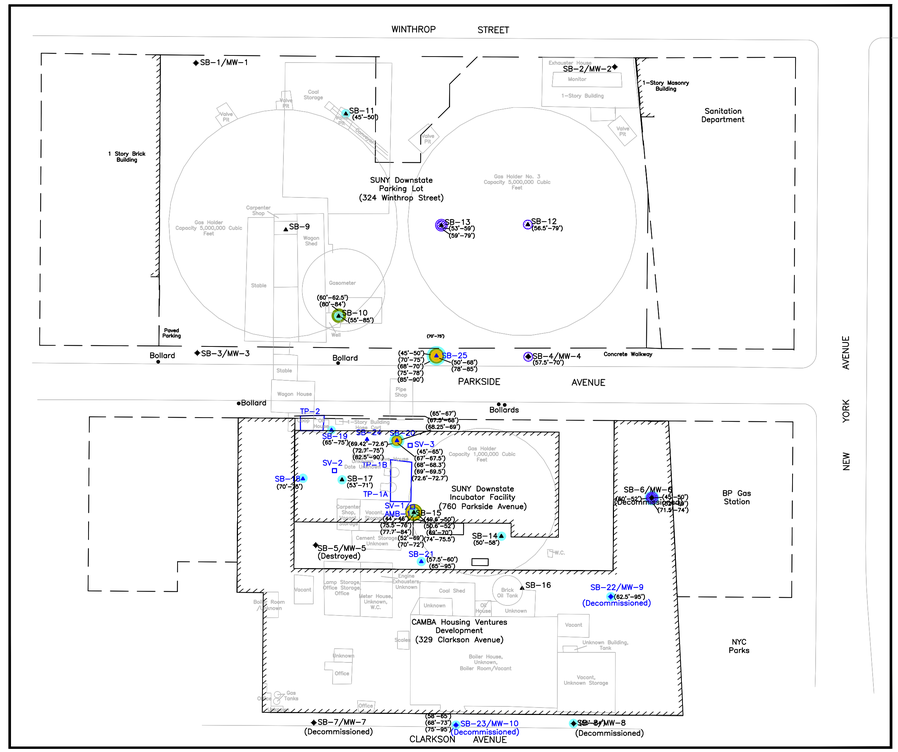

FROM 0-6 FEET BELOW GROUND SURFACE




FROM 6-25 FEET BELOW GROUND SURFACE




FROM 25-45 FEET BELOW GROUND SURFACE




FROM 45-95 FEET BELOW GROUND SURFACE

AECOM

- HISTORIC STRUCTURES
- APPROXIMATE BOUNDARY OF EXISTING BUILDING
- CURRENT FEATURES AND PROPERTY BOUNDARY
- x FENCE
- MW-3 SC MONITORING WELL
- SB-10 SC SOIL BORING
- BOLLARD
- TAR SHEEN/STAINING
- BLEBS, TAR COATINGS
- TAR/NAPHTHALENE-LIKE ODORS
- PETROLEUM SHEEN/STAINING
- PETROLEUM ODORS
- (8.5'-9') DEPTH OF IMPACTS OBSERVED IN FEET BELOW GRADE SURFACE
- SB-22/MW-9 SC ADDENDUM MONITORING WELL
- SB-18 SC ADDENDUM SOIL BORING
- TP-1A SC ADDENDUM TEST PIT
- SV-1/AMB-1 SC ADDENDUM SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)
- SC SITE CHARACTERIZATION

NO SHADING INDICATES NO IMPACTS OBSERVED

N

30 0 60

GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

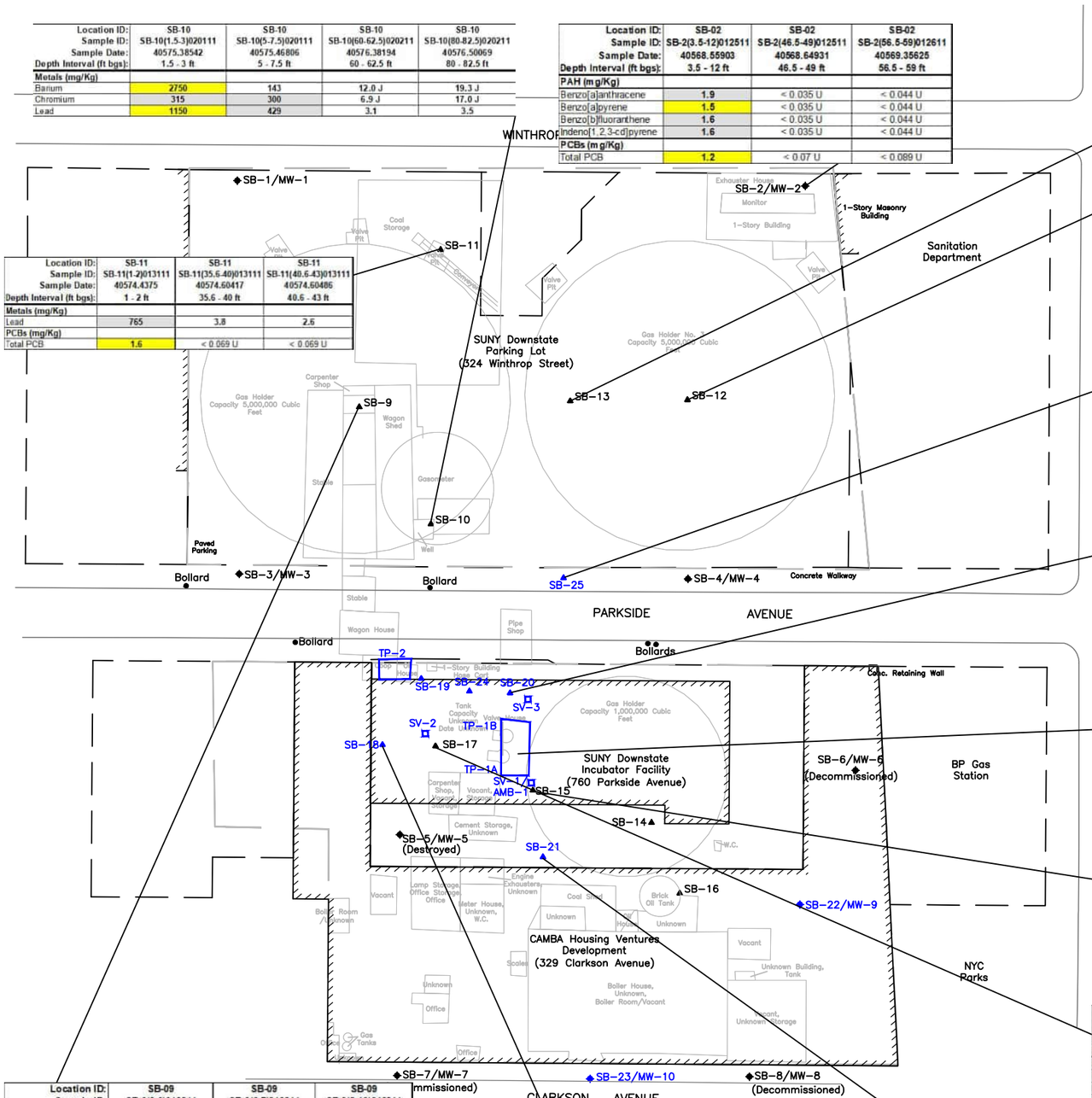
THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

| NATIONAL GRID FLATBUSH STATION A & B FORMER GAS HOLDER SITE | | | SUMMARY OF VISUAL AND OLFACTORY IMPACTS |
|---|---|---|---|
| DATE: 04/07/2025 | DRWN: JB | JOB #: 60625627 | FIGURE 2-4 |




| Location ID: | SB-10 | SB-10 | SB-10 | SB-10 |
|---|---|---|---|---|
| Sample ID: | SB-10(1.5-3)020111 | SB-10(5-7.5)020111 | SB-10(60-62.5)020211 | SB-10(80-82.5)020211 |
| Sample Date: | 40575.38542 | 40575.46806 | 40576.38194 | 40576.50069 |
| Depth Interval (ft bgs): | 1.5 - 3 ft | 5 - 7.5 ft | 60 - 62.5 ft | 80 - 82.5 ft |
| **Metals (mg/Kg)** | | | | |
| Barium | 2750 | 143 | 12.0 J | 19.3 J |
| Chromium | 315 | 300 | 6.9 J | 17.0 J |
| Lead | 1150 | 429 | 3.1 | 3.5 |

| Location ID: | SB-02 | SB-02 | SB-02 |
|---|---|---|---|
| Sample ID: | SB-2(3.5-12)012511 | SB-2(46.5-49)012511 | SB-2(56.5-59)012611 |
| Sample Date: | 40568.55903 | 40568.64931 | 40569.35625 |
| Depth Interval (ft bgs): | 3.5 - 12 ft | 46.5 - 49 ft | 56.5 - 59 ft |
| **PAH (mg/Kg)** | | | |
| Benzo[a]anthracene | 1.9 | < 0.035 U | < 0.044 U |
| Benzo[a]pyrene | 1.5 | < 0.035 U | < 0.044 U |
| Benzo[b]fluoranthene | 1.6 | < 0.035 U | < 0.044 U |
| Indeno[1,2,3-cd]pyrene | 1.6 | < 0.035 U | < 0.044 U |
| **PCBs (mg/Kg)** | | | |
| Total PCB | 1.2 | < 0.07 U | < 0.089 U |

| Location ID: | SB-11 | SB-11 | SB-11 |
|---|---|---|---|
| Sample ID: | SB-11(1-2)013111 | SB-11(35.6-40)013111 | SB-11(40.6-43)013111 |
| Sample Date: | 40574.4375 | 40574.60417 | 40574.60486 |
| Depth Interval (ft bgs): | 1 - 2 ft | 35.6 - 40 ft | 40.6 - 43 ft |
| **Metals (mg/Kg)** | | | |
| Lead | 765 | 3.8 | 2.6 |
| **PCBs (mg/Kg)** | | | |
| Total PCB | 1.6 | < 0.069 U | < 0.069 U |

| Location ID: | SB-13 | SB-13 | SB-13 |
|---|---|---|---|
| Sample ID: | SB-13(0-1.5)020411 | SB-13(64-66.5)020711 | SB-13(77-79)020711 |
| Sample Date: | 40578.65278 | 40581.61458 | 40581.63889 |
| Depth Interval (ft bgs): | 0 - 1.5 ft | 64 - 66.5 ft | 77 - 79 ft |
| **PAH (mg/Kg)** | | | |
| Benzo[a]anthracene | 1.9 | < 0.077 U | < 0.04 U |
| Benzo[a]pyrene | 1.7 | < 0.077 U | < 0.04 U |
| Benzo[b]fluoranthene | 1.9 | < 0.077 U | < 0.04 U |
| Indeno[1,2,3-cd]pyrene | 1.7 | < 0.077 U | < 0.04 U |

| Location ID: | SB-12 | SB-12 | SB-12 |
|---|---|---|---|
| Sample ID: | SB-12(3.5-4.5)020311 | SB-12(69-72)020411 | SB-12(75-77)020411 |
| Sample Date: | 40577.54931 | 40578.41111 | 40578.41111 |
| Depth Interval (ft bgs): | 3.5 - 4.5 ft | 69 - 72 ft | 75 - 77 ft |
| **PAH (mg/Kg)** | | | |
| Benzo[a]anthracene | 3.5 | < 0.038 U | < 0.038 U |
| Benzo[a]pyrene | 3.8 | < 0.038 U | < 0.038 U |
| Benzo[b]fluoranthene | 3.6 | < 0.038 U | < 0.038 U |
| Dibenz(a,h)anthracene | 0.49 | < 0.038 U | < 0.038 U |
| Indeno[1,2,3-cd]pyrene | 2.1 | < 0.038 U | < 0.038 U |

| Location ID: | SB-25 | SB-25 | SB-25 |
|---|---|---|---|
| Sample ID: | SB-25(4-5)062411 | SB-25(82.5-85)062411 | SB-25(90-92.5)062411 |
| Sample Date: | 40731.51042 | 40735.34028 | 40735.33333 |
| Depth Interval (ft bgs): | 4 - 5 ft | 82.5 - 85 ft | 90 - 92.5 ft |
| **PAH (mg/Kg)** | | | |
| Benzo[a]anthracene | < 0.044 U | < 0.043 U | 26 |
| Benzo[a]pyrene | < 0.044 U | < 0.043 U | 21 |
| Benzo[b]fluoranthene | < 0.044 U | < 0.043 U | 17 |
| Benzo[k]fluoranthene | < 0.044 U | < 0.043 U | 6.6 |
| Chrysene | < 0.44 U | < 0.43 U | 23 |
| Dibenz(a,h)anthracene | < 0.044 U | < 0.043 U | 1.7 |
| Indeno[1,2,3-cd]pyrene | < 0.044 U | < 0.043 U | 7.7 |

| Location ID: | SB-20 | SB-20 | SB-20 | SB-20 |
|---|---|---|---|---|
| Sample ID: | SB-20 (4-5)062311 | SB-20(15-17.5)062411 | SB-20(62.5-65)062411 | SB-20(87.5-90)062411 |
| Sample Date: | 40717.5 | 40722.41319 | 40722.56597 | 40723.4375 |
| Depth Interval (ft bgs): | 4 - 5 ft | 15 - 17.5 ft | 62.5 - 65 ft | 87.5 - 90 ft |
| **PAH (mg/Kg)** | | | | |
| Benzo[a]anthracene | < 0.038 U | 45 | 15 | < 0.042 U |
| Benzo[a]pyrene | < 0.038 U | 53 | 12 | < 0.042 U |
| Benzo[b]fluoranthene | < 0.038 U | 47 | 10 | < 0.042 U |
| Benzo[k]fluoranthene | < 0.038 U | 14 | 5.1 | < 0.042 U |
| Chrysene | < 0.38 U | 51 | 13 | < 0.42 U |
| Dibenz(a,h)anthracene | < 0.038 U | 6.8 | 1.1 | < 0.042 U |
| Indeno[1,2,3-cd]pyrene | < 0.038 U | 34 | 4.8 | < 0.042 U |

| Location ID: | TP-1 | TP-1 | TP-1 | TP-2 |
|---|---|---|---|---|
| Sample ID: | TP-1(8)062311 | TP-1(INSIDE NO VALVE HO.)062311 | TP-1(1-2)062311 | TP-2(8')062311 |
| Sample Date: | 40717.625 | 40717.625 | 40717.625 | 40717.45833 |
| Depth Interval (ft bgs): | 0 - 8 ft | 0 - 0 ft | 1 - 2 ft | 0 - 8 ft |
| **PAH (mg/Kg)** | | | | |
| Benzo[a]anthracene | 1.4 | 0.32 | 0.62 | 0.11 |
| Benzo[a]pyrene | 2.2 | 0.43 | 0.68 | 0.14 |
| Benzo[b]fluoranthene | 2.2 | 0.47 | 0.87 | 0.13 |
| Dibenz(a,h)anthracene | 0.37 | 0.064 | 0.14 | 0.017 J |
| Indeno[1,2,3-cd]pyrene | 1.6 | 0.32 | 0.61 | 0.086 |
| **Metals (mg/Kg)** | | | | |
| Lead | 1590 | 1080 | 85.7 | 1250 |
| Mercury | 0.73 | 3.8 | 0.11 | 0.48 |

| Location ID: | SB-15 | SB-15 | SB-15 |
|---|---|---|---|
| Sample ID: | SB-15(4-5.5)010311 | SB-15(66-68)011011 | SB-15(78-80)011011 |
| Sample Date: | 40546.64583 | 40553.65625 | 40554.41667 |
| Depth Interval (ft bgs): | 4 - 5.5 ft | 66 - 68 ft | 78 - 80 ft |
| **BTEX (mg/Kg)** | | | |
| Ethylbenzene | < 0.0010 U | 87 | 0.0016 |
| Total Xylenes | < 0.0021 U | 108 | 0.0099 |
| **PAH (mg/Kg)** | | | |
| Benzo[a]anthracene | 0.29 | 23 | 0.31 |
| Benzo[a]pyrene | 0.39 | 18 | 0.24 |
| Benzo[b]fluoranthene | 0.45 | 16 | 0.2 |
| Benzo[k]fluoranthene | 0.15 | 3.4 | 0.05 |
| Chrysene | 0.31 J | 24 | 0.31 J |
| Indeno[1,2,3-cd]pyrene | 0.27 | 8.7 | 0.099 |

| Location ID: | SB-17 | SB-17 | SB-17 | SB-17 |
|---|---|---|---|---|
| Sample ID: | SB-17(4.5-5)010411 | SB-17(31-33)011711 | SB-17(49-51)011711 | SB-17(67-69)011711 |
| Sample Date: | 40547.63542 | 40560.4375 | 40560.45833 | 40560.47917 |
| Depth Interval (ft bgs): | 4.5 - 5 ft | 31 - 33 ft | 49 - 51 ft | 67 - 69 ft |
| **PAH (mg/Kg)** | | | | |
| Benzo[a]anthracene | 1.7 J | 48 DJ | 2.3 | 0.14 |
| Benzo[a]pyrene | 2.6 J | 37 DJ | 1.9 | 0.098 |
| Benzo[b]fluoranthene | 2.9 J | 31 DJ | 2 | 0.1 |
| Benzo[k]fluoranthene | 1.1 J | 11 DJ | 0.72 | 0.046 |
| Chrysene | 1.9 J | 45 DJ | 2 | 0.13 J |
| Dibenz(a,h)anthracene | 0.54 J | 6.9 DJ | 0.24 | < 0.043 U |
| Indeno[1,2,3-cd]pyrene | 2.8 J | 25 DJ | 1 | 0.059 |

| Location ID: | SB-09 | SB-09 | SB-09 |
|---|---|---|---|
| Sample ID: | SB-9(2-3)012811 | SB-9(6-7)012811 | SB-9(8-10)012811 |
| Sample Date: | 40571.37361 | 40571.39583 | 40571.40972 |
| Depth Interval (ft bgs): | 2 - 3 ft | 6 - 7 ft | 8 - 10 ft |
| **Metals (mg/Kg)** | | | |
| Arsenic | 4.1 | 18.3 | 3.7 |
| Chromium | 21.5 | 3040 | 19.9 |
| Lead | 93.3 | 3240 | 14.7 |
| **PCBs (mg/Kg)** | | | |
| Total PCB | 0.12 | 1.9 | < 0.072 U |
| **Cyanide (mg/Kg)** | | | |
| Cyanide, Total | 0.17 J | 72.9 | 0.24 J |

| Location ID: | SB-21 | SB-21 | SB-21 |
|---|---|---|---|
| Sample ID: | SB-21(4.5-5)062311 | SB-21(72.5-75)062411 | SB-21(92.5-95)062411 |
| Sample Date: | 40717.4375 | 40723.58194 | 40723.68472 |
| Depth Interval (ft bgs): | 4.5 - 5 ft | 72.5 - 75 ft | 92.5 - 95 ft |
| **PAH (mg/Kg)** | | | |
| Benzo[a]pyrene | 1.1 | < 0.042 U | < 0.042 U |
| Dibenz(a,h)anthracene | 0.36 | < 0.042 U | < 0.042 U |
| Indeno[1,2,3-cd]pyrene | 2 | < 0.042 U | < 0.042 U |

| Location ID: | SB-18 | SB-18 | SB-18 | SB-18 |
|---|---|---|---|---|
| Sample ID: | SB-18(4-5)062311 | SB-18(27.5-30)062411 | SB-18(42.5-45)062411 | SB-18(70-72.5)062411 |
| Sample Date: | 40717.64583 | 40721.70833 | 40721.56597 | 40721.64931 |
| Depth Interval (ft bgs): | 4 - 5 ft | 27.5 - 30 ft | 42.5 - 45 ft | 70 - 72.5 ft |
| **Metals (mg/Kg)** | | | | |
| Arsenic | 47.8 | 1.9 | 1.3 | 1.0 J |

40 0 80

GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

AECOM

- CURB LINE
- HISTORIC STRUCTURES
- APPROXIMATE BOUNDARY OF EXISTING BUILDING
- CURRENT FEATURES AND PROPERTY BOUNDARY
- FENCE
- APPROXIMATE HISTORICAL BOUNDARY
- MW-3 — SC MONITORING WELL
- SB-10 — SC SOIL BORING
- BOLLARD
- SB-22/MW-9 — SC ADDENDUM MONITORING WELL
- SB-18 — SC ADDENDUM SOIL BORING
- TP-1A — SC ADDENDUM TEST PIT
- SV-1/AMB-1 — SC ADDENDUM SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)
- SC — SITE CHARACTERIZATION
- *1 — SAMPLE INTERVALS FOR SB-25 82.5-85 AND 90-92.5 WERE INADVERTENTLY REVERSED IN THE FIELD. THE DEPTHS HAVE BEEN CORRECTED ON THE TABLE.
- **BOLD** — EXCEEDANCES FOR THE NYSDEC PART 375-6 COMMERCIAL USE
- **BOLD** — EXCEEDANCES FOR THE NYSDEC PART 375-6 RESTRICTED RESIDENTIAL USE
- ft bgs — FEET BELOW GROUND SURFACE
- mg/Kg — MILLIGRAMS PER KILLOGRAMS
- J — ESTIMATED CONCENTRATION
- U — COMPOUND NOT DETECTED ABOVE ANALYTICAL DETECTION LIMITS

AT SOIL BORINGS WHERE NO DATA IS SHOWN, NONE OF THE ANALYZED COMPOUNDS WERE PRESENT AT CONCENTRATIONS ABOVE THE ANALYTICAL DETECTION LIMIT.

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

| Location ID: / Property: / Sample ID: / Sample Date: | NYSDEC PART 375-6 RESTRICTED-RES | NYSDEC PART 375-6 COMMERCIAL |
|---|---|---|
| **BTEX (mg/Kg)** | | |
| Ethylbenzene | 41 | 390 |
| Toluene | 100 | 500 |
| **PAH (mg/Kg)** | | |
| Benzo[a]anthracene | 1 | 5.6 |
| Benzo[a]pyrene | 1 | 1 |
| Benzo[b]fluoranthene | 1 | 5.6 |
| Benzo[k]fluoranthene | 3.9 | 56 |
| Chrysene | 3.9 | 56 |
| Dibenz(a,h)anthracene | 0.33 | 0.56 |
| Indeno[1,2,3-cd]pyrene | 0.5 | 5.6 |
| **Metals (mg/Kg)** | | |
| Arsenic | 16 | 16 |
| Barium | 400 | 400 |
| Lead | 400 | 1000 |
| Mercury | 0.81 | 2.8 |
| **PCBs (mg/Kg)** | | |
| Total PCB | 1 | 1 |
| **Cyanide (mg/Kg)** | | |
| Cyanide, Total | 27 | 27 |

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING COMMERCIAL AND RESTRICTED RESIDENTIAL USE SCO**

DATE: 04/08/2025 | DRWN: JB | JOB #: 60625627

**FIGURE 2-5**

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-9 Summary of Soil Analytical Contamination Exceeding Restricted Use Commercial Sco.dwg Layout: AECOM-TBLK User: WeiX1

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

| Location ID | NYSDEC Groundwater Standard and Guidance Values |
|---|---|
| Sample Date | |
| Sample ID | |
| **BTEX (ug/L)** | |
| Ethylbenzene | 5 |
| Toluene | 5 |
| m&p-Xylene | 5 |
| o-Xylene | 5 |
| Total Xylenes | 5 |
| **PAH (ug/L)** | |
| Acenaphthene | 20 |
| Naphthalene | 10 |
| **SVOC (ug/L)** | |
| Diphenyl | 5 |
| **Other VOCs (ug/L)** | |
| Chloroform | 7 |
| Isopropylbenzene | 5 |
| Tetrachloroethene | 5 |
| **Metals (mg/L)** | |
| Iron | 300 |
| Magnesium | 35,000 |
| Manganese | 300 |
| Sodium | 20,000 |

ND NOT DETECTED

J ESTIMATED VALUE

U THE MATERIAL WAS ANALYZED FOR BUT NOT DETECTED AT OR ABOVE THE REPORTING LIMIT. THE ASSOCIATED NUMERICAL VALUES IS THE SAMPLE QUANTITATION LIMIT

**BOLD** EXCEEDANCES FOR THE NYSDEC GROUNDWATER STANDARD AND GUIDANCE VALUES

40 0 80

GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

| Location ID | MW-01 | MW-01 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/28/2011 |
| Sample ID | MW-1-030911 | MW-1-072811 |
| **Metals (ug/L)** | | |
| Iron | 4800 | 139 J |
| Magnesium | 21800 | 36000 |
| Manganese | 2060 | 83.4 |
| Sodium | 70200 | 108000 |

| Location ID | MW-02 | MW-02 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/29/2011 |
| Sample ID | MW-2-030911 | MW-2-072911 |
| **Metals (ug/L)** | | |
| Iron | 413 | 1960 |
| Manganese | 618 | 47.8 |
| Sodium | 71800 | 57400 |

| Location ID | MW-03 | MW-03 |
|---|---|---|
| Sample Date | 3/10/2011 | 7/28/2011 |
| Sample ID | MW-3-031011 | MW-3-071311 |
| **Metals (ug/L)** | | |
| Iron | 1880 | 418 |
| Manganese | 2390 | 98.1 |
| Sodium | 96900 | 119000 |

| Location ID | MW-04 | MW-04 |
|---|---|---|
| Sample Date | 3/10/2011 | 7/29/2011 |
| Sample ID | MW-4-031011 | MW-4-072911 |
| **Metals (ug/L)** | | |
| Iron | 549 | <150 U |
| Manganese | 3010 | 2360 |
| Sodium | 54000 | 63500 |

| Location ID | MW-05 | MW-05 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/28/2011 |
| Sample ID | MW-5-030911 | MW-5-072811 |
| **Other VOCs (ug/L)** | | |
| Tetrachloroethene | 6.5 | 4.3 |
| **Metals (ug/L)** | | |
| Sodium | 172000 | 199000 |

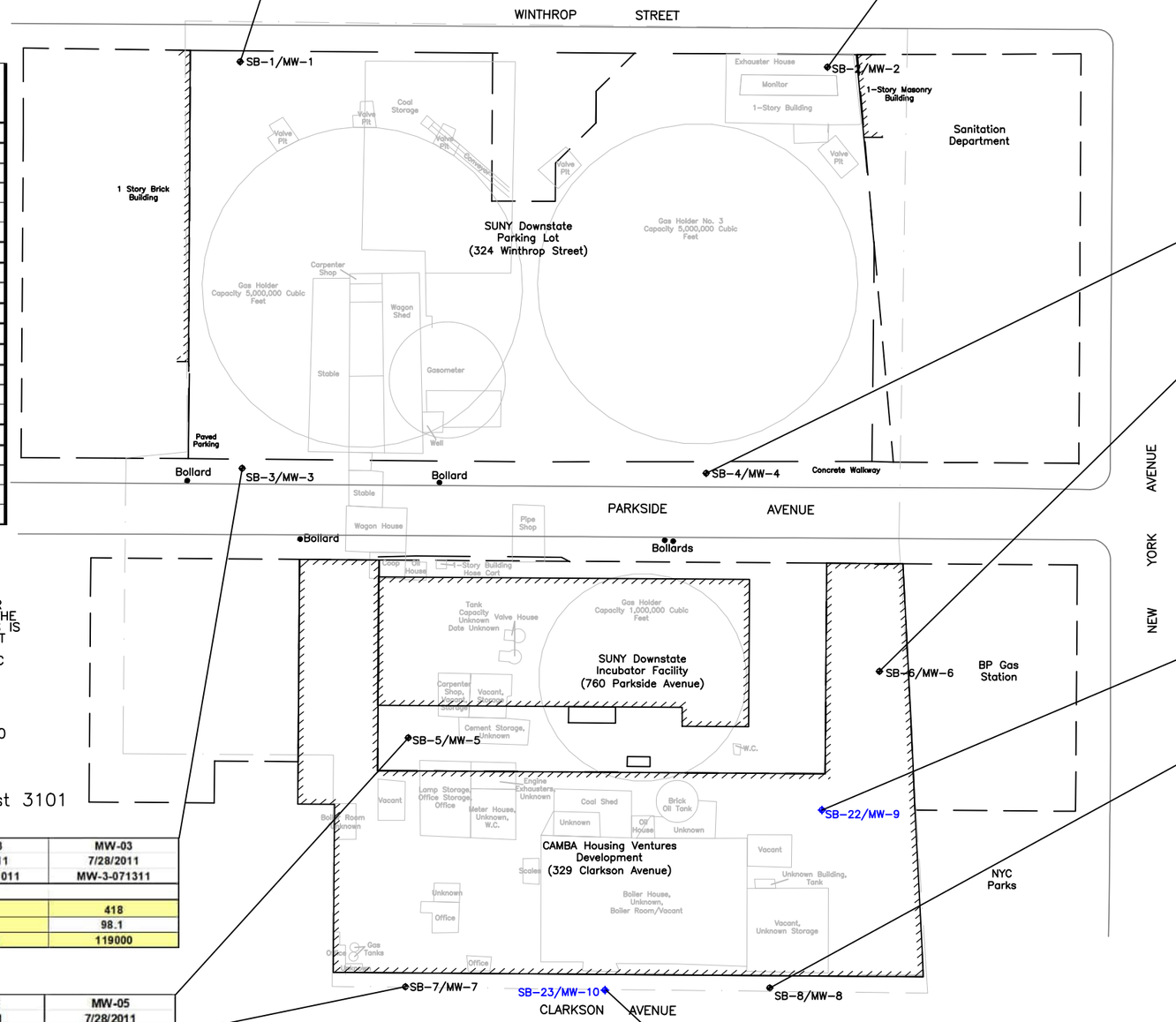
| Location ID | MW-06 | MW-06 |
|---|---|---|
| Sample Date | 3/10/2011 | 8/1/2011 |
| Sample ID | MW-6-031011 | MW-6-080111 |
| **BTEX (ug/L)** | | |
| Ethylbenzene | 510 | 320 |
| Toluene | 5.6 | 2.8 |
| Total Xylenes | 1170 | 456 |
| **Other VOCs (ug/L)** | | |
| Isopropylbenzene | 32 | 17 |
| **PAH (ug/L)** | | |
| Naphthalene | 78 | 40 |
| **Metals (ug/L)** | | |
| Iron | 1780 | 1810 |
| Manganese | 1120 | 812 |
| Sodium | 238000 | 246000 |

| Location ID | MW-07 | MW-07 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/29/2011 |
| Sample ID | MW-7-030911 | MW-7-072911 |
| **Other VOCs (ug/L)** | | |
| Tetrachloroethene | 5.3 | 1.7 |
| **Metals (ug/L)** | | |
| Iron | 105 J | 1210 |
| Manganese | 432 | 49.9 |
| Sodium | 142000 | 141000 |

| Location ID | MW-09 |
|---|---|
| Sample Date | 8/1/2011 |
| Sample ID | MW-9-080111 |
| **Other VOCs (ug/L)** | |
| Isopropylbenzene | 9.9 |
| **Metals (ug/L)** | |
| Iron | 2270 |
| Manganese | 1010 |
| Sodium | 133000 |

| Location ID | MW-08 | MW-08 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/29/2011 |
| Sample ID | MW-8-030911 | MW-8-072911 |
| **BTEX (ug/L)** | | |
| Ethylbenzene | 11 | 0.50 J |
| m&p-Xylene | 16 | 0.36 J |
| o-Xylene | 31 | 7.7 |
| Total Xylenes | 47 | 8.06 |
| **Other VOCs (ug/L)** | | |
| Isopropylbenzene | 44 | 10 |
| **PAH (ug/L)** | | |
| Acenaphthene | 26 | 7.4 J |
| Naphthalene | 150 | <10 U |
| **SVOC (ug/L)** | | |
| Diphenyl | 45 | 6.5 J |
| **Metals (ug/L)** | | |
| Iron | 5460 | 5880 |
| Manganese | 1850 | 2030 |
| Sodium | 163000 | 150000 |

| Location ID | MW-10 |
|---|---|
| Sample Date | 7/29/2011 |
| Sample ID | MW-10-072911 |
| **Other VOCs (ug/L)** | |
| Chloroform | 8.2 |
| Isopropylbenzene | 6.9 |
| **Metals (ug/L)** | |
| Iron | 1800 |
| Manganese | 636 |
| Sodium | 120000 |




AECOM

CURB LINE

HISTORIC STRUCTURES

APPROXIMATE BOUNDARY OF EXISTING BUILDING

CURRENT FEATURES AND PROPERTY BOUNDARY

FENCE

MW-3 SC MONITORING WELL

BOLLARD

SB-22/MW-9 SC ADDENDUM MONITORING WELL

SC SITE CHARACTERIZATION

N

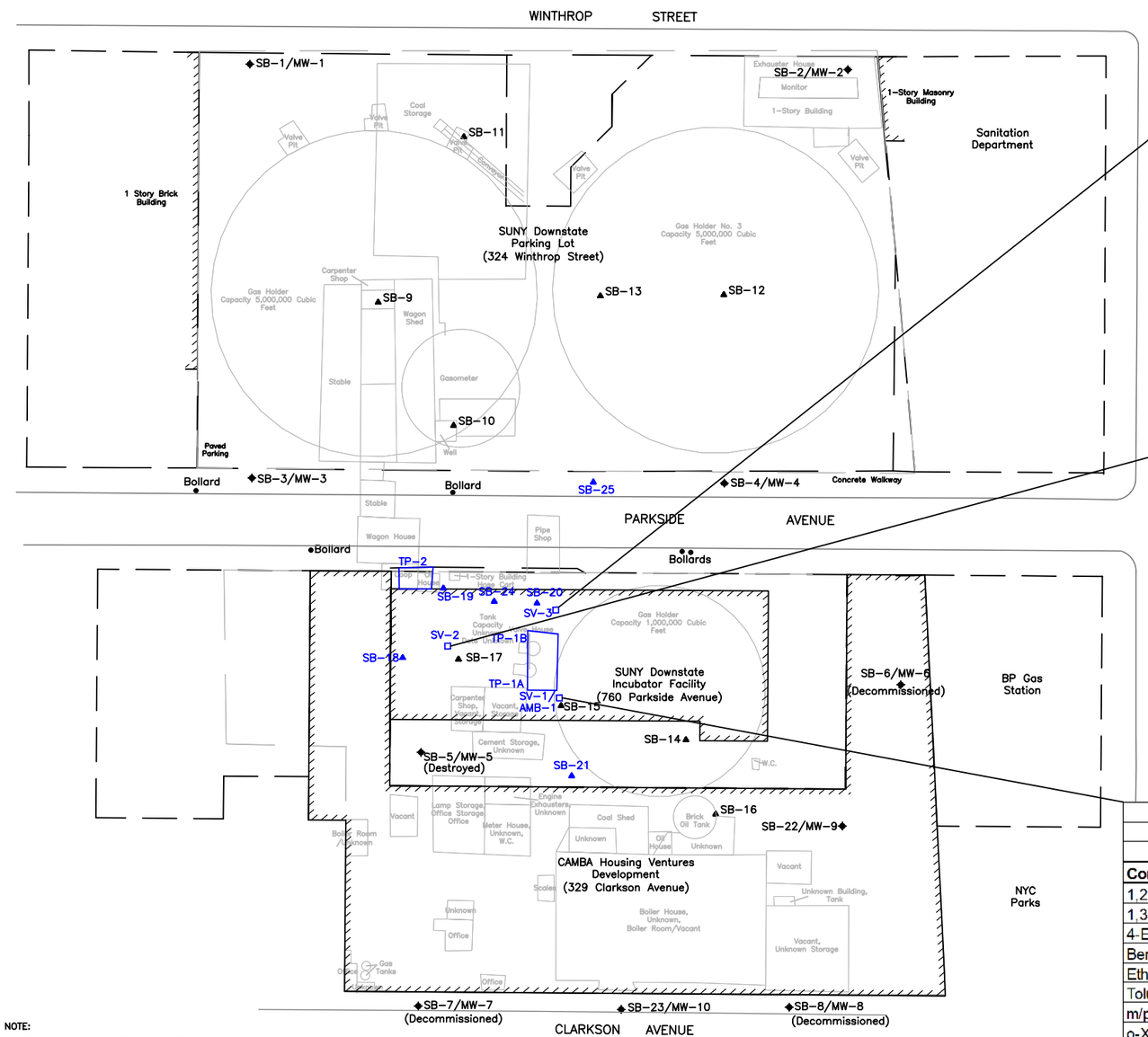
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

DATE: 04/08/2025 | DRWN: JB | JOB #: 60625627

**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS EXCEEDING NYSDEC GROUNDWATER STANDARD AND GUIDANCE VALUES**

**FIGURE 2-6**

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-10 Summary of Groundwater Analytical Contamination Exceeding Restricted Use Commercial Sco.dwg Layout: AECOM-TBLK




| Type of Sample | Soil Vapor |
|---|---|
| Sample ID | SV-3 |
| Sampling Date | 6/22/2011 |
| **Compound (µg/m³)** | |
| 1,2,4-Trimethylbenzene | **27.4** |
| 1,3,5-Trimethylbenzene | **7.82** |
| 4-Ethyltoluene | **4.97** |
| Naphthalene | **6.03** |
| Styrene | **2.73** |
| 2-Butanone (MEK) | **13.6** |
| Acetone | **182 J** |
| Chloroform | **1.66** |

| Type of Sample | Soil Vapor |
|---|---|
| Sample ID | SV-2 |
| Sampling Date | 6/22/2011 |
| **Compound (µg/m³)** | |
| 1,2,4-Trimethylbenzene | **11.5** |
| Benzene | **13.6** |
| Ethylbenzene | **5.86** |
| Toluene | **45.0** |

| Type of Sample | Soil Vapor |
|---|---|
| Sample ID | SV-1 |
| Sampling Date | 6/22/2011 |
| **Compound (µg/m³)** | |
| 1,2,4-Trimethylbenzene | **23.3** |
| 1,3,5-Trimethylbenzene | **5.95** |
| 4-Ethyltoluene | **8.36** |
| Benzene | **11.5** |
| Ethylbenzene | **21.0** |
| Toluene | **87.8** |
| m/p-Xylenes | **75.3** |
| o-Xylene | **21.0** |
| Chloroform | **2.00** |
| Trichloroethene (TCE) | **9.57** |

CURB LINE

HISTORIC STRUCTURES

APPROXIMATE BOUNDARY OF EXISTING BUILDING

CURRENT FEATURES AND PROPERTY BOUNDARY

FENCE

APPROXIMATE HISTORICAL BOUNDARY

MW-3 — SC MONITORING WELL

SB-10 — SC SOIL BORING

BOLLARD

SB-22/MW-9 — SC ADDENDUM MONITORING WELL

SB-18 — SC ADDENDUM SOIL BORING

TP-1A — SC ADDENDUM TEST PIT

SV-1/AMB-1 — SC ADDENDUM SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)

SC — SITE CHARACTERIZATION

**Notes:**

All units in micrograms per cubic meter (µg/m³)

1 - Non-residential background indoor air concentrations are equal to the 90th percentile values observed by the USEPA in a 2001 study which are the values recommended for comparison in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006), Table C2.

2 - Target Shallow (< 5ft bgs) Soil Gas Concentrations calculated by dividing the NHSDOH background indoor air concentrations by the USEPA's default attenuation factor of 0.1 recommended in the November 2002 USEPA Draft Guidance for Evaluating the Vapor Instrusion to Indoor Air.

**Bold** - Compound detected in a concentration greater than the method detection limit.

**Exceeds NYSDOH Background Indoor Air Concentrations.**

**Exceeds Soil Vapor Screening Levels4**

J - The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

| Type of Sample / Sample ID / Sample Date | Background Indoor Air Concentrations (Non-Residential)[1] | Target Shallow Soil Gas Concentrations[2] |
|---|---|---|
| **Compound (ug/m³)** | | |
| 1,2,4-Trimethylbenzene | 9.5 | 95 |
| 1,3,5-Trimethylbenzene | 3.7 | 37 |
| 4-Ethyltoluene | 3.6 | 36 |
| Benzene | 9.4 | 94 |
| Ethylbenzene | 5.7 | 57 |
| Naphthalene | 5.1 | 51 |
| Styrene | 1.9 | 19 |
| Toluene | 43 | 430 |
| m/p-Xylenes | 22.2 | 222 |
| o-Xylene | 7.9 | 79 |
| 2-Butanone (MEK) | 12 | 120 |
| Acetone | 98.9 | 989 |
| Chloroform | 1.1 | 11 |
| Trichlorethene (TCE) | 4.2 | 42 |

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

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HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

40 0 80

GRAPHIC SCALE IN FEET

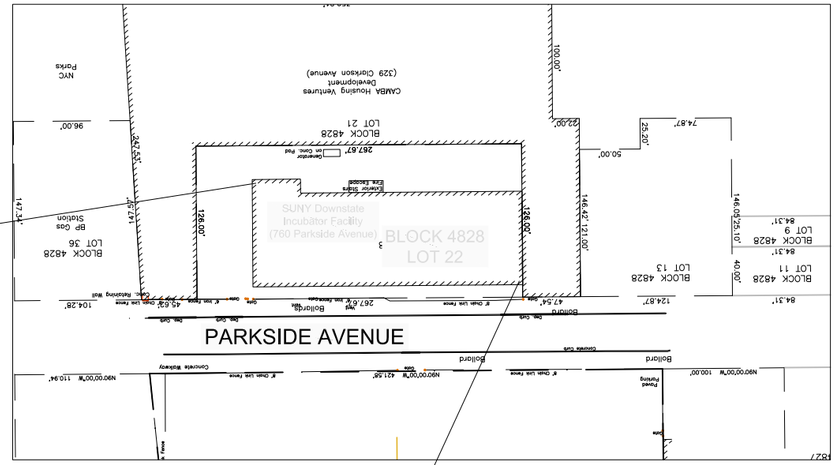
NAD 83-CORS New York East 3101

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS**

DATE: 04/08/2025 | DRWN: JB | JOB #: 60625627 | **FIGURE 2-7**

File: L:\Legacy\USCHI\TPR001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\SMP\Updated_20250407\Figure 2-7 Summary of Soil Vapor Analytical Results.dwg Layout: AECOM-TBLK User: Bourdeaul Plotted: Apr 08, 2025 - 5:55pm Xref's:


PARKSIDE AVENUE
BLOCK 4828
LOT 22
SUNY Downstate
Incubator Facility
(760 Parkside Avenue)
CAMBA Housing Ventures
Development
(329 Clarkson Avenue)
NYC
Parks
BLOCK 4828
LOT 21
BLOCK 4828
LOT 36
BP Gas
Station
BLOCK 4828
LOT 13
BLOCK 4828
LOT 11
BLOCK 4828
LOT 9
Bollard
Concrete Bollard
Chain link fence
Concrete Walkway
Planting
Tree
Curb
Gas Gate
Chainlink Fence
Retaining Wall
Chain link fence
Chainlink Fence
Concrete Curb
Gas Gate
Gas Gate
Chain link fence
Chainlink Fence
Bollard
Bollard
Chain link fence
Chainlink Fence
Concrete Walkway
Bollard
Bollard
Chain link fence
Chainlink Fence

AECOM

WINTHROP STREET

1 STORY BRICK BUILDING

SUNY Downstate Parking Lot (324 Winthrop Street)

1 STORY MASONRY BUILDING

NYC Sanitation Department

NEW YORK AVENUE

Paved Parking

Bollard

Bollard

Concrete Walkway

PARKSIDE AVENUE

Bollard

Bollards

SUNY Downstate Incubator Facility (760 Parkside Avenue)

BP Gas Station

CAMBA Housing Ventures Development (329 Clarkson Avenue)

NYC Parks

CLARKSON AVENUE

## Legend

- Pervious Cover System
- Impervious Cover System (Concrete, Asphalt, and Building Foundations)

N

80 0 80

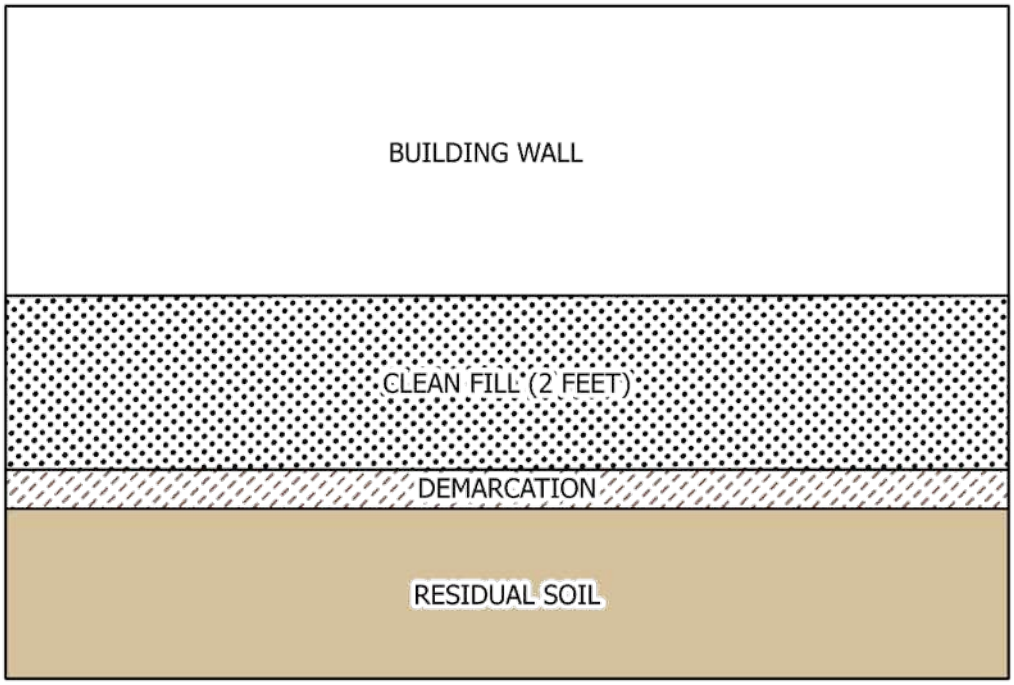
Feet

L:\Legacy\USCH\L1FP001\Data\Projects\Jobs\Rem Eng\Project Files\National Grid\Flatbush A&B\60218917090-CAD-GIS\GIS\MAPS\SMPF\g_3_1_Composite_Cover_System_Loc.mxd

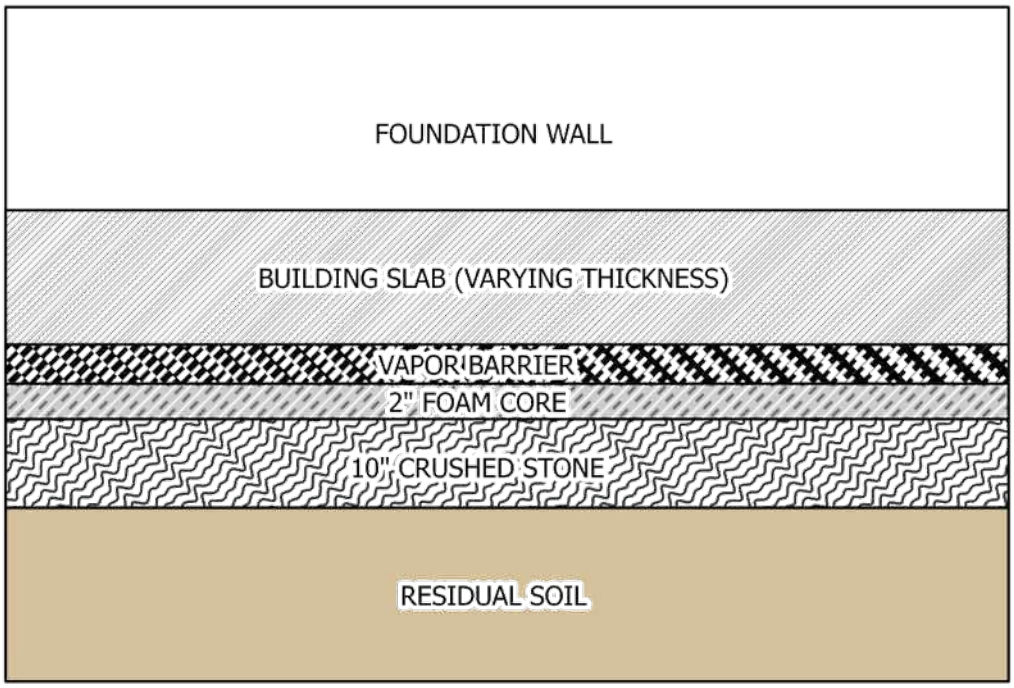
| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | COMPOSITE COVER<br>SYSTEM LOCATIONS | |
|---|---|---|---|---|
| DATE: April 2025 | DRAWN: JB | JOB NO: 60625627 | | FIGURE 3-1 |

File: L:\Legacy\USCHLTFP001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\SMP\Updated_20250214\Figure 3-2 Typical As-built Cross Section of CCS beneath 329 Clarkson.dwg Layout: Typical Cross Section User: BourdeauJ Plotted: Feb 17, 2025 - 4:28pm Xref's:

AECOM




CLEAN FILL
NOT TO SCALE




SSDS
NOT TO SCALE

SOURCE:
FROM GZA GEOENVIRONMENTAL, INC. CCR.

| | | | | |
|---|---|---|---|---|
| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | **TYPICAL AS-BUILT CROSS SECTION OF CCS BENEATH 329 CLARKSON** | |
| DATE: 02/14/2025 | DRWN: JB | JOB #: 60625627 | | **FIGURE 3-2** |

# Appendices

# Appendix A
# Metes and Bounds Description

CONTROL POINT ASSOCIATES, INC.
traditional methods | modern approaches

9 Times Square,
200 West 41st Street, 14TH floor
New York, NY 10036
Tel: 908.668.0099
www.cpasurvey.com

JANUARY 2, 2025
04-200342-01

**ENVIRONMENTAL EASEMENT DESCRIPTION**
**NYSDEC SITE ID NO.224061**

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE BOROUGH OF BROOKLYN, COUNTY OF KINGS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF CLARKSON AVENUE, DISTANT 280.92 FEET EASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF CLARKSON AVENUE WITH THE EASTERLY SIDE OF NOSTRAND AVENUE;

RUNNING THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 100.00 FEET;

THENCE WESTERLY PARALLEL WITH CLARKSON AVENUE, 22.00 FEET;

THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 146.42 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 47.54 FEET;

THENCE SOUTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET;

THENCE EASTERLY PARALLEL WITH PARKSIDE AVENUE 267.67 FEET;

THENCE NORTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 45.63 FEET TO THE EASTERLY SIDE OF LOT NO. 45 ON "MAP OF PROPERTY IN THE VILLAGE OF FLATBUSH BELONGING TO MATHEW CLARKSON, ESQ." SURVEYED BY ISAAC T. LUDLAM, APRIL 1831 AND FILED IN THE OFFICE OF THE REGISTER OF THE COUNTY OF KINGS ON SEPTEMBER 15, 1834 AS MAP NO. 75;

THENCE SOUTHERLY ALONG THE SAID EASTERLY SIDE OF SAID LOT NO. 45 ON SAID MAP AND ALONG THE WESTERLY LINE OF LAND OF THE CITY OF NEW YORK, FORMERLY OF KINGS COUNTY ALMS HOUSE FORMING AN INTERIOR ANGLE TO 93 DEGREES 7 MINUTES 23 SECONDS, 247.53 FEET TO THE NORTHERLY SIDE OF CLARKSON AVENUE;

THENCE WESTERLY ALONG THE NORTHERLY SIDE OF CLARKSON AVENUE, 352.81 FEET TO THE POINT OR PLACE OF BEGINNING.

CONTAINING 54,843± SQUARE FEET OR 1.259± ACRES.

# Appendix B
# Environmental Easements

**NYC DEPARTMENT OF FINANCE**
**OFFICE OF THE CITY REGISTER**

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

2020010200621001003E0A18

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

**Document ID: 2020010200621001** Document Date: 11-25-2019 Preparation Date: 01-14-2020
Document Type: EASEMENT
Document Page Count: 9

**PRESENTER:**
FIRST AMERICAN TITLE
666 THIRD AVENUE
994258 ACCOM
NEW YORK, NY 10017
212-551-9421
MLETTIERI@FIRSTAM.COM

**RETURN TO:**
BARCLAY DAMON LLP
125 EAST JEFFERSON STREET
ATTN: JOAN LAMSON
SYRACUSE, NY 13202

**PROPERTY DATA**

| Borough | Block | Lot | Unit | Address |
|---|---|---|---|---|
| BROOKLYN | 4827 | 30 | Entire Lot | N/A WINTHROP STREET |

**Property Type:** UTILITY Easement

**CROSS REFERENCE DATA**

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

**PARTIES**

**GRANTOR/SELLER:**
THE BROOKLYN UNION GAS COMPANY
1 METROTECH CENTER, 1ST FLOOR
BROOKLYN, NY 11201

**GRANTEE/BUYER:**
THE PEOPLE OF THE STATE OF NEW YORK
C/O: NEW YORK STATE DEC, 625 BROADWAY
ALBANY, NY 12207-2942

**FEES AND TAXES**

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

| | | |
|---|---|---|
| Filing Fee: | $ | 100.00 |
| NYC Real Property Transfer Tax: | $ | 0.00 |
| NYS Real Estate Transfer Tax: | $ | 0.00 |

**RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK**
Recorded/Filed 01-17-2020 14:11
City Register File No.(CRFN): **2020000021909**

*City Register Official Signature*

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

**THIS INDENTURE** made this 25th day of November, 2019, between Owner The Brooklyn Union Gas Company, having an office at 1 Metrotech Center, 1st floor, Brooklyn, New York 11201, County of Kings, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

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

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

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

**WHEREAS,** Grantor, is the owner of real property located at the address of N/A Winthrop Street in the City of New York, County of Kings and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 4827 Lot 30, being the same as a portion of that property conveyed to Grantor by the following three deeds:

- a deed dated April 13, 1907 and recorded in the Kings County Clerk's Office at Liber 27, Page 368;
- a deed dated April 22, 1909 and recorded in the Kings County Clerk's Office at Liber 3146, Page 47; and
- a deed dated December 1, 1922 and recorded in the Kings County Clerk's Office at Liber 4256, Page 365

The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.115 +/- acres, and is hereinafter more fully described in the Land Title Survey dated July 31, 2017, last revised on April 3, 2019, prepared by Kenny L. Kennon, P.L.S. of Kennon Surveying Services Inc., which will be attached to the Site Management Plan. The Controlled

Property description is set forth in and attached hereto as Schedule A; and

**WHEREAS**, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

**NOW THEREFORE**, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: A2-0052-0606, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

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

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

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

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

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

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

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

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

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

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

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

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

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

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

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

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

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

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

**This property is subject to an Environmental Easement held**

**by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.**

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

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

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

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

(i) are in-place;

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

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

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

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

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

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

(7) the information presented is accurate and complete.

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

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

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

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

5. Enforcement

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

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

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

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

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

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

Parties shall address correspondence to:

Site Number: 224061
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

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

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

communicating notices and responses to requests for approval.

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

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

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

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

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

**Remainder of Page Intentionally Left Blank**

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

The Brooklyn Union Gas Company:

By: _____

Print Name: Charles Willard

Title: Authorized Representative Date: 11/4/2019

**Grantor's Acknowledgment**

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

On the 4 day of ~~October~~ KMB November, in the year 20 19, before me, the undersigned, personally appeared Charles Willard, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Kelly Marie Likens
Notary Public - State of New York

KELLY MARIE LIKENS NOTARY PUBLIC STATE OF NEW YORK NO. 01LI6396435 QUALIFIED IN ONONDAGA COUNTY COMM. EXP. 08-19-2023

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

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

**Grantee's Acknowledgment**

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

On the 25 day of November, in the year 2019, before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

JUSTIN F STENERSON
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 02ST6383061
Qualified in Ulster County
Commission Expires November 13, 2022

## SCHEDULE "A" PROPERTY DESCRIPTION

Lot 30, Block 4827
Borough of Brooklyn
Kings County, New York

A tract of land known as Lot 30, Block 4827, in the Borough of Brooklyn, Kings County, New York and being more particularly described as follows:

Beginning at a point on the southerly side of Winthrop Street said point being 373.10' (survey) (363' 3 ¼ " deed) from the corner formed by the easterly side of Nostrand Avenue and the southerly side of Winthrop Street; thence,

1. Southerly at right angles to Winthrop Street 90' thence,

2. Easterly parallel with Winthrop Street, 38'; thence,

3. Northerly at right angles to the preceding course 23'; thence,

4. Northeasterly on a line forming an interior angle of 225 degrees with the proceeding course 33' 11¼ "; thence,

5. North on a line forming an interior angle of 135 degrees with the proceeding course 19'; thence,

6. Northeasterly on a line forming an interior angle of 225 degrees with the proceeding course 33' 11¼" to the southerly side of Winthrop Street; thence,

7. Westerly along the southerly side of Winthrop Street 86' to the POINT OF BEGINNING containing 0.115 acres.

**NYC DEPARTMENT OF FINANCE**
**OFFICE OF THE CITY REGISTER**

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

2019122600553001003E2DE6

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

**Document ID: 2019122600553001** Document Date: 11-20-2019 Preparation Date: 01-10-2020
Document Type: EASEMENT
Document Page Count: 9

**PRESENTER:**
FIRST AMERICAN TITLE
666 THIRD AVENUE
994251 ACCOM
NEW YORK, NY 10017
212-551-9421
MLETTIERI@FIRSTAM.COM

**RETURN TO:**
BARCLAY DAMON LLP
125 EAST JEFFERSON STREET
ATTN: JOAN LAMSON
SYRACUSE, NY 13202

**PROPERTY DATA**

| Borough | Block | Lot | Unit | Address |
|---|---|---|---|---|
| BROOKLYN | 4828 | 22 | Entire Lot | 760 PARKSIDE AVENUE |

**Property Type:** OTHER Easement

**CROSS REFERENCE DATA**

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

**PARTIES**

**GRANTOR/SELLER:**
THE HEALTH SCIENCE CENTER AT BROOKLYN FOUNDATION
450 CLARKSON AVENUE
BROOKLYN, NY 11203

**GRANTEE/BUYER:**
THE PEOPLE OF THE STATE OF NEW YORK
NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, 625 BROADWAY
ALBANY, NY 12233

**FEES AND TAXES**

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

| | | |
|---|---|---|
| Filing Fee: | $ | 100.00 |
| NYC Real Property Transfer Tax: | $ | 0.00 |
| NYS Real Estate Transfer Tax: | $ | 0.00 |

**RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK**
Recorded/Filed 01-13-2020 17:10
City Register File No.(CRFN): **2020000014497**

*City Register Official Signature*

3020-994251



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

**THIS INDENTURE** made this 20th day of November, 20 19 between Owner The Health Science Center at Brooklyn Foundation, Inc., having an office at 450 Clarkson Avenue, Brooklyn, New York 11203, County of Kings, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

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

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

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

**WHEREAS,** Grantor, is the owner of real property located at the address of 760 Parkside Avenue, Brooklyn, New York in the City of New York, County of Kings and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 4828 Lot 22, being the same as that property conveyed to Grantor by deed dated December 21, 2001 and recorded in the City Register of the City of New York as Reel 5428 Page 1712. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.774 +/- acres, and is hereinafter more fully described in the Land Title Survey dated July 31, 2017, last revised on April 3, 2019 prepared by Kenny L. Kennon, P.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

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



9

extinguished pursuant to ECL Article 71, Title 36; and

**NOW THEREFORE**, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: A2-0552-0606, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

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

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

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

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

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

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

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

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

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

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

contaminated material must be conducted in accordance with the SMP;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(i) are in-place;

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

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

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

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

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

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

(7) the information presented is accurate and complete.

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

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

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

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

5. Enforcement

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

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

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

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

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

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

Parties shall address correspondence to:

Site Number: 224061
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

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

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

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

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

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

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

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

**Remainder of Page Intentionally Left Blank**

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

The Health Science Center at Brooklyn Foundation, Inc.:

By: _____

Print Name: Wayne J. Riley M.D.
Exec. V.P & CAO
HSCBF

Title: _____ Date: 8/23/19

**Grantor's Acknowledgment**

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

On the 23 day of August, in the year 20 19, before me, the undersigned, personally appeared Wayne J. Riley, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

REINA T. ALFRED
Notary Public, State of New York
No.01AL6395305
Qualified in Kings County
Commission Expires July 22, 2023

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

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

**Grantee's Acknowledgment**

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

On the 20th day of November, in the year 2019 before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, ~~executed the~~ instrument.

_____
Notary Public - State of New York

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

## SCHEDULE "A" PROPERTY DESCRIPTION

Property Description
Lot 22, Block 4828
Borough of Brooklyn
Kings County, New York

A tract of land known as 22, Block 4828, in the Borough of Brooklyn, Kings County, New York as recorded by the City Register of the City of New York on January 10, 2002 Reel No. 5428, Page 1712 and being more particularly described as follows:

All that certain plot, piece or parcel of land, piece or parcel of land, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

Beginning at a point on the southerly side of Parkside Avenue, distant 307' 0-1/2" easterly from the corner formed by the intersection of the southerly side of Parkside Avenue and the easterly side of Nostrand Avenue;

1. Running thence southerly at right angles to Parkside Avenue and part of the distance through a party wall, 126'; thence,

2. Easterly parallel with Parkside Avenue and part of the distance through a party wall 267' 8"; thence,

3. Northerly again at right angles to Parkside Avenue, 126' to the Southerly side of Parkside Avenue; thence,

4. Westerly along the southerly side of Parkside Avenue, 267' 8" to the POINT OF BEGINNING of the herein described tract containing 0.774 acres.

**NYC DEPARTMENT OF FINANCE**
**OFFICE OF THE CITY REGISTER**

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

2025050800459001002E9E90

**RECORDING AND ENDORSEMENT COVER PAGE** **PAGE 1 OF 12**

**Document ID: 202505080045900I** Document Date: 04-21-2025 Preparation Date: 05-14-2025
Document Type: EASEMENT
Document Page Count: 10

**PRESENTER:**
SIVE PAGET & RIESEL, P.C.
560 LEXINGTON AVENUE, 15TH FLOOR
NEW YORK, NY 10022
212-421-2150
NDUNCAN@SPRLAW.COM

**RETURN TO:**
SIVE PAGET & RIESEL, P.C.
560 LEXINGTON AVENUE, 15TH FLOOR
NEW YORK, NY 10022
212-421-2150
NDUNCAN@SPRLAW.COM

**PROPERTY DATA**

| Borough | Block | Lot | Unit | Address |
|---|---|---|---|---|
| BROOKLYN | 4828 | 21 | Entire Lot | 329 CLARKSON AVENUE |

**Property Type:** OTHER Easement

**CROSS REFERENCE DATA**

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

**PARTIES**

**GRANTOR/SELLER:**
CHV 329 CLARKSON AVENUE HOUSING DEVELOPMENT FUND C
C/O: CAMBA HOUSING VENTURES, INC., 1720 CHURCH AVENUE, 2ND FLOOR

☒ Additional Parties Listed on Continuation Page

**GRANTEE/BUYER:**
NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NY 12233

**FEES AND TAXES**

| **Mortgage :** | | |
|---|---|---|
| Mortgage Amount: | $ | 0.00 |
| Taxable Mortgage Amount: | $ | 0.00 |
| Exemption: | | |
| TAXES: County (Basic): | $ | 0.00 |
| City (Additional): | $ | 0.00 |
| Spec (Additional): | $ | 0.00 |
| TASF: | $ | 0.00 |
| MTA: | $ | 0.00 |
| NYCTA: | $ | 0.00 |
| Additional MRT: | $ | 0.00 |
| TOTAL: | $ | 0.00 |
| Recording Fee: | $ | 87.00 |
| Affidavit Fee: | $ | 0.00 |

| | |
|---|---|
| Filing Fee: | |
| $ | 100.00 |
| NYC Real Property Transfer Tax: | |
| $ | 0.00 |
| NYS Real Estate Transfer Tax: | |
| $ | 0.00 |

**RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK**
Recorded/Filed 05-15-2025 09:57
City Register File No.(CRFN): **2025000130947**

*City Register Official Signature*

**NYC DEPARTMENT OF FINANCE**
**OFFICE OF THE CITY REGISTER**

2025050800459001002C9C10

**RECORDING AND ENDORSEMENT COVER PAGE (CONTINUATION)** **PAGE 2 OF 12**

**Document ID: 2025050800459001** Document Date: 04-21-2025 Preparation Date: 05-14-2025
Document Type: EASEMENT

**PARTIES**

**GRANTOR/SELLER:**
CHV 329 CLARKSON AVENUE L.P.
1720 CHURCH AVENUE, 2ND FLOOR
BROOKLYN, NY 11226

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

**THIS INDENTURE** made this 21st day of April, 2025, between fee owner, CHV 329 Clarkson Avenue Housing Development Fund Corporation, having an office at c/o Camba Housing Ventures, Inc., 1720 Church Avenue, 2nd Floor, Brooklyn, NY 11226 and beneficial owner CHV 329 Clarkson Avenue L.P., having an address at c/o Camba Housing Ventures, Inc., 1720 Church Avenue, 2nd Floor, Brooklyn, NY 11226 (collectively, the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

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

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

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

**WHEREAS,** Grantor, is the owner of real property located at the address of 329 Clarkson Avenue in the City of New York, County of Kings and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 4828 Lot 21, being the property conveyed to Grantor by deed dated March 30, 2023 and recorded in the City Register of the City of New York as CRFN 2023000093984.

**WHEREAS,** the property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.259 +/- acres, and is hereinafter more fully described in the Land Title Survey dated January 2, 2025 prepared by William T. Whimple (Registration No. 50526), of Control Point Associates Inc PC which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

**WHEREAS**, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

**NOW THEREFORE**, in consideration of the mutual covenants contained herein and the terms and conditions of Consent Order, Index No. A2-0552-0606, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

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

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

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

**Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)**

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

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

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

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

(6) Data and information pertinent to Site Management of the Controlled

Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(i) are in-place;

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

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

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

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

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

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

(7) the information presented is accurate and complete.

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

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

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

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

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by

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

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

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

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

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

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

| | |
|---|---|
| Parties shall address correspondence to: | Site Number: 224061<br>Office of General Counsel<br>NYSDEC<br>625 Broadway<br>Albany New York 12233-5500 |
| With a copy to: | Site Control Section<br>Division of Environmental Remediation<br>NYSDEC<br>625 Broadway<br>Albany, NY 12233 |

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

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of

this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

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

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

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

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

**Remainder of Page Intentionally Left Blank**

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

CHV 329 Clarkson Avenue Housing Development Fund Corporation:

By: _____

Print Name: Valerie Barton-Richardson

Title: President Date: 4/10/2025

**Grantor's Acknowledgment**

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

On the 10th day of APRIL, in the year 20 25, before me, the undersigned, personally appeared VALERIE BARTON-RICHARDSON personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

LORA LYNN T. DELARAMA
NOTARY PUBLIC-STATE OF NEW YORK
No. 01DE6082190
Qualified in Queens County
My Commission Expires 10-21-2026

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

CHV 329 Clarkson Avenue L.P. :

By: _____

Print Name: Valerie Barton-Richardson

Title: President of CHV 329 Clarkson Avenue GP Inc., signing on behalf of CHV 329 Clarkson Avenue L.P. Date: 4/10/2025

**Grantor's Acknowledgment**

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

On the 10th day of APRIL, in the year 2025, before me, the undersigned, personally appeared VALERIE BARTON - RICHARDSON personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

LORA LYNN T. DELARAMA
NOTARY PUBLIC-STATE OF NEW YORK
No. 01DE6082190
Qualified in Queens County
My Commission Expires 10-21-2026

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

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

**Grantee's Acknowledgment**

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

On the 21st day of April, in the year 2025 before me, the undersigned, personally appeared Andrew O. Guglielmi, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

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

## SCHEDULE "A" PROPERTY DESCRIPTION

### ENVIRONMENTAL EASEMENT LEGAL DESCRIPTION

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE BOROUGH OF BROOKLYN, COUNTY OF KINGS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF CLARKSON AVENUE, DISTANT 280.92 FEET EASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF CLARKSON AVENUE WITH THE EASTERLY SIDE OF NOSTRAND AVENUE;

RUNNING THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 100.00 FEET;

THENCE WESTERLY PARALLEL WITH CLARKSON AVENUE, 22.00 FEET;

THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 146.42 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 47.54 FEET;

THENCE SOUTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET;

THENCE EASTERLY PARALLEL WITH PARKSIDE AVENUE 267.67 FEET;

THENCE NORTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 45.63 FEET TO THE EASTERLY SIDE OF LOT NO. 45 ON "MAP OF PROPERTY IN THE VILLAGE OF FLATBUSH BELONGING TO MATHEW CLARKSON, ESQ." SURVEYED BY ISAAC T. LUDLAM, APRIL 1831 AND FILED IN THE OFFICE OF THE REGISTER OF THE COUNTY OF KINGS ON SEPTEMBER 15, 1834 AS MAP NO. 75;

THENCE SOUTHERLY ALONG THE SAID EASTERLY SIDE OF SAID LOT NO. 45 ON SAID MAP AND ALONG THE WESTERLY LINE OF LAND OF THE CITY OF NEW YORK, FORMERLY OF KINGS COUNTY ALMS HOUSE FORMING AN INTERIOR ANGLE TO 93 DEGREES 7 MINUTES 23 SECONDS, 247.53 FEET TO THE NORTHERLY SIDE OF CLARKSON AVENUE;

THENCE WESTERLY ALONG THE NORTHERLY SIDE OF CLARKSON AVENUE, 352.81 FEET TO THE POINT OR PLACE OF BEGINNING.

CONTAINING 54,843± SQUARE FEET OR 1.259± ACRES.

**LEGAL DESCRIPTION - DEED**
**SCHEDULE A**
LOT 21
BLOCK 4828

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE BOROUGH OF BROOKLYN, COUNTY OF KINGS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF CLARKSON AVENUE, DISTANT 280.92 FEET EASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF CLARKSON AVENUE WITH THE EASTERLY SIDE OF NOSTRAND AVENUE;

RUNNING THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 100.00 FEET;

THENCE WESTERLY PARALLEL WITH CLARKSON AVENUE, 22.00 FEET;

THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 146.42 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 47.54 FEET PER DEED (47.34 FEET PER TAX MAP);

THENCE SOUTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET;

THENCE EASTERLY PARALLEL WITH PARKSIDE AVENUE 267.67 FEET;

THENCE NORTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 45.63 FEET (46.01 FEET PER TAX MAP) TO THE EASTERLY SIDE OF LOT NO. 45 ON "MAP OF PROPERTY IN THE VILLAGE OF FLATBUSH BELONGING TO MATHEW CLARKSON, ESQ." SURVEYED BY ISAAC T. LUDLAM, APRIL 1831 AND FILED IN THE OFFICE OF THE REGISTER OF THE COUNTY OF KINGS ON SEPTEMBER 15, 1834 AS MAP NO. 75;

THENCE SOUTHERLY ALONG THE SAID EASTERLY SIDE OF SAID LOT NO. 45 ON SAID MAP AND ALONG THE WESTERLY LINE OF LAND OF THE CITY OF NEW YORK, FORMERLY OF KINGS COUNTY ALMS HOUSE FORMING AN INTERIOR ANGLE TO 93 DEGREES 7 MINUTES 23 SECONDS, 247.53 FEET TO THE NORTHERLY SIDE OF CLARKSON AVENUE;

THENCE WESTERLY ALONG THE NORTHERLY SIDE OF CLARKSON AVENUE, 352.81 FEET TO THE POINT OR PLACE OF BEGINNING.

**ENVIRONMENTAL EASEMENT DESCRIPTION**
NYSDEC SITE ID NO. 224061

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE BOROUGH OF BROOKLYN, COUNTY OF KINGS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF CLARKSON AVENUE, DISTANT 280.92 FEET EASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF CLARKSON AVENUE WITH THE EASTERLY SIDE OF NOSTRAND AVENUE;

RUNNING THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 100.00 FEET;

THENCE WESTERLY PARALLEL WITH CLARKSON AVENUE, 22.00 FEET;

THENCE NORTHERLY AT RIGHT ANGLES TO CLARKSON AVENUE, 146.42 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 47.54 FEET;

THENCE SOUTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET;

THENCE EASTERLY PARALLEL WITH PARKSIDE AVENUE 267.67 FEET;

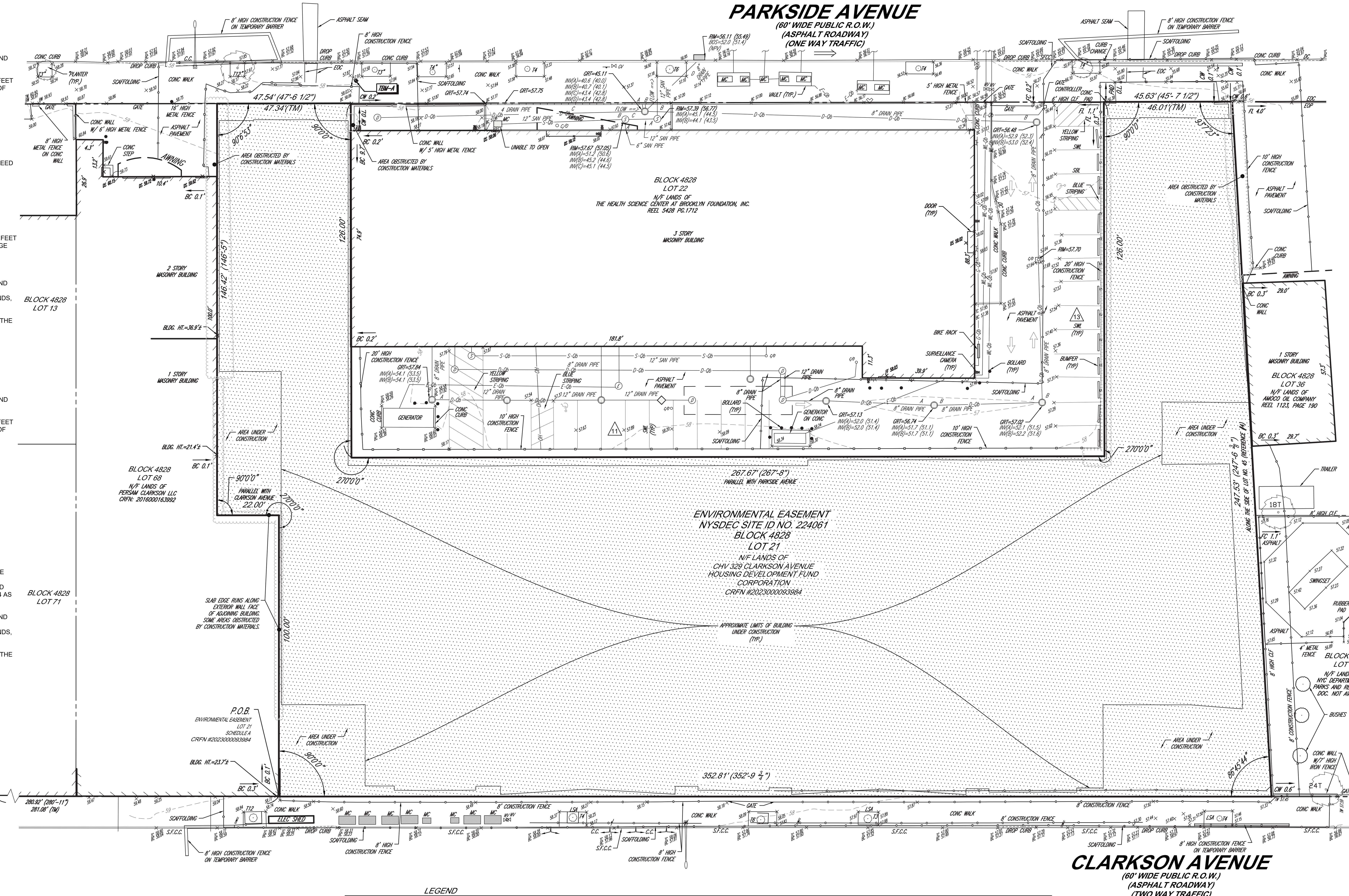
THENCE NORTHERLY AT RIGHT ANGLES TO PARKSIDE AVENUE, 126.00 FEET TO THE SOUTHERLY SIDE OF PARKSIDE AVENUE;

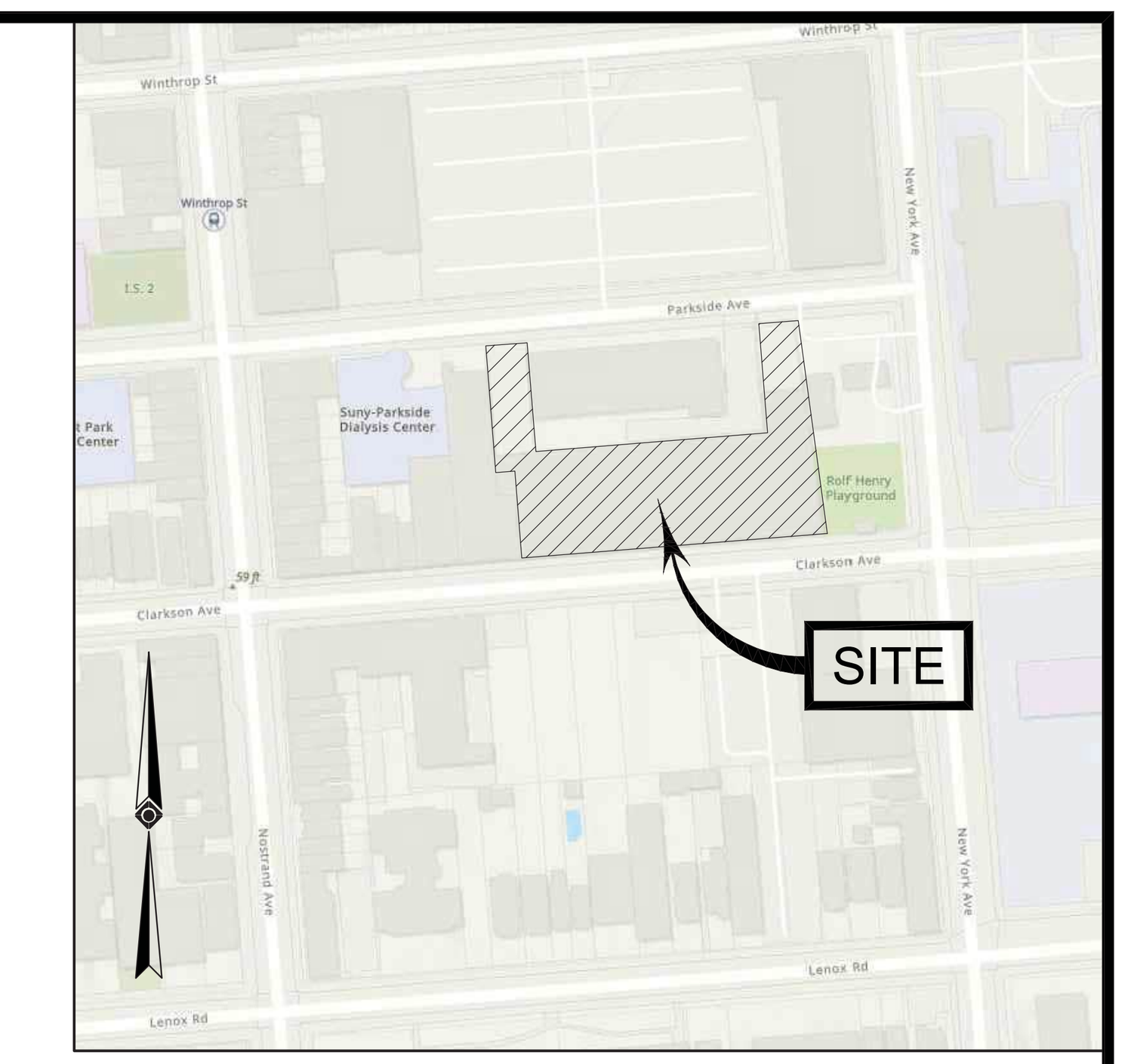
THENCE EASTERLY ALONG THE SOUTHERLY SIDE OF PARKSIDE AVENUE, 45.63 FEET TO THE EASTERLY SIDE OF LOT NO. 45 ON "MAP OF PROPERTY IN THE VILLAGE OF FLATBUSH BELONGING TO MATHEW CLARKSON, ESQ." SURVEYED BY ISAAC T. LUDLAM, APRIL 1831 AND FILED IN THE OFFICE OF THE REGISTER OF THE COUNTY OF KINGS ON SEPTEMBER 15, 1834 AS MAP NO. 75;

THENCE SOUTHERLY ALONG THE SAID EASTERLY SIDE OF SAID LOT NO. 45 ON SAID MAP AND ALONG THE WESTERLY LINE OF LAND OF THE CITY OF NEW YORK, FORMERLY OF KINGS COUNTY ALMS HOUSE FORMING AN INTERIOR ANGLE TO 93 DEGREES 7 MINUTES 23 SECONDS, 247.53 FEET TO THE NORTHERLY SIDE OF CLARKSON AVENUE;

THENCE WESTERLY ALONG THE NORTHERLY SIDE OF CLARKSON AVENUE, 352.81 FEET TO THE POINT OR PLACE OF BEGINNING.

CONTAINING 54,843± SQUARE FEET OR 1.259± ACRES.




VICINITY MAP
© 2022 ESRI WORLD LIGHT GRAY CANVAS
(NOT TO SCALE)

*This property is subject to an environmental easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the New York Environmental Conservation Law. The engineering and institutional controls for this Easement are set forth in more detail in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at derweb@dec.ny.gov.*

PER REFRENCE #3

NOTES:

1. PROPERTY KNOWN AS LOT 21, BLOCK 4828, AS SHOWN ON THE NEW YORK CITY DIGITAL TAX MAP OF THE BOROUGH OF BROOKLYN, KINGS COUNTY, CITY AND STATE OF NEW YORK.
2. AREA = 54,843 SQUARE FEET OR 1.259 ACRES.
3. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE ASBUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES. CONTROL POINT ASSOCIATES, INC. DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED.

   A QUALITY LEVEL SYSTEM IS UTILIZED TO IDENTIFY THE SOURCE OF THE UNDERGROUND UTILITY INFORMATION. THE METHOD OF DETERMINATION IS BASED ON CONTRACTUAL AGREEMENT WITH THE CLIENT AND IS DEPICTED ON THE SURVEY BY THE LINE TYPES SHOWN IN THE DRAWING LEGEND. FOR REFERENCE, THE QUALITY LEVELS ARE AS FOLLOWS:

   QUALITY LEVEL D - UTILITIES SHOWN BASED UPON REFERENCE MAPPING OR ORAL HISTORY. NOT FIELD VERIFIED.

   QUALITY LEVEL B - UTILITY LOCATION DATA IS COLLECTED THROUGH GEOPHYSICAL SENSING TECHNOLOGY TO SUPPLEMENT SURFACE FEATURES AND OR REFERENCE MAPPING. INCLUDES MARKOUT BY CONTROL POINT ASSOCIATES, INC.
4. THIS PLAN IS BASED ON INFORMATION PROVIDED BY CLIENT, A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC., AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
5. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN. IT IS STRONGLY RECOMMENDED THAT A COMPLETE TITLE SEARCH BE PROVIDED TO THE SURVEYOR FOR REVIEW PRIOR TO THE PLACEMENT OF OR ALTERATION TO IMPROVEMENTS ON THE PROPERTY.
6. THE PROPERTY IS LOCATED IN ZONE X, NO SPECIAL FLOOD HAZARD, PER REF. #2.
7. THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY.
8. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON GPS OBSERVATIONS UTILIZING THE KEYSTONE VRS NETWORK (KEYNETGPS).
   TEMPORARY BENCH MARKS SET:
   TBM-A: X-CUT SET IN CONCRETE SIDEWALK ON THE SOUTHERLY SIDE OF PARKSIDE AVENUE, ELEVATION= 57.95'
   TBM-B: X-CUT SET IN CONCRETE SIDEWALK ON NORTHERLY SIDE OF CLARKSON AVENUE, ELEVATION= 57.85'

   TO CONVERT TO BROOKLYN HIGHWAY DATUM SUBTRACT 1.45 FEET FROM THE ELEVATIONS SHOWN.
   TO CONVERT TO BROOKLYN SEWER DATUM SUBTRACT 0.62 FEET FROM THE ELEVATION SHOWN.
   TO CONVERT TO NGVD 1929 ADD 1.10 FEET TO ELEVATIONS SHOWN.
   TO CONVERT TO FLATBUSH DATUM SUBTRACT 1.30 FEET FROM THE ELEVATIONS SHOWN.

   PRIOR TO CONSTRUCTION IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE BENCHMARKS ILLUSTRATED ON THIS SKETCH HAVE NOT BEEN DISTURBED AND THEIR ELEVATIONS HAVE BEEN CONFIRMED. ANY CONFLICTS MUST BE REPORTED PRIOR TO CONSTRUCTION.
9. THERE WERE NO NATURAL STREAMS OR WATERCOURSES VISIBLE AT THE TIME OF THE FIELD SURVEY.
10. ENCROACHMENTS AND VAULTS, IF ANY, BELOW SURFACE NOT SHOWN HEREON.
11. THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.

*LEGEND*

| Symbol | Description | Symbol | Description | Symbol | Description | Symbol | Description |
|---|---|---|---|---|---|---|---|
| 124 / 125 | EXISTING CONTOUR | WV | WATER VALVE | 10 | PARKING SPACE COUNT | 1.0' | OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE |
| × 123.45 | EXISTING SPOT ELEVATION | GV | GAS VALVE | S.F.C.C. | STEEL FACED CONC. CURB | O.L. | ON LINE |
| × TC 123.45 | EXIST. TOP OF CURB ELEVATION | | SANITARY/SEWER MANHOLE | CLF | CHAIN LINK FENCE | BC | BUILDING CORNER |
| × BC 122.95 | EXIST. BOTTOM OF CURB ELEVATION | | DRAINAGE/STORM MANHOLE | DC | DEPRESSED CURB | FC | FENCE CORNER |
| × TW 123.45 | EXIST. TOP OF WALL ELEVATION | | CATCH BASINS | EOC | EDGE OF CONC. | FC | FENCE POST |
| × BW 122.95 | EXIST. BOTTOM OF WALL ELEVATION | C/O | CLEAN OUT | EOP | EDGE OF PAVEMENT | CW | WALL CORNER |
| × FF 123.45 | EXIST. FINISHED FLOOR ELEVATION | V# | VENT & NUMBER OF VENTS | LSA | LANDSCAPED AREA | C.C. | CONCRETE CURB |
| × DS 123.45 | EXIST. DOOR SILL ELEVATION | | MONITORING WELL ON CONC. | MC | METAL COVER | | ENVIRONMENTAL EASEMENT |
| OH | OVERHEAD WIRES | | METAL COVERS | (TYP) | TYPICAL | | |
| E | APPROX. LOC. UNDERGROUND ELECTRIC LINE | | SIGN | SWL | SOLID WHITE LINE | | |
| G | APPROX. LOC. UNDERGROUND NATURAL GAS LINE | | BOLLARD | SBL | SOLID BLUE LINE | | |
| S | APPROX. LOC. UNDERGROUND SANITARY LINE | | SECURITY CAMERA | DYL | DOUBLE YELLOW LINE | | |
| D | APPROX. LOC. UNDERGROUND DRAINAGE LINE | AC | AIR CONDITIONING UNIT | HT. | HEIGHT | | |
| W | APPROX. LOC. UNDERGROUND WATER LINE | EM | ELECTRIC METER | BLDG. | BUILDING | | |
| | DEPRESSED CURB | | WHEEL STOP | | UNKNOWN TERMINUS | | |
| | FIRE DEPARTMENT CONNECTION (F.D.C.) | | LAMP | | SPEAKER BOX/ALARM BELL | | |
| | HYDRANT | | AREA LIGHT ON BUILDING | | STREET LIGHT | | |
| | | T# | DECIDUOUS TREE & TRUNK SIZE | | | | |


REFERENCES:
1. THE NEW YORK CITY DIGITAL TAX MAP OF THE BOROUGH OF BROOKLYN, KINGS COUNTY, CITY AND STATE OF NEW YORK.
2. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, CITY OF NEW YORK, NEW YORK, BRONX, RICHMOND, NEW YORK, QUEENS AND KINGS COUNTIES," PANEL 212 OF 457, MAP NUMBER 3604970214F (PANEL NOT PRINTED) FEMA HAS NOT COMPLETES A STUDY TO DETERMINE FLOOD HAZARD FOR THE THIS AREA.
3. FINAL SECTION MAP NO. 45, PROVIDED BY THE CITY OF NEW YORK, OFFICE OF THE PRESIDENT OF THE BOROUGH OF MANHATTAN TOPOGRAPHICAL BUREAU.
4. MAP ENTITLED "MAP OF PROPERTY IN THE VILLAGE OF FLATBUSH BELONGING TO MATHEW CLARKSON, ESQ." AS PREPARED BY ISAAC T. LUDLAM, DATED APRIL 1831 AND FILED IN THE OFFICE OF THE REGISTER OF THE COUNTY OF KINGS ON SEPTEMBER 15, 1834 AS MAP NO. 75.
5. MAP ENTITLED "ALTA - NSPS LAND TITLE SURVEY, 329 CLARKSON AVENUE, BLOCK 4828, LOT 21, BOROUGH OF BROOKLYN, COUNTY OF KINGS, CITY AND STATE OF NEW YORK, CONTROL POINT ASSOCIATES PROJECT NO. 04-200342-01, DATED 05-07-2024.


NEW YORK CITY ONE CALL CENTER 1-800-272-4480 STOP-CALL-THEN Dig Safely.

GRAPHIC SCALE
20 0 10 20 40 80
( IN FEET )
1 inch = 20 ft.

GRAPHIC SCALE
6.1 0 6.1 12.2 24.4
(IN METERS
1 inch = 6.1 Meters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HUDSON VALLEY, NY 845.691.7339


| NO. | DATE | BY | DESCRIPTION | APPROVED |
|---|---|---|---|---|
| | | | | |
| | | | | |

REVISIONS

PROJECT NAME
329 CLARKSON AVENUE
NYSDEC SITE ID NO. 224061
BLOCK 4828, LOT 21
BOROUGH OF BROOKLYN, COUNTY OF KINGS
CITY AND STATE OF NEW YORK

DRAWING TITLE
ENVIRONMENTAL EASEMENT EXHIBIT

SEAL & SIGNATURE
STATE OF NEW YORK · WILLIAM THEODORE WHIMPLE · 50526 · LICENSED LAND SURVEYOR
NOT A VALID DOCUMENT UNLESS FIELD WITH RAISED IMPRESSION OR INK SEAL

01-02-2025
DATE
WILLIAM T. WHIMPLE
NEW YORK PROFESSIONAL LAND SURVEYOR #050526

| | |
|---|---|
| FIELD DATE: | 11-26-2024 |
| FIELD BK: | 24-13 |
| F. B. PAGE: | 54 |
| DATE: | 01-02-2025 |
| SCALE: | 1" = 20' |
| PROJECT No: | 04-200342-01 |
| DRAWING BY: | R.J. |
| CHK BY: | J.H. |
| APPROVED BY: | G.S. |
| DWG No: | V-001.0.0 |
| CAD FILE No: 04-200342-01 | PAGE No: 1 OF 1 |


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# Appendix C
# Excavation Work Plan

AECOM

# Excavation Work Plan

# (Appendix C of the Site Management Plan)

**Flatbush Station A&B Former Gas Holder Site**
**Brooklyn, New York**
**NYSDEC Site No.: 2-24-061**
**Order on Consent Index #: A2-0552-0606**

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# 1.0 Notification

At least 15 business days prior to the start of any activity that is anticipated to encounter residual MGP impacts, the Property owner(s) or their representative(s) will notify National Grid and New York State Department of Environmental Conservation (NYSDEC). Currently, this notification will be made to:

**National Grid Program Managers**:

Name: Jonathan Mitchell
Address: 175 East Old Country Road, Hicksville, New York 11801
Telephone: (631) 338-8636
Email: jonathan.mitchell@nationalgrid.com

Name: Mike Quinlan
Address: 175 East Old Country Road, Hicksville, New York 11801
Telephone: (516) 220-4363
Email: michael.quinlan@nationalgrid.com

**NYSDEC Project Manager:**

Name: John B. Miller, P.E.
Address: New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway Albany, New York 12233
Telephone: (518) 402-9589
Cell: (518) 560-2121
Email: john.miller@dec.ny.gov

This notification will include:

- A detailed description of the work to be performed, including the location and aerial extent, plans for re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of impacted soil to be excavated and any work that may impact an engineering control (EC);
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly impacted 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 Excavation Work Plan (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 project-specific health and safety plan (HASP), in electronic format. The HASP provided in Appendix F of this Site Management Plan (SMP) can serve as a template for required project-specific HASP.;
- Identification of NYSDEC and National Grid-approved disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

# 2.0 Excavation Work Plan

## 2.1 Soil Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially residual MGP impacted material. Soil screening will be performed regardless of when the 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 Certificate of Completion (COC).

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

## 2.2 Stockpile Methods

Stockpiles containing known or suspected impacts will be continuously encircled with a berm. Impacted water draining from the soils containing known or suspected impacts will be collected from inside the bermed area and disposed of off-site in an appropriate manner. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

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

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

## 2.3 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 residual MGP impacted material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this EWP.

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

Loaded vehicles leaving the project site will each be appropriately lined and covered with an undamaged solid tarp that is securely fastened to the vehicle. Additionally, each loaded vehicle will be manifested and placarded in accordance with appropriate Federal, State, local, and NYS Department of Transportation (DOT) requirements (and all other applicable transportation requirements).

.

Locations where vehicles enter or exit the project site shall be inspected daily for evidence of off-site soil tracking. If necessary, trucks will be cleaned (via approved dry or wet methods) of loose soil found on outside of vehicle or tires.

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

## 2.4 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.

At a minimum, trucks should have competent cover systems and functional tailgates to prevent leakage of liquids. Trucks transporting residual MGP impacted soils shall be lined with 6-mil polyethylene sheeting large enough to fully cover the top of the load. The truck covers shall be an impermeable soil cover. Additional automatic mesh tarps will be used to secure the liners. Loose-fitting canvas-type truck covers or mesh covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used. All trucks transporting material with residual MGP impacts will be decontaminated prior to leaving the project site. Decontaminated water, if any, will be collected and disposed of off-site in an appropriate manner.

The following truck transport routes are examples of preferred routes for transporting material with residual MGP impacts:

1. Trucks will be required to enter and exit the project site via Rogers Avenue and Norstrand Avenue in Brooklyn.
2. The entry truck route (Figure 1) shall be as follows:
    - Traveling East of Prospect Parkway (NW-27E) to Exit 5
    - Left onto Caton Avenue.
    - Continue on Linden Avenue
    - Left onto Rogers Avenue.
    - Right onto Parkside Avenue.
    - Right onto Site.
3. The exit trucking route (Figure 2) shall be:
    - Right out of Site onto Parkside Avenue
    - Right onto New York Avenue
    - Right onto Church Avenue
    - Right onto Prospect Avenue/NY-27W

It is the property owner/contractor's responsibility to follow all applicable state, local, and municipal rules, regulations, and guidelines (including NYCDOT and NYSDOT) regarding truck routes.

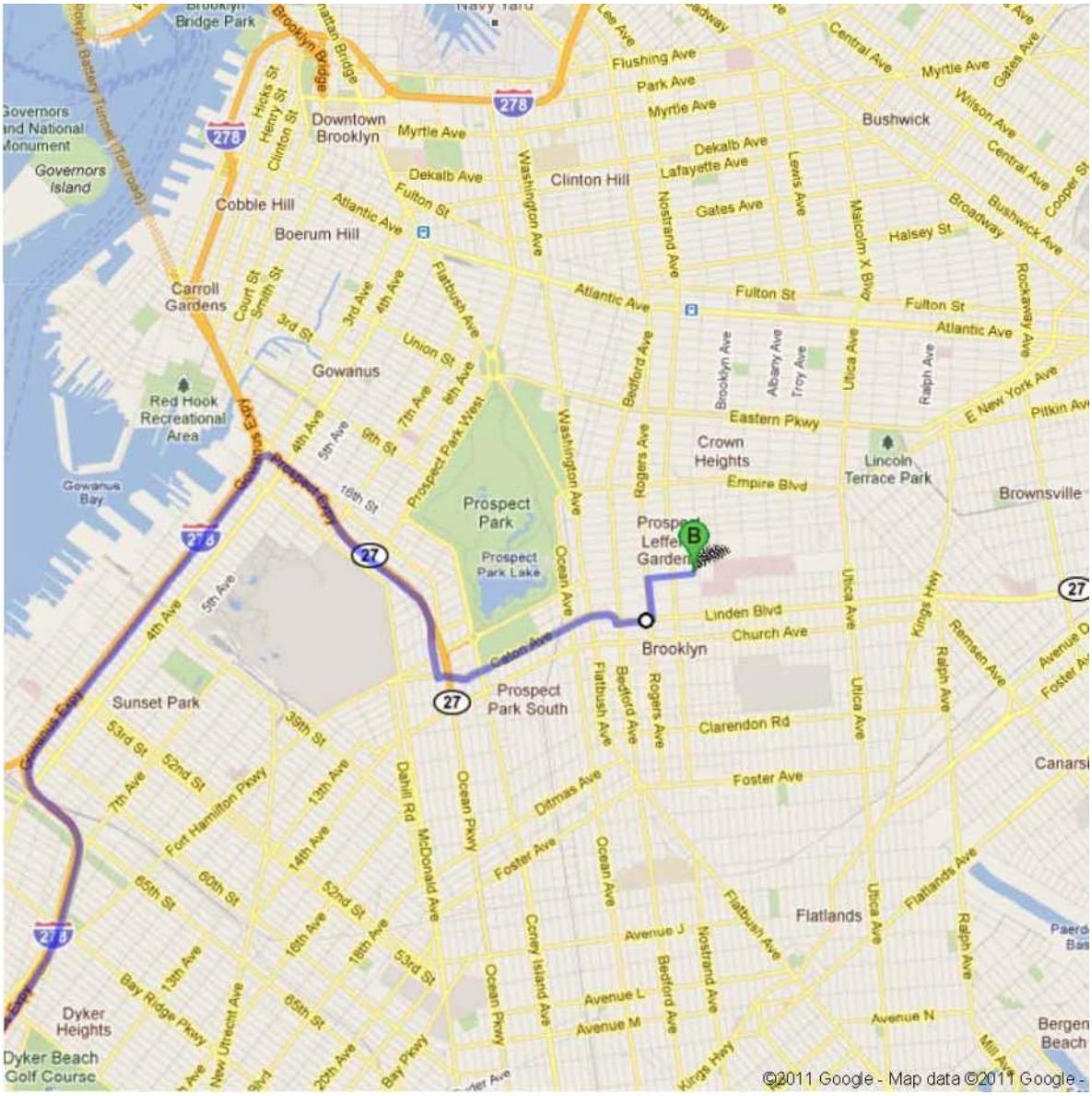



**Figure 1 Truck Entry Route**

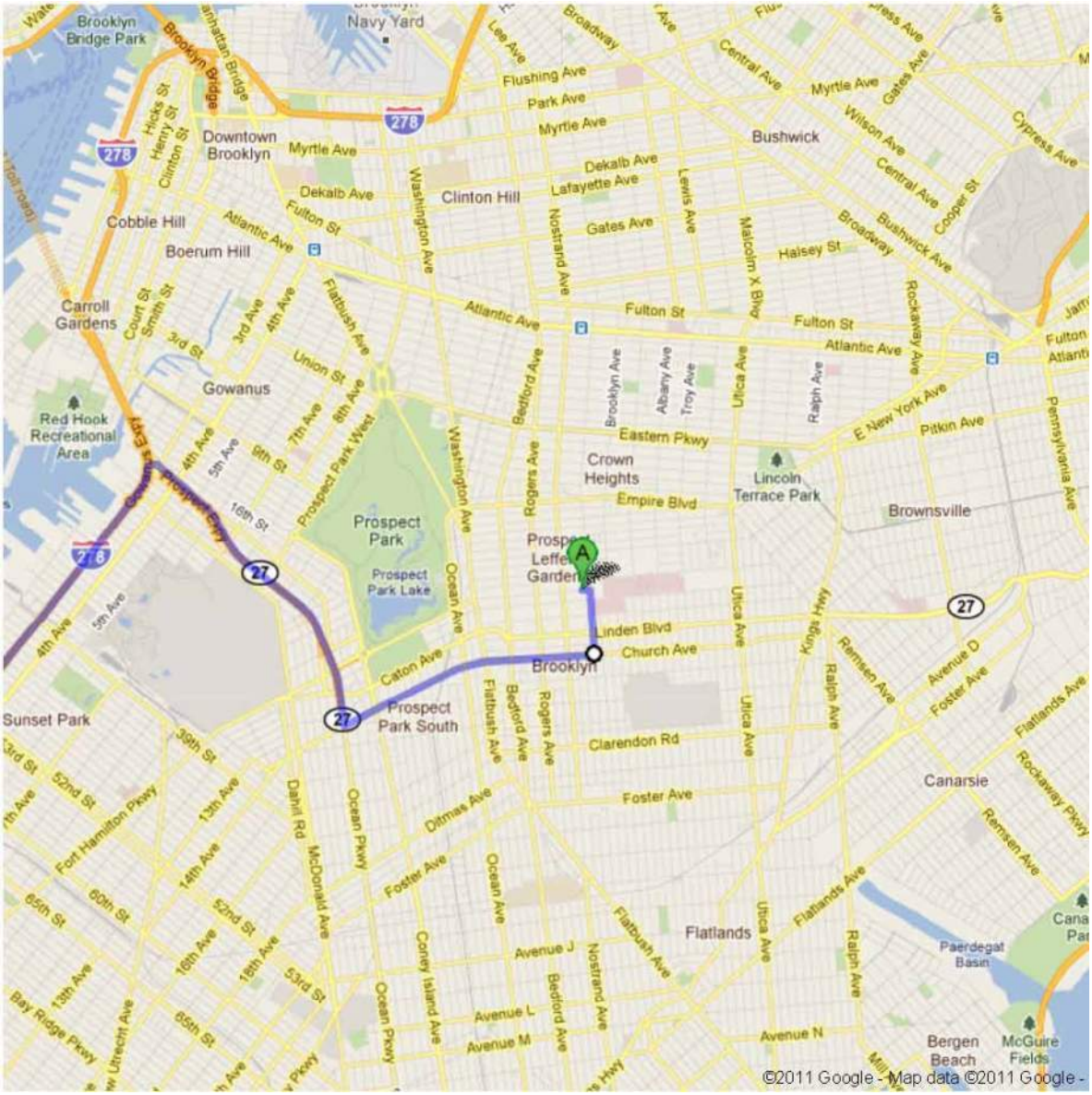



**Figure 2 Truck Exit Route**

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

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

## 2.5 Materials Disposal Off-Site

All soil/fill/solid waste excavated and removed from areas known to have residual MGP impacts will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this project 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 project 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 impacted soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

## 2.6 Materials Reuse On-Site

This section provides details for methods to be followed for materials reuse on-site. 'Reuse on-site' means reuse on-site of material that originates at the project site, and which does not leave the project site during the excavation. All residual MGP impacted material exposed and removed as part of the work at the project site shall be disposed of off-site as detailed in this EWP.

All other material removed from the project site will require NYSDEC approval prior to any reuse on-site. The qualified environmental professional will ensure that procedures defined for materials reuse by the NYSDEC and DER-10 are followed, and that unacceptable material does not remain on-site. Impacted on-site material, including historic fill and non-residual MGP impacted soil, that is approved by NYSDEC for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a composite cover system (CCS), within landscaping berms, or as backfill for subsurface utility lines.

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

## 2.7 Fluids Management

All liquids to be removed from the project site, including excavation dewatering 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 project site but will be managed off-site.

## 2.8 Cover System Restoration

After the completion of soil removal and any other invasive activities, the CCS will be restored in a manner that complies with the SMP and this EWP. The demarcation layer, consisting of orange snow fencing material, or equivalent material, will be placed in excavation areas with residual MGP impacts. The demarcation layer will provide a visual reference to the top of the 'Residual MGP Impact Zone', the zone that requires adherence to special conditions for disturbance of residual MGP impacted soils defined in this SMP. If applicable, the SMP will be updated to show the revised residual MGP impacts. The revised figures will be included in the subsequent Periodic Review Report and in any updates to the SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the 'Residual MGP Impacts Zone". A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the SMP.

## 2.9 Backfill from Off-Site Sources

All materials proposed for import onto the project site will be approved by the qualified environmental professional and the NYSDEC and will be in compliance with provisions in this SMP prior to receipt at the project site.

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

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d). Based on an evaluation of the land use, the resulting soil quality standards of restricted residential and commercial soil cleanup objectives are listed in Table 2-3 *Summary of Soil Analytical Data* of the SMP. Additionally, Table 2-7 *Summary of Analytical Results for PFAS in Subsurface Soil* lists the soil quality standards of restricted residential and protection of groundwater criteria. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this project site, will not be imported onto the project site without prior approval by NYSDEC. Solid waste will not be imported onto the project site. Additionally, all imported soils must be approved by the NYSDEC prior to import to the Site.

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

## 2.10 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

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

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

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

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

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

## 2.11 Contingency Plan

If underground tanks or other previously unidentified impacted materials 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, PCBs, and PFAS), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In that case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected impacted 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 and included in the periodic reports prepared pursuant to Section 5 of the SMP.

## 2.12 Community Air Monitoring Plan

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

Exceedances of action levels listed in the Community Air Monitoring Plan (Appendix F of the SMP) will be reported to NYSDEC and NYSDOH Project Managers.

## 2.13 Odor Control Plan

Fugitive emissions can be generated from a variety of activities including excavation, drilling, and dewatering and/or from the temporary staging of materials for characterization, consolidation, and scheduling for transportation.

Due to the contaminants of interest (COIs) associated with the remedial activities at former MGP sites; fugitive emissions can take the form of volatile organic compounds (VOC's), odor, and/or dust. Dust can be entrained with low levels of high molecular weight constituents, while VOC's can volatilize into ambient air. Odor emissions may result from the atmospheric exposure of impacted media. Impacted material may be present in soils and groundwater. The potential for odor generation from groundwater is less than that from solids. The constituent concentrations associated with these odors are typically less than the levels that potentially pose a health risk as the odor threshold of COI's are typically less than health-based action levels.

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

A three-tiered set of controls are proposed for this Plan:

- Level I - Built into the design of the Plan and includes proactive measures to minimize the effect of fugitive emissions. Level 1 includes air monitoring to ensure that levels of VOC's and dust are under site-specific action levels.
- Level II – Procedures that are implemented in response to specific increases in fugitive emissions but are not likely to have a significant impact in the schedule of project site activities.
- Level III – More aggressive procedures, also initiated in response to specific increases in fugitive emissions that are likely to have a more significant impact on production schedule and project site activities.

The Site Manager will be required to progressively implement these options until emission sources are controlled and ambient concentrations no longer have the potential to pose a health risk.

### 2.13.1 Level 1 Controls

Level 1 Controls are built into the design of the field activities and involve physical controls, project site layout, and scheduling.

#### 2.13.1.1 Physical Controls

The simplest form of physical control is the use of visual barrier cloth on the project site perimeter fencing. The resistance caused by the visual barrier will elevate the discharge point of emissions leaving the site to the top of the perimeter fence and will promote better mixing and dispersion. Another form of simple physical control is the required use of tarps on trucks that move, or transport impacted material.

All stockpiles of impacted material should be covered, if left inactive for a period of more than 2 hours.

All trucks used for off-site transport should have tarps in place to cover impacted material as detailed in Section 2.2. On-site haul routes should be routinely wetted to control dust using a hose, sprinkler, or dedicated water truck.

#### 2.13.1.2 Site Layout

The dispersion of fugitive emissions is controlled by meteorological conditions and their impact generally decreases with distance from the source. If possible, transfer/storage areas will be placed either downwind or significantly upwind of off-site receptors.

The height of the stockpiles should be lower than the top of the perimeter fencing (8 feet) to utilize the benefit of the barrier cloth. If stockpiles must be staged near the fence line (within 100 feet), they should be less than 8-feet in height.

#### 2.13.1.3 Scheduling

Every effort should be made to minimize the amount of time that potentially impacted material is stored on-site. Appropriate strategies involve the in-place precharacterization of soils to be excavated and the sampling of stockpiles as soon as they are placed. Efficient scheduling/coordination of operations can also limit the impact of active emission sources. Close coordination of excavation activities can decrease the surface area of disturbed material, thereby reducing the size of the emission source. A smaller source area can facilitate the implementation of additional controls, if required.

### 2.13.2 Level II Controls

Air monitoring will routinely be performed at the fence line of the project site as delineated in the CAMP during all work activities. The results will be compared to site-specific action levels for VOC's and total particulates.

Level II controls will be enacted if the exceedance is confirmed or odors are detected at the fence line. If the action levels are exceeded, additional monitoring will be conducted to confirm the result. Level II controls will be enacted if the exceedance is confirmed. The Site Manager must then work through the applicable list of site controls until the fence line monitoring results for all parameters are determined to be less that their associated action levels. Specific Level II controls are discussed below.

#### 2.13.2.1 Suppressing Agents

Several agents that can be applied over emissions sources have been determined to be effective in controlling emissions. These include odor suppressant foam for VOC mitigation and water spray for dust suppression.

The following suppressing agents have been identified for use but additional agents may be used or substituted for other proven agents such as Odex, Hydro Mulch, or Ecosorb.

<u>Odor suppressant foam</u>

Odor suppressant foam can provide immediate, localized control of VOC and odor emissions. The foam is created by the injection of air into a foam concentrate/water mixture using a Pneumatic Foam Unit. The foam is applied via a hose to cover source areas to a depth of 3 to 6 inches. Foam (Rusmar AC-600 or equivalent) is a short-term remedy and can be actively used to control VOC and odor emissions from active excavations/stockpiles, and during the loading of trucks. It is shipped as a concentrate and diluted with water at the site. Under normal conditions, this foam can last for several hours. However, it has been observed to degrade quickly in direct sunlight or precipitation so it must be applied liberally and frequently to all areas that require odor control.

<u>Water spray</u>

A spray of water can be used to minimize the amount of dust created. A water hose is effective for controlling dust over a small area, while lawn sprinklers or a dedicated water truck may be more efficient for extended control of large areas or on-site haul routes.

#### 2.13.2.2 Tarps

Tarps can provide effective control for source areas that are likely to be inactive for extended periods of time. To be effective, the size of the source area should be controlled such that it can be covered using a single tarp. Rolls of 6-mil polyethylene will be used to cover inactive stockpiles. Tarps will also be used for covering exposed soils loaded into trucks. All trucks will be lined with 6 mil polyethylene sheeting, the liners will be large enough to overlap and fully cover the top of the load. Additional automatic mesh tarps will be used to secure the liners.

### 2.13.3 Level III Controls

Level III controls are to be implemented when Level II controls have been exhausted, and ambient concentrations of emissions continue to exceed the site-specific action levels. Each of the control options listed in this subsection has the potential to significantly affect the schedule/production rate of site activities. These delays may be required periodically to ensure that acceptable levels of fugitive emissions are maintained and are preferable to a complete work cessation to control an emission event.

#### 2.13.3.1 Production/Schedule

It may be necessary to reduce the excavation rate to reduce the surface area of disturbed media or slow the generation rate of stockpiles. These activities would result in smaller source areas that could be more effectively controlled using Level II techniques.

#### 2.13.3.2 Meteorological Conditions

It may be necessary to limit certain activities to those periods when preferred meteorological conditions exist, such as wind direction or low temperatures are present. Most of the work for the project will be performed in the winter months, therefore reducing the potential for volatilization.

#### 2.13.3.3 Relocation of Activities

Another option is to cease work and to move the remedial activities to lesser-impacted areas until adequate control measures can be implemented or more favorable meteorological conditions return. Also, it may be beneficial to temporarily relocate material loading and transfer activity areas to other areas of the project site or within subsurface excavations to utilize the natural dispersion of emissions in the atmosphere, or shelter from the wind.

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

## 2.14 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 truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles;

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

## 2.15 Other Nuisances

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

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

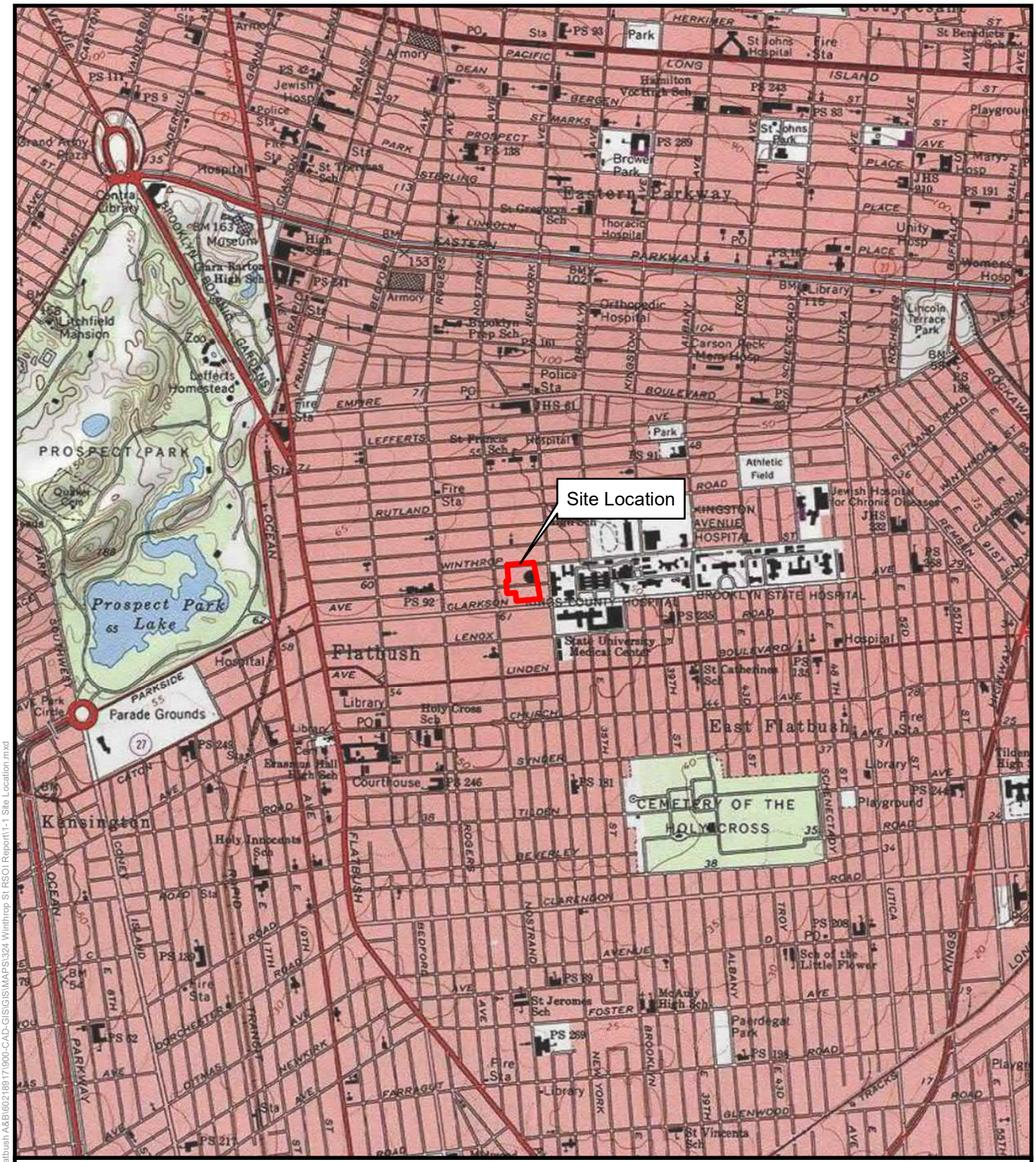
# Appendix D
# RSOI Figures

# Final Remedial System Optimization Investigation Report
# 324 Winthrop Street, Northern Parcel

Flatbush Station A&B Former Gas Holder Site
Brooklyn, New York
NYSDEC Site No.: 224061
Order on Consent Index #: A2-0552-0606

**June 2022**

**Project No. 60625627**

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AECOM

AECOM Environment
200 LIBERTY STREET
NEW YORK, NY 10281
(212) 798-8500
www.aecom.com

Site Location Map
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

Data Source: USGS Topographic Quadrangle - Brooklyn, 2009

| Scale: | Date: | Project Number: |
|---|---|---|
| 1 in = 2,000 ft | June 2021 | 60625627.500 |

Figure Number:

1-1

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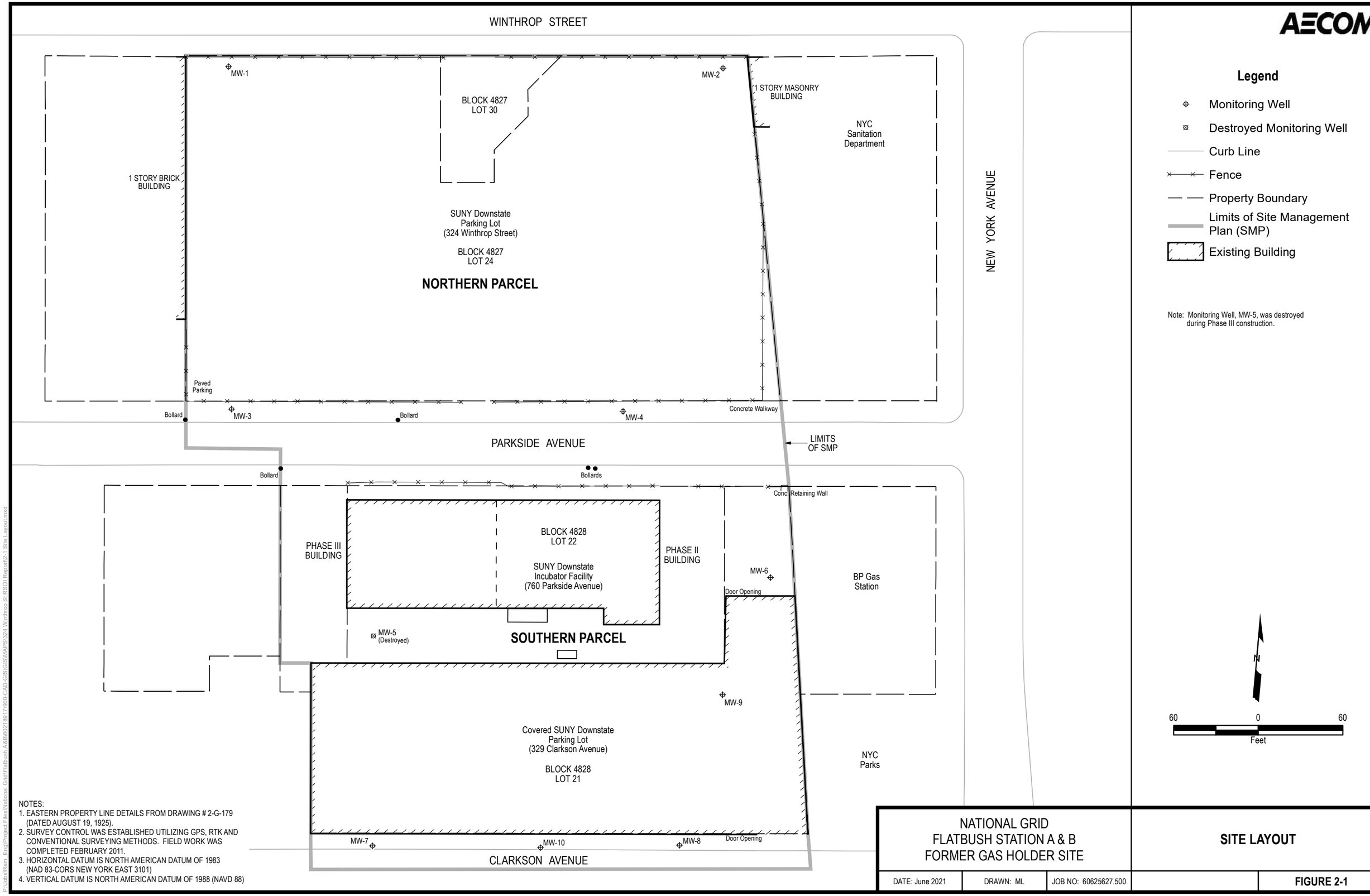


NOTES:
1. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
2. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
3. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
4. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SITE LAYOUT**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 2-1** |
|---|---|---|---|---|

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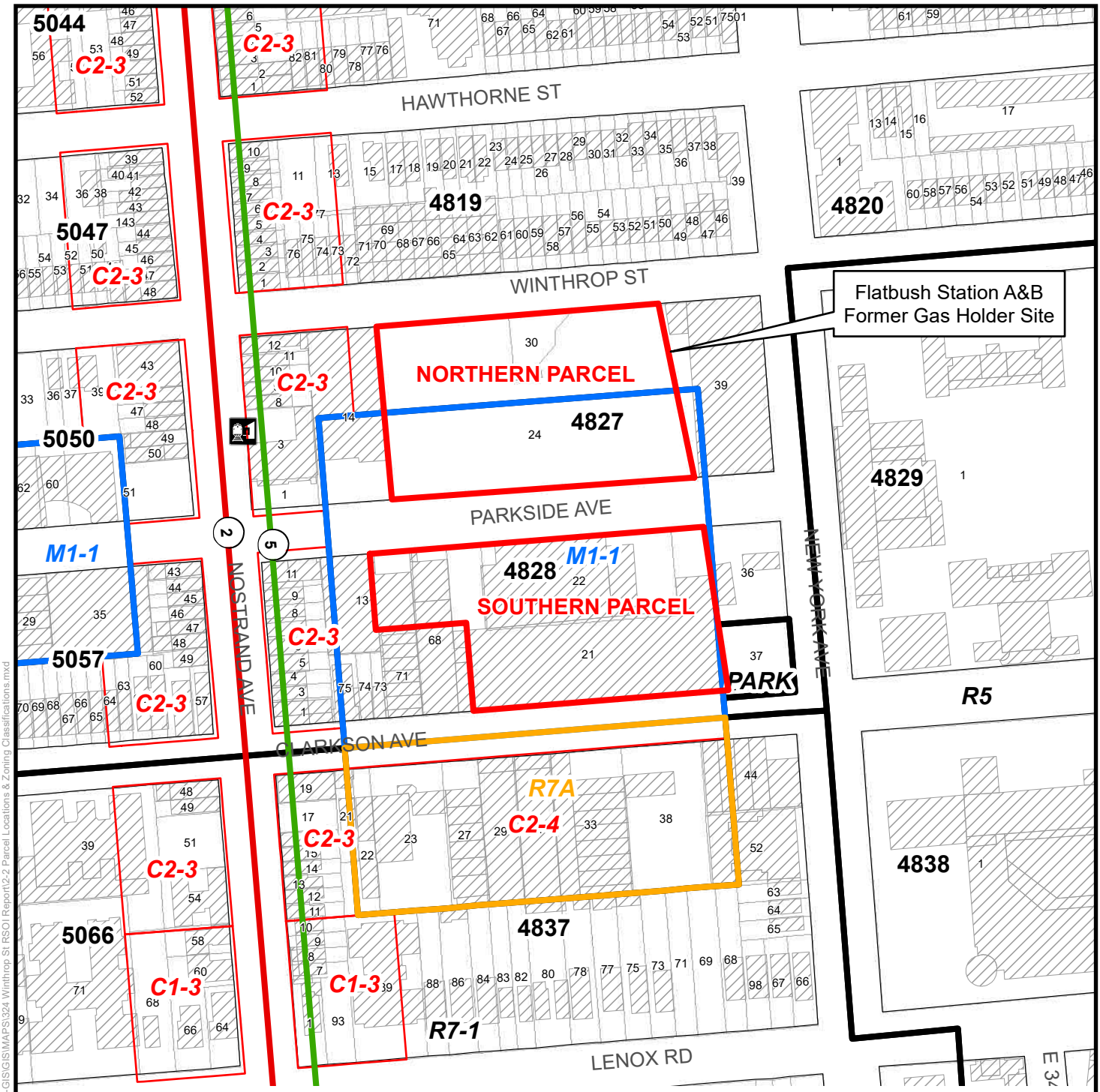


## Legend

- Subway Station
- Subway Line Number 2
- Subway Line Number 5
- Zoning Boundary
- Commercial Overlays
- Flatbush Former MGP Site
- Block Boundary
- Building

Zoning Codes:
R5 and R6 - Residential of medium density, 3 to 5 stories
M1-1 - Manufacturing Industrial
C2 - Commercial Overlays

Source: Zoning Data from NYC OpenData

Note: Tax Block & Tax Lot files are copyrighted by the New York City Department of City Planning

AECOM Environment
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(212) 798-8500
www.aecom.com

# Parcel Locations and Zoning Classifications
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

| Scale: | Date: | Project Number: |
|---|---|---|
| 1 in = 200 ft | June 2021 | 60625627.500 |

Figure Number:

2-2

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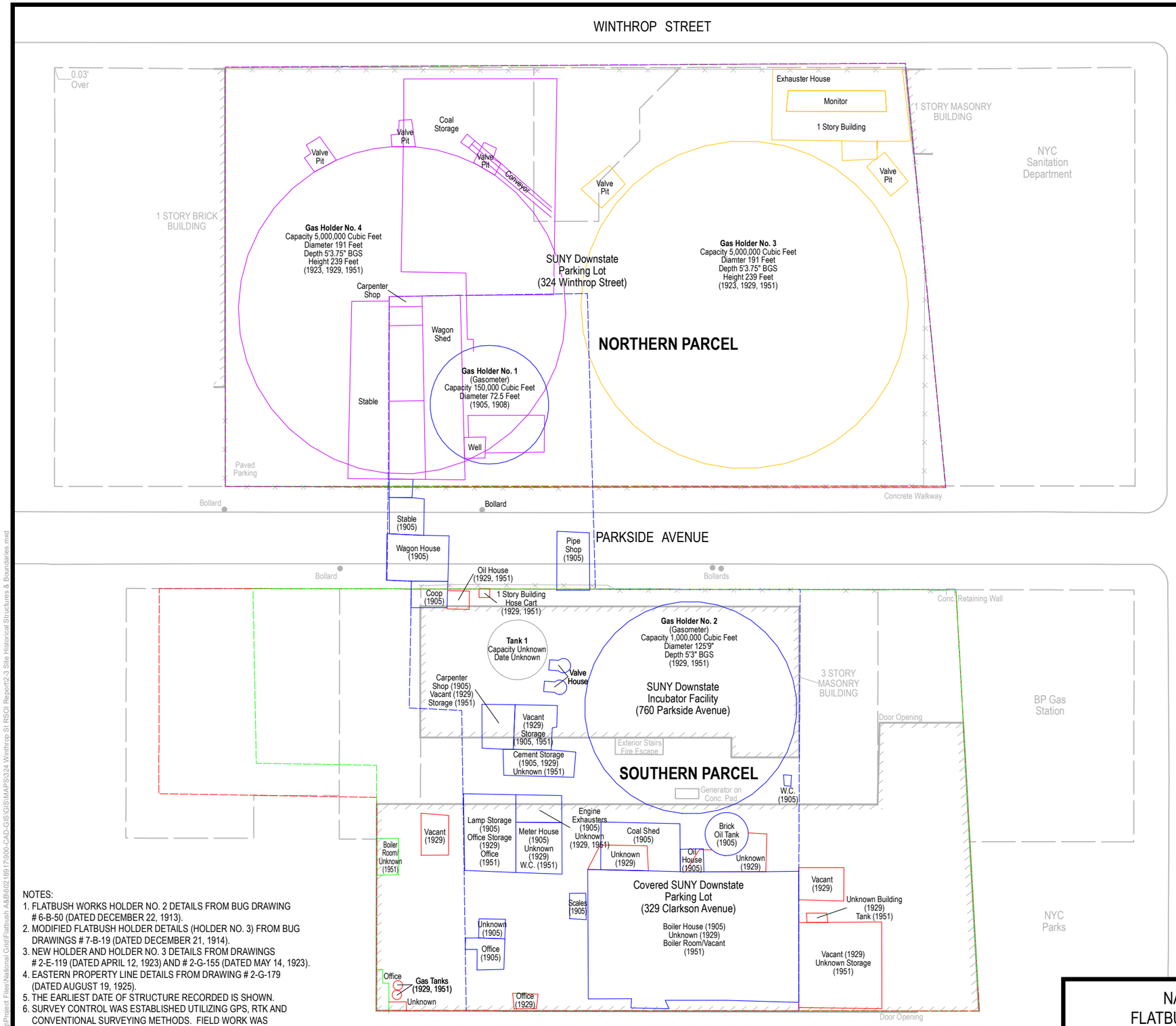



NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

AECOM

## Legend

- Historic Structures
  1905 Sanborn Map
- Exhauster House and Holder (No. 3) Details
  From Drawing # 1-E-27
  (Dated October 26, 1909)
- Historic Structures
  1923 Drawing # 6-C-21
  (Dated April 16, 1923)
- Historic Structures
  1929 Sanborn Map
- Historic Structures
  1951 Sanborn Map
- Historic Structures
  Date Unknown
- Approximate Historical Boundary
  1905 Sanborn Map
- Partial Approximate Historical Boundary
  1923 Bug Drawing # 6-C-2
  (Dated April 16, 1923)
- Approximate Historical Boundary
  1929 Sanborn Map
- Approximate Historical Boundary
  1951 Sanborn Map
- Current Features and Property Boundary
- Fence
- Existing Building

Note:
All historical structures are approximate.

N

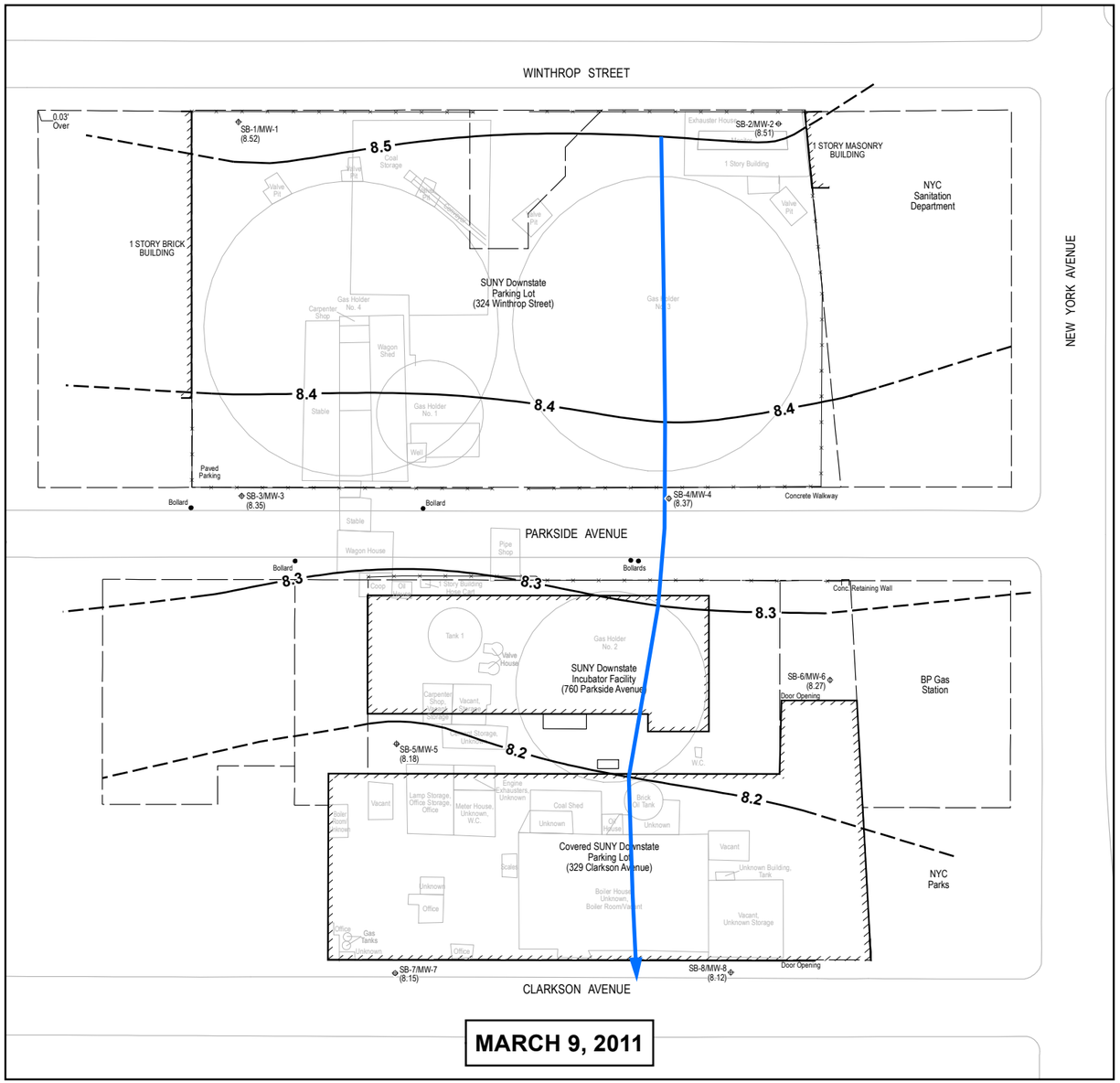
60 0 60
Feet

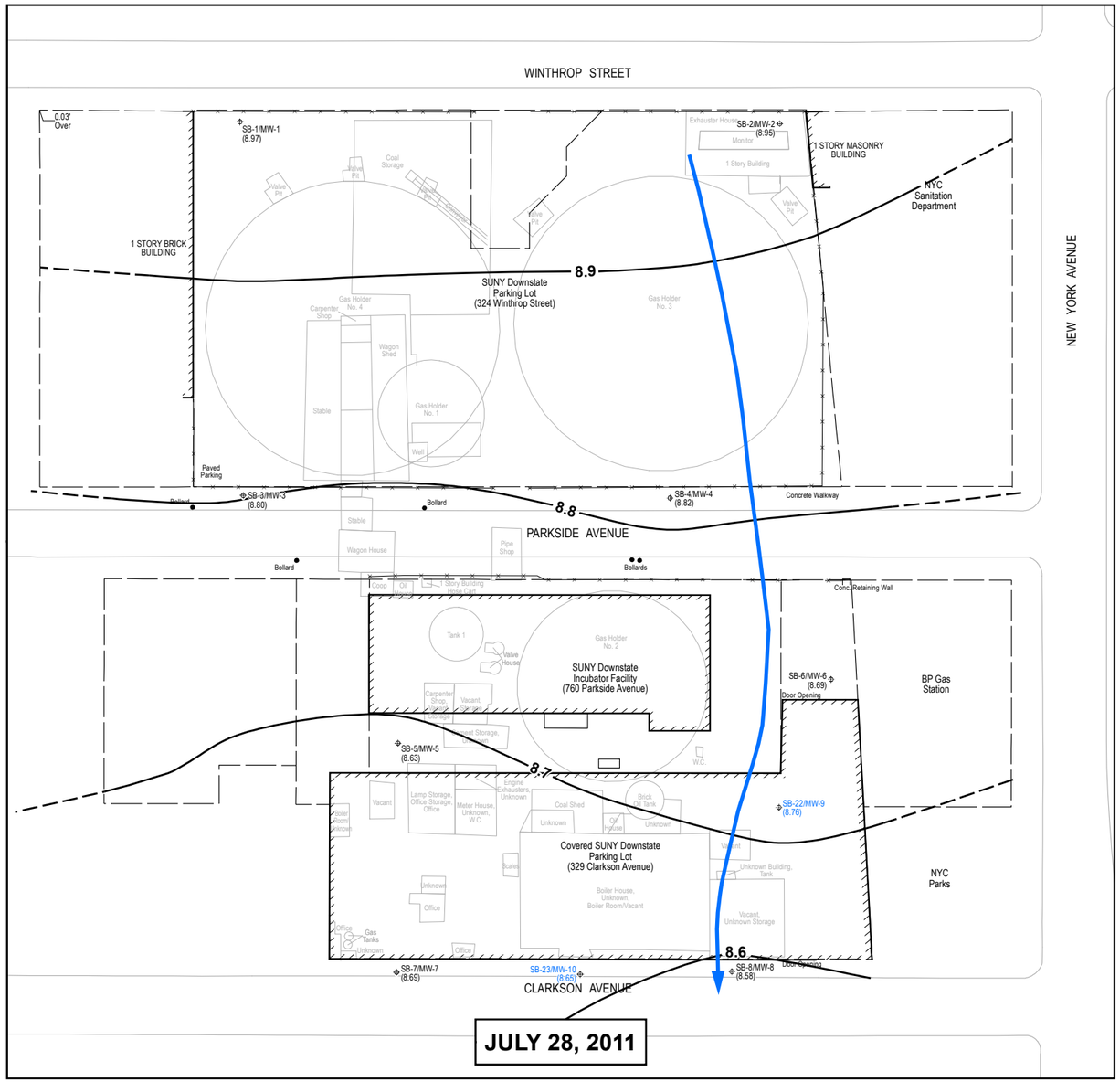
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SITE HISTORICAL STRUCTURES AND BOUNDARIES OF FLATBUSH GAS WORKS FACILITY**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 2-3** |
|---|---|---|---|---|

P:\Jobs\Rem Enq\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\2-3 Site Historical Structures & Boundaries.mxd




NOTES:
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6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)
9. TANK ON NORTHWEST CORNER OF 760 PARKSIDE AVENUE DISCOVERED DURING 2013 EXCAVATION ACTIVITIES.

## Legend

- Site Characterization (SC) Monitoring Well
- SC Addendum Monitoring Well
- MW-3 (8.35) Groundwater Elevation (Feet NAVD 88)
- Direction of Groundwater Flow
- –8.8– Groundwater Contour
- Curb Line
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building

N

60 0 60
Feet

| NATIONAL GRID FLATBUSH STATION A & B FORMER GAS HOLDER SITE | | | | **2011 GROUNDWATER ELEVATION CONTOURS** |
|---|---|---|---|---|
| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 2-4** |

P:\Jobs\Rem Eng\Project Files\National Grid\Flatbush A&B\60218917900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\2-4 2011 Groundwater Elevation Contours.mxd

WINTHROP STREET

0.03' Over

SB-1/MW-1 (64)
SB-102 (35)
SB-101 (35)
TP-102 (10)
TP-101 (10)
TP-101A (7)
SB-103 (35)
TP-103 (10)
SB-11 (65.6)
SB-104 (35)
SB-131 (15)
SB-134 (15)
SB-110 (35)
SB-130 (15)
SB-129 (15)
SB-133 (15)
SB-132 (20)
SB-108 (35)
SB-109/GW-109 (85)
Coal Storage
Valve Pit
Material Pit
Conveyor
1 STORY BRICK BUILDING
SUNY Downstate Parking Lot (324 Winthrop Street)
Carpenter Shop
Gas Holder No. 4
SB-137 (20)
SB-115 (35)
TP-106 (7)
SB-9 (59)
SB-117 (35)
SB-116 (35)
Wagon Shed
SB-139 (35)
SB-135 (85)
SB-138 (85)
SB-136 (85)
Stable
Gas Holder No. 1
SB-124 (85)
SB-122 (35)
TP-107 (7)
SB-10 (85)
Well
SB-123 (85)
SB-125/GW-125 (85)
Paved Parking
SB-126 (85)
SB-127 (85)
SB-128 (35)
Exhauster House
Monitor
SB-2/MW-2 (59)
1 Story Building
1 STORY MASONRY BUILDING
NYC Sanitation Department
Valve Pit
TP-104 (10)
SB-111 (35)
SB-112/GW-112 (85)
SB-113 (85)
TP-105 (10)
SB-114 (35)
TP-108 (7)
SB-13 (79)
SB-12 (79)
Gas Holder No. 3
SB-119 (85)
SB-120 (85)
SB-121 (35)
SB-118 (85)
Bollard
SB-3/MW-3 (59)
SB-25 (95)
SB-4/MW-4 (70)
Concrete Walkway
PARKSIDE AVENUE
Wagon House
Pipe Shop
Bollards
Coop
Oil House
1 Story Building Hose Cart
Cond. Retaining Wall
Gas Holder Capacity 1,000,000 ft$^3$

## Legend

- Step Out Soil Boring (ft bgs)
- 2020 RSOI Soil Boring (ft bgs)
- 2020 RSOI Soil Boring (ft bgs) and Groundwater Sample
- 2011 SC Soil Boring (ft bgs)
- 2011 SC Monitoring Well (ft bgs)
- RSOI Test Pit (ft bgs)
- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

NOTES:
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2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
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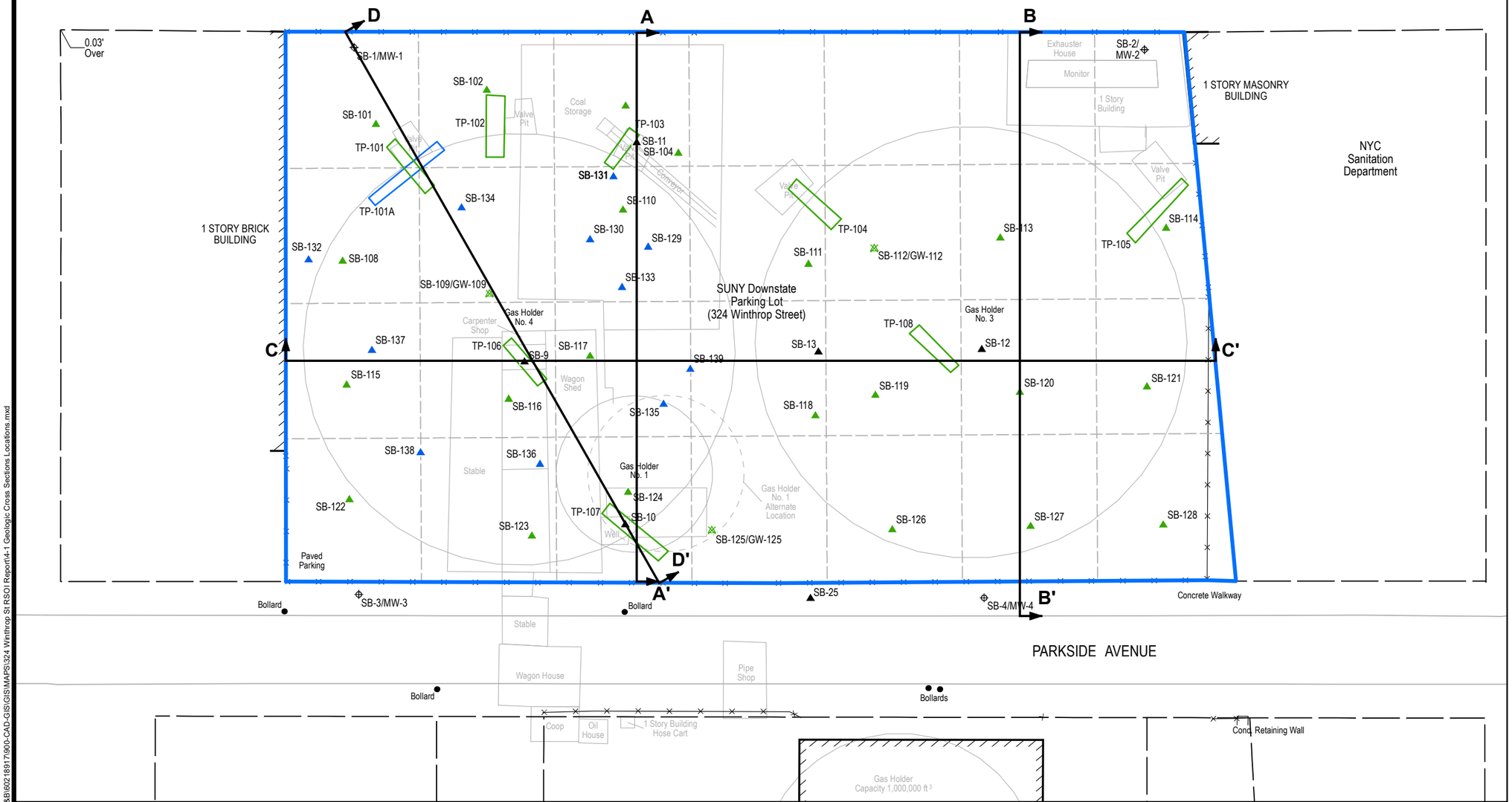
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**2011 SITE CHARACTERIZATION AND 2020 REMEDIAL SYSTEM OPTIMIZATION INVESTIGATION LOCATIONS 324 WINTHROP STREET**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 3-1** |
|---|---|---|---|---|

P:\Jobs\Rem_Engl\Project Files\National Grid\Flatbush A&B\60218917900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\3-1 2011 SC & 2020 RSOI Locations.mxd




## Legend

- Step Out Soil Boring
- 2020 RSOI Soil Boring
- 2020 RSOI Soil Boring and Groundwater Sample
- 2011 SC Soil Boring
- 2011 SC Monitoring Well
- RSOI Test Pit (ft bgs)
- Geologic Cross Section Location
- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation

N

50 0 50
Feet

NOTES:
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8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**GEOLOGIC CROSS SECTIONS LOCATION MAP**
**324 WINTHROP STREET**

| DATE: September 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-1** |
|---|---|---|---|---|

P:\Jobs\Rem Engr\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-1 Geologic Cross Sections Locations.mxd

Approved:
Checked:
Designer:
Project Management Initials:

North
A
South
A'

Gas Holder No. 1 Offset
Gas Holder No. 4
Gas Holder No. 1
Valve Pit

SB-103 SB-11 TP-103 SB-131 SB-110 SB-129 SB-133 SB-9 SB-135 SB-124 SB-10 TP-107

Metals: Pb, PCBs
Metals: Pb, Hg, PAHs
Metals: As, Cr, Pb, Hg, PCBs, PAHs
Metals: As, Cd, Cr, Pb, Hg, PCBs, PAHs
Metals: Ba, Cr, Pb, PAHs
Metals: As, Cd, Cr, Pb, Hg, PCBs, PAHs
Metals: As, Ba, Cd, Cr, Cu, Pb, Hg, PCBs, PAHs
Metals: Cr, Pb, PAHs
Metals: As, Cr, Pb, PCBs, Cyanide
Metals: As, Ba, Cd, Cr, Cu, Pb, Hg, PCBs, PAHs
Metals: Ba, Cr, Pb, PAHs
Metals: Ba, Pb, PAHs, BTEX
Metals: Ba, Cd, Cr, Pb, Hg, PCBs, PAHs
Metals: As, Cr, Pb
Metals: Ba, Cr, Pb
Metals: Ba, Cr, Pb, PCBs, PAHs
Metals: Cr, Pb

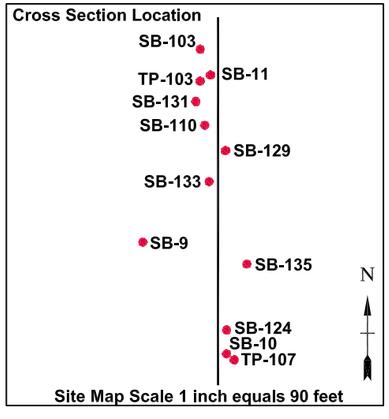
Elevation (feet above mean sea level)

70 60 50 40 30 20 10 0 -10 -20 -30

0 20 40 60 80 100 120 140 160 180 200 220 240

Distance Along Baseline (ft)

Cross Section Location




Site Map Scale 1 inch equals 90 feet

LEGEND:

OLFACTORY OBSERVATIONS: (LEFT COLUMN)

- NO OBSERVED IMPACTS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS
- NAPL BLEBS, GLOBS, SHEEN

SOIL SAMPLE RESULTS: (RIGHT COLUMN)

- NO SAMPLE COLLECTED
- NO EXCEEDANCE
- EXCEEDANCE FOR METALS AND/OR PCBS
- EXCEEDANCE FOR BTEX AND/OR PAHS
- EXCEEDANCE FOR (BTEX AND/OR PAHS) AND (METALS AND/OR PCBS)

LITHOLOGY:

- FILL MATERIAL
- CONCRETE
- WELL GRADED SANDS AND GRAVELS
- POORLY GRADED SANDS
- SILT & SILTY SANDS
- Well Screen

Horizontal Scale (feet): 0 18

Vertical Scale (feet): 0 18

Vertical Exaggeration: 1x

EXCEEDANCES FOR THE NYDEC PART 376-6 COMMERCIAL USE CRITERIA

Water Level Elevation NAVD88 During Drilling, 2011 and Fall 2020

Extents of former structures shown above the cross section line are based on Sanborn Fire Insurance Maps.

AECOM

**PROJECT**
FLATBUSH

BROOKLYN, NEW YORK

**PREPARED FOR**
NATIONAL GRID

**PREPARED BY**
AECOM
125 BROAD STREET
NEW YORK, NEW YORK 10004
WWW.AECOM.COM

**DATE**
OCTOBER 2021

**PROJECT NUMBER**
60625627.500

**FIGURE TITLE**
CROSS-SECTION A-A'

FIGURE 4-2

Approved:
Checked:
Designer:
Project Management Initials:

North B

South B'

0 20 40 60 80 100 120 140 160 180 200 220 240

Gas Holder No. 3

Exhauster House Building

SB-113 | SB-12 | SB-120 | SB-127 | SB-4 / MW-4

Metals: Hg

PAHs

Metals: Pb

Metals: Cr, PAHs

Metals: Pb

Elevation (feet above mean sea level)

70 60 50 40 30 20 10 0 -10 -20 -30

Distance Along Baseline (ft)

Cross Section Location

SB-113
SB-12
SB-120
SB-127
SB-4 / MW-4

N

Site Map Scale 1 Inch equals 90 feet

**LEGEND:**

**OLFACTORY OBSERVATIONS: (LEFT COLUMN)**

- NO OBSERVED IMPACTS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS
- NAPL BLEBS, GLOBS, SHEEN

**SOIL SAMPLE RESULTS: (RIGHT COLUMN)**

- NO SAMPLE COLLECTED
- NO EXCEEDANCE
- EXCEEDANCE FOR METALS AND/OR PCBS
- EXCEEDANCE FOR BTEX AND/OR PAHS
- EXCEEDANCE FOR (BTEX AND/OR PAHS) AND (METALS AND/OR PCBS)

**LITHOLOGY:**

- FILL MATERIAL
- CONCRETE
- WELL GRADED SANDS AND GRAVELS
- POORLY GRADED SANDS
- SILT & SILTY SANDS

Horizontal Scale (feet): 0 18

Vertical Scale (feet): 0 18

Vertical Exaggeration: 1x

**EXCEEDANCES FOR THE NYDEC PART 376-6 COMMERCIAL USE CRITERIA**

Water Level Elevation NAVD88 During Drilling, Fall 2020

Extents of former structures shown above the cross section line are based on Sanborn Fire Insurance Maps.

AECOM

**PROJECT**

FLATBUSH

BROOKLYN, NEW YORK

**PREPARED FOR**

NATIONAL GRID

**PREPARED BY**

AECOM
125 BROAD STREET
NEW YORK, NEW YORK 10004
WWW.AECOM.COM

**DATE**

OCTOBER 2021

**PROJECT NUMBER**

60625627.500

**FIGURE TITLE**

CROSS-SECTION B-B'

FIGURE 4-3

Approved:____ Checked:____ Designer:____ Project Management Initials:____

West C

East C'

-50 0 50 100 150 200 250 300 350 400 450

Gas Holder No. 4

Gas Holder No. 3

SB-115 SB-137 SB-9 SB-117 SB-139 SB-13 SB-119 SB-12 SB-120 SB-121

Metals: As, Pb, Hg, PCBs, PAHs

Metals: As, Ba, Cd, Cr, Pb, Hg, PAHs, BTEX

Metals: As, Cr, Pb, Hg, PAHs

Metals: As, Cr, Cu, Pb, Hg, PCBs, PAHs

Metals: As, Cr, Pb, Cyanide

Metals: Cr, PAHs

Metals: Cr, Pb, PCBs

Metals: Cr, Pb

Metals: Cd, Pb, Hg, PCBS, PAHs

PAHs

Metals: Pb

Metals: Cr, Pb, PAHs

PAHs

Metals: Pb

PAHs

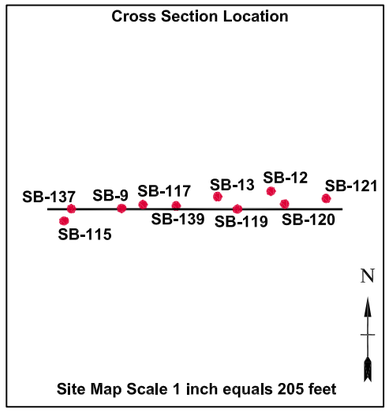
PAHs, BTEX

Elevation (feet above mean sea level)

80 70 60 50 40 30 20 10 0 -10 -20 -30

Distance Along Baseline (ft)

Cross Section Location




Site Map Scale 1 inch equals 205 feet

**LEGEND:**

**OLFACTORY OBSERVATIONS: (LEFT COLUMN)**

- NO OBSERVED IMPACTS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS
- NAPL BLEBS, GLOBS, SHEEN

**SOIL SAMPLE RESULTS: (RIGHT COLUMN)**

- NO SAMPLE COLLECTED
- NO EXCEEDANCE
- EXCEEDANCE FOR METALS AND/OR PCBS
- EXCEEDANCE FOR BTEX AND/OR PAHS
- EXCEEDANCE FOR (BTEX AND/OR PAHS) AND (METALS AND/OR PCBS)

**LITHOLOGY:**

- FILL MATERIAL
- CONCRETE
- WELL GRADED SANDS AND GRAVELS
- POORLY GRADED SANDS
- SILT & SILTY SANDS

0 40 Horizontal Scale (feet)

Vertical Scale (feet) 0 20

Vertical Exaggeration: 2x

**EXCEEDANCES FOR THE NYDEC PART 376-6 COMMERCIAL USE CRITERIA**

Water Level Elevation NAVD88 During Drilling, 2011 and Fall 2020

Extents of former structures shown above the cross section line are based on Sanborn Fire Insurance Maps.

AECOM

**PROJECT**

FLATBUSH

BROOKLYN, NEW YORK

**PREPARED FOR**

NATIONAL GRID

**PREPARED BY**

AECOM
125 BROAD STREET
NEW YORK, NEW YORK 10004
WWW.AECOM.COM

**DATE**

JUNE 2021

**PROJECT NUMBER**

60625627.500

**FIGURE TITLE**

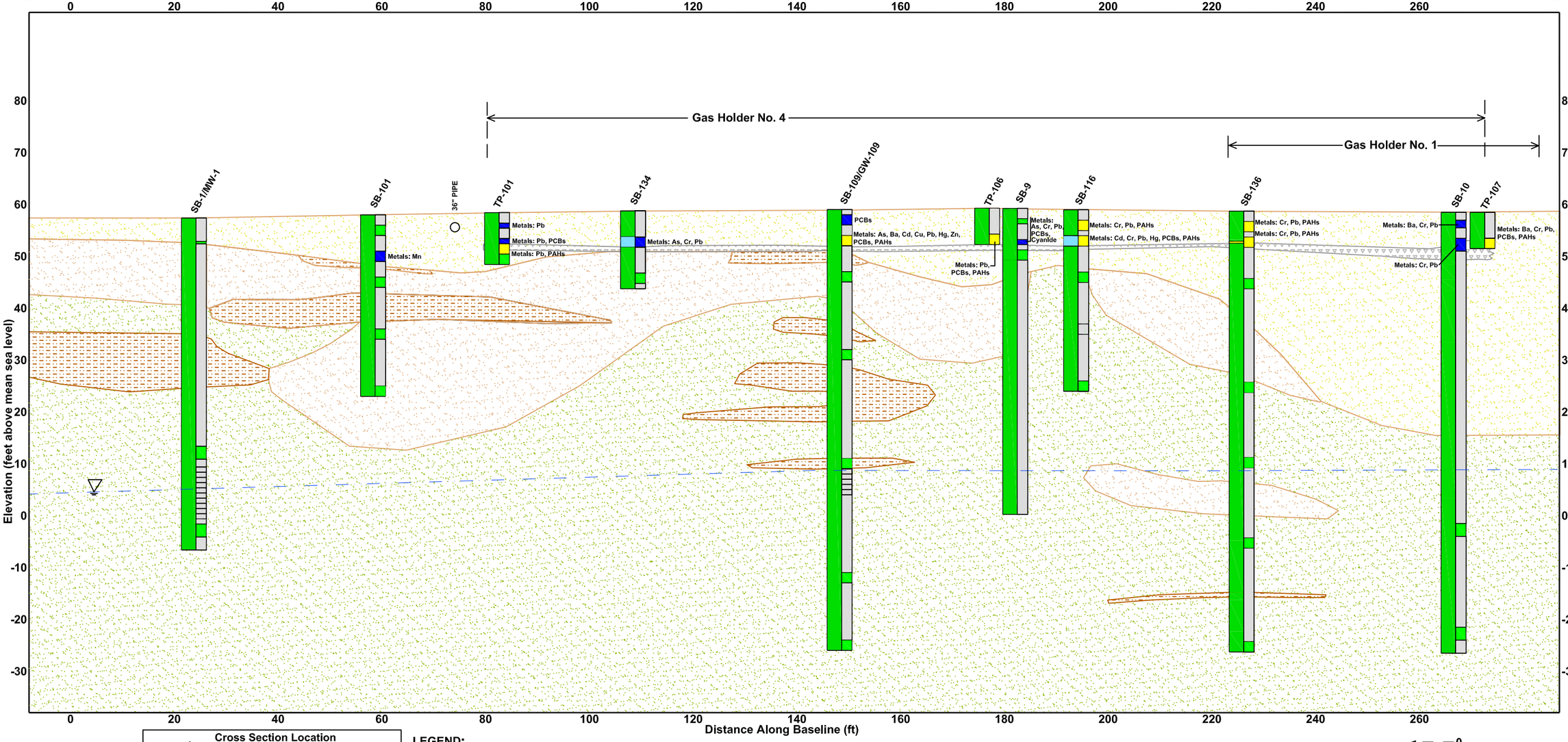
CROSS-SECTION C-C'

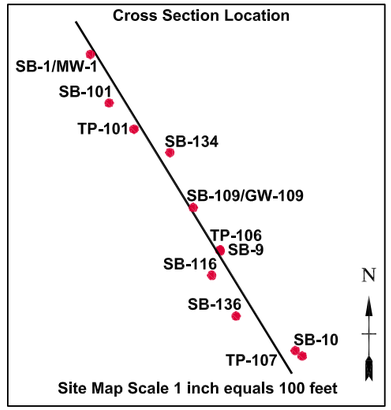
FIGURE 4-4

Project Management Initials: _____ Designer: _____ Checked: _____ Approved: _____

Northwest D

Southeast D'




**LEGEND:**

**OLFACTORY OBSERVATIONS: (LEFT COLUMN)**

- NO OBSERVED IMPACTS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS
- INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS
- NAPL BLEBS, GLOBS, SHEEN
- STAINING, ODOR

**SOIL SAMPLE RESULTS: (RIGHT COLUMN)**

- NO SAMPLE COLLECTED
- NO EXCEEDANCE
- EXCEEDANCE FOR METALS AND/OR PCBS
- EXCEEDANCE FOR BTEX AND/OR PAHS
- EXCEEDANCE FOR (BTEX AND/OR PAHS) AND (METALS AND/OR PCBS)

**LITHOLOGY:**

- FILL MATERIAL
- CONCRETE
- WELL GRADED SANDS AND GRAVELS
- POORLY GRADED SANDS
- SILT & SILTY SANDS
- Well Screen

Horizontal Scale (feet): 0, 20

Vertical Scale (feet): 0, 20

Vertical Exaggeration: 1x

**EXCEEDANCES FOR THE NYDEC PART 376-6 COMMERCIAL USE CRITERIA**

Water Level Elevation NAVD88 During Drilling, 2011 and Fall 2020

Extents of former structures shown above the cross section line are based on Sanborn Fire Insurance Maps.

AECOM

**PROJECT**

FLATBUSH

BROOKLYN, NEW YORK

**PREPARED FOR**

NATIONAL GRID

**PREPARED BY**

AECOM
125 BROAD STREET
NEW YORK, NEW YORK 10004
WWW.AECOM.COM

**DATE**

JUNE 2021

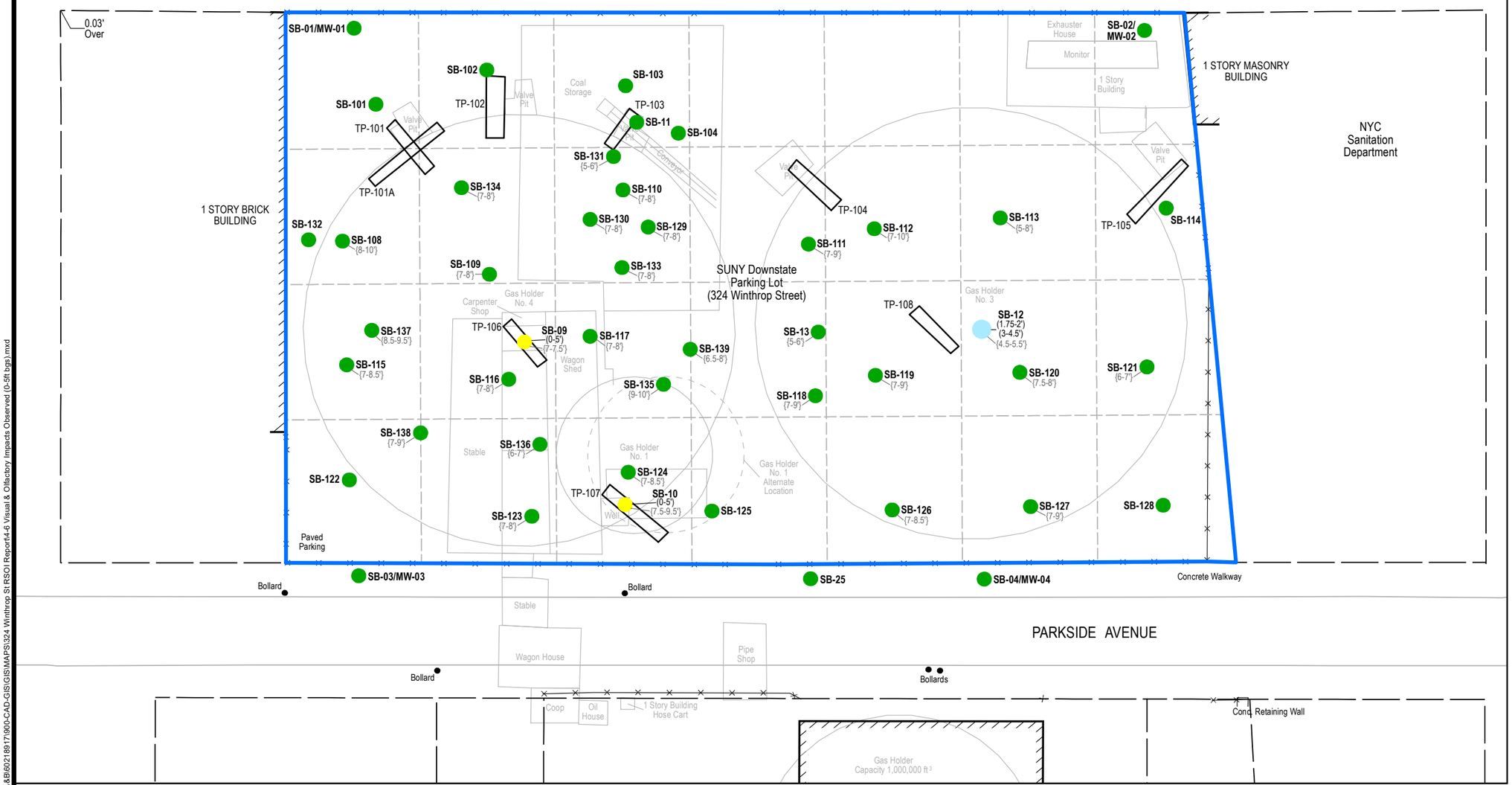
**PROJECT NUMBER**

60625627.500

**FIGURE TITLE**

CROSS-SECTION D-D'

FIGURE 4-5




AECOM

## Legend

- RSOI Test Pit (ft bgs)
- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Observed Impacts
- Petroleum-Like Staining and/or Odor
- Naphthalene-Like Staining and/or Odor
- (0-5') Depth of Observed Impact
- {7-8.5'} Depth of Observed Concrete Slab

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**VISUAL AND OLFACTORY IMPACTS OBSERVED FROM 0-5 FEET BELOW GROUND SURFACE**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-6** |
|---|---|---|---|---|

P:\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-6 Visual & Olfactory Impacts Observed (0-5ft bgs).mxd

AECOM

WINTHROP STREET

0.03' Over

SB-01/MW-01
SB-102
SB-101
TP-101
TP-102
Valve Pit
Coal Storage
SB-103
TP-103
SB-11
SB-104
SB-131 (5-6')
Conveyor
TP-101A
SB-134 (5-7') {7-8'}
SB-110 (5-7') {7-8'}
SB-130 (5-7') {7-8'}
SB-129 (5-7') {7-8'}
SB-132
SB-108 (5-8') {8-10'}
SB-109 {7-8'}
SB-133 {7-8'}
1 STORY BRICK BUILDING
Carpenter Shop
Gas Holder No. 4
TP-106
SB-09 (5-7') (7.5-10') {7-7.5'}
SB-117 {7-8'}
SB-137 {8.5-9.5'}
SB-115 (5-7') {7-8.5'}
SB-116 (5-7') {7-8'}
Wagon Shed
SB-135 (7.5-9') {9-10'}
SB-139 (6-6.5') {6.5-8'}
SB-138 {7-9'}
Stable
SB-136 (5.5-6') {6-7'}
Gas Holder No. 1
SB-124 (5-7') {7-8.5'}
SB-122
SB-10 (5-7') (7.5-10') {7.5-9.5'}
TP-107
Gas Holder No. 1 Alternate Location
SB-123 {7-8'}
Wall
SB-125
Paved Parking
SB-03/MW-03
Bollard
SB-25
SB-04/MW-04
Concrete Walkway
Exhauster House
Monitor
SB-02/ MW-02
1 Story Building
1 STORY MASONRY BUILDING
NYC Sanitation Department
Valve Pit
TP-104
SB-111 {7-9'}
SB-112 (5-7') {7-10'}
SB-113 {5-8'}
TP-105
SB-114
SUNY Downstate Parking Lot (324 Winthrop Street)
TP-108
Gas Holder No. 3
SB-13 {5-6'}
SB-12 (5.5-9') {4.5-5.5'}
SB-119 (5-7') {7-9'}
SB-118 (5-7') {7-9'}
SB-120 (5-7.5') {7.5-8'}
SB-121 {6-7'}
SB-126 (5-7') {7-8.5'}
SB-127 {7-9'}
SB-128

PARKSIDE AVENUE

Stable
Wagon House
Pipe Shop
Bollard
Bollards
Coop
Oil House
1 Story Building Hose Cart
Cond. Retaining Wall
Gas Holder Capacity 1,000,000 ft³

## Legend

- RSOI Test Pit (ft bgs)
- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Observed Impacts
- Petroleum-Like Staining and/or Odor
- Naphthalene-Like Staining and/or Odor
- (5-7') Depth of Observed Impact
- {7-8.5'} Depth of Observed Concrete Slab

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

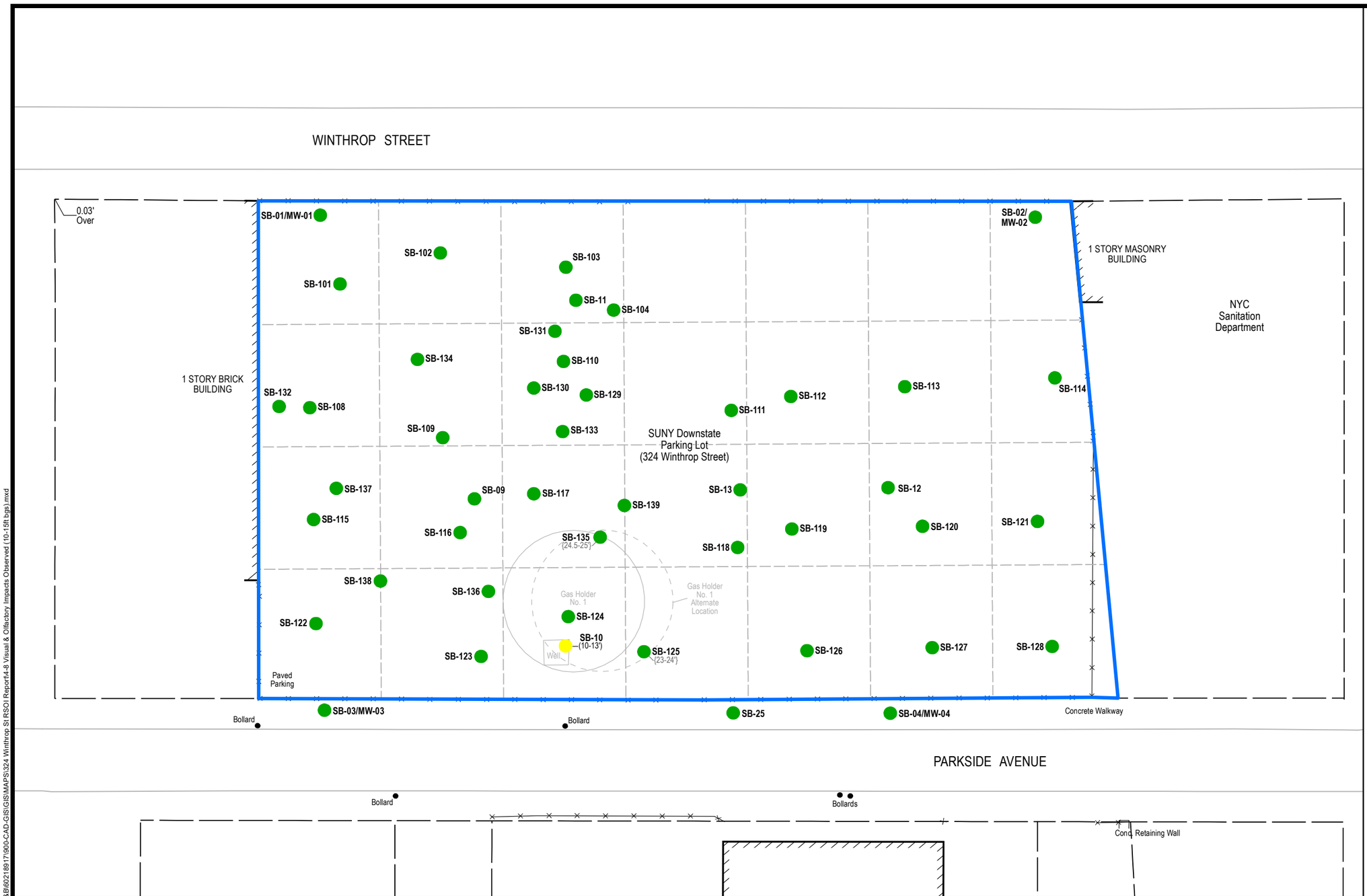
NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**VISUAL AND OLFACTORY IMPACTS OBSERVED FROM 5-10 FEET BELOW GROUND SURFACE**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-7** |
|---|---|---|---|---|

P:\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-7 Visual & Olfactory Impacts Observed (5-10ft bgs).mxd




## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Observed Impacts
- Naphthalene-Like Staining and/or Odor
- (10-13') Depth of Observed Impact
- {23-24'} Depth of Observed Concrete Slab

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

| | | | | |
|---|---|---|---|---|
| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | | **VISUAL AND OLFACTORY IMPACTS OBSERVED FROM 10-15 FEET BELOW GROUND SURFACE** |
| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-8** |

P:\Jobs\Rem Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-8 Visual & Olfactory Impacts Observed (10-15ft bgs).mxd

WINTHROP STREET

0.03' Over

SB-01/MW-01

SB-102

SB-103

SB-101

SB-11

SB-104

SB-110

1 STORY BRICK BUILDING

SB-132 (15-20')

SB-108

SB-109

SB-111

SB-112

SB-113

SB-114

SUNY Downstate Parking Lot (324 Winthrop Street)

SB-137 (15-20')

SB-09

SB-117

SB-139

SB-13

SB-12

SB-115 (15-16.5')

SB-116

SB-135 (18-20') (23-23.5') {24.5-25'}

SB-119

SB-120

SB-121

SB-118

SB-138

SB-136

Gas Holder No. 1

Gas Holder No. 1 Alternate Location

SB-124

SB-122

SB-10 (15-25')

Wall

SB-123

SB-125 {23-24'}

SB-126

SB-127

SB-128

Paved Parking

SB-02/ MW-02

1 STORY MASONRY BUILDING

NYC Sanitation Department

Bollard

SB-03/MW-03

Bollard

SB-25

SB-04/MW-04

Concrete Walkway

PARKSIDE AVENUE

Bollard

Bollards

Cond. Retaining Wall

## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Observed Impacts
- Petroleum-Like Staining and/or Odor
- Naphthalene-Like Staining and/or Odor
- NAPL Blebs, Globs, Sheen
- (18-20') Depth of Observed Impact
- {23-24'} Depth of Observed Concrete Slab

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface
4. NAPL = Non-Aqueous Phase Liquid

N

50 0 50

Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**VISUAL AND OLFACTORY IMPACTS OBSERVED FROM 15-25 FEET BELOW GROUND SURFACE**

DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | **FIGURE 4-9**

P:\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-9 Visual & Olfactory Impacts Observed (15-25ft bgs).mxd

WINTHROP STREET

0.03' Over

SB-01/MW-01

SB-102 (25-35')

SB-103 (25-35')

SB-101 (25-35')

SB-11 (30-50')

SB-104 (25-35')

SB-02/ MW-02

1 STORY MASONRY BUILDING

NYC Sanitation Department

1 STORY BRICK BUILDING

SB-110 (25-35')

SB-108 (25-35')

SB-109

SB-112

SB-113 (25-35')

SB-114 (25-35')

SB-111 (25-35')

SUNY Downstate Parking Lot (324 Winthrop Street)

SB-09

SB-117 (25-35')

SB-13

SB-12

SB-115 (25-35')

SB-139 (25-35')

SB-116 (25-35')

SB-135 (25-28')

SB-119

SB-120

SB-121 (25-35')

SB-118

SB-138

SB-136

SB-124

SB-122 (25-35')

SB-10

SB-123

SB-125

SB-126

SB-127

SB-128 (25-35')

Paved Parking

Bollard

SB-03/MW-03

Bollard

SB-25 (43-45') (45-50')

SB-04/MW-04

Concrete Walkway

PARKSIDE AVENUE

Bollard

Bollards

Cond. Retaining Wall

## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Existing Building
- No Observed Impacts
- Naphthalene-Like Staining and/or Odor
- NAPL Coated Material
- (25-35') Depth of Observed Impact

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface
4. NAPL = Non-Aqueous Phase Liquid

N

50 0 50

Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**VISUAL AND OLFACTORY IMPACTS OBSERVED FROM 25-50 FEET BELOW GROUND SURFACE**

DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | **FIGURE 4-10**

P:\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-10 Visual & Olfactory Impacts Observed (25-50ft bgs).mxd

AECOM

WINTHROP STREET

0.03' Over

SB-01/MW-01

SB-02/ MW-02

1 STORY MASONRY BUILDING

NYC Sanitation Department

SB-11

1 STORY BRICK BUILDING

SB-112 (62-70')

SB-113

SB-109

SUNY Downstate Parking Lot (324 Winthrop Street)

SB-09

SB-13 (53-79')

SB-12 (56-79')

SB-135 (63-80')

SB-119 (62.5-70') (70-80')

SB-120 (61-63') (64-65') (69-70') (74-75') (75-85')

SB-118 (66.5-67.5') (76.5-78.5')

SB-138

SB-136 (63-73.5') (75-81')

SB-124 (59.5-60') (65-65.25')

SB-10 (50-85')

SB-125 (60-65') (65-70')

SB-126 (56-69.5') (77.5-80')

SB-127 (59-70')

SB-123 (63.5-65')

Paved Parking

Bollard

SB-03/MW-03

Bollard

SB-25 (50-60') (60-68') (68-75') (75-78') (78-85') (85-90')

SB-04/MW-04 (57.5-70')

Concrete Walkway

PARKSIDE AVENUE

Bollard

Bollards

Cond. Retaining Wall

## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Existing Building
- No Observed Impacts
- Petroleum-Like Staining and/or Odor
- Naphthalene-Like Staining and/or Odor
- NAPL Blebs, Globs, Sheen
- NAPL Coated Material
- (25-35') Depth of Observed Impact

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface
4. NAPL = Non-Aqueous Phase Liquid

N

50 0 50

Feet

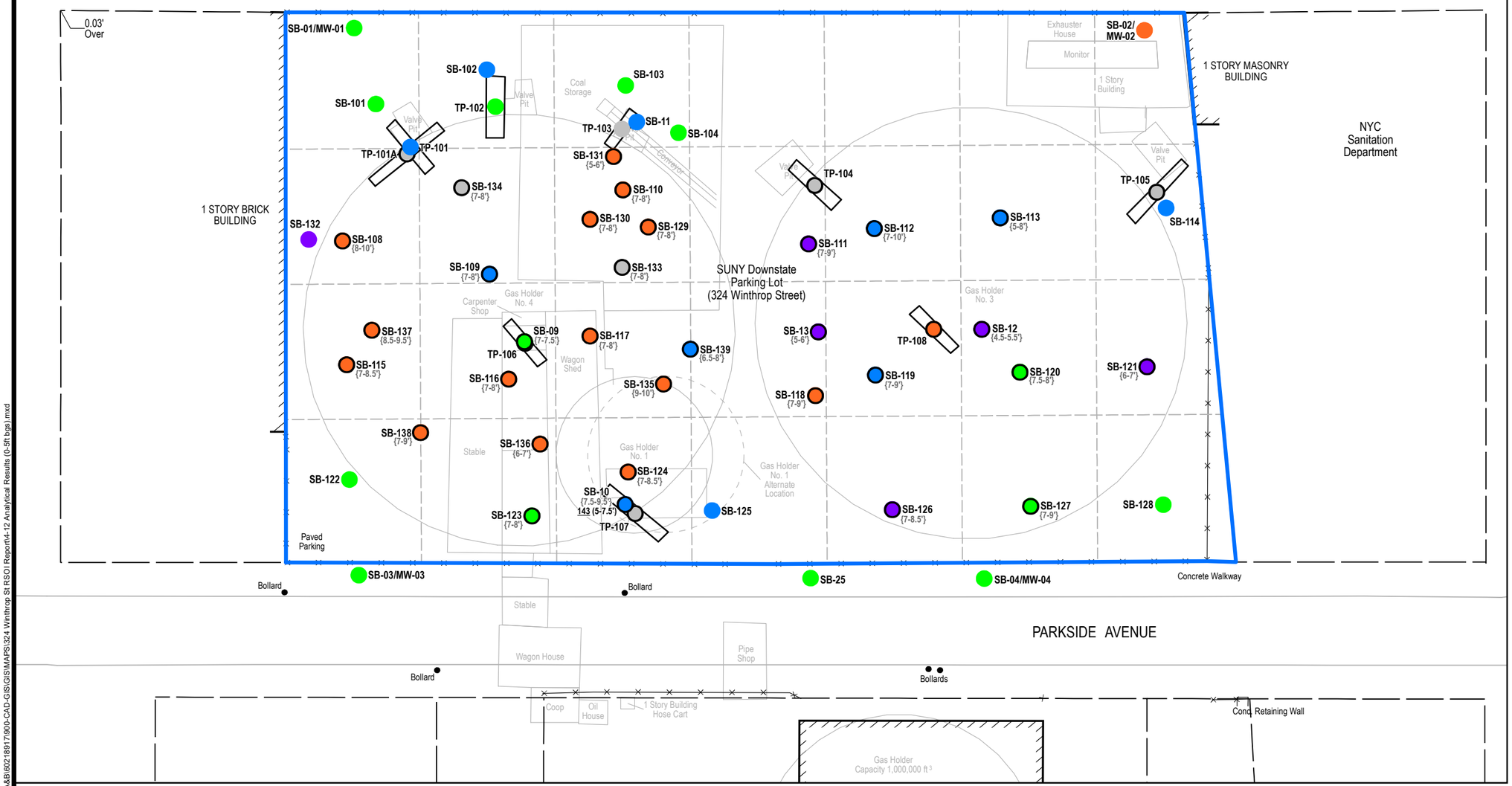
NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**VISUAL AND OLFACTORY IMPACTS OBSERVED FROM 50-85+ FEET BELOW GROUND SURFACE**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | FIGURE 4-11 |
|---|---|---|---|---|

P:\Jobs\Rem_Engr\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-11 Visual & Olfactory Impacts Observed (50-85+ft bgs).mxd




## Legend

- RSOI Test Pit (ft bgs)
- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Exceedance of the NYSDEC DER-10 Restricted Residential Standard
- One or more Metals or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC, and one or more Metals and/or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- No Sample Collected from this Interval
- {7-9'} Bold outline indicates concrete structure located below sample. Depth interval of concrete in feet below ground surface indicated in parentheses.
- 143 (5-7.5') VOC Head space reading (Parts Per Million) above 100 PPM. Depth interval in parentheses.

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

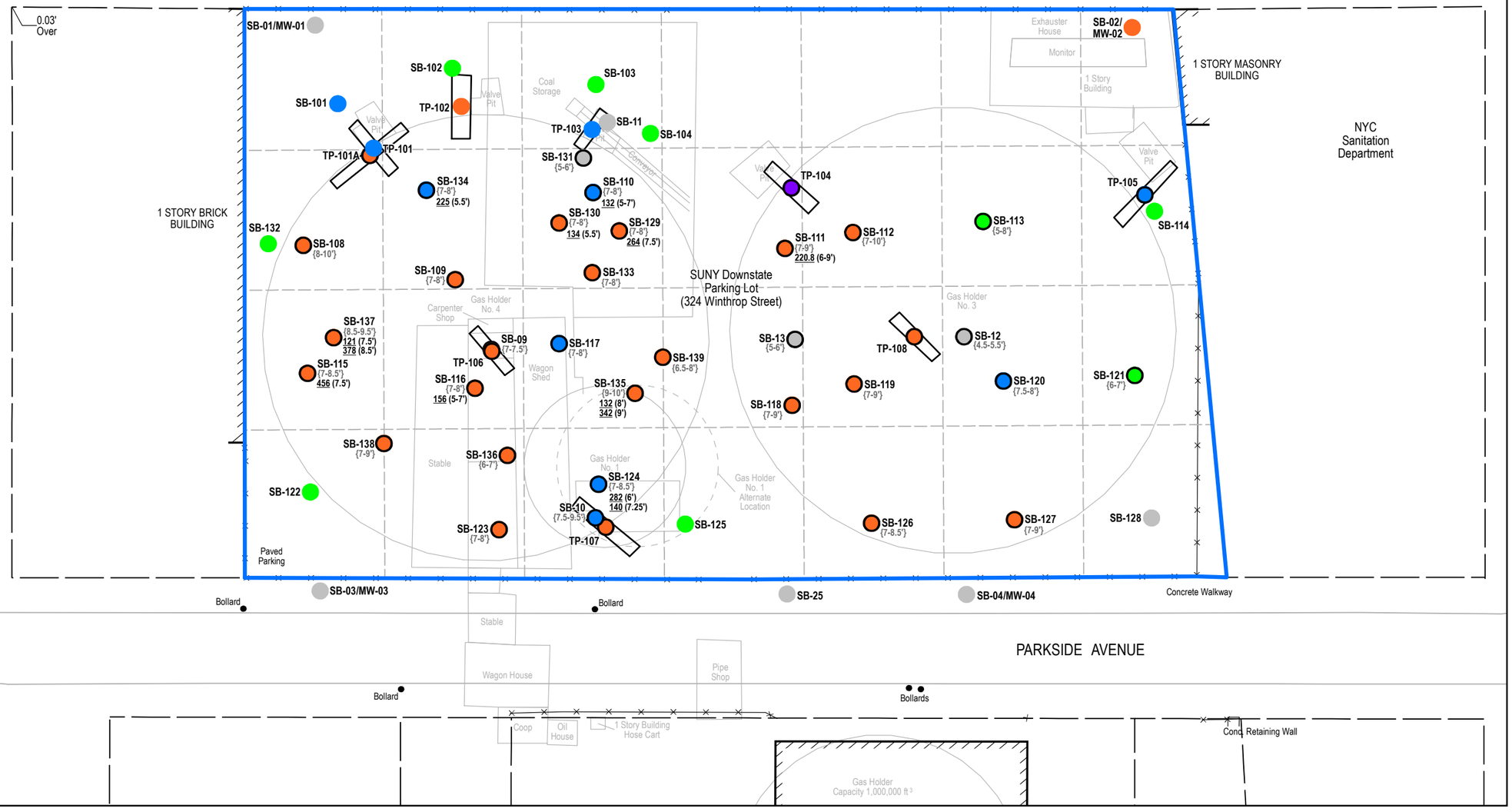
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**ANALYTICAL RESULTS ABOVE THE RESTRICTED RESIDENTIAL STANDARDS FROM 0-5 FEET BELOW GROUND SURFACE**

DATE: September 2021 | DRAWN: ML | JOB NO: 60625627.500 | **FIGURE 4-12**

P:\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-12 Analytical Results (0-5ft bgs).mxd

WINTHROP STREET




## Legend

- RSOI Test Pit (ft bgs)
- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Exceedance of the NYSDEC DER-10 Restricted Residential Standard
- One or more Metals or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC, and one or more Metals and/or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- No Sample Collected from this Interval
- {7-9'} Bold outline indicates concrete structure located below sample. Depth interval of concrete in feet below ground surface indicated in parentheses.
- 143 (5-7.5') VOC Head space reading (Parts Per Million) above 100 PPM. Depth interval in parentheses.

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**ANALYTICAL RESULTS ABOVE THE RESTRICTED RESIDENTIAL STANDARDS FROM 5-10 FEET BELOW GROUND SURFACE**

| DATE: September 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-13** |
|---|---|---|---|---|

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## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Exceedance of the NYSDEC DER-10 Restricted Residential Standard
- One or more Metals or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC, and one or more Metals and/or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- No Sample Collected from this Interval
- {7-9'} Bold outline indicates concrete structure located below sample. Depth interval of concrete in feet below ground surface indicated in parentheses.

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

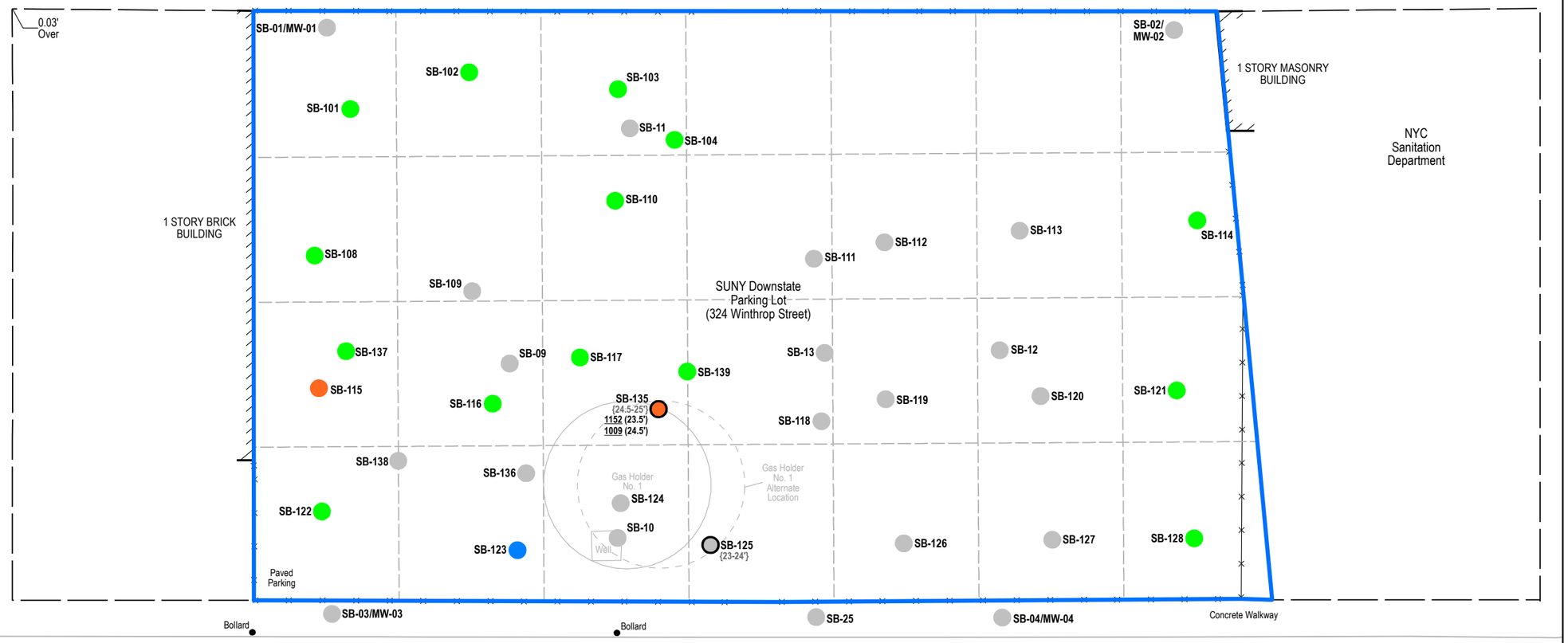
50 0 50
Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

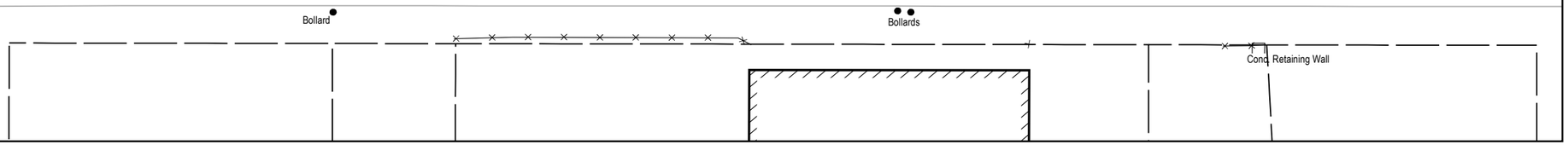
| | | | | |
|---|---|---|---|---|
| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | **ANALYTICAL RESULTS ABOVE THE RESTRICTED RESIDENTIAL STANDARDS FROM 10-15 FEET BELOW GROUND SURFACE** | |
| DATE: September 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-14** |

P:\Jobs\Rem Eng\Project Files\National Grid\Flatbush A&B\60218917900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-14 Analytical Results (10-15ft bgs).mxd

WINTHROP STREET




PARKSIDE AVENUE




## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- No Exceedance of the NYSDEC DER-10 Restricted Residential Standard
- One or more Metals or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC, and one or more Metals and/or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- No Sample Collected from this Interval
- {7-9'} Bold outline indicates concrete structure located below sample. Depth interval of concrete in feet below ground surface indicated in parentheses.
- 143 (5-7.5') VOC Head space reading (Parts Per Million) above 100 PPM. Depth interval in parentheses.

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

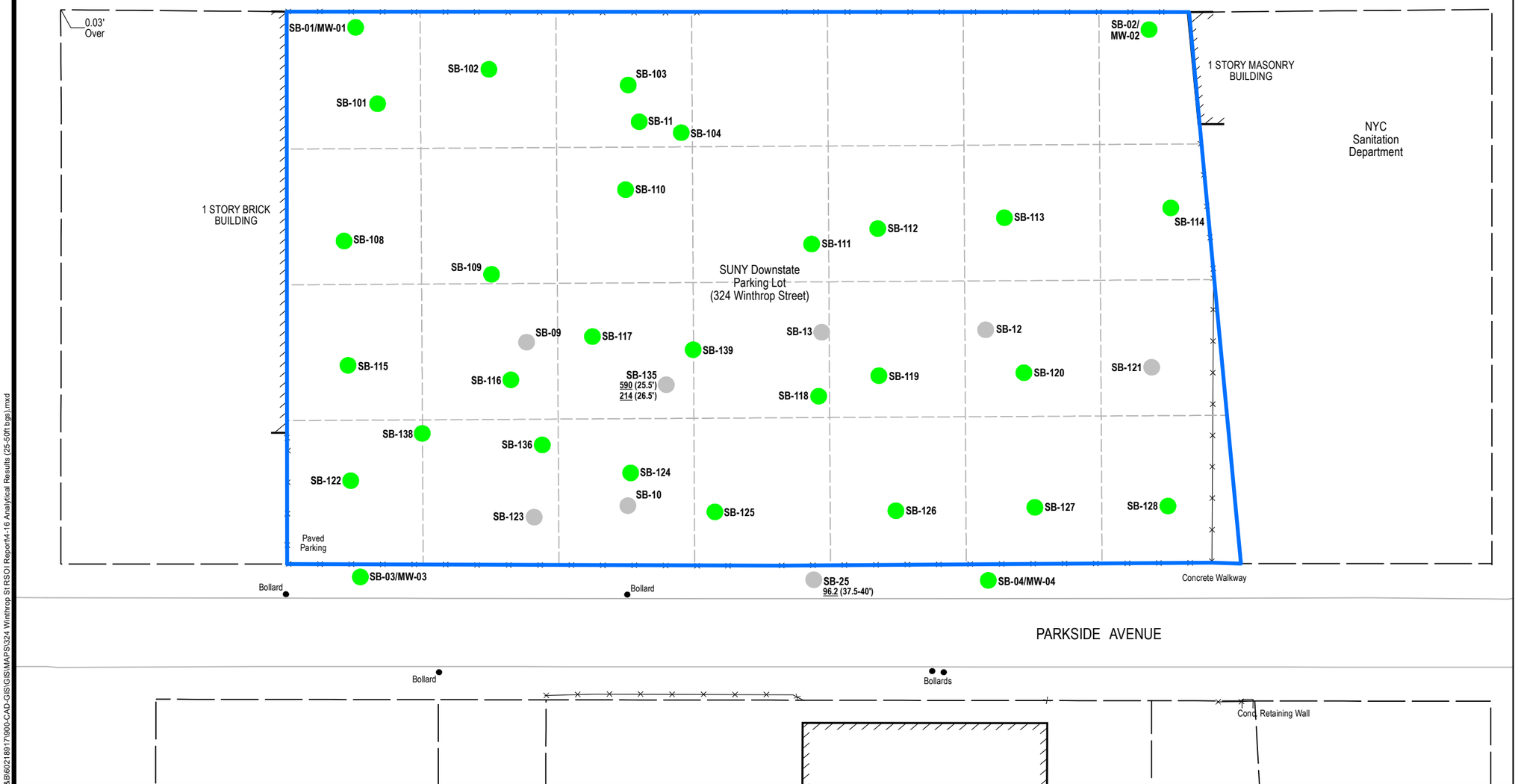
NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**ANALYTICAL RESULTS ABOVE THE RESTRICTED RESIDENTIAL STANDARDS FROM 15-25 FEET BELOW GROUND SURFACE**

| DATE: September 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-15** |
|---|---|---|---|---|

P:\Jobs\Rem_Engl\Project Files\National Grid\Flatbush A&B\602189170\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-15 Analytical Results (15-25ft bgs).mxd




## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Existing Building
- No Exceedance of the NYSDEC DER-10 Restricted Residential Standard
- No Sample Collected from this Interval
- 143 (5-7.5') VOC Head space reading (Parts Per Million) above 100 PPM. Depth interval in parentheses.

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

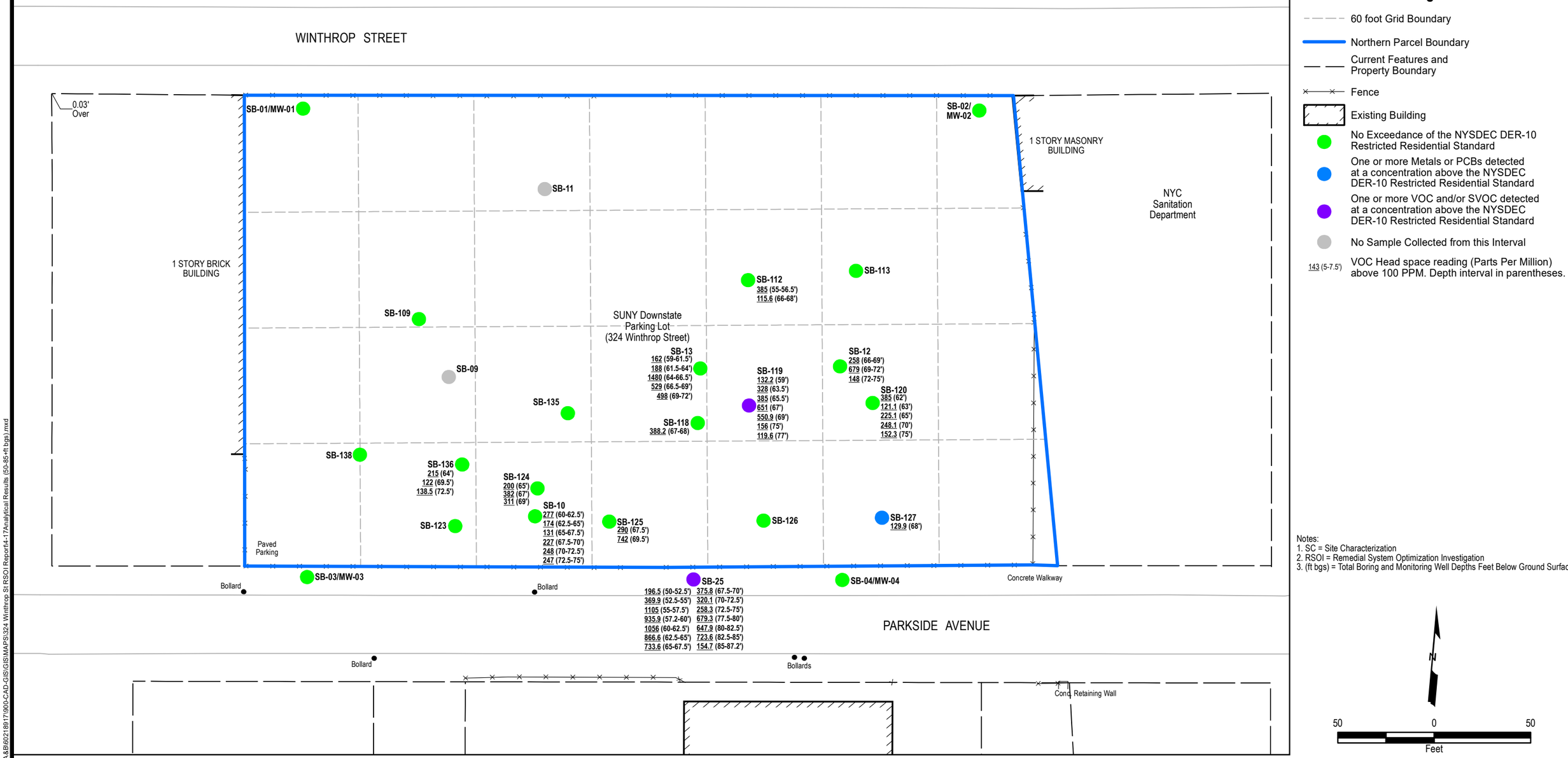
NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**ANALYTICAL RESULTS ABOVE THE RESTRICTED RESIDENTIAL STANDARDS FROM 25-50 FEET BELOW GROUND SURFACE**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-16** |
|---|---|---|---|---|

P:\Jobs\Rem Eng\Project Files\National Grid\Flatbush A&B\60218917\900-CAD-GIS\GIS\MAPS\324 Winthrop St RSOI Report\4-16 Analytical Results (25-50ft bgs).mxd




## Legend

- 60 foot Grid Boundary
- Northern Parcel Boundary
- Current Features and Property Boundary
- Fence
- Existing Building
- No Exceedance of the NYSDEC DER-10 Restricted Residential Standard
- One or more Metals or PCBs detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- One or more VOC and/or SVOC detected at a concentration above the NYSDEC DER-10 Restricted Residential Standard
- No Sample Collected from this Interval
- 143 (5-7.5') VOC Head space reading (Parts Per Million) above 100 PPM. Depth interval in parentheses.

Notes:
1. SC = Site Characterization
2. RSOI = Remedial System Optimization Investigation
3. (ft bgs) = Total Boring and Monitoring Well Depths Feet Below Ground Surface

N

50 0 50
Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
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7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**ANALYTICAL RESULTS ABOVE THE RESTRICTED RESIDENTIAL STANDARDS FROM 50-85+ FEET BELOW GROUND SURFACE**

| DATE: June 2021 | DRAWN: ML | JOB NO: 60625627.500 | | **FIGURE 4-17** |
|---|---|---|---|---|

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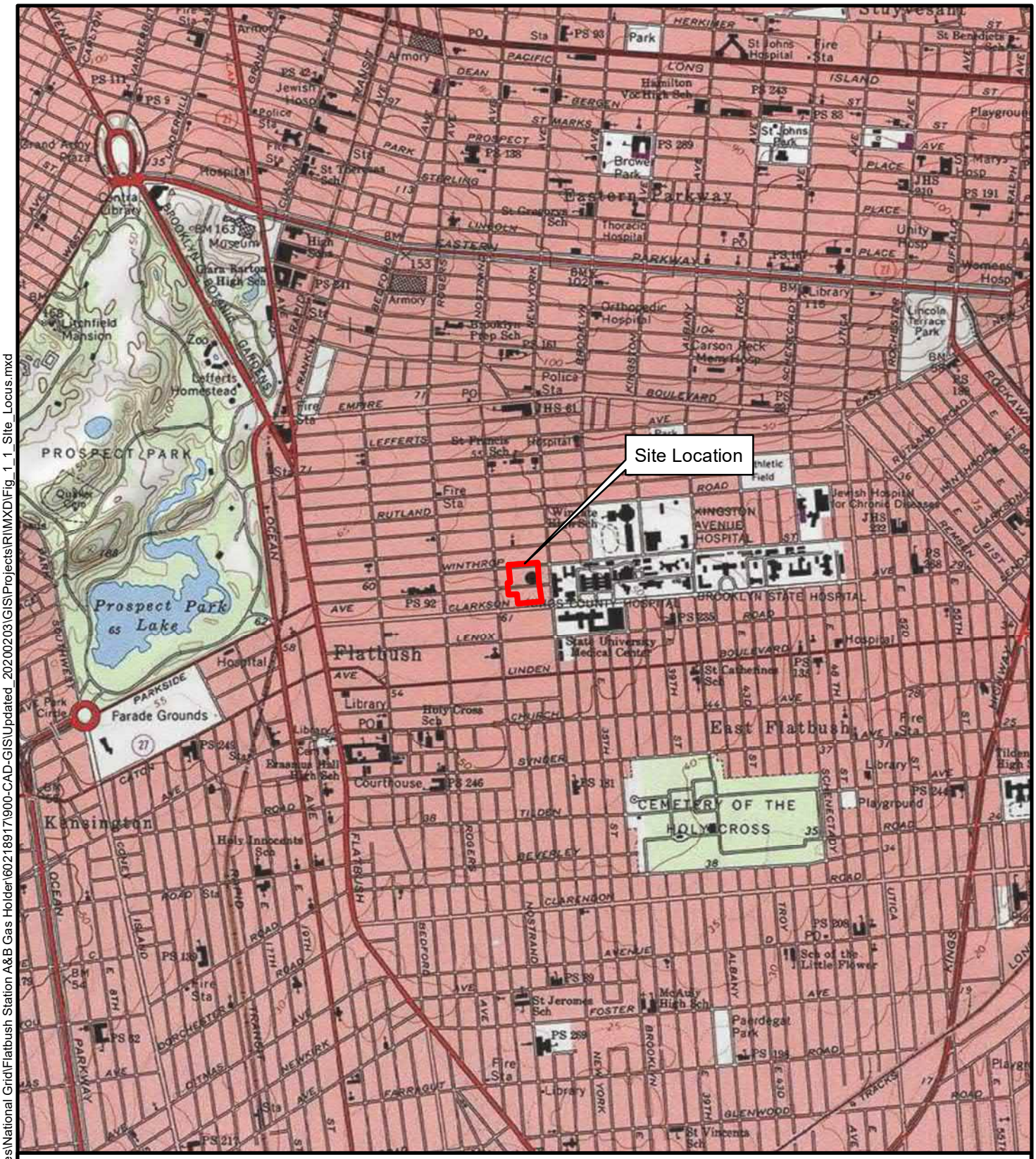
# FINAL Remedial System Optimization Investigation Report
# 329 Clarkson Avenue Street, Southern Parcel

Flatbush Station A&B Former Gas Holder Site
Brooklyn, New York
NYSDEC Site No.: 224061
Order on Consent Index #: A2-0552-0606

**May 2022**

**Project No. 60625627**

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AECOM Environment
200 LIBERTY STREET
NEW YORK, NY 10281
(212) 798-8500
www.aecom.com

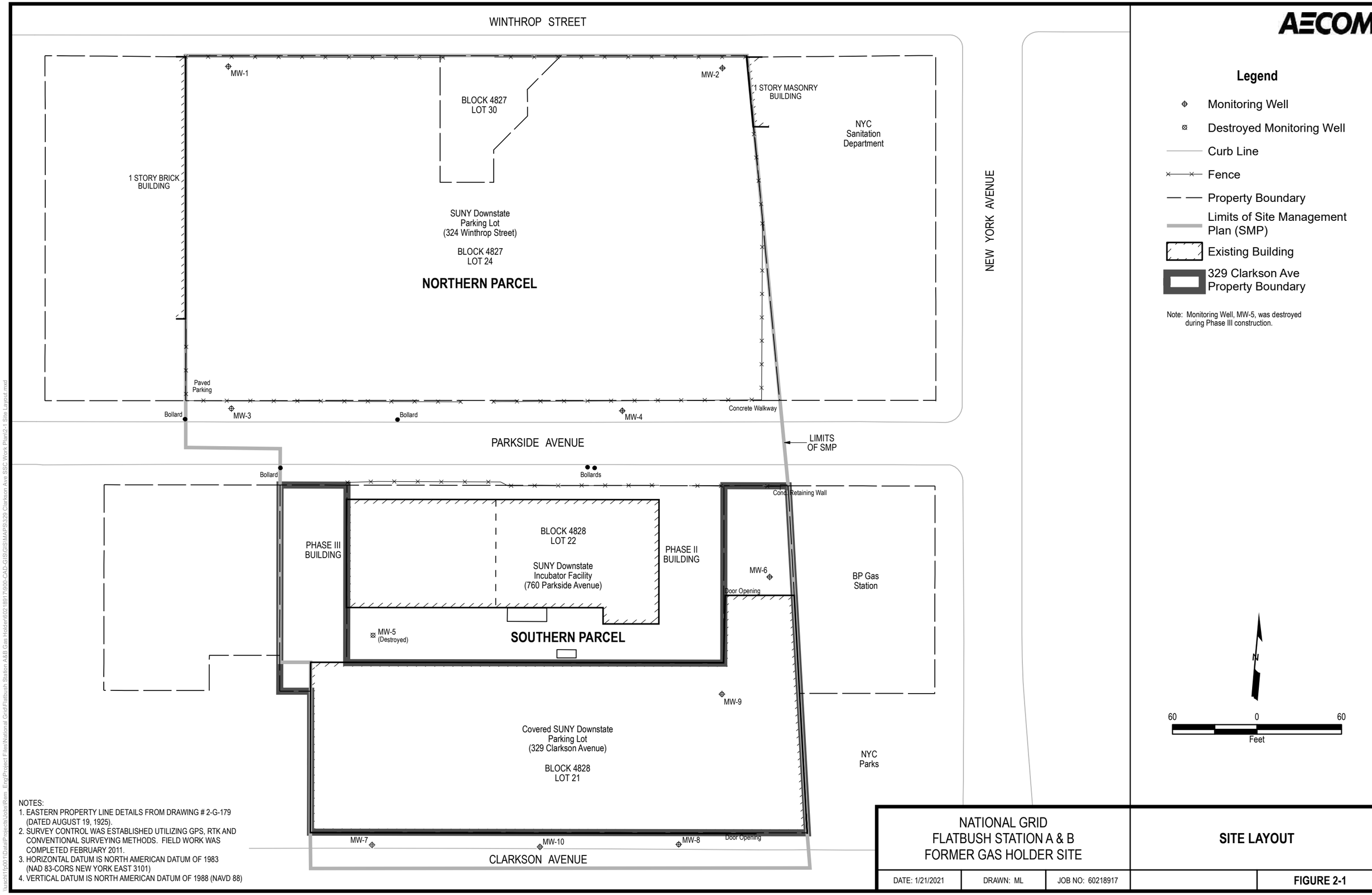

Site Location
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

Data Source: USGS Topographic Quadrangle - Brooklyn, 2009

| Scale: | Date: | Project Number: |
|---|---|---|
| 1"=2000' | 2/3/2020 | 60218917-310 |

Figure Number:

1-1




AECOM

## Legend

- Monitoring Well
- Destroyed Monitoring Well
- Curb Line
- Fence
- Property Boundary
- Limits of Site Management Plan (SMP)
- Existing Building
- 329 Clarkson Ave Property Boundary

Note: Monitoring Well, MW-5, was destroyed during Phase III construction.

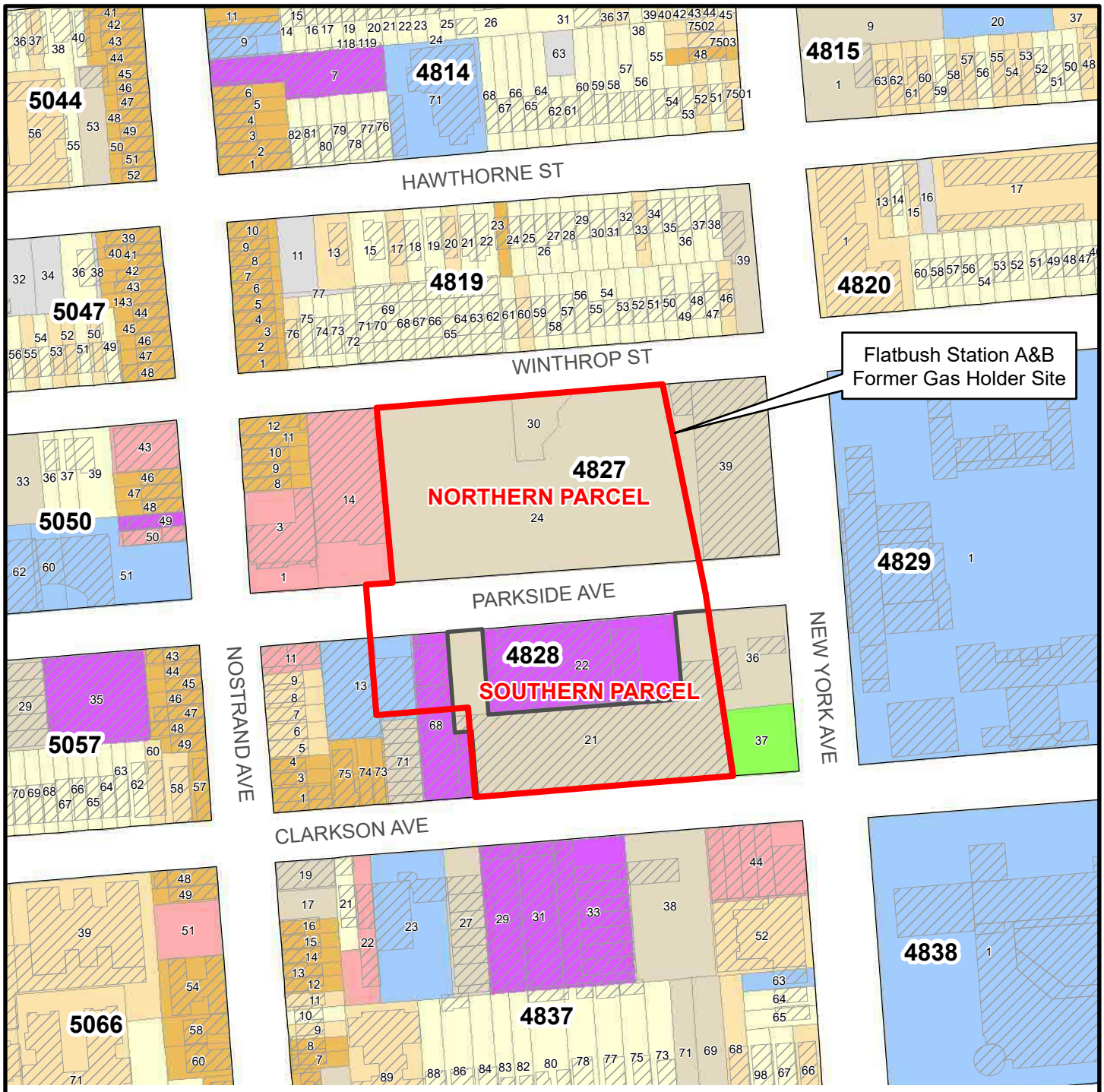
NOTES:
1. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
2. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
3. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
4. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SITE LAYOUT**

| DATE: 1/21/2021 | DRAWN: ML | JOB NO: 60218917 | | **FIGURE 2-1** |
|---|---|---|---|---|

\\uschi1fs001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-1 Site Layout.mxd




## Legend

- Flatbush Former MGP Site
- Block Boundary
- Building
- 329 Clarkson Ave Property Boundary

**Land Use**

- One & Two Family Residential
- Multi Family Residential
- Mixed Use
- Commercial
- Industrial and Manufacturing
- Public Facilities and Institutions
- Transportation, Utility and Parking
- Open Space and Outdoor Recreation
- Vacant Lot

Note: Tax Block & Tax Lot files are copyrighted by the New York City Department of City Planning

AECOM Environment
200 LIBERTY STREET
NEW YORK, NY 10281
(212) 798-8500
www.aecom.com

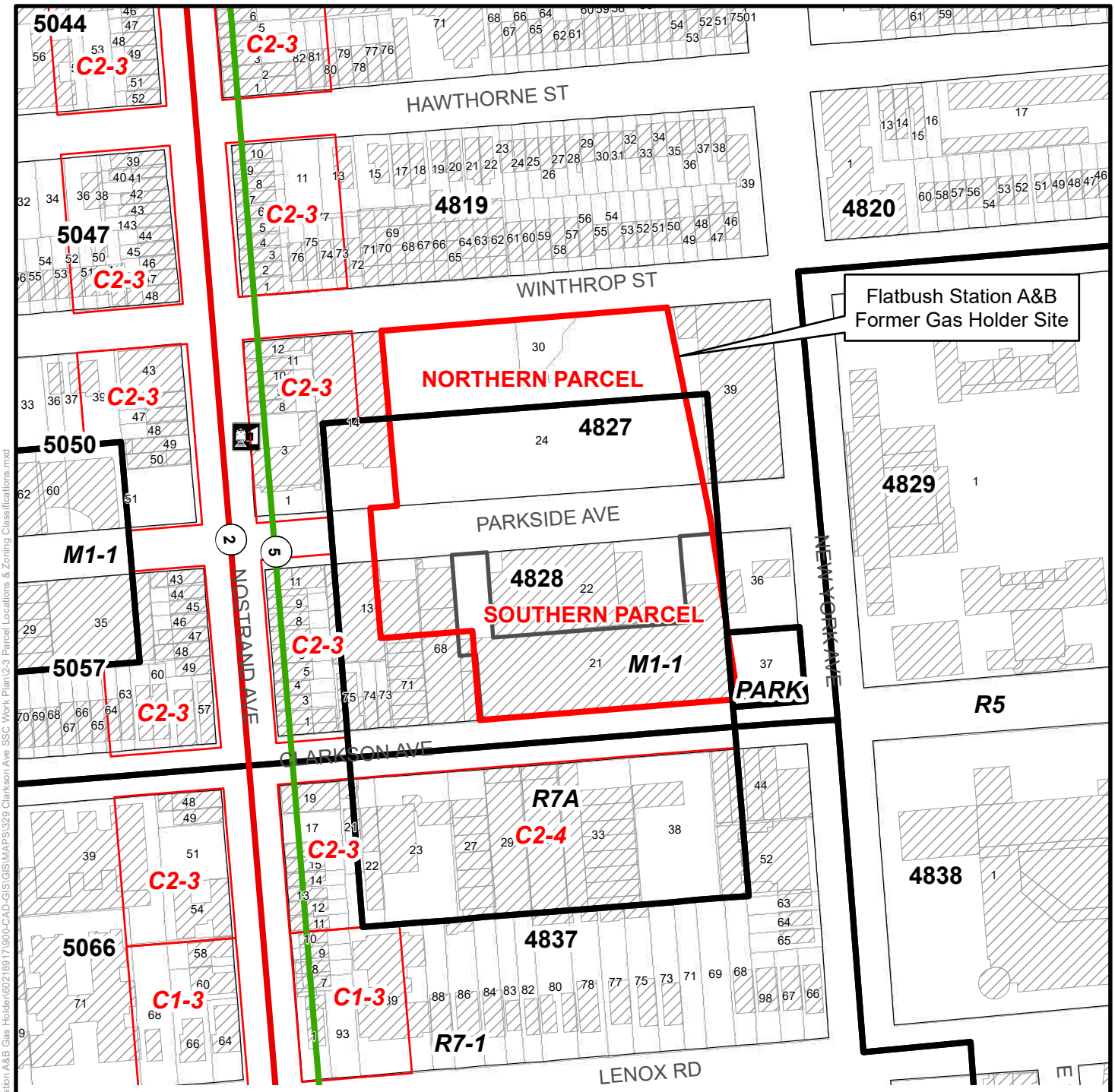
# Parcel Locations and Land Use
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

| Scale: | Date: | Project Number: |
|---|---|---|
| 1 in = 200 ft | 1/20/2021 | 60218917-310 |

Figure Number:

2-2

\\uschl1fp001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917\900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-2 Parcel Locations & Land Use.mxd




## Legend

- Subway Station
- Subway Line Number 2
- Subway Line Number 5
- Zoning Boundary
- Commercial Overlays
- Flatbush Former MGP Site
- Block Boundary
- Building
- 329 Clarkson Ave Property Boundary

Zoning Codes:
R5 and R6 - Residential of medium density, 3 to 5 stories
M1-1 - Manufacturing Industrial
C2 - Commercial Overlays

Source: Zoning Data from NYC OpenData

Note: Tax Block & Tax Lot files are copyrighted by the New York City Department of City Planning

AECOM Environment
200 LIBERTY STREET
NEW YORK, NY 10281
(212) 798-8500
www.aecom.com

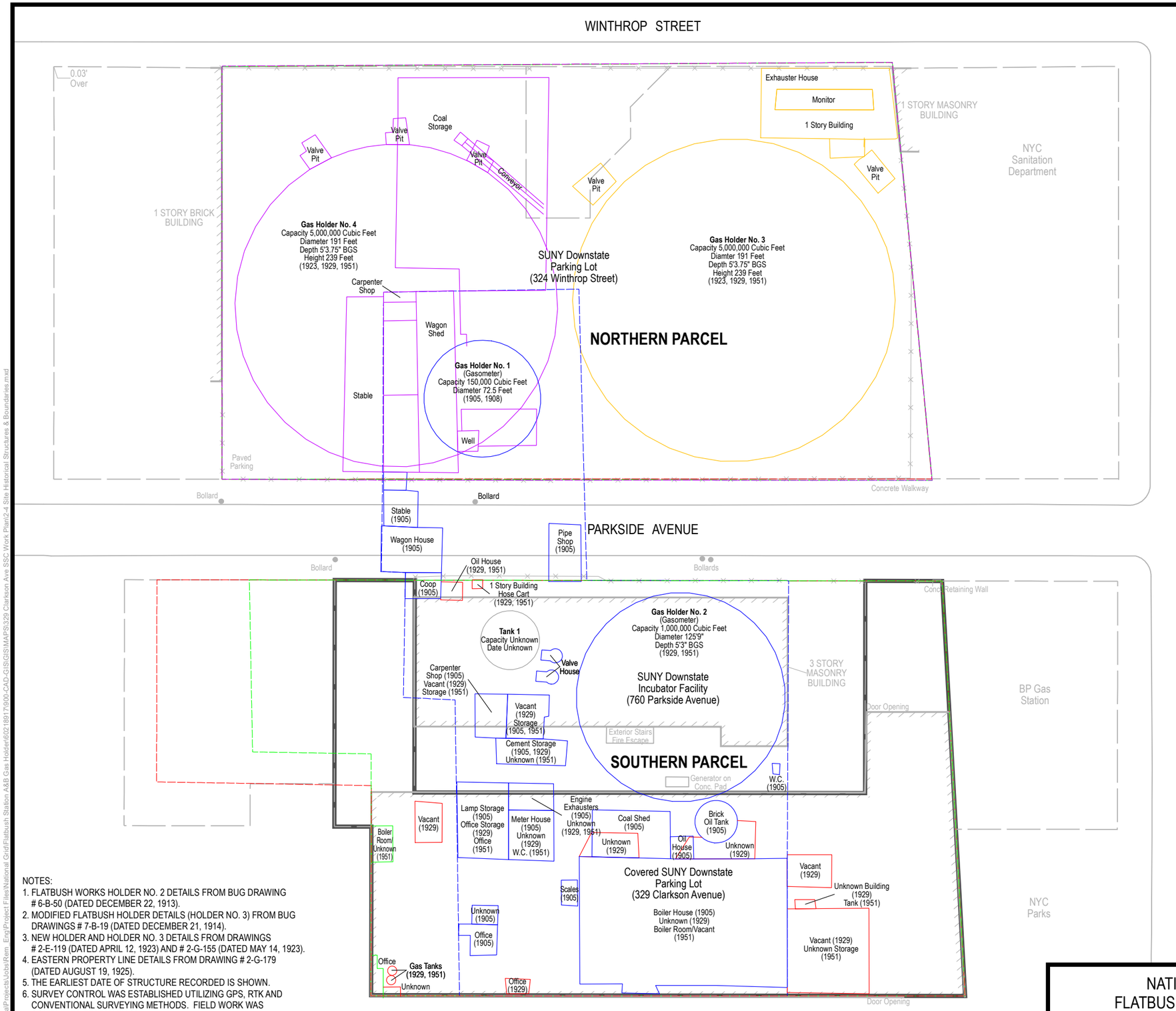
# Parcel Locations and Zoning Classifications
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

| Scale: | Date: | Project Number: |
|---|---|---|
| 1 in = 200 ft | 1/20/2021 | 60218917-310 |

Figure Number:

2-3

\\uschl1fp001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917\900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-3 Parcel Locations & Zoning Classifications.mxd




NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

AECOM

## Legend

- Historic Structures — 1905 Sanborn Map
- Exhauster House and Holder (No. 3) Details — From Drawing # 1-E-27 (Dated October 26, 1909)
- Historic Structures — 1923 Drawing # 6-C-21 (Dated April 16, 1923)
- Historic Structures — 1929 Sanborn Map
- Historic Structures — 1951 Sanborn Map
- Historic Structures — Date Unknown
- Approximate Historical Boundary — 1905 Sanborn Map
- Partial Approximate Historical Boundary — 1923 Bug Drawing # 6-C-2 (Dated April 16, 1923)
- Approximate Historical Boundary — 1929 Sanborn Map
- Approximate Historical Boundary — 1951 Sanborn Map
- Current Features and Property Boundary
- Fence
- Existing Building
- 329 Clarkson Ave Property Boundary

Note:
All historical structures are approximate.

N

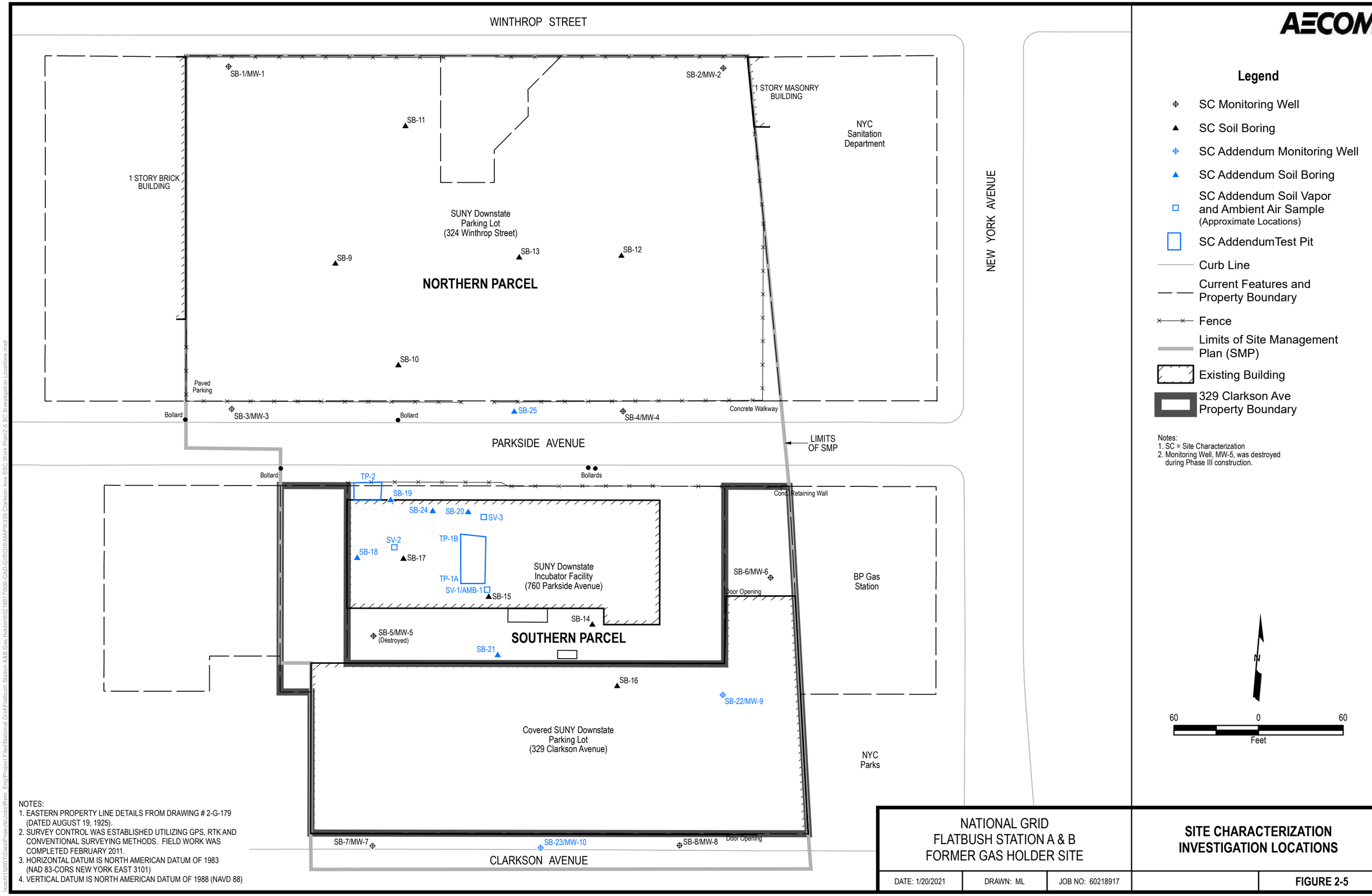
60 0 60
Feet

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SITE HISTORICAL STRUCTURES AND BOUNDARIES OF FLATBUSH GAS WORKS FACILITY**

| DATE: 1/20/2021 | DRAWN: ML | JOB NO: 60218917 | | **FIGURE 2-4** |
|---|---|---|---|---|

\\aschl1fp001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-4 Site Historical Structures & Boundaries.mxd




AECOM

## Legend

- SC Monitoring Well
- SC Soil Boring
- SC Addendum Monitoring Well
- SC Addendum Soil Boring
- SC Addendum Soil Vapor and Ambient Air Sample (Approximate Locations)
- SC AddendumTest Pit
- Curb Line
- Current Features and Property Boundary
- Fence
- Limits of Site Management Plan (SMP)
- Existing Building
- 329 Clarkson Ave Property Boundary

Notes:
1. SC = Site Characterization
2. Monitoring Well, MW-5, was destroyed during Phase III construction.

N

60 0 60
Feet

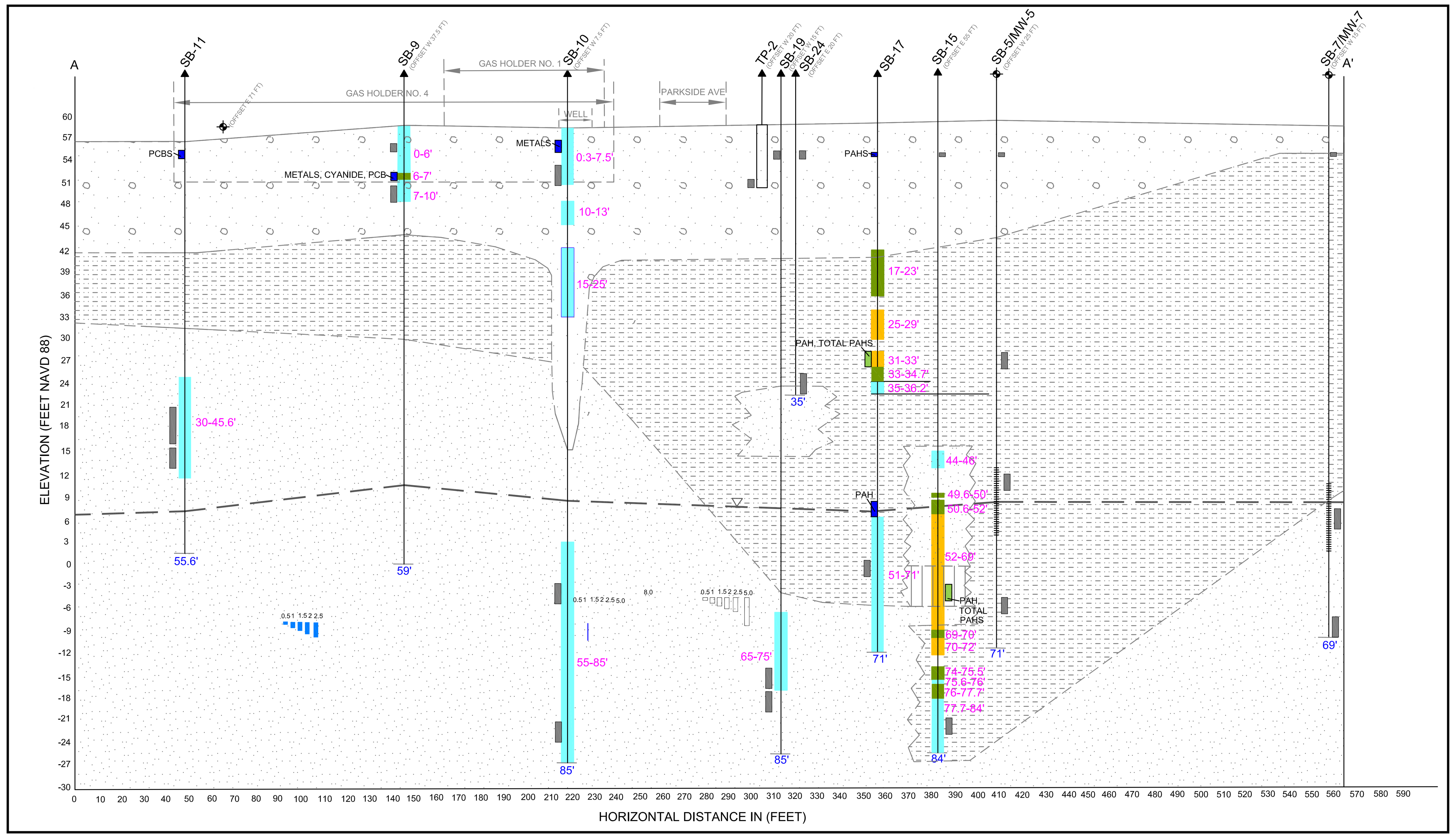
NOTES:
1. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
2. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
3. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
4. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

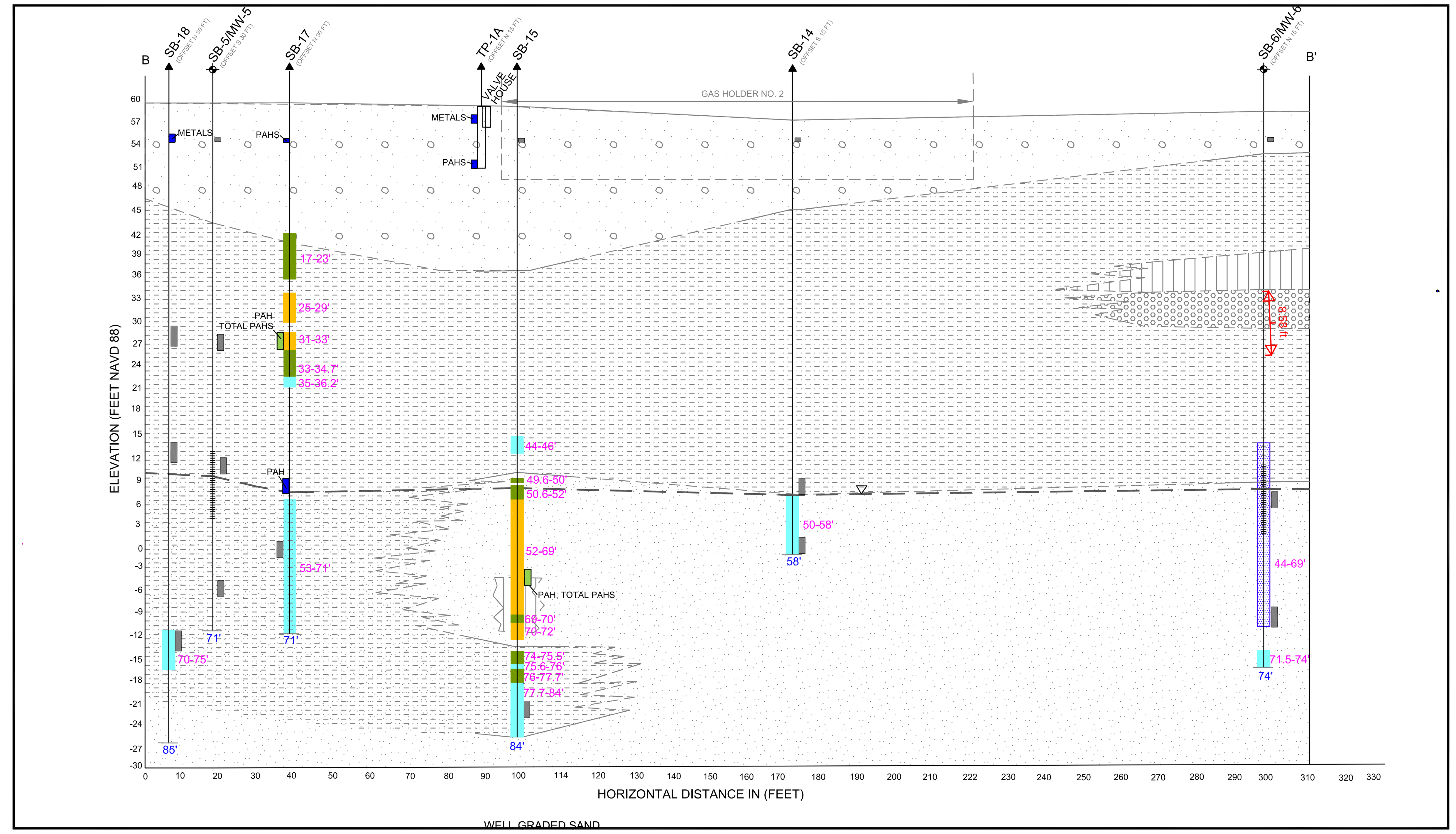
**SITE CHARACTERIZATION INVESTIGATION LOCATIONS**

| DATE: 1/20/2021 | DRAWN: ML | JOB NO: 60218917 | | **FIGURE 2-5** |
|---|---|---|---|---|

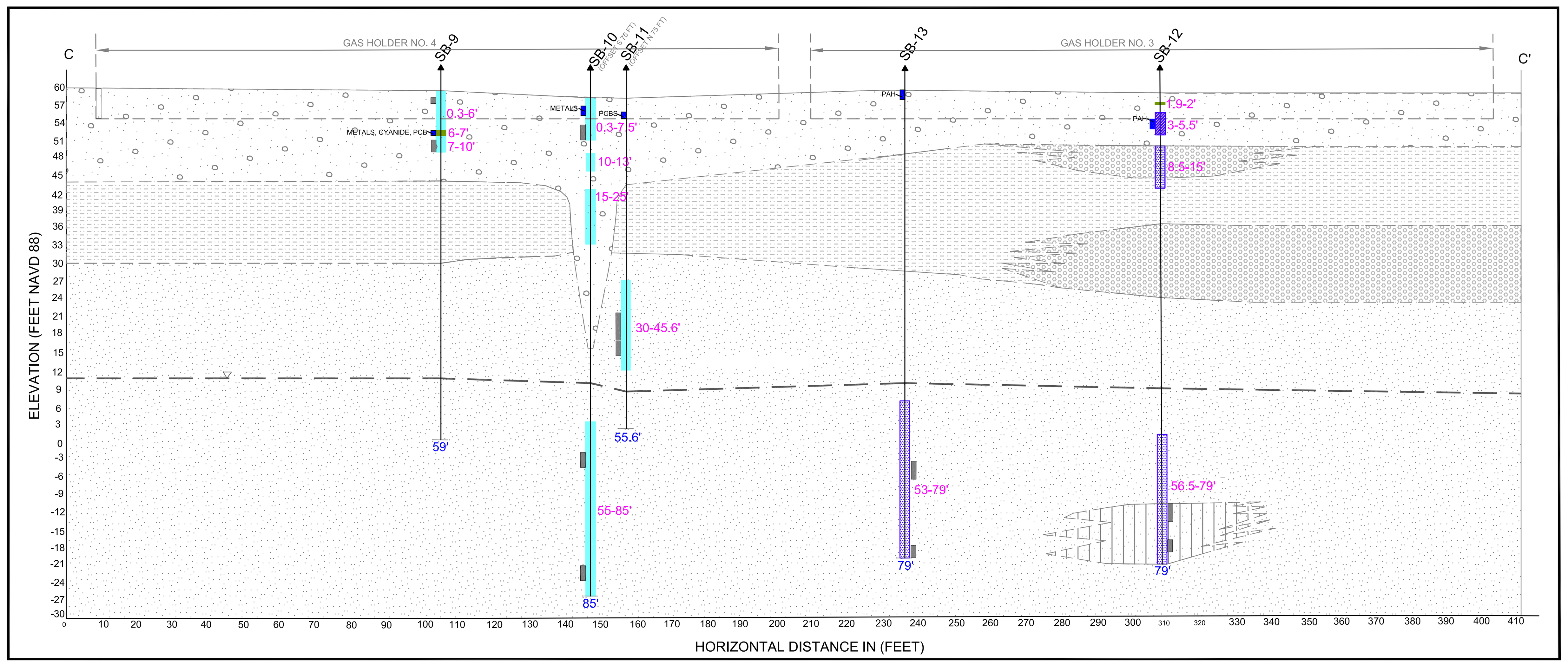
\\usch1fp001\Data\Projects\Jobs\Rem End\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-5 SC Investigation Locations.mxd



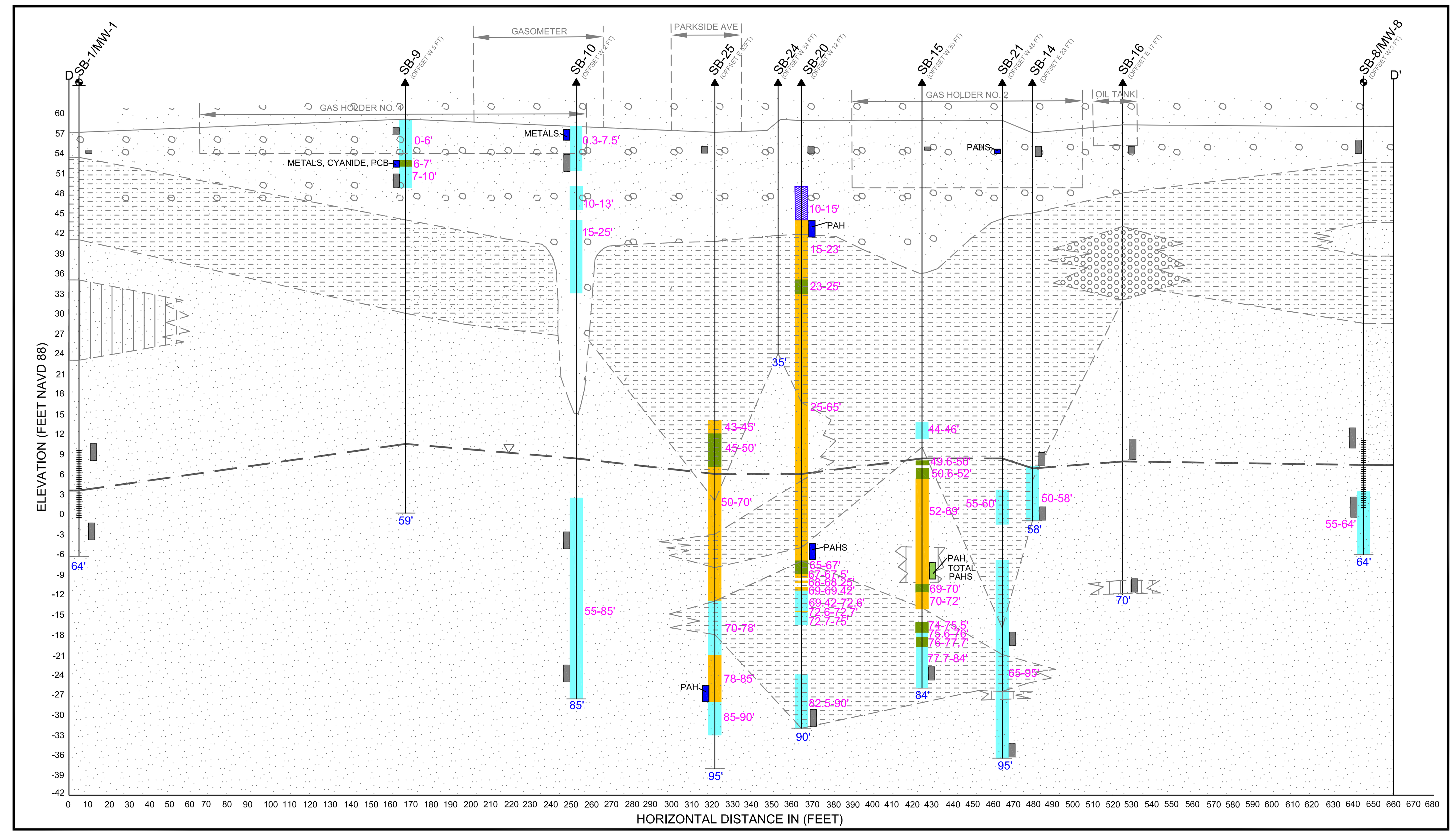

## GEOLOGIC CROSS SECTION A-A'



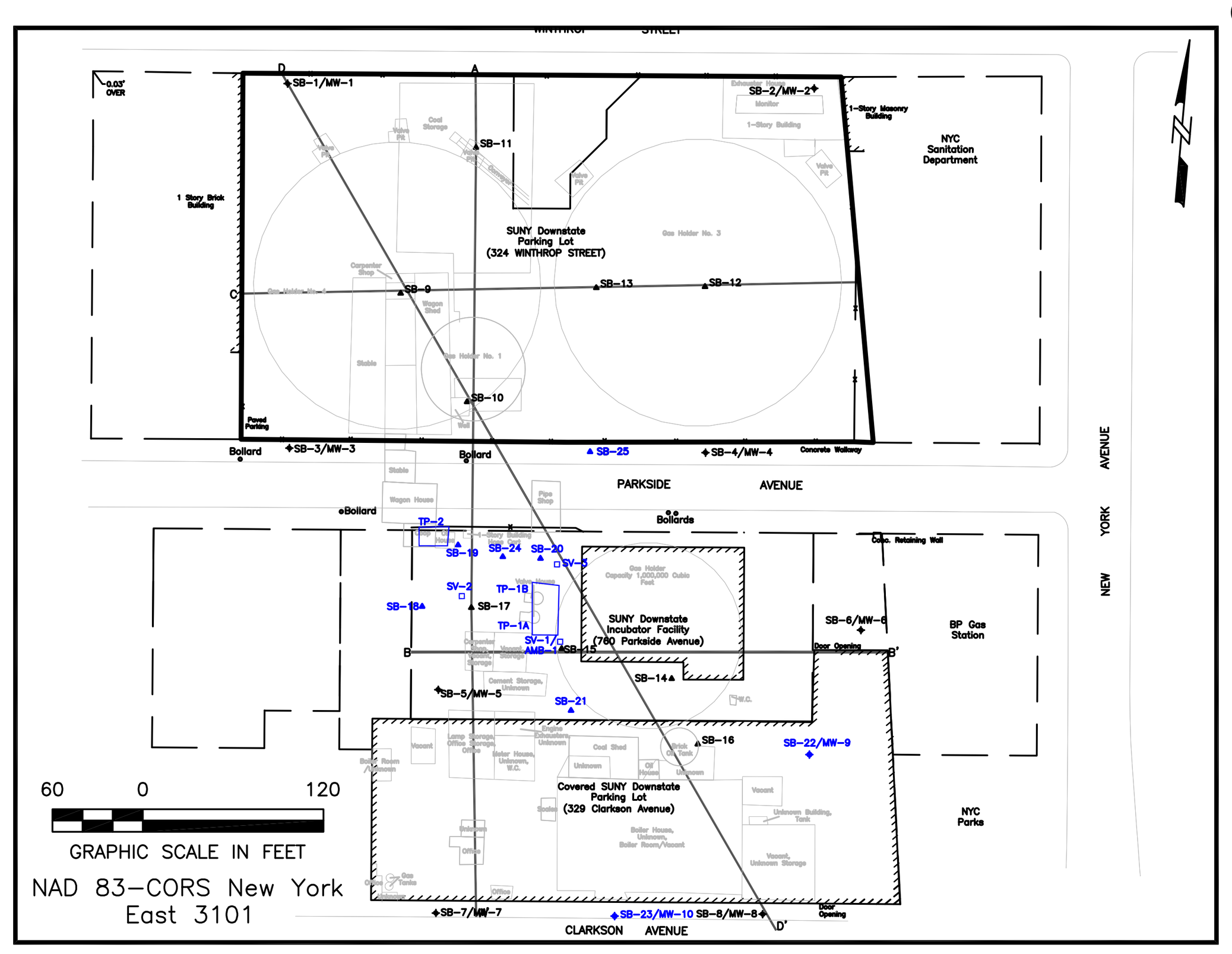

## GEOLOGIC CROSS SECTION B-B'




## GEOLOGIC CROSS SECTION C-C'




## GEOLOGIC CROSS SECTION D-D'




HISTORIC STRUCTURES

EXISTING BUILDING

CURRENT FEATURES AND PROPERTY BOUNDARY

FENCE

MW–3 — SC MONITORING WELL

SB–10 — SC SOIL BORING

BOLLARD

CROSS SECTION

TP–1A — SUPPLEMENTAL SC TEST PIT

SV–1/AMB–1 — SUPPLEMENTAL SC SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)

SC — SITE CHARACTERIZATION

WELL SCREEN ZONE

SAMPLE INTERVAL

EXCEEDANCES FOR THE NYSDEC PART 376–6 COMMERCIAL USE CRITERIA

EXCEEDANCES FOR THE NYSDEC CP–51 ALTERNATE CRITERIA OF 500 MG/KG FOR TOTAL PAHS

GROUNDWATER

95' — BORING COMPLETION DEPTH (BGS)

85-90' — DEPTH RANGE OF VISUAL OLFACTORY IMPACTS (BGS)

BGS — BELOW GRADE SURFACE

VISUAL AND OLFACTORY IMPACTS

- NAPL SHEEN/STAINING
- BLEBS, NAPL COATINGS
- NAPHTHALENE–LIKE ODORS
- PETROLEUM SHEEN/STAINING
- PETROLEUM ODORS

STRATIGRAPHY

- FILL
- WELL GRADED GRAVEL
- WELL GRADED SAND
- POORLY GRADED SAND
- SILTY SAND

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6–B–50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7–B–19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2–E–119 (DATED APRIL 12, 1923) AND # 2–G–155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2–G–179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83–CORS NEW YORK EAST 3101)

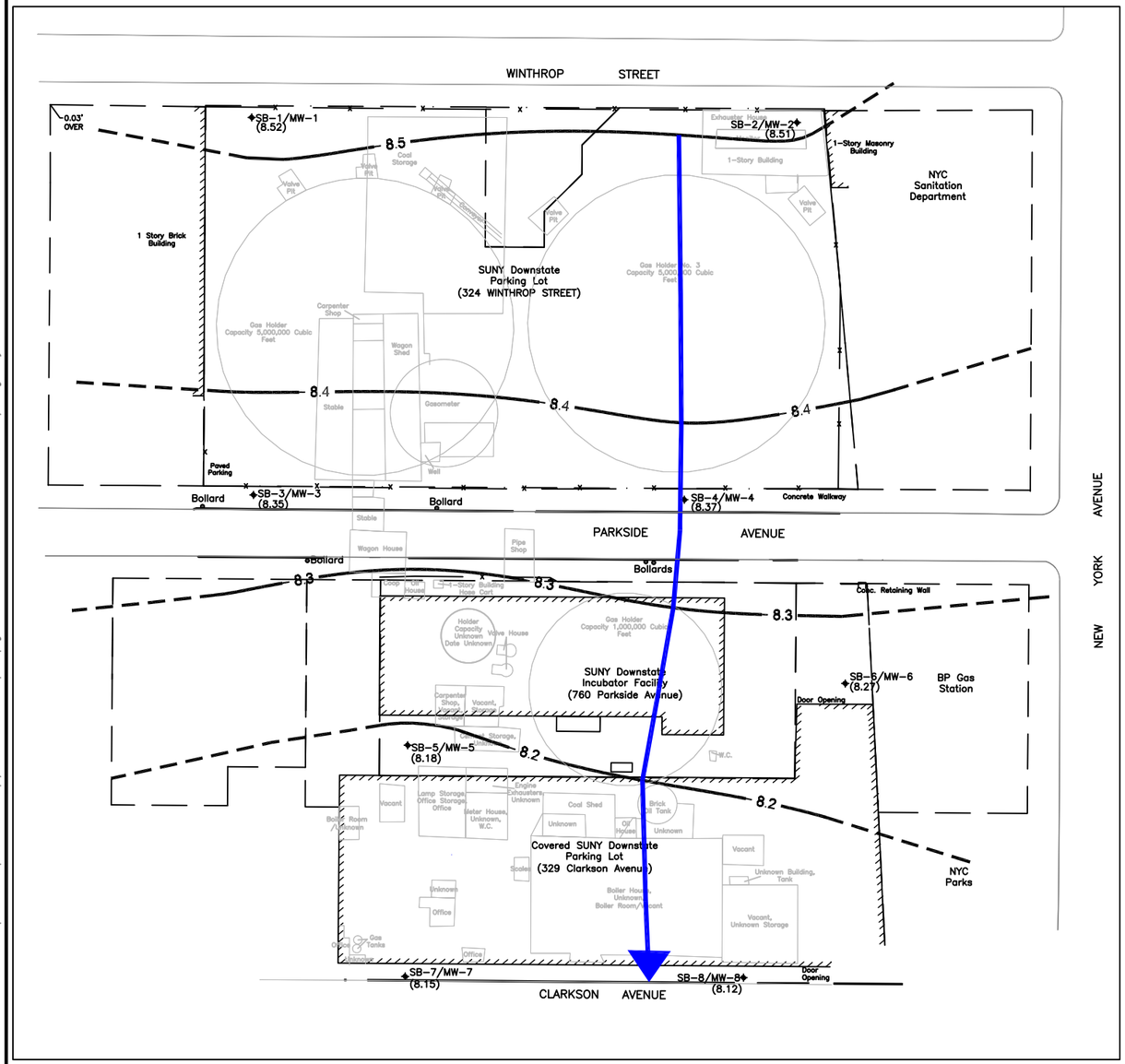
VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

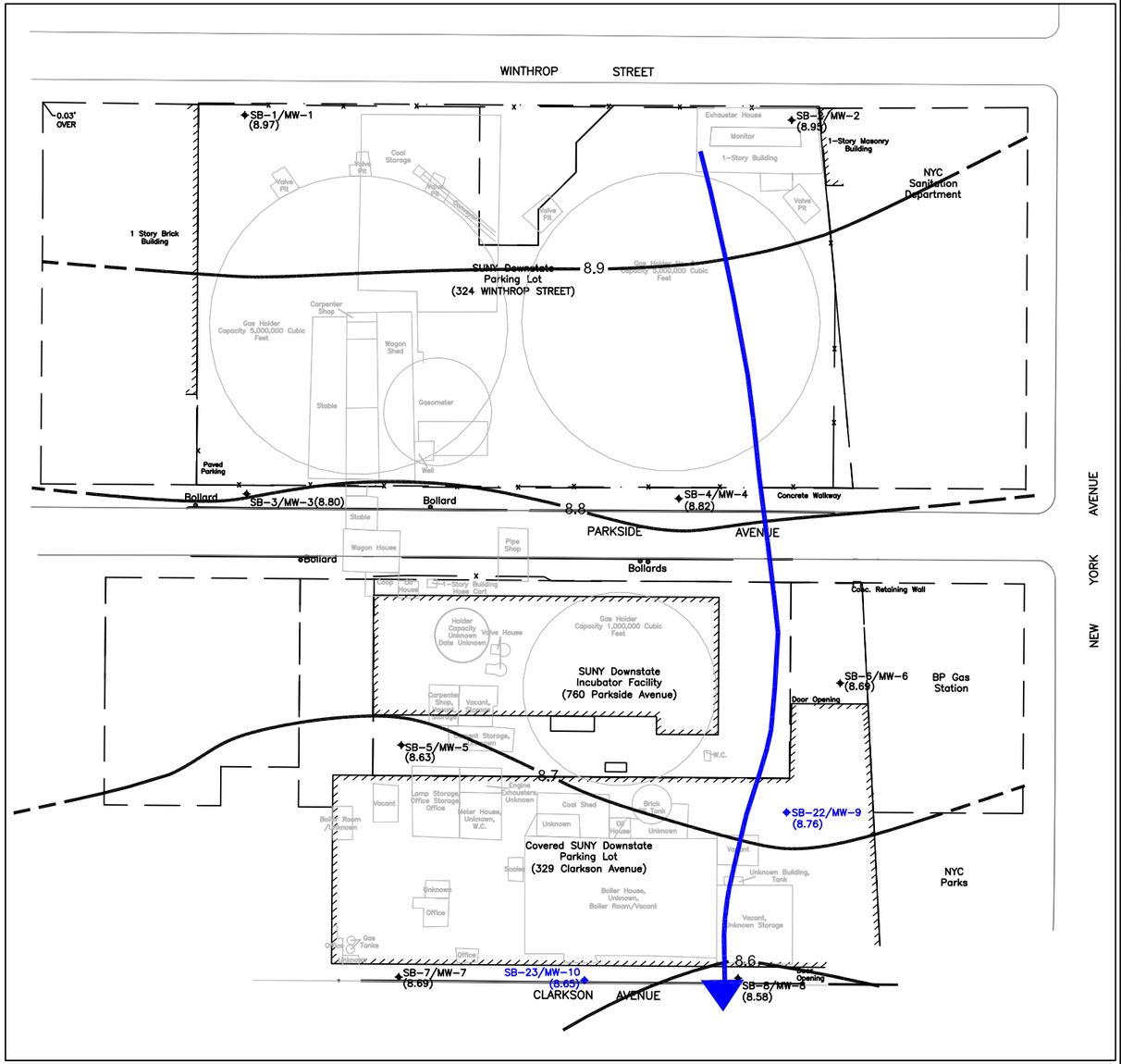
AECOM

| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | GEOLOGIC CROSS SECTIONS AND VISUAL AND OLFACTORY IMPACT OBSERVATIONS |
|---|---|---|---|
| DATE: 02/07/2020 | DRWN: JB | JOB #: 60218917–320 | FIGURE 2-6 |

File: P:\Jobs\Rem_Eng\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917\900-CAD-GIS\Updated_20200203\CAD\Fig_2_Z_Groundwater_Elevation_Contour_Maps.dwg Layout: AECOM-TBLK User: Bourdeaul Plotted: Feb 04, 2020 - 7:05am Xref's:

AECOM




**MARCH 9, 2011**

**July 28, 2011**

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

CURB LINE

HISTORIC STRUCTURES

EXISTING BUILDING

CURRENT FEATURES AND PROPERTY BOUNDARY

FENCE

MW-3 — SC MONITORING WELL

BOLLARD

MW-3 (8.35) — GROUNDWATER ELEVATION (FEET NAVD 88)

8.8 — GROUNDWATER CONTOUR

DIRECTION OF GROUNDWATER FLOW

SB-22/MW-9 (8.76) SC — SC ADDENDUM MONITORING WELL / SITE CHARACTERIZATION

45 0 90

GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

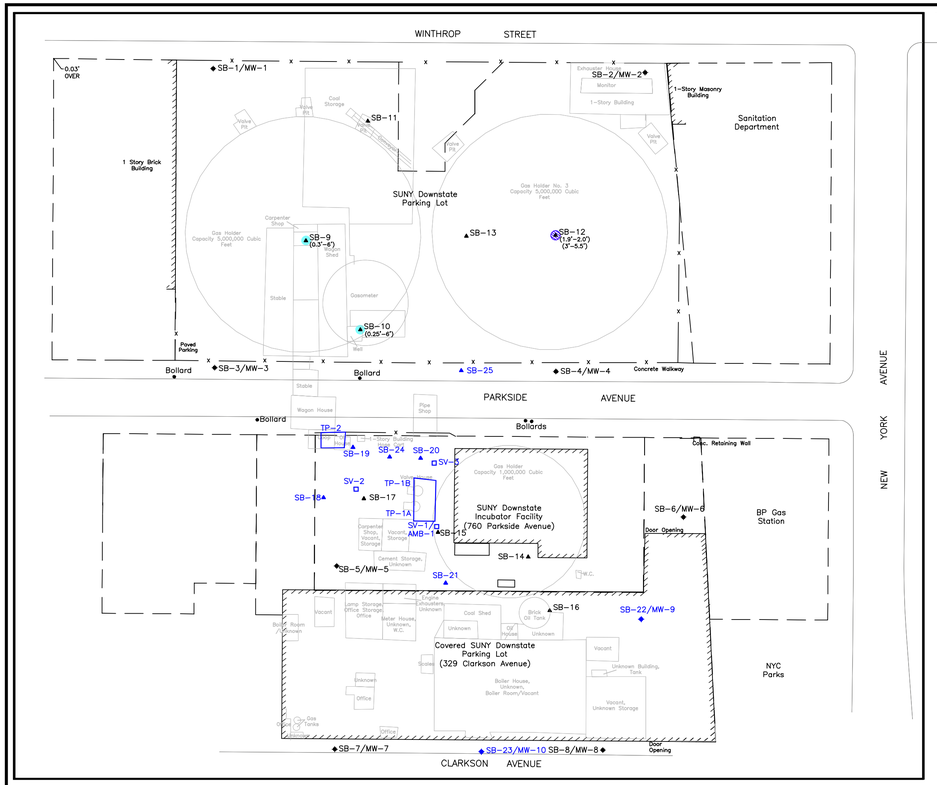
N

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

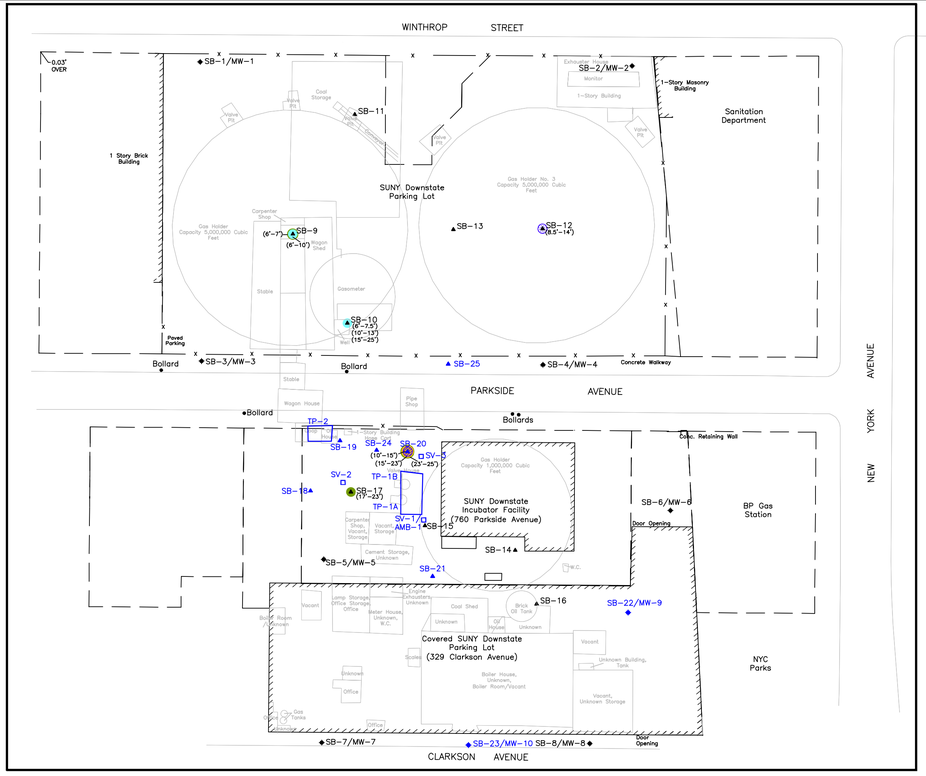
**GROUNDWATER ELEVATION CONTOUR MAPS**

DATE: 02/05/2020 | DRWN: JB | JOB #: 60218917-320

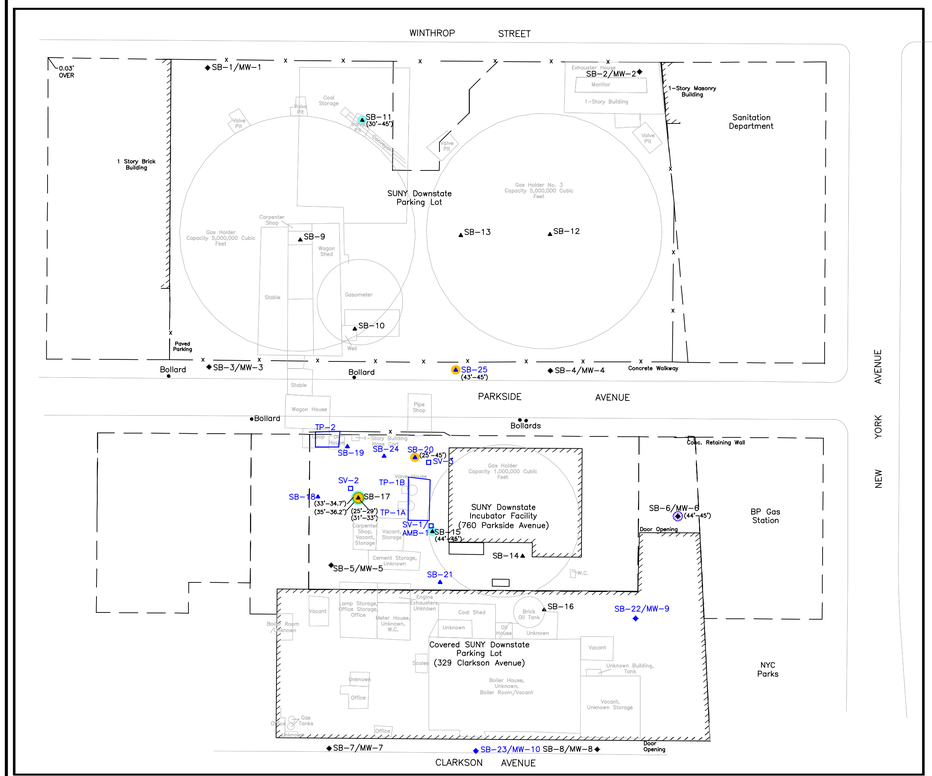
**FIGURE 2-7**



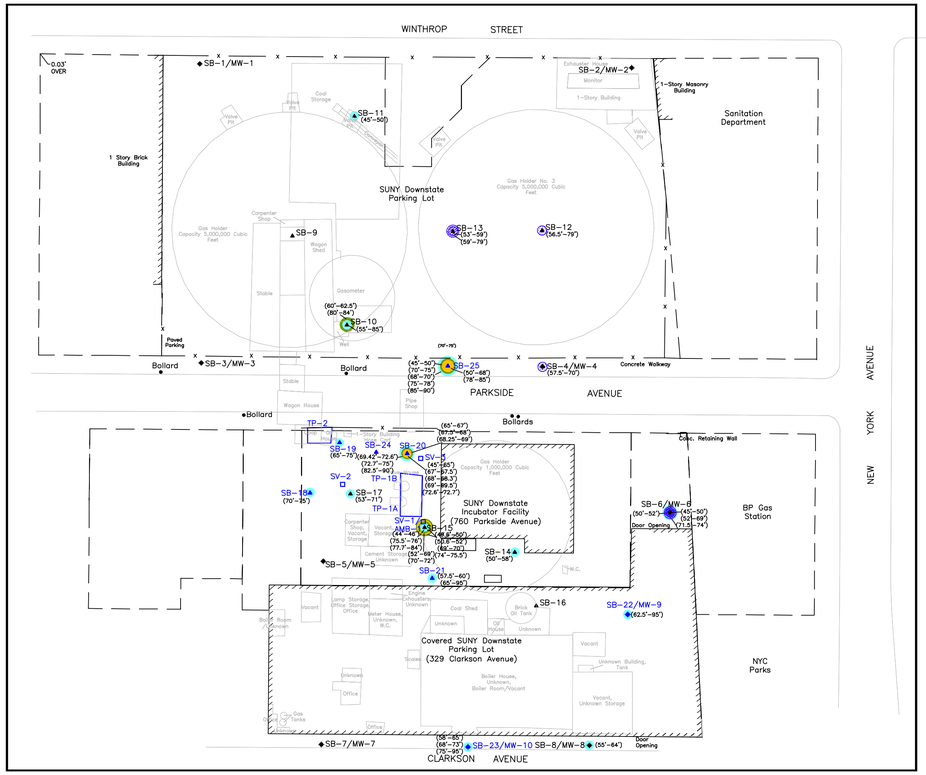

FROM 0-6 FEET BELOW GROUND SURFACE




FROM 6-25 FEET BELOW GROUND SURFACE




FROM 25-45 FEET BELOW GROUND SURFACE




FROM 45-95 FEET BELOW GROUND SURFACE

AECOM

HISTORIC STRUCTURES

EXISTING BUILDING

CURRENT FEATURES AND PROPERTY BOUNDARY

x FENCE

◆ MW-3 SC MONITORING WELL

▲ SB-10 SC SOIL BORING

● BOLLARD

NAPL SHEEN/STAINING

BLEBS, NAPL COATINGS

NAPL/NAPHTHALENE-LIKE ODORS

PETROLEUM SHEEN/STAINING

PETROLEUM ODORS

(8.5'-9') DEPTH OF IMPACTS OBSERVED IN FEET BELOW GRADE SURFACE

◆ SB-22/MW-9 SC ADDENDUM MONITORING WELL

▲ SB-18 SC ADDENDUM SOIL BORING

TP-1A SC ADDENDUM TEST PIT

SV-1/AMB-1 SC ADDENDUM SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)

SC SITE CHARACTERIZATION

NO SHADING INDICATES NO IMPACTS OBSERVED

N

30 0 60

GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

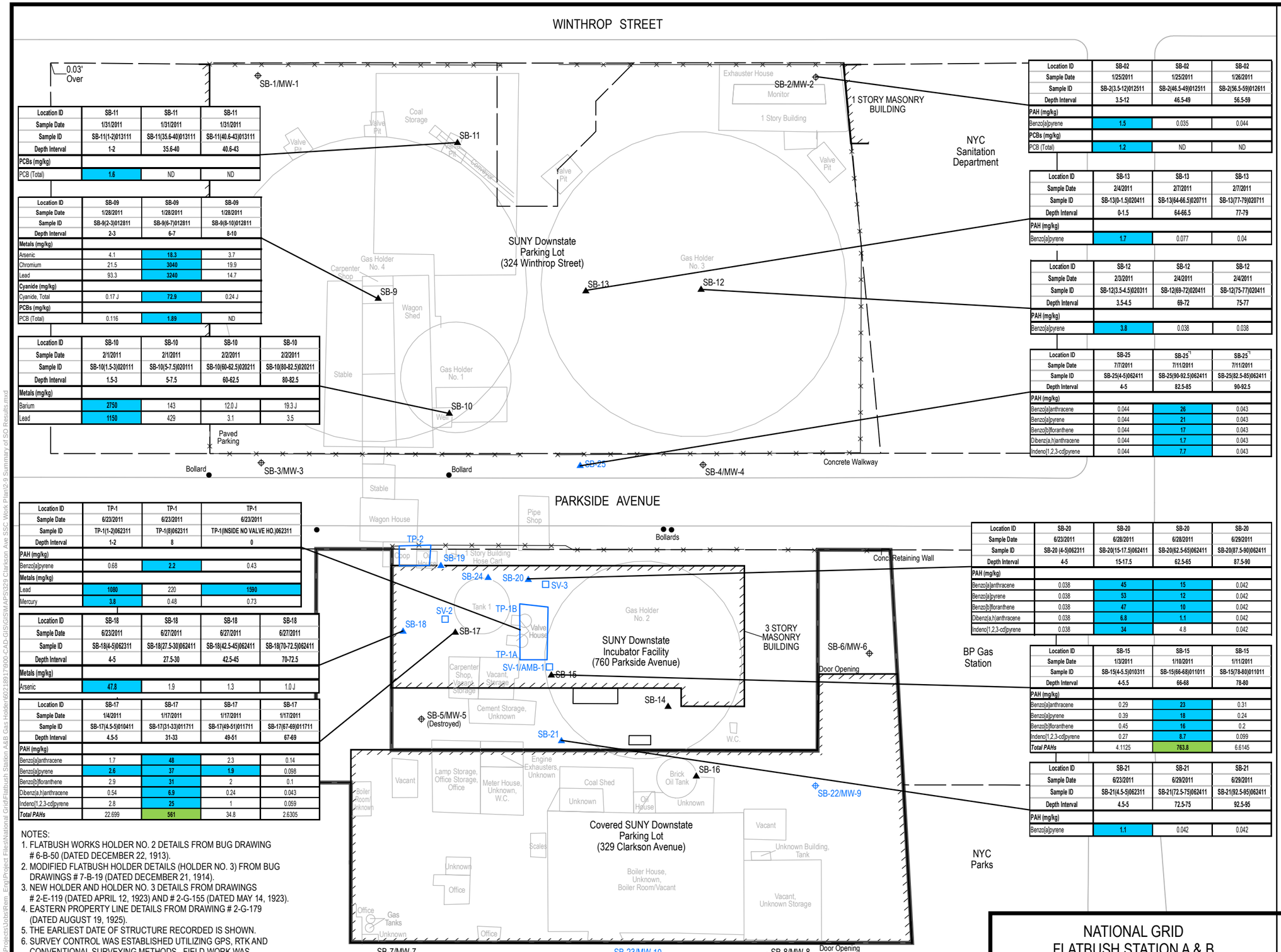
THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | **SUMMARY OF VISUAL AND OLFACTORY IMPACTS** |
|---|---|---|---|
| DATE: 01/10/2012 | DRWN: BcV/W-MA/XW | JOB #: 60218917-320 | **FIGURE 2-8** |




| Location ID | SB-11 | SB-11 | SB-11 |
|---|---|---|---|
| Sample Date | 1/31/2011 | 1/31/2011 | 1/31/2011 |
| Sample ID | SB-11(1-2)013111 | SB-11(35.6-40)013111 | SB-11(40.6-43)013111 |
| Depth Interval | 1-2 | 35.6-40 | 40.6-43 |
| PCBs (mg/kg) | | | |
| PCB (Total) | 1.6 | ND | ND |

| Location ID | SB-09 | SB-09 | SB-09 |
|---|---|---|---|
| Sample Date | 1/28/2011 | 1/28/2011 | 1/28/2011 |
| Sample ID | SB-9(2-3)012811 | SB-9(6-7)012811 | SB-9(8-10)012811 |
| Depth Interval | 2-3 | 6-7 | 8-10 |
| Metals (mg/kg) | | | |
| Arsenic | 4.1 | 18.3 | 3.7 |
| Chromium | 21.5 | 3040 | 19.9 |
| Lead | 93.3 | 3240 | 14.7 |
| Cyanide (mg/kg) | | | |
| Cyanide, Total | 0.17 J | 72.9 | 0.24 J |
| PCBs (mg/kg) | | | |
| PCB (Total) | 0.116 | 1.89 | ND |

| Location ID | SB-10 | SB-10 | SB-10 | SB-10 |
|---|---|---|---|---|
| Sample Date | 2/1/2011 | 2/1/2011 | 2/2/2011 | 2/2/2011 |
| Sample ID | SB-10(1.5-3)020111 | SB-10(5-7.5)020111 | SB-10(60-62.5)020211 | SB-10(80-82.5)020211 |
| Depth Interval | 1.5-3 | 5-7.5 | 60-62.5 | 80-82.5 |
| Metals (mg/kg) | | | | |
| Barium | 2750 | 143 | 12.0 J | 19.3 J |
| Lead | 1150 | 429 | 3.1 | 3.5 |

| Location ID | TP-1 | TP-1 | TP-1 |
|---|---|---|---|
| Sample Date | 6/23/2011 | 6/23/2011 | 6/23/2011 |
| Sample ID | TP-1(1-2)062311 | TP-1(8)062311 | TP-1(INSIDE NO VALVE HO,)062311 |
| Depth Interval | 1-2 | 8 | 0 |
| PAH (mg/kg) | | | |
| Benzo[a]pyrene | 0.68 | 2.2 | 0.43 |
| Metals (mg/kg) | | | |
| Lead | 1080 | 220 | 1590 |
| Mercury | 3.8 | 0.48 | 0.73 |

| Location ID | SB-18 | SB-18 | SB-18 | SB-18 |
|---|---|---|---|---|
| Sample Date | 6/23/2011 | 6/27/2011 | 6/27/2011 | 6/27/2011 |
| Sample ID | SB-18(4-5)062311 | SB-18(27.5-30)062411 | SB-18(42.5-45)062411 | SB-18(70-72.5)062411 |
| Depth Interval | 4-5 | 27.5-30 | 42.5-45 | 70-72.5 |
| Metals (mg/kg) | | | | |
| Arsenic | 47.8 | 1.9 | 1.3 | 1.0 J |

| Location ID | SB-17 | SB-17 | SB-17 | SB-17 |
|---|---|---|---|---|
| Sample Date | 1/4/2011 | 1/17/2011 | 1/17/2011 | 1/17/2011 |
| Sample ID | SB-17(4.5-5)010411 | SB-17(31-33)011711 | SB-17(49-51)011711 | SB-17(67-69)011711 |
| Depth Interval | 4.5-5 | 31-33 | 49-51 | 67-69 |
| PAH (mg/kg) | | | | |
| Benzo[a]anthracene | 1.7 | 48 | 2.3 | 0.14 |
| Benzo[a]pyrene | 2.6 | 37 | 1.9 | 0.098 |
| Benzo[b]fluoranthene | 2.9 | 31 | 2 | 0.1 |
| Dibenz(a,h)anthracene | 0.54 | 6.9 | 0.24 | 0.043 |
| Indeno[1,2,3-cd]pyrene | 2.8 | 25 | 1 | 0.059 |
| *Total PAHs* | 22.699 | 561 | 34.8 | 2.6305 |

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

| Location ID | SB-02 | SB-02 | SB-02 |
|---|---|---|---|
| Sample Date | 1/25/2011 | 1/25/2011 | 1/26/2011 |
| Sample ID | SB-2(3.5-12)012511 | SB-2(46.5-49)012511 | SB-2(56.5-59)012611 |
| Depth Interval | 3.5-12 | 46.5-49 | 56.5-59 |
| PAH (mg/kg) | | | |
| Benzo[a]pyrene | 1.5 | 0.035 | 0.044 |
| PCBs (mg/kg) | | | |
| PCB (Total) | 1.2 | ND | ND |

| Location ID | SB-13 | SB-13 | SB-13 |
|---|---|---|---|
| Sample Date | 2/4/2011 | 2/7/2011 | 2/7/2011 |
| Sample ID | SB-13(0-1.5)020411 | SB-13(64-66.5)020711 | SB-13(77-79)020711 |
| Depth Interval | 0-1.5 | 64-66.5 | 77-79 |
| PAH (mg/kg) | | | |
| Benzo[a]pyrene | 1.7 | 0.077 | 0.04 |

| Location ID | SB-12 | SB-12 | SB-12 |
|---|---|---|---|
| Sample Date | 2/3/2011 | 2/4/2011 | 2/4/2011 |
| Sample ID | SB-12(3.5-4.5)020311 | SB-12(69-72)020411 | SB-12(75-77)020411 |
| Depth Interval | 3.5-4.5 | 69-72 | 75-77 |
| PAH (mg/kg) | | | |
| Benzo[a]pyrene | 3.8 | 0.038 | 0.038 |

| Location ID | SB-25 | SB-25[*1] | SB-25[*1] |
|---|---|---|---|
| Sample Date | 7/7/2011 | 7/11/2011 | 7/11/2011 |
| Sample ID | SB-25(4-5)062411 | SB-25(90-92.5)062411 | SB-25(82.5-85)062411 |
| Depth Interval | 4-5 | 82.5-85 | 90-92.5 |
| PAH (mg/kg) | | | |
| Benzo[a]anthracene | 0.044 | 26 | 0.043 |
| Benzo[a]pyrene | 0.044 | 21 | 0.043 |
| Benzo[b]floranthene | 0.044 | 17 | 0.043 |
| Dibenz(a,h)anthracene | 0.044 | 1.7 | 0.043 |
| Indeno[1,2,3-cd]pyrene | 0.044 | 7.7 | 0.043 |

| Location ID | SB-20 | SB-20 | SB-20 | SB-20 |
|---|---|---|---|---|
| Sample Date | 6/23/2011 | 6/28/2011 | 6/28/2011 | 6/29/2011 |
| Sample ID | SB-20 (4-5)062311 | SB-20(15-17.5)062411 | SB-20(62.5-65)062411 | SB-20(87.5-90)062411 |
| Depth Interval | 4-5 | 15-17.5 | 62.5-65 | 87.5-90 |
| PAH (mg/kg) | | | | |
| Benzo[a]anthracene | 0.038 | 45 | 15 | 0.042 |
| Benzo[a]pyrene | 0.038 | 53 | 12 | 0.042 |
| Benzo[b]floranthene | 0.038 | 47 | 10 | 0.042 |
| Dibenz(a,h)anthracene | 0.038 | 6.8 | 1.1 | 0.042 |
| Indeno[1,2,3-cd]pyrene | 0.038 | 34 | 4.8 | 0.042 |

| Location ID | SB-15 | SB-15 | SB-15 |
|---|---|---|---|
| Sample Date | 1/3/2011 | 1/10/2011 | 1/11/2011 |
| Sample ID | SB-15(4-5.5)010311 | SB-15(66-68)011011 | SB-15(78-80)011011 |
| Depth Interval | 4-5.5 | 66-68 | 78-80 |
| PAH (mg/kg) | | | |
| Benzo[a]anthracene | 0.29 | 23 | 0.31 |
| Benzo[a]pyrene | 0.39 | 18 | 0.24 |
| Benzo[b]floranthene | 0.45 | 16 | 0.2 |
| Indeno[1,2,3-cd]pyrene | 0.27 | 8.7 | 0.099 |
| *Total PAHs* | 4.1125 | 763.8 | 6.6145 |

| Location ID | SB-21 | SB-21 | SB-21 |
|---|---|---|---|
| Sample Date | 6/23/2011 | 6/29/2011 | 6/29/2011 |
| Sample ID | SB-21(4.5-5)062311 | SB-21(72.5-75)062411 | SB-21(92.5-95)062411 |
| Depth Interval | 4.5-5 | 72.5-75 | 92.5-95 |
| PAH (mg/kg) | | | |
| Benzo[a]pyrene | 1.1 | 0.042 | 0.042 |

## Legend

- SC Monitoring Well
- SC Soil Boring
- SC Addendum Monitoring Well
- SC Addendum Soil Boring
- SC Addendum Soil Vapor and Ambient Air Sample (Approximate Locations)
- SC AddendumTest Pit
- Curb Line
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- 329 Clarkson Ave Property Boundary

Notes:
1. Monitoring Well, MW-5, was destroyed during Phase III construction.
2. SC = Site Characterization
3. ND = Not Detected
4. J = Estimated Value
5. *1 = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
6. **BOLD** = Exceedance of the NYSDEC Part 375-6 Commercial Use Criteria
7. **BOLD** = Exceedance of the NYSDEC CP-51 Alternate Criteria of 500mg/kg for Total PAHs.

| Location ID | NYSDEC Part 375-6 Commercial Use |
|---|---|
| Sample Date | |
| Sample ID | |
| Depth Interval | |
| PAH (mg/kg) | |
| Benzo[a]anthracene | 5.6 |
| Benzo[a]pyrene | 1 |
| Benzo[b]fluoranthene | 5.6 |
| Dibenz(a,h)anthracene | 0.56 |
| Indeno[1,2,3-cd]pyrene | 5.6 |
| *Total PAHs* | 500[^] |
| Cyanide (mg/kg) | |
| Cyanide, Total | 27 |
| PCBs (mg/kg) | |
| PCB (Total) | 1 |
| Metals (mg/kg) | |
| Arsenic | 16 |
| Barium | 400 |
| Lead | 1000 |
| Chromium | 1500 |
| Mercury | 2.8 |

N

60 0 60
Feet

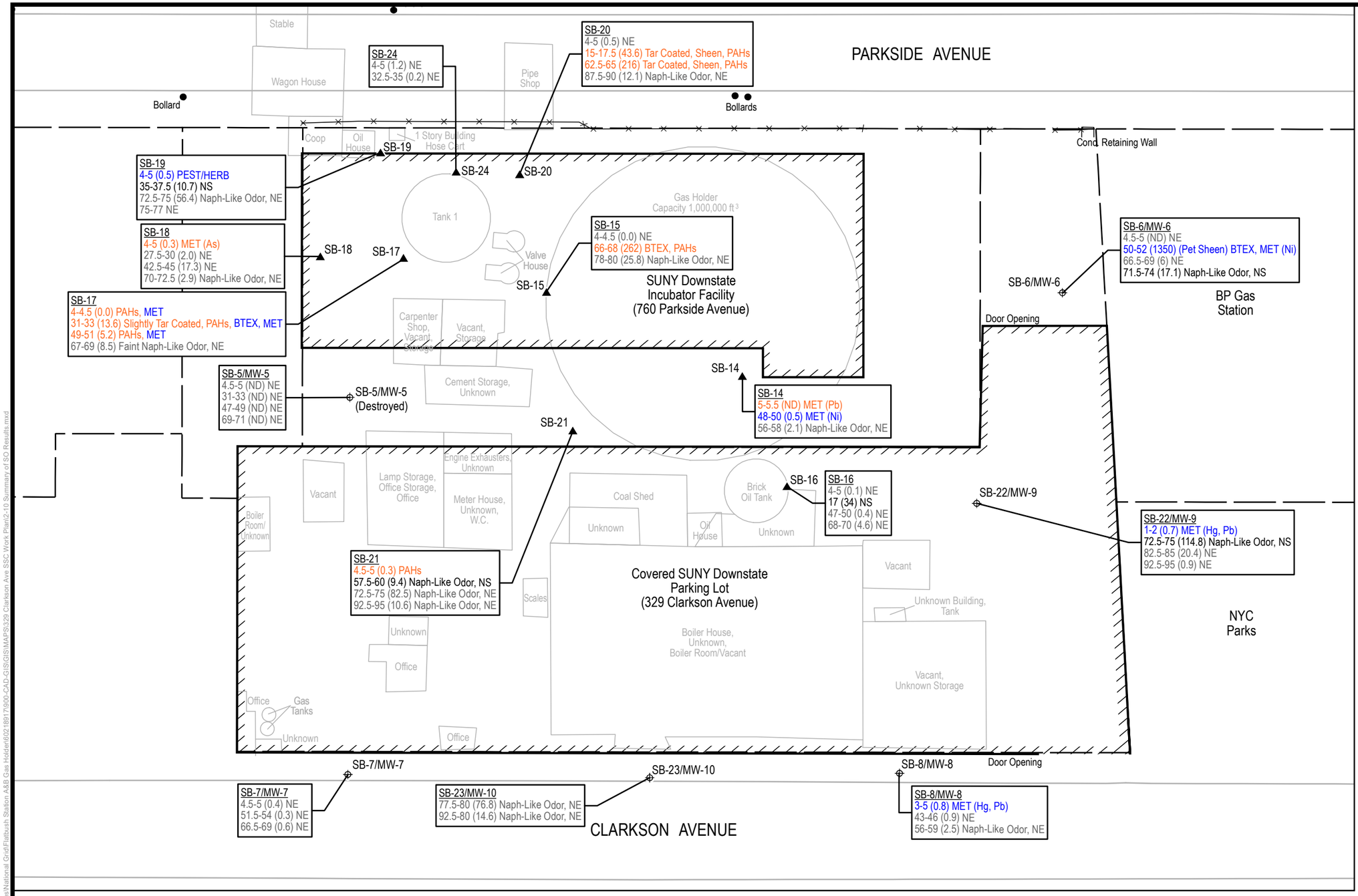
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

DATE: 1/21/2021 | DRAWN: ML | JOB NO: 60218917

**SUMMARY OF SOIL ANALYTICAL CONTAMINATION RESULTS EXCEEDING RESTRICTED USE COMMERCIAL SCO**

**FIGURE 2-9**

\\usdh1tn0001\Data\Projects\Jobs\Rem End\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-9 Summary of SO Results.mxd




AECOM

## Legend

- SC Soil Boring
- SC Monitoring Well
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building

Notes:
1. SC = Site Characterization
2. Monitoring Well, MW-5, was destroyed during Phase III construction.
3. Colored text indicates one or more compounds detected above the NYSDEC Part 375-6 Criteria:
   Blue Text - Compounds above Unrestricted Use Criteria
   Orange Text - Compounds above Residential and Restricted Residential Use Criteria
4. NE = No Exceedance
5. NS = No Sample
6. (#) = PID Screening Value
7. BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes
8. PAHs = Polycyclic Aromatic Hydrocarbons
9. MET = Metals
10. PEST = Pesticides
11. HERB = Herbicides
12. Naph = Naphthalene
13. Pet = Petroleum

N

40 0 40
Feet

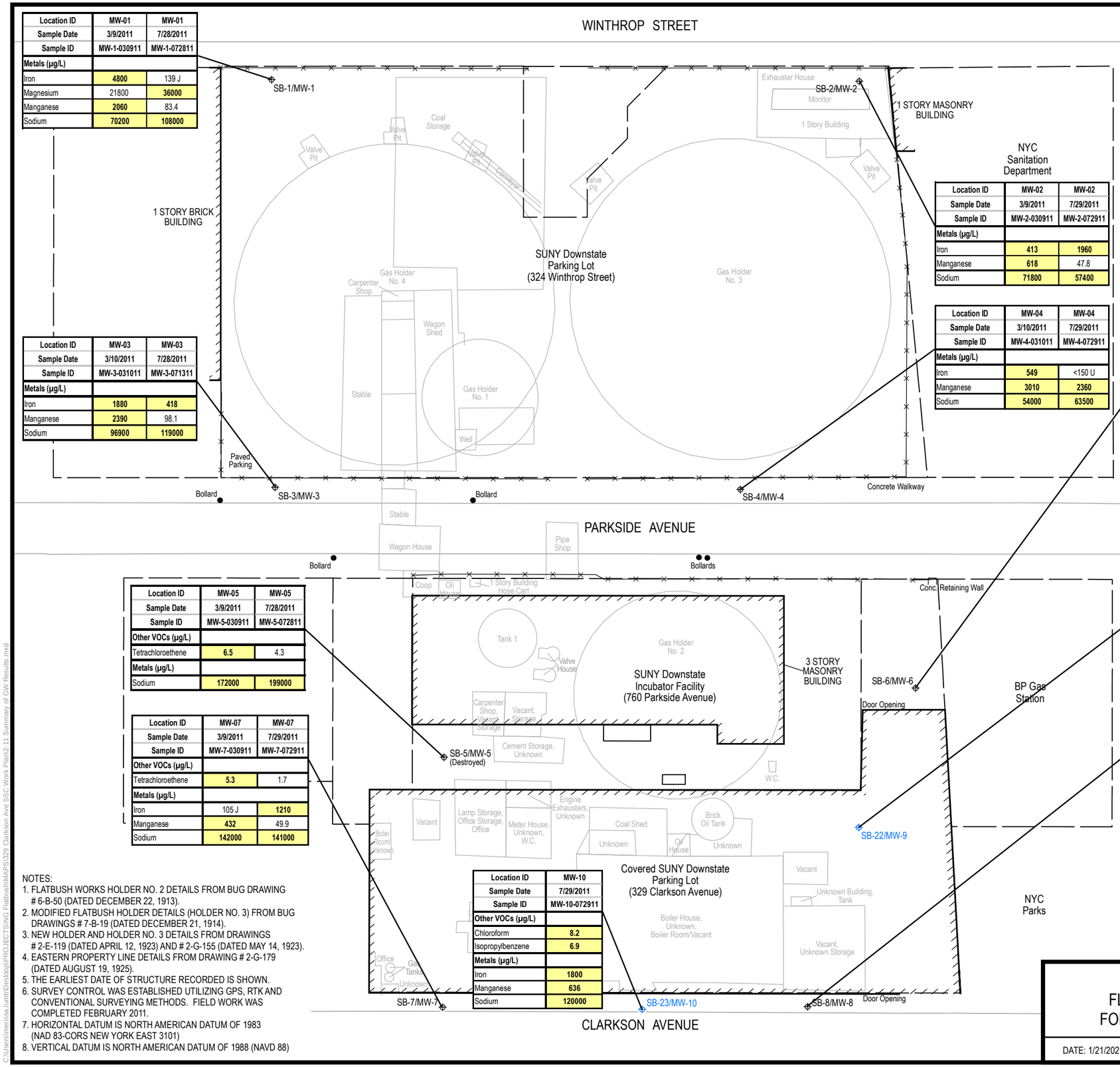
NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SUMMARY OF CONSTITUENTS DETECTED ABOVE NYSDEC RESTRICTED RESIDENTIAL USE IN SOIL BENEATH THE SOUTHERN PARCEL**

| DATE: 1/21/2021 | DRAWN: ML | JOB NO: 60218917 | | **FIGURE 2-10** |
|---|---|---|---|---|

\\usch1fs001\Data\Projects\Jobs\Rem_Eng\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-10 Summary of SO Results.mxd




| Location ID | MW-01 | MW-01 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/28/2011 |
| Sample ID | MW-1-030911 | MW-1-072811 |
| **Metals (µg/L)** | | |
| Iron | **4800** | 139 J |
| Magnesium | 21800 | **36000** |
| Manganese | **2060** | 83.4 |
| Sodium | **70200** | **108000** |

| Location ID | MW-03 | MW-03 |
|---|---|---|
| Sample Date | 3/10/2011 | 7/28/2011 |
| Sample ID | MW-3-031011 | MW-3-071311 |
| **Metals (µg/L)** | | |
| Iron | **1880** | **418** |
| Manganese | **2390** | 98.1 |
| Sodium | **96900** | **119000** |

| Location ID | MW-05 | MW-05 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/28/2011 |
| Sample ID | MW-5-030911 | MW-5-072811 |
| **Other VOCs (µg/L)** | | |
| Tetrachloroethene | **6.5** | 4.3 |
| **Metals (µg/L)** | | |
| Sodium | **172000** | **199000** |

| Location ID | MW-07 | MW-07 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/29/2011 |
| Sample ID | MW-7-030911 | MW-7-072911 |
| **Other VOCs (µg/L)** | | |
| Tetrachloroethene | **5.3** | 1.7 |
| **Metals (µg/L)** | | |
| Iron | 105 J | **1210** |
| Manganese | **432** | 49.9 |
| Sodium | **142000** | **141000** |

| Location ID | MW-10 |
|---|---|
| Sample Date | 7/29/2011 |
| Sample ID | MW-10-072911 |
| **Other VOCs (µg/L)** | |
| Chloroform | **8.2** |
| Isopropylbenzene | **6.9** |
| **Metals (µg/L)** | |
| Iron | **1800** |
| Manganese | **636** |
| Sodium | **120000** |

| Location ID | MW-02 | MW-02 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/29/2011 |
| Sample ID | MW-2-030911 | MW-2-072911 |
| **Metals (µg/L)** | | |
| Iron | **413** | **1960** |
| Manganese | **618** | 47.8 |
| Sodium | **71800** | **57400** |

| Location ID | MW-04 | MW-04 |
|---|---|---|
| Sample Date | 3/10/2011 | 7/29/2011 |
| Sample ID | MW-4-031011 | MW-4-072911 |
| **Metals (µg/L)** | | |
| Iron | **549** | <150 U |
| Manganese | **3010** | **2360** |
| Sodium | **54000** | **63500** |

| Location ID | MW-06 | MW-06 |
|---|---|---|
| Sample Date | 3/10/2011 | 8/1/2011 |
| Sample ID | MW-6-031011 | MW-6-080111 |
| **BTEX (µg/L)** | | |
| Ethylbenzene | **510** | **320** |
| Toluene | **5.6** | 2.8 |
| m&p-Xylene | **940** | **380** |
| o-Xylene | **230** | **76** |
| Total Xylenes | **1170** | **456** |
| **Other VOCs (µg/L)** | | |
| Isopropylbenzene | **32** | **17** |
| **PAH (µg/L)** | | |
| Naphthalene | **78** | **40** |
| **Metals (µg/L)** | | |
| Iron | **1780** | **1810** |
| Manganese | **1120** | **812** |
| Sodium | **238000** | **246000** |

| Location ID | MW-09 |
|---|---|
| Sample Date | 8/1/2011 |
| Sample ID | MW-9-080111 |
| **Other VOCs (µg/L)** | |
| Isopropylbenzene | **9.9** |
| **Metals (µg/L)** | |
| Iron | **2270** |
| Manganese | **1010** |
| Sodium | **133000** |

| Location ID | MW-08 | MW-08 |
|---|---|---|
| Sample Date | 3/9/2011 | 7/29/2011 |
| Sample ID | MW-8-030911 | MW-8-072911 |
| **BTEX (µg/L)** | | |
| Ethylbenzene | **11** | 0.50 J |
| m&p-Xylene | **16** | 0.36 J |
| o-Xylene | **31** | **7.7** |
| Total Xylenes | **47** | **8.06** |
| **Other VOCs (µg/L)** | | |
| Isopropylbenzene | **44** | **10** |
| **PAH (µg/L)** | | |
| Acenaphthene | **26** | 7.4 J |
| Naphthalene | **150** | <10 U |
| **SVOC (µg/L)** | | |
| Diphenyl | **45** | **6.5 J** |
| **Metals (µg/L)** | | |
| Iron | **5460** | **5880** |
| Manganese | **1850** | **2030** |
| Sodium | **163000** | **150000** |

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

AECOM

## Legend

- SC Monitoring Well
- SC Addendum Monitoring Well
- Curb Line
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building

Notes:
1. Monitoring Well, MW-5, was destroyed during Phase III construction.
2. SC = Site Characterization
3. ND = Not Detected
4. J = Estimated Value
5. U = The material was analyzed for but not detected at or above the reporting limit. The associated numerical value shown is the sample quantitation limit.
6. **BOLD** = Exceedance of the NYSDEC Class GA Groundwater Criteria

| Location ID | NYSDEC Groundwater Standard and Guidance Values |
|---|---|
| Sample Date | |
| Sample ID | |
| **BTEX (µg/L)** | |
| Ethylbenzene | 5 |
| Toluene | 5 |
| m&p-Xylene | 5 |
| o-Xylene | 5 |
| Total Xylenes | 5 |
| **PAH (µg/L)** | |
| Acenaphthene | 20 |
| Naphthalene | 10 |
| **SVOC (µg/L)** | |
| Diphenyl | 5 |
| **Other VOCs (µg/L)** | |
| Chloroform | 7 |
| Isopropylbenzene | 5 |
| Tetrachloroethene | 5 |
| **Metals (µg/L)** | |
| Iron | 300 |
| Magnesium | 35,000 |
| Manganese | 300 |
| Sodium | 20,000 |

N

60 0 60
Feet

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

DATE: 1/21/2021 | DRAWN: ML | JOB NO: 60218917 | **FIGURE 2-11**

C:\Users\merissa.lumb\Desktop\PROJECTS\NG Flatbush\MAPS\329 Clarkson Ave SSC Work Plan\2-11 Summary of GW Results.mxd




AECOM

**Legend**

- 329 Clarkson Ave Property Boundary
- Pervious Cover System
- Impervious Cover System (Concrete, Asphalt, and Building Foundations)

N

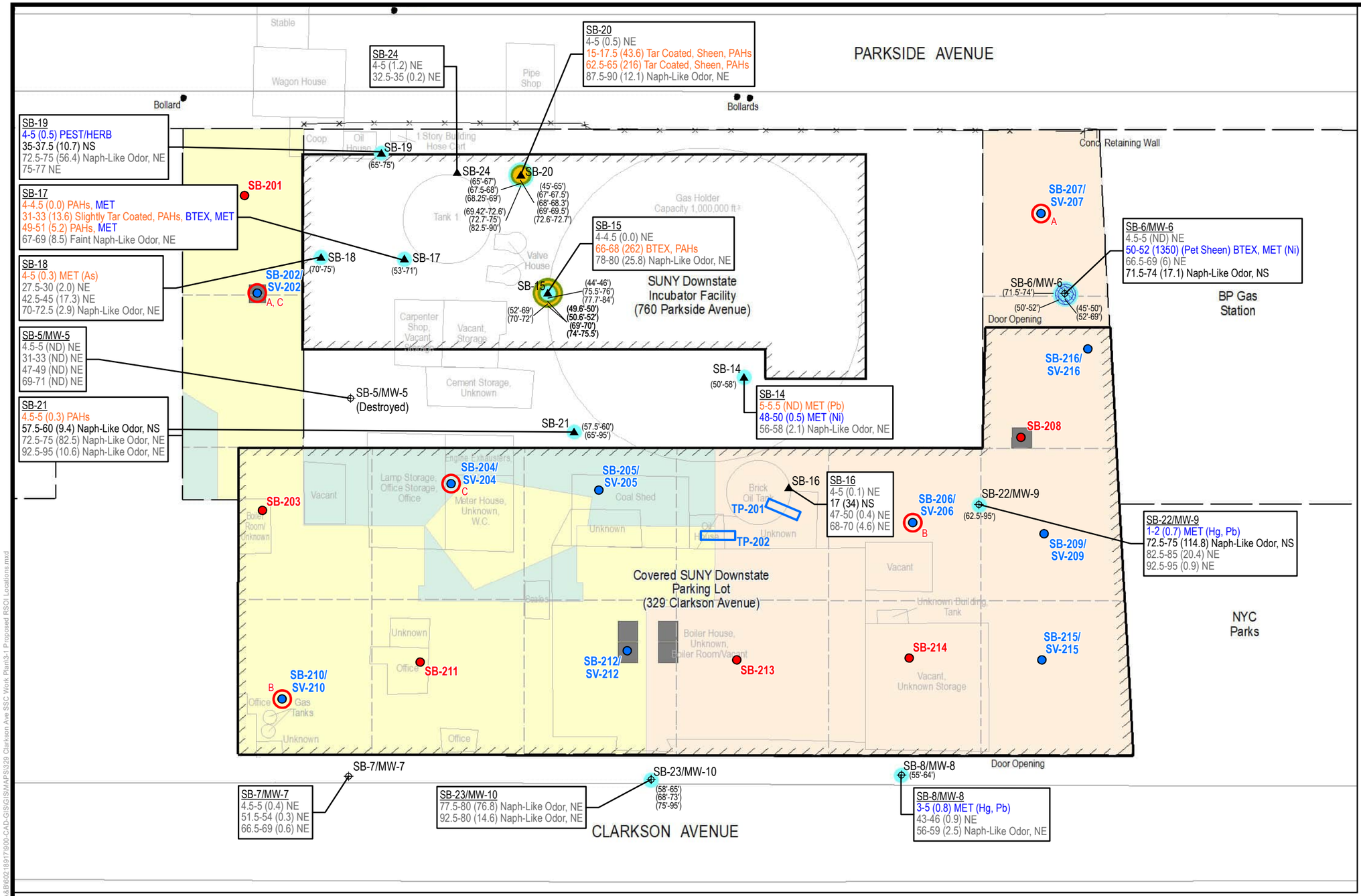
100 0 100

Feet

SOURCE:
ESRI World Imagery

| NATIONAL GRID<br>FLATBUSH STATION A & B<br>FORMER GAS HOLDER SITE | | | **COMPOSITE COVER SYSTEM LOCATIONS** |
|---|---|---|---|
| DATE: 1/20/2021 | DRAWN: ML | JOB NO: 60218917 | **FIGURE 2-12** |

\\aschl1fp0010\Data\Projects\Jobs\Rem. Eng\Project Files\National Grid\Flatbush Station A&B Gas Holder\60218917\900-CAD-GIS\GIS\MAPS\329 Clarkson Ave SSC Work Plan\2-12 Composite Cover System Locations.mxd




## Legend

- Proposed Soil Boring
- Proposed Soil Boring and Soil Vapor Point
- Indicates one or more soil samples will be collected from the proposed boring and submitted for PFAS
- SC Soil Boring
- SC Monitoring Well
- 60 foot Grid Boundary
- Current Features and Property Boundary
- Fence
- Historic Structures
- Existing Building
- Proposed Test Pit
- Approximate location of Elavator Pit. Excavation depth of approximately 25 ft bgs expected by CAMBA.
- Excavation depth of approximately 18.5 ft bgs expected by CAMBA.
- Excavation depth of approximately 17 ft bgs expected by CAMBA.
- Excavation depth of approximately 14.2-14.5 ft bgs expected by CAMBA.
- NAPL Sheen/Staining
- Blebs, Globs, Lenses, Coatings
- NAPL/Naph-Like Odor
- Petroleum Sheen/Staining
- Petroleum Odor

Notes:
1. Monitoring Well, MW-5, was destroyed during Phase III construction.
2. Colored text indicates one or more compounds detected above the NYSDEC Part 375-6 Criteria:
   Blue Text - Compounds above Unrestricted Use Criteria
   Orange Text - Compounds above Residential and Restricted Residential Use Criteria
3. PFAS and SPLP PFAS Soil Sample Key:
   (Selected sample will be from interval 2 ft long or less)
   A - 0-5 ft bgs
   B - 15-25 ft bgs
   C - 45-47 ft bgs (above water table)
   See Table 3-1 for details

N

40 0 40
Feet

NOTES:
1. FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).
2. MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).
3. NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).
4. EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).
5. THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.
6. SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.
7. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)
8. VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

ACRONYMNS:
SC - Site Characterization
NE - No Exceedance
NS - No Sample
(#) - PID Screening Value
BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes
PAHs - Polycyclic Aromatic Hydrocarbons
MET - Metals
PEST - Pesticides
HERB - Herbicides
Naph - Naphthalene
Pet - Petroleum
PFAS - Per- and Polyfluoroalkyl Substances
SPLP - Synthetic Precipitation Leaching Procedure
ft bgs - Feet Below Ground Surface
(53'-79') - Depth of Impacts Observed in ft bgs

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

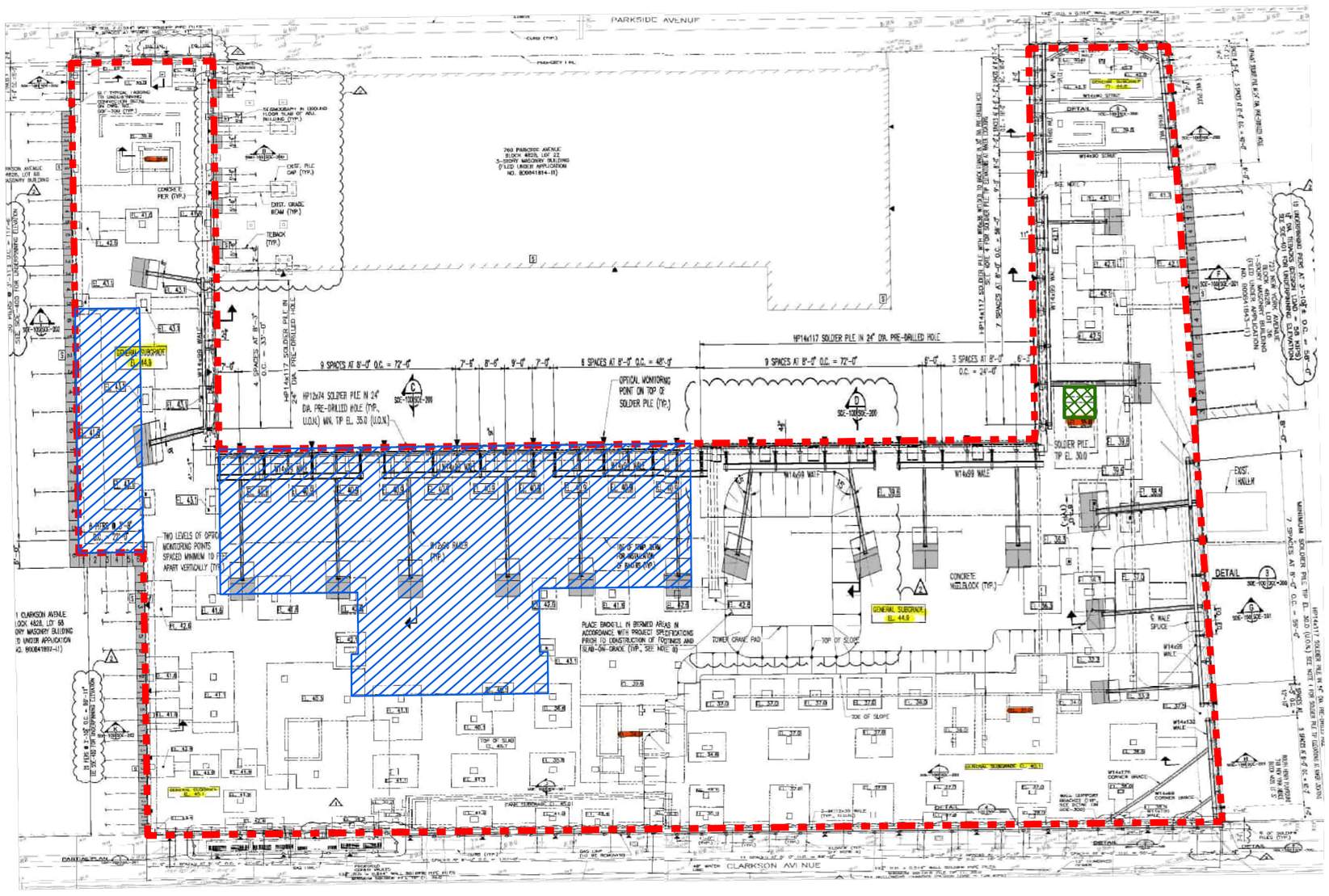
**PROPOSED REMEDIAL SYSTEM OPTIMIZATION INVESTIGATION LOCATIONS AT 329 CLARKSON AVENUE**

DATE: 5/14/2021 | DRAWN: ML | JOB NO: 60218917 | **FIGURE 3-1**

P:\Jobs\Rem_Eng\Project Files\National Grid\Flatbush A&B\60218917900-CAD-GIS\GISMAPS\329 Clarkson Ave SSC Work Plan\3-1 Proposed RSOI Locations.mxd

# Appendix E

# Construction Completion Report Figures


PARKSIDE AVENUE
260 PARKSIDE AVENUE
BLOCK 4828, LOT 22
5-STORY MASONRY BUILDING
FILED UNDER APPLICATION
NO. B00681814-I1)
HP14x117 SOLDIER PILE IN 24" DIA. PRE-DRILLED HOLE
9 SPACES AT 8'-0" O.C. = 72'-0"
6 SPACES AT 8'-0" O.C. = 48'-0"
3 SPACES AT 8'-0" O.C. = 24'-0"
HP12x74 SOLDIER PILE IN 24" DIA. PRE-DRILLED HOLE (TYP., U.O.N.) MIN. TIP EL. 35.0 (U.O.N.)
OPTICAL MONITORING POINT ON TOP OF SOLDIER PILE (TYP.)
W14x99 WALE
W14x90 STRUT
W14x68 WALE
W14x132 WALE
W14x68 CORNER BRACE
W14x257 CORNER BRACE
W14x426 CORNER BRACE
W14x398 STRUT
W14x370 STRUT
W14x283 STRUT
W14x257 STRUT
W14x211 STRUT
W14x176 STRUT
W14x159 STRUT
W14x145 STRUT
W14x132 STRUT
W14x109 STRUT
W14x99 STRUT
W14x90 STRUT
W14x68 STRUT
W14x61 STRUT
W14x53 STRUT
W14x48 STRUT
W14x43 STRUT
W14x38 STRUT
W14x30 STRUT
W14x22 STRUT
W14x99 WALE
W14x68 WALE
W14x61 WALE
W14x53 WALE
W14x48 WALE
W14x43 WALE
W14x38 WALE
W14x30 WALE
W14x22 WALE
W14x99 WAIF
W14x68 WAIF
W14x61 WAIF
W14x53 WAIF
W14x48 WAIF
W14x43 WAIF
W14x38 WAIF
W14x30 WAIF
W14x22 WAIF
W14x99 SPLICE
W14x68 SPLICE
W14x61 SPLICE
W14x53 SPLICE
W14x48 SPLICE
W14x43 SPLICE
W14x38 SPLICE
W14x30 SPLICE
W14x22 SPLICE
W14x99 KICKER
W14x68 KICKER
W14x61 KICKER
W14x53 KICKER
W14x48 KICKER
W14x43 KICKER
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W14x30 KICKER
W14x22 KICKER
W14x99 CORNER BRACE
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W14x61 CORNER BRACE
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W14x30 CORNER BRACE
W14x22 CORNER BRACE

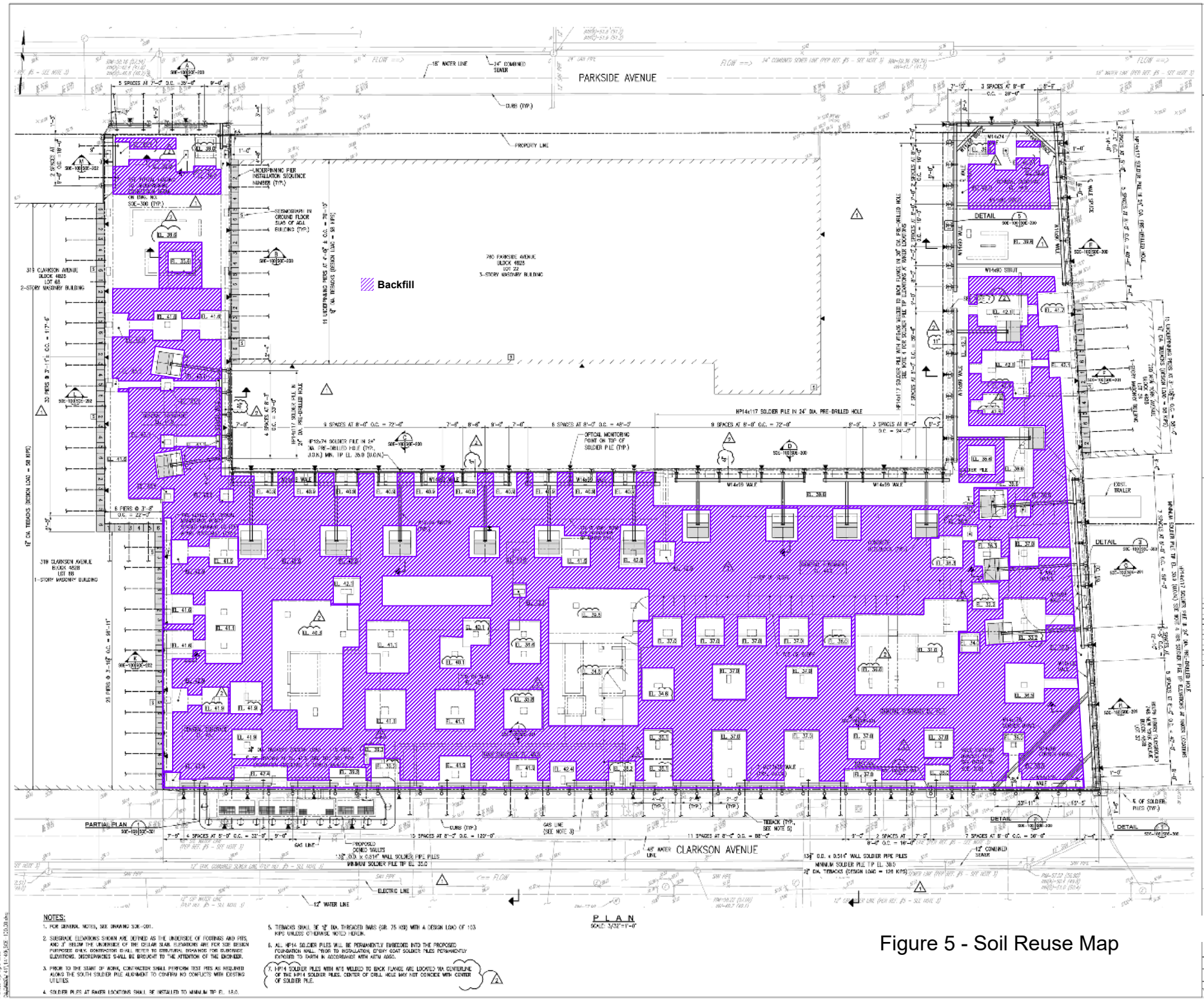


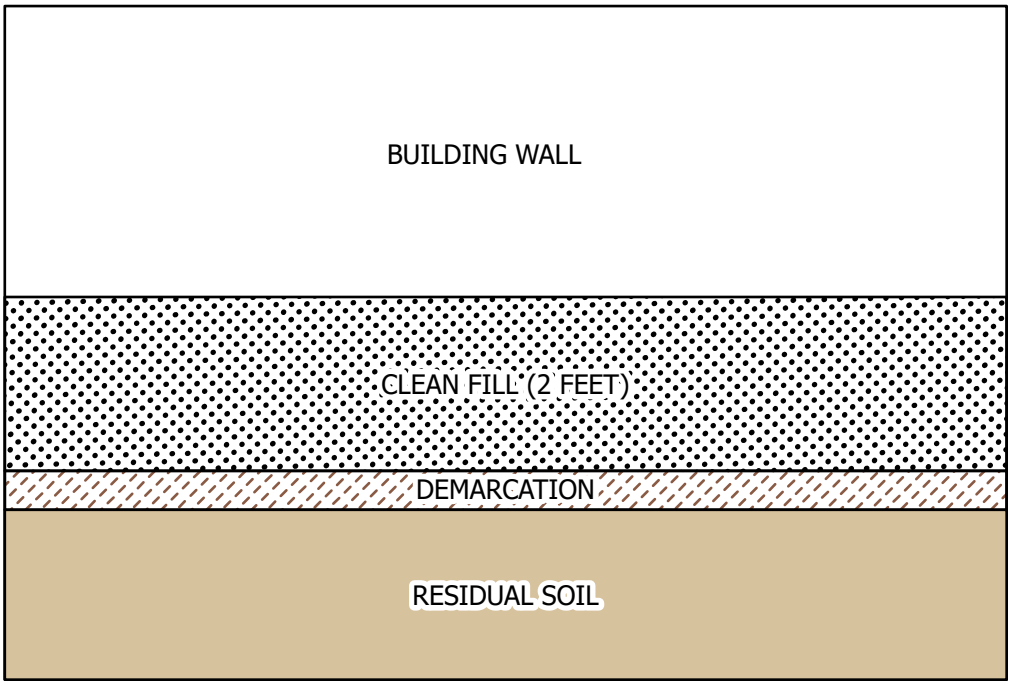

Figure 5 - Soil Reuse Map

**CLARKSON ESTATES**

329 CLARKSON AVE, BROOKLYN, NY 11226

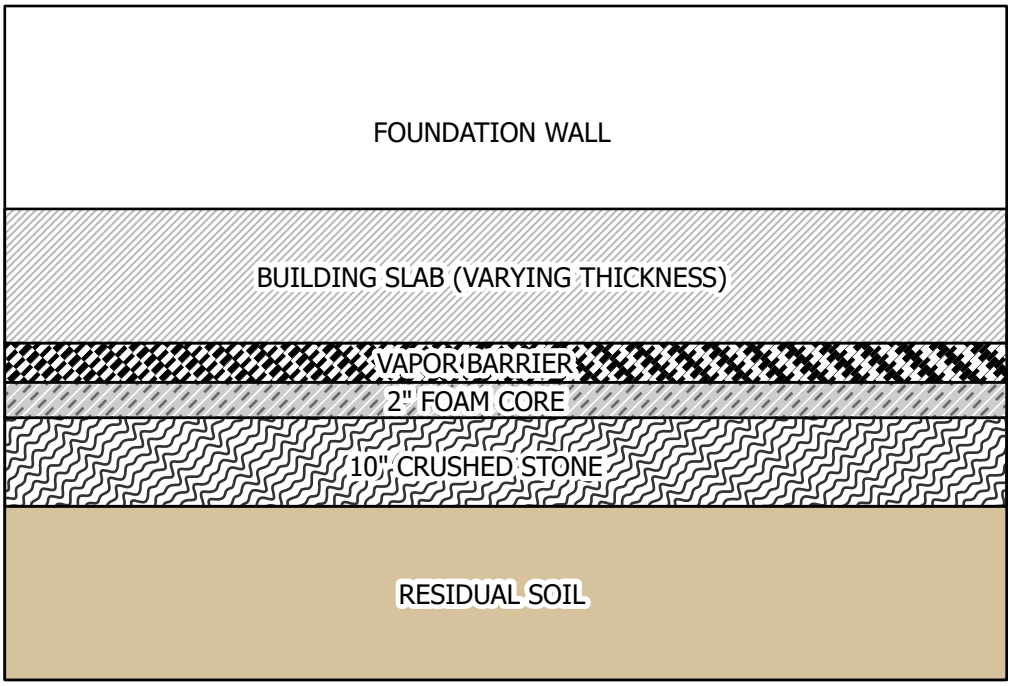
SUPPORT OF EXCAVATION PLAN

**SOE-100.00**




## CLEAN FILL

NOT TO SCALE




## SSDS

NOT TO SCALE

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CAMBA HOUSING SITE L CLARKSON ESTATE
329 CLARKSON AVENUE
BROOKLYN, NY

PREPARED BY:
GZA GeoEnvironmental, Inc.
www.gza.com

PREPARED FOR:
CAMBA HOUSING VENTURES, INC.

TYPICAL COVER SYSTEM

| | | | |
|---|---|---|---|
| PROJ MGR: RJ | REVIEWED BY: RJ | CHECKED BY: PJ | FIGURE |
| DESIGNED BY: MB | DRAWN BY: MB | SCALE: NOT TO SCALE | 6 |
| DATE: 10/16/2024 | PROJECT NO: 12.0077434.00 | REVISION NO: | |

© 2024 - GZA GeoEnvironmental, Inc.
J:\77401 to 77450\77434 Camba Housing Site L Clarkson Estate 329 Clarkson\Technical\GIS\Phase I Site Boundary\CoverSystem.aprx, October 16, 2024 - 1:24 PM, Miranda.Bandeli

# Appendix F

# Health and Safety Plan and Community Air Monitoring Plan

# Universal Health & Safety Plan

## National Grid Flatbush

### Station A&B Former Gas Holder Site, Southern Parcel
### 329 Clarkson Avenue, Brooklyn, NY 11226
### USA

**Prepared For:**

| | |
|---|---|
| **Client Name:** | National Grid |
| **Client Address:** | One MetroTech Center, Brooklyn, NY 11201 |
| **Project #:** | 60625627 |

**Prepared By:**

**AECOM**
125 Broad Street, New York, NY 10004

**Preparer:**

***Name:*** Gianna Diaz
***Title:*** Environmental Scientist II
***Date Prepared:*** May 9, 2024

*Signature*

**Reviewer** *(Office SHER; Area/Regional SHEM, or Business Line SHEM)*

***Name:*** Dale "Pete" Wray, CSP, CHMM, STS
***Title:*** SH&E Manager, AME ENV U.S. East
***Date Reviewed:*** May 24, 2024

*Signature*

**Approver:** *(Project Manager, Project Director, or BL Lead)*

***Name:*** Josh Millard
***Title:*** Project Manager
***Date Approved:*** June 10, 2024

*Signature*

| | | |
|---|---|---|
| **Expiration:** | **June 9, 2025** | Valid for one (1) year maximum or until the scope of work, subcontractor(s), methods and/or equipment change. |

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Attachment E: Work Plan/Client and Host Facility SH&E Requirements
Attachment F-1: Project Hazardous Materials Communication Plan

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# 1. HASP Summary Contact Information

| | |
|---|---|
| **SH&E Incident Reporting** | **SH&E Incident Hotline: 1-800-348-5046**<br>TOLL-FREE \| 24 HOURS PER DAY \| 7 DAYS PER WEEK \| Immediately report all incidents including any potential work-related injuries, illnesses, discomfort/pain, property damage, security issues, regulatory inspections, and environmental impacts/spills. |

| | Nearest Resource | Name and Address | Hours of Operation | Phone # |
|---|---|---|---|---|
| **Medical Treatment Resources** | **Clinic** | AG Urgent Care<br>681 Flatbush Avenue, Brooklyn, NY 11225 | M-F: 9 AM – 10 PM<br>S-S: 10 AM – 6 PM | (917) 933-4333 |
| | **Hospital** | NYC Health + Hospitals/Kings County<br>451 Clarkson Avenue, Brooklyn, NY 11203 | 24 hours / 7 days per week | (718) 691-5980 |
| | **First Aid Providers** | Call 911 | | 911 |
| | **Nurse** | **1-512-419-5016** – 24 HOURS PER DAY \| 7 DAYS PER WEEK<br>The hotline Operator will transfer injured/ill EE to nurse. If the transfer fails or EE's condition worsens following initial consultation, call direct. | | |
| | **Site Emergency Response** | **911 (Or enter site specific appropriate number when applicable)** | | |

| | Level | Title | Name | Phone # |
|---|---|---|---|---|
| **Key Personnel** | **Project Level** | **Project Manager (PM):** | Joshua Millard | (978) 424-8199 |
| | | **Site Supervisor (SS):** | Gianna Diaz<br>Hannah Dwyer<br>Tommy Breedveld<br>Ibrahim Salem<br>*Or other qualified on-Site personnel as directed by the Project Manager | GD: 727-410-7342<br>HD: 631-806-5921<br>TB: 551-795-7164<br>IS: 973-330-0415 |
| | | **Site Safety Officer (SSO):** | Gianna Diaz<br>Hannah Dwyer<br>Tommy Breedveld<br>Ibrahim Salem<br>*Or other qualified on-Site personnel as directed by the Project Manager | GD: 727-410-7342<br>HD: 631-806-5921<br>TB: 551-795-7164<br>IS: 973-330-0415 |

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| | | | | |
|---|---|---|---|---|
| | | **Client Contact Person:** | Jonathan Mitchell, National Grid | (631) 338-8636 |
| | | **Area/Business Line SH&E Manager:** | Pete Wray (ENV East) | (302) 660-9178 |
| | | **Regional SH&E Director:** | Tony Indorato | (757) 298-1563 |

| | List ALL Short-Service Employees (<6 Months with AECOM or in Current Area/Job Description): | | | |
|---|---|---|---|---|
| | **SSE's Name** | **SSE's Phone Number** | **Mentor's Name** | **Mentor's Phone #** |
| **SSEs** | **Ibrahim Salem** | **973-330-0415** | **Tarique Islam** | **973-426-2761** |
| | | | | |

| | | | |
|---|---|---|---|
| **Other Important Numbers** | **Poison Control** | American Association of Poison Control Centers | 800-222-1222 |
| | **D&A Testing** | AECOM Occupational Nurse<br>**AECOM D&A Program Administrator** | 512-419-5016 |
| | **INFOR TRAC** | AECOM Account Number: 74984 | 800-535-5053 |
| | **HOLMAN** | AECOM Fleet Management | 800-227-2273 |

## Contractual Requirements for Safety, Health, and the Environment

☒ I have reviewed the AECOM Contract with our client and described our contractual duties for SH&E Below.

| Josh Millard | Joshua C. Millard | June 10, 2024 |
|---|---|---|
| Project Manager Name | Project Manager Signature | Date |

☒ AECOM is responsible for our own safety and that of our subcontractors.

☐ AECOM will be on-site with a General Contractor or other party who is responsible for their own safety. AECOM must comply with their safety plan in addition to our own plan; AECOM remains responsible for our safety and that of our subcontractors.

☐ AECOM has some level of safety responsibility for a General Contractor or other party (includes responsibility for reporting safety hazards, reviewing site controls etc.; describe below).

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☐ Other/Additional Details: N/A

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# 2. Introduction

This written Health and Safety Plan (HASP) is designed to identify, evaluate, and control safety and health hazards, and to outline emergency response actions for AECOM-managed activities. This HASP must be kept on site during work activities and made available to all workers including subcontractors and other site occupants for informational purposes. AECOM subcontractors are expected to independently characterize, assess, and control site hazards created by their specific scope of work.

This section of the HASP summarizes important AECOM SH&E Procedures that apply to all DCS Americas jobs. See **Attachment A** for the project Task Hazard Assessment (THA) forms and **Attachment B** for a list of applicable field SH&E Procedures. These field SH&E procedures must be readily available to the field employees (i.e. PDF, electronically, etc.).

## 2.1 Applicable References

This HASP conforms to the regulatory requirements and guidelines established in the following documents:

- Federal Occupational Safety and Health Administration (OSHA) Code of Federal Regulation Title 29, Part 1910 (29 CFR Part 1910), Safety and Health Regulations for General Industry and 29 CFR 1926, Safety and Health Regulations for Construction.
- Title 8 of the California Code of Regulations (8 CCR), with special attention to Section 5192 Hazardous Waste Operations and Emergency Response, and Section 3202, Injury Illness Prevention Program and to Sub Chapter 4, Sections 1500 - 1938 Construction Safety Orders.
- Supplemental Site Characterization Work Plan, Northern Parcel, Flatbush Station A&B Former Gas Holder Site, Brooklyn, NY (AECOM, 2020).
- Remedial Investigation Work Plan Northern Parcel Flatbush Station A&B Former Gas Holder Site, Brooklyn, NY (AECOM, 2020).
- National Grid Safety Procedure, N-1402 Contractor Safety Requirements, Rev. No. 18 dated 5/4/2022.
- National Grid Incident Reporting Requirements.
- National Institute for Occupational Safety and Health/Occupational Safety and Hazards Administration/U.S. Coast Guard/U.S. Environmental Protection Agency, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Publication No. 85-115, 1985.
- The requirements in this HASP also conform to AECOM's Safety for Life Program requirements as specified in the AECOM Global Safety, Health, and Environment (SH&E) System Management Manual.

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# 3. Verbal Incident Notifications

**NOTE! In the event of a life-threatening emergency, call 911 FIRST. A life-threatening emergency can include:**

- Loss of consciousness
- Head or spinal cord injury
- Cardiac arrest
- Seizures
- Severe allergic reaction
- Broken bones
- Uncontrolled loss of blood
- Abdominal trauma
- Heat Stroke
- Difficulty breathing

## 3.1 Incidents

Once immediate actions have been taken, if safe to do so, notifications (verbal) must be completed immediately and the involved employee, site supervisor or site safety officer must call the **AECOM Incident Reporting Hotline** at **1-800-348-5046**. Notifications serve to engage additional resources in the management of the emergency and initiate additional processes such as medical case management, spill response, incident investigation, etc. Reporting initiates the formal documentation process and supports the development of key learnings to prevent a reoccurrence. No employee is authorized to report incidents to regulatory agencies. Only Senior members of the Health & Safety team are authorized to conduct regulatory reporting (i.e. Vice President).

**Any incident for which assistance by SHE is required, including any injury – *even if no first aid is required* – must be immediately communicated to their manager or supervisor and the Incident Hotline at 1-800-348-5046.** All incidents are also to be reported to IndustrySafe within 4 hours for significant incidents, or 24 hours for all other incidents.

**Significant Incident:**

- Fatality;
- Amputation;
- Hospitalization for treatment for more than 24 hours (admission);
- Any single event resulting in more than one employee requiring medical treatment or being away from work more than 3 days;
- Any SHE-related Consent Agreement/Order/Lawsuit or enforcement action seeking more than $10,000 or alleging criminal activity;
- Any spill or release of a hazardous material that is reportable to a regulatory agency;
- Any Notices of Violation resulting from not operating within a regulatory agency permit/license or consent;
- Any incident resulting in property damage expected to exceed $10,000 United States (US) dollars;
- Any security-related incident that could have caused significant harm to an AECOM employee; and/or
- Any Near Miss that may have resulted in any of the above, but because of “luck” did not happen.

**All Other Incidents:**

- Any injury or illness to an AECOM employee or subcontractor, even if it does not require medical attention, including work-related injuries/illnesses that have become significantly aggravated by the work environment;
- An injury to a member of the public, or clients, occurring on an AECOM-controlled work site;
- Re-occurring conditions such as back pain or cumulative trauma disorders (e.g., carpal tunnel syndrome);
- Fire, explosion, or flash that is not an intended result of a planned event (e.g., remediation process, laboratory procedure);
- Any incident involving company-owned, rented, or leased vehicles (including personal vehicles used for company business); and/or

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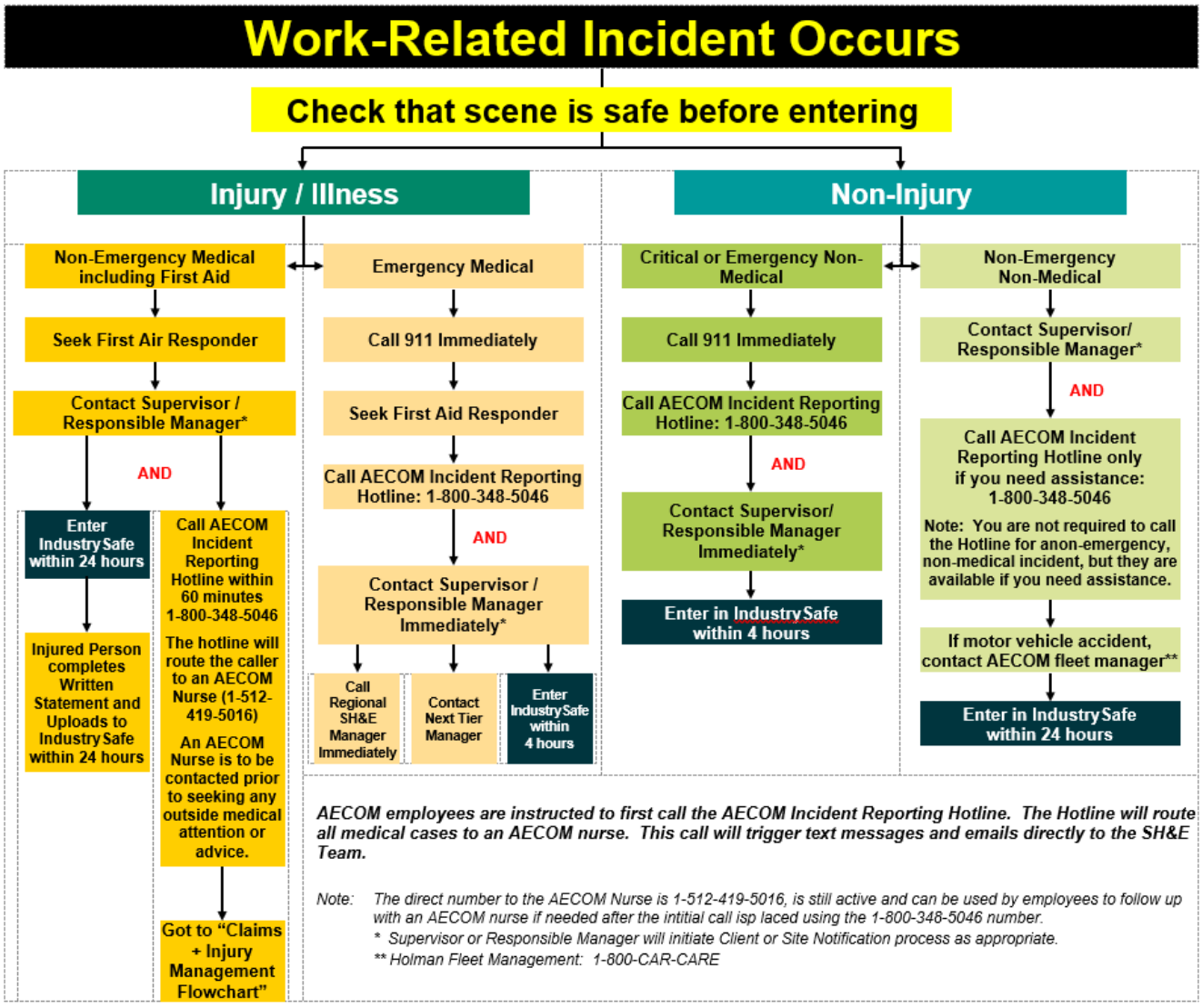
- Any failure to comply with the requirements of a regulatory permit issued to AECOM.

### Table 3-1: Incident Notification & Reporting Flow Chart




## 3.2 AECOM Internal Notifications

For any incident or near miss, the involved employee must notify their site supervisor or site safety office. The site supervisor or site safety officer must notify their Project Manager. Depending on the severity of the incident, the Project Manager may need to notify the following individuals:

- Regional, area, business line, practice group or account SH&E manager.
- Program Manager or Client Account Manager
- Senior Leaders

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## 3.3 Client Specific Notifications

Project Manager and or Client Account Manager complete client specific notifications of incidents in accordance with client's incident notification requirements. See client contact information in the Key Personnel table at the bottom of the **Section 1** on Page 1.

# 4. Emergency Response Plan

AECOM requires that all projects, plan for reasonably foreseeable emergencies. Prior to the start of site mobilization, all AECOM personnel shall review the site-specific information regarding evacuations, muster points, communication, emergency equipment and its location, and other site-specific emergency procedures.

Subcontractors will not use AECOM Hotline # and may use a different clinic based on their own Emergency Protocols. They will provide their own Project Emergency Plan to AECOM for review and acceptance. Any alterations to this plan must be communicated to all parties. Both AECOM and the subcontractor shall perform mock drills periodically in accordance with the length of the project.

## 4.1 Directions and Maps to Nearest Medical Treatment Resources

See following pages for directions and maps.

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# NEAREST HOSPITAL

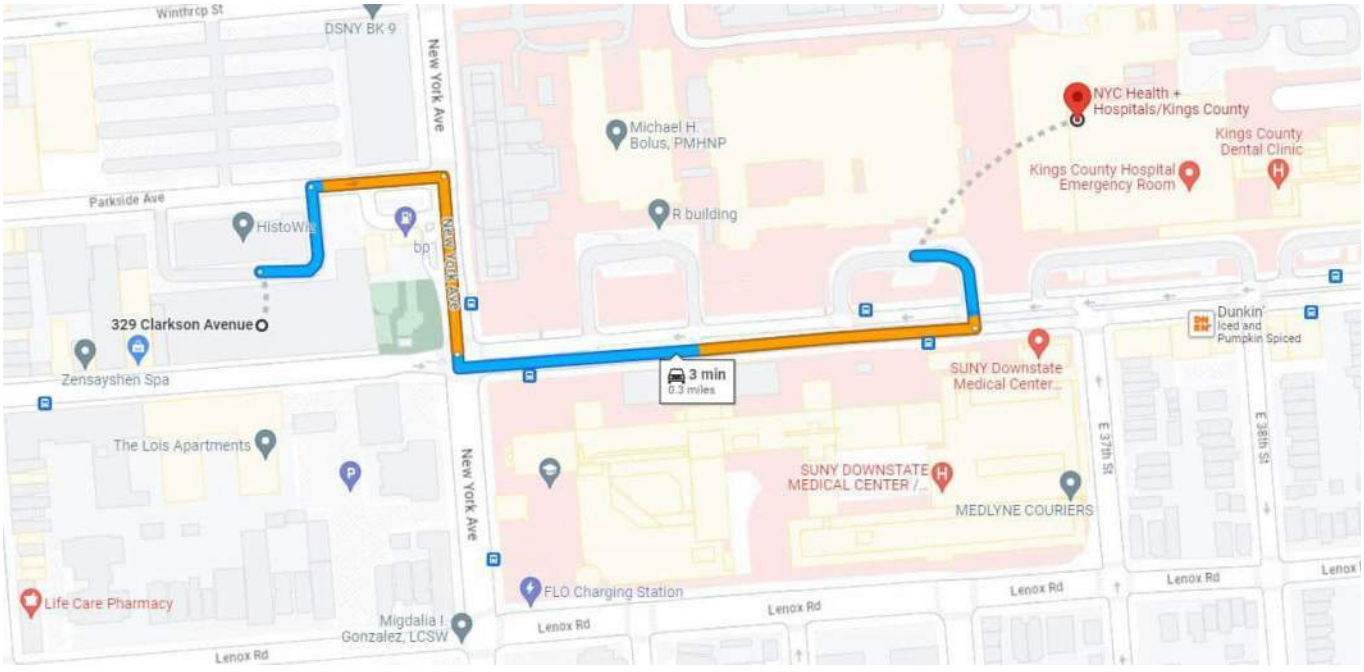
**NYC Health + Hospital/Kings County** **(718) 245-3131**

| | | | |
|---|---|---|---|
| **Address:** | 451 Clarkson Avenue, Brooklyn, NY 11203 | | |
| **Hours of Operation:** | 24 hours / 7 days per week | | |
| **Travel Time:** | 3 minutes | **Travel Distance:** | 0.3 miles |

## DRIVING DIRECTIONS TO HOSPITAL

1. From Site, head east towards Parkside Avenue
2. Turn right onto Parkside Avenue
3. Turn right onto New York Avenue
4. Turn left onto Clarkson Avenue
5. Arrive at Hospital on the LEFT

## ROUTE MAP TO HOSPITAL

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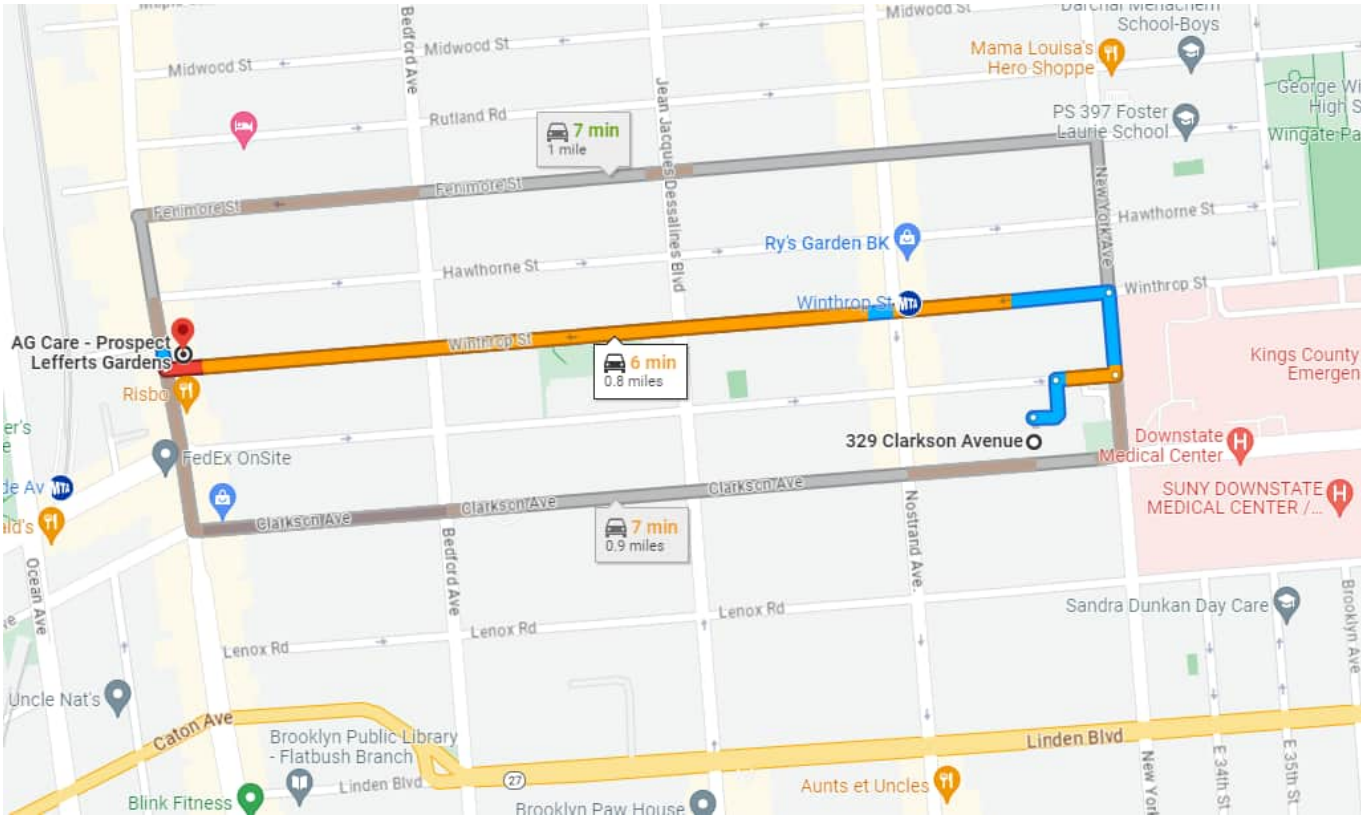
# NEAREST OCCUPATIONAL CLINIC

| **AG Urgent Care** | | | **(917) 933-4333** |
|---|---|---|---|
| **Address:** | 681 Flatbush Avenue, Brooklyn, NY 11226 | | |
| **Hours of Operation:** | M-F 9 AM to 10 PM S-S 10 AM – 6 PM | | |
| **Travel Time:** | 6 minutes | **Travel Distance:** | 0.8 miles |

## DRIVING DIRECTIONS TO OCCUPATIONAL CLINIC

6. From Site, head east towards Parkside Avenue
7. Turn right onto Parkside Avenue
8. Turn left onto New York Avenue
9. Turn left at the first cross street onto Winthrop Street
10. Turn right onto Flatbush Avenue
11. Arrive at Clinic on the RIGHT

## ROUTE MAP TO OCCUPATIONAL CLINIC

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## 4.2 Emergency Planning

AECOM requires that all projects plan for reasonably foreseeable emergencies (see Emergency Response Planning Procedure S3AM-010-PR). Prior to the start of site operations, all personnel shall review Table 8-1 for site-specific information regarding evacuations, muster points, communication, and other site-specific emergency procedures.

### Table 4-1: Method(s) of Alerting Personnel of an Emergency

| | | | | |
|---|---|---|---|---|
| ☒ **Cell Phone** | ☐ Hand Signal | ☐ Radio (Channel No. _____) | | ☐ Satellite Phone |
| ☒ **Host Facility Alarm** (specify): | | Site does not have emergency alarms built in; vehicle alarm will be sounded consecutively three time | = | Emergency alarm |
| | | [Insert Description] | = | [Insert Meaning] |
| | | [Insert Description] | = | [Insert Meaning] |
| | | [Insert Description] | = | [Insert Meaning] |

### Table 4-2: Muster Locations and Evacuation Route(s)

| Muster Location Type | Location Description |
|---|---|
| **Primary:** | ● Parkside Avenue adjacent northern parcel or 350 Clarkson Avenue |
| **Alternate:** | ● N/A |
| **Shelter-In-Place:** | ♦ N/A |

**Muster Locations and Evacuation Route Map**

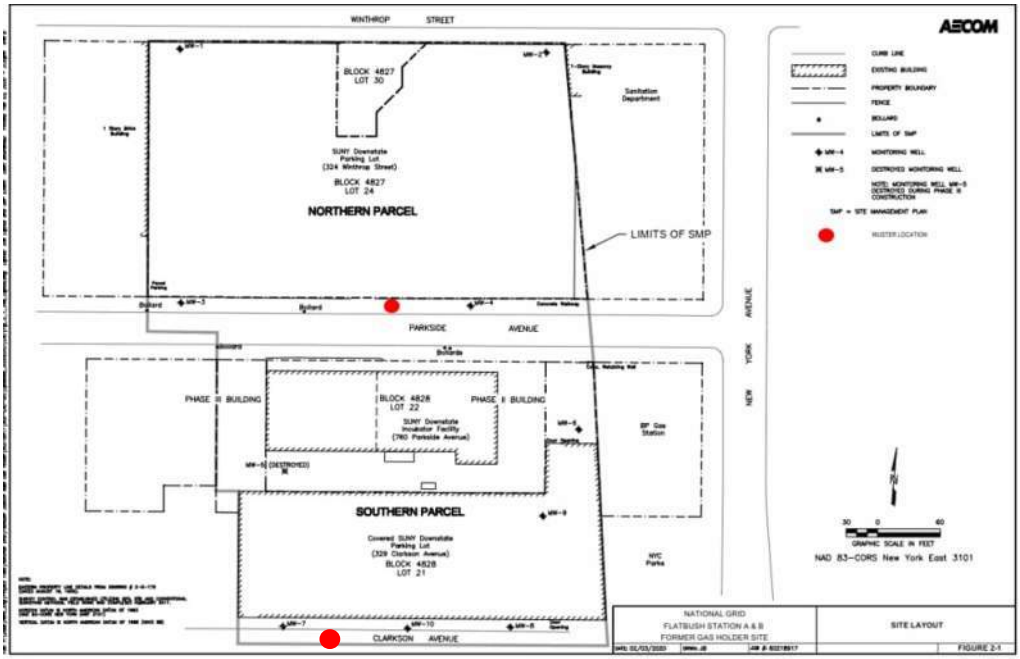


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**Table 4-3: Site Emergency Equipment and Its Location**

| ITEM(S) | ITEM DESCRIPTION | LOCATION(S) |
|---|---|---|
| First Aid Kit(s) | ■ ANSI Z308.1 Class A, Type III; Qty=1<br>■ ANSI Z308.1 Class B, Type III; Qty=0 | ■ AECOM Field Vehicle |
| Automated External Defibrillator(s) (AEDs) | ■ Standard AED | ■ n/a |
| Fire Extinguisher(s) | ■ 2A:10: B:C (5 lb. ABC)<br>■ 4A:80B:C (10 lb. ABC)<br>■ 4A:80B:C (10 lb. ABC)<br>■ 8A:120b:C: (20 lb. ABC) | ■ AECOM Fleet Vehicle(s)<br>■ Heavy Equipment Cabins(s)<br>■ Hot Work Area(s) |
| Spill Kit(s) | ■ Small Universal | ■ Subcontractors performing intrusive activities |
| Wildlife Deterrent(s) | ■ Insect Repellent (DEET) | ■ AECOM Field Vehicle |
| Cold/Heat Stress Aids | ■ Climate-Controlled Environment<br>■ Other (specify) | ■ Field Vehicle(s)<br>■ Location |

## 4.3 Potential Emergency Scenarios

This section covers emergency scenarios that could reasonably occur on the site or during work.

### 4.3.1 Evacuation

- If a situation requires an evacuation or emergency muster/assembly, the pre-determined alarm will be initiated.
- All personnel (e.g., workers, contractors, visitors) of the area requiring evacuation or muster/assembly will immediately assemble at the designated Muster Point, Assembly Point or Shelter-in-Place as determined by the alarm or communication.
- The Site Supervisor, Site Safety Officer, or designate will take action to account for all personnel, including visitors (i.e., head count, roll call).
- The Site Supervisor, Site Safety Officer, or designate shall ensure the appropriate emergency response is activated.
- Should it be determined that an individual is still within the hazard zone, establish whether a rescue can be safely attempted. Follow the 'Emergency Rescue Procedure' if properly trained and a rescue attempt will not put another individual in jeopardy.
- Personnel shall await further instruction from the Site Supervisor, Site Safety Officer, or designate (e.g., all clear and re-entry or further evacuation)

### 4.3.2 Medical Emergency

1. Stop the work activity.
2. Assess the cause of the injury to avoid injury to yourself (i.e. live wires, gases, hazardous materials).
3. Do not move the casualty unless they remain in danger.
4. First Aid Provider will designate an individual to call for medical assistance (e.g., ambulance, site medic).
5. First Aid Provider will designate an individual to retrieve the first aid kit and blankets.
6. Request assistance from other First Aid Providers as necessary. Administer first aid:
    a) Assess responsiveness: ask permission.

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b) Send for medical help.
c) Place casualty/victim face up.
d) Check Airway, Breathing and Circulation ABC's
e) Control severe bleeding.

7. If CPR is deemed necessary:
   a) Begin chest compressions at a rate of at least 100 compressions per minute.
   b) CPR shall be continued until:
      i. until an AED is applied,
      ii. casualty begins to respond,
      iii. another first aid provider takes over,
      iv. medical help takes over, or
      v. physically unable to continue.
8. If the casualty begins to breathe on their own, place them in the recovery position, monitor and treat for shock as appropriate.
9. Individual in communication with the designated medical assistance shall attempt to answer any questions, stay on the line until information is verified and follow instruction.
10. Arrange for medical transport as needed. A designated individual should be positioned to direct medical transport to the casualty.
11. Personnel shall await further instruction from the Site Supervisor, Site Safety Officer, or designate (e.g., resume activity).

## 4.3.3 Lightning/Weather-Related Emergencies

**Be Aware:** Check the weather forecast before participating in outdoor activities. If the forecast calls for thunderstorms, postpone your trip or activity, or make sure adequate safe shelter is readily available. Many applications available for smart phones and devices have lightning alert capabilities or display lightning strikes on radar maps; download one for your smart phone and enable location services to receive alerts.

**Go Indoors:** Remember the phrase, "**When thunder roars, go indoors"**. If you see lightning and cannot count to 30 before hearing thunder, the lightning is too close for comfort. Find a safe, enclosed shelter when you hear thunder. Safe shelters include homes, offices, shopping centers, and hard-top vehicles with the windows rolled up.

**Crouch Close to the Ground and Separate:** If you are caught in an open area, crouch down in a ball-like position (**feet and knees together**) with your head tucked and hands over your ears so that you are down low with minimal contact with the ground. **Do NOT lie down**. Lightning causes electric currents along the top of the ground that can be deadly over 100 feet away. Crouching down is the best combination of being low and touching the ground as little as possible.

**Separate:** If you are in a group during a thunderstorm, separate from each other. This separation will reduce the number of injuries if lightning strikes the ground.

If a person is struck by lightning:

- Call 911 or other Emergency Services Contact.
- Assess the scene to ensure that continuing risk to rescuers does not exist if lightning strikes. For other electrical-related emergencies (non-lightning), ensure the source of electricity has been de-energized.
- Check to see if the victim is breathing and proceed with CPR if victim is not breathing.

## 4.3.4 Vehicle Incidents

All vehicles should be rented through Navan Travel (accessible via Ecosystem) to ensure that AECOM insurance is included in the rental rate. All other insurances should be declined. AECOM has negotiated contracts with Enterprise and National which are preferred vendors. If Enterprise or National are not available, Avis or Budget shall be used.

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In the event of a vehicle incident (including collisions as well as mechanical difficulties such as breakdowns and flat tires) the following response is recommended. For breakdowns and flat tires, contact an emergency provider. For rental vehicles, contact the rental company. To the extent possible, AECOM personnel should not change flat tires or perform similar repairs.

If a collision has occurred, assess the situation, and move all occupants (except the injured) out of further harm's way. If safe to do so, remove the car from the traveled way. Call 911 if necessary and report the incident to the Incident Hotline at 1-**800-348-5046** as soon as practical. If in an AECOM leased vehicle, contact our fleet manager, *Holman*, at 1-800-227-2273.If appropriate, wait for police to arrive. Provide insurance information to other drivers if necessary or requested, and collect the same (AECOM's rental vehicle insurance policy for Enterprise or Avis can be found on the DCS Americas United States or Canada travel pages). If possible, obtain names and phone numbers of witnesses. Take photographs of the scene. DO NOT ADMIT LIABILITY, AGREE TO PAY FOR DAMAGE, OR SIGN A DOCUMENT RELATED TO AN INCIDENT EXCEPT AS REQUIRED BY LAW.

For personal vehicles used on AECOM business, contact an emergency provider.

## 4.3.5 Fire

AECOM employees are not expected to attempt to put out fires. Stop work; notify all AECOM personnel, move upwind and contact 911 and/or emergency response at the site. If employees have been properly trained in the operation of a fire extinguisher, they may attempt to put out a small fire, if the following conditions are met:

- The fire must be small (i.e., smaller than a trash can) and in its early stages.
- The employee must have an escape route.
- The employee must be trained and know they have the right type of extinguisher.
- The employee must be safe from toxic gases.
- There must be no hazardous conditions that could quickly accelerate the fire (e.g., presence of chemicals and/or combustibles, especially dry grass, etc.).
- Above all, if in doubt, the employee must not attempt to fight the fire.

## 4.3.6 Other

The following additional emergency scenarios could potentially occur based on the site and/or planned scope of work:

| | | | |
|---|---|---|---|
| ☐ Avalanche | ☐ Emergency Rescue | ☐ Severe Winter Storm | ☐ Tornado |
| ☐ Bear Attacks / Charges | ☐ Explosion | ☒ Spill or Release | ☐ Wildfire |
| ☐ Earthquake | ☐ Floods/Heavy Rain | ☐ No Other Credible Scenarios | |
| ☐ Electrical Live Line Contact | ☐ Gas Leak | | |

## 4.3.7 Spill or Release

1. Identify the product and assess the risk of injury, fire or explosion.
2. If there is insufficient information on the product or inadequate PPE, move upwind if possible and leave the area immediately (initiate personnel evacuation if required).
3. Isolate the area and deny access to any unauthorized personnel.
4. Only if safe to do so, take measures to stop and control the spill / leak / release

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5. Eliminate all ignition sources, if required (no smoking, flares, sparks / flames, engines running).
6. Designate an individual to notify the Floor Marshall/Warden, Emergency Response Coordinator or designate, or Foreman and SH&E representative.
7. Consult the product SDS for accidental release / handling procedures.
8. If it is not possible to stop / control the release, call  or appropriate emergency services.
9. Tend to any injured personnel (follow Medical Emergency steps).
10. Personnel shall await further instruction from the Floor Marshall/Warden, Emergency Response Coordinator or designate (i.e. further evacuation or resume activity).

**Site Specific Additions**

11. Spills that cannot be managed safely by on-site personnel will require support from National Grid. If this is the case, call the National Grid Project Manager and the AECOM Project Manager to organize additional help.
12. All petroleum spills that occur at the site must be reported to National Grid first.  National Grid may report the spill to the NYSDEC Spill Hotline. A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete.  A spill in a dirt or gravel parking lot is considered to have impacted land and is reportable
13. A written spill response report shall be prepared at the conclusion of clean-up operations. The spill area is inspected to ensure the area has been satisfactorily cleaned. The use of surface and air sampling is utilized in this determination as necessary. The root cause of the spill shall be examined, and corrective steps taken to ensure the engineering and control measures in place have performed, as required. If alternative precautions or measures are needed, they are made available and implemented. All durable equipment placed into use during clean-up activities is decontaminated for future utilization. All spill response equipment and supplies are re-stocked as required.

## 4.4 Fitness for Duty and Illness Reporting

AECOM employees should always live our life-preserving principle of “Fitness for Duty”, which requires employees to stay home from work when they are sick, as they are not “Fit for Duty” when ill, whether with the flu, Coronavirus, or other illness, especially contagious illnesses.

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# 5. Site Description

The Site, National Grid Flatbush, is located at Station A&B Former Gas Holder Site, Southern Parcel, 329 Clarkson Avenue, Brooklyn, NY 11226. TheNational Grid Flatbush (the Site), is an approximate 5-acre area located in Brooklyn, NY and bounded by Winthrop Street to the north, Clarkson Avenue to the south, and commercial properties to the east and to the west. Parkside Avenue dissects the former MGP Site into two parcels – a northern parcel and a southern parcel. **Figure 1-1** attached presents the Site location. Work in 2024 will be performed at 324 Winthrop Street, which occupies approximately 2.21 acres on the Northern Parcel, and 329 Clarkson Avenue, which occupies approximately 1.26 acres on the Southern Parcel. SUNY Downstate Medical Center operates the northern property as a parking facility, and CAMBA Housing Ventures (CAMBA) owns and is currently developing the 329 Clarkson Avenue property on the southern parcel as a mixed use residential facility.

## 5.1 Site Background/History

A summary of the Site history was developed based on a review of the historic Sanborn Fire Insurance maps, aerial photographs, historical photographs, historical drawings, and historical topographical maps for the Site, as well as a review of the database report provided by Environmental Data Resources (EDR).

The first indication of gas manufacturing activity at the Site is believed to be around 1873 when the Flatbush Gas Works operated at the Site location. Two gas holders, GH#1 on the northern parcel (150,000 cubic yard capacity) and GH#2 on the southern parcel (1 million cubic yard capacity), are believed to have been constructed at the Site between 1890 and 1905. Between 1895 and 1897, the Brooklyn Union Gas Co. (BUG) purchased six small MGPs, including the Flatbush Gas Company, and operated them as subsidiaries until completing their integration into BUG in 1927. By 1904, the Flatbush Gas Co. had ceased gas production operations and was purchasing gas from BUG for storage and distribution. The Flatbush Gas Company was also operating an Independent Electric Plant (I.E.P) in 1904. Two additional 5 million cubic foot gas holders (GH#3 and GH#4) are believed to have been constructed on the northern parcel in 1908 and 1923 respectively after the smaller Gasometer (GH#1) was demolished sometime between 1912 and 1917. The Flatbush Gas Company and BUG operations on the Southern Parcel had ceased by 1925.

Between 1947 and 1954, gas holder GH#2 and associated structures located on the Sothern Parcel were removed. Two gasoline fuel tanks were present in the southwest corner of the 329 Clarkson Avenue property and adjacent to a former auto garage at this time. By 1958, the Southern Parcel had been developed into parking lots, a tobacco and candy distribution center, and manufacturing. The building currently present on the 329 Clarkson Avenue property was constructed at this time and used for manufacturing by the ABACO Fabrics Company (~1969) and then the PETER Partition Corporation (~1977 to ~1994). Since 1995, this building has been used by the Health Science Center for employee parking, and by the facilities department for storage of equipment and materials. In 2004, the 760 Parkside Avenue Property immediately north of the 329 Clarkson Avenue property was developed into a medical facility.

The twin gas holders and associated structures remained unchanged on the Northern Parcel until they were decommissioned between 1979 and 1980, however available data was insufficient to identify when gas storage and distribution activities associated with these holders were discontinued by BUG.

## 5.2 Client and/or Third-Party Operations at Site

The northern parcel is operated as a parking facility by SUNY Downstate. Traffic through the parking lot is primarily by private drivers. SUNY may also perform investigation activities using drill rigs and AECOM will be responsible for CAMP monitoring and soil observations. On the southern parcel, CAMBA has hired a general contractor and subcontractors to excavate the parcel to a depth of approximately 15 feet, ship soil off site, prepare soil for reuse onsite, install tiebacks and piles, and poor concrete foundations.

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## 5.3 Scope of Work

The overall scope of work is Community Air Monitoring Program (CAMP) Oversight and Soil Management to support the intrusive activities performed by CAMBA and their subcontractors. CAMP oversight includes the setting up and monitoring of two CAMP stations, which consist of a PID and Dust Trac housed in a hard cover case mounted on a tripod. The instruments collect data every minute, and that data is then available through telemetry. While the data can be reviewed remotely, the program requires 15 to 30 minute visual checks of the CAMP stations to confirm the units are operating properly and have not been disturbed. The soil management of the scope includes screening exposed and excavated soils every 1 to 1.5 hours. The work also includes observing the tire wash station and conditions of the street to determine if any soil is being tracked off site. Additional work may include the evaluation of soils on the northern parcel. This may include CAMP monitoring and soil management of third part contractors, or could involve sampling programs AECOM will perform directly for National Grid.

A Task Hazard Assessment (THA) for each operation being performed by AECOM and each operation performed by an AECOM subcontractor working under the AECOM HASP must be included in **Attachment A**, while those performed by the managed subcontractors should be prepared by the subcontractor.

**Table 5-1: Task List**

| Task Name | Permit(s) Required | | Primary Task Performed By | | |
|---|---|---|---|---|---|
| | | | AECOM | SUB | Third-Party |
| Driving To and From the Site | ☐ Yes | ☒ No | ☒ | ☐ | ☐ |
| Excavation/Trenching Oversight | ☒ Yes | ☐ No | ☐ | ☐ | ☒ |
| Geoprobe Drilling Oversight | ☒ Yes | ☐ No | ☐ | ☐ | ☒ |
| Sonic Drilling Oversight | ☒ Yes | ☐ No | ☐ | ☐ | ☒ |
| Drilling and Grouting Monitoring Wells Oversight | ☒ Yes | ☐ No | ☐ | ☐ | ☒ |
| Gauging Liquid Levels in Groundwater Monitoring Wells | ☐ Yes | ☒ No | ☒ | ☐ | ☒ |
| Work Area Air Monitoring | ☐ Yes | ☒ No | ☒ | ☐ | ☐ |
| Investigation Derived Waste Management | ☐ Yes | ☒ No | ☒ | ☐ | ☒ |

## 5.4 Key Dates

| | |
|---|---|
| **Project Start Date:** | December 2, 2019 |
| **Field Work Start Date:** | November 27, 2023 |
| **Project Completion Date:** | November 22, 2024 |

## 5.5 Physical and Biological Hazards

Physical and biological hazards are hazards that threaten the physical safety of an individual; contact with the hazard typically results in an incident or injury. The following table summarizes the physical and biological hazards present at the site and the associated procedures that address protection and prevention of harm.

- **If a there is a potential of physical or biological hazard when performing a specific task, it must be addressed in the THA.**

Some tasks are considered High Potential (HiPo) Hazard Activities as identified in S3AM-209-PR1, Risk Assessment, based on the factors contributing to the severity and probability of credible outcomes resulting from ineffective mitigation of their hazards and are designated with "**HH**" in the table below. High potential hazard activities typically require additional documents such as a Safe Work Permit (S3AM-218-FM1), activity-specific permit, site specific plans, task/equipment-specific training, pre-use inspections, a competent person, etc.

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All checked procedures MUST be included in **Attachment B** for implementation and reference. The following hazards and their site-specific description are anticipated based on the scope of work and project site:

### Table 5-2: Anticipated Activities, Situations and Physical & Biological Hazards

| Activity / Situation / Physical or Biological Hazard | | Applicable SH&E Procedure(s) | Related Activity-Specific Permit or Plan (Typically Required) |
|---|---|---|---|
| ☒ **Compressed Gases** | | S3AM-114-PR1 | n/a |
| ☒ **Drilling, Boring & Direct Push Probing** | HH | S3AM-321-PR1 | n/a |
| ☒ **Driving** | | S3AM-005-PR1 | S3AM-005-FM1 |
| ☒ **Excavation** | HH | S3AM-303-PR1 | S3AM-303-FM2 |
| ☒ **Hand and Power Tools (drill, chainsaw, grinder, power saw, pressure washer, etc.)** | HH | S3AM-305-PR1 | n/a |
| ☒ **Hand Hazards** | | S3AM-317-PR1 | n/a |
| ☒ **Hazardous Waste Operations** | HH | S3AM-117-PR1 | n/a |
| ☒ **Heat Stress** | | S3AM-113-PR1 | S4DCS-AM-113-FM1 |
| ☒ **Heavy Equipment** | HH | S3AM-309-PR1 | S3AM-218-FM1 |
| ☒ **Newly Hired or Transferred Employees** | HH | S3AM-015-PR1 | n/a |
| ☒ **Non Ionizing Radiation** | | S3AM-121-PR1 | n/a |
| ☒ **Overhead Lines and Obstructions** | HH | S3AM-322-PR1 | S3AM-218-FM1 |
| ☒ **Respiratory Protection** | HH | S3AM-123-PR1 | Respiratory Protection Plan |
| ☒ **Underground Utilities** | HH | S3AM-331-PR1 | S3AM-331-FM1 |
| ☒ **Wildlife, Plants, and Insects** | | S3AM-313-PR1 | n/a |

Note: **HH –** High-Hazard Activity or Situation

## 5.5.1 Competent Persons

A competent person is an employee who, through education, training, and experience, has knowledge of applicable regulatory requirements, is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. AECOM's Competent Person Designation Procedure, S3AM-202-PR1, explains the roles, responsibilities and procedures of naming a competent person.

### Table 5-3: Competent Person Log

☐ Scope of Work requires one or more competent persons (see table below)
☒ None, Scope of Work does not require competent persons(s).

## 5.6 Chemical & Airborne Hazards/ Constituents of Concern

Airborne and chemical hazards are types of occupational hazards caused by workplace exposures. Exposure to airborne materials and chemicals in the workplace can cause acute or long-term detrimental health effects. Potential exposure to these hazards on AECOM projects can come from several sources including materials brought on site to perform work, constituents of

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concern found in environmental media under investigation, and simultaneous operations being performed at the site by the property owner/third parties.

Based on information obtained from historical investigations and other sources, the chemicals in the table below are known or suspected to be present at the site.

### Table 5-4: Summary of Hazardous Properties of Chemical and Airborne Hazards

***Notes: PEL** = Permissible Exposure Limit | **TLV** = Threshold Limit Value | **IP** = Ionization Potential | **eV** = Electron Volt*

| Chemical Name | Media | Primary Routes of Exposure | PEL | TLV | IP (eV) |
|---|---|---|---|---|---|
| **Metals** | | | | | |
| **Arsenic** | ☒ Soil ☒ Groundwater ☒ Vapor ☐ N/A | Dermal | 0.5 mg/m$^3$ | 0.2 mg/m$^3$ | n/a |
| **Barium** | ☒ Soil ☒ Groundwater ☒ Vapor ☐ N/A | Dermal | 0.5 mg/m$^3$ | 0.5 mg/m$^3$ | n/a |
| **Chromium VI** | ☒ Soil ☒ Groundwater ☒ Vapor ☐ N/A | Dermal | 0.005 mg/m$^3$ | 0.005 mg/m$^3$ | n/a |
| **Lead** | ☒ Soil ☒ Groundwater ☒ Vapor ☐ N/A | Dermal | 0.05 mg/m$^3$ | 0.05 mg/m$^3$ | n/a |
| **Other Common Site COCs** | | | | | |
| **Coal tar pitch hydrocarbons PAH** | ☒ Soil ☒ Groundwater ☒ Vapor ☐ N/A | Inhalation | 0.2 mg/m$^3$ | 0.2 mg/m$^3$ | n/a |
| **Dust** | ☒ Soil ☐ Groundwater ☐ Vapor ☐ N/A | Inhalation | 15 mg/m$^3$ | 10 mg/m$^3$ | n/a |
| **Gasoline (TPH-GRO)** | ☒ Soil ☒ Groundwater ☒ Vapor ☐ N/A | Inhalation | n/a | 300 ppm | n/a |
| **Polychlorinated biphenyls (PCBs)** | ☒ Soil ☒ Groundwater ☒ Vapor ☐ N/A | Absorption, ingestion | 1 mg/m$^3$ (42% chlorine); 0.5 mg/m$^3$ (54% chlorine) | 1 mg/m$^3$ (42% chlorine); 0.5 mg/m$^3$ (54% chlorine) | n/a |

## 5.7 Decontamination

All possible and necessary steps shall be taken to reduce or minimize contact with chemicals and contaminated/impacted materials while performing field activities. Decontamination steps are outlined in the Hazardous Waste Operations procedure S3AM-117-PR1. All decontaminated equipment shall be visually inspected for contamination prior to leaving the Contaminant Reduction Zone (CRZ).

### Table 5-5: Decontamination Procedures & Equipment

| Procedure | Equipment Needed |
|---|---|
| Power wash drill rods and casing between soil boring locations | Decon pad, sump pump, power washer, generator, and drums |
| Power wash excavator bucket between test pit locations | Decon pad, sump pump, power washer, generator, and drums |
| | |

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## Table 5-6: Equipment Decontamination Procedures

| Type Equipment | Decontamination Solution | Procedure |
|---|---|---|
| Scoops, shovels, and hand tools | Simple Green | Wash sample equipment/hand tools with Simple Green cleaning solution and rinse with portable water between each location. |
| | | |
| | | |

# 6. Air Monitoring

Potential exposure to chemical hazards from sources including materials brought on site to perform work, constituents of concern found in environmental media under investigation, and/or simultaneous operations being performed at the site by the property owner/third parties are reasonably anticipated to have the potential to result in vapors, fumes, aerosols, mists, and/or airborne particulates/dusts at or near permissible exposure limits. Therefore, air monitoring that will be implemented is described below. Real Time Exposure Measurements/Equipment

Monitoring shall be performed within the work area on site to detect the presence and relative levels of toxic substances. The data collected throughout monitoring shall be used to determine the appropriate levels of PPE. Monitoring shall be conducted as specified in the work permit and THA as work is performed. All instrumentation needs to be rated intrinsically safe to prevent fire or explosion.

**Table 6-1: Air Monitoring Instrumentation Needed**

| Instrument | | Manufacturer/Model | Substances Detected |
|---|---|---|---|
| ☒ | **Photo Ionization Detector (PID)** | ■ RAE Systems mini-RAE<br>■ Photovac Microtip<br>■ Hnu Model Hnu (min. 10.6 eV bulb) | ■ Petroleum hydrocarbons<br>■ Organic Solvents |
| ☒ | **Particulate Monitor** | ■ MIE Model PDM-3 mini-RAM | ■ Aerosols, mist, dust, and fumes |

## 6.1 Monitoring Procedures

The monitoring procedures shown below are general guidelines for sampling activities. In general, readings are considered actionable if sustained readings are observed for 5 minutes or more or if intermittent peaks are seen more than 1 time the action level. A reading more than action level outlined below will require additional ventilation (natural or mechanical) for 30 minutes, followed by re-monitoring.

**Table 6-2: Monitoring Procedures and Action Levels**

| | Parameter | Zone Location and Monitoring Interval | Action Level | Response Activity |
|---|---|---|---|---|
| ☒ | **Volatile Organic Compounds (VOCs) and Volatile Hydrocarbons** (total by PID) | Breathing zone, continuously during tasks where exposure to VOCs and volatile hydrocarbons is possible | < 5 ppm | ■ Continue monitoring, may continue work in required PPE |
| | | | 5- 25 ppm (sustained for 5 minutes) | ■ **STOP WORK** and notify PM. Investigate the cause of elevated VOC measurements and identify measures to reduce concentrations (cover impacted soils, ventilation, etc.). Work activities shall only continue once levels have decreased to or below 5 units above background. If levels continue above 5 units, only individuals who are medically qualified to wear respiratory protection are permitted to continue work activities with Project Manager approval. Don Level C PPE (organic vapor respirator cartridges), continue monitoring, and initiate continuous air monitoring for benzene. |

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## Table 6-2: Monitoring Procedures and Action Levels

| | Parameter | Zone Location and Monitoring Interval | Action Level | Response Activity |
|---|---|---|---|---|
| | | | > 25 ppm (sustained for 5 minutes) | ■ Cease work, exit, and contact the Site Safety Officer, Site Supervisor, and Project Manager. |
| ☒ | **Benzene** (by PID with benzene-specific separation tube) | Breathing zone, continuously where indicated by VOC readings | > 0.25 ppm | ■ Cease work, exit the area, and contact the Site Safety Officer, Site Supervisor, and Project Manager. |
| ☒ | **Dust not otherwise classified** (total by aerosol monitor) | Breathing zone every 30 minutes during field activities where exposure to excessive dusts are possible | < 5 mg/m$^3$ | ■ Continue work in Level D and continue monitoring |
| | | | > 5 mg/m$^3$ | ■ Upgrade to Level C (P100 respirator cartridges), implement dust suppression measures; contact the Site Safety Officer & Site Supervisor. |
| | | | > 10 mg/m$^3$ | ■ Cease activities, implement more effective dust suppression measures; contact the Site Safety Officer & Site Supervisor. |
| ☒ | **Dust not otherwise classified** (total by aerosol monitor) | Edge of Exclusion Zone, every 30 minutes during excavation activities | < 5 mg/m$^3$ | ■ Continue work in required PPE, monitor air, and implement engineering controls |
| | | | > 5 mg/m$^3$ | ■ Cease activities and contact the Site Safety Officer & Site Supervisor. |
| ☒ | **Facility Chemical Release** | Breathing zone within designated areas/buildings or site-wide, as appropriate for the facility/site | Chemical Release Detected | 1. **STOP WORK** and immediately leave the area/building<br>2. Report to the designated muster location<br>3. Contact the Site Safety Officer, Site Supervisor and Project Manager<br>4. Wait for All-Clear to return to work area |

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# 7. Subcontractor Selection

## 7.1 Subcontractor Pre-Qualification

Performance of the project scope of work does NOT involve the use of subcontractors. If it becomes necessary to use one or more subcontractors to complete the project scope of work, they will be evaluated in advance by the AECOM Project Manager and approved by the AECOM Project Manager and Regional SH&E Manager, as appropriate, prior to mobilizing to site, and listed in this section to include any conditions of approval to perform work on behalf of AECOM.

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# 8. Training and Documentation

All personnel at this site must be qualified and experienced in the tasks they are assigned. SH&E Training Procedure S3AM-003-PR1 establishes the general training requirements for AECOM employees.

## 8.1 Site-Specific Training Requirements

The following training is applicable to the site and/or scope of work:

**Table 8-1: Site Specific Training Requirements**

| Training | | Applies to |
|---|---|---|
| ☒ | **ERP/HASP and Site Orientation** | All Employees and Subcontractors |
| ☒ | **Vehicle/Driver Safety & Defensive Driving** | All Employees who drive on behalf of AECOM |
| ☒ | **Field Safety** | Employees visiting the field that does not require HAZWOPER |
| ☒ | **Speak Up/Listen Up (SULU)** | All AECOM field employees and supervisors |
| ☒ | **First Aid / CPR** | Designated employees or employees performing high risk activities and medical attention is more than 4 minutes away |
| ☒ | **Respiratory Protection & Fit Test** | Employees needing to wear respirators |
| ☒ | **OSHA 10-Hr. Construction Safety (or CSTS 2020 in Canada)** | All employees working on jobsites with construction type hazards |
| ☒ | **HAZWOPER 40-Hour and 8-Hr. Annual Refresher** | On HAZWOPER sites, in EZ, exposed to hazardous contamination |
| ☒ | **HAZWOPER Supervisor** | Employees managing others in HAZWOPER activities or at HAZWOPER Sites |
| ☒ | **Hazardous Materials Shipping (U.S.)** | Employee responsible for shipping HZM/HZW/DG and/or signing manifests |
| ☒ | **Hazardous Materials Communication** | When hazardous or toxic chemicals are being used on site. |

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# 9. Site Control

## 9.1 Site Work Zones

Site layout and site control need to be coordinated to achieve a productive work environment and efficient work process while minimizing exposure of employees and the public to hazards associated with the work. Consider the following items when planning the site layout and controls. Check the description of the site controls **already** in place:

### Table 9-1: Site Controls Already in Place

- ☒ Work area is within a facility/property with secure and restricted access provided by client or third party
- ☐ Work area is enclosed within a facility/property, but access is not restricted via locks, guards, or gates
- ☐ Work area is on a property that is open, but access by the public is unlikely
- ☐ Work area is on a property that is open and access by the public is likely
- ☐ Work area is in a roadway or right of way of a roadway (Traffic Control/Protection Plan required S3AM-306-PR1)
- ☐ Work area is in a parking lot or driveway
- ☐ Work area is on or near railroad, including right of way, active lines and crossings
- ☐ Other: N/A

Consider the following items when planning the site layout and controls:

- "Line of Fire" hazards- overhead utilities, falling/ tipping equipment, release of energy/ pressure, flying debris
- Noise, dust, odor suppression
- Contamination containment and decontamination area layout
- Traffic control for site vehicles/ equipment (public traffic control requires Traffic Control Plan)
- Restricted access for areas requiring special training, skills, or certifications
- Restriction of work near railroads
- Presence or creation of excavations
- Loading/unloading areas
- Portable restrooms
- Dumpsters and bins
- Equipment lay down
- Heavy equipment parking
- Overnight safety and security needs

The following additional site controls will be implemented in work area(s) to protect the public and AECOM work team:

### Table 9-2: Additional Site Controls to be Implemented

| Control Item | Description of Type and Application |
|---|---|
| ☒ **Fence** | The work area is fenced in and access to pedestrians is restricted. |
| ☐ **Locks** | N/A |
| ☐ **Barricades** | N/A |
| ☐ **Cones** | N/A |

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| | |
|---|---|
| ☐ **Tape** | N/A |
| ☐ **Hole Covers** | N/A |
| ☒ **Other:** | Entry is controlled by security guards. |

## 9.2 Simultaneous Operations

Simultaneous and neighboring operations, including activities performed by the general public, our clients, and other workers or contractors working near our employees, often present a need for added co-ordination and communication to address hazards that are presented by multiple operations..

### Table 9-3: Simultaneous Operations Within the Site

☒ Yes, see table below for details ☐ None, not applicable

| Activity | Company | Contact Person (Activity Lead) | Contact's Phone Number | Addressed in THA(s) | |
|---|---|---|---|---|---|
| Moving and parked vehicles | Health Science Center | Varies – to be determined with Health Science Center prior to commencement of work. | - | ☒ Yes | ☐ No |
| | | | | ☐ Yes | ☐ No |
| | | | | ☐ Yes | ☐ No |

### Table 9-4: Simultaneous Operations on Neighboring Sites

☒ Yes, see table below for details ☐ None, not applicable

| Activity | Company | Contact Person (Activity Lead) | Contact's Phone Number | Addressed in THA(s) | |
|---|---|---|---|---|---|
| Moving vehicles; garbage trucks staging on sidewalk and roadway daily | The City of New York Department of Sanitation | - | - | ☒ Yes | ☐ No |
| | | | | ☐ Yes | ☐ No |
| | | | | ☐ Yes | ☐ No |

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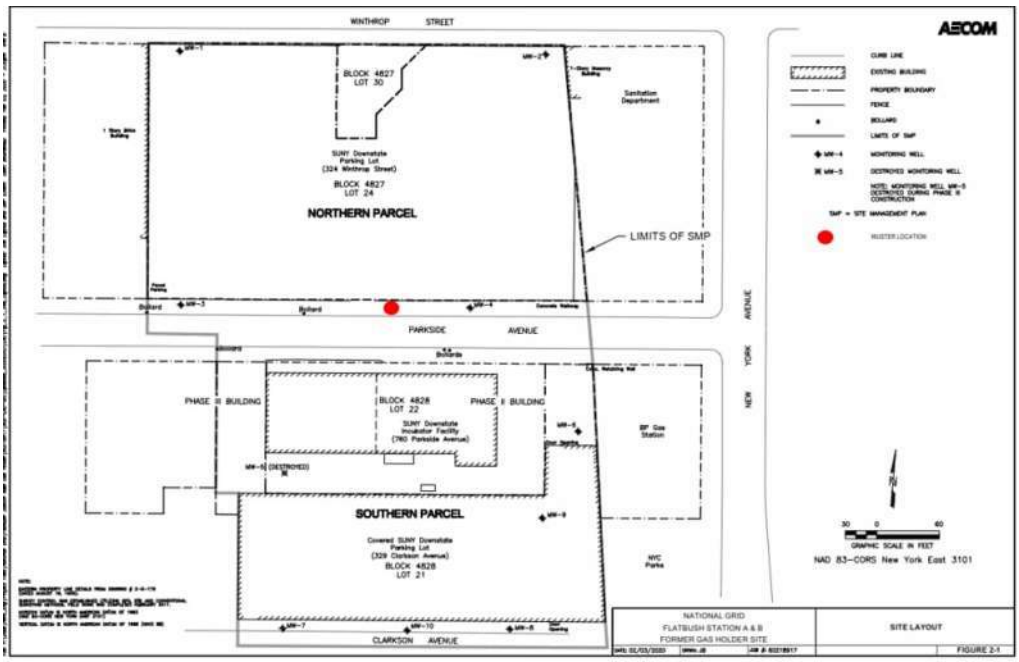
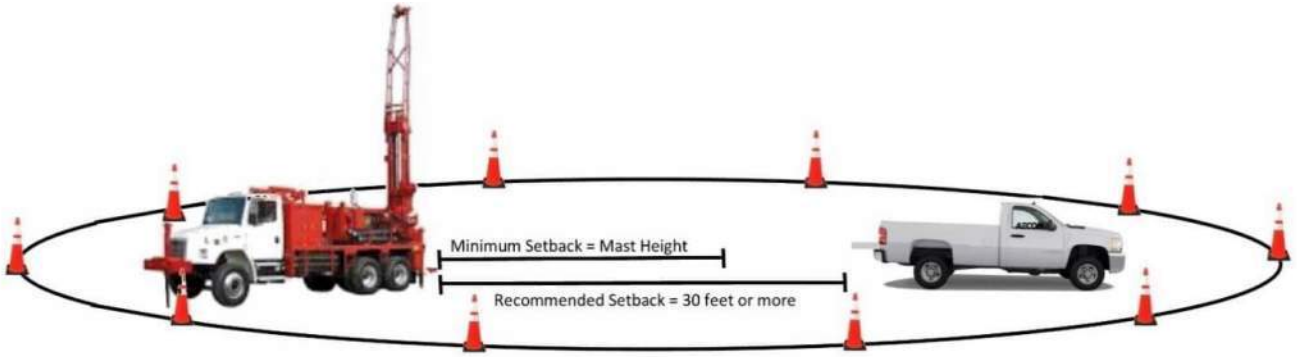
# 9.3 Site Control Maps/Diagrams

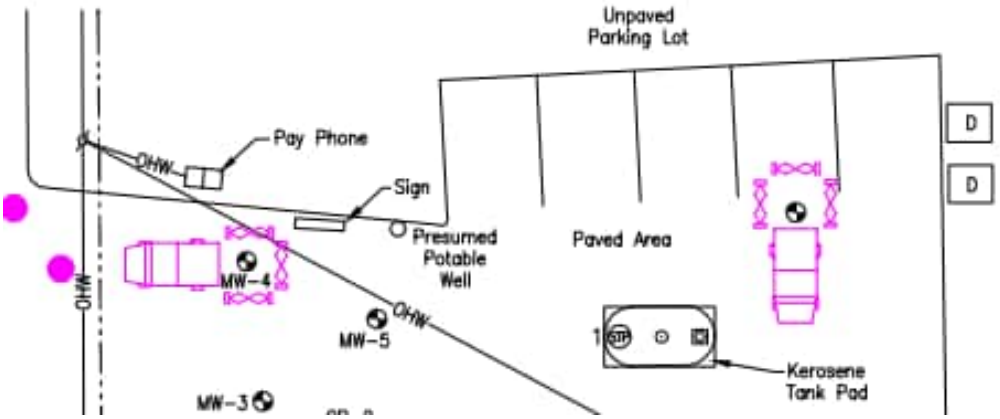
## Work Area Layout



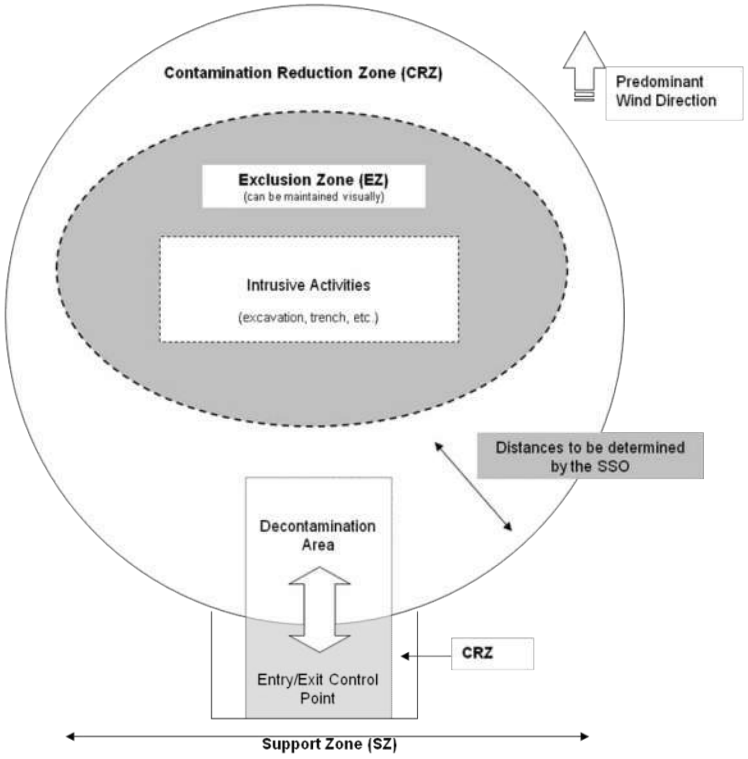

## Example Drilling Work Area Layout



## Example Groundwater Sampling Area Layouts




## Example Exclusion Zone Layout

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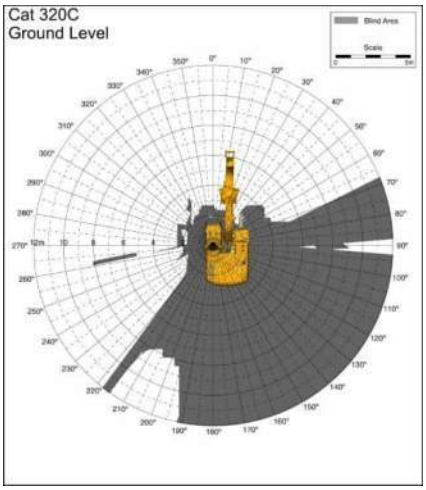
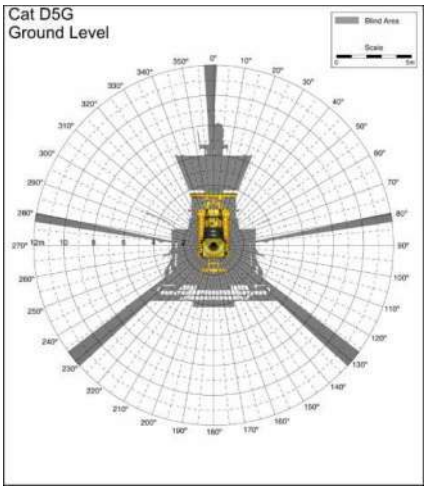
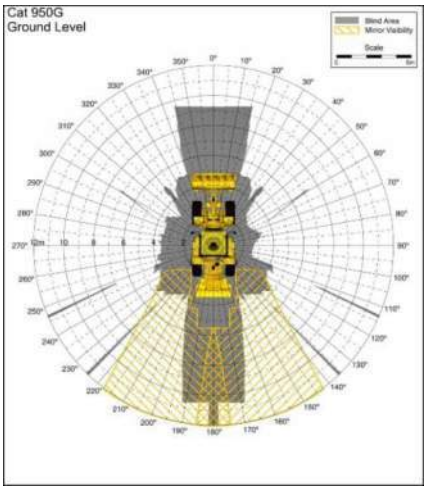
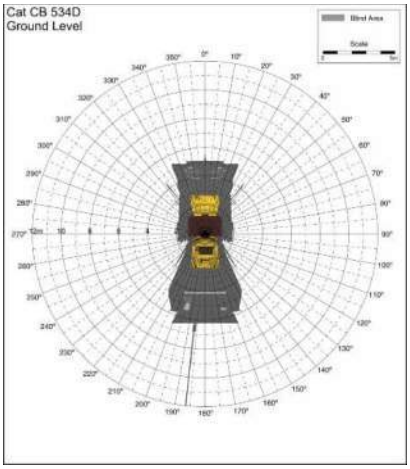
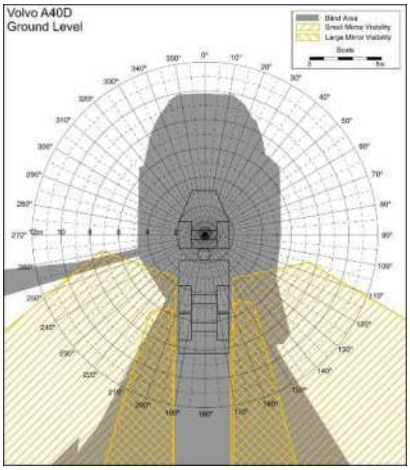
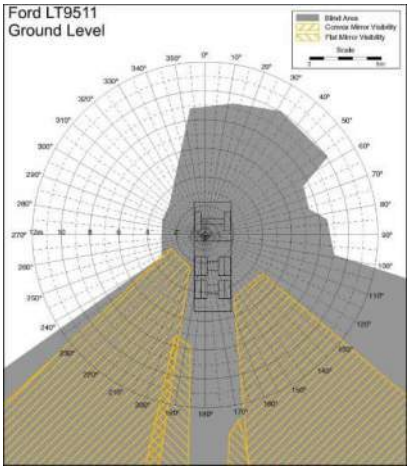
| Example Heavy Equipment Blind Spots and Swing Radius / Exclusion Zones | | |
|---|---|---|
| **Excavator** | **Bulldozer** | **Front-End Loader** |
|  |  |  |
| \|--39.4 ft/12m --\| | \|--39.4 ft/12m--\| | \|--39.4 ft/12m--\| |
| **Smooth Drum Roller** | **Haul Truck (Articulated)** | **Haul Truck (Non-Articulated)** |
|  |  |  |
| \|--39.4 ft/12m --\| | \|--39.4 ft/12m--\| | \|--39.4 ft/12m--\| |

*Note: The above maps are provided as examples only – Blind spots and swing radius vary by equipment type, make, and model.*

## 9.4 Situational Awareness – Personal Security

The ability to observe, identify, process, and understand critical elements of information within changing environments. If you see something, say something. Know what is going on around you, anticipate what might happen next. Have a plan of what you will do next, including where you are going, alternate routes and a plan of action. Evaluate what is happening around you as you move through daily activities, noting if something looks out of place or unusual. Be aware of barriers that may change your critical thinking such as distractions, being in a hurry, fatigue, focus lock and past experiences. Listen to your instinct – if something doesn't look or feel right, do something about it. All employees need to review the Situational Awareness Guidance for Employees. In event of a Security Issue please contact **Global Security & Resilience at** **GSR@aecom.com.**

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# 9.5 Lone Worker

AECOM discourages employees from working alone (i.e., where AECOM personnel are out of visual and audio range of others) when performing field tasks (see Working Alone SHE Procedure S3AM-314-PR). If lone work is to be performed, a communications/check-in plan must be developed and implemented using the table below.

### Table 9-5: Lone Worker Management Plan

| | |
|---|---|
| **Justification:** | It is noted that lone worker is not anticipated on this project; however, in the event lone work is required, a Lone Worker Plan will be established. |
| **Lone Worker:** | N/A |
| **Check-In Requirement:** | In the event lone work is undertaken, the following MINIMUM check-ins are required:<br>■ Within one hour of arrival to Site, and every subsequent hour on-site<br>■ Within one hour of departure from Site.<br>Verbal contact is preferred, all electronic messages, such as voicemail, email, and text, must have an exchange confirming receipt by the check-in contact. |
| **Check-In Contact:** | ■ Joshua Millard, Project Manager: 978-424-8199<br>■ Melissa Saunders (alternate contact): 206-502-7914 |
| **Hazard Summary:** | ■ Hazardous substance or materials<br>■ Work around active traffic |
| **Response Plan:** | Dispatch backup employee (TBD); call Police |

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# 10. Personal Protective Equipment

The use of Personal Protective Equipment (PPE) forms the final barrier of protection between the employee and the hazard and applies to all employees at the work site, including Subcontractors, visitors and client or customer representatives. For additional information on PPE, please review the Personal Protective Equipment, S3AM-208-PR1.

The minimum PPE required on an AECOM project is as follows:

- Hard Hat or Helmet
- Safety Glasses with side shields
- High Visibility Safety Vest
- Shirt with sleeves that cover the shoulders.
- Long Pants
- Safety-toe Boots
- Gloves (on person) – Required to be worn if handling materials, equipment, etc.

Specific PPE shall also be specified in Task Hazard Analyses (THAs) such as glove type (i.e. material, level of protection, etc.). Where possible, hazards will be eliminated or controlled to reduce the risk associated with a specific task.

These controls include:

- Elimination of the hazard
- Isolation of the hazard
- Engineering Controls
- Administrative Controls

With the exception of prescription safety eyewear and safety toed boots (there may be allowances for the purchase of these items), AECOM will make available all required PPE for its employees. All employees will receive training in the use, care, maintenance, and storage of the PPE issued to them.

All personal protective equipment will meet the requirements of local, state, federal, client and AECOM SH&E regulations and procedures. Where site-specific PPE requirements exist, all AECOM employees, subcontractors, and visitors, who work on the Project, will follow those requirements.

- PPE will **not** be modified or changed.
- All PPE that is damaged or in need of service or repair will be removed from service immediately.
- All PPE that has been removed from service will be tagged “OUT OF SERVICE” and will not be returned until repaired and inspected by a qualified person. Defective PPE must be removed from site to prevent it from being used.

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# 11. SH&E Technology

At AECOM, we encourage the use of new technology to eliminate or reduce the risk our employees are exposed to. Mark the technology you will be using in this project (if any):

## Table 11-1: SH&E Technology Being Used on Site/Project

- ☐ **Wearable Technology/Smart PPEs** (e.g. clothes, helmets, glasses, harness)
- ☑ **Site Sensors** (e.g. Movement, angle, noise, carbon monoxide, Dust)
- ☐ **Fatigue Monitoring**
- ☑ **Phone/Tablet Applications** or software: Daily Tailgate Meeting App
- ☐ **Connected Worksites** (i.e., connection between employees or project elements to be successful)
- ☐ **Drones**
- ☐ **Virtual Reality (VR) or Augmented Reality (AR)**
- ☐ **GPS** – Location devices: N/A
- ☐ **Radio Frequency Identification** (RFID)
- ☑ **Other:** Vehicle Related Technology
- ☐ **None of these:** We will not use any technology in this project to reduce hazards

Find available tools and/or share the tools you will be using in the AECOM Technology Toolbox or let us know what would be interesting to assess by **clicking here** or explore in the NSC Technology site for new available safety technology.

# 12. Safety, Health, and Environment Program

## 12.1 AECOM SH&E Policy

AECOM's Safety, Health and Environment Policy, which establishes the framework to attain best-in-class Safety, Health and Environmental (SH&E) performance in the interest of benefitting AECOM's employees and stakeholder in the global marketplace, is available on AECOM's Ecosystem (intranet).

## 12.2 Safety for Life

"Safety for Life" is a comprehensive integrated AECOM Safety Management System that drives our employees toward AECOM's commitment to achieving zero work-related injuries and/or illnesses; preventing damage to property and the environment; and maintaining an environmentally friendly and sustainable workplace. Our Safety for Life program is supported by nine Life Preserving Principles that apply to all AECOM activities.

## 12.3 Life Preserving Principles

AECOM has adopted these "Life-Preserving Principles" to help demonstrate the commitment of our Safety for Life program. We firmly believe these "Life-Preserving Principles" will enable AECOM to achieve its goal of zero employee injuries, property damage and an environmentally friendly and sustainable workplace. The nine Life-Preserving Principles (S2-001-ATT1), along with their descriptions, can be found on AECOM's Ecosystem (intranet).

**Commitment:**
Managers will lead on safety, continuously demonstrating commitment to the highest standards.

**Participation:**
All employees are encouraged to engage in helping to control the risks we face.

**Budgeting and Staffing for Safety:**
The costs of managing SH&E are budgeted into every project. Our safety staff are fully trained to provide expert guidance.

**Pre-planning:**
We assess risks and produce detailed plans to control them during design, planning, and execution of work.

**Contractor Management:**
We carefully select and collaborate with all our partners to create a safe working environment.

**Recognition and Rewards:**
Employees are rewarded for safety excellence, and we share best practices.

**Orientation and Training:**
Our employees will be provided with effective safety training in order to identify and mitigate hazards in the workplace to prevent injuries to themselves and others who may be affected by their actions.

**Incident Investigation:**
We investigate recordable incidents and serious near misses to understand the causes and take action to prevent recurrence.

**Fit for Duty:**
All staff come to work each day fit and well, so they do not pose a hazard to themselves or others.

## 12.4 Fitness for Duty

One of AECOM's nine Life-Preserving Principles is Fitness for Duty (see Fitness for Duty procedure (S3AM-008-PR1). Fitness for Duty means that individuals are in a state (physical, mental, and emotional) that enables them to perform assignments competently and in a manner that does not threaten the health and safety of themselves or others. On certain projects or for specific tasks, fit for duty certifications may be requested of medical providers by SH&E Managers or Human Resources (HR). Employees should ensure they are fit for duty prior to leaving home and unimpaired by substances or fatigue, and if necessary, contact your supervisor rather than attempting to report to work in unfit condition. Supervisors must observe their employees

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and work with the employee, SH&E staff, and HR to address deficiencies. AECOM will **NOT** tolerate retaliation against any employee for filing a complaint or concern regarding their fitness for duty or participating in any way in an investigation.

## 12.5 Proactive Health

AECOM is committed to promoting proactive health activities in addition to the planning for prevention of safety and environmental incidents. Proactive health activities will be completed on an on-going basis at AECOM on a corporate-wide basis (i.e., the wellness program associated with employee benefits), at offices, and at this project site. Management will be actively involved in providing and encouraging opportunities for health and wellness education and improvement. Health initiatives and education will be discussed periodically during office-based meetings as the safety moment or during the daily tailgate meeting as a toolbox talk. Topics may be related to, but are not limited to, the following:

- ✓ Heart health
- ✓ Stress management
- ✓ Smoking cessation
- ✓ Diabetes prevention
- ✓ Diet
- ✓ Exercise benefits

Topics and educational materials can be located on the AECOM Wellness page, National Institutes of Health website, Centers for Disease Control and Prevention website, and other reputable sources online.

In addition, the field team will be encouraged to participate in a daily stretch and flex routine (a standardized way to avoid soft tissue damage from work activities) to the best of their abilities, given their own personal limits. It is particularly beneficial to warm and loosen muscles before repetitive work, manual handling of loads, and when working in cold temperatures or with static postures. The Stretch and Flex manual and poster (**Attachment C**) serve as guidance for the leader to follow.

## 12.6 Fatigue

One aspect of fit for duty is fatigue management. AECOM has developed procedures that limit work periods or requires additional rest under certain circumstances, including during long-distance travel or when working at high altitudes. These procedures also set limits on extended work periods of 14 hours per day or 60 hours per week. A fatigue management plan is required if longer working hours are necessary (see Fatigue Management Procedure S3AM-009-PR1).

## 12.7 Driving and Vehicle Safety

The proper operation of vehicles is critical to protecting the safety of AECOM employees and subcontractors. Drivers face numerous hazards while operating vehicles. Some of the hazards include collision with another vehicle, collision with a fixed object, vehicle break down or failure, or falling asleep or becoming otherwise incapacitated while driving. All employees will adhere to Driving procedure S3AM-005-PR, which includes the following key practices:

1. **Authorized Drivers**
   Managers must authorize drivers following evaluation of driver criteria to drive and maintain an AECOM-owned, leased or rented vehicle, a client or customer-owned vehicle, or a personal vehicle operated in the course of conducting AECOM business.

2. Electronic Devices Prohibited
   AECOM prohibits use of all portable electronic devices while operating a motor vehicle/ equipment, which includes being stopped at a traffic light or stop sign. Electronic devices include, but are not limited to, all mobile phones, two-way radios, pagers, iPods, MP3s, GPS, DVD players, tablets laptops, and other portable electronic devices that can cause driver distraction. Hands-free device use is **NOT** allowed.

   - GPS units and devices used for navigation may only be used if factory installed or secured to the vehicle with a bracket that allows the driver to view the image without having to take their eyes off the road. Electronic devices shall be setup for operation prior to commencing driving activities and shall NOT be changed by the driver while driving.

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3. **Vehicle Inspections**
   The driver shall conduct pre-trip vehicle inspections prior to each trip. A vehicle inspection checklist, S3AM-005-FM2, can be used to guide and document the inspection process. Vehicle inspection is to include a 360-degree walk around and visual inspection under the vehicle for leaks and obstructions prior to moving the vehicle.

4. **Training**
   All drivers shall complete defensive driver training. Additional training (i.e., hands-on defensive driver training) may apply for medium and high-risk drivers; see Driving procedure S3AM-005-PR and SHE Training procedure S3AM-003-PR for more details.

5. **Journey Management Plan**
   Drivers who undertake trips in excess of 250 miles (400 kilometers) one way, drive in remote or hazardous areas, or when otherwise deemed necessary, shall develop and document a Journey Management Plan using S3AM-005-FM1 or equivalent.

6. **Secure Loads**
   Cargo is only to be carried within the passenger compartment of a vehicle when segregated and restrained to prevent objects from becoming distractions, obstructions, or projectiles to occupants should emergency vehicle maneuvers be required (e.g., harsh braking or crash). All goods transported on flatbed trucks or in pickup beds must be securely fastened to prevent them from becoming hazards. All applicable laws and regulations regarding securing of loads must be met. It is prudent to check the load after a few miles to ensure that load has not shifted or loosened prior to completing the remainder of the trip.

## 12.8 Fatigue and Driving Safety

The effect of fatigue is both physiological and psychological and can severely impair a driver's judgement. Fatigue can cause lapses in concentration which could prove fatal. Fatigue is not just a problem for drivers on long trips, as drivers can also suffer from fatigue on short trips.

- ✓ After strenuous fieldwork, consider overnight accommodation or vehicle sharing for staff who are not acclimatized to the type of work.
- ✓ Microsleep can occur with a limited warning, and may be linked to several factors, for example:
  - Microsleep is most likely to occur during times when the circadian rhythm dictates the body should be asleep, such as at dawn, late at night, or in the mid-afternoon (e.g., 1 and 4 am and 1 and 4 pm.).
  - Potential to feel drowsy after a meal.
  - Driving long distances (considered potentially monotonous) even with sufficient sleep.
  - Prolonged sitting and warm ambient temperature may also increase the feeling of sleepiness.
- ✓ If safe to do so, consider undertaking actions to disrupt the microsleep event while identifying a safe place to stop, e.g., open a vehicle window, listen to upbeat music/change music source, or ask the passenger (if present) to engage in conversation.
- ✓ Ensure field staff are familiar with the signs of fatigue and mitigation factors.

The most common visible signs of microsleep include the following:

- Eyelid drooping
- Eyelid closure
- Head nodding
- Brief periods of snoring
- Wandering thoughts

If any of the above become apparent, immediately pull over to a safe location and contact your PM or SH&E representative.

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## 12.9 Hand Safety

The hands are exposed to hazards more than any body part. SH&E Hand Safety Procedure S3AM-317-PR describes requirements and best practices including these notable practices:

- **All personnel shall have gloves in their immediate possession 100%** of the time when in a shop or on a work site. Gloves that address the hazard shall be worn when employees work with or near any materials or equipment that present the potential for hand injury due to sharp edges, corrosives, flammable and irritating materials, extreme temperatures, splinters, etc. Use the Gloves Needs Assessment (S3AM-317-FM1) to help determine the appropriate glove for the hazard(s).
- **Fixed open-blade knives are prohibited** from use during the course of AECOM work. Examples of fixed open-blade knives include pocket-knives, multi-tools, hunting knives, and standard utility knives. For more information about cutting tools, see S3AM-317-ATT1 Safe Alternative Tools.

## 12.10 Substance Abuse

Drug and alcohol abuse pose a serious threat to the health and safety of employees, clients, and the general public as well as the security of our job sites, equipment, and facilities. AECOM is committed to the elimination of illegal drug use and alcohol abuse in its workplace and regards any misuse of drugs or alcohol by employees to be unacceptable. AECOM Substance Abuse Prevention Procedure (S3AM-019-PR1) prohibits the use, possession, presence in the body, manufacture, concealment, transportation, promotion or sale of the following items or substances on company premises. Company premises refer to all property, offices, facilities, land, buildings, structures, fixtures, installations, aircraft, automobiles, vessels, trucks and all other vehicles and equipment - whether owned, leased, or used.

- Illegal drugs (or their metabolites), designer and synthetic drugs, mood- or mind-altering substances, and drug use related paraphernalia unless authorized for administering currently prescribed medication;
- Controlled substances that are not used in accordance with physician instructions or non-prescribed controlled substances; and
- Alcoholic beverages while at work or while on any customer- or AECOM-controlled property.

This policy does not prohibit lawful use and possession of current medication prescribed in the employee's name or over-the-counter medications. Employees must consult with their health care provider about any prescribed medication's effect on their ability to perform work safely and disclose any restrictions to their supervisor.

Although some states may pass laws legalizing medical or recreational marijuana use, the use, sale, distribution, and possession of marijuana are violations of federal law and AECOM policy and will subject an employee to disciplinary action up to and including termination in accordance with controlling law. In Canada, where medical and recreational marijuana use is legal, employees must still follow Federal and Provincial laws, and AECOM policy with regards to use and possession. Employees found to be in contravention of legal requirements or AECOM policy will be subject to disciplinary action up to and including termination.

## 12.11 Rewards and Recognition

One of AECOM's Life Preserving Principles is Recognition and Rewards for proactive safety, health, and environmentally focused behaviors. All projects are expected to participate in the rewards and recognition programs available on the Corporate and DCS Americas SH&E ecosystem pages. Large, long term projects are encouraged to establish a project specific rewards and recognition program which incorporates project specific goals and activities (template available S3AM-020-FM1). ***All rewards and recognition programs must emphasize the 9 Life Preserving Principles and proactive SH&E activities NOT solely the achievement of lagging metrics ("injury/incident-free" hours, etc.) as those may discourage incident reporting.***

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## 12.12 Stop Work Authority

AECOM empowers and expects all employees to exercise their Stop Work Authority (see Stop Work Authority Procedure (S3AM-002-PR1) if an incident appears imminent, or when hazardous behaviors or conditions are observed. A stop work request can be informal if the situation can be easily corrected or may require shutting down operations if revised procedures are necessary to mitigate the hazard. If an AECOM employee observes an imminently hazardous situation on a site controlled by others (i.e., a client-managed contractor), the employee can always stop work for themselves by removing themselves from the situation. Employees also may attempt to stop work to avoid allowing the contractor to come to harm by immediately notifying the contractor foreman or site engineer, or if necessary, the client or party managing the contractor.




No employee should object to the issuance of a stop-work request, nor can any disciplinary action be levied against the employee. All employees must agree that the situation has been mitigated before resuming work. No employee will be disciplined for refusing to work if they feel it is unsafe.

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# 13. Roles and Responsibilities

## 13.1 AECOM Project Manager

The AECOM Project Manager (PM) may delegate responsibilities to an AECOM Deputy PM or AECOM Task Manager (TM) with equivalent competencies. The AECOM PM is responsible to:

- Understand the scope, performance standards, objectives, and applicable AECOM and bp requirements and expectations,
- Ensure the workforce, including subcontractors, is aware of the project scope and objectives, and the associated performance standards, requirements, and expectations,
- Verify that the full scope of work has been risk assessed with Task Hazard Assessment (THA) prepared, reviewed, and approved for each task,
- Authorize the start of all work tasks/activities within area of responsibility,
- Assign competent Crew Leaders, Permit Issuers/Approvers, and Persons in Charge as appropriate for the project scope of work,
- Be knowledgeable of and participate, where needed, in permit development and verification of the necessary work permits, and
- Verify that work activities are consistent with the policies and procedures.

## 13.2 AECOM Site Supervisor

The Site Supervisor has the overall responsibility and authority to direct work operations at the job site according to the provided work plans and HASP. The Project Manager may act as the Site Supervisor while on site. The Site Supervisor's responsibilities include:

- Verify the personnel, equipment/machinery and instruments anticipated to mobilize to site.
- Communicate project roles and responsibilities.
- Discuss planned activities for the day and any potential simultaneous operations (SIMOPs).
- Establish staging and work areas for planned activities.
- Confirm crews have reviewed and updated, as necessary, task hazard assessments prior to beginning the task.
- Coordinate and document project activities.
- Monitor for deviations and changes in scope, personnel, methods, materials, equipment/machinery, instrumentation, and site conditions.
- Notify the AECOM project manager of changes and coordinate change management.
- Escort or delegate the escorting of site visitors.
- Serve as AECOM's point of contact with the host facility and person-in-charge for simultaneous operations (SIMOPs).
- Delegate stop work authority to all project employees and report all unsafe acts/behaviors and conditions, near misses and incidents to the AECOM project manager.
- Lead by example – walk the talk.

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## 13.3 AECOM Site Safety Officer

The Site Safety Officer supports the Site Supervisor in providing a safe work environment. Not all sites will have a designated Site Safety Officer; the decision should be made by the Project Manager and SH&E Manager taking into consideration the complexity and risks of the scope of work. The Site Supervisor may act as the Site Safety Officer on sites without one. The Site Safety Officer's responsibilities include:

- Conduct the site safety orientation for the entire field team, including subcontractors, and site visitors.
- Lead the tailgate safety meeting.
- Discuss hazards present at the site and/or within environmental media and their control measures.
- Communicate air monitoring methods and action levels.
- Explain emergency response and reporting procedures, including emergency contacts and muster and shelter-in-place locations.
- Establish exclusion and contamination reduction zones, as needed.
- Verify SWP/HASP, THA and safety requirements and expectations are being met.
- Confirm hazard control measures are in-place and effective.
- Perform housekeeping and site inspections to ensure a safe working environment.
- Engage outside safety, health & environment resources, as needed, to allow for the safe performance of the work.
- Assist in incident investigations and identification and implementation of corrective actions.
- Lead by example – walk the talk.

## 13.4 AECOM SH&E Manager

Responsibilities of the SH&E manager is to:

- Promote the AECOM Safety for Life Program and our Nine Life Preserving Principles.
- Understand the application of SH&E regulatory requirements relevant to SH&E in the company's operations and be aware of changes in regulations which may affect the company.
- Be formally trained, licensed, or certified where the regulations require.
- Assist with the budgeting and staffing process to ensure project teams have the knowledge and resources needed to perform their work safely.
- Be aware of all incidents, near misses, observations, unsafe acts, and unsafe conditions that are reported and participate in the investigation process where required.
- Verify incidents are reported to regulatory bodies in accordance with local legislation.
- Review investigation findings to confirm identified corrective actions are appropriate and subsequently implemented.
- Review and accept site-specific SH&E Plans and Task Hazard Analyses (THAs).
- Assist in the preparation of risk assessments.
- Assist in the review of SH&E training needs.
- Verify necessary training as required by AECOM policies and procedures and/or the regulations.
- Assist in the setting of SH&E expectations at project level and review them periodically.
- Perform project SH&E audits on a periodic basis.
- Monitor the corrective actions taken, where audits identify non-conformance or opportunities for improvement, for confirmation of their completion and effectiveness.
- Lead by example, walk the talk.

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## 13.5 AECOM Workforce

The workforce members play an important role in safety. Each workforce member shall:

- Comply with the host facility, client, and AECOM requirements for their assigned tasks and the site.
- Have the appropriate training/competencies to complete their assigned task(s) safely and efficiently.
- Participate in risk reviews and/or THAs and provide input to ensure that the full scope of work, associated hazard, and their control measures have been adequately addressed to allow for the work to proceed safely and efficiently.
- Conduct appropriate work area and equipment inspections prior to work activities.
- Assist in identification of work process deficiencies and recommend possible improvements if applicable.
- Remain focused and aware of surroundings while on the jobsite to changes that may impact ability to perform job task or affect the safety of other team members.
- Understand the Emergency Response Plan (ERP) and be able to respond as it directs per the assigned role.
- Stop work, intervene (Speak Up, Listen Up), and report all observed unsafe work activities, unsafe site conditions, and any incidents with or without (near miss) consequences.
- Upon request, participate in incident investigations and/or re-enactments.

## 13.6 Visitors

Authorized visitors (e.g., client representatives, regulators, AECOM management staff, etc.) requiring entry to any work location on the site will be briefed by the Project Manager, Site Supervisor, or Site Safety Officer on the hazards present at that location. Visitors will be escorted at all times at the work location and will be responsible for compliance with their employer's health and safety policies. In addition, this HASP specifies the minimum acceptable qualifications, training and PPE that are required for entry to any controlled work area; visitors must comply with these requirements at all times.

If the site visitor requires entry to any exclusion zone (EZ), but does not comply with the above requirements, the visitor will be denied access to the EZ. If the visitor disregards instructions to remain outside the EZ, work activities will be immediately suspended, and the situation reported and documented.

Unauthorized visitors, and visitors not meeting the specified qualifications, will **NOT** be permitted within established controlled work areas. If unauthorized visitors and/or visitors not meeting the specified qualifications enter a controlled work area and/or EZ, work activities will be immediately suspended, and the situation reported and documented.

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# 14. Subcontractor Management

## 14.1 AECOM Roles/Responsibilities for Sub Management

When managing an AECOM Subcontractor of any tier, AECOM management and supervision will follow the requirements in S3AM-213-PR1 and are responsible for the following:

- Direct all activities of the facility, site, or project location.
- Ensure appropriate training and experience of AECOM personnel responsible for overseeing subcontractor work.
- Verify subcontractors have the appropriate trained and competent personnel to perform their activities in a safe, healthful, and environmentally responsible manner.
- Pre-qualification of Subcontractor – Prior to performing work on an AECOM project, management and supervision must verify the Subcontractor has been pre-qualified. AECOM's preferred method of prequalification in Coupa, but there are other ways to prequalify a subcontractor.
- Ensure all subcontractor employees attend the AECOM daily tailgate safety meeting.
- If you have any questions about subcontractor pre-qualification, reach out to an AECOM SH&E professional.

## 14.2 Subcontractor Roles/Responsibilities for Safety

Subcontractors must provide AECOM with a designated Subcontractor Safety Representative (SSR). Their responsibilities are as follows:

- Direct employees' means and methods of work and how to work safely.
- Be knowledgeable of and understand the safety requirements of the subcontractor's activities.
- Staff the project with employees that are trained and knowledgeable of the tasks they will be performing.
- Have the ability to recognize hazards and the authority to take prompt corrective actions.
- Implement the subcontractor safety program.
- Serve as the direct contact with AECOM regarding resolution of SH&E issues.
- Immediately report all work-related injuries/illnesses/incidents, environmental incidents, and regulatory inspections/violations to AECOM according to AECOM procedures and/or client requirements.

## 14.3 Subcontractor HASP/THAs

If the subcontractor's scope of work includes hazards that are not covered by the AECOM Health and Safety Plan (HASP), the subcontractor will need to provide AECOM with their site-specific HASP and task-specific Task Hazard Analyses (THAs). All subcontractor procedures must at a minimum comply with client and AECOM requirements to ensure that hazards associated with the performance of their work activities are properly controlled. Copies of any required safety documentation for a subcontractor's work activities will be provided to AECOM for review prior mobilization to the site.

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# 15. Training and Documentation

The following sections describe the standard practices or programs that AECOM will establish to prepare employees to perform work safely and consistent with AECOM policy and Procedures. For additional information on SH&E Training, review the Safety, Health and Environment Training, S3AM-003-PR1.

## 15.1 HASP/Site Safety Orientation

The Project Manager shall conduct a project/site-specific HASP orientation prior to the start of field operations, with support as needed by the SH&E Manager, Site Safety Officer, or Site Supervisor. This meeting will involve representatives from all organizations with a direct contractual relationship with AECOM on the job site. Minimum items to be covered are listed in **Attachment D**. Participants will then sign the HASP Personnel Acknowledgement register at the end of the HASP.

## 15.2 Worker Training and Qualifications

All personnel at this site must be qualified and experienced in the tasks they are assigned. SH&E Training Procedure S3AM-003-PR1 establishes the general training requirements for AECOM employees.

See **Section 8.1** of this HASP for site-specific required safety training and documentation.

## 15.3 Competent Person(s)

A competent person is an employee who, through education, training, and experience, has knowledge of applicable regulatory requirements, is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

AECOM's Competent Person Designation Procedure, S3AM-202-PR1, explains the roles, responsibilities and procedures of naming a competent person. Review Error! Reference source not found. of this HASP for a list of site-specific competent p erson(s) required for this scope of work.

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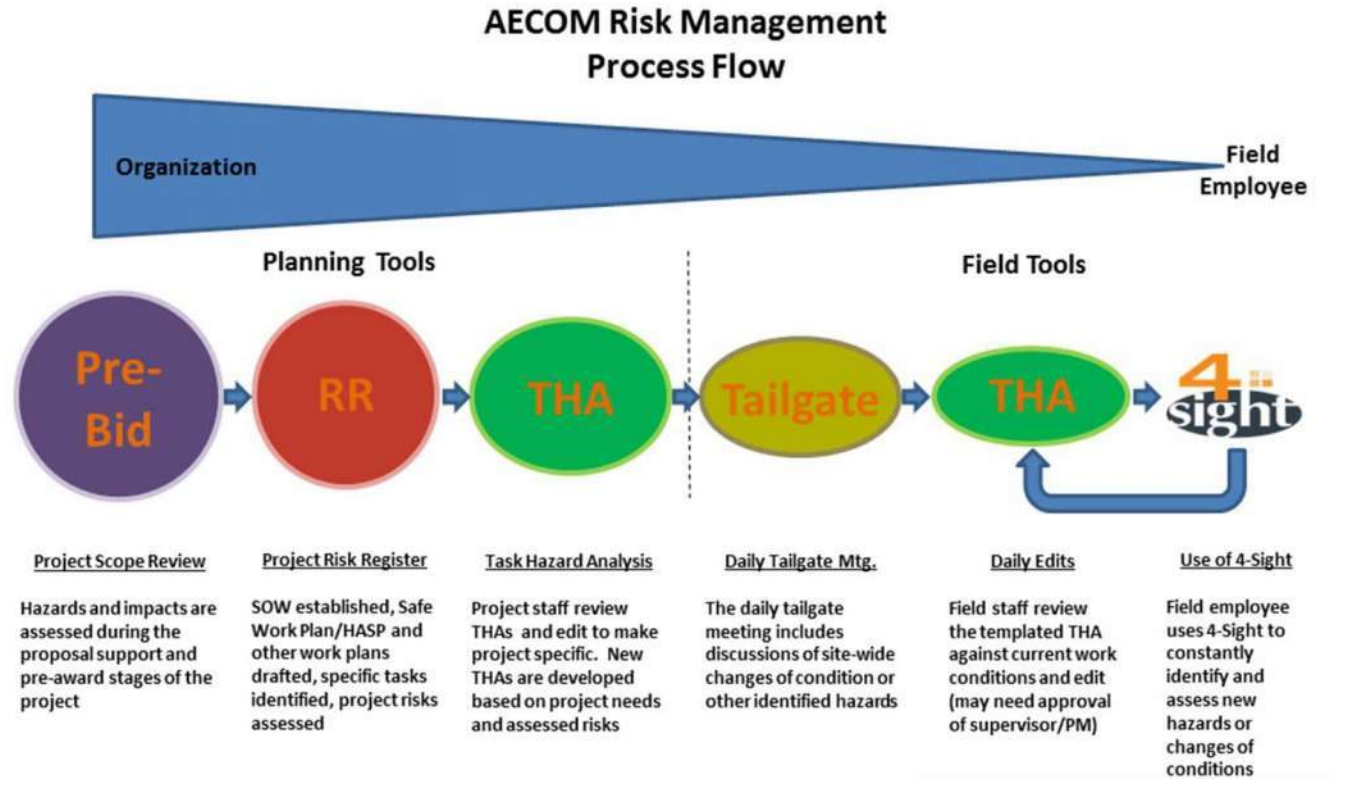
# 16. Hazard Assessment and Control

AECOM has adopted an approach to hazard assessment and control that incorporates both qualitative and quantitative methods to identify hazards and the degree to which they may impact employees and AECOM operations. See S3AM-209-PR1, Risk Assessment and Management, for details regarding AECOM's process. This approach is illustrated below and described in the following section.

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## 16.1 SH&E Procedures

All AECOM SH&E procedures, in their controlled copy version, are available on the internal SH&E Policy and Procedures ecosystem page. Programmatic procedures referenced in this document (for example SH&E Training) do no need to be printed for inclusion in this HASP. The applicable field procedures checklist is in the Physical Hazards section below and procedures are included in **Attachment B**.

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## 16.2 Task Hazard Assessments and Daily Tailgate Meetings

THA forms (a blank version is located in S3AM-209-PR1) shall be prepared for each task to be performed as part of the scope of work. This includes driving to the site, parking, and walking as well as the hazards, associated risk, and appropriate controls for all other work activities. The DCS Americas Templated THA Library may also be used to find previously approved THAs, though these should be modified to be project and site-specific. The preparer shall have one THA form for each task in the Scope of Work found in this work plan (**Attachment A**) and shall also include blank copies.

In the field, all employees and visitors shall review the daily THAs and conduct and attend the daily tailgate meeting. When employees arrive on site, conditions may be different than originally planned or additional job steps may be required. The THA requires workers to update or 'dirty up' the THA in the 'On-Site Edits' rows to assess the risks presented by the changed condition(s) and requires the worker to describe steps to reduce the risk. If the hazard(s) cannot be successfully mitigated, the work will **NOT** proceed.

A Site Safety Officer (SSO) or field supervisor shall conduct a daily tailgate meeting to review the specific requirements of this HASP prior to the commencement of daily project activities. Attendance at the daily tailgate meeting is mandatory for all employees and subcontractors at the site covered by this HASP. Simultaneous operations are encouraged to attend each other's tailgate meetings or at the very least the supervisors shall discuss the coordination of activities and associated hazards of each other's tasks. The tailgate meeting must be documented by the field Supervisor or SSO, using the New Daily Tailgate Meeting App. Use the appropriate QR code to download the App and/or go to the Daily Tailgate Meeting App Ecosystem page for details, guides, training sessions and/or other information:



iOS

Android

As an alternative you can also use or the Daily Tailgate Meeting form (S3AM-209-FM5), a blank copy of which is included in **Attachment A**.

## 16.3 Hazard Categories

THAs should include consideration of the following hazard categories when identifying hazards and task specific controls:

**Table 16-1: AECOM Hazard Categories**

| Category | Definition |
|---|---|
|   | A biological hazard is any living organism that could cause irritation, allergic reaction, bites, stings, illness, infection, or other injury. |
|   | A chemical hazard is any chemical substance that could potentially cause harm to humans, equipment, or the environment either through contact, ingestion, absorption, inhalation, or reaction. |
|   | Electrical hazards are present whenever there is potential for contact with an electric charge. |

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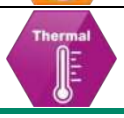
### Table 16-1: AECOM Hazard Categories

| Category | Definition |
|---|---|
|  | Gravitational force can cause tools, equipment, materials, and people to fall either to the same level or from heights to the earth or a lower surface. |
|  | A mechanical hazard when there is energy within the components of a mechanical system within an otherwise stationary piece of equipment/machinery. |
|  | Objects or substances that can move or are moving not due to gravity create a motion hazard. Motion hazards also include body motions and positioning such as bending, stretching, kneeling, etc. |
|  | Noise hazards are sounds that may prevent effective communication or cause hearing loss. |
|  | Any physical matter such as gases, liquids, and springs that is compressed or under a vacuum creates a pressure hazard. |
|  | Radiation hazards include both ionizing and non-ionizing energy emitted from radioactive elements or sources. |
|  | Thermal hazards can cause injury or damage due to their temperature. |

## 16.4 4-Sight

When preparing hazard assessments and throughout the day workers should use 4-Sight. This is a mental process through which workers ask themselves (and each other) four questions designed to effectively assess hazards. Using these questions during each task, especially those without established THAs, will help workers identify hazards and condition changes so that they can control them or stop work to seek assistance.




- What am I about to do?
- What could go wrong?
- What could be done to make it safer?
- What have I done to communicate the hazard?

## 16.5 Speak Up/Listen Up

All AECOM employees have a responsibility to help create the environment where the expectation is Safety for Life. Speak Up/Listen Up (SULU) is a technique to steward jobsite safety by utilizing 4-Sight as a basis for safety feedback conversations. SULU has two main parts:

- **Speak Up** where employees use three simple steps when providing feedback to others about unsafe acts:
  - Ask to discuss their hazard assessment or 4-Sight for the task;
  - Get a commitment from the employee to apply the hazard controls and perform the task according to the accepted procedures; and

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  - Follow up to ensure the employee is working safely.

- **Listen Up** where employees use two simple steps when responding to safety feedback:
  - Listen – Focus on the message, not the messenger; and
  - Commit to performing the task the safer way.

SULU conversations should happen consistently throughout the workday to create clear expectations of how work should be performed. All employees should recognize safe work behaviors in order to reinforce them and keep them going. An occasional correction is much more effective when employees are frequently encouraged and positively recognized for their safe actions. Managers and supervisors should be having SULU conversations during site visits and ensure peer to peer and site supervisor to crew SULU conversations are being held.

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# 17. SH&E Event Reporting & Investigation

## 17.1 Incidents and Near Misses

All incidents and near misses (i.e., incidents without consequences), regardless of type and perceived severity, must be reported in accordance with the Incident Reporting, Notifications and Investigation, S3AM-004-PR1 and entered into **IndustrySafe** (AECOM's SH&E Database) within the timeframes listed below:

### Table 17-1: Incident Reporting Timeframes

| Incident Type | IndustrySafe Reporting Timeframe |
|---|---|
| **Significant Incident, including any injury to an AECOM employee or Subcontractor** | Within **4 hours** |
| **All Other Incidents** | Within **24 Hours** |

## 17.2 Investigation

All incidents and near misses will be investigated and documented to determine the contributing and root causes. The investigation will verify the need for corrective actions and identify opportunities for Lessons Learned and continuous improvement. For more information in incident investigations, please review the Incident reporting, Notifications and Investigation procedure, S3AM-004-PR1.

As soon as it is safe to do so after an incident occurs, the following information will be gathered:

- An incident timeline;
- Witness statements;
- Photos of the incident;
- Police reports, if applicable;
- Any additional information that will assist in the investigation; and
- Copies of daily safety documentation and/or field notes.

*Note: Only the basic facts, who, what, when, where and how, are needed to complete the initial IndustrySafe report. SH&E Managers will assist you in updating the report as additional information becomes available.*

## 17.3 Audits & Inspections

The AECOM audit and inspection process establishes the protocol for the assessment the Safety, Health and Environment (SH&E) program and its application, as well as the process to identify and monitor corrective actions. The goal is to minimize risk and enhance operational SH&E performance. For more information on audits and inspections, please review the Compliance Assurance procedure, S3AM-216-PR1.

### 17.3.1 Project Manager Self-Assessment

AECOM Project Managers will perform quarterly SH&E site audits using the DCSA Project Manager Self-Assessment form available in IndustrySafe.

### 17.3.2 Senior Management Activities (SMAs)

AECOM Senior Managers will perform Senior Management Activity inspections on the projects under their area of responsibility. These SMAs will be entered into Lifeguard.

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### 17.3.3 Project Safety Reviews (PSRs)

AECOM SH&E Managers will perform periodic Project Safety Reviews on projects in their area of responsibility. These PSRs will be entered into IndustrySafe.

### 17.3.4 Site Safety Inspections (OSHA Type)

AECOM Project Managers and SH&E Managers will perform periodic site safety inspections (OSHA type) on projects in their area of responsibility as required. These site safety inspections will be entered into IndustrySafe.

### 17.3.5 External Regulatory Inspections

If a regulatory inspector shows up on site, AECOM will follow the requirements in our Regulatory Inspections procedure S3AM-211-PR1.

## 17.4 Safety Observations

All safety observations must be entered into **IndustrySafe™ or Lifeguard™** (AECOM's SH&E Databases).

## 17.5 SH&E Database Access

Incidents, near misses, and audits/inspections must be entered into **IndustrySafe™**, which is one of AECOM's SH&E Databases. Safety observations may also be entered into **IndustrySafe™** at the AECOM Project Manager's discretion. **IndustrySafe™** can be accessed via the SH&E Page on Ecosystem when you are in the office or connected to the AECOM network via VPN. IndustrySafe may also be accessed from your smartphone/device, if equipped with a QR Code Reader App, using the QR Code to the right.

Safety observations may also be entered into **Lifeguard™**, which is one of AECOM's SH&E Databases, at the AECOM Project Manager's discretion. **Lifeguard™** can be accessed via the SH&E Page on Ecosystem when you are in the office or connected to the AECOM network via VPN. **Lifeguard™** may also be accessed from your smartphone/device, if equipped with a QR Code Reader App, using the QR Code to the right.

Incidents, Near Misses, Audits/Inspections and Safety Observations

## 17.6 Reporting Assistance

If your field schedule, access to internet, and/or limited cellular phone coverage have the potential to impact timely incident, near miss, and/or safety observation reporting, please contact your AECOM Project Manager and/or SH&E Manager for assistance.

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# 18. Environmental Management

## 18.1 Scope

AECOM implements policies and procedures to reduce risk of land and/or water pollution and other environmental concerns during the life of the project. The AECOM Project Manager will ensure compliance with all local, state, federal and client environmental laws and/or regulations. For additional information on Environmental Management, please review the Environmental Compliance procedure, S3AM-204-PR1.

## 18.2 Roles and Responsibilities

All AECOM staff through the leadership of the AECOM Project Manager are responsible for reducing or eliminating environmental impacts by AECOM personnel. The site supervisor and/or the site safety officer will be immediately notified of any spills, leaks, or other impacts to the ground and/or water, or other environmental emergencies, after emergency respondents have been called, if necessary. The Project Manager will be responsible for making any further notifications as required.

## 18.3 Staffing and Awareness

AECOM staff will receive relevant awareness training to ensure proper knowledge and training when performing activities with the potential to impact the environment, as well as the requirement of this plan for proper preparedness and response.

## 18.4 Pollution Prevention

Pollution/impact to the environment could be caused by the following sources:

- Air emissions
- Wastewater
- Hazardous materials
- Solid waste
- Hydrocarbons
- Storm water and sediment/erosion

AECOM will employ prevention and control measures to prevent impacts to the environment. In addition, a spill kit consisting of sorbent socks, pads, shovels, and personal protective equipment (PPE) will be maintained on site by AECOM and each subcontractor. Solid waste will be collected, segregated (recyclable, non-flammable, and flammable) and removed on a regular basis.

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# 19. Project Closeout

Completing a project requires procedures to close out Project Contractual and Administrative activities. The closeout process ensures all documentation is finalized and any Contractual Obligations are met. The Project is ready for close-out once it has been accepted by the end user organization. Project close-out is complete after all physical, regulatory, contractual, and financial close-out activities are complete.

## 19.1 Health and Safety File

The Health and Safety File will normally include:

- Brief description of the work carried out.
- Residual hazards which remain and how they have been dealt with (e.g. surveys, or information on asbestos, contaminated land, water bearing strata, buried services etc.).
- Key structural principles incorporated in the design (e.g. bracing) safe working loads etc.
- Any hazards associated with the materials used.
- Nature, location, and markings of significant services including underground cables, gas supplies, firefighting etc.
- Information and ‘as built’ drawings including safe access to and from confined spaces etc.
- Daily Tailgate Meeting Forms
- Lessons Learned

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# 20. Personal Acknowledgement

By signing below, the undersigned acknowledges that he/she has reviewed the AECOM Health and Safety Plan for the National Grid Flatbush site. The undersigned also acknowledges that he/she has been instructed in the contents of this document and understands the information pertaining to the specified work and will comply with the provisions contained therein. The employee understands that they are **NOT** to perform any work that they have not been adequately trained for and that they are to stop work if it is unsafe to proceed. Finally, the employee understands to notify the Site Supervisor and the **Incident Hotline at 800-348-5046** for any incident, ***including ANY injury even if no first aid or medical treatment is required.***

| Print Name Clearly | Signature | Organization | Date |
|---|---|---|---|
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## 20.1 Disclaimer

This HASP, and each of its provisions, is applicable only to, and for use only by, AECOM, its affiliates, and its subcontractors. Any use of this Plan by other parties, including, without limitation, third-party contractors on industrial sites or projects where AECOM is providing engineering, construction management, or similar services, without the express written permission of AECOM, will be at that party's sole risk, and AECOM Corporation shall have no responsibility. The existence and use of this Plan by AECOM shall not be deemed an admission or evidence of any acceptance of any safety responsibility by AECOM for other parties unless such responsibility is expressly assumed in writing by AECOM in a specific project contract.

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# Attachment A

## THA Forms, and Tailgate Safety Meeting Form

# Attachment A: THA Forms, and Tailgate Safety Meeting Form

## Task Hazard Assessment Instructions:

Each unique task or work group should have their own THAs. If workers have a THA for their task(s) in hand, they should simply review it and document the site-specific edits in the appropriate section. If workers do ***not*** have a THA for all tasks to be performed, a THA must be obtained or drafted *prior to starting work* on that task. Use additional pages as needed.

- Identify the basic steps of the task that must be performed in order and their associated hazards. Identify controls or barriers to mitigate each identified hazard.
- Clearly identify any **STOP WORK** triggers.
- Document stop work and change management if conditions/ scope changes.
- Use 4-Sight to identify and mitigate site-specific hazards throughout the day. Modify the THA as needed. Contact site supervisors or the PM for any significant scope changes or changes of expected conditions.
- All THAs shall be 3 pages (maximum) or less (preferred). If they are longer, the task is too broad.
- All hazards will use standardized nomenclature (Hazard Wheel), should be specific, detail how someone could be hurt and what the outcome could be.
- All actions to mitigate hazards must be specific, clearly aligned with its respective hazard and not generic. Avoid words such as "*proper", "correct*", or "*appropriate*"). Use specifics and numerical values (i.e., wear disposable nitrile gloves, stand back 6 feet/1.8 meters, take a 10-minute break every hour).
- PPE cannot be the only line of defense - PPE is always the last line of defense, so think through what other controls (engineering, administrative, etc.) could mitigate hazards.

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**Discuss as Applicable and Modify THA as Needed**

*Check ☑ if reviewed or mark N/A*

- ☐ *Biological / Chemical / Electrical Hazards*
- ☐ *Decontamination Procedures*
- ☐ *Ergonomics – Lifting, Body Position*
- ☐ *Lock Out / Tag Out*
- ☐ *Short Service Employees – visual identifier and mentor / oversight assignment*
- ☐ *Simultaneous / Neighboring Operations*
- ☐ *Slip / Trip / Fall Hazards*
- ☐ *Specialized PPE Needs*
- ☐ *Traffic Control*
- ☐ *Waste Management / Decontamination*
- ☐ *Weather Hazards / Heat Stress / Cold Stress*
- ☐ *Work Permit Requirements:* N/A
- ☐ *Other:*
  N/A

| Probability | Severity | | | | |
|---|---|---|---|---|---|
| | 5 - Catastrophic | 4 – Critical | 3 – Major | 2 – Moderate | 1 - Minor |
| 5 – Frequent | 25 | 20 | 15 | 10 | 5 |
| 4 – Probable | 20 | 16 | 12 | 8 | 4 |
| 3 – Occasional | 15 | 12 | 9 | 6 | 3 |
| 2 – Remote | 10 | 8 | 6 | 4 | 2 |
| 1 - Improbable | 5 | 4 | 3 | 2 | 1 |

| Risk Rating (Probability x Severity) | Risk Acceptance Authority |
|---|---|
| 1 to 4 (Low) | Risk is tolerable, manage at local level |
| 5 to 9 (Medium) | Risk requires approval by Operations Lead/Supervisor & Safety Manager |
| 10 to 25 (High) | Risk requires the approval of the Operations Manager & Safety Director |

| Severity – Potential Consequences | | | | |
|---|---|---|---|---|
| | People | Property Damage | Environmental Impact | Public Image/Reputation |
| Catastrophic | Fatality, Multiple Major Incidents | >$1M USD, Structural collapse | Offsite impact requiring remediation | Government intervention |
| Critical | Permanent impairment, Long term injury/illness | >$250K to $1M USD | Onsite impact requiring remediation | Media intervention |
| Major | Lost/Restricted Work | > $10K to $250K USD | Release at/above reportable limit | Owner intervention |
| Moderate | Medical Treatment | > $1K to $10K USD | Release below reportable limit | Community or local attention |
| Minor | First Aid | </=$1K USD | Small chemical release contained onsite | Individual complaint |

| Probability | | |
|---|---|---|
| Frequent | Expected to occur during task/activity | 9/10 |
| Probable | Likely to occur during task/activity | 1/10 |
| Occasional | May occur during the task/activity | 1/100 |
| Remote | Unlikely to occur during task/activity | 1/1,000 |
| Improbable | Highly unlikely to occur, but possible during task/activity | 1/10,000 |

**Using the Matrix:**

1. Identify basic steps of the task and associated hazards.
2. Calculate the initial risk rating.
3. Identify control measure to eliminate or reduce the hazard's risk and calculate the residual risk rating.
4. If the risk rating (after controls are implemented) cannot be reduced to 4 or lower, additional approvals are needed before the activity can begin.

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# Task Hazard Assessment

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| **Task Name:** | Driving to and From Site | **Control #:** | 01-01-12-02 |
|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | | **Client:** | | **Date:** | |
| **Permits Required? (list):** | | **Work Location:** | | | |

**This THA must be fully reviewed with all staff members. All job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on the THA.**

| | |
|---|---|
| **Required PPE:** | ☐ Hard Hat ☐ Safety Glasses ☐ HiVis Vest ☐ Safety Toe Boots ☐ Gloves: Leather / Nitrile ☐ Hearing Protection ☐ Other: |
| **Tools & Equipment:** | Emergency kit Communication device (cell phone) Navigation system |

**REMINDER: Use 4-Sight at the start of, and continuously throughout the job/task to identify additional and/or hazards to act on!**

| **Job Steps** *List all steps required to perform a task in the sequence they are performed* | **Potential Hazards** *How could you be hurt? What would the injury be?* | **Risk** *(initial)* | **Critical Actions To Mitigate Hazards** *List control measures required to eliminate, control or protect against the potential hazards associated with each job step to minimize the risk of injury or environmental impact.* ***Identify any 'Stop Work' triggers.*** | **Risk** *(final)* |
|---|---|---|---|---|
| 1. Trip Planning | 1a. Unauthorized driving | 9 | 1a. You must be an AECOM authorized driver to drive for AECOM business purposes. Consult the requirements of S3AM-005-PR1. Authorized Drivers shall maintain a current driver's license with full privileges applicable to the vehicle to be operated. Develop a Journey Management Plan if applicable. | 4 |
| | 1b. Inclement weather | 6 | 1b. Evaluate weather conditions prior to beginning the travel to determine if travel should proceed. Verify your vehicle is equipped to travel in poor weather. Have supplies on hand in the event that you become stranded, including a communication device to call for help. | 4 |
| | 1c. Getting Lost | 6 | 1c. Review route in advance and program GPS prior to leaving | 3 |
| | 1d. Inadequate vehicle for the site/trip | 7 | 1d. Understand what type of vehicle is necessary to transport tools & equipment to the site. Know site conditions before departure and obtain proper vehicle, 4-Wheel drive if necessary | 4 |
| | 1e. Vehicle malfunction | 8 | 1e. Inspect vehicle prior to leaving. Verify that maintenance records are current. | 4 |
| ***On-Site Edits:*** | | | | |
| 2. Driving | 2a. Fatigue | **15** | 2a. Start trip well rested & take breaks when needed. Share driving responsibilities where possible. **STOP DRIVING AND PULL OVER** in a safe place if you begin nodding off or showing other signs of fatigue. | 4 |

# Task Hazard Analysis

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| Task Name: | Driving to and From Site | Control #: | Error! Reference source not found. |
|---|---|---|---|

**REMINDER: Use 4-Sight at the start of, and continuously throughout the job/task to identify additional and/or hazards to act on!**

| Job Steps<br>*List all steps required to perform a task in the sequence they are performed* | Potential Hazards<br>*How could you be hurt? What would the injury be?* | Risk<br>*(initial)* | Critical Actions To Mitigate Hazards<br>*List control measures required to eliminate, control or protect against the potential hazards associated with each job step to minimize the risk of injury or environmental impact.* ***Identify any 'Stop Work' triggers.*** | Risk<br>*(final)* |
|---|---|---|---|---|
| | 2b. Risky driving practices | 15 | 2b. Practice defensive driving techniques and avoid bad driving habits<br>• Allow for adequate time to make the trip<br>• Do not speed or attempt to multi-task<br>• Do not use cell phone or text or attempt to program GPS while driving | 4 |
| ***On-Site Edits:*** | | | | |
| 3. Stops/breaks during transit | 3a. Theft of equipment/materials | 6 | 3a. Place any likely theft items out of sight and lock vehicle when leaving it. Do not leave vehicle unattended for longer than necessary. If at all possible, avoid leaving packed vehicles in public parking areas overnight, unload if possible. Park in well lighted areas. | 4 |
| | 3b. Personal security risk | 10 | 3b. Be alert and aware of surroundings when making stops. Stop at areas which are well lit and have security if possible. | 3 |
| ***On-Site Edits:*** | | | | |
| 4. | 4a. | | 4a. | |
| ***On-Site Edits:*** | | | | |

## Additional Notes:

# Task Hazard Assessment

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## All Employees:

**STOP WORK** if uncertain about safety or if a hazard or additional precaution is not recorded on the THA.

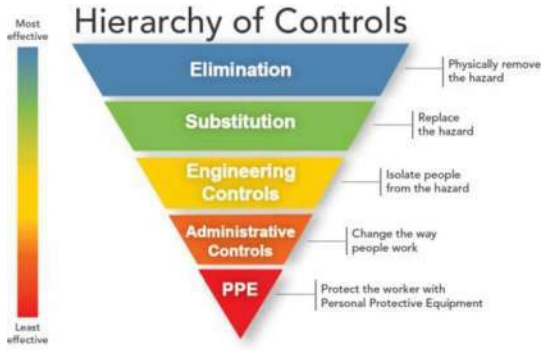
Be alert, recognize and communicate any changes in scope, personnel or conditions at the worksite to the supervisor.

Use **4-Sight**, AECOM's last minute risk assessment process continuously throughout the day by asking yourself and your co-workers to assess your task, hazards, and mitigations. Amend the THA when needed.

- ***What am I about to do?***
- ***What can go wrong?***
- ***What can be done to make it safer?***
- ***What have I done to communicate the hazards?***

**For a more thorough identification of hazards, ask "What else could go wrong?" using the Hazard Categories**




- ***Most hazards need more than one control***
- ***What should you do? Stack your controls***
- ***PPE can NEVER be your only means of protection***

| Worker Sign On | |
|---|---|
| *I participated in the on-site review and fully understand the content of this Task Hazard Assessment.* | |
| **Printed Name** | **Signature** |
| **1. Supervisor:** | |
| **2.** | |
| **3.** | |
| **4.** | |
| **5.** | |
| **6.** | |
| **7.** | |
| **8.** | |
| **9.** | |
| **10.** | |

| Visitor Acknowledgement |
|---|
| *Visitors review task hazards and acknowledge understanding* |
| 1. |
| 2. |
| 3. |
| 4. |
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| 6. |
| 7. |
| 8. |
| 9. |
| 10. |

**Submit a new THA for addition to the DCSA THA Library or send THA improvement suggestions to DCSA.THA.Library@AECOM.com**
**Include a copy of the new THA or a photo of the THA modifications as appropriate.**

# Task Hazard Assessment

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| **Task Name:** | Excavation/Trenching | **Control #:** | 01-01-04-01 |
|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Project Name:** | | **Client:** | | **Date:** | |
| **Permits Required? (list):** | | **Work Location:** | | | |

**This THA must be fully reviewed with all staff members. All job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on the THA.**

| | |
|---|---|
| **Required PPE:** | ☒ Hard Hat ☒ Safety Glasses ☒ Hi-Vis Vest ☒ Safety Toe Boots ☒ Leather work Gloves: gloves ☒ Hearing Protection ☐ Other: |
| **Tools & Equipment:** | Backhoe/excavator Hand tools/shovels Trench box/shoring |

**REMINDER: Use 4-Sight at the start of, and continuously throughout the job/task to identify additional and/or hazards to act on!**

| **Job Steps** *List all steps required to perform a task in the sequence they are performed* | **Potential Hazards** *How could you be hurt? What would the injury be?* | **Risk** *(initial)* | **Critical Actions To Mitigate Hazards** *List control measures required to eliminate, control or protect against the potential hazards associated with each job step to minimize the risk of injury or environmental impact.* ***Identify any 'Stop Work' triggers.*** | **Risk** *(final)* |
|---|---|---|---|---|
| 1. Select the proper tools/equipment for the task at hand. | 1a. Struck-by/hit-by | 12 | 1a. There are a lot of options when choosing the proper excavator. Prior to performing the task, the competent person must research, ask questions and be knowledgeable of all of the equipment/machinery available and choose the equipment/machinery that is the safest and most efficient for the scope of work being performed. | 3 |
| | 1b. Pinch/caught between | 8 | 1b. Inspect the equipment for pinch/crush points and discuss these with site staff. | 4 |
| ***On-Site Edits:*** | | | | |
| 2. Mobilize to trench/ excavation location | 2a. Struck-by, hit-by, caught-between | 15 | 2a. Review and implement the following"<br>• Ensure equipment delivery vehicle is secure from movement while unloading equipment by parking on a flat surface, putting the vehicle in park, setting the emergency break and chocking the wheels.<br>• Provide a secure ramp for offloading the equipment from the delivery vehicle.<br>• Only qualified operators will offload/operate the equipment.<br>• Be aware of other objects, vehicles and overhead lines in the area that could be contacted when moving the equipment around the site.<br>• Always use a spotter (trained in the AECOM spotting procedures) when offloading and moving equipment around the site. | 3 |

# Task Hazard Analysis

AECOM Imagine it. Delivered.

| Task Name: | Excavation/Trenching | Control #: | Error! Reference source not found. |
|---|---|---|---|

| REMINDER: Use 4-Sight at the start of, and continuously throughout the job/task to identify additional and/or hazards to act on! | | | | |
|---|---|---|---|---|
| **Job Steps**<br>*List all steps required to perform a task in the sequence they are performed* | **Potential Hazards**<br>*How could you be hurt? What would the injury be?* | **Risk**<br>*(initial)* | **Critical Actions To Mitigate Hazards**<br>*List control measures required to eliminate, control or protect against the potential hazards associated with each job step to minimize the risk of injury or environmental impact.* ***Identify any 'Stop Work' triggers.*** | **Risk**<br>*(final)* |
| | 2b. Slips, trips, falls | 8 | • Wear PPE that includes leather work gloves, safety glasses, high-visibility vest, hearing protection and a hardhat.<br>2b. Scan the ground ahead, remove all obstacles. Choose the safest path of travel, wear steel toe boots with good traction | 4 |
| ***On-Site Edits:*** | | | | |
| 3. Inspect all equipment/machinery prior to use. | 3a. Equipment/machinery malfunctioning<br>3b. Pinch/caught between | **15**<br>8 | 3a. Complete equipment inspection checklist, if any deficiencies are found, they must be repaired prior to use or the machine must be taken out of service. Test emergency shutdown devices and guards to assure proper functions.<br>• Follow safe operating procedures in the manufacturer's operating manual. Note and avoid all pinch/crush points and avoid.<br>• Equipment must be shut down with all energy released.<br>• Wear PPE that includes leather work gloves, safety glasses, high-visibility vest, hearing protection and a hardhat. | 3<br>4 |
| ***On-Site Edits:*** | | | | |
| 4. Utility locates and hand clearing. | 4a. Contact with a live utility line | **15** | 4a. Review and complete all of the following:<br>• Underground utilities shall be located and marked (Call before you dig, One-call, Miss Utility, etc.). If markings are old/faded, must have utility locator come out and remark.<br>• Review drawings and other historic documentation to help identify underground utilities.<br>• Inspect area for discolored/disturbed soil and other visual signs of the presence of underground utilities.<br>• Hand/soft dig within 5 feet of the utility markings. Do NOT dig forcefully or jab digging tools into the ground as they could damage the utility.<br>• Prior to digging, complete the Underground Utilities & Subsurface Installation Clearance Checklist (S3AM-331-FM1). | 3 |

# Task Hazard Analysis

AECOM Imagine it. Delivered.

| Task Name: | Excavation/Trenching | Control #: | Error! Reference source not found. |
|---|---|---|---|

**REMINDER: Use 4-Sight at the start of, and continuously throughout the job/task to identify additional and/or hazards to act on!**

| Job Steps<br>*List all steps required to perform a task in the sequence they are performed* | Potential Hazards<br>*How could you be hurt? What would the injury be?* | Risk<br>*(initial)* | Critical Actions To Mitigate Hazards<br>*List control measures required to eliminate, control or protect against the potential hazards associated with each job step to minimize the risk of injury or environmental impact.* ***Identify any 'Stop Work' triggers.*** | Risk<br>*(final)* |
|---|---|---|---|---|
| | 4b. Struck-by, hit-by | 6 | 4b. Maintain a minimum 5' distance from anyone using hand tools to preclear. Wear at a minimum: hard hat, safety toed work boots with ankle support, safety glasses, ANSI Class II high visibility vest and leather work gloves. | 2 |
| ***On-Site Edits:*** | | | | |
| 5. Soil excavation | 5a. Contact, caught-between, struck-by, hit-by equipment | **15** | 5a. To avoid contact with equipment:<br>• Only operators experienced/qualified in excavation/trenching activities will operate equipment.<br>• Exclusion zones will be erected to keep unauthorized personnel out of danger from moving parts and equipment. The exclusion zone will be set back a minimum of 20 feet from the swing radius of the excavator/backhoe.<br>• Personnel will make eye-contact with the operator prior to walking through the exclusion zone. Wear at a minimum: hard hat, safety toed work boots with ankle support, safety glasses, ANSI Class II high visibility vest and leather work gloves. | 4 |
| | 5b. Trench cave-in, collapse | **15** | 5b. Competent person will inspect excavations/trenches for defects/signs of cave-in potential daily and as conditions change and document these inspections. For excavations 6 feet or greater in depth, personnel must stay a minimum of 6 feet from the edge of the trench/excavation or be protected from falling into the trench/excavation by a personal fall arrest system. | 4 |
| | 5c. Potential for hazardous/flammable atmosphere | **10** | 5c. If there is the potential for a flammable/hazardous atmosphere, excavations/trenches will be monitored using a 4-Gas meter. | 4 |
| ***On-Site Edits:*** | | | | |

# Task Hazard Analysis

AECOM Imagine it. Delivered.

| Task Name: | Excavation/Trenching | Control #: | Error! Reference source not found. |
|---|---|---|---|

| REMINDER: Use 4-Sight at the start of, and continuously throughout the job/task to identify additional and/or hazards to act on! | | | | |
|---|---|---|---|---|
| **Job Steps** *List all steps required to perform a task in the sequence they are performed* | **Potential Hazards** *How could you be hurt? What would the injury be?* | **Risk** *(initial)* | **Critical Actions To Mitigate Hazards** *List control measures required to eliminate, control or protect against the potential hazards associated with each job step to minimize the risk of injury or environmental impact.* ***Identify any 'Stop Work' triggers.*** | **Risk** *(final)* |
| 6. | 6a. | | 6a. | |
| ***On-Site Edits:*** | | | | |
| 7. | 7a. | | 7a. | |
| ***On-Site Edits:*** | | | | |

## Additional Notes:

# Task Hazard Analysis

AECOM Imagine it. Delivered.

| Task Name: | Excavation/Trenching | Control #: | Error! Reference source not found. |
|---|---|---|---|

## All Employees:

**STOP WORK** if uncertain about safety or if a hazard or additional precaution is not recorded on the THA.

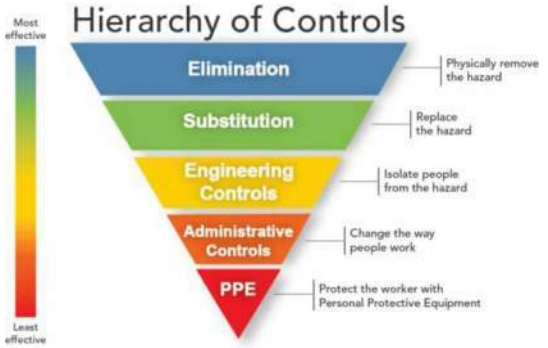
Be alert, recognize and communicate any changes in scope, personnel or conditions at the worksite to the supervisor.

Use **4-Sight**, AECOM's last minute risk assessment process continuously throughout the day by asking yourself and your co-workers to assess your task, hazards, and mitigations. Amend the THA when needed.

- ***What am I about to do?***
- ***What can go wrong?***
- ***What can be done to make it safer?***
- ***What have I done to communicate the hazards?***

**For a more thorough identification of hazards, ask "What else could go wrong?" using the Hazard Categories**




- ***Most hazards need more than one control***
- ***What should you do? Stack your controls***
- ***PPE can NEVER be your only means of protection***

| Worker Sign On | |
|---|---|
| *I participated in the on-site review and fully understand the content of this Task Hazard Assessment.* | |
| **Printed Name** | **Signature** |
| **1. Supervisor:** | |
| **2.** | |
| **3.** | |
| **4.** | |
| **5.** | |
| **6.** | |
| **7.** | |
| **8.** | |
| **9.** | |
| **10.** | |

| Visitor Acknowledgement |
|---|
| *Visitors review task hazards and acknowledge understanding* |
| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |
| 8. |
| 9. |
| 10. |

**Submit a new THA for addition to the DCSA THA Library or send THA improvement suggestions to DCSA.THA.Library@AECOM.com**

# Task Hazard Analysis

| Task Name: | Excavation/Trenching | Control #: | Error! Reference source not found. |
|---|---|---|---|

**Include a copy of the new THA or a photo of the THA modifications as appropriate.**

# Attachment B

## Applicable AECOM SHE Procedures

# Attachment B: Applicable AECOM SHE Procedures

| | Hazard/ Activity (Note: Text in this column links to procedure) | Applicable Procedure | | Hazard / Activity (Note: Text in this column links to procedure) | Applicable Procedure |
|---|---|---|---|---|---|
| ☐ | Abrasive Blasting | S3AM-335-PR1 | ☐ | Highway and Road Work | S3AM-306-PR1 |
| ☐ | Aerial Work Platforms | S3AM-323-PR1 | ☐ | Hoists Elevators and Conveyors | S3AM-343-PR1 |
| ☐ | All-Terrain Vehicles | S3AM-319-PR1 | ☐ | Hot Work | S3AM-332-PR1 |
| ☐ | Blasting and Explosives | S3AM-336-PR1 | ☐ | Ladders | S3AM-312-PR1 |
| ☐ | Bloodborne Pathogens | S3AM-111-PR1 | ☐ | Lockout Tagout | S3AM-325-PR1 |
| ☐ | Cofferdams | S3AM-344-PR1 | ☐ | Machine Guarding Safe Work Practice | S3AM-326-PR1 |
| ☐ | Cold Stress | S3AM-112-PR1 | ☐ | Marine Safety and Vessel Operations | S3AM-333-PR1 |
| ☐ | Compressed Air Systems & Testing | S3AM-337-PR1 | ☐ | Material Storage | S3AM-316-PR1 |
| ☒ | Compressed Gases | S3AM-114-PR1 | ☐ | Mine Site Activities | S3AM-341-PR1 |
| ☒ | Concrete Work | S3AM-338-PR1 | ☐ | Mining Operations | S3AM-345-PR1 |
| ☐ | Confined Spaces | S3AM-301-PR1 | ☒ | Non Ionizing Radiation | S3AM-121-PR1 |
| ☐ | Corrosive Reactive Materials | S3AM-125-PR1 | ☒ | Overhead Lines | S3AM-322-PR1 |
| ☐ | Cranes and Lifting Devices | S3AM-310-PR1 | ☐ | Powder-Actuated Tools | S3AM-327-PR1 |
| ☐ | Demolition | S3AM-339-PR1 | ☐ | Powered Industrial Trucks | S3AM-324-PR1 |
| ☐ | Diving (scientific and commercial) | S3AM-334-PR1 | ☐ | Radiation | S3AM-120-PR1 |
| ☒ | Drilling, Boring & Direct Push Probing | S3AM-321-PR1 | ☐ | Railroad Safety | S3AM-329-PR1 |
| ☐ | Electrical Safety | S3AM-302-PR1 | ☒ | Respiratory Protection | S3AM-123-PR1 |
| ☒ | Excavation | S3AM-303-PR1 | ☐ | Scaffolding | S3AM-311-PR1 |
| ☐ | Fall Protection | S3AM-304-PR1 | ☐ | Steel Erection | S3AM-340-PR1 |
| ☐ | Flammable and Combustible Liquids | S3AM-126-PR1 | ☐ | Temp. Floors, Stairs, Railings, Toe-boards | S3AM-342-PR1 |
| ☐ | Gauge Source Radiation | S3AM-122-PR1 | ☒ | Underground Utilities | S3AM-331-PR1 |
| ☒ | Hand and Power Tools | S3AM-305-PR1 | ☐ | Underground Work | S3AM-330-PR1 |
| ☐ | Hazardous Waste Operations | S3AM-117-PR1 | ☒ | Wildlife, Plants and Insects | S3AM-313-PR1 |
| ☐ | Heat Stress | S3AM-113-PR1 | ☒ | Working Alone | S3AM-314-PR1 |
| ☒ | Heavy Equipment | S3AM-309-PR1 | ☐ | Working On and Near Water | S3AM-315-PR1 |
| ☐ | High Altitude | S3AM-124-PR1 | | | |

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**Americas**

# Compressed Gases

**S3AM-114-PR1**

## 1.0 Purpose and Scope

1.1 This procedure provides the requirements for using, handling, storing, transporting, disposition and/or decommissioning compressed gas cylinders.

1.2 This procedure applies to all AECOM Americas based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

## 2.0 Terms and Definitions

2.1 **Compressed Air (Non-Breathable)** – Air that is at a pressure greater than that of the atmosphere. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment. Utilized for tools, equipment, and mechanical machinery and cleaning purposes as described in this procedure.

2.2 **Compressed Gas** – Any material or mixture in a pressure vessel having:

- An absolute pressure exceeding 40 pounds per square inch (PSI) at 70°F (25 pounds per square inch gauge); or
- An absolute pressure exceeding 104 Psia at 130°F, regardless of the pressure at 70°F.

2.3 **Cylinder –** Pressure vessel designed for pressures higher than 40 Psia and having a circular cross section.

2.4 **Decommission** – The removal of a compressed gas cylinder from service by rendering it permanently unusable.

2.5 **Disposition** – Recycling, treatment, or disposal of a compressed gas cylinder and/or its contents.

2.6 **Pneumatics –** The use of pressurized air to affect mechanical motion for machinery, equipment and tools.

2.7 **Psi** – Pounds per square inch.

2.8 **Psia –** Pounds per square inch absolute (i.e., pressure in a container that would appear on an ordinary gauge plus the local atmospheric pressure [14.696 psi at sea level]), psig- pounds per square inch gauge.

2.9 **Psig** – Pounds per square inch gauge. The pressure in a vessel or container as registered on a gauge attached to the container. This reading does not include the pressure of the atmosphere outside the container.

2.10 **Pressure Relief Valve** – A device installed on most cylinders to prevent the rupture of a normally pressurized cylinder when it is inadvertently exposed to fire or high temperatures.

## 3.0 References

3.1 S3AM-003-PR1 SH&E Training

3.2 S3AM-116-PR1 Hazardous Materials Shipping

3.3 S3AM-127-PR1 Exposure Monitoring

3.4 S3AM-208-PR1 Personal Protective Equipment

3.5 S3AM-209-PR1 Risk Assessment & Management

3.6 S3AM-332-PR1 Hot Work

# 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Manager**

- Ensuring the safety of employees on their project sites.
- Implement these procedures during all activities involving compressed gases.
- Seek consultation with the SH&E Manager when unknown compressed gas cylinders are encountered.
- Confirm employees have received the appropriate training as it relates to compressed gases/compressed gas cylinders.
- Confirm a hazard assessment/evaluation of the activities involving compressed gases has been completed.
- Contact the SH&E Manager prior to any compressed gas cylinder operation.
- Immediately report any leaking/suspected leaking compressed gas cylinder(s) to the SH&E Manager and implement the appropriate emergency action(s).
- Immediately report the discovery of any unknown compressed gas cylinder(s) to the SH&E Manager and cordon off the area in all directions a minimum of 50 feet (15.24 meters).
- Confirm that all compressed gas cylinders are properly inspected, stored, and, secured.
- Confirm that all compressed gas cylinders are handled in a safe manner, protecting both the person and cylinder.
- Confirm that all compressed gas cylinder manifolds and connections are properly made and inspected.
- Confirm an appropriate emergency response plan is established prior to the start of any compressed gas cylinder operation.

4.1.2 **SH&E Manager**

- Review and authorize all compressed gas cylinder operations.
- Conduct/support compressed gas hazard assessments/evaluations.
- Provide awareness training to project teams regarding hazards of encountered compressed gases.
- Support the identification/disposition of unknown compressed gas cylinders.
- Support the development of a site-specific cylinder plan.

4.1.3 **Employee**

- Immediately report any leaking/suspected leaking compressed gas cylinder(s) to a Manager.
- Immediately report the discovery of any unknown compressed gas cylinders to Project Manager.
- Properly handle all compressed gas cylinders.
- Shall be supervised by employees experienced in the operation of compressed gas tools and equipment.

4.2 Training

4.2.1 On-site orientation to the hazards of the equipment and the proper use, handling, and storage shall be completed for all employees handling or coming into contact with compressed air tools and equipment or compressed gas cylinders. Refer to *S3AM-003-PR1 SH&E Training* and *S3AM-114-ATT1 Compressor Safety*.

4.2.2 Employees shall be instructed on the PPE requirements for the applicable tasks. Refer to *S3AM-208-PR1 Personal Protective Equipment*.

4.3 General Use of Compressed Air or Gas

4.3.1 Compressed air or other compressed gases are not to be used to blow dirt, chips, or dust from clothing while it is being worn. Compressed air used for other types of cleaning (other than clothing/persons) is to be limited to 30 psig.

4.3.2 The use of blown compressed air is to be controlled, and proper personal protective equipment or safeguards utilized, to protect against the possibility of eye injury to the operator or other persons.

4.3.3 Compressed air or gases are not to be used to empty containers of liquids.

4.3.4 Compressed gases are not to be used to elevate or otherwise transfer any hazardous substance from one container to another unless the containers are designed to withstand the operating gas pressure with a safety factor of at least four.

4.3.5 Compressed cylinders of unknown content will not be opened, but will be returned to the supplier, manufacturer or equivalent.

4.4 Air Compressor Operations

4.4.1 Air compressor equipment should be operated only by authorized and trained employees.

4.4.2 The air intake should be from a clean, outside, fresh air source. Screens or filters can be used to clean the air.

4.4.3 Air compressors should never be operated at speeds faster than the manufacturer's recommendation.

4.4.4 Equipment should not become overheated.

4.4.5 Moving parts, such as compressor flywheels, pulleys, and belts that could be hazardous should be effectively guarded.

4.4.6 Keep the air supplied tools clean and dry. Dust, moisture, and corrosive fumes can damage tools.

4.4.7 Keep tools clean, lubricated, and maintained according to manufacturer's instructions.

4.4.8 Only use attachments and accessories recommended by the manufacturer.

4.4.9 Review the manufacturer's instruction before using a tool.

4.4.10 Post warning signs where pneumatic tools are used.

4.4.11 Set up screens or shields in areas where nearby workers may be exposed to flying fragments, chips, dust, and excessive noise.

4.4.12 Be aware of proper handling and ergonomics while using the tool.

4.4.13 Reduce physical fatigue by supporting heavy tools with a counter-balance wherever possible.

4.4.14 Refer to *S3AM-114-ATT1 Compressor Safety* for additional information.

4.5 Air Hoses

4.5.1 Use the proper hose and fittings of the correct diameter.

4.5.2 Use hoses specifically designed to resist abrasion, cutting, crushing and failure from continuous flexing.

4.5.3 Choose air-supply hoses that have a minimum working pressure rating of 1035 kPa (150 psig) or 150% of the maximum pressure produced in the system, whichever is higher.

4.5.4 Check hoses regularly for cuts, bulges and abrasions. Tag and replace, if defective.

4.5.5 Blow out the air line before connecting a tool. Hold hose firmly and blow away from yourself and others.

4.5.6 Make sure that hose connections fit properly and are equipped with a mechanical means of securing the connection (e.g., chain, wire, or positive locking device).

4.5.7 Install quick disconnects of a pressure-release type rather than a disengagement type. Attach the male end of the connector to the tool, NOT the hose.

4.5.8 Do not operate the tool at a pressure above the manufacturer's rating.

4.5.9 Turn off the air pressure to hose when not in use or when changing power tools.

4.5.10 Do not carry a pneumatic tool by its hose.

4.5.11 Do not use compressed air to blow debris or to clean dirt from clothes.

4.5.12 All pipes, hoses, and fittings shall have a rating of the maximum pressure of the compressor. Compressed air pipelines should be identified (psi) as to maximum working pressure.

4.5.13 Air supply shutoff valves should be located (as near as possible) at the point-of-operation.

4.5.14 Air hoses should be kept free of grease and oil to reduce the possibility of deterioration.

4.5.15 Avoid trip hazards. Hoses should not be strung across floors or aisles where they are liable to cause employees to trip and fall. When possible, air supply hoses should be suspended overhead, or otherwise located to afford efficient access and protection against damage.

4.5.16 Hose ends shall be secured to prevent whipping if an accidental cut or break occurs.

4.5.17 Pneumatic impact tools, such as riveting guns, should never be pointed at a person.

4.5.18 Before a pneumatic tool is disconnected (unless it has quick disconnect plugs), the air supply shall be turned off at the control valve and the tool bled.

4.5.19 Shop air used for cleaning should be regulated to15 psi unless equipped with diffuser nozzles to provide lesser pressure.

4.5.20 Goggles, face shields or other eye protection shall be worn by employees using compressed air for cleaning equipment.

4.5.21 Static electricity can be generated through the use of pneumatic tools. This type of equipment shall be grounded or bonded if it is used where fuel, flammable vapors or explosive atmospheres are present.

4.5.22 The following are hazards associated with the use of compressed air tools and equipment:

- Poorly designed tool (wrist strain);
- Vibration (vibration-induced white finger);
- Noise (hearing loss); and
- Dust (respiratory problems).

4.5.23 The following hazards have the potential to cause serious bodily injury when working with compressed air:

- Incorrect tool selection;
- Use of damaged tool;
- Improper, inadequate, or no guards;
- Rotating shaft (entanglement);
- Wheel breakage (grinder);
- Flying chips;
- Whipping of the hose;
- Accidental start up;

- Air embolism (compressed air injected into the body);
- Dropped tool; and
- Tripping over hose.

4.6 Compressed Air Equipment Maintenance

4.6.1 Only authorized and trained employees should service and maintain air compressor equipment.

4.6.2 Exposed, non-current-carrying, metal parts of compressor should be effectively grounded.

4.6.3 Low Flash Point lubricants should not be used on compressors because of its high operating temperatures that could cause a fire or explosion.

4.6.4 Equipment should not be over lubricated.

4.6.5 Gasoline or diesel fuel powered compressors shall not be used indoors.

4.6.6 Equipment placed outside but near buildings should have the exhausts directed away from doors, windows and fresh air intakes.

4.6.7 Soapy water of lye solutions can be used to clean compressor parts of carbon deposits, but kerosene or other flammable substances should not be used. Frequent cleaning is necessary to keep compressors in good working condition.

4.6.8 The air systems should be completely purged after each cleaning.

4.6.9 During maintenance work, the switches of electrically operated compressors should be locked open and tagged to prevent accidental starting.

4.6.10 Portable electric compressors should be disconnected from the power supply before performing maintenance.

4.7 Compressed Gas Cylinder Requirements

4.7.1 Cylinders are not to be used unless they bear Department of Transportation (DOT) or Transportation of Dangerous Goods (TDG) markings showing that they have been tested as required by DOT or TDG regulations.

4.7.2 Cylinders shall never be dropped, struck, or permitted to strike each other violently. Cylinders may be moved by tilting and rolling them on their bottom edges.

4.7.3 Valve protection caps shall always be kept on cylinders when they are being moved or stored, and until ready for use. Caution should be exercised as insects such as spiders, wasps, and bees may be encountered in cylinder caps.

4.7.4 Do not lift cylinders by the valve protection cap.

4.7.5 Cylinder valves are to be kept closed except when gas is being used or when connected to a permanent manifold. Valves of empty cylinders shall be closed.

4.7.6 Cylinders shall never be used as rollers or supports, or for any purpose other than carrying gas.

4.7.7 Valves and regulators shall be inspected for foreign materials such as oil or dirt and deficiencies such as damaged threads or broken gauges. Deficient valves or regulators shall be removed from service and replaced.

4.7.8 Threads on regulator connections or other auxiliary equipment shall be the same as those on the cylinder valve outlet.

4.7.9 Regulators shall be specific to the gas being used and no adapters may be used to connect regulators to cylinders.

4.7.10 When withdrawing cylinder content, open the cylinder valve slowly using the appropriate tool (e.g., manufacturer supplied, non-sparking, etc.). Point the valve opening away from yourself and other persons.

4.7.11 Before a regulator is removed from a cylinder, close the cylinder valve and release all pressure from the regulator. This procedure also serves as a check to confirm that the main cylinder valve is completely closed.

4.7.12 Never hammer the valve wheel in attempting to open or close the valve.

4.7.13 No person, except the owner of the cylinder or person authorized by the owner, shall refill a cylinder (Exceptions to this includes the filling of self-contained breathing apparatus cylinders with Grade D breathing air, or the filling of the [Foxboro] Organic Vapor Analyzer (OVA) hydrogen cylinders). Disposable cylinders shall not be refilled with any material after use of the original contents.

4.7.14 Cylinders of compressed gas shall be stored in areas where they are protected from external heat sources such as flame impingement, intense radiant heat, electric arc, or high-temperature steam lines.

4.7.15 Cylinders are to be stored in an assigned, well-ventilated area, with full and empty cylinders stored separately. Empty cylinders shall be marked ‘empty’.

4.7.16 Stored fuel gases and oxygen cylinders are to be separated by at least 20 feet, or by a fire wall at least 5 feet high that has a fire-resistance rating of at least ½ hour.

4.7.17 Compressed gas cylinders shall only be stored or transported in an upright or vertical position. Horizontal storage or transportation of cylinders shall be conducted only as permitted by the applicable jurisdiction and in accordance with regulatory requirements (e.g., secured by chocks or ties to prevent rolling, foot plate, etc.).

4.7.18 Cylinders are to be secured to a fixed object by chain or equivalent fastening device whenever they are placed in an upright position. The protective cap is not to be removed or the cylinder valve opened until the cylinder is secured.

4.7.19 Repair of leaks shall never be attempted on a pressurized system. System pressure should be reduced to atmospheric pressure as rapidly as possible, and the Manager notified immediately.

4.7.20 Compressed gas cylinders shall be legibly marked for the purpose of identifying the gas content with either the chemical or the trade name of the gas. Such marking is to be done by means of stenciling, stamping or labelling, and shall not be readily removable. Whenever practical, the marking is to be located on the shoulder of the cylinder. Positive identification of the gas in any cylinder is required before connecting cylinders for use.

4.7.21 Gas cylinders moved by hoist shall be handled in suitable cradles or job-made “skip” (materials) boxes. Any slings used for this purpose shall be specifically designed for that cylinder handling.

4.7.22 Cylinders shall not be placed where they might form part of an electrical circuit.

4.7.23 Transfer of compressed gases (including acetylene) from one cylinder to another, or mixing of gases in a cylinder, is prohibited.

4.7.24 Oxygen cylinders are never to be stored near:

- Highly combustible materials, especially oil and grease;
- Reserve stocks of acetylene or other fuel gas cylinders; and
- Any other substance likely to cause or accelerate fire.

4.7.25 Compressed oxygen is never to be used:

- As breathing air;
- To purge pipelines, tanks, or any confined area;
- To supply a head-pressure tank;
- In pneumatic tools;

- In oil preheating burners;
- To start internal combustion engines;
- For ventilation;
- For cleaning clothing; and
- In any other way as a substitute for compressed air.

4.7.26 Use of a cylinder's contents for purposes other than those intended by the supplier is prohibited.

4.7.27 Cylinders of compressed natural gas or propane equipped with a pressure relief device shall always be positioned in a manner that this device remains above the liquid level (e.g., if stored or installed horizontally on a forklift, relief device is positioned at the top).

4.7.28 Storage of liquefied petroleum gas (LPG) within buildings is prohibited, and outdoor storage or LPG shall meet applicable building and fire codes.

4.8 Special Precautions for Compressed Gas Cylinders Containing Hydrogen

4.8.1 Inside buildings, cylinders of hydrogen should be separated from oxygen cylinders by a minimum distance of 20 feet (6.1 meters) or by a barrier of non-combustible material at least 5 feet (1.5 meters) high having a fire resistance rating of at least one half hour.

4.8.2 Conspicuous signs should be posted in hydrogen storage areas forbidding smoking, open flames or the use of lights or lighting not approved for use in flammable areas.

4.8.3 Hydrogen storage areas shall be labeled, "Hydrogen-Flammable Gas-No Smoking-No Open Flame" or equivalent.

4.9 Inspection of Compressed Gas Cylinders

4.9.1 Prior to formally accepting any delivered compressed gas cylinders, a visual inspection of each cylinder will be documented as specified below. In addition, all compressed gas cylinders stored at an AECOM facility will be inspected monthly.

- Visually inspect cylinders, refer to *S3AM-114-FM1 Compressed Gas Cylinder Inspection.*
- Verify that all the required markings are on the cylinders.
- If required, determine when the cylinder was last hydrostatically-tested.
- Inspect the safety relief devices, if required.
- If any defects are noted during the inspection, the cylinder should be refused on delivery and a new delivery requested (notify the Manager).

4.9.2 Where compressed gas cylinders are stored at an AECOM facility, a qualified person will be designated to confirm cylinder activities comply with the requirements in this procedure. Inspection entails the evaluation of the integrity of the cylinder as well as the serviceability of any attached manifold and valve fittings. Inspection activities of cylinders beyond visual inspection are recommended to be conducted in isolation or a remote location for worker and public safety. The inspection of any cylinder will be conducted by a qualified person, refer to *S3AM-114-FM1 Compressed Gas Cylinder Inspection*.

4.10 Cylinder Inspection Procedures

4.10.1 All cylinder inspection procedures will adhere to the applicable regulatory requirement. At a minimum, the inspection process will include the following procedures:

- Observe the cylinder from a safe distance to identify any visual markings or other information.
- Inspect the cylinder size, shape, and general condition (if visible, include the valve system/stem in the inspection process).

- If the cylinder or valve system appears to be in poor condition or has lost structural integrity, do not approach the cylinder. Observations indicating a cylinder is in poor condition may include:
  - Leaking,
  - Hissing sound,
  - Odor in vicinity of the cylinder,
  - Rusty components,
  - Bulging side wall or end, and/or
  - Corroded valve system.

4.10.2 If the cylinder is determined to be in poor condition, cordon the area off and limit access to necessary employees only.

4.10.3 Wear applicable PPE and approach the cylinder with the appropriate direct reading air monitoring instrument (do not approach from the ends of the cylinder), then determine the airborne contaminant concentrations in the immediate area.

4.10.4 Document cylinder information (e.g., visible markings, labels, placards, etc.).

4.10.5 Cylinders presenting potential deficiencies (e.g., dent, missing labels, valve protection cap cannot be removed by hand, corrosion, etc.) shall be tagged 'Do Not Use', removed from use, and returned to the supplier.

4.11 Ground Transport of Compressed Gas Cylinders

4.11.1 AECOM will transport (drive/haul) quantities of compressed gases which do not exceed Materials of Trade (MOT) quantities, whereas the transport of placardable quantities is prohibited without the proper DOT / TDG licenses/credentials and consultation with the SH&E Manager.

4.11.2 Compressed gas cylinders in portable service are to be conveyed by suitable trucks, to which they are securely fastened. All gas cylinders in service shall be securely held in substantial racks or secured to other rigid structures so that they will not fall or be knocked over.

4.12 Air/Common Carrier Transport

4.12.1 All shipping of compressed gases via air/common carrier including instrument gases, regardless of quantity, shall be conducted by a qualified and trained HazMat Shipper (Level 1-2 Shipper) or jurisdictional equivalent, and shall conducted under the oversight of a designated DOT/International Air Transport Association (IATA) shipping specialist, or jurisdictional equivalent. Refer to *S3AM-116-PR1 Hazardous Materials Shipping.*

4.12.2 No compressed gas cylinder, regardless of contents or quantity, will be shipped via an external carrier vendor (i.e., UPS, FedEx, etc.) without the authorization of:

- SH&E Manager, and
- DOT/IATA shipping specialist.

4.13 Cylinder Color Coding Determination

4.13.1 The color coding of compressed gas cylinders is established by the Compressed Gas Association, which has assigned specific colors to categories or classes of chemicals/substances. It is important to note there is currently not requirement to adhere to this color coding scheme.

4.13.2 While recently manufactured cylinders reflect the color coding guidance established by the CGA, older cylinders may not reflect this nomenclature. It is also possible for cylinders to have been repainted a different color from their original.

4.13.3 Cylinder contents should never be determined by the color of the cylinder alone. Colors are not uniform throughout the compressed gas industry.

4.13.4 Cylinder contents shall be identified by a decal, label, tag, or stenciling. If an identifying label is lacking or not legible, return the container to the supplier, unused.

4.14 Air Monitoring Requirements

4.14.1 Air monitoring requirements are dependent upon the specific substances contained within the cylinders and will be specified within the site-specific safety plan prepared prior to commencement of field activities. Air monitoring parameters, refer to *S3AM-127-PR1 Exposure Monitoring*, may include, but are not limited to:

- Explosivity (i.e., lower explosive limit [LEL]), and
- Chemical-specific substance (e.g., chlorine, ammonia, arsine, etc.).

4.14.2 Action levels will be identified in the site-specific safety plan.

4.15 Cylinder Staging

4.15.1 Staging involves the organization, and sometimes consolidation, of cylinders that have similar contents or characteristics.

4.15.2 The staging of cylinders will occur in a remote location at the site in order to minimize the potential injury or property damage from an accidental release or emergency decompression (if the integrity of the cylinder is in question, it should not be moved).

4.15.3 Safe distances will be based on the evacuation distances provided in DOT's Emergency Response Guidebook (most current edition).

4.15.4 When multiple cylinders containing different substances are present, the distance should be based on the greatest evacuation distance required by the substances present.

4.16 Cylinder Disposition & Decommissioning Activities

4.16.1 Disposition refers to the recycling, treatment, or disposal of a compressed gas cylinder and/or its contents.

4.16.2 Recovery and recycling of materials are preferred over any other method of disposition. Cylinder disposition activities shall be approved by the SH&E Manager.

4.16.3 An effort should be made to recover and recycle the contents of a cylinder; however, if recovering or recycling the contents is not possible, then other options include:

- Venting to the Atmosphere,
- Flaring,
- Neutralization, and
- Detonation.

4.16.4 Under no circumstances will poisonous, toxic, or ozone-depleting substances be vented to the atmosphere. Only cylinders containing flammable gases should be detonated, as the flammable contents will be consumed in the subsequent explosion.

4.16.5 If the cylinder valve has been determined to be inoperable, then the available options for disposition are limited to having an outside vendor perform the remote opening and sampling of the cylinder, or detonation of the cylinder where the cylinder contents are consumed in the subsequent explosion (flammable gases only).

4.16.6 All cylinders shall be inventoried, staged, and inspected.

4.16.7 Prior to the commencement of cylinder disposition and decommissioning activities, local emergency response agencies (i.e., Fire Department, Medical, and Emergency Response, if separate) shall be confirmed and, as applicable, activities coordinated with the local agencies.

4.16.8 Air monitoring is mandatory during cylinder disposition and decommissioning operations.

4.16.9 An SH&E Manager shall be contacted during the planning stages of a cylinder disposition and decommissioning effort in order to determine whether a site-specific cylinder plan is required.

4.17 Venting to the Atmosphere

4.17.1 Cylinders that contain non-flammable, non-toxic materials can be vented to the atmosphere. All venting activities will be performed in accordance with the following procedures:

- Atmospheric venting will be accomplished at a remote location and in compliance with all applicable environmental air regulatory requirements.
- Atmospheric venting activities will be completed in a Level B Ensemble (unless otherwise specified in the site-specific safety plan and cylinder plan).
- Venting activities will be dependent upon a wind direction that does not carry the outgas plume in the direction of an adjacent public structure.
- The cylinder will be properly grounded to confirm a static charge is not generated, potentially resulting in ignition of a flammable gas.
- All tools used on the cylinder will be non-sparking.
- Low-pressure discharging will not exceed 15 pounds per square inch gauge (psig).
- Once discharging has started, all workers will retreat to the exclusion zone (minimum 100 feet) around the remote location until the discharging process is complete.

4.18 Flaring

4.18.1 Flaring activities involve the combustion of the cylinder contents through the discharge of a low-intensity flame. Flaring activities will be performed in accordance with the following procedures:

- Flaring will be accomplished at a remote location and in compliance with all applicable environmental air regulatory requirements.
- All personnel involved with flaring activities shall be appropriately trained and wear PPE appropriate to the hazards (e.g. Nomex fire-retardant forearm-length gloves, other fire-retardant clothing, self-contained breathing apparatus, etc.).
- Flaring activities will be dependent upon a wind direction that does not carry the combustion plume in the direction of any offsite structure or activity, or into uncontrolled (public access) areas.
- The cylinder will be properly grounded to confirm a static charge is not generated, potentially resulting in ignition of a flammable gas.
- All tools used on the cylinder will be non-sparking.
- Low-pressure discharging will not exceed 15 pounds per square inch gauge (psig).
- A hot work permit shall be completed prior to the start of flaring activities, refer to *S3AM-332-PR1 Hot Work*.
- No other cylinders will be within 50 feet (15.24 meters) of the cylinder being flared.
- Flaring activities will use a low-pressure discharge and maintain a small, low-intensity flame.
- A firewatch will be established, with a worker stationed outside the exclusion zone with a fire extinguisher (20A:100B:C) during flaring activities (i.e., fire watch). During the work the worker assigned to the firewatch will have no other duties.
- The flare will be positioned so that it is not pointing toward any flammable materials, persons, or equipment in the immediate area.

4.19 Neutralization

4.19.1 Neutralization refers to the on-site neutralization of the cylinder contents through a controlled chemical reaction process. Specialized equipment may be necessary based on the chemical involved, as well as reaction by-products, catalysts, or physical conditions (i.e., temperature, acidic, basic, etc.). Neutralization activities will be performed in accordance with the following procedures:

- Neutralization is the required disposition method for cylinders containing acid gases, as well as many alkaline gases.
- The neutralization process shall be approved by a professional engineer (e.g., chemical) or based on a published chemical-specific neutralization methodology.
- Liquid levels in the reaction vessels will be maintained at least 12 inches (30.5 centimeters) below the top of the vessel.
- Based on the specific chemical reaction, the temperature of the reaction vessel and its contents will be monitored continuously and controlled accordingly.
- Pressure levels will be maintained within acceptable limits to prevent the reaction from accelerating, unwanted by-product formation, or the break-through of the chemical intended to be neutralized.
- Employees involved in neutralization activities shall be appropriately trained and wear the PPE identified within the site-specific safety plan and cylinder plan.

4.20 Detonation

4.20.1 Detonation refers to the use of explosives to open and subsequently consume the contents of the cylinder by the heat generated during the explosion. Detonation activities will be performed in accordance with the following procedures:

- All personnel involved with detonation activities shall be appropriately trained and wear PPE appropriate to the hazards (e.g. Nomex fire-retardant forearm-length gloves, other fire-retardant clothing, self-contained breathing apparatus, etc.).
- A detonation plan shall be submitted to and approved by the SH&E Manager prior to the commencement of cylinder detonation activities.
- The detonation of compressed gas cylinders will be completed under the guidance of experienced ordnance and explosives (OE) professional who is licensed in the use of explosives.
- A sufficient amount of explosives will be used to consume the entire contents of the cylinder (flammable gases only).
- A blast pit will be excavated where all detonations will take place.
- The OE professional will determine the blast hazard zone/potential debris impact zone, and this area will be evacuated prior to the detonation.
- The OE professional will sound a warning signal (e.g., horn or equivalent) three times to indicate that a detonation is imminent and confirm all persons have evacuated the blast hazard zone prior to detonation.
- Employees will be on standby outside the blast hazard zone with fire extinguishers (minimum rating of 20A:100B:C).

4.21 Cylinder Decommissioning Operations

4.21.1 Decommissioning refers to the removal of a compressed gas cylinder from service by rendering it permanently unusable.

4.21.2 Prior to decommissioning, cylinder contents will be verified, removed from the cylinder, and the cylinder purged with an inert gas (e.g., nitrogen, carbon dioxide, etc.).

4.21.3 All identifying marks or decals will be removed from the cylinder.

4.21.4 The SH&E Manager shall be contacted prior to the decommissioning of compressed gas cylinders that contain or previously contained:

- Ethylene oxide,
- Arsine,
- Diborane,
- Hydrogen selenide,
- Cyanogen chloride,
- Amines,
- Hydrogen sulfide,
- Acetylene, or
- Methyl mercaptan.

4.21.5 Additional safety precautions may be necessary due to highly reactive residues left behind by these substances.

4.21.6 The recommended methods of decommissioning include:

- Burning/torch-cutting an elongated hole into the side of the cylinder, refer to *S3AM-332-PR1 Hot Work;*
- Torch-cutting the cylinder in half; and
- Crushing the cylinder.

## 5.0 Records

5.1 None

## 6.0 Attachments

6.1 S3AM-114-ATT1 Compressor Safety

6.2 S3AM-114-FM1 Compressed Gas Cylinder Inspection

**Americas**

# Non-Ionizing Radiation

**S3AM-121-PR1**

## 1.0 Purpose and Scope

1.1 Provides the requirements and guidelines to control occupational and public exposure to non-ionizing radiation, including lasers and radiofrequency (RF), infrared (IR), and ultraviolet (UV) radiation.

1.2 This procedure applies to all AECOM Americas employees and operations, and any other entity and its personnel contractually required to comply with this document's content, except where local or governmental regulations are more stringent.

## 2.0 Terms and Definitions

2.1 **Controlled Environment** – An area where the occupancy and activity of those within is subject to control and supervision for the purpose of protection from radiation hazards.

2.2 **Hazard Distance** – Distance from a radiofrequency emitter at which the power density equals the Uncontrolled Environment Maximum Permissible Exposure Limit power density level as established by the latest edition of the ANSI C95.1.

2.3 **ANSI Z136.1 Safe Use of Lasers**– American National standard issued applicable to the safe use of lasers and laser systems emitting laser radiation in the wavelength range 180 nanometres to 1 millimetre. The standard defines the classification of lasers (Class 1, 1M, 2, 2M, 3R, 3B and 4) based on Accessible Emission Limit (AEL) and viewing conditions.

2.4 **Infrared (IR)** – Electromagnetic radiation having a wavelength just greater than that of the red end of the visible light spectrum but less than that of microwaves. Infrared radiation has a wavelength from about 800 nm to 1 mm, and is emitted particularly by heated objects

2.5 **Laser –** An acronym for Light Amplification by Stimulated Emission of Radiation.

2.6 **Maximum Permissible Exposure (MPE) Limits** – The level of exposure which is considered as the limit between safe and potentially harmful.

2.7 **Non-ionizing Radiation** – Any type of electromagnetic radiation that does not carry enough energy to ionize atoms or molecules. Examples include radiofrequency radiation, microwave radiation, ultraviolet radiation, visible light, infrared radiation, lasers, static electric and magnetic fields, etc.

2.8 **Radio frequency (RF)** – Any of the electromagnetic wave frequencies that lie in the range extending from around 3 kHz to 300 GHz, and includes frequencies used for communication signals (e.g. radio, cell-phone, etc.) or radar signals.

2.9 **Ultraviolet (UV)** – Electromagnetic radiation having wavelengths between that of ordinary, visible violet light that of x-rays. Ultraviolet radiation is made up of three types of rays; A (UVA), B (UVB), and C (UVC). UV radiation is present in sunlight, and also produced by electric arcs and specialized lights (e.g. mercury-vapor lamps, black lights).

2.10 **Uncontrolled Environment** – Locations where there is the exposure of individuals who have no knowledge or control of their exposure.

## 3.0 References

3.1 S3AM-003-PR1 SH&E Training

3.2 S3AM-120-PR1 Radiation

3.3 S3AM-128-PR1 Medical Screening & Surveillance

3.4 S3AM-208-PR1 Personal Protective Equipment

3.5 S3AM-209-PR1 Risk Assessment & Management

3.6 S3AM-325-PR1 Lockout Tagout

3.7 S3AM-332-PR1 Hot Work

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Corporate SH&E Management System & Prequalification Manager**

The SH&E Department will maintain this procedure and include it in the annual review of the AECOM Americas SH&E procedures.

4.1.2 **SH&E Manager (or designee)**

The SH&E Manager will provide technical guidance to projects that involve the use/survey of non-ionizing sources as well as identifying the proper controls to mitigate employee exposure to non-ionizing radiation sources, including UV radiation. In addition, SH&E Managers will:

- Review and approve all exposure plans, such as Non-Ionizing Radiation Protection Plans (NIRPP);
- Conduct non-ionizing radiation hazard assessments;
- Confirm applicable awareness training on non-ionizing radiation hazards is available to project teams. Refer to *S3AM-003-PR1 SH&E Training*;
- Authorize the use of a Class 3B and 4 lasers.

4.1.3 **Manager**

Managers are responsible for the overall safety and planning for a project. Managers are also responsible for:

- Verifying that the presence of non-ionizing radiation sources at project work sites are identified in the applicable SH&E Plan and Task Hazard Assessment (THA) prior to commencing field activities;
- Addressing and controlling potential non-ionizing radiation hazards through consultation with the SH&E Manager, subject matter experts (as appropriate), and/or development of a NIRPP;
- Verifying incident and injury reporting procedures are followed when a suspected overexposure to non-ionizing radiation, an incident of sunburn, or other excessive non-ionizing radiation exposure occurs in the workplace;
- Monitoring employee compliance with the requirements of this policy;
- Confirming employees complete non-ionizing radiation awareness training as directed by the SH&E Manager.

4.1.4 **Employee**

- Will not disturb or handle any non-ionizing radiation sources or work in any identified non-ionizing radiation hazard area (e.g.., Controlled Environment) without appropriate training and safety procedures;
- Will work in accordance with all established manufacturer, client, and NIRPP requirements;
- Will identify both known and suspected non-ionizing radiation sources on the THA and report any change in site conditions related to non-ionizing radiation sources to the Manager;
- Will immediately notify the Manager of the presence or suspected presence of previously unidentified non-ionizing radiation sources in the workplace, and cease all work activities involving potential exposure to non-ionizing radiation until further direction is received;
- Will use suitable personal protective equipment to the non-ionizing radiation hazards.

4.2 Hazard Assessment

4.2.1 AECOM will identify and assess the hazards associated with work where the potential exists for employees to be exposed to laser radiation or other non-ionizing radiation sources, develop appropriate elimination and control measures, and document this in the location or project specific SH&E Plan.

- If routine exposures to laser radiation or other non-ionizing radiation sources are expected, an appropriate plan, such as a Non-Ionizing Radiation Protection Plan (NIRPP) should be developed. The plan (e.g. NIRPP) may be included in the location or project specific SH&E Plan;
- Consultation with subject matter experts may be necessary depending upon the extent, number, and type of non-ionizing radiation (e.g., Laser Safety Officer);
- Task specific hazards and associated controls shall also be identified in the respective THA;
- Refer to *S3AM-209-PR1 Risk Assessment & Management*.

4.2.2 In addition to the SH&E Plan, appropriate personal protective equipment will be identified and documented in the THA or other relevant hazard assessment documentation.

4.2.3 AECOM will develop and implement an appropriate NIRPP to control identified hazards where the potential to exceed the applicable Maximum Permissible Exposure (MPE) limits exist.

4.3 Laser Protection Requirements

4.3.1 Only qualified and trained employees will be assigned to install, adjust, and operate laser equipment for surveys, alignment/grade-checks, tunnel work, etc.

4.3.2 Laser equipment will bear a label to indicate maximum power output, ANSI class, and beam spread.

4.3.3 Looking into the primary beam is prohibited, and care will be taken to avoid looking at specular reflections of the beam, including those from lens surface work.

4.3.4 Where direct or reflected laser light greater than 0.005 watts (5 milliwatts) for ≥ ¼ second exists, employees will be provided with laser safety goggles that will protect them for the specific wavelength of the laser and be of an optical density (OD) adequate for the energy involved. The laser safety goggles will be selected in accordance with the requirements of ANSI Z136.1-2014 (or the most current edition).

4.3.5 Operation of an ANSI Class 3B or 4 laser should be assessed for exposure hazards and whether medical surveillance is appropriate. Refer to *S3AM-128-PR1 Medical Screening & Surveillance*.

4.3.6 Use of an ANSI Class 4 laser requires the approval of the SH&E Manager.

4.3.7 All protective goggles will bear a label identifying the following data:

- The laser wavelength for which use is intended;
- The optical density of that wavelength;
- The visible light transmission.

4.3.8 Class 1 Lasers

- Safe for the unprotected eye and through optical instruments (prescription lenses, telescopes, beam reducers, etc.);
- Very low power lasers or enclosed lasers;
- MPE is never exceeded, even for very long exposure (hours), or with the use of optical instruments;
- Nominal Hazard Zone: none.

4.3.9 Class 1M Lasers

- Safe for the unprotected eye only, but potentially hazardous when optical instruments are used;
- Medium power lasers either collimated with a large beam or highly divergent;
- MPE can be exceeded when using optical instruments;
- Nominal Hazard Zone: none for the unprotected eye.

4.3.10 Class 2 Lasers

- Safe for unintended exposure, (less than 0.25 seconds) but hazardous when looking at for more than 0.25 seconds;
- Visible (wavelength of 400–700 nanometers) low power lasers;
- MPE is not exceeded provided the viewings are accidental only. MPE calculation assumes the blink reflex will stop the light after 0.25 second;
- Nominal Hazard Zone: none for accidental exposure.

4.3.11 Class 2M Lasers

- Safe for the unprotected eye when the exposure is unintended, (less than 0.25 seconds) but hazardous when looking at for more than 0.25 seconds or when optical instruments are used;
- Visible (wavelength of 400–700 nanometers) medium power lasers either collimated with a large beam or highly divergent;
- MPE is not exceeded provided the viewings are accidental only and only with unprotected eyes. MPE calculation assumes the blink reflex will stop the light after 0.25 seconds. Using optical instruments might bring the exposure above the MPE as well;
- Nominal Hazard Zone: none for accidental exposure to the unprotected eye.

4.3.12 Class 2M Lasers and Greater

- Areas where a Class 2M or higher, non-enclosed path laser beam is in use will be posted with standard laser-warning placards;
- Beam shutters or caps will be used, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a period of time (e.g., >5 minutes), such as during the lunch hour, overnight, or at change of shifts, the laser will be turned off;
- Only mechanical or electronic means will be used as a detector for guiding the internal alignment of the laser. Aligning the laser with the unprotected eye is prohibited;
- The laser beam will not be directed at employees. Laser units will be set above or below the heads of employees;
- Employee exposure will be controlled to stay within the MPE limits specified in ANSI Z136.1-2014 (or the most current edition).

4.3.13 Class 3R Lasers

- Unsafe, except when handled carefully by experienced users. Accidental short exposure is considered as a small hazard;
- Low power lasers;
- MPE can be exceeded up to 5 times;
- Nominal Hazard Zone: hazard area for the eye, none for the skin.

4.3.14 Class 3B Lasers

- Unsafe without exception, laser safety goggles shall be worn within the nominal hazard zone. Focused lasers of this class are a potential fire hazard;

- Medium power lasers;
- MPE is exceeded more than 5 times. Skin MPE is not generally exceeded, except at focus;
- Nominal Hazard Zone: hazard area for the eye, none for the skin.

4.3.15 Class 4 Lasers

- Dangerous, Personal Protective Equipment (PPE) for eyes and skin shall be worn within the nominal hazard zone. Class 4 lasers are fire hazards as well. Diffuse reflections may be hazardous;
- High power lasers;
- Ocular and skin MPE are exceeded. Diffuse reflections exceed the MPE;
- Nominal Hazard Zone: hazard area for the eye and for the skin.

4.4 Radiofrequency Radiation Protection

4.4.1 Reduction in radiofrequency (RF) exposures can be accomplished through the implementation of appropriate administrative, work practice and engineering controls. Should routine occupational RF exposures be part of a project, a suitable plan shall be developed such as an NIRPP.

4.4.2 Generally, where RF emitters are identified, employees will:

- Remain outside any demarcated area where an RF hazard exists;
- Remain within the General Public exposure region;
- If the preceding requirements cannot be met or determined, AECOM will obtain a hazard assessment from the emitter's operator for controlling entity and provide it to the SH&E Manager for evaluation and determination of the relevant hazard mitigation measures.

4.4.3 If the above information is not available, an RF emitter survey will be required to assess the potential exposure hazards. An RF emitter survey shall be performed by an individual trained to effectively assess RF exposures.

4.4.4 Unless using an RF meter under the direction of an individual trained to effectively assess RF exposures, employees will not enter any area which is located within the RF hazard distance identified by the RF emitter survey. AECOM personal may enter a controlled area if the emitter has been de-energized and locked-out using standard Lockout/Tagout procedures in accordance with *S3AM-325-PR1 Lockout Tagout.*

4.5 Infrared Radiation Protection

4.5.1 Infrared (IR) radiation may be encountered during furnace operations, pouring, casting, hot dipping, laser and high-intensity light sources, curing, annealing and plastic welding.

4.5.2 Performance of welding and oxygen/acetylene cutting operations (torch cutting, brazing, welding) involves the use of an exposed high-temperature flame. This flame produces infrared (IR) radiation and UV radiation at the welding location which can cause cataracts, skin cancer, and thermal burns to the welder or other persons located nearby.

4.5.3 Skin Protection

- Long sleeve, flame-resistant shirts and/or forearm length Nomex gloves will be worn;
- Leather welder's apron or equivalent protection;
- Long pants shall be worn during any hot work task;
- Welding screens shall be utilized where feasible to protect the general public or other unprotected employees.

4.5.4 Eye Protection

- A welder's helmet or goggles with the appropriate lens shade will be worn. Refer to

*S3AM-208-PR1 Personal Protective Equipment.*

4.6 Ultraviolet Radiation Protection

4.6.1 Broad-spectrum UV radiation is classified as a known human carcinogen. UV radiation can cause harmful effects from both chronic and acute exposures including reddening of the skin (regardless of skin tone), accelerated skin aging, and damage to the eyes (e.g., cataracts, retinal burns, or welder's flash), and sunburn. Employees may be exposed to UV radiation from natural sunlight or manmade sources such as germicidal lamps (e.g., UV groundwater treatment systems) and welding.

4.6.2 While not required, the completion of an exposure or UV risk assessment will assess the risk posed by UV at the site. Such an assessment can be included in the SH&E plan and as part of a Task Hazard Assessment (THA). Special consideration should be given to work activities at higher elevations as the intensity of UV exposures are significantly higher than at lower elevations. Typically, UV exposure can increase 4-5% for every 1000 feet ascended. Also, some medications (e.g., Tetracycline) can increase sensitivity to UV exposure.

4.6.3 Control measures will be implemented at a worksite according to the conditions and work performed.

4.6.4 Engineering Controls

- Operations producing IR or UV radiation may be segregated or separated from other operations (e.g. use of automated systems, walls, screens, etc.);
- Employees will be encouraged to maximize use of the shade provided by trees, buildings, and other structures;
- Where there is limited access to natural shade, fixed or portable shade structures will be provided where practical;
- It is acknowledged that the provision of shade does not provide total protection from UV; therefore, it is recommended that outdoor workers adopt personal protection strategies such as protective clothing, sunscreen, and the wearing of hats in addition to using shade.

4.6.5 Administrative Controls

Consideration will be given to the reorganization of outdoor work programs to reduce UV exposure including, but not limited to:

- Use of the UV Index to assess UV hazards;
- Rescheduling work hours to enable workers to start earlier during May-September;

The UV Index, shown in Table 1, can help employees be aware of the expected level of UV radiation exposure on any given day.

**Table 1. UV Index**

| Exposure Category | Index Number | Sun Protection Messages |
|---|---|---|
| Low | < 2 | Wear sunglasses on bright days. In winter, reflections off of snow can nearly double UV strength. If you burn easily, cover up and use sunscreen. |
| Moderate | 3-5 | Take precautions, such as covering up and using sunscreen. |
| High | 6-7 | Protection against sunburn is needed. |
| Very High | 8-10 | Take extra precautions. Unprotected skin will be damaged and can burn quickly. |
| Extreme | 11+ | Take all precautions. Unprotected skin can burn in minutes. |

4.6.6 Personal Protective Equipment

Employees who work outdoors shall provide and utilize personal outer clothing (e.g. shirt and trousers) that meets the established general clothing requirements per *S3AM-208-PR1 Personal Protective Equipment*. For those circumstances where the outer clothing requirements exceed the general clothing requirements, AECOM will provide the necessary clothing. The selection of appropriate protective clothing will take into account both the need to block UV and the need to reduce the effects of heat.

- Protective Clothing
    - Full length trouser pants and shirts that cover shoulders at a minimum (where practical, the fabric will have a close weave);
    - Where possible, clothing will be lightweight, loose fitting and have a collar;
    - Clothing and head wear with a sun (UV) protection factor (SFP) is encouraged but not required.
- Secondary hazards such as fire resistance will be considered.
- Head, Face, and Neck Protection
    - Hats provide shade and the larger the brim the greater the amount of shade that is provided;
    - Full brim hard hats are recommended (for additional protection, neck flaps are recommended);
    - In circumstances where the wearing of a broad-brimmed hard hat causes difficulties due to its size, sunscreen and other protective measures will be used.
- Eye Protection
    - Wrap-around, close-fitting, large safety glasses will reduce the amount of UV and glare that may pass around the edges of the glasses (the color or darkness of the lenses does not indicate the level of UV protection; therefore, verification with the manufacturer should be performed);
    - Safety glasses shall provide the level of protection appropriate to the potential non-ionizing radiation hazard exposures;
    - For hot work activities that may produce ultraviolet radiation, eye protection shall utilize the proper welding shade.
- Sunscreen
    - Sunscreen does not offer complete protection against the sun and should always be used in conjunction with other protective measures;
    - A broad spectrum and water-resistant sunscreen with a SPF of 30+, or a rating of no less than three stars, will be provided;
    - Expiration dates on the sunscreen will be regularly checked to confirm it has not expired per the manufacturer's instructions;
    - Sunscreen should be placed in an easily accessible location and employees instructed on the correct application and use;
    - Sunscreen should be generously applied to all areas of exposed skin at least 20 minutes before going outside and reapplied every two hours, or as needed by the work conditions.

4.7 Non-ionizing Radiation Training Program

4.7.1 Employees will receive training where the need for non-ionizing radiation control measures has been identified in the SH&E Plan and if developed, the Non-Ionizing Radiation Protection Plan.

4.7.2 Awareness training on the applicable non-ionizing radiation source will be provided to employees prior to the start of work in the area where the hazard exists as well as when employees are required to enter non-ionizing radiation Controlled Environments. Training curricula will be determined by the SH&E Department.

## 5.0 Records

5.1 Training records shall be maintained in accordance with *S3AM-003-PR1 SH&E Training.* RF emitter surveys will be maintained in applicable project files.

## 6.0 Attachments

6.1 None

**Americas**

# Respiratory Protection

**S3AM-123-PR1**

## 1.0 Purpose and Scope

1.1 This procedure establishes a written respiratory protection program with the required elements and work site-specific procedures for respirator selection, use, and maintenance for any workplace where respirators are necessary to protect the health of an Employee.

1.2 The primary objective shall be to prevent exposure to atmospheric contaminants as far as feasible by accepted engineering control measures (e.g. enclosure or confinement of the operation, general and local exhaust ventilation [LEV], and substitution of less toxic materials). If respiratory hazards remain, suitable administrative controls and respiratory protective equipment requirements shall be established.

1.3 This procedure applies to all AECOM Americas-based employees and operations, and any other entity and its personnel contractually required to comply with this document's content, except where local or governmental regulations are more stringent**.**

## 2.0 Terms and Definitions

2.1 **Action Level (AL)** – An airborne concentration of a potentially toxic or hazardous substance, measured in parts per million by volume (ppm), microgram per cubic meter (µg/m3) milligram per cubic meter (mg/m3 ) or fibres per cubic centimetre (f/cc), that triggers certain provisions as required by the applicable jurisdictional legislation. In many cases the action level is 50% of the established exposure limit.

2.2 **Air-purifying respirator** – A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

2.3 **Approved** – Equipment tested and listed by the Bureau of Mines, jointly by the Mining Enforcement and Safety Administration (MESA), and the National Institute for Occupational Safety and Health (NIOSH), or jointly by the Mine Safety and Health Administration (MSHA) and NIOSH. Please note Canadian Standards Association (CSA) bases respirator selection on NIOSH criteria for the testing and certification of respirators.

2.4 **Assigned protection factor (APF)** – The ratio of the ambient concentration of an airborne substance (outside the respirator) to the concentration of the substance inside the respirator.

2.5 **Atmosphere-supplying respirator** – A respirator that supplies the user with breathing air from a source independent of the ambient atmosphere, including supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

2.6 **Breakthrough** – The first perception of an odor, taste or irritation experienced while wearing an air-purifying respirator. Breakthrough is generally an indication that the cartridges are saturated and are no longer filtering out the contaminant. Breakthrough can also be an indication of an improperly functioning respirator.

2.7 **Established Exposure Limit** – The maximum regulatory exposure concentration to which an individual may be exposed to for an 8- hour time weighted average (TWA).

- This limit is referred to by different terminology depending upon the given jurisdiction (e.g. Permissible Exposure Limit (PEL), Contamination Limit, Occupational Exposure Limit (OEL), Threshold Limit Value (TLV), etc.).
- Acceptable methods of adjusting this limit to correspond to a different exposure period (e.g. 10 hours) vary by jurisdiction and substance.

2.8 **Filtering facepiece (dust mask)** – A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

2.9 **Fit factor** – A quantitative estimate of the fit of a particular respirator to a specific individual, typically estimating the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

2.10 **Fit test** – The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test [QLFT] and Quantitative fit test [QNFT].)

2.11 **Hazardous atmosphere** – Any atmosphere, either immediately or not immediately dangerous to life or health, that is oxygen-deficient or that contains a toxic or disease-producing contaminant exceeding the legally established permissible exposure limit or, where applicable, the Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists.

2.12 **Immediately dangerous to life or health (IDLH)** – An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

2.13 **Maximum use concentration (MUC)** – The maximum concentration of an airborne contaminant from which an employee is expected to be protected when wearing a respirator, determined by the assigned protection factor of the respirator or class of respirators and the occupational exposure limit for that contaminant. The MUC is usually determined mathematically by multiplying the assigned protection factor (APF) specified for a respirator by the established exposure limit, which can include a short-term exposure limit and a ceiling limit or any other exposure limit used for that chemical agent, as defined by the authority having jurisdiction.

MUC = APF x established exposure limit

2.14 **Negative pressure respirator (tight fitting)** – A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

2.15 **Oxygen-deficient atmosphere –** An atmosphere with oxygen content below 19.5 percent by volume.

2.16 **Physician or other licensed health care professional (PLHCP)** – An individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the health care services required by local or governmental respiratory protection standards.

2.17 **Positive pressure respirator** – A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

2.18 **Powered air-purifying respirator (PAPR)** – An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

2.19 **Pressure demand respirator** – A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

2.20 **Qualitative fit test (QLFT)** – A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

2.21 **Quantitative fit test (QNFT)** – An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

2.22 **Self-contained breathing apparatus (SCBA)** – An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

2.23 **Supplied-air respirator (SAR) or airline respirator** – An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

2.24 **Tight-fitting facepiece** – A respiratory inlet covering that forms a complete seal with the face.

2.25 **User seal check** – An action conducted by the respirator user to determine if the respirator is properly sealed to the face.

## 3.0 References

3.1 S3AM-003-PR1 SH&E Training

3.2 S3AM-114-PR1 Compressed Gases

3.3 S3AM-128-PR1 Medical Screening & Surveillance

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Respiratory Protection Program Administrator**

The Respiratory Protection Program Administrator will be established at each project/location where employees are required to wear respirators. The Respiratory Protection Program Administrator will:

- Verify full compliance with this procedure.
- Assist with the arranging of any required medical evaluations or any other additional medical attention related to the use of a respirator.
- Perform or arrange suitable providers to perform the program evaluations described in this procedure.
- Maintain required inspections and testing/certifications of SCBA units

4.1.2 **Manager /Supervisor**

- Verify compliance with the respiratory protection program set forth in this procedure.
- Verify that only those employees who are medically qualified, properly trained, and fit tested are assigned to respirator work.
- Verify that respirators are provided, repaired, or replaced as may be required due to wear and deterioration.
- Confirm that the emergency rescue service is available to respond prior to any employees entering the IDLH area.

4.1.3 **SH&E Manager (or designee)**

- Monitor compliance with the various aspects of this program.
- Provide technical assistance regarding respirator selection and use, evaluate the effectiveness of this program, and support respirator training and fit testing (e.g. determine cartridge change out schedule for negative air respirators).
- Audit company compliance with this procedure.

4.1.4 **Employee**

- Use respiratory protection in accordance with instructions and training received.
- Maintain the respirator in accordance with this procedure and the manufacturer's instructions.
- Immediately report any malfunction of the respirator to the Supervisor or Manager or other responsible person.
- For employees who wish to wear respirators on a voluntary basis when not required to by AECOM or a regulatory agency, the employee shall complete *S3AM-123-FM2 – Voluntary Use of Respirators* or an equivalent form.

4.2 Training

4.2.1 Employees who wear respiratory protection shall receive training before they are assigned to a task that requires the use of respiratory protection.

4.2.2 Employees that may be exposed to a respiratory hazard will be instructed on the hazard and the controls prior to beginning work.

4.2.3 Atmospheric testing will be carried out by qualified personnel trained in the use, calibration, and interpretation of the test equipment.

4.2.4 Retraining shall be administered annually, and when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete;
- Inadequacies in the Employee's knowledge or use of the respirator indicate that the Employee has not retained the requisite understanding or skill; or
- Any other situation arises in which retraining appears necessary to verify safe respirator use.

4.2.5 Basic Respirator Training Program

Respirator training classes will include, at a minimum, the following**:**

- Instruction in the nature of the respiratory hazards, whether acute, chronic, or both, and a description of potential health effects if the respirators are not used;
- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- The limitations and capabilities of the respirator;
- Proper fitting, including demonstrations and practice in wearing, adjusting, determining the fit of, and performing a user seal check each time respirator is donned. Refer to *S3AM-123-ATT1 Fit Testing Protocol*, *S3AM-123-FM1 Respiratory Equipment Fit Test* and *S3AM-123-ATT2 User Seal Check*;
- How to inspect, put on, use and remove the respirator;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- The procedures for maintenance and storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
- The general requirements of local or governmental Respiratory Protection Standards.

4.3 Medical Surveillance

4.3.1 No Employee shall be assigned to a task that requires the use of a respirator unless it has been determined that he/she is physically able to perform the work while using the required respirator.

4.3.2 Prior to wearing a respirator and in accordance with the applicable jurisdictional requirements, Employees shall complete medical screening to identify any relevant psychological or physiological impediments to respiratory protection use. Screening may require an initial baseline medical surveillance examination, based on jurisdictional requirements or screening results, performed by a PLHCP in accordance with the requirements of *S3AM-128-PR1 Medical Screening & Surveillance Program.*

4.3.3 Additional medical examinations will be provided to employees who wear respirators when:

- An Employee reports medical signs or symptoms that are related to ability to use a respirator;
- A PLHCP, Supervisor, or the Respiratory Protection Program Administrator determines that an Employee needs to be reevaluated;
- Information from the Respiratory Protection Program, including observations made during fit testing and program evaluation, indicates a need for Employee reevaluation; or

- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature, etc.) that may result in a substantial increase in the physiological burden placed on an Employee.

4.3.4 All medical surveillance examinations shall be at no cost to the employee and occur during normal working hours; shall be convenient, understandable, and confidential; and the Employee will be given the chance to discuss results with examining physician.

4.4 Respirator Selection

4.4.1 The location or project specific SH&E Plan shall identify applicable respiratory hazards and develop appropriate controls, which may include respiratory protection. If respiratory protection is necessary the SH&E Plan shall detail the requirements.

4.4.2 SH&E Managers or his/her designated representative shall select and provide an appropriate respirator based on:

- The respiratory hazard(s) to which the employee may be exposed, including oxygen deficiency. Identify potential contaminants, concentrations, and the physical state of airborne contaminants:
    - Particulates (dust, fibers, micro-organisms, smoke, fumes).
        - Indicate the presence of any oil in particulate hazards. (may be produced by motor vehicles, air compressor systems using oil lubricators) If unknown, oil shall be assumed to be present.
    - Vapor and gases
        - Gases which may produce an oxygen deficiency (i.e. helium, argon, carbon monoxide and nitrogen).
        - Gases which are acids or produce acids when in contact with moisture (i.e. sulphur oxides, carbon dioxide, hydrogen chloride).
        - Gases which are alkaline or produce alkalis in reaction with moisture (i.e. ammonia, amines, phosphine).
        - True gases or vapors from evaporation of organic liquids (i.e. acetone, toluene, benzene).
        - Metal reacted with an organic compound (i.e. tetra-ethyl lead: was used in leaded fuel and still in aviation fuel, organic phosphates).
        - Mercury vapor.
        - Radon.
- The eye and face hazards to which the employee may be exposed (absorption, irritant, impact).
- Workplace or user factors that may affect respirator performance and reliability.

4.4.3 SH&E Managers or his/her designated representative shall identify and evaluate the respiratory hazard(s) in the workplace. Evaluations shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form.

4.4.4 Respiratory protection is required for those operations in which engineering controls or work practice controls are not feasible to reduce toxic or hazardous substance exposure at or below the AL (or if applicable, established exposure limit).

4.4.5 Where the employee exposure cannot be identified or reasonably estimated, the atmosphere shall be considered IDLH.

4.4.6 Only approved respirators shall be selected and they shall be used in compliance with the conditions of their certification.

4.4.7 Respirators shall be selected from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

4.5 Fit Testing Procedures

4.5.1 After the medical assessment is complete, employees using a tight-fitting respirator shall pass an appropriate QLFT or QNFT prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually (or as required by the applicable jurisdiction) thereafter. Refer to *S3AM-123-ATT1 Fit Testing Protocol*.

4.5.2 Fit testing shall be performed using the same make, model, style and size of respirator the user would be expected to use.

4.5.3 Should the fit test fail, alternative makes, models, styles and sizes shall be tested to find a correct fit for the user.

4.5.4 Respiratory protective equipment shall not be used unless a satisfactory fit test has been achieved for that particular equipment.

4.5.5 Fit testing shall also verify user competency in donning, doffing, inspecting and performing of seal checks.

4.5.6 Additional fit tests will be performed:

- Whenever there is an indication that changes in the Employee's physical condition might have an effect on respirator fit (such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight);
- If the Employee notifies his/her Supervisor or SH&E Manager that the fit of his/her respirator is unacceptable.

4.6 Interference with Facepiece Seal

4.6.1 AECOM shall not permit respirators with tight-fitting facepieces to be worn by Employees who have:

- Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or
- Any condition that interferes with the face-to-facepiece seal or valve function.

4.6.2 If an employee wears corrective glasses or goggles or other personal protective equipment, the Supervisor or Manager shall confirm that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

4.6.3 Employees shall perform a user seal check each time they don the respirator. Refer to *S3AM-123-ATT2 User Seal Check Procedures*.

4.7 Specification of Proper Level of Respiratory Protection

4.7.1 The SH&E Manager or his/her designated and qualified representative shall provide guidance on the proper selection and use of all respiratory protective devices, including half-face and full-face air purifying respirators, airline respirators, and self-contained breathing apparatus. This information is generally specified as part of the written site-specific SH&E plan and Task Hazard Assessment (THA).

4.7.2 Employees engaged in activities not covered by a THA or SH&E plan shall stop work and consult with the SH&E Manager or his/her designated representative to determine the proper equipment to use prior to resuming activities. Whenever appropriate, exposure levels will be measured to verify that the actual use conditions are within the limitations of the approvals specified by NIOSH/MSHA for the selected respirator.

4.8 Cartridges

4.8.1 NIOSH certifies three classes of filters*:

| Three categories of resistance to filter efficiency degradation: | Three levels of filter efficiency: |
|---|---|
| N (**N**ot resistant to oil) | 95% (called “95”) |
| R (**R**esistant to oil) | 99% (called “99”) |
| P (oil **P**roof) | 99.97% (called “100”) |

*Filters are available in any combination of the above.

4.8.2 Generally cartridge color denotes the type of contaminant the cartridge was designed to filter:

| | |
|---|---|
| Olive: | Multi-contaminant |
| White: | Acid gas |
| Black: | Organic vapors |
| Green: | Ammonia gas |
| Yellow: | Acid gas and organic vapors |
| Blue: | Carbon Monoxide |
| Purple (Magenta): | Radioactive material, except tritium & noble gases |
| Purple: | Any particulates - P100 |
| Orange: | Any particulates - P95, P99, R95, R99, R100 |
| Teal: | Any particulates free of oil - N95, N99, or N100 |

Please note; this is only a basic listing and should only be used as a reference. Combinations, deviations or additional types may be encountered. To ensure proper cartridge selection consult the cartridge supplier to ensure applicability to the contaminant(s) anticipated

4.8.3 Filter cartridges shall be changed out whenever an increase in breathing resistance is detected by the user.

4.8.4 When available, chemical cartridges that are equipped with end-of-service life indicators (ESLI) shall be utilized. In those cases, cartridges should be changed when indicated by the ESLI. A buddy system should be used so coworkers can monitor each other’s cartridge color condition.

4.8.5 In the absence of cartridges equipped with an ESLI, employees shall change chemical cartridges on the following schedule:

- Immediately if breakthrough is perceived or if resistance to breathing is detected by the user; and
- In accordance with the change out schedule based upon the anticipated contaminant concentration, environmental conditions, employee work rate, and the specific data provided by manufacturer.

4.8.6 When PAPRs are worn, the same rules apply with the exception that filter cartridges should be changed when airflow through the filter elements decreases to an unacceptable level, as indicated by the manufacturer’s test device.

4.9 Air-Supplying Respirator Use

4.9.1 Air-supplying respirators will be specified for use when it has been determined that any of the following conditions exist:

- The oxygen concentration is less than 19.5 percent;
- The contaminant is unknown or its concentration cannot be quantified;
- The airborne contaminant concentration is above its IDLH;
- An air-purifying respirator canister or cartridge that removes the contaminant is not available;
- The contaminant concentration is above the concentration for which an air-purifying canister or cartridge is approved; or
- The contaminant concentration is above the MUC of a full-face air-purifying respirator.

4.9.2 No Employee may engage in an operation requiring the use of an air-supplied respirator unless the SH&E Manager or his/her designated representative has reviewed the operation and approved its use.

4.9.3 The determination of the type of air-supplying respirator (i.e., SCBA, airline, demand, pressure demand, etc.) appropriate for the job, outside standby persons, communication, proper training and equipment, notification procedures, and necessary action should be part of the THA or SH&E Plan. Mandatory equipment including SCBA or SAR with auxiliary air supply and emergency appropriate retrieval equipment or equivalent rescue means shall be made by the SH&E Manager or his/her designated representative at the time of the THA or SH&E Plan review. The need for any additional precautions (i.e., equipment specific training, on-site health and safety support, etc.) shall also be determined by the SH&E Manager or his/her designated representative.

4.10 Minimum Procedures for IDLH Atmospheres

4.10.1 One Employee or, when needed, more than one Employee shall be located outside the IDLH atmosphere. This employee shall be responsible for communicating with the Employees in the IDLH atmosphere, alerting rescue services if needed, and restricting entrance to the IDLH area by untrained and unapproved persons.

4.10.2 Visual, voice, or signal line communication shall be maintained between the Employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.

4.10.3 The Employee(s) located outside the IDLH atmosphere shall be trained and equipped to provide effective emergency rescue or to initiate on-site rescue services.

4.10.4 If on-site rescue services are to be used, the Manager or Supervisor shall confirm that the service is available to respond prior to any employees entering the IDLH area.

4.10.5 Employee(s) located outside the IDLH area and/or on-site rescue services shall be equipped with:

- Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either
- Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
- Equivalent means for rescue where retrieval equipment would create a hazard to the Employees in the IDLH area.

4.11 Breathing Air

4.11.1 Compressed air used for respiration shall be of high purity and shall meet, as a minimum, the requirements of the specification for Grade D breathing air as described in Compressed Gas Association Specification G-7.1 (ANSI Z86.1).

4.11.2 Oxygen shall NOT be used as a source of breathing air at any time in open-circuit SCBAs or airline respirators.

4.11.3 Compressor Supplied Breathing Air

- All compressors used for filling SCBA air cylinders or for supplying airline respirators shall be equipped with the following safety and standby devices:
    - The compressor intake shall be located to verify that only respirable (uncontaminated) air is admitted. This requires attention to the location of the compressor intake with respect to compressor engine exhaust, chemical storage or use areas, and suitable intake screening or filtration.
    - Alarms to indicate compressor failure (such as low-pressure air horns, etc.) shall be installed in the system.
    - A receiver of sufficient capacity to enable the respirator wearer to exit from a contaminated atmosphere shall be provided.
- If an oil-lubricated compressor is used to supply breathing air, it shall be equipped with both of the following devices:
    - A continuous reading carbon monoxide monitoring system set to alarm should the carbon monoxide concentration exceed 10 parts per million; and,
    - A high temperature alarm which will activate when the discharge air exceeds 110 percent of the normal operating temperature in degrees Fahrenheit.
- An in-line purifying filter assembly to remove oil, condensed water, particulates, odors, and organic vapors shall be used in conjunction with the air compressor.

4.11.4 Compressed Air Cylinder Systems for Airline Respirators

- Compressed air cylinders shall meet the requirements of *S3AM-114-PR1 Compressed Gases*.
- Compressed air cylinder systems used to supply airline respirators shall be equipped with low pressure warning bells (e.g., Scott Pak-Alarm) or similar warning devices to indicate air pressure in the manifold below 500 pounds per square inch (psi). When such systems are used, one employee shall be assigned as safety standby within audible range of the low pressure alarm.
- Airline hose couplings shall be incompatible with outlets for other gas systems to prevent inadvertently supplying airline respirators with non-respirable gases or oxygen.
- The air pressure at the hose connection to airline respiratory equipment shall be within the range specified in the approval of the equipment by the manufacturer.
- Routine inspection and maintenance of the air compressor shall be performed.

4.11.5 Compressed Air Cylinder Systems for Recharging SCBAs

- When a cascade system is used to recharge SCBA air cylinders, it shall be equipped with a high-pressure supply hose and coupling rated at a capacity of at least 3,000 psi.

4.11.6 Escape/Egress Units

- Escape/egress unit respirators are intended for use in areas where escape with a short-term (minimum 5 minutes) air supply is necessary. It is important that escape bottle size be provided that will allow the employee to get to a safe location considering breathing rate and distance.
- Escape bottles are required on air-line respirators used in IDLH and high hazard work conditions.
- They may be used as adjuncts to airline pressure demand respirators as a backup air supply or as independent emergency devices in areas where respiratory protection is not normally required.

- Appropriate training shall be conducted and documented prior to assigning Employees to tasks or locations subject to the use of these respirators.
- Escape/egress units (minimum 5 minutes) shall never be used to enter a hazardous atmosphere or as primary standby respirators for confined space entry.

4.12 Respirator Inspection, Cleaning, Maintenance, and Storage

When respirator use is required, only properly cleaned and maintained NIOSH/MSHA approved respirators shall be used.

4.12.1 Inspection

- Respirators should be inspected before and after use using *S3AM-123-FM3 Respiratory Equipment Inspection*, or equivalent. The respirator should not be used and removed and marked out of service if any item on the checklist fails inspection.
- Respirators for emergency use should be inspected once per month.
- Defects shall be reported to their Supervisor or Manager. No defective respirator shall be issued or worn.

4.12.2 Cleaning and Maintenance

- Respirator facepiece assemblies shall be cleaned and sanitized minimally after each day of use in accordance with the requirements specified in *S3AM-123-ATT3 Respirator Cleaning*.
- The respirator should also be inspected for any damaged parts (repair should only be done by trained personnel with the proper tools).
- Respiratory equipment shall not be passed from one person to another until it has been cleaned and sanitized.
- Respiratory equipment shall be maintained according to manufacturer's instructions.
- In field situations, a pre-moistened towelette (e.g., baby wipes) can be used. The mask should then be rinsed with clean warm water and dried. Towelettes or wipes shall be compatible with the respirator materials.
- Alcohol should never be used to clean masks as it can damage the facepieces and rubber parts.
- Where respirators are assigned to individual employees, management shall verify compliance with cleaning and maintenance requirements by periodic inspection and field audits of respiratory equipment.

4.12.3 Storage

- Store clean respirators so that they are protected from dust, excessive moisture, damaging chemicals, temperature extremes and direct sunlight or UV light. They should be placed in a sealed plastic bag and stored in the original box or similar container which blocks light.

4.13 Hygiene

4.13.1 Employees shall leave the work area to wash, change cartridges, or if they detect breakthrough or resistance.

4.14 Costs

4.14.1 The costs for training, medical examinations, fit testing, respirators, spectacle kits, and cleaning materials should be considered as operational costs.

4.15 Program Evaluation

4.15.1 The SH&E Manager or his/her designated representative shall conduct evaluations of the workplace as necessary to verify that the provisions of the current written program are being effectively implemented and that it continues to be effective.

4.15.2 The SH&E Manager shall regularly (i.e., during annual training) consult Employees required to use respirators to assess their views on program effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed include but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);
- Appropriate respirator selection for the hazards to which the Employee is exposed;
- Proper respirator use under the workplace conditions the Employee encounters; and
- Proper respirator maintenance.

## 5.0 Records

5.1 Medical records under this section shall be maintained at a minimum in accordance with *S3AM-128-PR1 Medical Screening & Surveillance.*

5.2 Fit Test Records shall be maintained in the Employee's health and safety records. *S3AM-123-FM1 Respiratory Equipment Fit Test*, or equivalent, will be used to document each fit test.

5.3 Training Records shall be maintained in accordance with *S3AM-003-PR1 SH&E Training***.**

## 6.0 Attachments

6.1 S3AM-123-ATT1 Fit Testing Protocol

6.2 S3AM-123-ATT2 User Seal Check

6.3 S3AM-123-ATT3 Respirator Cleaning

6.4 S3AM-123-FM1 Respiratory Equipment Fit Test

6.5 S3AM-123-FM2 Voluntary Use of Respirators

6.6 S3AM-123-FM3 Respiratory Equipment Inspection

**Americas**

# Excavation

**S3AM-303-PR1**

## 1.0 Purpose and Scope

1.1 To evaluate all excavation operations to provide proper protective systems for employee protection from associated hazards.

1.2 This procedure applies to all AECOM Americas-based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

## 2.0 Terms and Definitions

2.1 **Benching (Benching system)** – One or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels to protect employee from cave-ins.

2.2 **Cave-in (collapse)** – The separation of a mass of soil or rock material from the side of an excavation or the loss of soil from under a trench shield or support system and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

2.3 **Competent person** – Person, who, by way of training, knowledge, and/or experience, is capable of classifying soils and is also capable of identifying existing and predictable hazards in excavation/trenching work area and who has the authority to take prompt corrective measures to eliminate them. The person shall also be familiar with the requirements in the regulation.

2.4 **Excavation** – A manmade cut, cavity, trench, or depression in an earth surface formed by earth removal. Examples include trenches, tunnels, shafts, caissons and open cut holes.

2.5 **Faces (or sides) –** The vertical or inclined earth surfaces formed as a result of excavation work.

2.6 **Failure** – A structural member's integrity and supportive capabilities is compromised, causing a breakage, displacement, or permanent deformation.

2.7 **Hazardous Atmosphere** – An atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful may cause death, illness, or injury.

2.8 **Protective Systems** – Devices or methods in protecting employees in an excavation from cave-ins, a collapse or falling material. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

2.9 **Ramp** – An inclined walking or working surface that is used to gain access to one point from another and is constructed from earth or from structural materials such as steel or wood.

2.10 **Professional Engineer** – A registered engineer who can authorize any state of work by his professional designation. A **Professional Engineer** registered in the State, Province, or territory is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

2.11 **Shield (Shield system)** – A structure that is able to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built. Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

2.12 **Shoring (Shoring system) –** A structure such as a metal hydraulic, mechanical, or timber shoring system that supports the sides of an excavation and that is designed to prevent cave-ins.

2.13 **Sloping (Sloping system)** – An alternative to shoring is trench sloping. This means that the trench walls are cut back to decrease the possibility of cave-ins. The angle of incline required to prevent a cave-in varies with such factors as soil type, environmental conditions of exposure, and application of surcharge loads.

2.14 **Stable rock** – A natural solid mineral material that can be excavated with vertical side wall; unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against cave-in or movement by rock bolts or by another protective system that has been designed by a **Professional Engineer**.

2.15 **Support system** – A structure such as underpinning, bracing, or shoring that provides support to an adjacent structure, underground installation, or the sides of an excavation.

2.16 **Trench** – An open narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width (measured at the bottom) is often not greater than 15 feet (4.57 meters). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.57 meters) or less (measured at the bottom of the excavation), the excavation is also considered a trench.

2.17 **Trench Box –** A trench box is a unit of shoring that is an engineered shoring system capable of protecting workers in case of cave-in of trench walls. The space between the trench wall and the trench box shall be backfilled.

## 3.0 References

3.1 S3AM-003-PR1 SH&E Training

3.2 S3AM-202-PR1 Competent Person Designation

3.3 S3AM-218-PR1 Permit to Work

3.4 S3AM-322-PR1 Overhead Lines

3.5 S3AM-331-PR1 Underground Utilities

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Managers**

- Shall confirm that all projects under their direct control or authority and which involve excavations or trenching are conducted in a safe and efficient manner and in accordance with the requirements of this procedure and local legislation.
- Shall confirm that all projects under their direct control or authority have a written Safe Work Plan (SWP)/Health and Safety Plan (HASP) prepared for the activity.
- Confirm the applicable *S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist* or equivalent has been completed and is reviewed prior to commencing any excavation activities.

4.1.2 **Professional Engineer**

- The professional status and the actual practice of professional engineering is legally defined and protected by law. In some jurisdictions, only licensed engineers (sometimes called registered engineers) are permitted to "practice engineering.
- For the purposes of this procedure, determination of soil condition and the safe management of the shoring, sloping or benching may require consultation, specifications and/or design by a Professional Engineer.

4.1.3 **Competent Person**

- Shall be present during all work that involves entry by AECOM personnel into trenches or excavations greater than 5 feet (1.52 meters) in depth (as above).
- Does not have to be an AECOM employee; however, an AECOM competent person shall be qualified per *S3AM-202-PR1 Competent Person Designation*.
- Shall identify prompt corrective measures to eliminate recognized present or anticipated hazards.
- The competent person shall be identified in the SH&E Plan for the location or project, and the Task Hazard Assessment for the particular task.
- The competent person:
  - Will determine the maximum allowable slope for the walls of the trench or excavation.
  - Will classify the soil in the trench or excavation in accordance with the requirements specified in the applicable legislation prior to determining that a maximum allowable slope, other than 34 degrees with the horizontal is selected.
  - Will inspect the excavation or trench on a daily basis when the potential for employee exposure to the hazards of the trench or excavation exists (*S3AM-303-FM1 Daily Excavation Checklist*).

4.1.4 **Employees**

- Maintain appropriate training for the excavation and the applicable tasks, and competency in the associated procedures (e.g. communication, rescue, etc.) and use of the necessary personal protective equipment (PPE). Refer to *S3AM-003-PR1 SH&E Training* and *S3AM-208-PR1 Personal Protective Equipment.*
- Know the location specific Emergency Response Plan and be able to recognize the potential for real hazards associated with the Excavation.
- Refrain from making any attempt to enter an excavation without approval and first meeting the requirements of this procedure and the applicable SH&E Plan (SWP)/Health and Task Hazard Assessment (THA).

4.2 Restrictions

4.2.1 Because of their inherent dangers, entry into trenches and excavations shall not be performed if there are means other than entry to perform the work. Where entry into trenches and excavations is necessary, strict adherence to the procedures specified below is extremely important. Whenever there are questions regarding the safety of trench or excavation entry, contact shall be made with the Competent Person or the SH&E Manager.

4.2.2 No one shall enter any trench or excavation until the walls have been adequately cut back or temporary protective structures have been installed unless the trench or excavation is shallower than stabilized.

4.2.3 Excavation work shall be completed and inspected in accordance with the written instructions of a qualified professional and in accordance with jurisdictional legislative regulations.

4.3 Excavation and Trenching Permit

4.3.1 If required by the applicable jurisdiction, confirm notification of the proposed excavation is provided within the required timeframe to the appropriate agencies or governing bodies prior to commencing excavation (e.g. California – CAL/ASHA Excavation Permit for the construction of trenches or excavations that are 5 feet (1.5 meters) or deeper that will be entered; Manitoba WHS Branch notification in order to obtain registration number, etc.).

4.3.2 An Excavation and Trenching Permit (*S3AM-303-FM2 Excavation & Trenching Permit* or equivalent) shall be completed prior to all excavation or trenching activities

4.3.3 The Excavation and Trenching Permit shall be completed and signed by all applicable parties as indicated on the permit. The Project Manager shall determine which signatures are required.

4.3.4 Excavation and Trenching Permits may be valid for up to one week; however the permit shall be reviewed at the beginning of each shift.

4.3.5 Refer also to *S3AM-218-PR1 Permit to Work* for additional guidance related to Safe Work Permits.

4.4 Planning and Preparation

4.4.1 Prior to beginning any excavation work at a site, the location of all underground and overhead utilities shall be identified and work locations will be carefully planned to avoid any potential for inadvertent contact with them.

4.4.2 Clearance, including hand exposure, of underground utilities shall be completed in accordance with *S3AM-331-PR1 Underground Utilities*. The associated *S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist* or equivalent shall be available and reviewed with all employees expected to be involved in the excavation prior to commencing any excavation activities.

4.4.3 Identify any overhead power lines and de-energize or protect by other appropriate means. Refer to *S3AM-322-PR1 Overhead Lines*.

4.5 Excavation Requirements

4.5.1 A Professional Engineer shall be engaged if specified by the applicable jurisdiction and as appropriate to the soil conditions and proposed excavation considerations (e.g. wall slope, shoring requirements, load calculations, etc.).

4.5.2 All personnel involved in the excavation activities shall be appropriately trained to their respective activities and associated hazards. Refer to *S3AM-003-PR1 SH&E Training*.

4.5.3 All personnel involved in the excavation activities shall wear the required PPE, including reflective clothing if mobile equipment or vehicular traffic. Refer to *S3AM-208-PR1 Personal Protective Equipment.*

4.5.4 The Task Hazard Assessment (THA) or Safe Work Plan (SWP) identifying applicable hazards and appropriate control measures shall be completed and clearly communicated to all involved personnel as well as to any concurrent operations potentially affected. The work environment shall be monitored for changing conditions and the THA / SWP updated accordingly.

4.5.5 Excavation shall be conducted in a manner that minimizes environmental impact.

4.5.6 Excavated (spoil) material shall be kept at least 3.2 feet (1 meter) from the edge of the excavation, or further if local regulations are more stringent.

- Excavated (spoil) material shall be piled in a manner to prevent sloughing of loose material. Various jurisdictions provide specific spoil pile sloping requirements.

4.5.7 If the walls of an excavation or trench are not sloped or cutback, barriers shall be placed around the perimeter. The barrier shall be at least 3.6 feet (1.10 meters) in height.

4.5.8 If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored regularly to confirm proper operation.

4.5.9 If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require regular inspections.

4.5.10 All excavations shall be appropriately secured at the end of the day to prevent unauthorized entry or inadvertent entry into the excavation. This may require a protective covering, barriers, fencing, signage or other measures appropriate to the excavation and associated conditions.

4.5.11 Backfill trenches as soon as reasonably possible after work is complete.

4.6 Soils Classifications

4.6.1 Soil classification shall be conducted to confirm appropriate measures are taken to protect workers and to secure excavation walls. Measures may include, but are not limited to:

- Sloping, shoring or shielding.
- Relocation of equipment or materials.
- Scheduling to minimize concurrent operations.

4.6.2 Soil characteristics evaluated when classifying include, but are not limited to:

- Cohesiveness / compaction / compressive strengths (e.g. fissured, hardpan, fractured rock, etc.).
- Composition (sand, clay, gravel, layered, etc.).
- Moisture content / submersion.
- Compaction.
- Exposure to vibration (e.g. traffic, pile driving, etc.).
- Previous disturbances.

4.6.3 Consult the applicable jurisdictional requirements as classification methods, definitions and terms can vary. In general classifications or types include:

- Stable soil that is dense and heavy and consists primarily of clay.
- Soil with a medium level of stability and generally includes soils such as silt, sandy loam, and medium clay.
- Unstable soil which generally includes gravel, loamy sand, and soft clay.

4.7 Protective System Requirements

4.7.1 Protective systems shall be used to protect workers entering an excavation when there is a potential for cave in, and is required when:

- An excavation is greater than 4 feet (1.22 meters) in depth and is not entirely in stable rock.
- A worker is required to be closer to a trench wall than the height of the trench wall.
- A worker will approach closer to the side or edge of the excavation that the distance equal to the depth of the excavation.

4.7.2 The protective system may include sloping the excavation walls, shoring the excavation walls, and/or installing a shielding system. The protective system(s) chosen shall have the capacity to resist, without failure, all loads to be applied to the system.

4.7.3 Slope angle, or type of shoring or shielding shall be determined by:

- Soil classification – including structure, strength, moisture content.
- Depth of the excavation
- Weather and environmental conditions.
- Anticipated duration of excavation activities.
- Loading of soil and soil stress (e.g. proximity of structures, location of equipment, stored material, anticipated vibration, etc.)

| Factor | Description / Examples |
|---|---|
| Soil Structure and Strength | Proper classification of soil is necessary in order to select appropriate protection methods. Trench walls, at first glance, may appear to have strength, particularly if rock is encountered. Fractures in the rock can develop because of construction and soil strength may fail when subjected to undercutting or high-energy impacts. Irregular slopes on stratified soils that appear stable can fail if lower materials do not have adequate strength. |
| Excavation Depth | Jurisdictional requirements may specify the type of protective methods that are required at given depths. Additionally, consultation of a professional engineer may be necessary. |
| Soil Moisture Content | Soil may be moist even though the weather has been dry. Care shall be taken and appropriate protection methods employed if the soil appears to be moist. |
| Weather and Humidity | These can have a significant impact on excavation wall stability and effectiveness of protection methods. Frozen stable soil may collapse if warm mild weather persists. Percolation of water into the soil can increase the load on shoring due to the increased weight and mobility of saturated soils. Frozen ground does not preclude the need to appropriately slope, shore or shield unless the freezing process is designed and approved by a Professional Engineer. |
| Loading and Soil Stress | Stress can originate from many sources. Heavy machinery passing close to the excavation creates vibrations that decrease the soil strength and can result in wall collapse or shoring failure if it is inadequate to these conditions. Stationary equipment at the edges of the excavation can transmit loads and additional stresses to the excavation wall and method of protection. |
| Trench Depth and Width | These directly influence the choice of materials and the spacing of support bracing. The shoring requirements of a wide and deep trench differ substantially from those of a narrower trench. |
| Erosion Time | If excavations are to be left for extended periods, different methods of protection may be required and shoring materials may have to be increased. |

4.7.4 If an excavation may affect the stability of an adjacent building or structure, precautions shall be taken to prevent damage to the structure. The precautions shall be specified in writing by a Professional Engineer.

4.7.5 All sloping, shielding, or shoring shall be conducted in accordance with applicable Federal, State, Provincial, Territorial or Legislative regulations.

4.7.6 Exceptions. Each individual in an excavation shall be protected from cave-ins and trench collapse by an adequate protective system except when:

- Excavations are made entirely in stable rock.
- Excavations are less than 4 feet (1.22 meters) in depth and an examination of the excavation by a Competent Person reveals no indication of a potential cave-in.

4.7.7 The depth of the excavation or trench is to be measured at its greatest vertical dimension. Be aware that crouching or kneeling in a trench that is less than 3 feet (0.91 meter) in depth may still pose significant hazard for the employee involved.

4.7.8 Consult the applicable jurisdiction's requirements concerning the standards that protective systems shall meet; this may include design and certification by a Professional Engineer.

4.7.9 A Professional Engineer can properly assess the need for and the type of shoring required for specific applications. Shoring may not be needed in all cases, but failure to recognize the need for shoring can be catastrophic.

4.8 Use of Sloping as a Means of Protection

4.8.1 Sloping the walls of the trench or excavation is the preferred, and typically simplest, means of protecting employees who shall enter trenches or excavations which are greater than 4 feet (1.22 meters) in depth or where there is danger of collapse.

4.8.2 If sloping is used as the means of protection, the trench or excavation walls shall be sloped back so that the ratio of the horizontal distance to the vertical rise (H:V ratio) of the sloped wall or degree from horizontal is appropriate to the soil type and in compliance with jurisdictional requirements.

4.8.3 In many cases, determining the maximum allowable slope may allow the use of a steeper slope, which will result in a narrower excavation. However, determination of soil classification is complicated and requires that the Competent Person be familiar with the manual and visual tests. Since incorrect soil classification may result in the use of a steeper, and potentially unsafe, slope, it

is recommended that an angle of 34 degrees (or less given specific jurisdictional requirements and unstable soil types) with the horizontal typically be selected.

4.9 Use of Shoring or Shielding as a Means of Protection

4.9.1 Where sloping the walls of the trench or excavation is unfeasible (e.g., when there are dimensional constraints or adjacent structures), the use of shoring or shield systems (e.g., trench boxes) may be necessary.

4.9.2 Soil classification is required. The excavation shall comply with one of the four options below:

- The soil shall be classified and the timber shoring be constructed in accordance with applicable legislative regulations.
- Other protective systems meeting applicable legislative regulations shall be utilized (e.g., shield systems, trench jacks, aluminum hydraulic shoring, etc.) and the manufacturer's data shall be explicitly followed.
- A protective system meeting applicable legislative regulations shall be utilized based on tabulated data which has been approved by a Professional Engineer.
- A protective system meeting applicable jurisdictional requirements and designed by a Professional Engineer shall be utilized and installed in accordance with the engineer’s written plans.

4.9.3 In all cases listed above, the SH&E Manager shall be contacted before proceeding.

4.9.4 Workers shall be protected whenever shoring is being installed or removed.

4.9.5 Shoring, stringers or bracing shall be installed from the top of the trench or excavation down. Removal shall be completed from the bottom up unless conditions exist that would make doing so unsafe. A removal method shall be developed that does not require worker entry.

4.9.6 Check hydraulic shoring once per shift at a minimum (leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, other damaged or defective parts) and more frequently as required.

4.9.7 Hydraulic or pneumatic trench jacks shall have a means of ensuring that they will not collapse in the event of loss of internal pressure.

4.9.8 Shielding and Trench Boxes differ from shoring in that their design is intended primarily to protect workers from cave-ins and similar incidents. They may be used in combination with sloping and benching.

- The excavated area between the outside of the trench box and the face of the trench should be as small as possible and may be backfilled to prevent lateral movement of the shield.
- The box shall extend at least 18 inches (0.45m) above the surrounding area, or as specified by the applicable jurisdiction, if there is sloping toward excavation. This can be accomplished by providing a benched area adjacent to the box.
- Earth excavation below the shield is permitted only if:
  - The excavation does not exceed a depth of 2ft (0.61m) below the shield,
  - The shield is capable of withstanding the forces calculated for the full depth of the trench, and
  - There are no indications while the trench is open of possible loss of soil from behind or below the bottom of the support system.
- A shield shall not be subjected to loads exceeding those for which it was designed to withstand.

4.9.9 Bell-bottom pier holes that are to be entered by workers shall be designed and supported according to written instructions of a registered professional engineer.

- Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, should wear a harness with a retrieval line securely attached to it.
    - Retrieval lines shall not be used to handle materials.
    - Rescue equipment shall be individually attended at all times while the employee wearing the retrieval line is in the excavation.

4.10 Work Around the Trench/Excavation

4.10.1 Structural ramps used for excavation access or egress of equipment shall be constructed in accordance with jurisdictional requirements and the instructions or designs of an individual competent and qualified in structural design.

4.10.2 If the ramp has an open side, it shall have a curb or a restraining device.

4.10.3 Confirm equipment placement does not compromise the integrity of the excavation wall and optimizes visibility of work zone and any contact hazards (spoil placement should also take these into consideration). Use wheel chocking or barricades as necessary to prevent encroachment of edge.

4.10.4 If the appropriate setback of equipment is not possible confirm appropriate blocking or matting is used to disperse weight. These requirements may need to be determined by a professional engineer.

4.10.5 While workers are in a trench, an aboveground observer or spotter shall be present to warn of earth movements and to advise equipment operators of the presence and location of those in the trench so as to avoid vibrating equipment near trenches or excavations.

4.10.6 If there is a danger of a worker or equipment falling into an excavation, or whenever the edge is not clearly visible, identify the trench or excavation perimeter with visual markers (e.g., barricade tape, wooden railings, stop logs, etc). If the trench or excavation is 4 feet (1.22 meters) or greater in depth, the visual barrier shall be a minimum of 6 feet (1.83 meters) from the edge.

4.10.7 Personnel shall notify workers of the excavation through flagging, marking, safeguards, or other appropriate and effective means.

4.10.8 If walkways are permitted over excavations or trenches (e.g. trench over 6 feet [1.8 meters] in depth and wider than 30 inches [76 centimeters]), the installation shall be in such a manner as to not compromise the stability of the excavation.

4.10.9 Walkways shall be equipped with guardrails and constructed in accordance with jurisdictional requirements.

4.10.10 If vehicle crossings over excavations are required, they shall be designed by and installed under the direction of a Professional Engineer.

4.10.11 Precautions shall be taken to isolate or remove loose rocks, trees, or other materials that may slide, roll, or fall into the trench and onto workers prior to entry by workers into an excavation.

4.10.12 While operating heavy equipment in the work area, the equipment operator shall maintain communication with a designated signal person through either direct voice contact or approved standard hand signals.

4.10.13 When mobile equipment is operated adjacent to an excavation or when such equipment is required to approach the edge of an excavation and the operator does not have a clear and direct view of the edge of the excavation, a warning system such as barricades, hand or mechanical signals, or stop logs shall be used. If possible, the grade should be away from the excavation.

4.10.14 All site personnel should maintain a safe distance and remain clear of the swing of operating excavation equipment.

4.10.15 Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles

being loaded or unloaded when the vehicles are equipped to provide adequate protection for the operator during loading and unloading operations.

4.10.16 All materials such as pipe, rebar, etc., shall be kept out of traffic lanes and access ways. Materials and equipment shall be stored in a designated area so as not to endanger personnel at any time.

4.10.17 A flagman with roadwork, signs, cones, and high-level warning signs shall be provided when it is necessary to control normal vehicular traffic due to vehicles, such as end-dumps, entering, or leaving the site.

4.11 Work Within the Trench/Excavation

4.11.1 Personnel shall not be permitted on the faces of sloped or benched excavations at levels above other workers unless those workers at lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

4.11.2 Employees shall not work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and retrieval line.

4.11.3 A stairway, ladder, ramp, or other safe means of egress shall be located in excavations or trenches that are 4 feet (1.22 meters) or more in depth so as to minimize lateral travel for employees. Jurisdictional maximum lateral travel distances vary between 25 feet (7.6 meters) and 49 feet (15 meters). In the absence of jurisdictional specification, travel distance shall not exceed 25 feet (7.6 meters). Ladders should extend at least 3 feet (0.91 meters) above the trench top.

4.11.4 Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design and shall be constructed in accordance with the design.

4.11.5 Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement. Structural members used for ramps and runways shall be of uniform thickness. Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping. Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

4.12 Confined Spaces and Hazardous Atmospheres

4.12.1 An excavation may contain hazardous gases, vapors, dusts, fumes or an oxygen deficient or enriched atmosphere.

- To prevent exposure to harmful levels of atmospheric contaminants, the hazard assessment shall evaluate atmospheric hazards when workers are required to enter trenches and excavations:
    - Greater than 4 feet (1.22 meters) in depth in which a hazardous atmosphere exists, or could reasonably be expected to exist, such as in excavations in landfill areas, where equipment is exhausting nearby, or where hazardous substances are stored nearby.
    - Less than 4 feet (1.22 meters) in depth if workers could be exposed to a hazardous atmosphere (e.g. crouching).
- Appropriate atmospheric testing is necessary to accurately identify these hazards. Ongoing atmospheric monitoring, use of attendants and rescue equipment may be necessary to address the identified hazards.

4.12.2 Confined spaces may exist in excavations where there is limited access or egress and in which a hazardous gas, vapor, dust, or fume or an oxygen-deficient atmosphere may occur. Confined

space entry shall be performed in accordance with the requirements specified in *S3AM-301-PR1 Confined Spaces*. Consult the applicable jurisdictional requirements as the excavation may or may not be subject to confined space requirements.

4.12.3 Adequate precautions, such as mechanical ventilation or appropriate respiratory protection, shall be taken prior to entry into trenches and excavations in which hazardous atmospheres exist or could reasonably be expected to exist.

4.12.4 When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to confirm that the atmosphere remains safe. Atmospheric testing will be conducted in the anticipated breathing zone of the work area to determine oxygen content, combustible gas, and toxic gases and vapors, if applicable.

4.12.5 Appropriate respiratory protection shall be donned prior to entry into any trench or excavation in which airborne levels of toxic substances are present at concentrations in excess of their Threshold Limit Value/Occupational Exposure Limit or Permissible Exposure Limit.

4.12.6 Confirm appropriate emergency response measures are in place as necessary, including but not limited to:

- Location Specific Emergency Response Plan shall include procedures applicable to the potential emergencies the excavation work may present.
- Communication methods shall be established.
- Equipment such as spill kits, breathing apparatus, and retrieval equipment, shall be readily available.
- Where hazardous atmospheres are present rescue equipment shall be attended when workers have entered the excavation.

4.13 Stability of Adjacent Structures

4.13.1 Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to confirm the stability of such structures for the protection of employees.

4.13.2 Excavation below the level of the base or footing of any foundation or retaining wall that could reasonably be expected to pose a hazard to employees shall not be permitted except when:

- A support system, such as underpinning, is provided to confirm the safety of employees and the stability of the structure; or
- The excavation is in stable rock; or
- A Professional Engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
- A Professional Engineer has approved the determination that such excavation work will not pose a hazard to employees.

4.13.3 In addition, sidewalks, pavements, and secondary structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

4.14 Inspections

4.14.1 Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a Competent Person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. Refer to *S3AM-303-FM1 Daily Excavation Checklist.*

4.14.2 An inspection shall be conducted by the Competent Person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard-

increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

4.14.3 Where the Competent Person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to confirm their safety and the permit reissued or revised.

4.15 Backfilling

4.15.1 Perform any required notifications within the necessary timeframes prior to backfilling.

4.15.2 Confirm accurate classification of soil types of backfill material and absence of signs of contamination, discoloration and smell.

4.15.3 Confirm the re-establishment of the original soil integrity using the original material (if suitable) or designated fill material(s). A small cap of material on top of the ditch/hole should be left to allow for sloughing and settling of material.

4.15.4 Backfilling shall be done with care to prevent damage to any exposed utilities or facilities.

4.15.5 A spotter may be necessary to avoid encroachment (e.g. working around other equipment, traveling under overhead lines, working in close conjunction to underground facilities and other workers, compromised line of vision) and to watch for any rocks falling into the excavation, which may damage exposed facilities. If fill contains rocks or hard material, a shield or alternate fill material may be used to protect the facilities

4.15.6 Confirm piping or facilities are properly supported prior to backfilling.

4.15.7 If shoring was used, remove from the bottom up.

4.15.8 If a trench box has been used it should be placed no more than 24” above the base of the excavation or a sub-trench bed containing the pipe.

4.15.9 Appropriate measures shall be taken to confirm proper backfilling and compaction of the soil below the trench box. Removing and reinserting the trench box multiple times may be necessary to accomplish this.

4.15.10 Dragging of a trench box shall only be permitted if it will not damage facility or disturb the backfill, otherwise it shall be lifted vertically. No worker shall occupy a trench box while it is being moved.

4.15.11 If compaction is required confirm the appropriate method is employed and compaction testing is conducted in a manner that does not damage any facilities or pipelines in the excavation.

4.15.12 Final grading and cover of the ground disturbance should confirm corrosion control. Original state of the area and access shall be considered in completion of backfilling.

4.15.13 Any excess excavation material shall be properly disposed of.

## 5.0 Records

5.1 Completed Daily Excavation Checklist, Permits and applicable notifications shall be retained in the project files for +1 year.

## 6.0 Attachments

6.1 S3AM-303-FM1 Daily Excavation Checklist

6.2 S3AM-303-FM2 Excavation & Trenching Permit

**Americas**

# Hand & Power Tools

**S3AM-305-PR1**

## 1.0 Purpose and Scope

1.1 This procedure provides the AECOM requirements for all manually operated hand and power tools and associated use, handling and storage. These requirements apply to tools provided by AECOM for employee use as well as tools provided by employees for use on AECOM work sites.

1.2 This procedure applies to all AECOM Americas-based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

## 2.0 Terms and Definitions

2.1 None

## 3.0 References

3.1 S3AM-003-PR1 SH&E Training

3.2 S3AM-118-PR1 Hearing Conservation

3.3 S3AM-208-PR1 Personal Protective Equipment

3.4 S3AM-302-PR1 Electrical Safety

3.5 S3AM-325-PR1 Lockout Tagout

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Managers/Supervisors**

- Ensure that all aspects of this procedure are followed and adhered to on all AECOM projects, sites and locations.
- If a specific tool is not included in the work instructions related to this procedure, appropriate guidelines shall be established prior to work associated with that tool, including following manufacturer's recommendations.
- Ensure compliance with applicable client requirements and restrictions regarding hand or power tools.

4.1.2 **Safety, Health and Environment (SH&E) Manager**

- Provide technical guidance and support as to this procedure and associated work instructions.

4.1.3 **Employees**

- Work only with tools for which they are appropriately trained and familiar with.
- Follow manufacturer's recommendations for its use and never modify the equipment without first obtaining authorization from the manufacturer.
- Comply with applicable client requirements and restrictions regarding hand or power tools.

4.2 Requirements

4.2.1 Always conduct a task hazard assessment (THA) prior to work commencing and include the identified hazards associated with the anticipated tool use.

4.2.2 No employee shall use any hand or power tool, unless they are familiar with the use and operation of the equipment or have received specific instruction on its use and operation.

4.2.3 All tools will be used for which they were designed and in accordance with manufacturer's specifications. Do not use tools for jobs they are not intended for. For example, do not use a slot screw driver as a chisel, pry bar, wedge or punch or wrenches as hammers.

4.2.4 Use approved tools only. Never modify or use makeshift tools.

4.2.5 Do not apply excessive force or pressure on tools unless permitted by the manufacturer's specifications. This includes additional force by hammering with body weight, foot or other tools.

4.2.6 Keep surfaces and handles clean and free of excess oil and grease to prevent slipping.

4.2.7 Do not carry sharp tools (e.g. knife, chisel, screwdriver, etc.) in pockets; this practice may cause puncture wounds.

4.2.8 All tools shall be properly maintained. Clean, dry, lubricate and repair tools as applicable, and return to a suitable toolbox, room, rack, or other storage area upon completion of a job.

4.2.9 Ensure proper ergonomics principles are observed when using hand and power tools, such as but not limited to:

- Avoid static and awkward positions when possible.
    - Move at intervals to reduce muscle fatigue.
    - Consider tools with a trigger strip, rather than a trigger button. This strip will allow the exertion of more force over a greater area of the hand that, in turn, will reduce muscle fatigue
- Do not apply excessive force or pressure on tools.
- If possible use tools with comfortable grips that are designed to allow the wrist to stay straight. Avoid using a bent wrist.
- Choose hand tools that have a centre of gravity within or close to the handle.
- Frequently used tools that weigh more than 1 pound (0.45 kilograms) should be counter-balanced.
- Ensure proper body positioning when using a tool to prevent slips or falls in the event of unanticipated tool behaviour (slip, kickback, etc.). Avoid over-reaching.
- Pull on tools such as a wrench or pliers whenever possible. Loss of balance is more likely when pushing if the tool slips. If pushing is necessary, hold the tool with an open palm.
- Hand-arm vibration exposure is associated with the use of hand tools.
    - Reduce power to the lowest setting that can complete the job safely. This action reduces tool vibration at the source.
    - Consider the need for controls such as limiting time of use.
    - If safe to do so, adjust to a looser but stable grip, and use anti-vibration gloves.
- Use of heavy tools such as jackhammers can cause fatigue and strains. Heavy rubber grips can reduce these effects by providing a secure handhold.
- Do not increase a tool's leverage by adding sleeved additions (e.g. a pipe or snipe) to increase tool handle length.

4.2.10 Avoid placing fingers and hands in danger zones:

- Ensure hands and fingers have sufficient clearance in the event the tool slips.
- Ensure stability of the work-piece. Use work-piece holders (e.g. vise, chisel holder, etc.) whenever possible to prevent injury to hands or deflection of tool or work-piece.

- Use push sticks or guides when cutting or machining smaller material.

4.2.11 Secure tools when working from heights to prevent them from falling. Never leave tools on ladders, scaffolds, or overhead work areas when they are not in use.

4.2.12 Utilize good housekeeping practices to ensure tools do not present a tripping hazard.

4.2.13 Ensure no part of a tool extends over the edge of the bench top. Place sharp tools (e.g., saws, chisels, knives) on benches so that sharp points or edges face away from the edge.

4.2.14 When using saw blades, knives, or other tools, if possible direct the tools away from aisle areas and away from other employees working in close proximity.

4.2.15 Do not throw tools from place to place or from person to person, or drop tools from heights. Hand them, handle first, directly to other workers.

4.2.16 Use non-sparking and intrinsically safe tools in atmospheres with flammable or explosive characteristics and where highly volatile liquids, and other explosive substances are stored or used.

- Iron or steel hand tools may produce sparks that can be an ignition source around flammable substances. Where this hazard exists, spark-resistant tools made of non-ferrous materials shall be used.
- Electrical tools shall be identified as intrinsically safe.

4.2.17 If the task presents electrical hazards, worker must be competent and use the appropriate insulated tools to perform work that includes the risk of electrical shock. Cushioned grip handles do not protect against electrical shock.

4.2.18 The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed. The exception to fire-resistant fluid involves all hydraulic fluids used for the insulated sections of derrick trucks, aerial lifts, and hydraulic tools that are used on or around energized lines. This hydraulic fluid shall be of the insulating type.

4.2.19 All tools designed to accommodate guards must have the guard(s) in place when the tool is in use. Do not modify, remove, or disable any machine guards.

4.2.20 Do not allow loose clothing, long hair, loose jewelry, rings, and chains to be worn while working with power tools.

4.2.21 Make provisions to prevent tools from automatically restarting upon restoration of power. Refer to *S3AM-325-PR Lockout Tagout*.

4.3 Training

4.3.1 Instruction in the proper use, safe handling, and maintenance of tools will be provided to employees unfamiliar with the tool.

- Assess the employee's training needs as per *S3AM-003-PR1 SH&E Training* procedure.
- Refer to the applicable work instructions associated with this procedure for any additional training specifics.
- Training shall include applicable manufacturer's recommendations and guidelines.

4.3.2 Employees shall demonstrate knowledge and competency in the use, safe handling and maintenance of the applicable tool prior to operation.

4.4 Personal Protective Equipment (PPE)

4.4.1 Utilize basic PPE appropriate to the task; gloves, safety-toed boots, hard hats and safety glasses with side shields. Refer to *S3AM-208-PR1 Personal Protective Equipment*.

4.4.2 Ensure lockout devices (padlocks, multiple lock hasps, tags) are utilized as necessary. Refer to *S3AM-325-PR Lockout Tagout*.

4.4.3 Ensure PPE is appropriate to the work and use additional PPE as required (e.g. mono-goggles, hearing protection, respiratory protection, etc.).

- Dual eye protection is required to be worn by any employee undertaking or within 3 ½ feet (1 meter) of a task that produces projected particles or material.
- Head and face protection is recommended for employees working with pneumatic tools.
- Noise hazard is associated with pneumatic and many other tools. Working with noisy tools such as jackhammers requires proper, effective use of appropriate hearing protection.

4.4.4 Screens shall also be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.

4.4.5 Refer to the applicable work instructions associated with this procedure for any additional specialized PPE.

4.5 Inspections

4.5.1 All tools must be inspected prior to each use.

- Any tool that is defective or has missing parts must not be used.
- Every broken or defective tool must be tagged ‘out of service’ or ‘do not use’ and immediately removed from service.
- Tagged tools will be returned to the supervisor for repair or replacement.

4.5.2 All tools must be inspected to manufacture’s specifications and according to tool rests and guard adjustment tolerances. All tools will be inspected to ascertain that all safety devices are present and functioning properly. Refer to *S3AM-305-FM1 Hand & Power Tool Maintenance Inventory* and *S3AM-305-FM2 Hand & Power Tool Inspection Report*.

## 5.0 Records

5.1 None

## 6.0 Attachments

6.1 S3AM-305-ATT1 Chainsaw

6.2 S3AM-305-ATT2 Circular Saw

6.3 S3AM-305-ATT3 Cut Off Saw

6.4 S3AM-305-ATT4 Handheld Grinder

6.5 S3AM-305-ATT5 Impact Wrench

6.6 S3AM-305-ATT6 Nail Gun

6.7 S3AM-305-ATT7 Dustless Vacuum

6.8 S3AM-305-ATT8 Power Drill

6.9 S3AM-305-ATT9 Pressure Washer

6.10 S3AM-305-ATT10 Reciprocating Saw

6.11 S3AM-305-ATT11 Sander

6.12 S3AM-305-ATT12 Knives

6.13 S3AM-305-ATT13 Clearing & Grubbing Equipment

6.14 S3AM-305-ATT14 Pneumatic Tools

6.15 S3AM-305-ATT15 Manual Hand Tools

6.16 S3AM-305-ATT16 Small Engines

6.17 S3AM-305-ATT17 Electric & Battery Hand Tools

6.18 S3AM-305-FM1 Hand & Power Tool Maintenance Inventory

6.19 S3AM-305-FM2 Hand & Power Tool Inspection Report

**Americas**

# Heavy Equipment

**S3AM-309-PR1**

## 1.0 Purpose and Scope

1.1 Outline the safe working requirements for working with and near heavy equipment and heavy equipment operation.

1.2 Military related vehicles and equipment (e.g. tanks) are not covered under this standard.

1.3 This procedure applies to all AECOM Americas-based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

## 2.0 Terms and Definitions

2.1 **Heavy equipment** –All excavating equipment (e.g. scrapers, loaders, crawler or wheel tractors, excavators, backhoes, bulldozers, graders, agricultural and industrial tractors, etc.), cranes, lift trucks, drills, etc. This may include off-highway trucks (e.g. dump truck, heavy haul truck, etc.). For requirements related to crew trucks refer to *S3AM-005-PR1 Driving*.

2.2 **Operator** – Any person who operates the controls while the heavy equipment is in motion or the engine is running.

2.3 **Ground personnel/workers** – Personnel performing work on the ground around heavy equipment (note: operators are considered ground personnel when outside of the equipment cab).

## 3.0 References

3.1 S3AM-005-PR1 Driving

3.2 S3AM-202-PR1 Competent Person Designation

3.3 S3AM-213-PR1 Subcontractor Management

3.4 S3AM-303-PR1 Excavation

3.5 S3AM-322-PR1 Overhead Lines

3.6 S3AM-325-PR1 Lockout Tagout

3.7 S3AM-331-PR1 Underground Utilities & Subsurface Installation Clearance

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Managers / Supervisors**

- Responsible for confirming all equipment is in good working order and all equipment operators are verified as qualified on the piece of machinery they are assigned.
- As applicable, review as-built drawings.
- Maintain operation manuals at the site for each piece of equipment that is present on the site and in use.
- Maintain a list of operators for the project, and the specific equipment that they are authorized to operate.
- Prohibit equipment from being operated by any personnel who have not been specifically authorized to operate it.

- Confirm an equipment maintenance inventory is maintained, schedules adhered to and appropriate inspections of equipment are conducted.
- Confirm subcontractors are properly pre-qualified in accordance with *S3AM-213-PR1 Subcontractor Management.*
- Require that subcontractor employees follow established safety procedures in operation, inspection, and maintenance of vehicles and equipment.
- Inform AECOM and subcontractor machinery operators about applicable local regulations restricting the consecutive minutes of engine idling time allowed.
- Confirm subcontractor machinery and mechanized equipment is approved for use in accordance with the requirements of *S3AM-309-FM1 Approval of Machinery & Mechanized Equipment*.
- Confirm that all rented equipment bears any required current certification marks and arrives in proper working order with the manufacturer's operating manual before acceptance from the supplier.
- Confirm that AECOM and subcontractor machinery and mechanized equipment is certified, as applicable, in accordance with manufacturer specifications and/or regulatory requirements.
- Visually observe the subcontractors' vehicles and equipment, for any unsafe conditions or practices. Equipment or operation not in compliance with applicable safety standards is prohibited.

4.1.2 **Employees / Ground Personnel**

- Confirm that all rented equipment arrives in proper working order with the manufacturer's operating manual before acceptance from the supplier.
- Ground personnel when working in the vicinity of heavy equipment shall have received training, and comply with the applicable rules of engagement.

4.1.3 **Operators (of heavy equipment)**

- Operate the equipment safely, maintain full control of the equipment, and comply with manufacturer's operation manual and the laws governing the operation of the equipment.
- Inspect equipment and immediately report defects and conditions affecting the safe operation of the equipment to the appropriate Supervisor.
- Trainees may operate equipment in accordance with jurisdictional requirements and under the direct supervision of a trainer.

4.2 Communication

4.2.1 Communication between site Managers / Supervisors, heavy equipment Operators, and site Employees / Ground Personnel is a key method of preventing serious injury or death during heavy equipment operations.

4.2.2 Managers shall confirm the Industrial site or project specific SH&E Plan is developed and communicated to all affected and involved employees. Refer to *S3AM-209-PR1 Risk Assessment & Management*.

4.2.3 Task Hazard Assessments and Daily Tailgate meetings shall be conducted in accordance with *S3AM-209-PR1 Risk Assessment & Management.*

4.2.4 Concerning worksites in which other employers control concurrent operations and SH&E issues related to the worksite, the manager shall coordinate with those conducting concurrent operations to confirm appropriate control measures are in place to protect employees from the hazards associated with activities to be performed.

- Coordination shall occur prior to work commencing, periodically thereafter, and as necessary given changes in scope and/or working conditions.
- Affected employees (including managers and supervisors) shall seek to participate in all site SH&E meetings related to concurrent operations.

4.2.5 The following points outline the communication requirements during heavy equipment operations:

- Site Supervisors/t Managers shall confirm that all operators are notified/informed of when, where, and how many ground personnel will be working on site.
- Site Supervisors/ Managers shall inform all ground personnel before changes are made in the locations of designated work areas.
- Prior to work initiating on site, the Site Supervisor/ Manager is to confirm all operators and ground personnel are trained on the hand signals that will be used to communicate between operators and ground personnel.
- Ground Personnel working around heavy equipment operations are to maintain eye contact with operators to the greatest extent possible (always face equipment). Never approach equipment from a blind spot or angle.
- All heavy equipment whose backup view can be obstructed shall be equipped with reverse warning devices (e.g., backup alarms) that can be significantly heard over equipment and other background noise. Reverse signaling lights shall be in working order.
- When feasible, two-way radios shall be used to verify the location of nearby ground personnel.
- When an operator cannot adequately survey the working or traveling zone, a signal person shall use a standard set of hand signals to provide directions. Flags or other high visibility devices may be used to highlight these signals.

4.3 Ground Personnel

4.3.1 Ground clearance around heavy equipment may significantly reduce hazards posed during heavy equipment operations.

4.3.2 The following points outline the clearance requirements during heavy equipment operations:

- Ground Personnel shall always yield to heavy equipment.
- Ground Personnel shall maintain a suitable “buffer” area of clearance from all active heavy equipment.
- A task hazard assessment that identifies any special precautions shall be completed and communicated to all AECOM personnel associated with or affected by the activity.
- Site Supervisors/ Managers shall designate areas of heavy equipment operation and confirm that all ground personnel are aware of designated areas.
    - Designated areas shall include work zone boundaries and travel routes for heavy equipment.
    - Travel routes shall be set up to reduce crossing of heavy equipment paths and to keep heavy equipment away from ground personnel.
    - Work zone boundaries shall consider line of fire hazards related to the equipment and associated activities. Refer also to *S3AM-309-ATT2 Operator Line of Sight.*
    - If working near heavy equipment, Ground Personnel shall stay clear of loads to be lifted or suspended loads, and out of the travel and swing areas (excavators, all-terrain forklifts, hoists, etc.) of all heavy equipment.
    - During winch use, all swampers or other personnel will remain outside the “whip area” of the winch line or tow cable.

- At a minimum, employees shall maintain a distance of at least two pile lengths from where piles are being cut and dropped, other than in situations where cut piles are being guided to the ground utilizing mechanical means (e.g., pile driver and shackle) to control the direction and speed of fall of the cut pile.

- When feasible, Site Supervisors/ Managers shall set up physical barriers (e.g., caution tape, orange cones, concrete jersey barriers) around designated areas and confirm that unauthorized ground personnel do not enter such areas.
- Operators shall stop work whenever unauthorized personnel or equipment enter the designated area and only resume when the area has been cleared.
- Operators shall only move equipment when aware of the location of all workers and when the travel path is clear.
- Ground Personnel shall never stand between two pieces of operating heavy equipment or other objects (e.g., steel support beams, trees, buildings, etc.).
- Ground Personnel shall never stand directly below heavy equipment located on higher ground unless it can be verified ground stability is not a factor and grade of slope is such that it would not contribute to equipment tip-over.
- Ground Personnel may only enter the swing area, work area or path of travel of any operating equipment when:
  - They have attracted the operator's attention and established eye contact, and
  - The operator has idled the equipment down, placed it in neutral, grounded engaging tools, set brakes and communicated entry is permitted.
- Employees shall keep all extremities, hair, tools, and loose clothing away from pinch points and other moving parts on heavy equipment.
- Employees shall not talk, text, or otherwise use a cell phone while standing or walking on a roadway or other heavy equipment path.

4.3.3 At a minimum, all Ground Personnel and Operators outside of heavy equipment shall wear the following:

- High visibility safety vest (fluorescent background material and retro-reflective striping) meeting jurisdictional requirements that is visible from all angles.
  - Background material: should be fluorescent yellow-green, fluorescent orange-red or fluorescent red.
  - Combined-performance retro-reflective material (e.g. the stripes): should be fluorescent yellow-green, fluorescent orange-red or fluorescent red - and shall be in contrast (that is, have a distinct color difference) to the background material.
  - Hazards may require high visibility garments that cover torso, legs and arms.
  - Confirm that vest is not faded or covered with outer garments, dirt, etc.
- American National Standards Institute/Canadian Standards Association- (ANSI/CSA-) approved hard hat
- ANSI/CSA-approved safety glasses with side shields
- At a minimum, CSA or ASTM approved, high-cut (min. 6"), puncture, impact and compression resistant footwear.
- ANSI/CSA-approved hearing protection as needed
- Appropriate work clothes (e.g., full-length jeans/trousers and a sleeved shirt; no tank, crew tops or other loose clothing permitted).

4.4 Prior to work commencing

4.4.1 All heavy equipment will be inspected pre-shift and then regularly as required with the details of the inspection recorded in a log book.

- Roll-over protection systems (ROPS) and appropriate overhead protection (Fall Object Protection FOP) shall be in place given the specific equipment requirements. Utilize equipment with enclosed cabs where feasible or accessible.
    - Where use of equipment with enclosed cabs is not feasible or said equipment is not accessible, operators shall use any additional personal protective equipment determined as necessary (e.g. goggles, additional hearing protection, etc.).
- Equipment operated in hazardous atmosphere environments shall be equipped with the proper safety equipment (e.g., spark arrestors, positive air shut off, etc.).
- Operation of equipment that has or had cab glass (per the manufacturer's specifications) that is cracked/broken (obstructing the operator's view) or missing is prohibited.
- A locking device shall be provided that will prevent the accidental separation of towed and towing vehicles on every fifth-wheel mechanism and two-bar arrangement.
- Trip handles for tailgates of dump trucks and heavy equipment shall be arranged so that when dumping, the operator will be in the clear.
- The Operator will report defects and conditions affecting the safe operation of the equipment to the Site Supervisor or employer. Any repair or adjustment necessary for the safe operation of the equipment will be made before the equipment is used.
- Exposed moving parts on heavy equipment (belts, gears, shafts, pulleys, sprockets, spindles, drums, fan belts, flywheels, chains, or other reciprocating, rotating or moving parts) which are a hazard to the operator or to other workers will be guarded.
    - If a part will be exposed for proper function it will be guarded as much as is practicable consistent with the intended function of the component.

4.4.2 An approved 4A40BC fire extinguisher shall be present on all heavy equipment. An approved 4A40BC fire extinguisher of appropriate rating shall be present and readily accessible on all heavy equipment.

- Fire extinguishers shall be inspected by the operator prior to heavy equipment operation each shift. Monthly and annual inspections shall be documented.

4.4.3 All Operators shall inspect the area adjacent to the machine prior to starting.

- Evaluate ground conditions, concurrent operations and obstructions to identify approved routes of travel and work areas.
- As applicable, check that there is sufficient swing room and that the outriggers are adequately supported on solid and stable ground

4.4.4 Managers / Supervisors shall inform the operators of the equipment that AECOM employees are in the area and inquire if there are any restricted areas or specific rules or requirements. In some industrial facilities, heavy equipment has the 'right of way'.

4.4.5 Where the Operator will not have a full view of the path of travel, a signal person will be used on the ground that has a full view of the load, the operator, and the path.

4.4.6 All heavy equipment with limited visibility (operator cannot directly or by mirror or other effective device see immediately behind the machine) operated around workers or on a construction site:

- Shall have an audible back-up alarm installed that functions automatically when the vehicle or equipment is put into rear motion.

- All bi-directional equipment shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction.
- Backing up or movement in both directions for bidirectional equipment shall occur only when a signal person communicates that it is safe to do so if alarms or horns are not feasible.

4.5 Operation

4.5.1 The Operator of heavy equipment is the only worker permitted to ride the equipment unless the equipment is equipped by the manufacturer for passengers. Manufacturer operator's manual shall be complied with.

4.5.2 A person will not operate heavy equipment unless the person has received adequate instruction and training in the safe use of the equipment, and has demonstrated to a qualified supervisor or instructor competency in operating the equipment.

- Oilers, apprentices, and other operators will not be allowed to operate equipment unless authorized by the Manager.

4.5.3 The Operator of heavy equipment will operate the equipment safely, maintain full control of the equipment, and comply with the manufacturer's operator manual and the laws governing the operation of the equipment.

- Operation of company-owned, leased, or rented vehicles or equipment while under the influence of alcohol or illegal drugs or otherwise impaired is prohibited.
- Do not operate any equipment beyond its safe load or operational limits.
- Operator shall not talk on, text, or otherwise use mobile phones while operating heavy equipment.
- Never use bucket teeth or boom for lifting or moving heavy objects.

4.5.4 When heavy equipment is used for lifting or hoisting or similar operations there shall be a permanently affixed notation stating the safe working load capacity of the equipment and the notation shall be kept legible and clearly visible to the operator.

4.5.5 A Supervisor or Manager will not knowingly operate or permit a worker to operate heavy equipment which is, or could create, an undue hazard to the health or safety of any person. Where compliance is refused, the Manager or his or her designate should be notified immediately.

4.5.6 The Operator of heavy equipment will not leave the controls unattended unless the equipment has been secured against inadvertent movement.

- The Operator is not to leave suspended load, machine or part or extension unattended, unless it has been immobilized and secured against inadvertent movement.
- Turn off heavy equipment, place gear in neutral and set parking brake prior to leaving vehicle unattended.
- Buckets and blades are to be placed on the ground and with hydraulic gears in neutral when not in use.
- Brakes shall be set and, as necessary, wheels chocked or equivalent (as applicable) when not in use.

4.5.7 The Operator will maintain the cab, floor and deck of heavy equipment free of material, tools or other objects which could create a tripping hazard, interfere with the operation of controls, or be a hazard to the operator or other occupants in the event of an accident.

4.5.8 If heavy equipment has seat belts required by law or manufacturer's specifications, the Operator and passengers will use the belts whenever the equipment is in motion, or engaged in an operation which could cause the equipment to become unstable.

- Seat belts shall be maintained in functional condition, and replaced when necessary to ensure proper performance.

4.5.9 All vehicles transporting material or equipment on public roads shall comply with local laws pertaining to weight, height, length, and width. Obtain any permits required for these loads.

4.5.10 Never jump on to or off of a piece of heavy equipment, always maintain 3-points of contact at a minimum.

4.5.11 Never exit heavy equipment while it is in motion.

4.5.12 Do not ride with arms or legs outside of the truck body of equipment cab.

- Never ride on the outside of a piece of heavy equipment (e.g. in a standing position on the body, on running boards, or seated on side fenders, cabs, cab shields, rear of truck bed, on the load, bucket, etc.).

4.5.13 Have vehicle headlights on at all times when driving in the area.

4.5.14 Park motor vehicles off the haul roads, or away from the work areas.

4.5.15 Do not wear loose clothing or jewelry where there is a danger of entanglement in rotating equipment.

4.5.16 Do not enter the swing area of machines such as cranes, heavy drill rigs, or excavators, without first making eye contact with the operator, and receiving permission to do so. Refer to *S3AM-309-ATT2 Operator Line of Sight.*

4.5.17 Stay out of the blind areas around heavy equipment and never assume that the equipment operators have seen you or are aware of your presence.

4.5.18 Maintain a distance of at least 2 feet (60 centimeters) between the counterweight of swing machines and the nearest obstacle. If this distance cannot be maintained, a spotter shall observe and be in constant communication with the operator to prevent contact.

4.5.19 Vibrations from moving traffic or heavy equipment can cause excavations or spoil piles to become unstable.

- Excavation activity shall be conducted according to *SOP S3AM-303-PR1 Excavation*.
- Equipment not involved in the excavating activity or not required to be in the vicinity shall keep clear. Equipment that shall operate in the vicinity shall maintain appropriate setback distances from edges of excavations or spoil piles.

4.5.20 All heavy equipment shall be operated in a safe manner that will not endanger persons or property.

- When ascending or descending grades in excess of 5 percent, loaded equipment shall be driven with the load upgrade.
- When operating an electric-powered, remote controlled, hydraulic device used for demolishing concrete structures and refractory linings as well as excavating, refer to the *S3AM-309-ATT1 Brokk 180* for more specifics.

4.5.21 All heavy equipment shall be operated at safe speeds. Do not drive any vehicle at a speed greater than is reasonable and safe for weather conditions, traffic, intersections, width, and character of the roadway, type of motor vehicles, and any other existing condition.

4.5.22 Always move heavy equipment up and down the face of a slope. Never move equipment across the face of a slope.

4.5.23 Slow down and stay as far away as possible while operating near steep slopes, shoulders, ditches, cuts, or excavations.

4.5.24 When feasible, Operators shall travel with the “load trailing”, if the load obstructs the forward view of the operator.

4.5.25 Slow down and sound horn when approaching a blind curve or intersection. Signal people equipped with 2-way radio communications may be required to adequately control traffic.

4.5.26 All haulage equipment / trucks, whose payload is loaded by means of cranes, power shovels, loaders, or similar equipment, shall have a cable shield and/or canopy adequate to protect the operator from shifting or falling material. If protection is not available for the operator, the operator shall leave the vehicle and wait in a designated safe location until it is loaded..

4.5.27 Equipment shall be shut down prior to and during fueling.

- Confirm proper grounding/ bonding between equipment and fuel vehicle prior to fueling operations.
- During fuel operations confirm fuel nozzle remains in contact with the tank.
- Do not smoke, use electrical devices or have an open flame present while fueling.
- Fuel shall not be carried in or on heavy equipment, except in permanent fuel tanks or approved safety cans.

4.5.28 Site vehicles will be parked in a designated parking location away from heavy equipment.

4.5.29 Operators shall never push/pull “stuck” or “broken-down” equipment unless a spotter determines that the area is cleared of all personnel around and underneath the equipment.

4.5.30 If designated for work in contaminated areas/zones, equipment shall be kept in the exclusion zone until work or the shift has been completed. Equipment will be decontaminated within designated decontamination areas.

4.5.31 Equipment left unattended at night adjacent to travelled roadways shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of that equipment, and shall not be closer than 6 feet (1.8m) (or the regulatory requirement for the work location) to the active roadway.

4.5.32 Rubber / pneumatic-tired earthmoving haulage equipment shall be equipped with fenders on all wheels. Mud flaps may be used in lieu of fenders whenever motor vehicle equipment is not designed for fenders.

4.5.33 Lift trucks shall have the rated capacity clearly posted on the vehicle, and the ratings are not to be exceeded.

4.5.34 Steering or spinner knobs shall not be attached to steering wheels.

4.5.35 High-lift rider industrial trucks shall be equipped with overhead guards.

4.5.36 All hot surfaces of equipment, including exhaust pipes or other lines, that present a possible injury or fire hazard, shall be guarded or insulated.

4.5.37 All equipment having a charging skip shall be provided with guards on both sides and open end of the skip area to prevent persons from walking under the skip while it is elevated.

4.5.38 Platforms, foot walks, steps, handholds, guardrails, and toeboards shall be designed, constructed, and installed on machinery and equipment to provide safe footing and access ways.

4.5.39 Substantial overhead protection shall be provided for the operators of fork lifts and similar equipment.

4.5.40 In an effort to reduce air emissions, fuel costs, and run-time hours (that can impact equipment warranty), operators shall limit heavy equipment engine idling to not more than five consecutive minutes. Local regulations at the location of the vehicle operation could require less than five consecutive minutes idling time. The idling limit does not apply to:

- Idling when queuing.
- Idling to verify that the vehicle is in safe operating condition.

- Idling for testing, servicing, repairing or diagnostic purposes.
- Idling necessary to accomplish work for which the vehicle was designed (cranes, man-lifts, forklifts, etc.)
- Idling required to bring equipment/vehicle to operating temperature, as specified by the manufacturer. Engine heaters shall be used for cold weather starting to avoid engine idling where feasible.
- Idling necessary to ensure safe operation of the vehicle.
- Idling to keep equipment (including windows) clear of ice and snow.
- Idling to provide air conditioning or heat to ensure the health and safety of the operator, but only when seated inside the equipment or vehicle.

4.6 Utilities

4.6.1 When contacted by heavy equipment, aboveground and underground utilities may cause severe injuries or death as a result of electrocution, explosion, etc. Refer to the *S3AM-322-PR1 Overhead Lines* procedure for more specifics.

4.6.2 The following outline the requirements while performing heavy equipment operations that may lead to contact with aboveground or underground utilities:

- Always be aware of surrounding utilities.
- Confirm all equipment (e.g., dump trailers, loaders, excavators, etc.) is lowered prior to moving underneath aboveground utilities.
- Confirm utilities are cleared and identified prior to beginning any earthmoving operation. Contact the local utility service providers for clearance prior to performing work. Confirm documentation of the contact is made; date, number; contact name, organization, etc. Refer to *SOP S3AM-303-PR1 Excavation* and *S3AM-331-PR1 Underground Utilities & Subsurface Installation Clearance.*

4.7 Training

4.7.1 The Operator or other qualified supervisor will provide all on-site personnel with an orientation to the heavy equipment and its associated hazards and controls.

4.7.2 Only designated, qualified personnel shall operate heavy equipment.

4.7.3 Operators shall have all appropriate jurisdictional licenses or training to operate a designated piece of heavy equipment.

4.7.4 Operators shall be evaluated through documented experience and routine monitoring of activities unless the equipment is operated by an AECOM operator in which case a practical evaluation is required. Operators shall be knowledgeable and competent in the operation of a designated piece of heavy equipment.

4.8 Inspection and Maintenance

4.8.1 Maintenance records for any service, repair or modification which affects the safe performance of the equipment will be maintained and be reasonably available to the operator and maintenance personnel regulatory agencies upon request during work hours.

4.8.2 Maintenance records will be maintained on the site or project for heavy equipment.

4.8.3 Conduct maintenance as prescribed by the manufacturer in the Operation Manual for each piece of equipment.

4.8.4 Servicing, maintenance and repair of heavy equipment will not be done when the equipment is operating.

- Lockout and tagout safety procedures are followed. Refer to *S3AM-325-PR1 Lockout Tagout*.

- Motors are turned off, unless required for performing maintenance or repair.
- All ground-engaging tools are grounded or securely blocked.
- Controls are set in a neutral position and brakes are set.
- Electrically driven equipment is installed with provision for tagging and locking out the controls while under repair.
- Manufacturer's requirements for maintenance and repair are followed.
- If continued operation is essential to the process, a safe means of protection shall be provided.
- Provide and use a safety tire rack, cage, or equivalent protection when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.

4.8.5 All heavy equipment shall have a documented inspection and if necessary, repaired prior to use.

- Operators shall not operate heavy equipment that has not been cleared for use.
- All machinery and mechanized equipment will be verified to be in safe operating condition (refer to *S3AM-309-FM1 Approval of Machinery & Mechanized Equipment*) by a competent person (refer to *S3AM-202-PR1 Competent Person Designation*) within seven days prior to operation on a new site or project. Clearance is valid for up to one year for the given site or project.
- As applicable, all machinery and mechanized equipment shall be inspected / certified and tested at appropriate intervals as required by the manufacturer and/or regulatory requirements.

4.8.6 All heavy equipment shall be inspected at a minimum to the manufacturer's recommendations prior to each work shift. All defects shall be reported to the Supervisor/ Manager immediately.

- Defective heavy equipment shall be immediately tagged and taken out of service until repaired.
- Inspection, maintenance, service and repair records shall be maintained at the site. If a manufacturer's or company-specific inspection checklist is not provided, use *S3AM-309-FM2 Heavy Machinery Pre-Operation Checklist*.
- Records shall be made available for review upon request. Note: Documents may be electronically stored in the project files.

4.9 Fueling and batteries

4.9.1 A well-ventilated area shall be used for refueling.

4.9.2 Only the type and quality of fuel recommended by the engine manufacturer shall be used.

4.9.3 Fuel tanks shall not be filled while the engine is running. All electrical switches shall be turned off.

4.9.4 If there is potential to spill fuel on hot surfaces, the surfaces shall be permitted to cool down prior to fueling. Any spillage shall be cleaned before starting engine.

4.9.5 Spilled fuel shall be cleaned with cotton rags or cloths and disposed of in the proper receptacle; do not use wool or metallic cloth.

4.9.6 Open flames, lighted smoking materials, sparking equipment or any other type of ignition source shall remain a minimum of 35' (10.7m) from the fueling area and/or fuel source. This clearance shall be increased if required or conditions warrant.

4.9.7 Heaters in carrier cabs shall be turned off when refueling the carrier or the drill rig.

4.9.8 Portable containers to be filled shall be placed directly on the ground or be properly grounded prior to filling to prevent creation of a static charge. Portable fuel containers shall not be filled completely to allow expansion of the fuel during temperature changes.

4.9.9 Control electrostatic hazards.

- Before activating fuel pump, touch some part of vehicle / equipment to de-energize any static electricity that may be present.
- The fuel nozzle shall be kept in contact with the tank being filled to prevent static sparks from igniting the fuel.
- Fuel containers and transfer hoses shall be kept in contact with a metal surface during travel to prevent build-up of a static charge.

4.9.10 Portable fuel containers shall not travel in the vehicle or carrier cab with personnel.

4.9.11 Batteries shall be serviced in a ventilated area while wearing appropriate Personal Protective Equipment.

4.9.12 When a battery is removed from a vehicle or service unit, the battery shall be disconnected ground post first. Consult the SDS applicable to the battery and/or contents for additional information including; handling, precautions, and first aid measures.

- Spilled battery acid shall be immediately flushed off the skin with a continuous supply of water. Battery storage or maintenance areas shall have readily accessible eye wash stations.
- Should battery acid get into the eyes, the eyes shall be flushed immediately with copious amounts of water and medical attention shall be sought immediately.

4.9.13 When installing a battery, the battery shall be connected ground post last.

4.9.14 When charging a battery, cell caps shall be loosened prior to charging to permit gas to escape.

4.9.15 When charging a battery, the power source shall be turned off to the battery before either connecting or disconnecting charger loads to the battery posts.

4.9.16 To avoid battery explosions, the cells shall be filled with electrolytes. A flashlight (not an open flame) shall be used to check water electrolyte levels. Avoid creating sparks around batteries by shorting across a battery terminal. Lighted smoking materials and flames shall be kept at least a minimum of 35 feet (10.7 meters) away from battery-charging stations.

## 5.0 Records

5.1 Inspection, maintenance, service and repair records shall be maintained with the equipment.

## 6.0 Attachments

6.1 S3AM-309-ATT1 Brokk180 Safety Card

6.2 S3AM-309-ATT2 Operator Line of Sight

6.3 S3AM-309-FM1 Approval of Machinery & Mechanized Equipment

6.4 S3AM-309-FM2 Heavy Machinery Pre-Operation Checklist

6.5 S3AM-309-FM3 Rubber Tire Backhoe Operator Skill Evaluation

6.6 S3AM-309-FM4 Scraper Operator Skill Evaluation

6.7 S3AM-309-FM5 Bull Dozer Operator Skill Evaluation

6.8 S3AM-309-FM6 Dump Truck Operator Skill Evaluation

6.9 S3AM-309-FM7 Roller Compactor Operator Skill Evaluation

6.10 S3AM-309-FM8 Front End Loader Operator Skill Evaluation

6.11 S3AM-309-FM9 Grader Operator Skill Evaluation

6.12 S3AM-309-FM 10 Excavator Operator Skill Evaluation

6.13 S3AM-309-FM11 Water Truck Operator Skill Evaluation

6.14 S3AM-309-FM12 Heavy Equipment Maintenance Inventory

6.15 S3AM-309-FM13 Heavy Equipment Inspection Report

**Americas**

# Wildlife, Plants & Insects

**S3AM-313-PR1**

## 1.0 Purpose and Scope

1.1 Communicates the requirements and precautions to be taken by AECOM employees to protect against the biological hazards associated with insects, arachnids, snakes, poisonous plants, and other animals referred to herein collectively as “biological hazards”.

1.2 This procedure applies to all AECOM Americas-based employees and operations and any other entity and its personnel contractually required to comply with this document’s content.

## 2.0 Terms and Definitions

2.1 **Field Work –** Any activity conducted at a site that contains brush, overgrown grass, leaf litter, poisonous plants, or is located near mosquito breeding areas and includes work in structures where animals might exist that harbor fleas or ticks or where spiders and mites could be present. Field work includes, but is not limited to, Phase I, Phase II, Operations Monitoring & Maintenance, biological surveys, and other work that meets the definition of field work.

2.2 **Poisonous** – Capable of harming or killing by or as if by poison; toxic or venomous.

2.3 **Phase I Environmental Site Assessment –** Investigation of real property to determine the possibility of contamination, based on visual observation and property history, but no physical testing. Under new Environmental Protection Agency regulations that went into effect on November 1, 2006, a Phase I, as it is called for short, will be mandatory for all investors who wish to take advantage of Comprehensive Environmental Response, Compensation, and Liability Act defenses that will shield them from liability for future cleanup, should that prove necessary. The new Phase I rules, called “All Appropriate Inquiry” or AAI, also require more investigation than previously mandated. Investors can expect to see dramatic price increases over prior experiences.

2.4 **Phase II Environmental Site Assessment** – Investigation of real property through physical samplings and analyses to determine the nature and extent of contamination and, if indicated, a description of the recommended remediation method.

## 3.0 References

3.1 RS2-001-PR1 Firearms Standard

3.2 S3AM-004-PR1 Incident Reporting, Notifications & Investigation

3.3 S3AM-008-PR1 Fitness for Duty

3.4 S3AM-113-PR1 Heat Stress

3.5 S3AM-208-PR1 Personal Protective Equipment

3.6 S3AM-209-PR1 Risk Assessment & Management

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Managers / Supervisors**

- Responsible for managing field work.

- Work with employees to see that a Task Hazard Analysis (THA) for the work to be conducted has been performed prior to the beginning of the field work and that it includes an assessment of potential biological hazards.
- Implement control measures at the location to reduce the potential for employees to be exposed to injuries and illnesses from biological hazards while working.
- If the exposures cannot be eliminated or managed with engineering controls, approve the use and cost of Personal Protective Equipment (PPE) and protective repellents and lotions and confirm that exposed employees have and use these products.

4.1.2 **SH&E Manager**

- Confirm training and guidance is provided to employees consistent with this procedure.
- During the performance of site visits, assess the precautions being taken against biological hazards for compliance with this procedure.
- Assist AECOM personnel in identifying hazards and selecting appropriate control measures.
- As applicable, review and approve relevant SH&E Plans for locations that have biological hazards.

4.1.3 **Employees**

- Participate in required training related this procedure.
- Participate in the development of THAs for the task, identify control measures to limit exposure and request PPE, repellents, and protective lotions identified by this procedure.
- Update the applicable THA when a new, unaccounted for biological hazard is identified. Employee shall stop work to identify appropriate elimination or control measures (and obtain any necessary guidance) before continuing work.
- Obtain approval from Managers and/or Supervisors to purchase selected PPE prior to purchasing.
- Implement the precautions appropriate to prevent exposure to the hazardous wildlife, insects and plants.
- Observe requirements for reporting (e.g. tick bites, skin irritations, etc.) as detailed within the procedure and attachments.

4.2 Training

4.2.1 Employees shall be trained to recognize organisms that represent a threat in the regions in which they work – experienced field staff shall provide on the job training to assist staff with hazard recognition.

4.2.2 Employees shall be properly trained to the anticipated tasks and the associated required PPE.

4.3 Overview

4.3.1 The procedures discussed below are detailed because these hazards have historically posed the most significant risk to AECOM employees. Note that this discussion is not a fully encompassing list of hazards. As part of the SH&E Plan and THA developed by the AECOM personnel, in accordance with *S3AM-209-PR1 Risk Assessment & Management*, additional consideration shall be given to other biological hazards.

4.3.2 Departments of Public Health local to the worksite, as well as the Centers for Disease Control (CDC) can serve as a resource for identifying biological hazards not discussed in this procedure.

4.3.3 If additional biological hazards are identified, employees should stop work and contact the SH&E Manager to discuss the hazards and identify effective control measures. Those control measures shall be implemented at the location prior to restarting work.

4.4 Employee Sensitivity

4.4.1 Sensitivity to toxins generated by plants, insects and animals varies according to dosage and the ability of the victim to process the toxin; therefore, it is difficult to predict whether a reaction will occur, or how severe the reaction will be. Employees should be aware that there are a large number of organisms capable of causing serious irritations and allergic reactions. Some reactions will only erupt if a secondary exposure to sunlight occurs. Depending on the severity of the reaction, the result can be severe scarring, blindness or even death.

4.4.2 Employees also need to consider whether they are sensitive to the use of insect repellents.

4.5 Planning and Hazard Assessment

4.5.1 AECOM personnel shall confirm that the potential for exposure to specific biological hazards are assessed prior to the commencement of work and that the procedures specified by this procedure are integrated into the THA planning process and conveyed to employees conducting the field work. This information shall be communicated in the location-specific SH&E plan, the THA, pre-project kickoff meetings, and tailgate meetings at the location.

4.5.2 It is important to note that the precautions to be taken by employees to decrease the risk of exposure to biological hazards can directly increase the risk of heat-related illness due to thermal stresses. Therefore, heat stress monitoring and precautions shall be included as a critical component of the task-specific THA in accordance with *S3AM-511-PR1 Heat Stress.*

4.5.3 During the preparation of the location-specific SH&E plan and task specific THA, Managers, Supervisors, and employees shall determine what biological hazards might be encountered during the task or operations and shall prescribe the precautions to be taken to reduce the potential for exposure and the severity of resulting illnesses. Consideration will be given to conditions such as weather, proximity to breeding areas, host animals, and published information discussing the presence of the hazards.

4.5.4 It should be assumed that at least one of the biological hazards exists whenever working on undeveloped property. This can include insect activity any time that local temperatures exceed 40 degrees Fahrenheit (4.5 degrees Celsius) for a period of more than 24 hours. The stubble and roots of poisonous plants can be a hazard any time of year, including when some plants are dormant or mown.

4.5.5 The hazard assessments shall also consider the additional hazards posed by vegetative clearing such as the increased risk of coming in contact with poison ivy, oak or sumac and hazards associated with the use of tools and equipment to remove vegetation.

4.5.6 Employees in the field where biological hazards exist shall not enter the hazard areas unless they are wearing the appropriate protective clothing, repellents, and barrier creams specified below. If the hazard is recognized in the field but was not adequately assessed during the THA, the field staff shall stop work and not proceed until the THA has been amended and approved and protective measures implemented.

4.5.7 Employees who have severe allergic reactions are strongly recommended to notify their Manager, field Supervisor and co-workers of the potential for a reaction and demonstrate what medication they might need, where they keep it and how it is administered.

4.5.8 A decision flow chart and table for determining the potential for biological hazards in the Americas has been provided in *S3AM-313-ATT1 Biological Hazard Assessment Flow Chart.*

4.5.9 Restrictions:

- No firearms or weapons are allowed to be used without express permission by the Region Executive and Chief Resilience Officer, refer to the *RS2-001-PR1 Firearms Standard*.
- No weapons related work shall occur without an assessment that includes appropriate hazard control measures and training.

- Staff with life-threatening reactions shall not undertake work in areas infested with the allergen (e.g., wasps, poison ivy), unless precautions are met which satisfy a medical practitioner's requirements. Refer to *S3AM-008-PR1 Fitness for Duty*.

4.5.10 Precautions

- Be aware of the potential irritants in your area and know how to recognize them.
- Modify activities to avoid encounters (diurnal rhythms, seasonal rhythms).
- Avoid wearing perfume and cologne and strong smelling deodorants, lotions, soaps, and shampoos.
- When working in areas where there may be small insects that "hitchhike" (e.g., ticks, spiders, scorpions), it is recommended that clothes are turned inside out and shaken at the end of day; do not wear same clothes two days in a row.
- Staff should always be aware of where they are placing their hands, or where they are sitting in order to avoid contact with potential toxins. Avoid reaching into areas where visibility is limited.

4.6 Wildlife Hazards (Wild Animals, Reptiles and Birds)

4.6.1 Employees shall not work alone in areas where the risk of an encounter with dangerous wildlife is high. Wildlife handling shall only be completed under direct supervision of an experienced individual. Refer to the following work instructions for more specifics:

- *S3AM-313-ATT13 Alligators*
- *S3AM-313-ATT9 Large Carnivores & Ungulates*
- *S3AM-313-ATT10 Bear Safety*
- *S3AM-313-ATT11 Small Mammals*
- *S3AM-313-ATT12 Snakes & Scorpions*

4.7 Ticks, Spiders and other Insects

4.7.1 Insects for which precautionary measures should be taken include but are not limited to: mosquitoes (potential carriers of disease aside from dermatitis), black flies, wasps, bees, ticks, fire ants and European fire ants.

4.7.2 Employees with known allergies to insect stings should consult their personal physician for advice on any immediate medications that they should carry with them. Epi-pens[1] shall be carried at all times in the field by employees who are aware that anaphylactic shock is a possibility for them AECOM highly recommends that employees with known allergies inform their co-workers of the allergy and the location of the medications they might carry for the allergy.

4.7.3 Habitat Avoidance, Elimination and/or Control

- The most effective method to manage worker safety and health is to eliminate, avoid and/or control hazards. Clearing the location of brush, high grass and foliage reduces the potential for exposure to biological hazards. Clearing will not eliminate the exposure to flying insects and there might be an increased exposure to ticks and spiders during the clearing process.
- Projects such as subsurface environmental assessment or remediation are often candidates for brush and overgrown grass to be cleared. In these instances, the Manager shall either request that the client eliminate vegetation, or request approval from the client to have vegetation clearing added to the scope of work.
    - It should be noted that vegetation clearance may unintentionally serve to spread noxious and poisonous plant materials around the site.

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*[1] Epi-pens must be prescribed by a personal physician. Renew epi-pens on a regular schedule to ensure effectiveness and make sure your field companions know where it is and how to use it if you cannot self-administer the dose.*

- As applicable, measures should be taken to prevent spread, such as but not limited to, confirming equipment and materials are not placed on affected areas, and equipment is decontaminated after use and before removal from site.

- When work shall be conducted in areas that cannot or may not be cleared of foliage, personal precautions and protective measures shall be prescribed.
- Mosquitoes breed in stagnant water and typically only travel a quarter mile (less than half a kilometer) from their breeding site. Whenever possible, stagnant water should be drained to eliminate breeding areas. Managers and client site managers should be contacted to determine whether water can be drained and the most appropriate method for draining containers, containment areas, and other objects of standing water.
- If water cannot be drained, products similar to Mosquito Dunks® can be placed in the water to control mosquitoes. Once wet, the Mosquito Dunks® kill the immature, aquatic stage of the mosquito. The active ingredient is a beneficial organism that is lethal to mosquito larvae, but harmless to fish, humans, and other animals. Mosquito Dunks® provide long-term protection for 30 days or more.

4.7.4 Ticks

- Ticks can be encountered when walking in tall grass or shrubs. They crawl up clothing searching for exposed skin where they will attach themselves. The most serious concern is a possibility of contracting a disease.
- Data from the CDC indicates that tick-borne diseases have become increasingly prevalent. At the same time, tick repellents have become both safe and effective so it is possible to prevent the vast majority of bites and, therefore, most related illnesses. The use of permethrin is strongly advised.
- The most common and severe tick-borne illnesses in the U.S. are Lyme disease, Ehrlichiosis, and Rocky Mountain spotted fever. A summary table listing CDC informational resources for these diseases is provided in *S3AM-313-ATT2 Ticks* along with a listing of CDC information resources and maps showing the distribution of common tick-borne diseases in the U.S.
- When working in areas where ticks may occur, it is recommended that clothes are turned inside out and shaken at the end of day; do not wear the same clothes two days in a row.
- Employees should conduct a thorough full body tick check upon exiting the field. Shower within two hours of coming indoors to help wash away loose ticks. Clothes should be laundered in hot water or tumble dry clothes in a dryer on high heat for 10 minutes to kill ticks.
- To remove ticks that are embedded in skin, utilize a tick key. Alternatively use tweezers or fingers to carefully grasp the tick as close to the skin as possible and pull slowly upward, avoiding twisting or crushing the tick. Do not try to burn or smother the tick. Cleanse the bite area with soap and water, alcohol, or household antiseptic. Note the date and location of the bite and save the tick in a secure container such as an empty pill vial or film canister. A bit of moistened paper towel placed inside the container will keep ticks from drying out. Follow AECOM incident reporting guidelines to report the tick bite within 4 hours and notify the Manager or Supervisor.
- Familiarize yourself with the characteristic bulls-eye pattern of Lyme disease infection surrounding the bite. If you notice this type of pattern or rash resulting from a tick bite, immediately report the issue to your supervisor and follow the incident reporting requirements for your business group.
- If you experience symptoms such as fever, headache, fatigue, and a skin rash, you should immediately visit a medical practitioner as Lyme disease is treated easily with antibiotics in the early stages, but can spread to the heart, joints, and nervous system if left untreated.

4.7.5 Chiggers

- Chiggers are mite larvae, approximately ½ millimeter in size, and typically invisible to the naked eye. While chiggers are not known to carry infectious diseases, their bites and resulting rashes and itching can lead to dermatitis and a secondary infection.
- Chiggers are typically active from the last hard freeze in the winter or spring to the first hard freeze. They are active all year in the Gulf Coast and tropical areas.

4.7.6 Spiders

- Spiders can be found in derelict buildings, sheltered areas, basements, storage areas, well heads and even on open ground. Spiders can be found year round in sheltered areas and are often present in well heads and valve boxes.
- Most spider bites produce wounds with localized inflammation and swelling. The Black Widow and Brown Recluse spiders in the U.S. and others outside the U.S. inject a toxin that causes extensive tissue damage and intense pain.
- Additional information on spider identification can be found in attachment *S3AM-313-ATT3 Poisonous Spider Identification*.

4.7.7 Mosquitoes

- When a mosquito bites, it injects an enzyme that breaks down blood capillaries and acts as an anticoagulant. The enzymes induce an immune response in the host that results in itching and local inflammation. The tendency to scratch the bite sites can lead to secondary infections.
- CDC data indicates that mosquito-borne illnesses, including the strains of encephalitis, are a health risk. At least one of the Encephalitis strains listed below is known to exist in every area of the U.S. and in many other countries as well:
    - Eastern Equine encephalitis
    - Western Equine encephalitis
    - West Nile Virus
    - St. Louis encephalitis
    - La Crosse encephalitis
- Mosquitoes can transmit the West Nile Virus and other forms of encephalitis after becoming infected by feeding on the blood of birds which carry the virus.
- Most people infected with the virus experience no symptoms or they have flu-like symptoms. Sometimes though, the virus can cause severe illness, resulting in hospitalization and even death, so proper precautions should be taken. Consult a medical practitioner if you suspect you have West Nile Virus. Other diseases including Dengue Fever and Malaria are spread by mosquitoes in the sub-tropic and tropical parts of the world. See *S3AM-313-ATT4 Mosquito Borne Diseases* for information on the locations where mosquito borne diseases are known to be present.

4.7.8 Bees, Wasps and Hornets

- Wasps and bees will cause a painful sting to anyone if they are harassed. They are of most concern for individuals with allergic reactions who can go into anaphylactic shock. Also, instances where an individual is exposed to multiple stings can cause a serious health concern for anyone. These insects are most likely to sting when their hive or nest is threatened.
- Bees, hornets, and wasps may be found in derelict buildings, sheltered areas, behind covers or lids and even on open ground. Other protective measures are not normally effective against aggressive, flying insects. Be aware of the potential areas for these types of insects, approach these locations cautiously. Avoid reaching into areas where visibility is limited.
- If you see a nest in the area you are working in stop work. Contact the Manager or Site Supervisor for procedures to have the nest removed.

- If stung by a wasp, bee or hornet, notify a co-worker or someone who can help should you have an allergic reaction. Stay calm and treat the area with ice or cold water. Follow AECOM incident reporting guidelines to report the sting within 4 hours and notify the Manager or Supervisor immediately. Seek medical attention if you have any reactions to the sting such as developing a rash, excessive swelling or pain at the site of the bite or sting, or any swelling or numbness beyond the site of the bite or sting.

4.7.9 Fire Ants

- The fire ant (southern and western U.S.) and the European fire ant (northeastern U.S. and eastern Canada) is often very abundant where it is established. It is very aggressive and commonly climbs up clothing and stings unprovoked when it comes into contact with skin. Painful irritations will persist for an hour or more.

4.7.10 Personal Protective Equipment (PPE)

- Chemically-treated field clothing, full-length clothing, or Tyvek® coveralls.
- Gloves shall also be worn consistent with the recommendations of the site-specific SWP and/or THA to minimize hand exposure.
- Where ticks, chiggers, and spiders are presumed to exist, the Tyvek® or chemically treated clothing will be taped to the work boots.
- See *S3AM-313-ATT2 Ticks* for configuration of clothing for protection against ticks and insects.
- Application of insect repellent to clothing and/or exposed skin. Oil of lemon eucalyptus, DEET, and Permethrin have been recommended by the CDC for effective protection against mosquitoes that may carry the West Nile virus and related diseases.
- Note that DEET will reduce the effectiveness of Fire Resistance Clothing (FRC) and should not be applied to this clothing. If working in FRC, employees can use Permethrin as it has been shown not to reduce the effectiveness of FRC. Permethrin will need to be applied to FRC well in advance of the planned work. If permethrin is unavailable employees can apply DEET to their skin and let dry prior to putting FRC on.
    - Oil of Lemon Eucalyptus is a plant-based insect repellent on the market as Repel Lemon Eucalyptus. The products have been proven to be effective against mosquitoes, deer ticks, and no-see-ums for up to six hours. Derived from Oil of Lemon Eucalyptus, this non-greasy lotion or spray has a pleasant scent and is not known to be toxic to humans. The spray or lotions will be effective for approximately two to six hours and should be reapplied every two hours to sustain protection. Lemon Eucalyptus products cannot be applied to fire retardant clothing.
    - Permethrin is an insecticide with repellent properties registered with the Environmental Protection Agency and recommended by the CDC.
        - Permethrin is highly effective in preventing tick bites when applied to clothing, but is not effective when applied directly to the skin. Two options are available for Permethrin treatment of clothing worn during field work: 1) pre-treatment of fabric by the clothing manufacturer; or 2) manual treatment of their personal clothing using Permethrin spray in accordance with recommendations manufacturers recommendations. This will likely require treatment at home or the office prior to field mobilization. Caution should be used when applying Permethrin as it is highly toxic to fish and house cats. AECOM strongly recommends the first option (employees obtaining pre-treated clothing) to avoid the time required, potential risk, and housekeeping issues involved with manually treating the clothing with spray. Purchase pre-treated clothing in accordance with *S3AM-208-PR1 Personal Protective Equipment* and with the approval of your Supervisor or Manager.
        - The Permethrin pre-treatment is odorless and retains its effectiveness for approximately 25 washings. After 25 washings, the pre-treated clothing will be

considered no longer effective and removed from service. Clothing that has been manually treated by employees will be considered effective for five wash cycles.

- Also, use of clothing that has been pre-treated with Permethrin offers a reduction in the use and application of other insect repellents that shall be applied directly to the skin. Supervisor or Manager approval is required prior to purchase.
- If the employee opts not to utilize chemically pre-treated clothing while potentially exposed to insects, spiders and/or ticks, they shall either: 1) wear Tyvek® coveralls taped to the boots, or 2) wear full-length clothing consisting of long-legged pants and long-sleeved shirts treated with an insect repellent containing Permethrin, DEET, or an oil of lemon eucalyptus to their work clothing.
- Safety Data Sheets (SDS) for the repellents, lotions, and cleansers discussed in this Procedure are not required because the repellents, lotion, and clothing are consumer products used in the manner intended for the general public. Although not required, a SDS should be obtained for the products used and placed into the office SDS library and site-specific safety plan.

4.8 Poisonous Plants

4.8.1 Habitat Avoidance, Elimination and/or Control

- If poisonous plants are identified in the work area, employees will mark the plants using either flags or marking paint, and discuss what the specific indicator will be to signal to other employees to avoid the designated area. If employees decide to use ground-marking paint to identify poisonous plants, they should discuss this tactic with the Manager (and Client as appropriate) for approval.
- If removal of the plants is considered, it should be subcontracted to a professional landscaping service that is capable and experienced in removing the plant. If herbicides are considered for use, a discussion shall need to occur with the Manager (and Client as appropriate) to determine whether it is acceptable to apply herbicides at the work site. Application of herbicides may require a license.
- Employees shall not attempt to physically remove poisonous plants from the work area unless a clearing procedure, including PPE, is prepared in advance and approved by the SH&E Manager. The clearing procedure should be included in the SH&E Plan and THA and the required PPE specified.

4.8.2 Poisonous plants that employees should recognize and take precautions to avoid include: poison sumac, poison ivy (terrestrial and climbing), poison oak, giant hogweed[2] (or giant cow parsnip), wild parsnip, devil's club and stinging nettle. Many others are extremely poisonous to eat (e.g., poison hemlock; water parsnip) – do not eat anything that has not been identified. Refer to *S3AM-313-ATT5 Plants of Concern* for information on locations where some of these poisonous plants are found in the U.S.

- Of the toxic plants in the cashew family, poison ivy (*Rhus radicans*) is most widespread. It grows in a variety of forms such as a low sprawling shrub, dense ground cover, or a thick woody vine that grows high into the tree canopy. Poison oak (*Rhus diversiloba*) is typically a low shrub in drier soils. Both of these plants have leaves of three and white berries. Poison sumac (*Rhus vernix*) is a tall shrub that is less prolific in distribution. It grows in wet areas, has a compound leaf with a red leaf stem (rachis), and white berries. All of these plants possess urushiol oils in all parts of the plant. Touching the plant causes an itchy skin rash that can show up within 4-72 hours following contact. People have a wide range of reactions including swelling, itching, rash and bumps, patches or blisters.
- Uroshiol oil can also transfer onto clothing and equipment. The oil can remain active on surfaces for up to 5 years and can be transferred to your skin.

[2] Phytodermatisi producer: keep skin covered and wash well after exposure

- Wild parsnip is found throughout the U.S. and contains a poison that produces a rash similar to poison oak and ivy. Unlike poison oak and ivy, the active oil will not be present on unbroken leaves. See *S3AM-313-ATT6 Wild Parsnip Identification* for additional information and photos of wild parsnip.
- Several plants in the carrot family contain toxic sap that causes severe dermatitis if it comes into contact with skin that is then exposed to sunlight. The most serious reaction is caused by the giant hogweed (*Heracleum mantegazzianum*), a plant that is spreading in southern Ontario and is also present in southwestern British Columbia. The plant is enormous, attaining up to 16 feet (5 meters) in height, which it does in one growing season. Contact causes painful blistering that can cause permanent disfigurement. It is to be avoided. Similar but less serious reactions can be caused by meadow parsnip (*Pastinaca sativa*) and cow parsnip (*Heracleum lanatum*). Meadow parsnip can be very abundant on disturbed sites.
- Nettles, particularly stinging nettle (*Urtica dioica*) and wood nettle (*Laportea canadensis*) contain urticating hairs on the leaves and stems that cause sharp pain or itchiness on contact with skin. The irritation is immediate and normally lasts no more than an hour and there are no lasting consequences.
- Some plants contain abundant stiff spines that can present a safety hazard, particularly if one is to fall into them. These include the cactus (*Opuntia spp.*), devils club (*Oplopanax horridum*), and prickly-ash (*Zanthoxylon americanum*).

4.8.3 A large number of plants are not harmful to touch but may contain poisonous berries or foliage that could cause serious complications or death if they are ingested. It goes without saying to not eat any berries or plants if you are unsure of their identity.

- Remember that in the fall and winter the hazard still exists in the form of stubble and roots.

4.8.4 Personal Protective Equipment (PPE)

- Employees conducting clearing, grubbing, or similarly disturbing work activities in areas where poisonous plants exist shall wear long-sleeve clothing or Tyvek® coveralls, and disposable cotton, leather or synthetic gloves. Employees shall not touch exposed skin (neck and face) with potentially contaminated gloves. Tyvek® and gloves worn to protect from exposure to poisonous plants shall be treated as contaminated, removed from the body in a manner that the contamination is not spread, and placed in plastic bags for disposal.
- Personal clothing that has been exposed to poisonous plants shall be decontaminated with a poisonous plant cleanser such as Tecnu® or removed in a careful manner, bagged and washed separately from other clothing to remove urushiol.
- Work boots will be decontaminated with either soap and water or a cleansing agent such as Tecnu® cleanser.
- If foliage is being cleared and includes poisonous plants, exposed skin shall be treated with a dermal barrier cream such as Tecnu®'s Oak 'n Ivy Armor or Enviroderm's Ivy Block and either a full-face respirator or a half-face respirator (with goggles) fitted with a P-100 (HEPA) dust filter.

4.9 Bird Droppings and Biological Soil Hazards

4.9.1 Work in any area where pigeons or other flying animals (e.g. bats) may nest requires a written statement from the client which states the potential for, and extent of, accumulation of excrement on/in the structure from pigeons or other winged animals.

4.9.2 Substantial accumulations of droppings can pose physical and health risks as slippery surfaces (if wet) and if the material is disturbed and becomes airborne, it can be inhaled or ingested if personal hygiene practices are not implemented. Inhalation of airborne droppings can cause diseases such as histoplasmosis. Exposure to surfaces with bird droppings shall be safeguarded by implementing proper work practices, training employees for awareness and using PPE. See *S3AM-313-ATT8 Bird Droppings*.

4.9.3 Tularemia is a problem with contaminated soil in some locations. Tularemia is a disease of animals and humans caused by the bacterium *Francisella tularensis*. Rabbits, hares, and rodents are especially susceptible and often die in large numbers during outbreaks. Workers can contract Tularemia through tick and deer fly bites, but also through inhalation of contaminated aerosols or agricultural dusts. Check work areas for carcasses before disturbing the ground (e.g. mowing, brushing, grubbing, excavation, etc.).

4.10 Personal Hygiene and Body Checks

4.10.1 Tick-borne diseases typically require that the tick be imbedded for four hours to begin disease transfer. The oils from poisonous plants can take up to 4 hours after exposure to penetrate the skin and react with the live proteins under the skin.

4.10.2 It is recommended that exposed skin be checked frequently for the presence of ticks, insects, rashes, or discolorations. External clothing should also be checked for the presence of ticks and insects; these should be retained for identification and to determine if medical treatment is needed.

4.10.3 Employees shall shower as soon as practical after working in the field and examine their bodies for the presence of ticks, insect bites, rashes, or swollen areas. If imbedded ticks are found, they should be removed using the technique described in *S3AM-313-ATT2 Ticks*.

4.11 Employees shall immediately notify their Manager or Supervisor of the presence of an imbedded tick, bee, wasp or hornet sting, other insect bite, rash, or any abnormal reaction. Reporting shall occur within 4 hours for a significant incident and 24 hours for all other SH&E incidents, and in accordance with *S3AM-004-PR Incident Reporting, Notifications & Investigation.*

4.12 The Manager or Supervisor shall forward the report to the SH&E Manager for follow up.

## 5.0 Records

None

## 6.0 Attachments

6.1 S3AM-313-ATT1 Biological Hazard Assessment Flow Chart

6.2 S3AM-313-ATT2 Ticks

6.3 S3AM-313-ATT3 Poisonous Spider Identification

6.4 S3AM-313-ATT4 Mosquito Borne Diseases

6.5 S3AM-313-ATT5 Plants of Concern

6.6 S3AM-313-ATT6 Wild Parsnip Identification

6.7 S3AM-313-ATT7 Alligators

6.8 S3AM-313-ATT8 Bird Droppings

6.9 S3AM-313-ATT9 Large Carnivores & Ungulates

6.10 S3AM-313-ATT10 Bear Safety

6.11 S3AM-313-ATT11 Small Mammals

6.12 S3AM-313-ATT12 Snakes & Scorpions

**Americas**

# Working Alone

**S3AM-314-PR1**

## 1.0 Purpose and Scope

1.1 This procedure establishes the requirements for communication and accountability between personnel at a work site to reduce the potential for incidents occurring to one employee without help readily available and to facilitate the rapid mustering of assistance to employees in the event of an emergency.

1.2 This procedure applies to all AECOM America-based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

## 2.0 Terms and Definitions

2.1 **Buddy System** – A system of organizing employees at a work site in such a manner that each employee is accompanied by or in communication with at least one other employee or is escorted by a client or contractor representative during work site activities.

2.2 **Controlled Work Areas** – One or more designated work areas on a field project site where high risk activities and/or strictly defined operations take place. Such controlled work areas include, but are not limited to, remediation or construction sites; a restricted radius where a critical lift operation will take place could be declared a controlled work area. On a HAZWOPER site, the controlled work area is divided into the exclusion zone, the contaminated reduction zone, and the support zone.

2.3 **Working Alone** – Performing work with no line of sight or direct voice communication with another person who is aware of your assignment and capable of initiating emergency response.

## 3.0 References

3.1 S3AM-005-PR1 Driving

3.2 S3AM-209-PR1 Risk Assessment & Management

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Manager or Supervisor**

- Establish if employee is permitted to work alone, through evaluation of employee's experience, training and any personal limitations (e.g. life-threatening allergic reactions).
- Provide the resources, communication devices, emergency response plans, and check-in procedures as listed in the Task Hazard Assessment (THA) or SH&E plan, etc. necessary so that employees are not working alone or have a buddy system in place.
- Act as point of contact if employees miss their check-in.

4.1.2 **Employees**

- Complete training as required to prepare for working alone.
- Confirm emergency contacts are provided to the Manager or supervisor in case of an emergency.
- Establish a buddy system and check in procedure in accordance with the THA or SH&E Plan provided by the Manager and Supervisor.

4.1.3 **SH&E Managers**

- Review and approve relevant planning documents entailing employees working alone and on remote travel.

4.2 General

4.2.1 All projects/programs shall conduct a review of all tasks performed by AECOM to establish specific work alone procedural requirements as defined here. They shall have at minimum a THA and SH&E Plan that has been reviewed by the SH&E Manager.

4.2.2 Employees are discouraged from working alone on any site due to the risk of delayed assistance in the event of an incident. If they will be out of contact with other employees, they shall establish a buddy system or check-in procedure with another employee or responsible person.

4.2.3 Employees working alone or in small crews in remote isolation shall have an effective means of communication including cell/radio/satellite phone as well as established check-in times.

4.2.4 When traveling alone, staff shall take appropriate precautions, including notifying someone of their travel plans as well as carrying a communication device and safety equipment, as appropriate. See *S3AM-005-FM1 Journey Management Plan*.

4.3 No employee shall work by themselves or without a buddy system established if they are conducting a high risk job task.

4.3.1 The following tasks are considered high risk:

- Working at heights > 4 ft. (1.22 m) (Including aerial lifts, snooper trucks, scaffolds, etc.).
- Working in a confined space.
- Working in a trench or excavation.
- Performing tasks requiring lock out/tag out.
- Work on energized equipment.
- Working with electricity.
- Working with hazardous substances or materials (including all HAZWOPER projects).
- Working with material under pressure.
- Working where there is a possible threat of violence, including civil unrest.
- Working in avalanche areas.
- Working on water or ice.
- Working in remote or wilderness isolation.
- Working in a controlled area.
- Extreme heat or cold stress environments.
- Working with power tools/equipment (drill, chainsaw, grinder, etc.).
- Working with/operating heavy equipment or machinery, including drill rigs.
- Working in isolation from first aid services or immediate/emergency assistance.
- Working around mobile equipment.
- Exposure to vehicular traffic (highways, roads, parking lots, etc.).
- All-terrain vehicle work.
- Working on railroads or within 25 ft. (7.62 m) of tracks.
- Any activity/task involving non-voluntary use of respiratory protection, including for site access.

- Working with people diagnosed with Coronavirus or other pandemic diseases.

4.3.2 The following tasks (identified as high risk) may permit working alone provided it can be demonstrated there is no substantial increased risk associated with working alone:

- Working with power tools/equipment (e.g. power drill versus chainsaw).
- Working with material under pressure (e.g. small air compressor versus compressed gasses).

4.4 Office Work

4.4.1 The supervisor shall have in place and shall communicate as part of location specific orientation, its procedures for the safety and security of an employee working alone in the office. Contact numbers to be used in case of emergency are posted at all common gathering areas or major exits.

4.4.2 Employees working in the office after regular working hours or in situations where they are working alone shall keep the entrance to the office locked.

4.4.3 If the building is monitored by a security service, employees working in the office after regular working hours or working alone shall notify the security guard of their presence and anticipated hours. If the building does not have a security service, the employee working alone shall notify their supervisor or a family member or friend if agreed to by their supervisor.

4.4.4 During all working hours, employees shall stay alert to unauthorized entries into the building and to other suspicious activities and shall report them to security or their supervisor immediately.

4.5 Field Work

4.5.1 Prior to work commencing, a THA shall be prepared for all assignments on which employees are to work alone (in accordance with *S3AM-209-PR1 Risk Assessment & Management*). The THA shall consider travel time, weather, available communications, and the impact of working alone when establishing risk ratings of the hazards associated with the task and work environment.

4.5.2 The THA should also consider whether the employee assigned to work alone has sufficient training and qualifications in the tasks to be performed to allow the employee to work safely alone. The employee's personal medical conditions may be considered if the employee has voluntarily made the medical condition known to the Manager or Supervisor.

4.5.3 The THA should identify the controls required for the safety of employees as applicable to the job task and location. Some controls associated with working alone or in remote isolation include a buddy system, standardized check-in times, what to do if a check-in is missed (e.g. worker in proximity attends site, utilizing secondary communication method, etc.), specialized communication devices, and enhanced emergency supply kits.

4.5.4 The THA is completed in addition to the SH&E plan which details the work activities and the procedures to manage the hazards and in accordance with *S3AM-209-PR1 Risk Assessment & Management*.

4.6 Buddy System

4.6.1 When conducting work that has not been identified as high risk, employees shall work with a buddy (another responsible individual) or follow check –in procedures listed in the THA or SH&E Plan.

4.6.2 When conducting high risk work, employees shall work as a buddy system (another responsible individual) at all times.

4.6.3 Once assigned as buddies, personnel shall remain in contact.

4.6.4 When electronic communication devices are used, prior to starting work, a protocol shall be established and agreed to by each buddy to confirm that periodic effective and faultless communications are maintained

4.6.5 When unanticipated conditions develop that do not permit line of sight and direct voice contact, and alternate communication was not established in the THA, Stop Work and notify the Supervisor. If permission from the Supervisor is obtained to continue the work, voice contact shall be achieved using reliable electronic communication devices such as, but not limited to, hand-held radio or cell phone. The THA shall be updated to reflect this change.

4.6.6 If crews will separate once they reach their work site, they shall then be considered to be “working alone”. The buddy system or check-in procedures shall be established, as determined by the work being high risk or non-high risk and as identified in the THA.

4.6.7 Client or contractor personnel may be substituted for an AECOM employee’s buddy only if they are designated by the client or contractor and the AECOM manager or supervisor, and are properly trained to the tasks and the site’s emergency response procedures.

4.6.8 A missed communication event shall initiate the applicable missed check-in actions established in the THA (e.g. worker in proximity attends site, utilizing secondary communication method, etc.) and may trigger emergency response procedures. The results of each communication event shall be documented in the program or project files.

4.7 Check-In Procedures

4.7.1 All field crews shall establish check-in procedures as part of the THA or SH&E Plan prior to leaving the office. These procedures shall be reviewed daily as part of the Task Hazard Assessment review or more frequently if there is a change in work arrangements that could adversely affect a worker's well-being or a report that the system is not working effectively. These procedures shall be confirmed with the assigned Check-In Person daily.

4.7.2 The timing and frequency of those check-in procedures schedule shall be established prior to the initiation of field operations and shall vary depending on the task and location of the work.

4.7.3 If communication is lost between buddies or a check-in time is missed, it shall be assumed that an emergency situation exists, and the site’s emergency response procedures shall be implemented. Site work shall cease until the emergency is resolved and the Supervisor directs personnel to restart work.

4.7.4 If crews will separate once they reach their field site, they will then be considered to be “working alone” and will establish a buddy system with the other members of the crew.

4.7.5 Employees working alone or in small crews in remote isolation will have an effective means of communication system (e.g., cell, radio, satellite phone, global positioning system communicator) as well as established check-in times.

4.7.6 The Check-In Procedure will be reviewed daily as part of the THA review or more frequently if there is a change in work conditions that could adversely affect a worker's well-being or a report that the system is not working effectively.

4.8 Emergency Response Procedures

4.8.1 All field employees and the Check-In Person shall be provided with the location specific Emergency Response Plan. This may be included in the THA or SH&E plan or exist as a separate document.

4.8.2 The Check-In Person shall have access to a route map or understands their anticipated route of travel.

4.8.3 The established contact person shall follow the procedures below, with specifics established in the SWP Plan or THA, if a field employee has missed a check-in:

- First, they shall attempt to make contact with the field employee directly.
- If that fails to provide a response, they shall contact other persons who may have been on site, including client supervisors, or other locations where the field employee might be (e.g., hotel, home, office).

- If the field employee still cannot be located, the emergency contact person notifies the manager or supervisor responsible for the employee.
- Depending on the location and situation, they shall then dispatch another employee, another supervisor, or an appropriate emergency response agency (e.g., police) to travel to the last known location of the field employee.
- If the dispatched responder arrives at the site but cannot locate the field employee, the appropriate public emergency contacts (e.g., police, search and rescue) shall be made and the employee's personal contacts shall be notified by Human Resources.
- If the dispatched responder finds the crew in an emergency situation (medical, environmental, structural, etc.), the appropriate steps shall be taken to isolate the hazard, administer first aid, and contact emergency support services.

4.9 Training

4.9.1 All employees shall receive an initial orientation that includes the hazards and controls associated with working alone.

4.9.2 If working in the wilderness, all field employees shall receive appropriate orienteering training using a map. Basic orienteering and navigation skills can be provided by an experienced employee before work commences. This training must be documented. Refer to the *S3AM-314-ATT1 Wilderness Isolation* instruction for more specifics.

4.9.3 Employees working alone should be trained in First Aid. Consideration should be given to Wilderness First Aid training based on the anticipated work environment.

4.9.4 Employees regularly working in remote, isolated wilderness locations will either participate in a wilderness survival course from a qualified provider (one or two day) or will obtain management approval based on their level of experience/competence in wilderness situations.

## 5.0 Records

5.1 None

## 6.0 Attachments

6.1 S3AM-314-ATT1 Wilderness Isolation

**Americas**

# Drilling, Boring & Direct Push Probing

**S3AM-321-PR1**

## 1.0 Purpose and Scope

1.1 This document provides procedures designed to help prevent injuries to personnel working on the project and pedestrians, property damage, and adverse environmental impact as a result of potential hazards associated with drilling, boring and direct-push probing. These hazards include, but are not limited to, encountering underground utilities, subsurface installations, rotating equipment and potential overhead hazards.

1.2 This procedure provides the minimum requirements to be followed when drilling, boring, and probing work are performed.

1.3 This procedure applies to all Americas-based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

1.4 The Manager is responsible for meeting all the requirements in this procedure.

1.5 AECOM's clients may have specific procedures which shall be followed to identify and map utility and subsurface structures on their properties or facilities. Provided the client's procedures meet or exceed those of AECOM, approval shall be obtained from the Manager and the SH&E Manager to follow the client's procedures.

## 2.0 Terms and Definitions

2.1 **Underground Utilities –** All utility systems located beneath grade level, including, but not limited to, gas, electrical, water, compressed air, sewage, signaling, and communications, etc.

2.2 **Ground Disturbance (GD) –** Any indentation, interruption, intrusion, excavation, construction, or other activity in the earth's surface as a result of work that results in the penetration of the ground.

2.3 **Intrusive Activities –** Examples: Excavation of soil borings, installations of monitoring wells, installation of soil gas sampling probes, excavation of test pits / trenches or other man-made cuts, cavity, trench, or depression in an earth surface formed by earth removal.

2.4 **Subsurface Installations –** Examples: Subterranean tunnels, underground parking garages, and other structures beneath the surface.

## 3.0 References

3.1 S3AM-003-PR1 SH&E Training

3.2 S3AM-118-PR1 Hearing Conservation

3.3 S3AM-208-PR1 Personal Protection Equipment

3.4 S3AM-209-PR1 Risk Assessment & Management

3.5 S3AM-213-PR1 Subcontractor Management

3.6 S3AM-305-PR1 Hand & Power Tools

3.7 S3AM-306-PR1 Highway and Road Work

3.8 S3AM-322-PR1 Overhead Lines

3.9 S3AM-322-FM1 Overhead Electrical Lines Acknowledgement

3.10 S3AM-325-PR1 Lockout Tagout

3.11 S3AM-326-PR1 Machine Guarding

3.12 S3AM-331-PR1 Underground Utilities

3.13 S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist

# 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Manager**

- Confirm the development of the project SH&E Plan and compliance with this procedure.
- Confirm the appropriate equipment and materials are available to conduct the drilling, boring or direct-push operations.
- Confirm compliance with *S3AM-331-PR1 Underground Utilities.*
- Review the *S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist* prior to authorizing work to proceed.
- Confirm that employees conducting drilling, boring or direct-push probing possess any required training, registrations or certifications.
- Confirm all employees involved and affected by the task review the SH&E Plan, *S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist* and Task Hazard Assessment (THA) prior to work commencing.
- Confirm an equipment maintenance inventory is maintained, schedules adhered to and appropriate inspections of equipment are conducted.
- Provide authorization (with the concurrence of the Site Supervisor and SH&E Manager) for work to resume if interrupted due to unexpected conditions or events.

4.1.2 **Safety, Health & Environment (SH&E) Manager**

- Assist AECOM management as needed by providing guidance and clarification as to issues that may arise.
- Review the project SH&E Plan to confirm compliance with jurisdictional regulations**.** Provide technical guidance as needed when a variance is pursued related to this procedure. Confirm variance process meets requirements identified in *S2-001-SM1 Global SH&E Management System Manual*.

4.1.3 **Employees**

- Maintain training as appropriate to the work to be completed (e.g., ground disturbance, lockout tagout, equipment operation, etc.). Refer to *S3AM-003-PR1 SH&E Training.*
- Review the SH&E Plan, *S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist* and Task Hazard Assessment (THA) prior to work commencing.
- As appropriate to the anticipated or encountered hazards and as addressed in the applicable planning documentation, utilize appropriate personal protective equipment (PPE) and applicable training, practices and operating procedures.
- Immediately notify the Manager of any unanticipated conditions or events. If assigned equipment, perform appropriate inspections and confirmations of maintenance and / or repairs.

4.2 Training

4.2.1 All on-site employees involved with drilling, boring, and direct-push probing shall be trained, at a minimum, in these procedures and in the procedures of *S3AM-331-PR1 Underground Utilities*.

4.2.2 All operators and assistants shall have the appropriate safety training based on the SH&E Training Matrix and any additional training assessments developed at the business group**,** and be versed in the equipment to be utilized.

- Refer to *S3AM-003-PR1 SH&E Training.*

- This training may include, but is not limited to, Excavation / Trenching (Ground Disturbance), HAZWOPER, Petroleum Safety Training (or Construction Safety Training), and H2S Alive as appropriate.
- Only qualified personnel shall operate and inspect equipment.

4.2.3 All on-site Employees involved with drilling, boring, and direct-push probing activities shall be provided with on-site orientation of the drill rig and its operation.

4.2.4 All Employees involved with drilling, boring and direct-push probing activities at a client site shall receive the applicable client-required training**.**

4.3 Planning

4.3.1 SH&E Plan – At a minimum, a SH&E plan that includes a pre-job hazard assessment shall be prepared and communicated to all involved personnel prior to any drilling, boring, and direct-push probing activities. Refer to *S3AM-209-PR1 Risk Assessment & Management*.

- Assessment shall include both overhead and subsurface utilities and installations. Refer to *S3AM-322-PR1 Overhead Lines* and *S3AM-331-PR1 Underground Utilities*.
- The SH&E Plan will address any required environmental monitoring including gas monitoring, dust, noise, metals, radiation or other monitoring as may be appropriate for site conditions.
- All SH&E Plan requirements will be followed by the project team.
- The location specific emergency response plan shall be in place, contain procedures applicable to the potential emergencies presented by the operations, and be reviewed with all personnel potentially affected.

4.3.2 A Task Hazard Assessment (THA) shall be completed before every assigned task at the work location. The focus of the analysis shall be on the specific assigned task and the evaluation of risks and assignment of control measures based on actual work conditions.

4.3.3 *S3AM-321- ATT2 Pre-Drilling, Boring & Direct-Push Probing Flow Chart* summarizes the key Pre-Drilling, Boring, and Direct-push probing requirements addressed in this procedure.

4.3.4 Procedures and documentation as detailed in *S3AM-322-PR1 Overhead Lines* and *S3AM-331-PR1 Underground Utilities* shall be completed prior to any intrusive subsurface work.

- The locations of subsurface and overhead utilities and subsurface installations will be investigated, documented, mapped on a site plan and evidenced with appropriate surface markings.
- A site walk shall be conducted by the project team / site Manager and any other appropriate personnel, with the objectives of reviewing all planned intrusive activity locations, the locations of subsurface and overhead utilities and the potential for subsurface installations, to determine the appropriate utility clearance activities, and to observe other physical hazards.
- All proposed subsurface activities will be reviewed in comparison to subsurface and overhead utilities and subsurface installations and adjustments made as necessary.
- Appropriate clearance activities shall confirm location(s) of identified underground utilities and subsurface structures. Review the applicable completed *S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist.*
- Site Walks should be repeated as necessary following the clearance of subsurface utilities and installations to confirm hazards are clearly identified.

4.3.5 Confirm drilling location(s) and / or bore entry and bore exit points are adequately identified on the worksite to enable appropriate equipment positioning.

4.4 Permits, Notifications and Access Agreements

4.4.1 Any required notifications shall be provided within the appropriate timeframe to the applicable organization (e.g. owner, agency, governing body, etc.).

4.4.2 All applicable permits (e.g. client, government, working near rail road, etc.) will be identified, obtained, and adhered to.

4.4.3 Access agreements will be obtained and adhered to as necessary.

4.5 Pre-Qualifying and Re-Qualifying Drilling Subcontractors

4.5.1 All drilling subcontractors will be properly pre-qualified in accordance with *S3AM-213-PR1 Subcontractor Management*.

4.5.2 The qualifications of the drilling crew performing the work will be evaluated prior to each mobilization and each day by AECOM's on-site representative to assure that their safety performance, training, qualifications, equipment, processes, and approaches reflect AECOM standards for excellence.

4.5.3 All drilling subcontractor equipment will be properly maintained and properly equipped, and the drilling subcontractor will verify their equipment is fully functional as a normal part of their daily and pre-work routine. Refer to *S3AM-321-FM1 Daily Drilling, Boring & Direct Push Equipment Inspection.*

4.6 General Health and Safety

4.6.1 Personal Protective Equipment – Refer to the *S3AM-208-PR1 Personal Protection Equipment* for best practices. These requirements may be modified or expanded in the SH&E Plan. Clothing shall be close fitting and comfortable without loose ends, straps, draw strings, belts, or otherwise unfastened parts that might catch on some rotating or translating component of the rig.

- Depending upon the hazards present, additional PPE may be required such as fire retardant clothing, specific hearing protection, respiratory protective equipment and chemical protective clothing.
- If the location has potential for underground electrical utilities to be present, workers shall ensure footwear has additional protection of shock resistant soles required (white rectangle with omega symbol).

4.6.2 Hearing Conservation – Hearing conservation program requirements may apply when working around operating equipment. Refer to *S3AM-118-PR1 Hearing Conservation*.

- Each worker shall wear noise-reducing ear protectors around operating equipment or during elevated noise levels. Distance from the elevated noise level is the primary measure of control for non-essential drilling personnel.

4.7 Drilling, Boring and Direct Push Equipment Maintenance and Inspections

4.7.1 All equipment will be inspected prior to the initiation of operations and daily during operations using the *S3AM-321-FM1 Daily Drilling, Boring & Direct-Push Equipment Inspection*. This inspection is the responsibility of the operator who will provide written documentation of the inspection prior to the start of drilling each day.

- Equipment that is deemed defective will immediately be repaired by a qualified person, or, if repair is not practicable, tagged "Out of Service" and sent for repairs or discarded.

4.7.2 Managers shall confirm an accurate inventory of the equipment within their operation requiring scheduled maintenance is developed. Using applicable regulations, industry standards, best practices, and manufacturer's recommendations, a maintenance schedule shall be developed with defined responsibility, required actions, and frequency. Refer to *S3AM-321-FM2 Drilling, Boring, & Direct-Push Equipment Maintenance Inventory.*

4.7.3 The maintenance program for equipment shall:

- Adhere to applicable regulations, standards, and manufacturers' specifications;
- Provide for service by appropriately qualified maintenance personnel; and,
- Require maintenance schedules and records of maintenance.

4.7.4 Employees or operators who are assigned equipment are required to review maintenance schedules for that equipment and will confirm that required maintenance has occurred or see that it is undertaken.

4.8 General Requirements

4.8.1 Excluding geoprobe activities, set up any sample tables and general work areas for employees at a safe distance from the rig.

- The recommended safe distance is the height of the fully extended mast plus 5 feet (1.5 meters), and no less than 30 feet (9.1 meters) from the rig.
- An increase to this distance may be required due to noise exposure hazards. Refer to *S3AM-118-PR1Hearing Conservation.*

4.8.2 Operation of the drilling, boring or direct-push equipment shall be restricted to the designated operator except to activate the emergency shut-off as required.

- All rotary drilling equipment shall have an emergency shut off / kill switch. The location of the switch and operation should be reviewed with all involved Employees.

4.8.3 Sit-on direct push rigs are not permitted on AECOM worksites unless the rig has been modified (in accordance with manufacturer's requirements) to be operated by remote control or the rig has been manufactured with a rollover protection system and seat belt.

4.8.4 Consult jurisdictional regulations as use of J-hooks and cat-heads may be prohibited. Examples:

- 29 CFR 1926 requires derricks and cranes to use hooks with self-closing latches and permits the use of J-hooks only for a task unrelated to this procedure (setting trusses).
- British Columbia and Saskatchewan prohibit the use of friction cat-heads**.**

4.9 Identifying the Work Area

4.9.1 Ensure the work area is adequately identified:

- Including zone around the drilling, boring, or direct push equipment, as well as fluid equipment, entry point, exit point and any excavated areas.
- Utilize barricades, signage, pylons, snow fence, etc. as appropriate.
- Implement traffic control as necessary.
- Coordinate with concurrent operations to identify their associated hazards and controls, and communicate those associated with AECOM tasks.

4.9.2 When operating near public vehicular and pedestrian traffic, the on-site personnel shall take every precaution necessary to see that the work zone is properly established, identified, and isolated from both moving traffic and passer-by pedestrians (refer to *S3AM-306-PR1 Highway and Road Work*).

4.9.3 All traffic control devices shall be installed, placed, and maintained in accordance with a Traffic Control Plan, client specifications, and / or the Manual of Uniform Traffic Control Devices and Manual of Uniform Traffic Control Devices for Canada in Canada. Traffic control devices shall consist of and not be limited to

- Directional and informational signage;
- High visibility barricades, cones, or barrels;
- Lighting; and
- Other equipment and devices as required.

4.10 Clearing Work Areas

4.10.1 In addition to any minimum requirements the drilling subcontractor may have, prior to set up, adequate site clearing and leveling shall be performed to accommodate the rig and supplies and provide a safe working area.

4.10.2 Clearing the site includes clearing the intended drilling area obstacles and of underground utilities in accordance with *S3AM-331-PR1 Underground Utilities*.

4.10.3 Drilling or probing shall not commence when tree limbs, unstable ground, or site obstructions cause unsafe tool handling conditions.

- The cleared / levelled area should be large enough to accommodate the rig and supplies.
- If the rig is positioned on a steep grade and levelling of the ground is impossible or impractical, the wheel of the transport vehicle shall be blocked and other means employed of preventing the rig from moving or toppling over.

4.11 Drilling Activities

4.11.1 Federal / State / Provincial / Territorial regulations that govern drill rig operations and exposed moving parts shall be adhered to.

4.11.2 All applicable client on-site safety procedures shall be understood and adhered to.

4.11.3 Minimum approach distances (MAD) from subsurface and overhead utilities and subsurface installations will be established including 5 feet (1.5 meters) from any subsurface utility, 7 feet (2.1 meters) from the pad surrounding any underground storage tanks, and 10 feet (3 meters) from any overhead energized electrical line (or further depending on line voltage). These approach distances are a minimum; government regulations and utility requirements may dictate a greater set back distance and should be confirmed.

4.11.4 Verify that equipment / energy is isolated when lockout is required:

- Refer to operator's manual and *S3AM-325-PR1 Lockout Tagout*.
- Ensure stop switch is activated.
- Driller is out of the seat.
- Test controls to ensure they do not engage.

4.11.5 In addition to any identified minimum requirements (as applicable, client, drilling subcontractor), the following safety measures shall be taken during drilling, boring or probing operations on site:

- The operator and helper shall be present during all active rig operations.
- Site personnel shall remain within visual contact of the rig operator.
- Hard hats, approved safety boots, safety glasses, and hearing protection shall be worn in the work zone (minimum, the radius around the rig equal to the height of the drill rig mast) of a rig.
- Gas monitoring shall be conducted as appropriate.
- Hands, feet and other body parts shall be kept away from moving parts, (e.g. hoisted, rotating, pushing, etc.) including augers, drill rods and reamers.
- When observing drilling, stand upwind of the drill rig to prevent potential exposure to vapors that may be emitted from the borehole.
- The emergency shut-off switch on the rig shall be identified to site personnel and tested on a daily basis by the operator.
- Unauthorized personnel shall be kept outside of the established work zone.
- Rig crew and other worksite personnel shall not use a cell phone while operating the drill rig or other equipment or within the rig work zone.
- Do not drive the rig from hole to hole with the mast (derrick) in the raised position.
- Before raising the mast (derrick) look up to check for overhead obstructions. Refer to *S3AM-322-PR1 Overhead Lines*.

- Before raising the mast (derrick), all rig personnel (with the exception of the operator) and visitors should be cleared from the areas immediately to the rear and the sides of the mast. All rig personnel and visitors should be informed that the mast is being raised prior to raising it.
- Before the mast (derrick) of a drill rig is raised and drilling is commenced, the drill rig shall be first levelled and stabilized with levelling jacks and / or solid cribbing.
    - The drill rig shall be releveled if it settles after initial set up.
    - Lower the mast (derrick) only when the levelling jacks are down, and do not raise the levelling jack pads until the mast (derrick) is lowered completely.
- After the rig has been positioned to begin drilling, all brakes and / or locks shall be set before drilling begins.
- The operator of a rig shall only operate a drill rig from the position of the controls. The rig shall not be in operation if the operator of the rig leaves the area of the controls.
- Throwing or dropping tools shall not be permitted. All tools shall be carefully passed by hand between personnel or a hoist line should be used.
- If it is necessary to operate the rig within an enclosed area, make certain that exhaust fumes are conducted out of the area.
    - Exhaust fumes can be toxic and some cannot be detected by smell.
    - Air monitoring and, as necessary, noise monitoring shall be conducted.
- Clean mud and grease from boots before mounting a rig platform and use hand holds and railings. Watch for slippery ground when dismounting from the platform.
- During freezing weather, do not touch any metal parts of the rig with exposed flesh. Freezing of moist skin to metal can occur almost instantaneously.
- All unattended bore holes shall be adequately covered or otherwise protected to prevent rig personnel, site visitors, or animals from stepping or falling into the hole. All open bore holes shall be covered, protected, or backfilled adequately and according to Federal / State / Provincial / Territorial or local regulations on completion of the drilling project.
- When using a ladder on a rig, face the ladder and grasp either the side rails or the rungs with both hands while ascending and descending. Always use adequate fall protection and a full body harness when climbing above 6 feet (1.8 meters) of the ground. Do not attempt to use one or both hands to carry a tool while on a ladder. Use a hoist line and a tool “bucket” or a safety hook to raise or lower hand tools.

4.12 Drilling Fluid

4.12.1 Ensure drilling fluid is appropriate to the soil type and conditions to be encountered to enable smooth drilling.

4.12.2 Drilling fluid used in the boring process shall be contained at the entry and, as applicable, exit locations until recycled or removed from the site.

4.12.3 Confirm drilling fluid does not enter roadways, streams, municipal storm or sanitary sewer lines, and / or any other drainage system or body of water.

4.12.4 Monitor drilling equipment and fluid equipment for any leakage or spills. Confirm appropriate containment is in place and adequate spill response supplies are available.

4.12.5 It is important to monitor fluid flow and pressure gauges when drilling with any tooling, but it is essential when drilling with a mud motor (pump placed in the drill string to provide additional power to the bit while drilling).

4.13 Unanticipated Concrete / Debris or Void

4.13.1 The presence of subsurface installations and utilities requires special care when obstructions / refusal and voids are encountered and when unexpected absence of soil recovery occurs during

drilling operations. Other indicators of subsurface installations and utilities are the presence of warning tape, pea gravel, sand, non-indigenous material, bentonite, red concrete (indicative of electrical duct banks) and any departure from native soil or backfill.

4.13.2 If unanticipated concrete / debris is encountered and / or if a void is encountered, drilling will be immediately discontinued and the Manager notified. Drilling may only proceed with Manager or SH&E Manager approval.

4.14 Use of Manual Slide Hammer

4.14.1 The following health and safety procedures should be followed when using a manual slide hammer to install shallow injection points, drive point piezometers, and drill tools:

- Only use a manual slide hammer that either attaches directly to the point / piezometer being driven or that incorporates a cap on the point / piezometer / drill tool that prevents the slide hammer from slipping off the point / piezometer / drill tool.
- Always grasp the manual slide hammer (handles if equipped with handles) with both hands while driving the point / piezometer / drill tool.
- Never allow hands or feet to get between the manual slide hammer and the drive plate or anvil.

4.15 Use of Augers

4.15.1 The following general health and safety procedures should be followed when supervising borings with continuous flight hollow-stem augers:

- Never place hands or fingers under the bottom of an auger section when it is being hoisted over the top of the auger section in the ground or other hard surfaces such as the drill rig platform.
- Never allow feet to get under the auger section that is being hoisted.
- When augers are rotating, stay clear of the rotating auger and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason.
- Use a long-handled shovel to move auger cuttings away from a rotating auger. Never use hands or feet to move cuttings away from a rotating auger.
- Do not attempt to remove earth from rotating augers. Augers should be cleaned only when the drill rig is in neutral and the augers are stopped from rotating.
- Loud noises may occur while driving split spoons. At minimum hearing protection shall be worn when driving split spoons.
- When pulling / lifting augers, a clevis pin or other closed device shall be used. Use of J-hooks is prohibited.

4.16 Attaching and Breaking Rods

4.16.1 Do not use manual tools (e.g., pipe wrenches) in combination with rotation of the drill stem. Manual tools are not designed for the load, and may break.

- The use of such tools creates a significant impact hazard for those in the work area, because they rotate with the drill stem. Manual tool use in combination with a rotating drill stem to attach or break rods is therefore prohibited.
- Manual tools may be used if the drill stem is isolated / positively disengaged.
- Mechanical means of rod separation that are permitted include:
  - Opposing hydraulic controls.
  - Rod locking devices or machine's power vice.
  - Hydraulic breakout tools.
  - Hydraulic foot clamps.

4.16.2 Rod box changes present severe crushing hazards. Operators shall ensure all crew members are clear of the machine and hoisting equipment while they are changing rod boxes.

4.17 Rotary, Sonic and Core Drilling

4.17.1 In addition to the health and safety procedures identified above, the following general health and safety procedures should be followed when supervising borings with rotary, sonic and core drilling:

- Drill rods should not be braked during lowering into the hole with drill rod chuck jaws. Drill rods should not be held or lowered into the hole with pipe wrenches.
- If a string of drill rods are accidentally or inadvertently released into the hole, do not attempt to grab the falling rods with your hands or a wrench.
- When drill rods are hoisted from the hole, they should be cleaned for safe handling with a rubber or other suitable rod wiper. Do not use hands to clean drilling fluids from drill rods.
- When drill rods are rotating, stay clear of the rotating components of the drill rig. Never reach behind or around a rotating drill rod for any reason.
- Use a long-handled shovel to move cuttings away from the top of the borehole. Never use hands or feet to move cuttings away from the borehole.
- If work shall progress over a portable drilling fluid (mud) pit, do not attempt to stand on narrow sides or cross members. The mud pit should be equipped with rough-surfaced, fitted cover panels of adequate strength to hold drill rig personnel.
- Keep away from area where drill rods are being moved or raised to the rig. Do not stand in the area where a drill rod will fall or slide if it should be dropped.
- Loud noises may occur during drilling. Hearing protection shall be worn.

4.18 Direct-push

4.18.1 The following general health and safety procedures should be followed when supervising drilling borings with direct-push drilling:

- Loud noise may occur during direct-push drilling. Appropriate hearing protection shall be worn.
- When drill rods are hoisted from the hole, they should be cleaned for safe handling with a suitable rod wiper. Do not use hands to clean drilling fluids from drill rods.
- If work shall progress over a portable drilling fluid (mud) pit, do not attempt to stand on narrow sides or cross members. The mud pit should be equipped with rough-surfaced, fitted cover panels of adequate strength to hold drill rig personnel.
- Drill rods should not be lifted and leaned unsecured against the mast. Either provide some method of securing the upper ends of the drill rod sections for safe vertical storage or lay the rods down.

4.19 Horizontal Directional Drilling

4.19.1 During surface to surface operations a 16.4’ (5 meters) safe zone shall be established and identified at both the entry and exit locations; no personnel are permitted to be within this zone unless the drill is locked out and the operator is out of the seat.

4.19.2 Machine shall be locked out before entering an excavation, changing tools, adding or removing drill stem or doing any other work on tools or the drill stem at the exit end of the bore.

4.19.3 A tracking head shall be installed on the drill stem:

4.19.4 Assemble drill head using components appropriate to the soil conditions to be encountered (e.g. nozzle, bit, beacon housing, etc.).

4.19.5 Ensure all personnel are clear of the bore entry point (outside of identified work zone).

4.19.6 At all times two way communication will be maintained at entrance and exit points using two way radios or equally effective communication means. If at any time communication is lost, all work will be stopped until communication is re-established

4.19.7 Locate drill head with tracking device at least every half-length of pipe. Adjust direction as necessary to follow the intended bore path.

4.19.8 Any drilling fluid returning to the surface shall be cleaned up promptly.

4.19.9 Drill pipe should exit the bore at an angle of 5 to 10° from the ground surface.

4.19.10 Turn off fluid flow as soon as drill head emerges.

4.19.11 Lockout machine and remove drill head using appropriate breakout tools.

4.19.12 Select and attach a reamer that allows the return of drilling fluids and cuttings, to reduce frictional pullback forces, and to allow for bend radius of the pipe. Reamer shall be:

- The smaller of 1.5 times the outside diameter (O.D.) or 12 inches (300mm) larger than the diameter of the product pipe.
- A diameter less than 1.5 times the diameter of the product may be necessary in collapsing soil formations.
- Reamed diameter may need to be increased by up to 25% if substantial swelling of the soil is expected to occur.

4.19.13 All personnel shall clear the trench or the designated surface zone (16.4 feet [5 meters]) once the reamer is attached. Operator shall only reverse lockout and commence pullback when communication is received from personnel on exit hole side and operator has confirmed the message.

4.19.14 Personnel on exit hole side shall ensure reamer is pulled the entire way back to the exit hole.

- If rotation is started when drill rod and reamer are away from the exit hole, very fast sideways movement of the rod and reamer can occur.
- Larger reamers and longer lengths of exposed drill rod increase the speed and distance of this movement.

4.19.15 If working with trailing drill stem, swivels shall be verified as lubricated and rotating freely by hand prior to use:

- A freely moving swivel prevents trailing drill stem or product from rotating / whipping.
- If the swivel does not move freely by hand it shall be removed from service and repaired or replaced.
- Only use swivels with limited articulation to prevent whipping or cranking action between the reamer and trailing drill pipe or product.

4.19.16 It is important to clean and lubricate the tool and drill stem joint threads before each use.

4.19.17 Any individual drill pipes that are bent or damaged shall be immediately taken out of service.

4.19.18 Occasionally change the order of the lead drill pipe (i.e. move the lead pipe to the end of the stem, or other pipe rotation procedures) to extend drill stem life.

4.19.19 Operator should avoid stalling the pipe rotation to avoid stress damage from shock loading.

4.20 Drilling at Potential MEC / UXO Sites

4.20.1 If the project site is suspected of containing munitions and explosives of concern (MEC) or unexploded ordnance (UXO), the UXO team will conduct a reconnaissance and MEC / UXO avoidance to provide clear access routes to each site before drilling crews enter the area. The following procedures will be implemented:

- Drilling operations on an MEC / UXO site will not be conducted until a complete plan for the site is prepared and approved by the AECOM UXO Safety Officer. MEC / UXO avoidance shall be conducted during drilling operations on known or suspect MEC / UXO sites.
- The UXO team will identify and distinctly mark the boundaries of a clear approach path for the drilling crews, vehicles, and equipment to enter the site. This path will be, at a minimum, twice the width of the widest vehicle. No personnel will be allowed outside any marked boundary.
- If MEC / UXO is encountered on the ground surface, the UXO team will clearly mark the area where it is found, report it to the proper authorities, and divert the approach path around it.
- The UXO team will conduct an access survey using the appropriate geophysical instrument over the approach path for avoidance of MEC / UXO that may be in the subsurface. If a magnetic anomaly is encountered, it will be assumed to be MEC / UXO, and the approach path will be diverted around the anomaly. UXO personnel only will operate the appropriate geophysical instrument and identify MEC / UXO.
- An incremental geophysical survey of the drill-hole location(s) will be initially accomplished by the UXO team using a hand auger to install a pilot hole. If MEC / UXO is encountered or an anomaly cannot be positively identified as inert material, Hazardous, Toxic, and Radioactive Waste (HTRW) sampling personnel will select a new drill-hole location.
- Once the surface of a drilling site has been cleared and a pilot hole established as described above, the drilling contractor will be notified that the site is available for subsurface drilling.

4.21 Movement and Transport of Drilling, Boring or Direct-Push Equipment

4.21.1 Personnel transporting equipment shall be properly licensed and shall operate the vehicle according to Federal / State / Provincial / Territorial, and local regulations. Refer to *S3AM-005-PR1 Driving* and *S3AM-320-PR1 Commercial Motor Vehicles*.

4.21.2 Confirm the traveling height (overhead clearance), width, length and weight of the equipment with the carrier. Identify highway and bridge load, width and overhead limits, to confirm these limits are not exceeded and with adequate margin.

4.21.3 Allow for overhang of any drilling, boring or direct-push equipment when cornering or approaching other vehicles or structures.

4.21.4 Be aware that the canopies of service stations and motels are often too low for equipment loaded on a trailer to clear

4.21.5 Watch for low hanging electrical lines, particularly at the entrances to drilling sites or restaurants, motels, other commercial sites.

4.21.6 Never travel on a street, road, or highway with any part of the drilling, boring or direct-push equipment in a raised or partially raised position.

4.21.7 Remove all ignition keys if rig is left unattended unless client requirements specify that the keys remain in the ignition switch at all times.

4.21.8 Before moving a rig on location, the operator shall do the following:

- To the extent practical, walk the planned route of travel and inspect it for depressions, gullies, ruts, and other obstacles.
- Check the brakes of the truck / carrier, especially if the terrain along the route of travel is rough or sloped.
- Discharge all passengers before moving on rough or steep terrain.

4.21.9 Engage the front axle (on 4x4, 6x6, etc., vehicles) before traversing rough or steep terrain

4.21.10 Driving drill rigs along the sides of hills or embankments should be avoided; however, if side-hill travel becomes necessary, the operator shall conservatively evaluate the ability of the rig to remain upright while on the hill or embankment. The possibility shall be considered that the presence of

drilling tools on the rig may reduce the ability of the rig to remain upright (raises the center of mass of the rig).

4.21.11 Logs, ditches, road curbs, and other long and horizontal obstacles should be approached and driven over squarely, not at an angle.

4.21.12 When close lateral or overhead clearance is encountered, or when backing up, the driver of the rig shall be guided by another person on the ground.

4.21.13 Loads on the drill rig and truck shall be properly stored while the truck is moving, and the mast shall be in the fully lowered position.

4.22 Loading and Unloading

4.22.1 Consult applicable manufacturer's recommendations for loading and unloading of the equipment.

4.22.2 Use ramps of adequate design that are solid and substantial enough to bear the weight of the rig with carrier, including tools.

4.22.3 Load and unload on level ground.

4.22.4 Use the assistance of someone on the ground as a guide.

4.22.5 Check the brakes on the rig carrier before approaching loading ramps.

4.22.6 Distribute the weight of the rig, carrier, and tools on the trailer so that the center of weight is approximately on the centerline of the trailer and so that some of the trailer load is transferred to the height of the pulling vehicle. Refer to the trailer manufacturer's weight distribution recommendations.

4.22.7 The rig and tools should be secured to the hauling vehicle with ties, chains, and / or load binders of adequate capacity.

## 5.0 Records

5.1 All employee training files shall be maintained in accordance with *S3AM-003PR1 SH&E Training*.

5.2 Completed inspections and maintenance inventories shall be maintained the site or project files.

## 6.0 Attachments

6.1 S3AM-321-ATT1 Core Drilling Machine

6.2 S3AM-321-ATT2 Pre-Drilling, Boring, & Direct-Push Probing Flow Chart

6.3 S3AM-321-FM1 Daily Drilling, Boring & Direct-Push Equipment Inspection

6.4 S3AM-321-FM2 Drilling, Boring & Direct-Push Equipment Maintenance Inventory

**Americas**

# Overhead Lines & Obstructions

**S3AM-322-PR1**

## 1.0 Purpose and Scope

1.1 Provides the safe work requirements to be observed where overhead obstructions (e.g., cable trays, pipe racks, etc.), overhead utilities, or other lines are present at a work location, including, but not limited to electric power lines, electrical apparatus, or any energized (exposed or insulted) parts, communication wires, or any other overhead wire or cable.

1.2 This procedure applies to all AECOM Americas**-**based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

## 2.0 Terms and Definitions

2.1 **Arc Flash Hazard** – A dangerous condition associated with the possible release of energy caused by and electric arc. Arc flash is the light and heat produced from an electric arc supplied with sufficient electrical energy to cause substantial damage, harm, fire, or injury.

2.2 **Electrical Hazard** – A dangerous condition such that contact or equipment failure can result in electric shock, arc flash burn, thermal burn, or blast.

2.3 **Minimum Approach Distance (MAD)** – The MAD is the closest distance any employee or any part of the operating equipment is permitted to approach an energized or a grounded object.

2.4 **Qualified Person (Electrical Transmission and Distribution) –** A person trained and knowledgeable in the construction and operation of electrical transmission and distribution equipment or a specific work method, and has been trained to recognize and avoid electrical hazards that might be present with respect to that equipment or work method.

2.5 **Types of Overhead Lines / Obstructions (examples)**:

- Overhead electric power lines
- Structural cable supports
- Guy wires
- Cable television / communication lines
- Cable Trays
- Pipe Racks
- Low Clearance Overpasses

## 3.0 References

3.1 S3AM-004 PR1 Incident Reporting, Notifications & Investigation

3.2 S3AM-010-PR1 Emergency Response Planning

3.3 S3AM-209-PR1 Risk Assessment & Management

3.4 S3AM-302-PR1 Electrical Safety

3.5 S3AM-303-PR1 Excavation

# 4.0 Procedure

4.1 Roles & Responsibilities

4.1.1 **Manager**

- Identify conditions where overhead electric power lines and other overhead obstructions may be present and outline what is required in the SH&E Plan and Task Hazard Assessments. Refer to the *S3AM-209-PR1 Risk Assessment & Management*.
- Confirm electrical and communication lines, and as appropriate other overhead obstructions, are identified on all site and project drawings.
- Coordinate and communicate with overhead electrical line owner or operator to identify and implement appropriate control measures.
    - Provide adequate advance notification to the Overhead Electrical Line Owner / Operator to allow for insulation or isolation and grounding of the line(s) if required.
    - Confirm the Overhead Electrical Line Owner / Operator(s) are fully informed as to when the operations are to begin, end and when any location changes are planned if applicable.
- Confirm Employees are trained as required for the scope of work and associated hazards.
- Coordinate and communicate with subcontractors or employees working around overhead electric power lines and as applicable, other overhead obstructions.
- Confirm the *S3AM-322-FM1 Overhead Electric power lines Acknowledgement* is completed by concurrent operations working around overhead electric power lines on the worksite.

4.1.2 **Safety Health & Environment (SH&E) Manager**

- Assist and support the Manager in planning and responding to concerns regarding the exposure to overhead electric power lines.

4.1.3 **Employees**

- Maintain current training required for the scope of work and associated hazards.
- Inform the Manager of location conditions that may expose risks to overhead electric power lines.
- Comply with established minimum approach distances.

4.2 Training

4.2.1 The Manager shall confirm all Employees are oriented to the SH&E Plan and Task Hazard Assessment (THA) process, in accordance with *S3AM-209-PR1 Risk Assessment & Management*.

4.2.2 Confirm training requirements were met prior to work starting.

- 
- Employee orientation shall include the Location Specific Emergency Response Plan.
- Proof of training and orientation shall be documented and retained in the project files.

4.2.3 Managers shall confirm that each Employee has received training required for the scope of work and associated hazards in accordance with *S3AM-003-PR1 SH&E Training*.

4.2.4 Additional training requirements may include, but are not limited to:

- The limitations of an insulating link / device, proximity alarm, and range control (and similar) device, if used.

- Grounding and bonding procedures.
- Client specific requirements

4.3 General Requirements

4.3.1 The AECOM Manager or supervisor and employees shall perform a walk-thru of the work site and / or review of the work area / travel route to identify the overhead electric power lines and any other overhead obstructions that could be impacted by the work. Consider high profile equipment, equipment in transport, swing radius of equipment, potential for shifting loads, etc. AECOM personnel may be accompanied by other applicable personnel (e.g. client representatives, contractors operating concurrently, etc.).

4.3.2 The location or project specific SH&E Plan shall identify all overhead line hazards and provide suitable methods of elimination or control. All involved or affected workers shall review the SH&E Plan to confirm proper communication of the overhead line hazards and awareness of the control measures associated with their work.

4.3.3 Assess applicable factors such as, but not limited to:

- Scope of work (e.g. hoisting materials, excavation, grubbing, etc.).
- Transportation route.
- Hoisting, excavating, or other equipment to be operated.
- Height, placement, and reach of equipment.
- Equipment or material loading / unloading.
- Location(s) of electric power lines, communication lines, guy wires, etc.
- Worker training and experience.
- Soil or ground condition and environmental conditions.
- Interruptions to electrical services.
- Hazard to public.
- Use of ladders.
- Pipe and other conducting materials.
- Notification of electric utility owner.
- Changing conditions.
- Communication of all hazards to all workers including contractors, sub-contractors, and concurrent operations.

4.3.4 Task Hazards Assessments (THAs) shall be completed to record the hazards and control measures specific to the task, including those related to overhead line and obstructions hazards, prior to undertaking assigned tasks. THAs shall be reviewed and signed by all workers involved in the specific task.

4.3.5 Should adverse weather conditions cause the work associated with overhead lines to be unsafe, the activities shall be discontinued.

4.3.6 Managers or designated employees shall formally notify all concurrent operations, or any others who may not have had reason to review and sign the related SH&E Plan or THAs, of work that is to be done in the vicinity of overhead lines at distances less than 50 feet (15.25 meters), and for non-electrical obstructions, at distances less than 10 feet (3.05 meters) if appropriate to the obstruction’s potential hazards, and obtain the operator's assistance in protecting workers involved.

- Formal notification may be accomplished through a review of the SH&E Plan or THAs by the concurrent operator and associated personnel, as evidenced by signing the respective document's acknowledgement.
- Alternately, the concurrent operations may acknowledge having reviewed AECOM's procedures with a separate acknowledgment form. *S3AM-322-FM1 Overhead Electric Power Lines Acknowledgement Form* or equivalent may be used.
- Prior to equipment operation within 10 feet (3.05 meters) of non-electrical obstructions, as appropriate to potential hazards associated with the obstruction, the Owner/Operator should be contacted to obtain specific details regarding the obstruction such as piping or tray contents,

4.3.7 Overhead lines are presumed to be energized unless the Overhead Electrical Line Owner / Operator confirms that the overhead line has been, and continues to be de-energized and visibly grounded at the worksite.

4.3.8 Overhead lines are presumed to be uninsulated unless the Overhead Electrical Line Owner / Operator or a registered Professional Engineer who is a Qualified Person with respect to electrical power transmission and distribution confirms that a line is insulated.

4.3.9 Confirm accurate measurement of load heights, maximum equipment radius and height or reach of any other equipment that could potentially encroach on the safe limit of approach for the overhead electrical line,guy wires, or other applicable overhead obstructions.

- The height of all applicable overhead lines and obstructions that pose contact or encroachment potential shall be determined prior to work commencing.
- The height of electric power lines may only be determined by the client, utility company professional, or by using an approved electronic measuring device.
- Awareness shall be maintained for any elements that could affect clearance (e.g. snow pack, ice or snow weighing down lines, excessive heat causing sag, etc.).
- Caution shall be exercised when working or travelling near overhead lines having long spans, since they tend to be more prone to lateral swing in response to the wind and can present a contact hazard.
- All low hanging communication lines in close proximity to energized lines shall be clearly identified as *Encroaching on Energized Lines.*

4.3.10 Managers shall contact the overhead owner/operator (i.e. local utility company) if work is to be done or before equipment is operated within 50 feet (15.25 meters) of an energized overhead line, to determine the voltage of the overhead line and establish the appropriate MAD.

- All inquiries regarding electric utilities shall be made in writing and a written confirmation of the outage / isolation shall be received by the appropriate AECOM Manager prior to the start of the task that may impact the utility.

4.3.11 Until the voltage of the overhead electrical line is known and the MAD established, an exclusion zone shall be created at ground level beneath and 50 feet (15 meters) perpendicular to the overhead electric power lines on each side.

- The exclusion zone shall be demarcated with visual indicators (e.g., signage, flagging, paint, cones). No equipment shall enter the exclusion zone without approval from AECOM management.
- Unqualified employees shall maintain a safe clearance distance in accordance with the established MAD when working in an elevated position near energized overhead lines. For additional information associated with Qualified Employees refer to *S3AM-302-PR1 Electrical Safety*.

4.3.12 The Minimum Approach Distance (MAD) as it relates to Voltage varies from jurisdiction to jurisdiction. The MAD or the regulatory minimum distance requirements, whichever is more stringent, shall be maintained. The below chart shows the Phase-to-Phase voltage rating voltages in kilovolts and the MADs applicable to all AECOM operations:

**Minimum Approach Distances (MAD)**

| Voltage Range (Kilovolts) (Phase-to-Phase) | Minimum Approach Distance (MAD) in Feet (Meters) |
|---|---|
| **Personnel shall allow for equipment movement and electrical line swaying when establishing a M.A.D.** | |
| 0 – 50 KV | 10 (3) |
| Over 50 – 200 KV | 15 (5) |
| Over 200 – 350 KV | 20 (6) |
| Over 350 – 500 KV | 25 (8) |
| Over 500 – 750 KV | 35 (11) |
| Over 750 – 1,000 KV | 45 (14) |
| **Note: This requirement shall apply except where client, local, or governmental regulations are more stringent.** | |

Source: American National Standards Institute, Publication B30.5.

4.3.13 An appropriate distance shall be kept between equipment, its occupants, their tools and energized overhead lines, electrical apparatus, or any energized parts.

4.3.14 These minimum approach distances do not apply to a load, equipment, or building that is transported under energized overhead power lines if the total height, including equipment transporting it, is less than 13.5 feet (4.15 meters).

- If the travelling equipment, including load, is over 4.15m (13.62ft) a transportation permit shall be acquired from the appropriate jurisdiction to travel on any public road or highway.
    - Consult local jurisdiction as some US states may use heights of up to 4.45m (14.6ft).
    - Notification of appropriate utility companies may be required in conjunction with the transportation permit. Jurisdictional requirements shall be verified prior to transport.
    - Route shall be checked for clearance of overhead electrical and communication lines prior to transport.
    - A designated signaler will be utilized when the height of the equipment, buildings, tractor / trailers or any other transport equipment travelling under an overhead electrical line is greater than 4.15m (13.62ft).

4.3.15 Employees shall not place earth or other material under or beside an electrical overhead line if doing so reduces the safe clearance to less than 50 feet (15.25 meters) or, if appropriate to potential hazards associated with other types of overhead obstruction, less than 10 feet (3.05 meters). To maintain a safe distance:

- Install warning devices and signs (hang a sign from and mark all guy wires to warn traffic of low clearance; provide warning signage for all overhead services).
- Install telescopic, nonconductive posts and flagging across right-of-way at the minimum allowable clearance as allowed by regulations for the line voltage.
- Position signs or other devices to determine the “Danger Zone”.

- Inform all job site personnel of the danger zone and the safe distances required.
- Beware of atmospheric conditions, such as temperature, humidity, and wind that may dictate more stringent safety procedures.

4.3.16 If employees are to climb or perform work on poles or towers, the structures shall be confirmed as capable of withstanding the weight and activity without failure.

4.3.17 If holes are dug for poles or foundations for structures, appropriate measures shall be taken to prevent inadvertent entry by personnel or equipment. Refer to *S3AM-303-PR1 Excavation*.

4.3.18 Operation of heavy equipment and cranes in areas with overhead lines represents a significant arc flash and electrical hazard to all personnel on the job site.

- Accidental contact with an energized overhead line or arcing between a high power line and grounded equipment, can cause harm to nearby equipment operators or ground personnel and damage to power transmission systems and / or operating equipment.
- Equipment will be repositioned and blocked so that no part, including cables, can come within the established minimum clearances.

4.3.19 Gravel trucks, cranes, boom trucks, etc. shall retract, stow and lower boxes, outriggers, booms, etc. to the travel position prior to entering municipal and client owned roads (e.g. leaving plant sites, work over rig sites, battery sites, and storage yards) and any time travel may put the equipment within the MAD of an electrical line.

4.3.20 When a signal person is required, the individual shall wear reflective striping (coveralls or vest) and carry an air horn or other appropriate means of emergency communication.

4.3.21 The signal person shall be aware of the potential electrical line hazards, be verified as competent by their supervisor and not have any other duties while acting as the signal person.

4.3.22 The signal person shall remain outside the MAD and in a position that allows for monitoring of equipment or loads to prevent encroachment on the MAD.

4.3.23 Signs, pylons, high visibility tape and / or signalers shall not be removed until the last piece of AECOM equipment has traveled under the overhead electrical line.

4.4 Minimum Approach Distance (MAD) Reduction

4.4.1 Where any work task will not allow the MAD to be maintained, an alternate means of protection shall be implemented by the Manager and approved by the SH&E Manager. In order of preference, acceptable procedures are:

- De-energize the overhead line(s) / lockout by local utility authorities; or
- Implement alternative procedures as identified by the Overhead Electrical Line Owner / Operator or a registered professional engineer.

4.4.2 De-energize Overhead Lines

- Elimination of electrical power provides the most acceptable means of ensuring safety of personnel. While temporary site overhead lines are often under the control of the site manager (and can be de-energized locally), electrical distribution and transmission lines can be de-energized only by the Overhead Electrical Line Owner / Operator. De-energizing of an overhead line often requires advance coordination with the Overhead Electrical Line Owner / Operator. At least one week advance notice should be provided.
- Managers shall confirm with the utility Overhead Electrical Line Owner / Operator that the overhead line has been de-energized and visibly grounded at the job site.

4.4.3 Alternative Procedures

- Managers may implement alternative procedures to prevent arc flash and electrical contact. These procedures shall be identified by the Overhead Electrical Line Owner / Operator or a registered Professional Engineer who is a Qualified Person with respect to electrical power transmission and distribution.
- A planning meeting with the Manager, SH&E Manager and the Overhead Electrical Line Owner / Operator (or registered Professional Engineer) shall be held to determine the most effective alternative procedures.
- Alternative procedures shall meet all client, local and governmental regulatory requirements.
- The work will be conducted by qualified and competent individuals, following the alternative written safe work procedures. All others are restricted from entering the MAD.
- Insulating Barriers shall be rated for the voltage line being guarded. These barriers may not be part of or attached to the equipment. The MAD shall only be reduced within the designed working dimensions of the insulating barrier. This determination shall be made by a Qualified Person in accordance with local or governmental requirements for work practices near energized equipment.
- Consult *S3AM-302-PR1 Electrical Safety* procedures to properly ground equipment and for limitations of grounding.
- Dedicated Line Spotters shall be trained to enable them to effectively perform their task, including training on the applicable local and governmental regulations.
- No work that encroaches on an energized power line will be completed outside of daylight hours.

4.5 Additional Safety Measures.

4.5.1 When equipment shall repeatedly travel beneath electric power lines, a route shall be plainly marked and “rider poles” of non-conductive material shall be erected on each side to confirm equipment structures are lowered into a safe position.

- 20” X 28” (50.8cm X 71.12cm) Danger Overhead Power Lines signs, which are highly visible, shall be erected at a height of 1.8 meters (6ft) on each side of the electrical line. A combination of pylons and high visibility tape shall be placed underneath the electrical line.
- These signs shall be in plain view of equipment traveling in either direction, but no closer than the MAD.
- If physical guards (i.e. goal posts, rider poles) are used, the guards shall be of non-conductive material and consist of a pole on each side of the approach connected by a rope.
- The poles will be placed at the MAD from and on each side of the electrical line. The ropes will be set at a height, which will maintain the MAD from the electrical line.

4.5.2 Watch for uneven ground that may cause vehicles and equipment to weave, bob, or bounce.

4.5.3 The following additional safety measures shall be implemented as needed when working around energized power lines:

- Provide equipment with proximity warning devices. These provide an audible alarm if any part of the equipment gets too close to a line.
- Install ground safety stops. These prevent vehicles from accidentally entering hazardous areas.
- Equip cranes with a boom-cage guard. This prevents the boom from becoming energized if an electrical line is contacted.

- Utilize insulated links and polypropylene tag lines. These prevent the transmission of electricity to loads or tag line handlers if an electrical line is contacted.

  NOTE: These additional safeguards are intended as supplemental protection. Use of these measures is not permissible as a substitute for maintaining the safe working distance or implementation of the procedures outlined in this document.

4.6 Emergency Planning

4.6.1 Managers shall complete a location specific emergency response plan as part of their location or project specific SH&E Plan for all operations during which equipment is operated within 50 feet (15.25 meters) of an energized overhead electrical line or conductor. Refer to *S3AM-010-PR1 Emergency Response Planning*. This plan shall identify the following information:

- The importance to the operator's safety of remaining inside the cab except where there is an imminent danger of fire, explosion, or other emergency that necessitates leaving the cab.
- The safest means of evacuating from equipment that may be energized.
- The potentially energized zone around the equipment.
- The need for crew in the area to avoid approaching or touching the equipment and the load.
- The means to de-energize the electrical line or live conductor.
- The contact information for the utility Overhead Electrical Line Owner / Operator and emergency services.

4.6.2 In the event of an incident, the Employee shall report it in accordance with *S3AM-004 PR1 Incident Reporting, Notifications & Investigation.*

4.6.3 All damaged utilities shall be repaired by a qualified and / or licensed professional.

## 5.0 Records

5.1 Retain the Overhead Electric power lines Acknowledgement forms and any document related to requests of and confirmation from the Overhead Electrical Line Owner / Operator in the project files. Documentation of employee training completed shall be retained in accordance with *S3AM-003-PR1 SH&E Training*.

## 6.0 Attachments

6.1 S3AM-322-FM1 Overhead Electric Power Lines Acknowledgement Form

**Americas**

# Underground Utilities

**S3AM-331-PR1**

## 1.0 Purpose and Scope

1.1 Provides procedures designed to help prevent injuries to personnel working on the location and pedestrians, property damage, and adverse environmental impact as a result of potential hazards associated with encountering underground utilities, subsurface installations, and potential overhead hazards.

1.2 Provides the minimum requirements to be followed for underground work (e.g., excavations, drilling, boring, and probing work) to ensure that underground installations, and subsurface structures, are identified properly before work commences.

1.3 This procedure applies to all Americas-based employees and operations and any other entity and its personnel contractually required to comply with this document's content.

1.4 The Manager is responsible for meeting all the requirements in this procedure.

1.5 AECOM's clients may have specific procedures which shall be followed to identify and map utility and subsurface structures on their properties or facilities. Provided the client's procedures meet or exceed those of AECOM, approval shall be obtained from the Manager and the SH&E Manager to follow the client's procedures.

## 2.0 Terms and Definitions

2.1 **Underground Utilities –** All utility systems located beneath grade level, including, but not limited to, gas, electrical, water, compressed air, sewage, signaling and communications, etc.

2.2 **Clearance** – includes the following:

- The positive locating of underground utilities or subsurface installations in or near the work area.
- A signed statement by an appropriate representative attesting to the location of underground utilities and/or the positive de-energizing (including lockout) and testing of electrical utilities.

2.3 **Ground Disturbance (GD) –** Any indentation, interruption, intrusion, excavation, construction, or other activity in the earth's surface as a result of work that results in the penetration of the ground.

2.4 **Hand Clearance / Tolerance Zone –** The area on either side of the locate marks of a utility that shall be maintained in order to expose the utility through the use of non-destructive ground disturbance techniques acceptable to the owner of the buried utility and applicable jurisdictional requirements. Visual exposure is required before mechanical excavation equipment may be used.

2.5 **Intrusive Activities –** Examples: Excavation of soil borings, installations of monitoring wells, installation of soil gas sampling probes, excavation of test pits/trenches or other man-made cuts, cavity, trench or depression in an earth surface formed by earth removal.

2.6 **Non-Destructive Ground Disturbance Technique –** A safe and acceptable excavation method that is used to visually expose an underground utility without causing damage. Non-destructive ground disturbance techniques may include, but are not limited to:

- Hand digging.
- Use of non-conductive tools.
- Hydro-vacuum.

2.7 **Subsurface Installation –** Examples: Subterranean tunnels, underground parking garages and other structures beneath the surface.

2.8 **Utility Strikes –** Unplanned contact with utilities resulting in damage to the utility or its protective coating.

## 3.0 References

3.1 S3AM-003-PR1 SH&E Training

3.2 S3AM-303-PR1 Excavation

3.3 S3AM-321-PR1 Drilling, Boring & Direct-Push Probing

## 4.0 Procedure

4.1 Roles and Responsibilities

4.1.1 **Manager**

- Administer this procedure and the development of the SH&E Plan.
- Confirm the appropriate equipment and materials are available to conduct the underground utility and/or subsurface installation clearance.
- Confirm all employees involved and affected by the task review the SH&E Plan and Task Hazard Assessment (THA) prior to work commencing
- Authorize work to proceed using the *S3AM-331-FM1 Underground Utility & Subsurface Installation Clearance Checklist*.
- Confirm that employees conducting underground utilities and subsurface clearance processes possess all required training, registrations or certifications.
- Provide authorization (with the concurrence of the Site Supervisor and SH&E Manager) for work to resume if interrupted due to unexpected conditions or events.

4.1.2 **Safety, Health & Environment (SH&E) Manager**

- Assist AECOM management as needed by providing guidance and clarification as to issues that may arise.
- Review the SH&E Plan to confirm compliance with jurisdictional regulations. Provide technical guidance as needed when a variance is pursued related to this procedure.

4.1.3 **Employees**

- Maintain training as appropriate to the work to be completed (e.g. ground disturbance, lockout tagout, equipment operation, etc.). Refer to *S3AM-003-PR1 SH&E Training*.
- Review the SH&E Plan and Task Hazard Assessment (THA) prior to work commencing.
- As appropriate to the anticipated or encountered hazards and as addressed in the applicable planning documentation, utilize appropriate personal protective equipment (PPE) and applicable training, practices and operating procedures.
- Immediately notify the Manager of any unanticipated conditions or events. If assigned equipment, perform appropriate inspections and confirmations of maintenance and/or repairs.

4.2 Training

4.2.1 All on-site employees involved with the underground utility and subsurface identification and associated clearance process shall be trained, at a minimum, in these procedures.

4.2.2 Employees shall complete all required training associated with their tasks in accordance with the SH&E Training Matrix and any training assessments developed at the business group.

- Refer to *S3AM-003-PR1 SH&E Training.*
- This training may include, but is not limited to, Excavation / Trenching (Ground Disturbance), HAZWOPER, Petroleum Safety Training (or Construction Safety Training), and H2S Alive as appropriate.

4.2.3 As applicable, employees shall receive client-required training.

4.3 Planning

4.3.1 Health and Safety Plan – At a minimum, a SH&E Plan and task hazard assessments (THAs) shall be prepared prior to any underground utilities and subsurface installations clearance activities.

- The SH&E Plan will address any required environmental monitoring including gas monitoring, dust, noise, metals, radiation or other monitoring as may be appropriate for site conditions.
- Employees shall comply with all SH&E Plan requirements.
- The location specific emergency response plan shall be in place, contain procedures applicable to the potential emergencies presented by the operations, and be reviewed with all personnel potentially affected.

4.3.2 *S3AM-331-ATT2 Underground Utilities & Subsurface Installation Clearance Flow Chart* provides a summary of the key requirements addressed in this procedure.

4.3.3 Underground utilities and subsurface installations shall be investigated as being present, including the following, but not limited to:

- Steam, gas and electric.
- Sewer and water.
- Subterranean tunnels.
- Fibre optics (note: routine geophysical surveys will not identify fibre optic cables).
- Traffic control cables.

4.3.4 Location of underground utilities and subsurface installations will be confirmed by cross-referencing available information:

- Maps, as-built drawings and issued for construction (IFC) drawings.
- Plot plans, permits, crossing/encroachment agreements.
- One-Call information, locator and provided surveys.
- Private utility information, locator and provided surveys (e.g. ground penetrating radar (GPR), electromagnetic, etc.).
- Owner supplied documentation.
- Site walks.

4.3.5 As applicable, emergency shut-off locations of utilities shall be verified before work activities commence.

4.3.6 Jurisdictional, land owner, client and utility owner requirements shall be consulted to determine the minimum search zone dimensions and appropriate clearance distances.

4.3.7 As necessary and if possible, adjust locations of excavations or intrusive subsurface work away from subsurface utilities and installations

4.3.8 Prior to any excavation or intrusive subsurface work, the *S3AM-331-FM1 Underground Utility & Subsurface Installation Clearance Checklist* shall be completed. The form shall be reviewed and signed by the Manager.

- If the answer to any question in Part 1 of the checklist is “No” or “N/A”, no ground disturbance may take place without review by the Manager, in consultation with SH&E Manager, of the circumstances related to the particular item. The Manager shall initial beside each “No” or “N/A” item to indicate review and authorization.

4.4 Permits, Notifications and Access Agreements

4.4.1 Any required notifications shall be provided within the appropriate timeframe to the applicable organization (e.g. owner, utility company, agency, governing body, etc.).

4.4.2 All applicable permits (e.g. client, government, working near rail road, etc.) will be identified, obtained, and adhered to.

4.4.3 All access agreements will be obtained and adhered to.

4.5 Locating Underground Utilities and Subsurface Installations

4.5.1 Utilize the appropriate call/click-before-you-dig provider. Refer to *S3AM-331-ATT1 One-Call System*.

4.5.2 Federal/State/Provincial/Territorial and other “One Call” providers shall be contacted at least two working days and no more than ten working days prior to commencing the ground disturbance. Jurisdictional requirements shall be consulted to verify the appropriate advance notice. (e.g. 24 hours, two full working days, three to ten business days, etc.).

4.5.3 If the location of proposed excavation or intrusive subsurface work cannot be clearly and adequately identified, the route and/or area of the proposed ground disturbance shall be identified using white flags, paint or stakes prior to the arrival of the locator. Consult jurisdictional requirements as white-lining may be a mandatory requirement on all ground disturbances.

4.5.4 One Call providers shall appropriately identify and mark the subsurface utilities or installations, or otherwise provide written notification they do not have any facilities near the proposed subsurface/intrusive locations.

4.5.5 Confirm all circuits were on during subsurface checks if the checks were for identifying energized lines (e.g. circuits on timers or light sensing switches).

4.5.6 Areas that have a high density of sub-surface facilities may require a secondary locate by another independent locator to verify locations identified by the first locator.

4.6 Private Utility Locating

4.6.1 One Call services may not be available in various non-urban locations. Private utility locating companies shall be utilized to identify and located any underground utilities or subsurface installations.

4.6.2 Be aware urban areas (e.g. city or town) may have subsurface installations (e.g. underground garages) and utilities (e.g. public water, sewer, and gas pipelines) that are not covered by one-call systems.

- These subsurface installations and utilities require additional investigation and diligence beyond the one-call system.
- Additional investigation and diligence beyond the one-call system is also recommended for non-urban areas.

4.6.3 In urban areas, private utility locating companies shall be called to identify and locate, through geophysical surveys and other means, the presence of private utilities installed by the property owner (e.g. irrigation systems) and to verify the presence of public utilities on the properties.

- Hand clearance / tolerance zones shall be observed in urban areas and utilities exposed through the use of non-destructive techniques in accordance with requirements of the applicable jurisdiction and utility owner.

4.6.4 Observance of hand clearance / tolerance zones and utility exposure using non-destructive techniques is also recommended for non-urban areas and may be required by the applicable jurisdiction.

4.6.5 Warning tape, pea gravel, sand, non-indigenous material, bentonite, red concrete (indicative of electrical duct banks) and any departure from native soil or backfill may be evidence of the presence of subsurface installations and utilities.

4.7 Surface Markings

4.7.1 Once the underground installation has been identified, proper surface markings shall be made in accordance with the guidelines from the One-Call System (refer to S3AM-331-ATT1 ), guidance contained in this procedure or as contract-specified.

4.7.2 Color-coded surface marks (paints or similar coatings) shall be used to indicate the type, location, and route of buried installations. Additionally, to increase visibility, color-coded vertical markers (temporary stakes or flags) shall supplement surface marks.

4.7.3 All marks and markers shall indicate the name, initials, or logo of the company that owns or operates the installation and the width of the installation if it is greater than 2 inches.

4.7.4 If the surface over the buried installation is to be removed, supplemental offset marking shall be used. Offset markings shall be on a uniform alignment and shall clearly indicate that the actual installation is a specific distance away.

4.7.5 Locate marks shall be re-verified as per jurisdictional requirements or no later than 14 days after the previous locate was completed, whichever interval is shorter. These locate time intervals shall be maintained for the duration of the ground disturbance.

- If the work is interrupted during the determined lifespan or work does not commence during the applicable lifespan, a new locate shall be performed.
- Jurisdictional provisions may allow for an extension to the lifespan of the locate marks, however certain conditions may need to be met. (e.g. activities uninterrupted)
- If locate marks are moved or destroyed the location of the buried facilities shall be re-established.

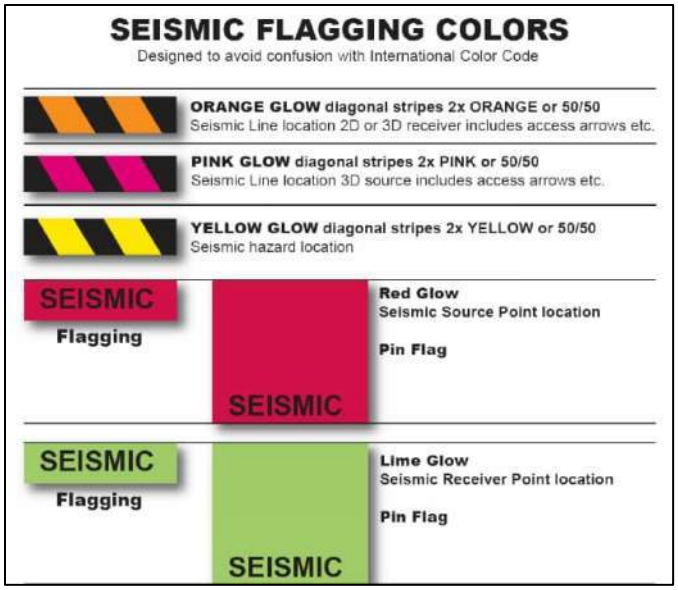
4.8 Uniform Color Coding

4.8.1 The colors and corresponding installation type are as follows unless otherwise contract-specified:

AMERICAN PUBLIC WORKS ASSOCIATION – APWA
Color Coding for Marking of Buried Facilities

| White | Proposed Ground Disturbance Area |
|---|---|
| Pink | Temporary Survey Markings |
| Red | Electric Power Lines, Cables, Conduit and Lighting Cables |
| Yellow | Gas, Oil, Steam, Petroleum Lines or Gaseous Materials |
| Orange | Conduit, Cable, Communication, Alarm or Signal Lines |
| Blue | Potable Water |
| Green | Sewer, Storm Sewer and Drain Lines |
| Purple | Reclaimed Water, Irrigation and Slurry Lines (non-potable) |

Canadian Association of Geophysical Contractors




4.9 Identification and Mapping of Utility and Subsurface Structures

4.9.1 The locations of subsurface utilities and subsurface installations shall be investigated, documented, and shown on a site plan (a scaled site plan shall be used when feasible). Refer to *S3AM-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist.*

4.9.2 Documentation of utility and subsurface installation identification (calling one call, responses from utilities) along with the scaled site plan shall be available on the worksite at all times of intrusive activities.

4.10 Site Walk

4.10.1 A site walk shall be conducted by the AECOM Manager and any other appropriate personnel with the objectives of reviewing all planned intrusive activity locations, the locations of subsurface and overhead utilities, overhead obstructions, and the potential for subsurface installations, to determine the appropriate utility clearance activities, and to observe other physical hazards.

- Walk the area at least 50 feet (15.2 meters) from perimeter of the site to observe physical hazards.
- Walk the area of at least 50 feet (15.2 meters) radius from each proposed subsurface intrusion location.
- If possible, particularly at urban and industrial sites, the client/property owner or an individual knowledgeable about the site and site utilities will attend the site walk.
- Add discovered items/issues to map for use in location confirmation.

4.10.2 The Site Walk further supplements the Identification and Mapping of Utility and Subsurface Structures procedure. Site Walks should be repeated as necessary following the Identification and Mapping of Utility and Subsurface Structures as visual verification of the hazards. Examples include:

- Proposed location(s) does not lie on a line connecting two similar manhole covers (e.g. sanitary sewer or storm drain).
- Proposed subsurface location(s) has not subsided, been excavated and patched, nor gives the appearance it may be covering a former trench (e.g. linear cracks, sagging curbs, linear re-pavements, etc.).
- Proposed subsurface location(s) does not lie on a line with any water, gas, electrical meters, utility cleanouts, or other utility boxes in the surrounding areas.

4.11 Proposed Subsurface Investigation Locations

4.11.1 All proposed subsurface locations will be reviewed in comparison to subsurface and overhead utilities and subsurface installations and adjustments made as necessary.

4.11.2 Minimum set back distances from subsurface and overhead utilities and subsurface installations will be established including 5 feet (1.5 meters) from any subsurface utility, 7 feet (2.1 meters) from the pad surrounding any underground storage tanks, and 10 feet (3 meters) from any overhead energized electrical line (or further depending on line voltage). These set back distances are a minimum; government regulations and utility requirements may dictate a greater set back distance.

4.12 Utility Clearance Investigation Location Confirmation

4.12.1 As applicable, all client on-site safety procedures shall be understood and adhered to.

4.12.2 Hand exposure or non-destructive ground disturbance techniques to expose an underground utility or subsurface installation are necessary to accurately determine size, location and alignment prior to mechanical excavation or intrusive subsurface work in the vicinity of that utility or installation.

4.12.3 Non-destructive ground disturbance techniques shall be acceptable to the owner of the buried utility (i.e. hydro-vacuum temperature or pressure).

4.12.4 Hydro-vacuum or air-knife require proper grounding equipment at sites where the subsurface may contain flammable gases, liquids, or vapors

4.12.5 Jurisdictional, land owner, client and utility owner requirements shall be consulted to determine the distance of the hand exposure zone, and what requirements, when met, may allow mechanical excavation within these zones.

4.12.6 At a minimum, all underground utilities and subsurface installations within a 5 feet (1.5 meter) radius of the work site shall be identified and physically located (seen) before use of mechanical excavation equipment is permitted. Jurisdictional, client, land owner and utility owner requirements shall be consulted as the required hand exposure radius may be larger.

4.12.7 In urban areas, proposed subsurface locations will be cleared by hand / non-destructive technique to 5 feet (1.5 meters) (soil borings and wells) or 12 inches (30 centimeters) (soil gas sampling probes) using non-mechanical methods.

- In non-urban areas, clearing by hand / non-destructive technique should be conducted if possible and shall be conducted as required by the given jurisdiction.
- Hand / non-destructive technique clearance should be extended if locations of deep utilities and structures are not known.
- Hand exposure or non-destructive ground disturbance techniques should extend a minimum of 24 inches (60 centimeters) below the intended ground disturbance depth to minimize the hazard of mechanical equipment contact with any utility or installation.

4.12.8 Mechanical equipment and attachment dimensions shall be considered when establishing the zone in which all underground utilities and subsurface installations are physically located (seen) prior to the use of that equipment. The radius may require expanding to maintain safe distances when using large equipment.

4.13 Utility Strikes

4.13.1 Utility strikes shall be reported in accordance with *S3AM-004-PR1 Incident Reporting, Notifications & Investigation*.

4.13.2 All damaged utilities shall be repaired by a qualified and/or licensed professional.

## 5.0 Records

5.1 Retain completed *S3AM-331-FM1 Underground Utility & Subsurface Installation Clearance Checklist* and documents related the clearance process (e.g. Utility Owner communication, etc.) in the site or project files.

5.2 Documentation of employee training completed shall be retained in accordance with *S3AM-003-PR1 SH&E Training*.

## 6.0 Attachments

6.1 S3AM-331-ATT1 One-Call System

6.2 S3AM-331-ATT2 Underground Utilities & Subsurface Installation Flow Chart

6.3 S3AM-331-FM1 Underground Utility & Subsurface Installation Clearance Checklist

**Americas**

# Concrete

**S3AM-338-PR1**

## 1.0 Purpose and Scope

1.1 The purpose of this procedure is to confirm the safety of AECOM Americas personnel during the installation of concrete forms, pouring of new concrete structures, or installation of preformed concrete structures.

1.2 This procedure applies to AECOM Americas employees and any other entity and its personnel contractually required to comply with this document's content where concrete is poured or handled. This procedure also applies to Portland cement, mortar, stucco, and other applications of cementitious products.

## 2.0 Definitions

2.1 None

## 3.0 References

3.1 S3AM-208-PR Personal Protect Equipment

3.2 S3AM 304 PR1 Fall Protection

## 4.0 Procedure

4.1 Implementation of this procedure is the responsibility of the manager directing activities of the facility, site, or project location.

4.2 General

4.2.1 Employees working above any adjacent working surfaces shall review and conform to the applicable fall protection requirements listed in *S3AM 304 PR1 Fall Protection*.

4.2.2 No employees will be permitted to work above an impalement hazard (e.g., rebar) unless it has been protected to eliminate the hazard of impalement.

4.2.3 Prohibit riding of concrete buckets for any purpose. Keep vibrator crews out from under concrete buckets suspended from cranes or cableways.

4.2.4 Provide an employee with a whistle or other sound-producing device to watch for approaching buckets and warn employees to stand clear while the concrete is dumped.

4.2.5 Where practical, use tag lines to control and position suspended concrete buckets.

4.2.6 Provide PumpCrete™ or similar systems using discharge pipes with pipe supports designed for 100 percent overload. Provide compressed-air hoses in such systems with positive fail-safe joint connectors, or otherwise secure them to prevent separation of sections when pressurized.

4.2.7 All nozzle men applying cement, air, sand and water through a pneumatic or high-pressure hose shall wear protective head, hand, and face equipment.

4.2.8 All concrete workers shall wear protective clothing, including safety glasses; rubber boots, and gloves, to reduce the danger of concrete burns. Refer to *S3AM-208-PR Personal Protection Equipment* for additional information.

4.2.9 Wear appropriate personal protective equipment when using tools and equipment associated with concrete masonry work.

4.2.10 Finishers shall wear safety glasses and face shields when chipping, wire brushing, or using power-impact or rotary tools in patching concrete.

4.2.11 In the pour area, or any area where dry Portland cement is being handled or mixed with water or

aggregate, provide means to flush eyes (e.g., eyewash station, bottles) for 15 minutes. If the material contacts skin, wash skin with water and ph-neutral soap or mild detergent.

4.2.12 Provide temporary winter protection enclosures with adequate ventilation, lighting, and fire protection.

4.2.13 Equip pavers with a loud warning bell or horn that sounds when a paver moves ahead or the bucket is run out.

4.2.14 Provide conical or tapered bottoms with mechanical or pneumatic means of starting the flow of materials for bulk storage bins, containers, or silos.

4.2.15 Construct handles on bull floats used where they may contact energized electrical conductors of nonconductive material, or insulate with a nonconductive sheath whose electrical and mechanical characteristics provide the equivalent protection of a handle constructed of nonconductive material.

4.2.16 Do not extend handles of buggies beyond the wheels on either side of the buggy. Installation of knuckle guards on buggy handles is recommended.

4.2.17 Provide concrete buckets equipped with hydraulic or pneumatically operated gates with positive safety latches or similar safety devices installed to prevent premature or accidental dumping. The buckets will be designed to prevent excess aggregate and loose material from accumulating excessively on the top and sides of the bucket.

4.2.18 Block the wheels of ready-mix trucks and set the brakes to prevent movement when discharging on a slope.

4.2.19 Properly guard exposed gears, chains, and rollers of mixers.

4.2.20 Secure sections and ends of tremies, elephant trunks, and similar concrete conveyances with wire rope, chain, or similar safe fastener.

4.2.21 Equip powered and rotating-type concrete troweling machines that are manually guided with a control or dead-man switch that will automatically shut off the power whenever the operator removes his hands from the equipment handles.

4.2.22 The use of ready-mix concrete trucks may create traffic problems, which proper planning and care can lessen and/or eliminate. Control backing operations through the use of a properly trained and attired flag person/spotter who will be positioned so that they have a clear view of the area behind the truck, as well as be clearly visible to the truck driver. Route movement of personnel and project equipment away from this area so that they do not have to cross the truck's means of egress.

4.3 Forms and Shoring

4.3.1 The completed shoring setup should be a homogenous unit or units. For example, do not use tubular steel shoring in combination with adjustable wood or jack-type shoring.

4.3.2 Confirm that formwork and shoring are be designed, erected, supported, braced, and maintained so that they will safely support all vertical and lateral loads that may be imposed upon them during placement of concrete.

4.3.3 Confirm that drawings or plans showing the jack layout, formwork, shoring, working decks, and scaffolding are available at the jobsite.

4.3.4 Remove and stockpile stripped forms and shoring promptly after stripping in all areas in which persons are required to work or pass. Remove and dispose of adhered concrete from forms and planking before stacking when possible to prevent generation of concrete dust. Pull, cut, or remove by other means any protruding nails, wire ties, and other form accessories not necessary to subsequent work to eliminate the hazard.

4.3.5 Do not impose any construction loads on the partially completed structure unless such loading has been considered in the design and approved by the engineer-architect.

4.3.6 When temporary storage of reinforcing rods, material, or equipment on top of formwork becomes

necessary, strengthen these areas to meet the intended loads.

4.3.7 Provide sills for shoring that are sound, rigid, and capable of carrying the maximum intended load.

4.3.8 Inspect all shoring equipment prior to erection to determine that it is as specified in the shoring layout. Do not use any equipment for shoring that is found to be damaged.

4.3.9 Inspect erected shoring equipment immediately prior to, during, and immediately after the placement of concrete. Immediately reinforce or re-shore any shoring equipment that is found to be damaged or weakened.

4.3.10 Provide re-shoring when necessary to safely support slabs and beams after stripping, or where such members are subjected to superimposed loads due to construction work done.

4.3.11 Build shoring or form systems in accordance with the AECOM procedure governing excavation when working in excavations.

4.4 Tube and Coupler Shoring

4.4.1 Use tubular steel frames for shoring layouts in accordance with each manufacturer's recommended safe working load based on tests conducted according to the "Recommended Procedure for Compression Testing Scaffolds and Shores" by the Scaffolding and Shoring Institute.

4.4.2 Prior to erection of steel frame shoring, conduct a thorough inspection to confirm material is not heavily rusted, bent, dented, or otherwise damaged or defective.

4.4.3 Provide final adjustment of adjustment screws prior to placement of concrete. Keep screw extensions to a minimum for maximum load carrying capacity.

4.4.4 Plan, design and construct any form, regardless of size, with an adequate factor of safety.

4.4.5 Do not use couplers (clamps) if they are deformed, broken, have defective or missing threads on bolts, or other defects.

4.4.6 Use material for the coupler (clamps) that is of a structural type such as drop forged steel, malleable iron, or structural grade aluminum. Do not use gray cast iron.

4.4.7 When checking the erected shoring towers with the shoring layout, confirm that the spacing between posts does not exceed that shown on the layout; check all interlocking of tubular members and tightness of couplings.

4.4.8 Confirm that all base plates, shore heads, extension devices, or adjustment screws are in firm contact with the footing sill and the form material, and are snug against the posts.

4.5 Vertical Slip Forms

4.5.1 Confirm that the steel rods or pipe on which the jacks climb or by which the forms are lifted are designed specifically for that purpose. Brace any rods not encased in concrete.

4.5.2 Position jacks and vertical supports in such a manner that the vertical loads are distributed equally and do not exceed the capacity of the jacks.

4.5.3 Provide the jacks or other lifting devices with mechanical dogs or other automatic holding devices to provide protection in case of failure of the power supply or the lifting mechanism.

4.5.4 Lift steadily and uniformly, and do not exceed the predetermined safe rate of lift.

4.5.5 Provide lateral and diagonal bracing of the forms to prevent excessive distortion of the structure during the jacking operation.

4.5.6 During jacking operations, the form structure shall be maintained in line and plumb.

4.5.7 Provide all vertical lift forms with scaffolding or work platforms completely encircling the area of placement.

4.6 Pre-Stressed and Post-Stressed Concrete

4.6.1 Keep tools and strand devices clean and in good repair to prevent failure.

4.6.2 Do not permit employees to stand in line or directly over the jacking equipment during tensioning operations. Provide signs and barriers to prevent employees from working behind the jack. Shield all jacking equipment and attachment pieces to protect the workers performing the stressing operations.

4.6.3 Carefully stack stressed members on a level base.

4.6.4 Pre-stressed girders and beams are often unstable when tipped; brace during transportation and handle in such a way to keep the member upright.

4.6.5 Handle stressed members at pick points specifically designated on the manufacturer's drawings, and with the lifting devices recommended by the manufacturer or the engineer in charge.

4.6.6 Do not allow personnel under stressed members during lifting and erection.

4.6.7 Keep anchor(s) turned up close to the anchor plate during jacking operations of any tensioning element(s).

4.6.8 Frequently inspect pulling heads, bolts, and hydraulic rams for indication of fatigue, and the threads on bolts and nuts for diminishing cross section.

4.7 Pre-Cast Concrete and Tilt-Up Operations

4.7.1 Do not permit employees under pre-cast walls, panels, or sections while they are being lifted or tilted into position.

4.7.2 Use properly attached tag lines, especially if the load is to be lifted and moved into place.

4.7.3 Adequately brace pre-cast walls or vertical concrete panels during construction.

4.7.4 Securely attach braces or shores to the concrete member.

4.7.5 Confirm lifting inserts on or in tilt-up pre-cast concrete members are capable of supporting at least two (2) times the maximum intended load applied or transmitted to them.

4.7.6 Confirm lifting hardware can support at least five (5) times the maximum intended load applied or transmitted to the lifting hardware.

4.8 Masonry Work

4.8.1 Handle and store masonry building materials in accordance with AECOM procedures for material handling; scaffolds for masonry construction shall be built in accordance with the AECOM procedures for scaffolding.

4.8.2 Equip power saws for cutting brick or stone with dust collectors or wet cutting methods to control dust. The exhausted dust will be directed away from vehicle or personnel traffic. If brick, stone, or mortar contains more than 1 percent crystalline silica, respirators may be required until air sampling determines that the task does not constitute a potential respiratory hazard.

4.8.3 Employees cutting brick or stone shall wear approved safety goggles or face shields over safety glasses, and hearing protection as appropriate for the task noise levels.

4.8.4 Keep mortar tubs free from ragged edges that may cut the hands, legs, and arms of bricklayers.

4.8.5 Properly brace all walls or vertical surfaces during construction to withstand wind and other pressure.

4.8.6 Dried mortar will not be dropped from planks, crushed by vehicles, or otherwise handled in such a manner as to create a dust hazard.

4.8.7 Masons and other workers with dusty clothes shall remove their outer clothing or otherwise remove masonry-generated dust from their clothes prior to leaving the work area for breaks or end of work. Do not use high-pressure air to remove dust.

## 5.0 Records

5.1 The following documentation will be maintained.

5.1.1 Training of flagmen/spotters

5.1.2 Inspections of shoring equipment

5.1.3 Air sampling logs for crystalline silica, as needed

## 6.0 Attachments

6.1 S3AM-338-ATT1 Concrete Products Health Effects

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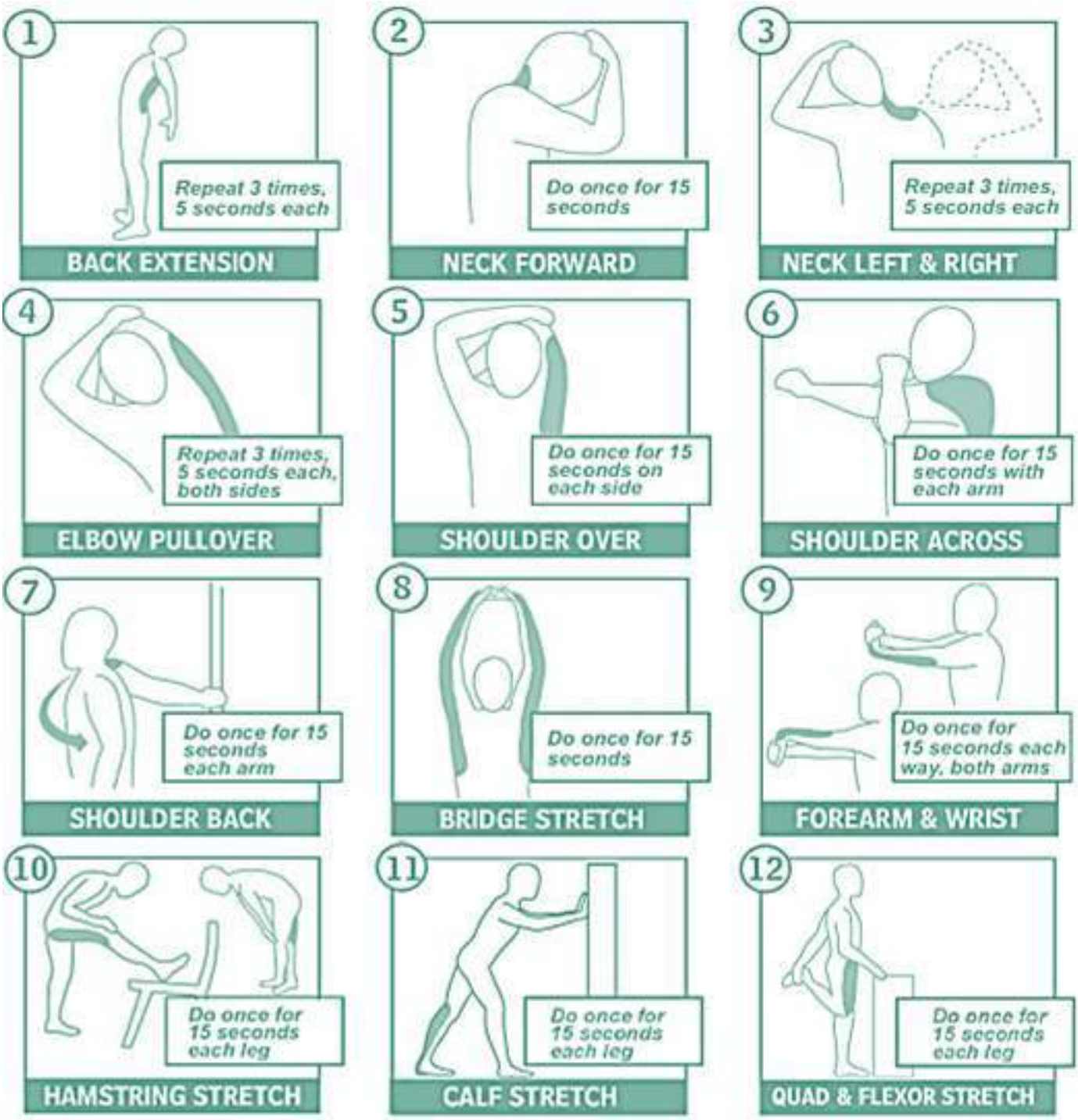
# Attachment C

## Stretch/Flex Poster

# Attachment C: Stretch/Flex Poster

## Examples of Stretches

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# Attachment D

## Site Safety Orientation

# Attachment D: Site Safety Orientation

AECOM will conduct a site safety briefing for a person's initial visit to the site. The briefing will be conducted:

- Prior to the start of work;
- For any new AECOM or subconsultant personnel;
- For Site Visitors; and
- At each mobilization, or whenever there is a change in task or significant change in task location.

All personnel working on the project who have received the site briefing (including the SWP review) will sign the Personal Acknowledgement located in **Section 20**. Visitors may receive a shortened version to address the hazards specific to their visit.

***The following topics, at minimum, will be discussed during the site safety briefing:***

- Contents of this SWP;
- The Emergency Response Plan (Section 4);
- Contractor SHE Management expectations;
- Injury management, including notification and hospital and occupational clinic locations;
- The AECOM 4-Sight program;
- Stop Work authority;
- The THAs (**Attachment A**) for the activities that will be performed on a given job;
- Types of hazards at the site and means for minimizing exposure to them;
- Instructions for new operations to be conducted, and safe work practices;
- PPE that must be used;
- Lone worker check-in procedures;
- Emergency evacuation routes, muster points, and tornado/storm shelters; and
- Location and use of emergency equipment.
- **These briefings must be documented and maintained in the project files.**

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# Attachment E

## Work Plan/Client and Host Facility SH&E Requirements

# Attachment E: Work Plan/Client and Host Facility SH&E Requirements

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# Attachment F

## Project Hazardous Materials Communication Plan

# Attachment F-1: Project Hazardous Materials Communication Plan

Materials to be brought or encountered onsite will have a Safety Data Sheet (SDS) maintained in an accessible location for workers to review. Applicable SDSs are presented in **Attachment F-2**. Materials to be brought or encountered onsite will include:

As part of the Site Safety Officer (SSO) daily activities, an inventory of hazardous materials will be prepared with the quantities expected to be on site. The inventory will be updated if any additional materials are brought on site and as frequently as necessary to reflect accurate quantities. This chemical inventory list will be readily available for review (usually kept with the SDSs).

Unless each container has appropriate labeling, all chemical containers will be labeled with the following information:

- Product name and identity of the hazardous chemical(s).
- Appropriate hazard warnings.
- Name and address of the chemical manufacturer, importer, or other responsible party.

Labels on incoming containers of hazardous materials will not be removed or defaced. Labels are also required when a hazardous substance is transferred from a primary container to a secondary container. Labels on secondary containers must indicate the product name or the names of the hazardous substances contained therein as well as related physical and health hazards and their associated target organs. Labels may incorporate words, pictures, symbols, or combinations thereof to ensure the appropriate information is provided to the end user.

Examples of acceptable labeling systems include the National Fire Protection Association Diamond, the Hazardous Materials Identification System, the Chemical Hazard Identification and Training system, or similar.

Employee requirements for reviewing SDSs for specific safety and health protection procedures are presented below.

- AHAs will incorporate information contained in the SDSs.
- SDS information will be followed in the use and disposal of material and selection of hazard control and emergency response measures.
- The SSO will obtain an SDS for each chemical before it is used. SDSs will generally be received by the person ordering the product. SDSs for products frequently used should be kept on file because additional copies may not be included in repeat shipments.
- The SSO will review each SDS when it is received to evaluate whether the information is complete and to determine whether existing protective measures are adequate.
- The SSO will maintain a collection of all applicable and relevant SDSs in an area that is accessible to all employees at all times. An electronic database is an acceptable method of maintaining the SDSs.
- The SSO will replace SDSs when updated sheets are received and will communicate any significant changes to those who work with the chemical.
- SDSs are required for all hazardous materials brought on site by project personnel.

General household products to be used for their specific purpose, food, drugs, and cosmetics brought into the workplace for employee use and consumption are all exempt, as are supplies in the first-aid kit, such as isopropyl alcohol and antibacterial wipes.

Employees bringing hazardous materials on to a site or project must submit SDSs to the SSO. The SSO may restrict the use of certain hazardous materials on a site or project due to occupational health risk, hazardous physical properties of the material, or potential employee sensitivity to odor or irritating properties of the material.

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Other personnel working in the same area shall be provided with the following information on chemicals used by or provided to AECOM personnel:

- Names of hazardous chemicals to which they may be exposed while on the jobsite.
- Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures, such as ventilation or isolation of the work. In some cases, as an administrative control measure, a task may be delayed to a time when a minimal number of employees are present in the area.
- Location of SDSs.

As discussed in Section 5.1 of the HASP, employees will be trained initially and periodically when use of hazardous or toxic agents is altered or modified to accommodate changing on-site work procedures. Training shall cover the following topics:

- Requirements and use of the hazard communications program on the project.
- The location of all hazardous or toxic agents at the project.
- Identification and recognition of hazardous or toxic agents on the project.
- Physical and health hazards of the hazardous or toxic agents pertinent to project activities.
- Protective measures employees can implement when working with project-specific hazardous or toxic agents.

Provide training to all employees who have the potential to be exposed to hazardous materials: a) at the time of the initial task assignment, b) whenever new chemicals are introduced into the workplace, and c) more frequently where required by site-specific conditions or client-specific requirements. This training will include the following:

- Applicable regulatory requirements.
- Location of the program, inventory, and SDS.
- Site-specific chemicals used and their hazards (chemical, physical, and health), including the general characteristics of the chemicals and signs and symptoms of exposure.
- How to detect the presence or release of chemicals including the location, types, and usage of any portable and fixed monitoring or detection equipment and their associated alarms, where applicable.
- Safe work practices (S3AM-001-PR1) and methods employees can take to protect themselves from chemical hazards (metals or explosives constituents in soil).
- How to read an SDS.
- Site- or project-specific information on hazard warnings and labels in use at the location, if applicable.
- Site-specific evacuation and rescue procedures in the event of chemical release, including the location of staging areas and personnel accounting procedures.

The following documentation will be maintained in the project file:

- Chemical inventory list;
- SDSs; and
- Training records.

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# Attachment F-2: Safety Data Sheets

There are no safety data sheets applicable to this Health and Safety Plan.

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AECOM Environment

Prepared for:
National Grid
Brooklyn, New York

Submitted by:
AECOM
New York, NY
**April 2025**

# Community Air Monitoring Plan

**Generic Flatbush Station A&B Former Gas Holder Site**
**Brooklyn, New York**
**NYSDEC Site No.: 224061**
**Order on Consent Index #: A2-0552-0606**

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# 1.0 Introduction

This Community Air Monitoring Plan (CAMP) has been prepared by AECOM Environment (AECOM) on behalf of National Grid to present the methods and procedures that will be used to evaluate air quality in the immediate vicinity of investigation activities and provide protection to potential off-site receptors.

The Flatbush Station A&B former Gas Holder Site is situated between Winthrop Street and Clarkson Avenue and is comprised of four properties and a portion of Parkside Avenue. Parkside Avenue dissects the site into two portions – a Northern Parcel consisting of Block 4827 Lots 24 and 30, and a Southern Parcel consisting of Block 4828 Lots 21 and 22 and portions of Lots 13 and 68. The closest street to the east of the site is New York Avenue and the street closest to the west of the site is Nostrand Avenue.

The site was operated by Flatbush Gas Company and later the Brooklyn Union Gas Company, a predecessor company to National Grid, and began operations prior to 1873. The gas operations ceased sometime between 1950 and 1979.

The current parcels are listed by the NYC Department of Finance as Building Class G2 and G6 - garage and licensed parking lot and I9 - miscellaneous hospital or healthcare facility. The NYC Department of City Planning has listed the zone classification for this area as M1, which indicates the Site is zoned for light manufacturing and commercial buildings, with Block 4827 Lot 30 [324 Winthrop Street] classified as R6, which indicates multi-unit residential.

The current property owners are listed below based on NYC Department of Finance website information.

**Table 1-1 Property Owners and Addresses**

| Parcel | Owner | Parcel Address | Land Use |
|---|---|---|---|
| 1. Block 4827 Lot 30 (northern portion of the Site) | Brooklyn Union Gas Co. | Winthrop Street, Brooklyn, NY 11225 | Parking facilities and Gas regulator infrastructure |
| 2. Block 4827 Lot 24 (northern portion of the Site) | Beneficial Fund for the Downstate Medical Center of SUNY, Inc. | 324 Winthrop Street, Brooklyn, NY 11226 | Parking facilities |
| 3. Block 4828 Lot 21 (southern portion of the Site) | CHV 329 Clarkson Avenue L.P. and CHV 329 Clarkson Avenue Housing Development Fund Corporation | 329 Clarkson Avenue, Brooklyn, NY 11226 | Mixed Residential, Community Facilities, Parking Facilities, and Commercial |
| 4. Block 4828 Lot 22 (southern portion of the Site) | Health Science Center | 760 Parkside Avenue, Brooklyn, NY 11226 | Health center |

A review of the site history of the Flatbush Station A&B Former Holder Site has been developed based on a review of the historic Sanborn Fire Insurance maps, aerial photographs, and historical topographical maps for the site, as well as a review of the database report provided by Environmental Data Resources (EDR).

The objectives of this CAMP are to:

- Ensure that the airborne concentrations of constituents of interest (COI) are minimized to protect human health and the environment
- Provide an early warning system so that potential emissions can be controlled on site at the source
- Measure and document the concentrations of airborne COI to confirm compliance with regulatory limits

The community air monitoring will be performed around the site perimeter and will measure the concentrations of organic vapors and dust during all ground-intrusive activities (test pits, soil borings, and soil vapor points). Because the site consists of multiple parcels, the community air monitoring activities detailed in this document will be applied separately at each parcel when ground-intrusive investigation activities are being conducted there.

This CAMP is a companion document to AECOM's site-specific Health and Safety Plan (HASP). The HASP is a separate document and is directed primarily toward protection of on-site workers within the designated work zones.

# 2.0 Constituents of interest and action levels

The constituents of interest are volatile and semi-volatile organic compounds (VOCs and SVOCs). The primary VOCs of interest are benzene, ethylbenzene, toluene, and xylene (BTEX compounds). VOCs are more volatile than SVOCs and are generally of greater concern when monitoring the air quality during gas holder site investigations.

Airborne dust is also of interest and must be monitored and controlled due to its ability to co-transport adsorbed constituents and because of its nuisance properties.

Odors, though not necessarily indicative of high constituent concentrations, could create a nuisance (especially when working within or in close proximity to existing buildings and building entrances) and will be monitored and controlled to the extent practicable.

State and federal regulatory agencies have provided action levels for many of these constituents. The action levels are the allowable airborne concentrations above which respiratory protection or other health and safety controls are required. For work at the former gas holder site, the following levels should not be exceeded for more than 15 consecutive minutes at the downwind perimeter of the site:

- Total VOCs 5 ppm
- Dust 100 micrograms per cubic meter (µg/m3)

The action levels cited here are above (in addition to) the background ambient (upwind) concentration.

# 3.0 Air monitoring equipment and methods

Air quality monitoring will be performed for total VOCs and dust as outlined below.

Two perimeter locations will be established each day, and an air monitoring technician will check the instrumentation at each of these locations frequently during the work. Typically, there will be monitoring locations at one upwind site perimeter location and one downwind perimeter location. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. Field personnel will be prepared to monitor multiple locations in the event that there is little wind or if the wind direction changes frequently. If ground-intrusive investigation activities are being conducted on both parcels of the site on the same day, separate perimeter locations and monitoring will be established for each parcel.

The monitoring instruments will be calibrated at the start of each workday, and again during the day if the performance of an instrument is in question.

## 3.1 Volatile organic compound monitoring

### 3.1.1 Ambient air monitoring

VOC monitoring will be performed using two field photoionization detectors (PIDs) (RAE Systems MiniRAE or equivalent). The monitoring instruments will be checked by a technician every 15 minutes The PIDs will be equipped with an audible alarm to indicate exceedance of the action level.

A 15-minute running average concentrations will be calculated, which can then be compared to the action levels. The data will be logged and downloaded at the end of each day, and monitoring records will be kept at the site during the work in case there is an inquiry or complaint.

PID measurements will be made at one upwind location, one downwind location, and around the work area. The locations of the instruments may be changed during the day to adapt to changing wind directions.

## 3.2 Particulate (dust) monitoring

Particulate (dust) monitoring will be performed during intrusive activity (excavating and drilling) at the site. Two particulate monitors (TSI DustTrak or equivalent) will be used for continuous real-time dust monitoring. The monitoring instruments will be checked by a technician every 15 minutes, and the particulate meter will be programmed to log real-time and 15-minute average measurements. The data will be downloaded at the end of each day, and monitoring records will be kept at the site during the work in case there is an inquiry or complaint.

In addition, fugitive dust migration will be visually assessed during all work activities, and the observations recorded.

Measurements will be made at one upwind and one downwind location around the work area. The locations of the instruments may be changed during the day to adapt to changing wind directions.

# 4.0 Emission control plan

## 4.1 Ambient air

Odor, vapor, and dust control will be required for this project due to the close proximity of commercial buildings and public roadways and sidewalks. Table 1 provides a response chart for the monitoring and control of vapor emissions. Table 2 provides a list of emergency contacts.

- If the ambient air concentration of total VOC levels at the downwind perimeter of the work area or exclusion zone exceeds 5 ppm above background (upwind perimeter) for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor levels readily decrease (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions until the concentrations drop below the action levels and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

Site perimeter particulate concentrations will also be monitored continuously. In addition, dust migration will be visually assessed during all work activities.

- If the downwind particulate level is 100 µg/m3 greater than the background (upwind perimeter) level for a 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind particulate levels do not exceed 150 µg/m3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind particulate levels are greater than 150 µg/m3 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 particulate concentration to within 150 µg/m3 of the upwind level and in preventing visible dust migration.

Typical emission control measures may include:

- Apply water for dust suppression;
- Relocate operations, if applicable; and
- Reassess the existing control measures.

**Figure 4-1 Vapor Emission Response Chart**

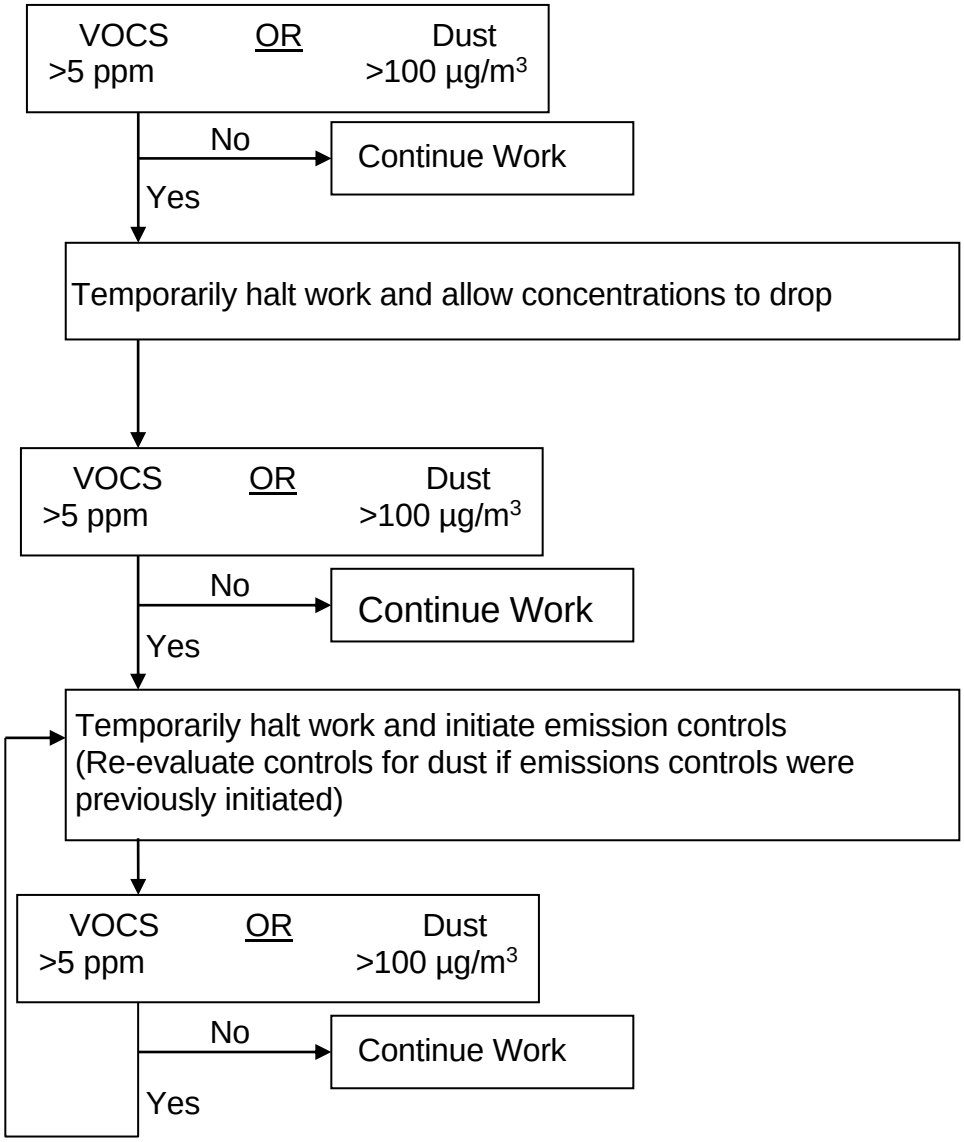


**Table 4-1 Emergency Contacts and Telephone Numbers**

| | |
|---|---|
| **Fire:** | 911 |
| **Police:** | 911 |
| **Ambulance:** | 911 |
| **AECOM Environment Contacts** | Megan Dascoli (908) 623-0145 cell |
| **National Grid Contacts** | Michael Quinlan (516) 220-4363 cell<br>Jonathan Mitchell (631) 338-8636 cell |

# 5.0 Odor control procedures

This section outlines the procedures to be used to control odors that may be generated during the Remedial System Optimization Investigation (RSOI) field activities. The investigation program will be conducted using one principal investigation technique that may generate odors: subsurface soil borings/monitoring well installations. The remainder of this section is intended to provide site managers, representatives of NYSDEC and New York State Department of Health (NYSDOH), and the public with information summarizing typical odor control options, and to provide some guidance for their implementation. A description of potential sources of odors and methods to be used for odor control is presented in the following sections.

## 5.1 Potential sources of odors

Generally, the residuals encountered at former gas holder sites are well defined. They are related to residual MGP impacted materials and petroleum, and principally contain VOCs, polynuclear aromatic hydrocarbons (PAHs), and a number of inorganic constituents, including metal-complexed cyanide compounds, and metals. Constituents indicative of holder residuals or petroleum products can produce odor emissions during investigation activities when they are unearthed in soil borings/well installations. When this occurs, VOCs and light-end SVOCs can volatilize into the ambient air. Some holder residuals can cause distinctive odors that are similar to mothballs, roofing tar, or asphalt driveway sealer. However, the constituent concentrations generally associated with these odors are typically significantly less than levels that might pose a potential health risk. It is important to note that the CAMP will provide for continual monitoring of VOCs and dust during the fieldwork to monitor for any potential release of constituents which may pose a threat to health.

## 5.2 Odor monitoring

The field investigation personnel will record observations of odors generated during the implementation of the RSOI. When odors attributable to the uncovering of impacted media are generated in the work area during intrusive activities such as soil borings, observations will also be made at the down-wind limit of the former gas holder site, in order to assess the potential for off-site odors. The down-wind odor monitoring will be performed in conjunction with the RSOI and dust monitoring program described in this CAMP.

Upon detection of odors at the site perimeter, site controls, starting in the work area, will be implemented. The site controls described in the following sections will be used to assist with odor mitigation to minimize, and to prevent where practicable, the off-site migration of odors. Due to the short distances between any work area at the site and the property line or nearby potential receptors, site controls will be implemented proactively when odors are detected in the breathing zone at any work area.

## 5.3 General site controls

Several general drilling procedure site controls that will be implemented include:

- Every effort will be made to minimize the amount of time that impacted material is exposed to ambient air at the site.

- Drill cuttings from the soil borings will be containerized as soon as possible during completion of each soil boring.
- Meteorological conditions are also a factor in the generation and migration of odors. Some site activities may be limited to times when specific meteorological conditions prevail, such as when winds are blowing away from a specific receptor.

### 5.4 Secondary site controls

If substantial odors still present an issue following implementation of the above procedures, secondary controls will be enacted. The AECOM field representative will work through the applicable list of secondary controls until the perimeter odor issues are resolved. The AECOM field representative will work closely with National Grid and NYSDEC during this task, if present. Final selection of controls will be dependent on field conditions encountered. Secondary controls include the following:

- For stockpiled impacted soil, temporary tarps or polyethylene covers will be used to control odors.
- Two agents that can be sprayed over impacted soil have been determined to be effective in controlling emissions. They include odor suppressant solution (BioSolve™), and hydro-mulch. These agents may be used where tarps cannot be effectively deployed over the source material, or where tarps are ineffective in controlling odors:
  - BioSolve™ can provide immediate, localized control of odor emissions. Information regarding the preparation and use of BioSolve™ is provided in Appendix A.
  - Hydromulch - A modified hydromulch slurry may be used to cover inactive sources for extended periods of time (up to several days). The hydromulch, typically cellulose fibers (HydroSealR) is modified by mixing a tackifier (glue) with the mulch and water to form a slurry. It is applied using a standard hydroseed applicator to a thickness of ¼ inch. The material forms a sticky, cohesive, and somewhat flexible cover. Reapplication may be necessary if the applied layer becomes desiccated or begins to crack.

### 5.5 Record keeping and communication

Similar to readings recorded during the monitoring specified in the CAMP, all odor monitoring results will be recorded in the field logbook or other air monitoring forms, and be available for review by the agencies upon request.

The AECOM field representative, in consultation with National Grid, will also provide information on odor monitoring and odor management to residents of the neighborhood should they inquire. In the event that odors persist after these efforts, work will be temporarily discontinued until a mutually agreeable solution with National Grid, NYSDEC, and NYSDOH staff can be worked out which allows the work to be completed while minimizing the off-site transport of nuisance odors.

# 6.0 Documentation and reporting

Data generated during perimeter air monitoring will be recorded in field logs and summarized daily in spreadsheets. The electronic measurements from the PIDs and dust meters will be downloaded each day, reviewed, and archived. Exceedances of the action levels, if any, and the actions to be taken to mitigate the situations, will be discussed immediately with the on-site representatives. Summaries of all air monitoring data will be provided to NYSDEC as requested.

# Appendix A

# Vapor Suppression Information

# Safety Data Sheet



## Section 1 – Chemical Products and Company Identification

**Product Names:** BioSolve® Pinkwater®

**Product Uses:** Remediation of hydrocarbon (oil, fuel, petrochemical) contamination, including: impacted soils, suppression of VOCs, decontamination of equipment and protective clothing, and surface washing

**Manufacturer:**
The BioSolve Company
24 Victory Lane
Dracut, MA 01826 USA

**Contact Information:**

| | |
|---|---|
| +1 (800) 225-3909 | US, Canada, Mexico and Puerto Rico |
| +1 (781) 482-7900 | All other locations |

## Section 2 – Hazards Identification

**Health Hazards:**

| | |
|---|---|
| Eye Contact: | Causes transient eye irritation |
| Skin Contact: | May cause mild, transient irritation |
| Ingestion: | May be harmful if swallowed; can cause gastrointestinal irritation, nausea, vomiting and/or diarrhea |

**Hazard Mitigation:** Wear protective gloves and eye/face protection
Avoid prolonged breathing of spray

**Environmental Hazards:** Moderately toxic to aquatic life. Avoid discharge to storm drains and waterways

**GHS Classification:** Toxic to aquatic life, Acute Category 2

## Section 3 – Composition/Information on Ingredients

Proprietary formulation with nonionic surfactants (32% active ingredients in water)

BioSolve products contain no caustic, d-limonene or hydrocarbon solvents.

BioSolve products do not contain any hazardous ingredients as defined by CERCLA, Massachusetts Right to Know Law and California Prop 65. All ingredients are TSCA compliant.

## Section 4 – First Aid Measures

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Seek medical attention for lasting irritation.

**Skin:** Rinse exposed area and wash with mild soap and water for several minutes. Seek medical attention if irritation develops.

**Ingestion:** Seek medical attention in the event of serious or persistent abdominal discomfort, nausea or diarrhea.

**Inhalation:** Inhalation of concentrated vapors resulting from spraying or heating in confined or poorly ventilated areas may cause irritation of nose and throat. Remove person to fresh air and seek medical attention if irritation persists.

## Section 5 – Fire Fighting Measures

**Suitable Extinguishing Media:** None required; BioSolve products are non-flammable

**Special Protective Equipment for Firefighters:** None necessary

**Unusual Fire or Explosive Hazards:** None

## Section 6 – Accidental Release Measures

In case of accidental release, breakage or leakage: Eliminate or contain source with inert material, such as sand, earth, absorbent pads, etc. Transfer liquid to suitable containers for recovery, re-use or disposal. Wipe up or mop up using water. Hard surfaces (e.g., floors, driveways) may be slippery; use care to avoid falling.

Rinse area with water. Avoid flow of run-off to surface waters. Always check with local regulations before discharging effluent to storm drains or sewers.

## Section 7 – Handling and Storage

**Handling:** Minimize periods of exposure to extreme temperatures. Keep from freezing. If frozen, separation may occur; thaw and stir thoroughly prior to use. Freezing will not affect product performance.

**Precautions:** Chemical resistant gloves and eye protection are recommended while mixing and using.

**Incompatibilities:** Avoid contact with strong acids or strong oxidants.

**Storage:** Recommended storage temperature: 35º – 120º F (1º – 48º C).

**Shelf Life:** If unopened, more than 10 years.

## Section 8 – Exposure Controls / Personal Protection

**Eyes Protection:** Safety glasses; chemical goggles or face shield recommended when spraying to protect against backsplash and drift.

**Skin Protection:** Rubber or latex gloves recommended.

**Respiratory Protection:** None required, except if application results in significant misting of product. If so, use of an approved air purifying respirator is recommended.

**Engineering Controls:** For indoor use or for use in a confined space, normal ventilation is generally satisfactory.

## Section 9 – Physical and Chemical Properties

**Appearance:** Deep red

**Odor:** Mild, pleasant sassafras fragrance

**Concentration:** ~32% active ingredients as sold

| | | | |
|---|---|---|---|
| **Boiling Point** | 265ºF/129ºC | **Vapor Pressure mm/Hg** | Not available |
| **Melting/Freezing Point** | 28ºF/-2ºC | **Vapor Density (Air=1)** | Not available |
| **Flash Point** | Non-flammable | **Surface Tension*** | 29 Dyne/cm @25ºC |
| **Flammability Limits** | Not applicable | **Viscosity (concentrate)** | 490 centipoise |
| **Reactivity with Water** | None | **Viscosity (6% solution)** | 1.5 centipoise |
| **Evaporation Rate** | Not determined | **Solubility in Water** | 100% |
| **Specific Gravity** | 1.01 gms/cc | **VOC Content** | Not determined |
| | 8.43 lbs/U.S. gal | **pH** | 9 |

*6% solution

## Section 10 – Stability and Reactivity

**Chemical Stability:** Stable; will not decompose if used according to manufacturer's directions.

**Conditions to Avoid:** Prolonged exposure to heat may cause product degradation. Freezing should also be avoided as discussed in Section 7.

**Incompatible Materials:** Normally unreactive. Avoid strong alkalis, strong acids, strong oxidizing agents and materials with reactive hydroxyl compounds. These materials could damage the product and reduce its effectiveness during application.

**Hazardous Decomposition Products:** None are known.

**Hazardous Polymerization:** Will not occur.

## Section 11 – Toxicological Information

**Overview:** No adverse acute or chronic health effects expected if product used in accordance with manufacturer's directions.

**Carcinogenicity:** No ingredient has been shown to cause cancer in laboratory animals.

**Specific Organ Toxicity:** None are known.

## Section 12 – Ecological Considerations

**Persistence and Degradability:** The total of the organic components contained in this product is not classified as readily biodegradable (OECD-301 A-F). However, this product is inherently biodegradable with 60% degradation in 28 days (OECD-301B) and estimated >95% degradation in 120 days.

**Bioaccumulation Potential:** The bioaccumulation factor in fish has been estimated to be low, ranging from 87 to 344.

**Mobility:** No data available

**Aquatic Toxicity:**

| | | |
|---|---|---|
| **$LC_{50}$ of Concentrate** (As shipped) | | |
| ***Mysidopsis bahia*** | 48-hours | 3.6 mg/L |
| ***Menidia beryllina*** | 96-hours | 6.4 mg/L |
| **LC50 of 3% Dilute Solution** (As Used) | | |
| ***Mysidopsis bahia*** | 48-hours | 185 mg/L |
| ***Menidia beryllina*** | 96-hours | 247 mg/L |
| **LC50 of 6% Dilute Solution** (As Used) | | |
| ***Daphnia magna*** | 48-hours | 287 mg/L |
| ***Pimephales promelas*** | 96-hours | 124 mg/L |
| ***Onchorhynchus mykiss*** | 96-hours | 177 mg/L |

## Section 13 - Disposal

DO NOT DUMP INTO STORM DRAINS OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. As manufactured, BioSolve products do not meet the definition of a hazardous waste. Small quantities of unused and uncontaminated product may be discharged to a qualified wastewater treatment facility. Always obtain approval from local and Federal regulatory agencies prior to discarding this product into public sewers.

As your supplier, we have no control over your handling and use of this product. However, the intended use of this product as a remediation and/or surface washing agent may produce wastewater containing emulsified or dispersed hydrocarbons that may be classified as a hazardous waste and should be treated and disposed of accordingly.

## Section 14 – Transportation Information

USDOT Freight Class 55 (Liquid Cleaning Compound, Non-Hazardous)
This product is not regulated by USDOT or Canadian TDG when shipped domestically by land.

North American Industry Classification System (NAICS) # 325613

U.S. ITC, Harmonized Tariff Schedule B Classification: 3402.90.30.00

## Section 15 – Regulatory Information

This product is considered non-hazardous as defined by CERCLA, according to OSHA, Massachusetts Right to Know Law and California Prop 65.

**Toxic Substances Control Act:** All components of this product are on the TSCA inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

**CEPA – Domestic Substances List:** All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or not required to be listed.

**Canadian CPR Compliance:** This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR

**WHMIS Classification:** D2B Eye or skin irritant

Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with Federal, state or provincial and local laws.

## Section 16 – Other Information

| | | |
|---|---|---|
| **HMIS Rating** | Health Hazard: | 1 (Eye/Skin Irritant) |
| | Fire Hazard: | 0 |
| | Reactivity: | 0 |
| | Personal Protective Equipment: | Rubber gloves, safety glasses or face shield |
| **NFPA Rating** | Health: | 1 (Eye/Skin Irritant) |
| | Flammability: | 0 |
| | Reactivity: | 0 |
| | Other Hazard: | None |

BioSolve Pinkwater is on the US Environmental Protection Agency's NCP Product Schedule. This listing does NOT mean that EPA approves, recommends, licenses, certifies or authorizes the use of BioSolve Pinkwater on an oil discharge. This listing means only that data have been submitted to EPA as required by Subpart J of the National Contingency Plan, 40 CFR Section 300.915.

**SDS Effective Date:** January 1, 2018

The information contained herein is accurate to the best of our knowledge. The BioSolve Company makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or application or in combination with other substances.

For more information, visit: www.biosolve.com

# Appendix G

# Site-Wide and Annual Inspection Forms

# National Grid
# Annual Inspection Checklist and Certification
# National Grid Flatbush Station Former A & B Holder Site
# Brooklyn, New York

Property(ies): _____

| Type | Inspection Task | Status | Condition | Date Completed | Initials | Remarks |
|---|---|---|---|---|---|---|
| **Infrastructure** | Building (s) | | | | | |
| | Building Slabs and Floor | | | | | |
| | Pavements | | | | | |
| | Underground Services | | | | | |
| | New Structures | | | | | |
| | Monitoring Wells | | | | | |
| | | | | | | |
| | | | | | | |
| **Physical** | Site Fences | | | | | |
| | Topography | | | | | |
| | Surface Drainage | | | | | |
| | Depressions | | | | | |
| | Vegetation | | | | | |
| | Ground Cover | | | | | |
| | Surface Soil | | | | | |
| | | | | | | |
| | | | | | | |
| **Contamination** | Odors | | | | | |
| | Staining | | | | | |
| | Sheens | | | | | |
| | | | | | | |
| | | | | | | |
| **Property Owner/ Representative** | New | | | | | |
| | Interview | | | | | |
| | Land Use is Restricted Industrial | | | | | |
| | Groundwater from the property is not used for any purpose. | | | | | |

| **Inspection and Interview Acknowledgement** | | |
|---|---|---|
| | Signature/Date: _____ | _____ |
| | Name: _____ | _____ |
| | National Grid/Representative | Property Owner/Representative |

Notes:

Status - Modified/Unchanged

Condition - Unchanged/Deteriorated

Interview - Work completed during the previous year and future plans

Soil Removal - Any soil removal activities will be detailed here and Figures 1-8 and 1-9 of the SMP revised accordingly.

**Property Owner Questionnaire and Certification**
**Flatbush Station A and B Former Gas Holder Site SMP**
**Brooklyn, NY**

Properties: _____

Owner: _____

*The this form is required by the Site Management Plan Section 5.2 Certification of Engineering and Institutional Controls. It is to be completed annually, after any significant weather event, and when requested by the NYSDEC and National Grid.*

*The property owner is required to provide notice to the NYSDEC and National Grid of changes in property use from Restricted Commercial/Industrial (60 days prior to change), proposed ground-intrusive activities (15 days prior to activity), discovered breaches/cracks/holes in concrete and pavement (within 48 hours of observation), and of any emergencies (fires, floods, etc.) that impact the ground surface (by noon the following day). See SMP Section 2.8.2 Notifications for additional details.*

Owner, indicate Yes, No, or Not Applicable (NA) for each item with regard to the previous calendar year. If Yes, add a comment about item. Additional comments can be attached to this page.

**Engineering Controls (ECs):**

**Composite Cover System (CCS):** (CCS is asphalt, concrete sidewalks, and building slabs over 6-inches of non-MGP impacted soil).

| | | | | Comments (If yes, list property and explain response): |
|---|---|---|---|---|
| Were there any changes to the CCS in the past calendar year? | Yes ____ | No ____ | NA ____ | |
| Were any new buildings and structures built? | Yes ____ | No ____ | NA ____ | |
| Was there any utility construction? | Yes ____ | No ____ | NA ____ | |
| Were any cracks or breaches of the CCS observed (e.g., in the pavement, concrete, foundations)? | Yes ____ | No ____ | NA ____ | |
| Are there any vegetable gardens on the property(ies)? | Yes ____ | No ____ | NA ____ | |

**Institutional Controls (ICs):**

**Property Use:**

| | | | | |
|---|---|---|---|---|
| Has land use/zoning changed? | Yes ____ | No ____ | NA ____ | |
| Is groundwater beneath the site used for any purpose? | Yes ____ | No ____ | NA ____ | |

**Subsurface Work and Property Development:**

| | | | | |
|---|---|---|---|---|
| Were there any changes to the CCS for which NYSDEC and National Grid was not notified? | Yes ____ | No ____ | NA ____ | |
| Were new buildings evaluated for vapor intrusion/indoor air quality? | Yes ____ | No ____ | NA ____ | |
| Were disturbances to the subsurface performed in accordance with the Excavation Work Plan (Appendix C of the SMP)? | Yes ____ | No ____ | NA ____ | |
| I certify that all information and statements in this certification form are accurate, complete and true. | Yes ____ | No ____ | NA ____ | |

Signature: _____ Date: _____

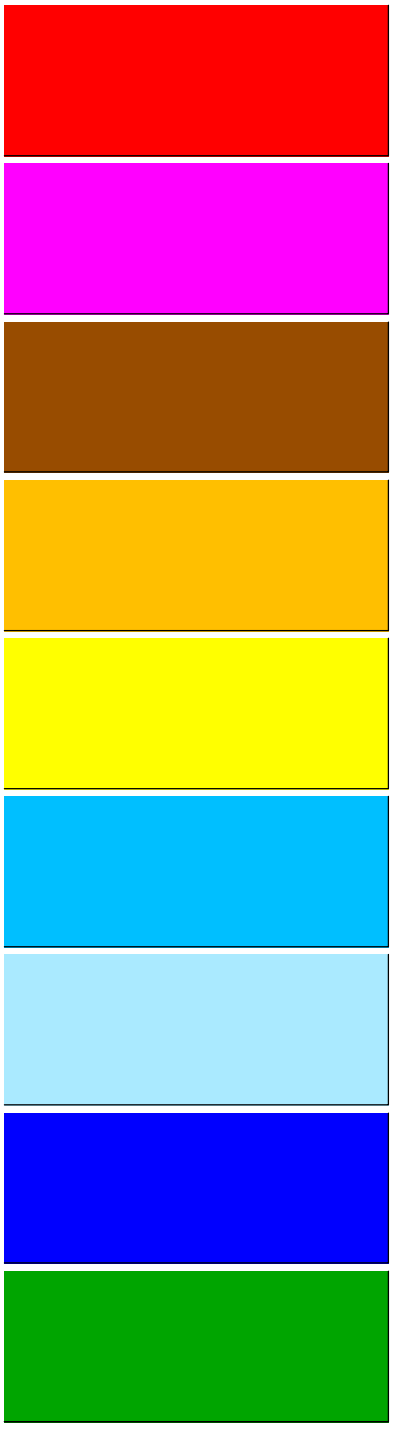
Print Name: _____ Title: _____

The person signing this Certification on behalf of _____ _____ has represented to National Grid that he or she has the authority to act on behalf of the Owner, and National Grid is relying on this representation.

# Appendix H

# Monitoring Well Boring and Construction Logs

# Legend



NAPL SATURATED

NAPL COATED MATERIAL

SOLID NAPL

NAPL BLEBS, GLOBS, SHEEN

STAINING, ODOR

INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS

INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS

WOOD CHIPS/BLUE DISCOLORATION/SULFER-LIKE ODOR

NO OBSERVED IMPACTS

Note: In instances where multiple impacts are present, a combination of colors should be used (such as a color with cross hatching) to clearly identify where these co-mingled impacts are present.

| | |
|---|---|
| **NATIONAL GRID IMPACT COLORS** | **COLORS FOR NATIONAL GRID IMPACTS** |
| **nationalgrid** | **April 2016** |

# Boring and Well Construction Log

**BORING #:** SB-101



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664704.7 **Easting:** 644922.1 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/24/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/26/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | | Brown SILT, dense, moist. | |
| 2 | | 0 | | | | | |
| | 100 | 0 | | | | | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | FILL | | |
| 6 | | 0 | | | | Dark brown fine to coarse SAND, some fine to coarse Gravel, some Silt, numerous Cobbles, brick fragments, red brick layer at 9 ft bgs, moist. | |
| 8 | 60 | 0 | | | | | 7 - 9 |
| 10 | | 0 | | | ML | Grey, dense SILT, some fine to coarse Gravel and Cobbles. | |
| | | 0 | | | | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, moist. | |
| 12 | | 0 | | | | | |
| | 60 | 0 | | | SW | | 12 - 14 |
| 14 | | 0 | | | | | |
| 16 | | 0 | | | | Dark grayish brown SILT, some fine to coarse Gravel, little fine to coarse Sand, few Cobbles, dry. | |
| | | 0 | | | | | |
| 18 | 58 | 0 | | | ML | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

**AECOM**
**125 Broad Street, 15th Floor**
**New York, NY 10004**
**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-101



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664704.7 **Easting:** 644922.1 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/24/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/26/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| | 60 | 0 | | | SW | Dark brown fine to medium SAND, little fine to coarse Gravel, few Cobbles, dry. | |
| 22 | | 0 | | | | | |
| | | 0 | | | | | 22 - 24 |
| 24 | | 0 | | | | | |
| 26 | | 0 | | | GM | Numerous Cobbles at 26-27. | |
| | 60 | 0 | | | SW | Dark brown fine to medium SAND, little fine to coarse Gravel, few Cobbles, dry. | |
| 28 | | 0 | | | | | |
| 30 | | 0 | | | | Dark brown fine to medium SAND, little fine to coarse Gravel, few Cobbles, dry. | |
| 32 | 48 | 0 | | | | Numerous Cobbles with Silt. | |
| 34 | | 0 | | | | Dark brown fine to medium SAND, little fine to coarse Gravel, few Cobbles, dry. | 33 - 35 |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

**AECOM**
**125 Broad Street, 15th Floor**
**New York, NY 10004**
**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-102



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664724.1 **Easting:** 644969.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.5 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/26/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/26/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | | Dark gray fine to coarse SAND, some fine to coarse Gravel, little Silt, Cobbles, brick/concrete fragments, dry. | |
| 2 | | 0 | | | | | |
| | | 0 | | | | | 2 - 4 |
| 4 | | 0 | | | FILL | | |
| | | 0 | | | | | |
| 6 | | 0 | | | | Dark grayish brown fine to coarse SAND, some fine to coarse Gravel, some Silt, numerous Cobbles, brick fragments. | 6 - 8 |
| 8 | 60 | | | | | | |
| | | 0.5 | | | FILL | BOULDER | |
| 10 | | 0 | | | | | |
| | | 0 | | | | Dark grayish brown fine to coarse SAND, some fine to coarse Gravel, some Silt, numerous Cobbles. (13 ft bgs) - layer of brown fine to medium SAND, dry. | |
| 12 | | 0 | | | | | |
| | 60 | | | | | | 12 - 14 |
| 14 | | 0 | | | | | |
| | | 0 | | | SW | | |
| 16 | | 0 | | | | | |
| | | 0 | | | | | |
| 18 | 60 | | | | | | |
| | | 0 | | | | | |
| 20 | | 0 | | | ML | (19.5 ft bgs) - dense SILT with fine to coarse Gravel, dry. | |

**Remarks:** Boring Terminated (ft): 35.0

**AECOM**
**125 Broad Street, 15th Floor**
**New York, NY 10004**
**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-102



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664724.1 **Easting:** 644969.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.5 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/26/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/26/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0 | | | SW | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous Cobbles, 3' layer of fine SAND at 21.5', dense SILT with GRAVEL at 24.5', dry. | |
| 22 | 60 | 0.1 | | | | | 22 - 24 |
| 24 | | 0.2 | | | | | |
| | | 0.1 | | | ML | Dark brown dense SILT, some fine to coarse GRAVEL, dry. | |
| 26 | | 0 | | | | | |
| 28 | 60 | 0 | | | SW | Brown fine to medium SAND, little fine to coarse Gravel, few Cobbles, dry. | |
| 30 | | 0 | | | | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous Cobbles. | |
| 32 | 60 | 0 | | | | | |
| 34 | | 0 | | | | Brown fine to medium SAND, little fine to coarse Gravel, few Cobbles, dry. | 33 - 35 |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

**AECOM**
**125 Broad Street, 15th Floor**
**New York, NY 10004**
**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-103



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664722.5 **Easting:** 645031.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/27/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/27/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | | FILL | |
| 2 | | | | | | | |
| | | | | | | | 2 - 4 |
| 4 | | | | | | | |
| | | | | | | | |
| 6 | | | | | | Gray to reddish brown, rock, dry, medium to coarse SAND with some Gravel and Cobbles, angular to round broke brick pieces. | |
| | | | | | FILL | | 6 - 8 |
| 8 | 55 | 0.1 | | | | | |
| | | | | | | | |
| 10 | | | | | | | |
| | | 0.1 | | | | | |
| | | | | | | Large BOULDER, sub angular to sub rounded light gray, rock, dry, Gravel/Cobbles with some medium to coarse Sand, little fine Sand. | |
| 12 | | 0.2 | | | | | |
| | 60 | | | | | | 12 - 14 |
| | | | | | | Reddish brown to gray, loose, dry, medium SAND with some coarse Sand and Gravel, trace fine Sand. | |
| 14 | | 0.1 | | | SW | | |
| | | | | | | | |
| | | 0.2 | | | SM | Reddish brown, dense, dry fine SAND with SILT, with little medium to coarse Sand and trace Gravel. | |
| 16 | | 0.2 | | | SW | Light gray, loose medium SAND with some coarse Sand and Gravel, trace fine Sand. | |
| | | | | | | Reddish brown, loose to very loose, dry, medium to coarse SAND, with trace fine Sand, little Gravel, Cobbles sub angular to sub rounded. | |
| 18 | 60 | 4.0 | | | SP | | |
| | | | | | | | |
| 20 | | | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

**AECOM**
**125 Broad Street, 15th Floor**
**New York, NY 10004**
**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-103



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664722.5 **Easting:** 645031.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/27/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/27/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 60 | 0.3 | | | SM | Reddish brown, very dense, fine SAND with SILT, with little medium to coarse Sand, trace Gravel and Clay. | |
| 24 | | 0.3 | | | SW | Reddish brown, very loose, medium to coarse SAND, with trace fine Sand, trace Gravel and Cobbles(sub angular to sub rounded). | 22 - 24 |
| 26 | 60 | 0.1 | | | SM | Gray, very dense, dry SILT with some fine SAND and little Gravel. | |
| | | 0.1 | | | SW | Reddish brown to gray, loose, dry, coarse SAND and GRAVEL with some fine to medium Sand | |
| 28 | | 0.1 | | | SP | Light brown to reddish brown, very loose, dry fine to medium SAND, trace coarse Sand and Gravel. | |
| 30 | | 0.1 | | | | Light gray to brown very loose, coarse SAND and GRAVEL with some fine to medium Sand. | |
| 32 | 60 | 0.1 | | | SW | Gray to brown, very dense, dry fine SAND with some medium to coarse SAND and GRAVEL, Cobbles sub angular to sub rounded, trace Silt and Clay. | |
| 34 | | 0.1 | | | SP | Light brown to reddish brown, very loose, dry, medium to coarse SAND, with trace fine Sand, trace Gravel. | 33 - 35 |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-104



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664703.7 **Easting:** 645057.0 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.4 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/25/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/30/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | | Gray fine to coarse SAND, some fine to coarse Gravel, some Silt, Cobbles, dry | |
| 2 | | 0 | | | | | |
| | | 0 | | | FILL | | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | | Dark gray SILT, some fine to coarse Gravel wood, moist. | |
| 6 | | 0 | | | | Gray fine to coarse SAND, some fine to coarse Gravel, some Silt, Cobbles, dry | 6 - 8 |
| 8 | 60 | | | | | | |
| | | 0 | | | | | |
| 10 | | | | | SP | Gray fine to coarse SAND, some fine to coarse Gravel, some Silt, Cobbles, dry. Boulder in tip of sampler. | |
| 12 | | 0 | | | | | |
| | 56 | | | | | | 12 - 14 |
| 14 | | 0 | | | | | |
| | | 0 | | | SM | Dark gray SILT, some fine to coarse Sand, little fine to coarse Gravel, dry. | |
| 16 | | 0 | | | | Dark gray fine to coarse SAND, some fine to coarse Gravel, trace Silt, Cobbles, dry | |
| | 60 | | | | | | |
| 18 | | 0 | | | SP | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-104



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664703.7 **Easting:** 645057.0 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.4 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/25/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/30/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0 | | | SM | Dark gray SILT, some fine to coarse Gravel. | |
| 22 | 60 | 0 | | | SW | Dark gray fine to coarse SAND, some fine to coarse Gravel, trace Silt, Cobbles, dry. | 22 - 24 |
| 24 | | 0 | | | | | |
| 26 | | 0 | | | | | |
| 28 | 60 | 0 | | | SP | Brown fine to medium SAND, little fine to coarse Gravel. | |
| 30 | | 0 | | | GW | Some fine to coarse GRAVEL. | |
| 32 | 60 | 0 | | | SW | Dark gray fine to coarse SAND, some fine to coarse Gravel, Cobbles, dry.<br>Brown fine to medium SAND, little fine to coarse Gravel, dry. | 33 - 35 |
| 34 | | 0 | | | | | |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-108



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664642.9 **Easting:** 644912.7 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/24/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/25/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | FILL | Dark brown fine to coarse SAND, some fine to coarse Gravel, some Silt, brick, tile. | |
| 2 | | | | | | | |
| | | 0.3 | | | | Black fine to coarse SAND, some Silt, little fine to coarse Gravel, cobbles, metal, brick, wood, rubber, moist. | 2 - 4 |
| 4 | | | | | | | |
| | | 0 | | | | | |
| 6 | | 1.2 | | | | Dark gray to black fine to coarse SAND, some Silt, some fine to coarse Gravel, cobbles, brick, plastic, moist, moderate petroleum-like odor. | 6 - 8 |
| 8 | 60 | | | | | | |
| | | 2.7 | | | Concrete | Concrete | |
| 10 | | | | | | | |
| | | 69.5 | | | SM | Dark gray SILT, some fine to coarse Sand, little fine to coarse Gravel, numerous Cobbles, very moist. | 10 - 12 |
| 12 | | 5.6 | | | | | |
| | 60 | | | | GP | Brown, fine to coarse GRAVEL, some fine to coarse Sand, little Silt, numerous Cobbles, dry. | |
| 14 | | 1.6 | | | | | |
| | | 0 | | | SP | Brown fine SAND, some fine to coarse Gravel some Silt, few Cobbles, dry. | |
| 16 | | 0 | | | | | |
| | 60 | | | | | | |
| 18 | | 0 | | | SM | Dark gray SILT, some fine to coarse Sand, little fine to coarse Gravel, numerous Cobbles, dry. | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-108



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664642.9 **Easting:** 644912.7 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/24/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/25/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0 | | | SW | Dark brown fine SAND, some fine to coarse Gravel, Cobbles, dry. | |
| 22 | 48 | 0 | | | | | 22 - 24 |
| 24 | | 0 | | | SM | Dense brown SILT, some fine to coarse Sand, some fine to coarse Gravel, Cobbles, dry. | |
| 26 | | 0 | | | SP | Dark brown fine SAND, some fine to coarse Gravel, Cobbles, dry. | |
| 28 | 60 | 0 | | | | | |
| 30 | | 0 | | | | | |
| 32 | | 0 | | | | Dark brown fine SAND, some fine to coarse Gravel, cobbles, dry. | |
| 34 | 60 | 0 | | | | | 33 - 35 |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-109/GW-109



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664634.0 **Easting:** 644978.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/26/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50 |
| **Finish Date:** 9/2/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Dark gray fine to coarse SAND, some fine to coarse Gravel, some Silt, Cobbles, brick and concrete fragments, dry. | |
| 2 | | NA | | | | | 1 - 3 |
| 4 | | | | | | | |
| | | | | | | Black fine to coarse SAND, some fine to coarse Gravel, little Silt, brick, wood, glass, metal, very moist. | |
| 6 | 60 | 5.6 | | | | | 5 - 7 |
| | | | | | | Concrete | |
| 8 | | 2.2 | | | SM | Brown SILT, some fine to coarse Gravel, Cobbles, dry. | |
| | | 0 | | | | | |
| 10 | | | | | | | |
| | | 0 | | | SW | Brown fine to coarse SAND, some fine to coarse Gravel, little Silt, Cobbles, dry | |
| 12 | | | | | | | |
| | 60 | 0 | | | | | 12 - 14 |
| 14 | | | | | | | |
| | | 0 | | | | | |
| 16 | | 0 | | | | | |
| | 60 | | | | | | |
| 18 | | 0 | | | SP | Brown fine SAND, little fine to coarse Gravel, Cobbles, dry. | |
| | | | | | | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-109/GW-109


| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664634.0 **Easting:** 644978.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/26/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50 |
| **Finish Date:** 9/2/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| | 24 | 0 | | | SP | Brown fine SAND. | |
| 22 | | 2.0 | | | | | |
| | | | | | GW | Some fine to coarse GRAVEL. | |
| 24 | | | | | | | |
| | | 0 | | | SP | Brown fine SAND. | |
| 26 | 24 | | | | SP | Brown fine SAND, little fine to coarse Gravel, Cobbles, dry. | |
| | | 0 | | | | | |
| 28 | | | | | | | 27 - 29 |
| 30 | | 0 | | | | | |
| 32 | 32 | | | | SM | Dark brown SILT, some fine to coarse Gravel, Cobbles, dry. | |
| | | 0 | | | | | |
| 34 | | | | | | | 33 - 35 |
| 36 | | 0 | | | SP | Brown fine to medium SAND, little fine to coarse Gravel, dry. | |
| | 32 | | | | | | |
| 38 | | 0 | | | SM | Dark brown dense SILT, some fine to coarse Gravel, dry. | |
| 40 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-109/GW-109



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664634.0 **Easting:** 644978.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/26/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50 |
| **Finish Date:** 9/2/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | SM | Dark brown dense SILT, some fine to coarse Gravel, dry. | |
| 42 | 30 | 0 | | | SP | Brown fine to medium SAND, little fine to coarse Gravel, dry. | |
| 44 | | 0 | | | | | |
| 46 | | 0 | | | | | |
| 48 | 30 | 0 | | | | | |
| 50 | | 0.1 | | | ML | Brown SILT, wet at 50' | 48 - 50 |
| 52 | 60 | 0 | | | SP | Brown fine to medium SAND, trace Silt, wet | 50-55 (GW) |
| 54 | | 0 | | | | | |
| 56 | | 0 | | | SM | Brown fine SAND, trace Silt, wet. | |
| 58 | 3 | 0 | | | | | |
| 60 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-109/GW-109



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664634.0 **Easting:** 644978.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/26/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50 |
| **Finish Date:** 9/2/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 3 | 0 | | | SM | Brown fine SAND, trace Silt, wet. | |
| 64 | | | | | | | |
| 66 | 27 | 0 | | | SP | Brown fine SAND, trace Silt, trace fine Gravel, wet. | |
| 68 | | | | | | | |
| 70 | | 0 | | | | | |
| 72 | 27 | 0 | | | | | 70 - 72 |
| 74 | | 0 | | | | | |
| 76 | | 0 | | | | | |
| 78 | 60 | 0 | | | | | |
| 80 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-109/GW-109



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664634.0 **Easting:** 644978.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/26/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50 |
| **Finish Date:** 9/2/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 48 | 0 | | | SP | Brown fine SAND, trace Silt, trace fine Gravel, wet.<br>Brown fine to coarse SAND, wet.<br>Brown fine to medium SAND grading to fine SAND, trace Silt, wet. | 83 - 85 |
| 84 | | 0 | | | | | |
| | | 0 | | | | | |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-110



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664676.3 **Easting:** 645034.7 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/31/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/31/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | FILL | Dark gray fine to coarse SAND, some fine to coarse Gravel, little Silt, Cobbles, brick fragments, wood , glass, dry. | |
| 2 | | 0 | | | | | 1 - 3 |
| | | 0 | | | | | |
| 4 | | 0 | | | | | |
| | | 0 | | | | | |
| 6 | | 132 | | | FILL | Black SILT, little fine to coarse Gravel, wood, cobbles, moist, strong petroleum-like odor. | 5 - 7 |
| 8 | 58 | | | | Concrete | Concrete | |
| | | 0 | | | SW | Brown fine to coarse SAND, some fine to coarse Gravel, Cobbles, dry. | |
| 10 | | | | | | | |
| 12 | | 0 | | | | | |
| | 60 | | | | | | |
| 14 | | 0 | | | | | |
| | | 0 | | | | | |
| 16 | | 0 | | | ML | Grayish brown SILT, some fine to coarse Gravel, dry. | |
| | | | | | | | |
| 18 | 48 | 0 | | | | | |
| | | | | | | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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**New York, NY 10004**
**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-110



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664676.3 **Easting:** 645034.7 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/31/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/31/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0 | | | | Gray fine to coarse SAND, some fine to coarse Gravel, dry. | |
| | | 2 | | | | | 20 - 22 |
| 22 | 60 | | | | | | |
| | | 0.3 | | | | | |
| 24 | | | | | | | |
| | | 0.3 | | | | Gray fine to coarse SAND, some fine to coarse Gravel, dry 4" of fine Sand at 30'. | |
| 26 | | 0.1 | | | | | |
| | 36 | | | | SW | | |
| 28 | | 0 | | | | | |
| | | | | | | | |
| 30 | | 0 | | | | Brown fine to medium SAND, little fine to coarse Gravel, few Cobbles, dry. | |
| | | 0 | | | | | |
| 32 | | | | | | | |
| | 48 | | | | | | |
| 34 | | 0 | | | | | 33 - 35 |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-111



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664659.7 **Easting:** 645118.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 10/17/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Well graded fine to medium SAND, 30% Gravel, 15% Sand trace to 5% fine, fill material, 1/2 bricks, cobbles(up to 150 mm) sub angular to sub rounded loose, dry to moist, brown, dark brown light to dark gray. | |
| 2 | | 0.5 | | | | | 2 - 4 |
| 4 | | | | | | | |
| 6 | 60 | 1.5 | | | | Sandy SILT, Clay, 20% Sand 20% Gravel, loose to medium, dense, moist, grayish-brown to gray. | 5 - 7 |
| 8 | | 220.8 | | | Concrete | Concrete | |
| 10 | | 0.5 | | | | Well graded fine to medium SAND, 15% coarse Sand, 15% Gravel, loose, dry. Boulder at 18'-140 mm, sub angular. | |
| 12 | 60 | 0.6 | | | SW | | |
| 14 | | | | | | | 13 - 15 |
| 16 | | | | | | | |
| 18 | 54 | 0.3 | | | | | |
| | | | | | SP | Poorly graded medium SAND, some coarse Sand, some fine Sand, Some Gravel, loose, dry, reddish brown. | |
| 20 | | | | | GW | Well graded fine to medium GRAVEL, some Sand (mostly medium to coarse), loose, dry. | |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-111



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664659.7 **Easting:** 645118.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 10/17/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 54 | 0.3 | | | GW | Well graded fine to medium GRAVEL, some Sand (mostly medium to coarse), loose, dry. | |
| 24 | 100 | 1.0 | | | SW | Well graded fine to medium SAND, 15% coarse Sand, 25% Gravel, loose, dry, reddish brown to brown. | |
| 26 | | 0.8 | | | | | |
| 28 | | 2.1 | | | SP | Poorly graded fine to medium SAND, 15% coarse Sand, 10% Gravel (fine), loose, dry, reddish brown. | 28 - 30 |
| 30 | | | | | | | |
| 32 | 48 | 1.0 | | | | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, reddish brown to brown. | |
| 34 | | 1.0 | | | | | 33 - 35 |
| | | 0.8 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

AECOM

**BORING #: SB-112/GW-125**
**Sheet 1 of 5**

| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664669.0 **Easting:** 645147.3 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/11/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | 0.1 | | | FILL | Well graded fine to medium SAND, 25% Gravel, 15% coarse Sand, Fill, bricks, wood, some metal. Cobbles up to 150 mm, sub angular to sub rounded. | 2 - 4 |
| 4 | | | | | | | |
| 6 | 60 | 40.4 | | | | SILT, 25% fine to medium Sand, 20% Gravel, 10% coarse Sand, trace Clay. Fill- wood, brick, cobble, light staining, moderately dense, moist to wet. | 5 - 7 |
| 8 | | 1.3 | | | Concrete | Concrete | |
| 10 | | | | | | | |
| 12 | 60 | 2.3 | | | FILL | Crushed Concrete | |
| 14 | | 6.9 | | | | | 13 - 15 |
| 16 | 48 | | | | | | |
| 18 | | 2.5 | | | | | |
| 20 | | 3.8 | | | SW | Well graded fine to medium SAND, 30% Gravel, 20% coarse Sand, loose, dry, brown to light reddish brown. Cobbles up to 120 mm angular to sub-rounded. | |
| | | 1.7 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #: SB-112/GW-125**


| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664669.0 **Easting:** 645147.3 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/11/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 48 | 0.3 | | | SW | Well graded fine to medium SAND, 30% Gravel, 20% coarse Sand, loose, dry, brown to light reddish brown. Cobbles up to 120 mm angular to sub-rounded. | |
| | | 0.2 | | | | | |
| 24 | | 0.5 | | | | | |
| | | 0.4 | | | SP | Poorly graded fine SAND, 15% medium to coarse Sand, 10% Gravel, loose, dry, reddish brown, seams up to 1' thick of medium dense fine SAND | |
| 26 | 54 | 0.2 | | | | | |
| 28 | | 0.2 | | | | | |
| | | 0.4 | | | | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry reddish brown. At 28.75', 4 mm seam of coarse SAND, brownish yellow, loose. | |
| 30 | | 0.3 | | | | | |
| 32 | | | | | | | |
| 34 | 84 | 0.1 | | | SW | Well graded fine to medium SAND and GRAVEL, 20 to 15% coarse Sand, trace fines, loose to medium dense, dark brown to brown. | 33 - 35 |
| 36 | | | | | | | |
| 38 | | | | | SP | Poorly graded fine to medium SAND, loose, dry to moist, light reddish brown. | |
| 40 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #: SB-112/GW-125**



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664669.0 **Easting:** 645147.3 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/11/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| | | | | | | Poorly graded fine to medium SAND, loose, dry to moist, light reddish brown. | |
| 42 | | | | | | Poorly graded fine to medium SAND, loose, dry to moist, light reddish brown, moist. Water table at 50 ft bgs. | |
| 44 | | 0.1 | | | | | |
| | | 0.1 | | | | | 45 - 47 |
| 46 | 90 | | | | | | |
| | | 1.3 | | | | | |
| 48 | | | | | | | |
| | | 1.0 | | | | | 48 - 50 |
| 50 | | | | | SP | | |
| 52 | | | | | | | |
| 54 | | | | | | | |
| | | | | | | Poorly graded fine to medium SAND, with 5% coarse Sand, one Cobble (120 mm) sub rounded at 58'; loose reddish brown to dark brown, wet. | |
| 56 | | 385 | | | | | |
| | 60 | 51.4 | | | | | |
| 58 | | | | | | | |
| | | 29.2 | | | | | |
| 60 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #: SB-112/GW-125**


| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664669.0 **Easting:** 645147.3 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/11/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | | | | | | Poorly graded fine to medium SAND, loose, dry to moist, light reddish brown. | |
| 64 | | 26.4 | | | | Poorly graded fine to medium SAND, trace coarse Sand, loose, wet, dark, grayish-brown, slight naphthalene-like odor. | |
| 66 | 96 | 67.9 | | | | | 65-67 (GW) |
| 68 | | 115.6 | | | | Fine SAND, moderately dense, slight naphthalene-like odor. | 66 - 68 |
| 70 | | 66.3 | | | | | |
| 72 | | | | | SP | Poorly graded fine to medium SAND, trace coarse SAND, loose, wet, dark-grayish brown. | |
| 74 | | | | | | | |
| 76 | | 18.1 | | | | | |
| 78 | 72 | 16.0 | | | | Mostly medium SAND, brown. | |
| 80 | | 4.1 | | | | Fine SAND, reddish brown. | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #: SB-112/GW-125**


| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664669.0 **Easting:** 645147.3 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/11/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 60 | 10.4 | | | SP | Poorly graded fine to medium SAND, loose, dry to moist, light reddish brown.<br>Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, wet, reddish brown. | |
| | | 14.3 | | | | Medium SAND, 5% coarse Sand, 20% fine Sand, loose, wet, reddish brown. | |
| 84 | | 4.4 | | | | Poorly graded fine SAND, pockets of medium Sand (40%), trace coarse Sand, medium dense, wet, brown to reddish brown. | 83 - 85 |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-113



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664678.7 **Easting:** 645202.5 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/15/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | SW | Well graded fine to medium SAND, 20% coarse Sand, 25% Gravel, fine to coarse with fill- bricks, wood. Cobbles up to 16" across sub angular to sub rounded. | |
| 2 | | 0.1 | | | | | 2 - 4 |
| 4 | | | | | | | |
| | | | | | Concrete | Concrete | |
| 6 | | 0.5 | | | | | |
| 8 | 60 | | | | | | |
| | | 0.8 | | | SW | Well graded fine to medium SAND, 25% Gravel, 20% coarse Sand, loose, dry, light reddish brown. | 8 - 10 |
| 10 | | 0.7 | | | | | |
| 12 | | | | | | | |
| | 36 | 0.5 | | | | | |
| | | 0.5 | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand and Gravel, loose, dry, brown to reddish brown. | 13 - 15 |
| 14 | | 0.7 | | | SW | Well graded fine to medium SAND, 10% coarse Sand, 20% Gravel, loose, dry light reddish brown to light brown. | |
| 16 | | | | | | | |
| | | | | | SP | Poorly graded fine SAND, 15% medium Sand, trace coarse Sand and Gravel. | |
| 18 | 48 | 0.1 | | | | | |
| | | | | | SW | Well graded medium to coarse SAND, 10% fine Sand, 20% Gravel, loose, dry, brown to light grayish brown. | |
| 20 | | | | | SP | Poorly graded fine SAND, 15% medium Sand, trace coarse Sand with Gravel, loose, dry, reddish brown. | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-113



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664678.7 **Easting:** 645202.5 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/15/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | | | | | SP | Poorly graded fine SAND, 15% medium Sand, trace coarse Sand with Gravel, loose, dry, reddish brown. | |
| 24 | 78 | 0.9 | | | | | |
| 26 | | | | | | | |
| 28 | | 0.9 | | | SW | Well graded medium SAND, 15% fine Sand, 15% coarse Sand, 20% Gravel, loose, dry. Light gray, weak red, reddish brown, few cobbles up to 50 mm, sub angular. | |
| 30 | | 0.7 | | | SP | Poorly graded fine to medium SAND, 15% coarse Sand, 10% Gravel, loose, dry, light reddish brown. | |
| 32 | | | | | | | |
| 34 | | | | | | | |
| 36 | | | | | | | |
| 38 | 40 | 1.7 | | | | Poorly graded medium SAND, 25% fine Sand, 5% coarse Sand, trace Gravel, loose, dry, light reddish brown to brown. | 36 - 38 |
| 40 | | 1.5 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-113



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664678.7 **Easting:** 645202.5 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/15/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 40 | 1.5 | | | SP | Poorly graded fine to medium SAND, 15% coarse Sand, 10% Gravel, loose, dry, light reddish brown. | |
| 44 | 78 | 1.8 | | | | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, light reddish brown to brown. | |
| 46 | | | | | | | |
| 48 | | 1.3 | | | | | |
| 50 | | 0.6 | | | | | 48 - 50 |
| 52 | | | | | | | |
| 54 | | | | | | | |
| 56 | | | | | | | |
| 58 | 48 | 0.5 | | | GP | Poorly graded coarse GRAVEL up to 60 mm, sub angular to sub rounded, 15% coarse Sand, 20% fine Gravel, loose and wet. | |
| | | | | | SW | Well graded medium to coarse SAND, 25% fine to coarse, Gravel, 5% fine Sand, loose, wet, brown. | |
| | | | | | SP | Poorly graded fine SAND, 20% medium Sand loose, wet, brown to reddish brown. | |
| 60 | | | | | SM | Silty fine SAND, 25% silty(25%), medium, dense, wet, reddish brown. | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-113



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664678.7 **Easting:** 645202.5 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/15/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 48 | 0.5 | | | SM | Silty fine SAND, 25% silty(25%), medium, dense, wet, reddish brown. | |
| 64 | 84 | 1.2 | | | SP | Poorly graded fine to medium SAND, trace coarse Sand, loose, reddish brown, wet. At 67', 4" seam of mostly fine SAND, moderately dense | |
| 66 | | | | | | | |
| 68 | | 1.3 | | | | | |
| 70 | | 0.6 | | | | Poorly graded fine SAND, 10% Silt, medium dense, wet, reddish brown. | 68 - 70 |
| 72 | | | | | | | |
| 74 | | | | | | | |
| 76 | 72 | 1.7 | | | | Poorly graded fine SAND, loose, well, reddish brown. | |
| 78 | | 1.9 | | | | | |
| 80 | | 1.2 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-113



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664678.7 **Easting:** 645202.5 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/15/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 60 | 1.5<br>1.4 | | | SP | Poorly graded fine to medium SAND, trace coarse Sand, loose, reddish brown, wet. At 67', 4" seam of mostly fine SAND, moderately dense | |
| 84 | | 1.2 | | | | | 83 - 85 |

**Remarks:** Boring Terminated (ft): 85.0

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**New York, NY 10004**
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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-114



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664689.4 **Easting:** 645275.5 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 56.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 10/13/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Well graded fine to medium SAND, 20% Gravel (fine to coarse), 20% coarse Sand, Fill - brick, cobbles up to 110 mm sub-angular to sub rounded. | |
| 2 | | 1.2 | | | | | |
| 4 | | | | | | | 2 - 4 |
| | | | | | | | |
| 6 | 60 | 0.8 | | | | | 5 - 7 |
| 8 | | 1.5 | | | | Well graded medium to coarse SAND with 25% Gravel (with cobbles up to 110 mm sub-angular to sub-rounded), 155 sine Sand, 5% fines, loose to medium dense, dry to moist. | |
| | | | | | Concrete | Concrete | |
| 10 | | 1.3 | | | | | |
| 12 | 60 | 0 | | | SW | Well graded medium to coarse SAND, 20% Gravel, 15% fine Sand, cobbles up to 150 mm sub-rounded, loose, moist, brown to dark brown. | |
| 14 | | | | | | | 13 - 15 |
| | | 0.8 | | | | | |
| 16 | | 0.6 | | | SP | Poorly graded fine to medium SAND with 10% Gravel, 15% coarse Sand, loose, dry, light reddish brown to brown. | |
| 18 | 60 | 0.7 | | | SW | Well graded medium to coarse Sand, 20% Gravel, 15% fine Sand, lose, dry, brown (at 19.5 SAND, dense, fine reddish brown to weak red. | |
| 20 | | 0.5 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-114



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664689.4 **Easting:** 645275.5 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 56.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 10/13/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 50 | 0.5 | | | SW | Well graded medium to coarse Sand, 20% Gravel, 15% fine Sand, lose, dry, brown (at 19.5 SAND, dense, fine reddish brown to weak red. | |
| 24 | | 0.3 | | | SP | Poorly graded fine Sand with 15% medium Sand, 5% coarse Sand, trace Gravel, very loose, dry, light reddish brown. | 23 - 25 |
| 26 | 54 | 0 | | | SW | Well graded fine to medium Sand with 15% coarse Sand | |
| 28 | | | | | SP | Poorly graded fine Sand with 10% medium to course Sand, loose, dry, light brown. (28.5-29.5 ft bgs) - seam of fine reddish brown SAND, moderate dense. | |
| 30 | | 0 | | | | | |
| 32 | 50 | 0 | | | SW | Well graded fine to medium Sand with 15% coarse Sand, 10% Gravel, loose, brown to dark brown, dry. | |
| 34 | | | | | SP | Poorly graded fine to medium Sand with 5% coarse Sand, trace Gravel, loose, dry, brown. (33.5 ft bgs) - pale yellow fine Sand grains throughout a 2" seam. | 33 - 35 |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-115



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664588.4 **Easting:** 644919.3 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/29/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/8/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Dark brown fine to coarse SAND, some Silt, little fine to coarse Gravel, cobbles, numerous brick fragments, dry, no odor | |
| 2 | | 0 | | | | | |
| | | 0 | | | | | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | | | |
| 6 | | 0 | | | SP | Dark gray fine to coarse SAND, some fine to coarse GRAVEL, some SILT, cobbles, numerous brick fragments, wet, strong petroleum-like odor. | 5 - 7 |
| | | 74.3 | | | | | |
| 8 | 48 | | | | Concrete | Concrete | |
| | | 456 | | | | | |
| 10 | | | | | | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. | |
| | | 2.2 | | | | | |
| 12 | | 1.4 | | | SP | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. | 11 - 13 |
| | 60 | | | | | | |
| 14 | | 0.7 | | | | | |
| | | 0.4 | | | | | |
| 16 | | | | | GM | Dark gray dense SILT, some fine to coarse Gravel, dry, moderate petroleum-like odor. | 15 - 17 |
| | | 52.4 | | | | | |
| 18 | 60 | | | | SW | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. | |
| | | 1 | | | | | |
| 20 | | 4.1 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-115



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664588.4 **Easting:** 644919.3 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/29/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/8/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 4.1 | | | SW | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. | |
| | | 0 | | | | | |
| 22 | | | | | Boulder | Boulder | |
| | 60 | 0 | | | | Dark brown fine to coarse SAND, some fine to coarse Gravel, few cobbles, dry. | |
| 24 | | | | | | | |
| | | 0 | | | | | |
| 26 | | 0 | | | | | |
| | 60 | | | | | | |
| 28 | | 0 | | | | | |
| | | | | | SW | | |
| 30 | | 0 | | | | | |
| | | 0 | | | | | |
| 32 | | | | | | | |
| | 54 | 0 | | | | | |
| 34 | | | | | | | 33 - 35 |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-116



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664588.3 **Easting:** 644991.5 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/29/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/8/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | FILL | Dark brown SILT, some fine to coarse SAND, some fine to coarse Gravel, few cobbles/ brick fragments, dry. | |
| 2 | | 0 | | | | | |
| | | 0 | | | | | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | | | |
| 6 | 60 | 156 | | | SM | Black fine to coarse SAND, some Silt, little fine to coarse Gravel, cobbles, brick very moist strong petroleum-like odor. | 5 - 7 |
| 8 | | | | | Concrete | Concrete<br>Concrete Debris | |
| | | 0 | | | | | |
| 10 | | | | | | | |
| | | 0 | | | GM | Gray dense SILT, some fine to coarse Gravel, dry. | |
| 12 | | | | | | | |
| | 60 | 0 | | | SP | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. | 12 - 14 |
| 14 | | | | | | | |
| | | 0 | | | | | |
| 16 | | 0 | | | | | |
| | 36 | | | | | | |
| 18 | | 0 | | | | | |
| | | | | | | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-116



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664588.3 **Easting:** 644991.5 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/29/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/8/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0 | | | | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. Dark brown fine to medium SAND, some fine to coarse Gravel, little Silt, few cobbles, dry. | |
| 22 | 48 | 0 | | | | | 22 - 24 |
| 24 | | 0 | | | | | |
| | | 0 | | | | | |
| 26 | | 0 | | | | | |
| 28 | 16 | 0 | | | SP | | |
| 30 | | 0 | | | | | |
| 32 | | 0 | | | | Brown fine to medium SAND, little fine to coarse Gravel, trace Silt, few cobbles, dry. | |
| 34 | 56 | 0 | | | | | 33 - 35 |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-117



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664610.4 **Easting:** 645025.8 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/12/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | NA | | | FILL | Fill | |
| 4 | | | | | | | 2 - 4 |
| | | | | | | | |
| 6 | | 1 | | | | Well graded medium to coarse SAND, 20% Gravel, 15% fine Sand, trace fines, dark brown, wet , loose. | 5 - 7 |
| 8 | 60 | 1 | | | Concrete | Concrete | |
| 10 | | 0.1 | | | SW | Well graded medium to coarse SAND, 20% fine to coarse Gravel, few cobbles up to 100 mm, sub rounded to sub angular, 10% fine SAND, loose dry, light brown to tan. | |
| 12 | | 0.2 | | | SP | Poorly graded medium to coarse SAND, 15% Gravel, 10% fine Sand, trace fines, medium dense, dry, dark grayish brown. | 10 - 12 |
| 14 | 48 | 0.1 | | | SW | Poorly graded medium to coarse SAND, 15% Gravel, 10% fine Sand, trace fines, medium dense, dry, reddish brown to brown. | |
| | | | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, loose to medium dense, dry, tan to light brown. | |
| 16 | | 0.1 | | | | | |
| 18 | 24 | | | | SW | Well graded medium to coarse SAND, 15% Gravel, 10% fine Sand, loose, dry, light brown. | |
| 20 | | 0.1 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-117



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664610.4 **Easting:** 645025.8 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/12/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 52 | NA | | | SW | Well graded medium to coarse SAND, 15% Gravel, 10% fine Sand, loose, dry, light brown.<br>Well graded fine to medium SAND, 15% coarse Sand, 15% Gravel, loose, dry, light brown.<br>Well graded medium SAND, 15% coarse Sand, 15% Gravel, 5% fine Sand, loose, dry, reddish brown. | 22 - 24 |
| 24 | | | | | | | |
| 26 | 48 | NA | | | SP | Poorly graded fine SAND, 15% medium to coarse Sand, 10% Gravel, trace fines, dense, dry, reddish brown to gray. | |
| 28 | | | | | SW | Well graded medium to coarse SAND, 20% Gravel, 10% fine Sand, loose, dry, reddish brown to tan. | |
| 30 | | | | | GW | Well graded fine GRAVEL(up to 15 mm), 20% medium to coarse Sand, 15% fine Sand, loose, dry, tan to light brown. | |
| 32 | 44 | NA | | | SW | Well graded medium to coarse Sand, 20% Gravel, 15% fine Sand, loose, dry, brown cobble(100 mm) sub rounded at 32.5. | |
| 34 | | | | | SP | Poorly graded medium SAND , 15% coarse Sand, 10% fine Sand, trace fine Gravel, very loose, dry, light brown to reddish brown. | 33 - 35 |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-118



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.9 **Easting:** 645127.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/20/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/4/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | 2.6 | | | SW | Well graded medium to coarse SAND, with 30% fine to coarse Gravel, cobbles and brick, wood, metal pieces, 15% fine Sand, brown to brownish red loose , dry. | 2 - 4 |
| 4 | | | | | | | |
| 6 | | 23.9 | | | | Well graded fine to medium SAND, 30% Gravel, slightly stained with a light petroleum-like odor. | 5 - 7 |
| 8 | | 14.2 | | | Concrete | Concrete | |
| 10 | | 0.6 | | | SW | Well graded fine to medium SAND, 25% Gravel, 15% coarse Sand, loose, dry. | |
| 12 | 60 | 0.1 | | | | | |
| 14 | | 0.4 | | | | | 13 - 15 |
| 16 | | | | | | | |
| 18 | 36 | 0.2 | | | | | |
| 20 | | | | | SP | Poorly graded fine SAND, 15% Gravel, 15% fine to coarse Sand. | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-118



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.9 **Easting:** 645127.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/20/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/4/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | | | | | SP | Poorly graded fine SAND, 15% Gravel, 15% fine to coarse Sand. | |
| 24 | | | | | | | |
| 26 | 72 | 0.2 | | | SW | Well graded fine to medium SAND, 20% Gravel, 15% coarse Sand. Gravel is mostly fine, some coarse and few cobbles. | |
| 28 | | | | | | | |
| 30 | | | | | | | |
| 32 | | | | | | Poorly graded fine to medium SAND, 10% coarse Sand, 5% Gravel, very loose, dry. | |
| 34 | | | | | | | 33 - 35 |
| 36 | 84 | 0.1 | | | SP | | |
| 38 | | | | | | | |
| 40 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-118



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.9 **Easting:** 645127.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/20/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/4/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 60 | 0.1 | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand, 5% Gravel, very loose, dry. | |
| 44 | | | | | | | |
| 46 | | | | | | | |
| 48 | | 1.2 | | | | | |
| 50 | | 0.4 | | | | | 48 - 50 |
| 52 | 72 | 0.2 | | | | | |
| 54 | | | | | | Poorly graded fine to medium SAND, 20% coarse Sand, trace fine Gravel, loose, wet, brown to reddish brown. | |
| 56 | | | | | | | |
| 58 | | 0.1 | | | | Poorly graded fine Sand, 5% medium Sand. | |
| 60 | | | | | | Poorly coarse SAND, 15% medium Sand, trace fine Sand and Gravel, loose, wet, reddish brown. | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-118



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.9 **Easting:** 645127.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/20/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/4/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 72 | 0.1 | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand, 5% Gravel, very loose, dry. | |
| 64 | | | | | | Poorly graded medium SAND, with loose fine Sand, 5% coarse Sand, brown to reddish brown. | |
| 66 | | 31.8 | | | | | |
| 68 | | 388.2 | | | | Poorly graded medium SAND, loose fine Sand, 5% coarse Sand, dark gray, slight sheen, moderate naphthalene-like odor. | 66 - 68 |
| | | 302.7 | | | | Poorly graded medium SAND, loose fine Sand, 5% coarse Sand, brown to reddish brown. | |
| 70 | | 10.4 | | | | | |
| 72 | 96 | 5.3 | | | | | |
| 74 | | 3.9 | | | | Mostly fine SAND, loose to medium dense. | |
| 76 | | 3.4 | | | | Medium to coarse SAND, loose very faint naphthalene-like odor. | |
| 78 | | 8.8 | | | | Fine SAND , dense, with slight banding 1-2 mm dark gray and reddish brown. | |
| 80 | | 0.7 | | | | Medium SAND, loose.<br>Fine SAND, moderately dense. | |

**Remarks:** Boring Terminated (ft): 85.0

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**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-118



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.9 **Easting:** 645127.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/20/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/4/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 36 | 0.7 | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand, 5% Gravel, very loose, dry. | |
| | | | | | | Poorly graded fine SAND, trace medium Sand, moderately dense to loose, wet, light grayish brown. | |
| 84 | | 0.3 | | | | Poorly graded fine to medium SAND, trace coarse Sand, loose, wet, light grayish brown. | 83 - 85 |
| | | 0.3 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-119



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664604.3 **Easting:** 645153.4 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/19/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49' |
| **Finish Date:** 10/8/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | FILL | Well graded medium to coarse SAND, 25% gravel(fine to coarse, broke bricks), 15% fine Sand, trace fines, brown to dark brown, loose, dry. | |
| 2 | | | | | | | |
| | | 0.3 | | | | | 2 - 4 |
| 4 | | | | | | | |
| | | 0.2 | | | | | |
| | | | | | | Well graded medium to coarse SAND, fine to coarse Gravel, and cobbles, bricks and wood fill, trace fines, loose, moist. | |
| 6 | | 1.5 | | | | | 5 - 7 |
| | | | | | | Well graded medium to coarse SAND, fine to coarse Gravel, and cobbles, bricks and wood fill, trace fines, loose, moist, slight staining. | |
| | 60 | 4 | | | Concrete | Concrete | |
| 8 | | | | | | | |
| | | 1.7 | | | | | |
| 10 | | | | | | Well graded fine to medium SAND, with 30% Gravel, 10% coarse Sand, loose, dry, light reddish brown. | |
| | | 1.5 | | | | | |
| 12 | | | | | | Well graded medium to coarse SAND, with 20% Gravel, 10% fine Sand, loose, dry, light reddish brown to brown. | |
| | 60 | | | | | | |
| | | 1.1 | | | SW | | 13 - 15 |
| 14 | | | | | | | |
| | | 1.4 | | | | | |
| 16 | | | | | | | |
| | | | | | | | |
| 18 | 48 | 0.1 | | | | | |
| | | | | | | | |
| 20 | | | | | SP | Poorly graded fine SAND, 10% medium Sand, trace coarse Sand and Gravel, loose, dry, light reddish brown. | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-119



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664604.3 **Easting:** 645153.4 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/19/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49' |
| **Finish Date:** 10/8/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 60 | 0.1 | | | SP | Poorly graded fine SAND, 10% medium Sand, trace coarse Sand and Gravel, loose, dry, light reddish brown. | |
| 24 | | | | | | | |
| 26 | | 10.5 | | | | Poorly graded fine SAND, with trace medium to coarse Sand and Gravel, dense, moist, reddish brown, mixed with some grayish brown. | |
| 28 | | 1.6 | | | | Poorly graded fine to medium SAND, with 10% Gravel, 5% coarse Sand, loose, dry, light reddish brown to brown. | |
| 30 | | | | | | | |
| 32 | 84 | 1.2 | | | | | |
| 34 | | | | | SW | Well graded fine to medium SAND, with 20% Gravel, 10% coarse Sand, loose, dark reddish brown. | 33 - 35 |
| 36 | | 20.6 | | | SP | Poorly graded fine to medium SAND, with 5% coarse Sand, trace Gravel, loose, dry, light reddish brown. At 38.5 3" seam of fine SAND, medium dense, 1-2 mm banding brown, light reddish brown, grayish brown. | |
| 38 | | 1.5 | | | | | |
| 40 | | 1.4 | | | | | |
| | | 1.2 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-119



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664604.3 **Easting:** 645153.4 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/19/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49' |
| **Finish Date:** 10/8/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | | 1.2 | | | | Poorly graded fine to medium SAND, with 5% coarse Sand, trace Gravel, loose, dry, light reddish brown. At 38.5 3" seam of fine SAND, medium dense, 1-2 mm banding brown, light reddish brown, grayish brown. Poorly graded fine to medium SAND, 5% coarse Sand, loose, dry, light reddish brown. At 47.5' and 48' 1' band of fine SAND, dense(but broken up by drilling) mottled band of reddish brown and very dark gray. | |
| 44 | | | | | | | |
| 46 | 72 | | | | | | |
| 48 | | 0.1 | | | | | 47 - 49 |
| 50 | | | | | SP | Poorly graded fine SAND, 15% medium Sand, trace, coarse Sand and Gravel, loose, wet, brown, becoming grayish brown at 58.75 ft bgs. | |
| 52 | | | | | | | |
| 54 | | 0 | | | | | |
| 56 | 30 | | | | | | |
| 58 | | | | | | | |
| 60 | | 14 | | | | | |
| | | 132.2 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-119



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664604.3 **Easting:** 645153.4 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/19/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49' |
| **Finish Date:** 10/8/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 90 | 132.2 | | | SP | Poorly graded fine to medium SAND, with 5% coarse Sand, trace Gravel, loose, dry, light reddish brown. At 38.5 3" seam of fine SAND, medium dense, 1-2 mm banding brown, light reddish brown, grayish brown. | |
| 64 | | 328 | | | | Poorly graded fine to medium SAND, trace coarse Sand, loose, wet, reddish brown to brown, slight grayish brown discoloration throughout(15% discolored) moderate to strong naphthalene-like odor, slight sheen. | |
| 66 | | 385 | | | | | 66 - 68 |
| 68 | | 651 | | | | | |
| 70 | | 550.9 | | | | | |
| 72 | 72 | | | | | Poorly graded fine to medium SAND, trace coarse Sand, loose, wet, reddish brown to brown, slight naphthalene-like odor. At 79'-79.23' fine SAND, medium dense, reddish brown. | |
| 74 | | | | | | | |
| 76 | | 156 | | | | | |
| 78 | | 119.6 | | | | | |
| 80 | | 25 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-119



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664604.3 **Easting:** 645153.4 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/19/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49' |
| **Finish Date:** 10/8/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 60 | 25<br>19.2<br>14.7<br>1.7 | | | SP | Poorly graded fine to medium SAND, with 5% coarse Sand, trace Gravel, loose, dry, light reddish brown. At 38.5 3" seam of fine SAND, medium dense, 1-2 mm banding brown, light reddish brown, grayish brown. Poorly graded fine to medium SAND, loose, wet, brown to dark brown. | |
| 84 | | | | | | | 83 - 85 |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-120



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664611.1 **Easting:** 645217.2 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/13/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/6/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | 0.1 | | | FILL | Well graded medium to coarse SAND, 30% Gravel, 15% fine Sand, fill with bricks(very angular), cobbles(up to 100 mm, sub angular to sub rounded) wood, loose, dry, brown to dark brown. | 2 - 4 |
| 4 | | | | | | | |
| 6 | 60 | 1.6 | | | | Well graded fine to medium SAND, with 20% Gravel, 15% coarse Sand, mottled grayish brown, dark brown, weak red with bricks, wood. Slight staining, very slightly coated. | 5 - 7 |
| | | 6.6 | | | | | |
| 8 | | 5.3 | | | Concrete | Concrete | |
| | | 0.5 | | | SW | Well graded fine to medium SAND, 25% Gravel, 15% coarse Sand. GRAVEL is fine to coarse with cobbles up to 40 mm, sub angular to sub rounded. | |
| 10 | | 0.3 | | | | | |
| 12 | 60 | 0.4 | | | | Well graded fine to medium SAND, 15% Gravel, 10% coarse Sand, loose, dry, reddish brown to light brown. Few cobbles up to 110 mm, sub angular to sub rounded. | |
| 14 | | 0.6 | | | | | 13 - 15 |
| 16 | | 0.6 | | | SP | Poorly graded fine SAND, trace medium Sand, trace coarse Sand, trace Gravel (up to 80 mm rounded cobble), trace silt, loose , dry, reddish brown. | |
| | 60 | 1.8 | | | | | |
| 18 | | 0.5 | | | | | |
| | | 0.3 | | | SW | Well graded fine SAND, 25% medium Sand, 15% Gravel, 10% coarse Sand, medium dense, moist, slight staining, reddish brown to dark grayish brown. Well graded fine to medium SAND, with 30% Gravel, 20% coarse Sand, loose, dry, reddish brown to pale brown. | |
| 20 | | 0.3 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-120



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664611.1 **Easting:** 645217.2 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/13/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/6/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 36 | 0.3 | | | SW | Well graded fine SAND, 25% medium Sand, 15% Gravel, 10% coarse Sand, medium dense, moist, slight staining, reddish brown to dark grayish brown. | |
| | | 0.6 | | | | | |
| 24 | | 0.7 | | | | | |
| | | 0.3 | | | | | |
| 26 | | | | | | | |
| 28 | 36 | | | | SP | Poorly graded medium SAND, 10% fine Sand, trace coarse Sand and Gravel, loose, dry, reddish brown. | |
| | | 0.2 | | | | | |
| 30 | | 0.3 | | | SW | Well graded fine to medium SAND, 20% Gravel, 10% coarse Sand, medium dense, dry, light reddish brown with weak, red brown. | |
| 32 | 48 | | | | SW | Well graded fine to medium SAND, 20% Gravel, 10% coarse Sand, medium dense, dry, light reddish brown with weak, red brown. | |
| 34 | | 0.1 | | | SP | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, reddish brown. | 33 - 35 |
| 36 | | | | | | | |
| 38 | 48 | | | | | | |
| 40 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-120



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664611.1 **Easting:** 645217.2 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/13/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/6/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| | | 0.1 | | | | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, reddish brown. | |
| 42 | | 0.3 | | | | Poorly graded fine SAND, trace medium to coarse Sand, reddish brown to brown, loose, dry. At 44' 2" band of well graded fine SAND, with 20% medium to coarse SAND, 15% fine GRAVEL, dense. | |
| | 48 | 0.3 | | | | | |
| 44 | | 0.3 | | | | | |
| | | 0.1 | | | | | |
| 46 | | | | | | | |
| | | | | | | | |
| 48 | | | | | | | |
| | | | | | | | 48 - 50 |
| 50 | 84 | | | | SP | | |
| | | | | | | | |
| 52 | | 0.1 | | | | | |
| | | | | | | | |
| 54 | | | | | | | |
| | | | | | | | |
| 56 | | | | | | Poorly graded fine to medium SAND, 5% coarse Sand, loose, wet, brown to reddish brown. | |
| | | | | | | | |
| 58 | 84 | | | | | | |
| | | | | | | | |
| 60 | | 5 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

**AECOM**
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**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

AECOM

**BORING #:** SB-120



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664611.1 **Easting:** 645217.2 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/13/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/6/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| | 84 | 5 | | | SP | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, reddish brown. | |
| 62 | | 11.2 | | | | Slight discoloration to grayish brown, with sheen, and moderate naphthalene-like odor about 30% of material has discoloration. | |
| | | 385 | | | | | 62 - 64 |
| 64 | | 121.1 | | | | | |
| | | 43.8 | | | | Slight discoloration to grayish brown with sheen, and moderate naphthalene-like odor. | |
| 66 | 96 | 225.1 | | | | Poorly graded fine to medium SAND, 5% coarse Sand, loose, wet, brown to reddish brown. | |
| 68 | | 17.7 | | | | | |
| | | 61.6 | | | | Slight discoloration to grayish brown, slight sheen, naphthalene-like odor, 5% material discolored. | |
| 70 | | 248.1 | | | | | |
| | | 70.4 | | | | | |
| 72 | | 68.7 | | | | | |
| | | 21.9 | | | | | |
| 74 | | 26.6 | | | | Slight discoloration to grayish brown , slight sheen and naphthalene-like odor 5% of the material discolored. | |
| 76 | 84 | 152.3 | | | | | |
| 78 | | | | | | Poorly graded fine SAND, 10% medium Sand, trace coarse SAND, slight naphthalene-like odor. | |
| 80 | | 58.6 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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**New York, NY 10004**
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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-120



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664611.1 **Easting:** 645217.2 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/13/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/6/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 84 | 58.6 | | | SP | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, reddish brown. | |
| 84 | | 46.4 | | | | | 83 - 85 |
| | | 25 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-121



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664618.4 **Easting:** 645273.2 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 56.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/13/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/20/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | 60 | 0 | | | FILL | Well graded fine to medium SAND, with 20% fine to coarse Gravel , few cobbles up to 80 mm, 10% coarse Sand, trace fines. | 2 - 4 |
| 4 | | | | | | | |
| 6 | | | | | | Well graded medium to coarse SAND, with 20% Gravel (angular to sub angular), 15% fine Sand, 10% fines, loose, wet. | 5 - 6 |
| | | 4.4 | | | Concrete | Concrete | |
| 8 | 60 | 0.3 | | | | Well graded medium to coarse SAND, 25% Gravel, 5% fine Sand, loose, dry, light brown. | |
| 10 | | 0.1 | | | SW | | |
| 12 | | | | | | | |
| 14 | 36 | 0 | | | SP | Poorly graded medium SAND, 20% fine Sand, trace coarse Sand and fine Gravel, trace fines, brown, loose, dry. | 13 - 15 |
| | | 0 | | | SP | Poorly graded fine SAND, 10% Gravel, 5% medium to coarse Sand, tan, loose, dry. | |
| 16 | | 0 | | | | Well graded medium to coarse SAND, 20% Gravel, 15% fine Sand, 5% fines wet, dark grayish brown, loose. | |
| 18 | 42 | 0.4 | | | SW | Well graded fine SAND, 15% Gravel, 15% medium to coarse Sand, loose, tan to light brown, dry. Coarse GRAVEL up to 50 mm sub rounded to sub angular. | 18 - 20 |
| 20 | | 0.8 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-121



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664618.4 **Easting:** 645273.2 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 56.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/13/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 9/20/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 60 | 0 | | | SW | Well graded medium to coarse SAND, 20% Gravel, 15% fine Sand, 5% fines wet, dark grayish brown, loose. | |
| 24 | | | | | GW | Well graded fine GRAVEL, 10% coarse up to 40 mm, 30% medium to coarse Sand, loose, dry, tan to light brown, angular to sub angular. | |
| 26 | 50 | 0 | | | SW | Well graded fine SAND, 20% medium to coarse Sand, 5% Gravel. Loose, tan, dry coarse Gravel up to 20 mm, sub angular to sub rounded. | |
| 28 | | | | | | | |
| 30 | | | | | | | |
| 32 | 49 | 0 | | | SP | Poorly graded fine SAND, 10% medium to coarse Sand 10% Gravel, loose, dry, light brown. | |
| 34 | | 0 | | | SW | Well graded fine SAND, with 20% medium to coarse Sand, 15% Gravel. | 33 - 35 |
| | | 0.8 | | | SP | Poorly graded medium SAND, 15% coarse Sand, 10% fine Sand, 10% fine Gravel. | |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-122



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664537.7 **Easting:** 644924.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/29/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/29/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | | Dark gray fine to coarse SAND, some Silt, some fine to coarse Gravel, cobbles, brick, dry. | |
| 2 | | 0 | | | | | |
| | | 0 | | | | Brown SILT, little fine to coarse Gravel, few cobbles, dry. | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | | Dark gray fine to coarse SAND, some Silt, little fine to coarse Gravel, Cobbles, brick/concrete, dry. | |
| 6 | | 0 | | | | Dark gray SILT, some fine to coarse Gravel, dense, moist. | |
| | 58 | | | | FILL | Brown fine to coarse SAND, some fine to coarse Gravel, cobbles, moist. | 6 - 8 |
| 8 | | 0 | | | | | |
| | | | | | | Boulder | |
| 10 | | 2.7 | | | | Dark gray SILT, some fine to coarse Gravel, Cobbles, brick fragments, dry. | |
| 12 | | | | | | | 11 - 13 |
| | 24 | | | | | | |
| 14 | | 0 | | | Boulder | Boulder | |
| | | 0 | | | GM | Dark gray SILT, some fine to coarse Gravel, cobbles, dry. | |
| 16 | | 0 | | | | Dark brown fine to medium SAND, little fine to coarse Gravel, cobbles, dry. | |
| | 56 | | | | | | |
| 18 | | 0 | | | SW | | |
| | | | | | | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-122



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664537.7 **Easting:** 644924.9 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/29/2020 | **Drilling Method:** Sonic | **Water Level (ft):** N/A |
| **Finish Date:** 8/29/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0 | | | SW | Dark brown fine to medium SAND, little fine to coarse Gravel, cobbles, dry. | |
| | | 0 | | | GM | Dark gray SILT, some fine to coarse Gravel, dry. | |
| 22 | 53 | | | | SW | Dark brown fine to medium SAND, little fine to coarse Gravel, trace Silt, cobbles, dry. | 22 - 24 |
| | | 0 | | | | | |
| 24 | | | | | GM | Gray dense SILT, some fine to coarse Gravel, dry. | |
| | | 0 | | | SW | Brown fine to medium SAND, little fine to coarse Gravel, cobbles, dry. | |
| 26 | | 0 | | | | | |
| 28 | 56 | | | | | | |
| | | 0 | | | | | |
| 30 | | 0 | | | SP | Dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt, cobbles, dry. | |
| 32 | | 0 | | | SW | Brown fine to medium SAND, little fine to coarse Gravel, dry. | |
| | 54 | | | | | | |
| 34 | | 0 | | | | | 33 - 35 |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-123



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664528.7 **Easting:** 645007.0 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.4 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/15/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 53' |
| **Finish Date:** 9/16/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | | Fill | |
| 2 | | NA | | | | | |
| 4 | | | | | FILL | | 2 - 4 |
| | | | | | | | |
| 6 | 60 | | | | | Well graded fine to medium SAND, 15% Gravel, 10% coarse Sand, trace fines, brown to dark brown, moderately dense, large cobbles up to 50 mm rounded to sub rounded. | 5 - 7 |
| | | 0.6 | | | | Well graded fine SAND 25%, Silt, large cobble 100 mm sub rounded, black to dark brown. | |
| 8 | | 16.9 | | | Concrete | Concrete | |
| | | 0.1 | | | | Well graded medium to coarse SAND, 25% Gravel, 10% fine Sand, tan to light brown, loose, dry. | |
| 10 | | | | | | | |
| | | 0.1 | | | | Well graded medium to fine SAND, 15% Gravel, 10% coarse Sand, 10% fines, brown to dark brown, dense, dry. Brick fragments and metal pieces. | 10 - 12 |
| 12 | | | | | | | |
| | 60 | 0.9 | | | | Well graded fine to medium SAND, 20% coarse Sand 20% Gravel, tan to light brown, loose. | |
| 14 | | | | | FILL | | |
| | | 0.4 | | | | | |
| | | | | | | Well graded fine to medium SAND, 20% fines, 15% Gravel, 10% medium to coarse Sand. | |
| 16 | | | | | | | |
| | | 0.5 | | | | Well graded medium to coarse SAND, 25% gravel, angular to sub rounded | |
| 18 | 60 | | | | | | |
| | | 0.1 | | | | | |
| 20 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-123



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664528.7 **Easting:** 645007.0 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.4 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/15/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 53' |
| **Finish Date:** 9/16/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| | 60 | 0.1 | | | FILL | Well graded medium to coarse SAND, 25% Gravel, 10% fine Sand, tan to light brown, loose, dry. Well graded medium to coarse SAND 25% Gravel, 15% fine Sand, 10% fines, dark brown to dark gray. Bricks, angular to sub-rounded. | 20 - 22 |
| 22 | | 2.5 | | | | Poorly graded fine to medium SAND, 10% coarse Sand, 10% Gravel, light brown, loose dry. | |
| | | 0.2 | | | | Well graded medium to coarse SAND, 25% Gravel, 15% fine Sand, cobbles mostly 10-20 mm. | |
| 24 | | | | | | | |
| | | 0.1 | | | | | |
| 26 | | | | | | Well graded fine SAND, 10-15% medium to coarse Sand, 15% Gravel, trace fines, Gravel cobbles sub angular to rounded up to 25 mm brick fragments. | |
| | 60 | 1.7 | | | SW | Well graded medium to coarse SAND, 15% fine Sand, 10% Gravel, light brown to brown. | |
| 28 | | | | | | | |
| | | 0 | | | SP | Poorly graded medium to coarse SAND, 20% fine Sand. 5% Gravel, tan to light brown. | |
| 30 | | 0 | | | | | |
| | | | | | SW | Well graded medium to coarse SAND, 20% Gravel, 15% fine Sand, coarse Gravel up to 50 mm, dark brown to brown, loose, dry. | |
| 32 | | | | | | | |
| | 60 | NA | | | | Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, brown, loose, dry. | |
| 34 | | | | | | | 33 - 35 |
| | | | | | | Poorly graded medium SAND, 20% fine Sand, 5% coarse Sand, trace Gravel, brown, loose, dry. | |
| 36 | | | | | SP | | |
| | 60 | 0 | | | | | |
| 38 | | | | | | | |
| 40 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-123



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664528.7 **Easting:** 645007.0 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.4 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/15/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 53' |
| **Finish Date:** 9/16/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 60 | 0 | | | | Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, brown, loose, dry. Poorly graded medium SAND with 10% coarse Sand, 10% fine Sand, 5% Gravel. | |
| 44 | | | | | | | |
| 46 | | | | | | Poorly graded medium SAND, 20% fine Sand, 10% coarse Sand, brown, loose, dry. At 51' thing layer of dense fine SAND. At 54.5 dense fine SAND 30 mm thick. | |
| 48 | | | | | | | |
| 50 | 60 | 0.2 | | | SP | | |
| 52 | | | | | | | 51 - 53 |
| 54 | | | | | | | |
| 56 | | | | | | Poorly graded medium to coarse SAND, 20% fine Sand, trace Gravel, brown, loose, wet. | |
| 58 | 65 | 0 | | | | | |
| 60 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-123



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664528.7 **Easting:** 645007.0 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.4 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/15/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 53' |
| **Finish Date:** 9/16/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| | | 0 | | | | Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, brown, loose, dry. | |
| 62 | 65 | 0 | | | | Poorly graded fine to medium SAND, 5% coarse Sand, brown, loose, wet. | |
| | | 0.1 | | | | Poorly graded medium to coarse SAND, 15% fine Sand, brown, loose, wet, slight naphthalene-like odor. | 63 - 65 |
| 64 | | | | | | | |
| | | 3.8 | | | | Poorly graded medium SAND, 25% fine Sand, 10% coarse Sand, brown, loose, wet. At 69' 2" layer of fine SAND. At 72' fine SAND with 3" layer of medium to coarse SAND. | |
| 66 | | | | | | | |
| | | 1.9 | | | | | |
| 68 | | | | | | | |
| | | | | | | | |
| 70 | 84 | 0.2 | | | SP | | |
| | | | | | | | |
| 72 | | 0 | | | | | |
| | | | | | | | |
| 74 | | | | | | | |
| | | 0 | | | | | |
| 76 | | | | | | Poorly graded medium SAND, 25% fine Sand, 10% coarse Sand, brown, loose, wet. | |
| | | | | | | | |
| 78 | 48 | 0 | | | | | |
| | | | | | | | |
| 80 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-123



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664528.7 **Easting:** 645007.0 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.4 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/15/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 53' |
| **Finish Date:** 9/16/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 48 | 0 | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, brown, loose, dry. | |
| 84 | | | | | | | 83 - 85 |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-124



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664551.9 **Easting:** 645047.9 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/30/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/14/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Fill | |
| 2 | | 0 | | | | | 2 - 4 |
| 4 | | | | | | | |
| 6 | 60 | 282 | | | FILL | Well graded medium to coarse SAND, 25% Gravel, 15% fine Sand, trace fines, fill includes bricks, wood, metal, cobbles (10%), slight petroleum-like odor, slight staining. | 5 - 7 |
| 8 | | 140 | | | Concrete | Concrete | |
| 10 | | 3 | | | SW | Well graded medium to coarse SAND, 25% Gravel, 15% fine Sand, 5% fines, loose, dry, light brown to yellowish brown. | |
| 12 | 60 | 1 | | | SP | Poorly graded medium SAND, 10% Gravel, (up to 80 mm, sub-rounded), 15% fine Sand, 10% coarse Sand, shell fragments, angular, loose, dry, light to dark brown. | |
| 14 | | 6.8 | | | | | 13 - 15 |
| 16 | | 11.6 | | | SW | Well graded medium to coarse SAND, 25% Gravel, 15% fine Sand, trace fines, loose, dry, reddish brown to light brown. | |
| 18 | 40 | 0.5 | | | SP | Poorly graded fine to medium SAND, 5% coarse Sand, trace Gravel. | |
| | | 0.8 | | | SW | Well graded medium to coarse SAND, 20% Gravel, 15% fine Sand, brown, loose, dry, Gravel decreasing at 24 ft bgs. | |
| 20 | | 0.3 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-124



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664551.9 **Easting:** 645047.9 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/30/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/14/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 42 | 0 | | | | Well graded medium to coarse SAND, 20% Gravel, 15% fine Sand, brown, loose, dry, Gravel decreasing at 24 ft bgs. | |
| 24 | | | | | | | |
| 26 | 37 | 0.3 | | | SW | Well graded fine SAND, 15% medium to coarse Sand, 10% Gravel, 5% fines, dark brown to greyish brown, dense, dry. | |
| 28 | | 0 | | | | | |
| 30 | | | | | | | |
| 32 | 40 | | | | | Well graded medium SAND, 20% coarse Sand and Gravel, 15% sine Sand, brown to light brown, loose, dry. | |
| 34 | | 0 | | | | Well graded fine SAND, 15% medium to coarse Sand, 15% Gravel, 10% fines. | 33 - 35 |
| 36 | | | | | | | |
| 38 | 40 | 0.6<br>0 | | | | | |
| 40 | | | | | SP | Poorly graded medium SAND, 25% fine Sand, 10% coarse Sand, trace Gravel, yellowish brown to brown, loose, dry. | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

AECOM

**BORING #:** SB-124



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664551.9 **Easting:** 645047.9 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/30/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/14/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 30 | 0.6 | | | SP | Poorly graded medium SAND, 25% fine Sand, 10% coarse Sand, trace Gravel, yellowish brown to brown, loose, dry. | |
| | | | | | SW | Well graded fine SAND, 20% medium to coarse Sand, 20% Gravel, trace fines, dark brown, dense, dry. | |
| 44 | | 0 | | | | Well graded medium to coarse SAND, 30% Gravel, 10% fine Sand, brown, loose, dry. | |
| | | | | | SP | Poorly graded medium SAND, 30% fine Sand, trace coarse Sand and Gravel, light brown, loose, dry. | |
| 46 | | 0.1 | | | | | |
| | 48 | 0 | | | SW | Well graded fine SAND, 20% Gravel, 15% medium to coarse Sand, trace fines, dark brown, dense, dry, 80 mm cobbles, sub-rounded. | |
| 48 | | 0 | | | | | |
| | | | | | SP | Poorly graded medium SAND, 25% coarse Sand, 15% fine Sand, 10% gravel, brown to dark brown, loose to moderate dense, wet. At 57 ft bgs becomes coarse SAND, trace Gravel. | 47.5 - 49.5 |
| 50 | | | | | | | |
| 52 | | 0 | | | | | |
| | | | | | | | |
| 54 | | | | | | | |
| | 60 | N/A | | | | | |
| 56 | | | | | | | |
| | | 0 | | | | | |
| 58 | | | | | | | |
| | | 4.9 | | | | | |
| 60 | | | | | | Poorly graded fine SAND, 10% medium Sand, trace coarse Sand, brown, loose to moderate dense, wet, slight sheen at 59.5 to 60 ft bgs. | |

**Remarks:** Boring Terminated (ft): 85.0

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**Phone: (212) 377-8400**

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-124



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664551.9 **Easting:** 645047.9 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/30/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/14/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | | 4.9 | | | | Poorly graded medium SAND, 25% coarse Sand, 15% fine Sand, 10% gravel, brown to dark brown, loose to moderate dense, wet. At 57 ft bgs becomes coarse SAND, trace Gravel. | |
| 64 | | 85 | | | | | |
| 66 | 72 | 200 | | | | Poorly sorted medium SAND, 20% coarse Sand, 20% fine Sand, trace Gravel, brown, loose, wet. At 65 ft bgs slight sheen, moderate naphthalene-like odor. | |
| 68 | | 382 | | | | | |
| 70 | | 311 | | | SP | | 68 - 70 |
| 72 | | | | | | | |
| 74 | | 9 | | | | Poorly graded medium SAND, 20% coarse Sand, 20% fine Sand, trace Gravel, brown, loose, wet. | |
| 76 | 72 | 1.7 | | | | | |
| 78 | | | | | | | |
| 80 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-124



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664551.9 **Easting:** 645047.9 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 8/30/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/14/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 48 | 0<br>0 | | | SP | Poorly graded medium SAND, 25% coarse Sand, 15% fine Sand, 10% gravel, brown to dark brown, loose to moderate dense, wet. At 57 ft bgs becomes coarse SAND, trace Gravel. | |
| 84 | | | | | | | 83 - 85 |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-125/GW-112



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664537.9 **Easting:** 645086.4 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/8/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/9/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | SP | Dark gray fine to coarse SAND, some fine to coarse GRAVEL, little SILT, cobbles, brick, dry | |
| 2 | | 0 | | | | | |
| | | 0 | | | SM | Brown fine to coarse SAND, some SILT, trace fine to coarse GRAVEL, dry | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | | | |
| 6 | | 0 | | | | Red dense SILT, some fine to coarse GRAVEL, little fie to coarse SAND, numerous cobbles and brick fragments, moist | 6 - 8 |
| 8 | 60 | 0 | | | | | |
| 10 | | 0 | | | | | |
| 12 | | 2.4 | | | GM | | 10 - 12 |
| 14 | 56 | 2.2 | | | | | |
| 16 | | 2.1 | | | | | |
| 18 | 50 | 1.7 | | | | | |
| 20 | | 1.1 | | | | | |
| | | 0.4 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-125/GW-112


| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664537.9 **Easting:** 645086.4 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/8/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/9/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0.4 | | | GM | Red dense SILT, some fine to coarse GRAVEL, little fie to coarse SAND, numerous cobbles and brick fragments, moist | |
| 22 | 60 | 0.5 | | | | | |
| 24 | | 0.4 | | | Concrete | Concrete | |
| 26 | | 0 | | | SW | Dark grayish brown fine to medium SAND, little fine to coarse Gravel, few cobbles, dry. | |
| 28 | 36 | 0 | | | | | 28 - 30 |
| 30 | | 0 | | | | | |
| 32 | | 0 | | | | | |
| 34 | 36 | 0 | | | | | |
| 36 | | 0 | | | | | |
| 38 | 42 | 0 | | | | | |
| 40 | | 0.1 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

AECOM

**BORING #:** SB-125/GW-112



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664537.9 **Easting:** 645086.4 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/8/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/9/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 40 | 0 | | | | Dark grayish brown fine to medium SAND, little fine to coarse Gravel, few cobbles, dry. | |
| 44 | | 0 | | | | | |
| | | 0 | | | | | |
| 46 | | 0 | | | | Brown fine SAND, trace fine GRAVEL, moist at 50'. | |
| 48 | 60 | 0 | | | | | |
| 50 | | 0 | | | | | 48 - 50 |
| 52 | 27 | 0 | | | SW | Brown fine SAND, trace fine Gravel, wet. | |
| 54 | | 0 | | | | | |
| 56 | | 0 | | | | | |
| 58 | 27 | 0 | | | | | |
| 60 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-125/GW-112



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664537.9 **Easting:** 645086.4 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/8/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/9/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 36 | 0 | | | | Dark grayish brown fine to medium SAND, little fine to coarse Gravel, few cobbles, dry. Grayish brown fine to medium SAND, trace fine Gravel, wet, slight naphthalene-like odor | |
| 64 | | 39.2 | | | | | |
| 66 | 36 | 55.3 | | | | Gray fine SAND, little Silt, wet, lightly coated with NAPL, strong naphthalene-like odor. | 65-67 (GW) |
| 68 | | 290 | | | | | 68 - 70 |
| 70 | | 742 | | | SW | Grayish brown fine SAND, wet. | |
| 72 | 36 | | | | | | |
| 74 | | 15 | | | | | |
| 76 | 42 | 12 | | | | | |
| 78 | | 2 | | | | | |
| 80 | | 2 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-125/GW-112



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664537.9 **Easting:** 645086.4 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.3 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/8/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/9/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 50 | 2<br>0<br>0<br>0 | | | SW | Dark grayish brown fine to medium SAND, little fine to coarse Gravel, few cobbles, dry. | 83 - 85 |
| 84 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-126



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664545.5 **Easting:** 645166.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/1/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | 0 | | | FILL | Well graded medium to coarse SAND, 25% Gravel, 15% fine Sand, loose, dry to moist, reddish brown to dark brown. Fill with brick, cobbles up to 120 mm, sub angular to sub rounded. | 2 - 4 |
| 4 | | | | | | | |
| 6 | 48 | 22 | | | | Poorly graded fine to medium SAND, 20% coarse Sand, 5% Gravel, trace fines, loose to moderate, dense, moist mottled brown to very dark brown, very slight petroleum-like odor. | 5 - 7 |
| 8 | | 0.2 | | | Concrete | Concrete | |
| 10 | | 0.1 | | | SW | Well graded fine to medium SAND, 20% Gravel, 15% coarse Sand, loose, dry, light reddish brown to light brown. | |
| 12 | | 4.1 | | | | | |
| 14 | 48 | 0.2 | | | | | 13 - 15 |
| 16 | | 0.1 | | | | | |
| 18 | 60 | 2.6 | | | | | |
| 20 | | 0.5 | | | SP | Poorly graded fine to medium SAND, with 15% coarse Sand, 10% fine to coarse Gravel, loose, dry, light reddish brown to light brown. | |
| | | 0.1 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-126



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664545.5 **Easting:** 645166.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/1/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0.1 | | | SP | Poorly graded fine to medium SAND, with 15% coarse Sand, 10% fine to coarse Gravel, loose, dry, light reddish brown to light brown. Poorly graded fine SAND, 15% medium to coarse Sand, 10% Gravel up to 50 mm, light brown to brown, dry, loose. At 22.5' 2" band of fine SAND, very dense, with 5% Gravel. Mottled weak red(5%) orange-brown(20% brown (40%) reddish brown(35%). | |
| 22 | 60 | 0.9 | | | | | |
| 24 | | 0.1 | | | | Poorly graded fine to medium SAND, 10% coarse Sand, 5% Gravel up to 30 mm, sub angular to sub rounded, loose, dry, brown to reddish brown. | |
| 26 | 48 | 0.2 | | | SW | Well graded medium to coarse SAND, with 25% Gravel up to 80 mm, 10% fine Sand, loose, dry, brown to light brown, reddish brown. | |
| 28 | | 0.2 | | | SP | Poorly graded fine SAND, with 15% medium to coarse Sand, 15% Gravel up to 30 mm sub rounded to sub angular, very dense, dry, mottled brown(80%) light gray (5%) weak red (5%) yellowish brown (5%) light brown(5%). | |
| 30 | | 0.1 | | | | Poorly graded medium SAND with 15% fine Sand 10% coarse Sand, 10% Gravel up to 30 mm, sub rounded, loose brown. | |
| 32 | 54 | 0.2 | | | | Poorly graded fine Sand, trace medium to coarse Sand, 5% Gravel, very dense, dry mottled very dark brown(40%) dark brown(40%) dark gray(20%). | |
| 34 | | 0.6 | | | | Poorly graded fine to medium SAND, 10% coarse Sand, 5% Gravel, loose, dry, brown. | 33 - 35 |
| 36 | | 0.3 | | | | | |
| 38 | 55 | 0.1 | | | SW | Well graded fine to medium SAND, 10% coarse Sand, 10% Gravel up to 25 mm, sub angular to sub rounded, dense, dry, light brown to light reddish brown. | |
| 40 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-126



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664545.5 **Easting:** 645166.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/1/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | 0.1 | | | SP | Poorly graded medium SAND, with 10% fine Sand, 10% coarse Sand, 5% Gravel, trace fines, loose, dry, brown. | |
| 42 | 48 | 3.8 | | | | | |
| 44 | | 2.5 | | | SW | Well graded fine to medium SAND, with 5% coarse Sand, 5% Gravel, moderately dense, dry light reddish brown, gray and light brown. | |
| 46 | | 0.3 | | | SP | Poorly graded fine SAND, 5% medium Sand, trace coarse Sand and Gravel, trace fines, loose, dry, reddish brown. | |
| 48 | 52 | 0.9 | | | | Poorly graded fine to medium SAND, trace coarse Sand, loose, dry, brown to reddish brown. | 48 - 50 |
| 50 | | | | | | | |
| 52 | | | | | | Poorly graded medium SAND, with 15% fine Sand, 10% coarse Sand, trace Gravel, loose, wet, brown. | |
| 54 | | 0 | | | | | |
| 56 | 48 | | | | | Poorly graded fine SAND, 10% medium Sand, some bands of medium to coarse Sand, moderately dense, dark grayish brown, slight naphthalene-like odor. | |
| 58 | | 0.8 | | | | | |
| | | 1.1 | | | | | |
| 60 | | 3.1 | | | | | |
| | | 59.9 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

AECOM

**BORING #:** SB-126



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664545.5 **Easting:** 645166.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/1/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | | 59.9 | | | | Poorly graded fine SAND, 5% medium Sand, trace coarse Sand and Gravel, trace fines, loose, dry, reddish brown. | |
| 64 | | | | | | | |
| 66 | 84 | | | | | | |
| | | 14.9 | | | | | |
| 68 | | 6.5 | | | | | |
| | | 34.4 | | | | | 68 - 70 |
| 70 | | | | | | Poorly graded fine SAND, trace medium Sand, dense, mottled weak red, brown, reddish brown, gray, wet. | |
| 72 | | 37.2 | | | SP | | |
| 74 | | | | | | | |
| 76 | 60 | 2 | | | | Poorly graded medium SAND with 20% fine Sand, 5% coarse Sand, brown, loose , wet. | |
| | | 14.6 | | | | Poorly graded fine SAND, 5% medium Sand, moderately dense brown/brownish gray, mottled wet. | |
| 78 | | 53.7 | | | | Poorly graded fine to medium SAND, trace coarse Sand, loose wet brown, slight naphthalene-like odor. | |
| | | 28.5 | | | | Poorly graded fine SAND, trace medium Sand, dense mottled grayish brown and gray and dark gray. Slight naphthalene-like odor. | |
| 80 | | 5.7 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-126



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664545.5 **Easting:** 645166.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 10/1/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| | 58 | 5.7 | | | SP | Poorly graded fine SAND, 5% medium Sand, trace coarse Sand and Gravel, trace fines, loose, dry, reddish brown. | |
| | | 0.9 | | | | Poorly graded medium SAND, 20% fine Sand trace coarse Sand and fine Gravel, loose, wet, brown. | |
| 82 | | 1.6 | | | | | |
| | | 0.8 | | | | | |
| 84 | | 1.2 | | | | Poorly graded SAND mostly fine Sand, 10% medium Sand, moderately dense, brown to dark grayish brown. | 83 - 85 |
| | | 2.2 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-127



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664552.3 **Easting:** 645227.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.5 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/29/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | 0.1 | | | FILL | Well graded medium to coarse SAND, 25% fine to coarse Gravel, fill with bricks, wood, cobbles. | 2 - 4 |
| 4 | | | | | | | |
| 6 | 60 | 0.3 | | | | Well graded fine SAND, 20% medium to coarse Sand, 10% Gravel, dense dry, reddish brown(contains pieces of metal).<br>Well graded fine to medium SAND, 15% coarse Sand, 15% fine Gravel, very dense, mottled dark grayish brown(80%) dark brown(20%), trace silt, dry to slightly moist. | 5 - 7 |
| 8 | | 4.3 | | | Concrete | Concrete | |
| 10 | | 1<br>0 | | | SW | Well graded fine to medium SAND, 20% coarse SAND 20% GRAVEL. Becomes yellowish brown at 11.5'. Becomes reddish brown at 13.5 ft bgs. | |
| 12 | 60 | 0 | | | | | |
| 14 | | | | | | | 13 - 15 |
| 16 | | | | | SP | Poorly graded fine to medium SAND, 15% coarse Sand, 15% Gravel, dense, dry, mottled reddish brown(80%) brown(10%) gray(5%) grayish brown(5%). | |
| 18 | 60 | NA | | | SW | Well graded fine to medium SAND, 20% coarse Sand, 20% coarse Gravel up to 70 mm, loose, dry, brown. | |
| 20 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-127



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664552.3 **Easting:** 645227.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.5 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/29/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 60 | 0 | | | SW | Well graded fine to medium SAND, 20% coarse Sand, 20% coarse Gravel up to 70 mm, loose, dry, brown. | |
| 24 | | | | | | | |
| 26 | 60 | 0.2 | | | SP | Poorly graded fine to medium SAND, 20% medium to coarse Sand, 10% fine Gravel, dense, moist mottled reddish brown, brown, gray, trace fines. | |
| 28 | | 2.1 | | | SW | Well graded SAND and GRAVEL, loose, moist.<br>Very dense fine to medium SAND and GRAVEL, 20% coarse, 20% Gravel up to 30 mm, dry.<br>Well graded fine to medium SAND, 20% coarse Sand, 20% Gravel, loose, dry, tan to light brown. | |
| 30 | | 4.5<br>0<br>0 | | | | Well graded SAND and GRAVEL, mostly fine to medium SAND 20% coarse SAND 20% GRAVEL loose, dry, brown | |
| 32 | 60 | 0 | | | | Well graded fine to medium SAND, 10% coarse Sand, 15% Gravel, mostly fine, few coarse cobbles 110 mm across sub rounded, moist, brown to dark brown.<br>Well graded fine to medium SAND, 20% coarse Sand, 15% Gravel, loose, dry, light brown to brown. | |
| 34 | | | | | | Poorly graded medium SAND, 10% fine Sand, 10% coarse Sand, 5% fine Gravel, brown, loose, dry. | 33 - 35 |
| 36 | | | | | SP | | |
| 38 | 42 | 0 | | | | | |
| 40 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-127



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664552.3 **Easting:** 645227.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.5 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/29/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 84 | 0 | | | SP | Poorly graded medium SAND, 10% fine Sand, 10% coarse Sand, 5% fine Gravel, brown, loose, dry. | |
| 44 | | | | | GP | Poorly graded fine GRAVEL, little coarse Gravel up to 30 mm, 20% coarse SAND, loose, wet, brown to dark brown. | |
| 46 | | | | | SP | Poorly graded fine SAND, 5% medium to coarse Sand, trace Gravel, trace fine, dense, brown to dark brown, dry. | |
| 48 | | | | | | Poorly graded fine to medium SAND, trace coarse Sand, dry, very loose. | |
| 50 | | | | | | | 48 - 50 |
| 52 | 96 | 0 | | | | Medium SAND, 15% fine Sand, 10% coarse Sand, trace Gravel, loose, wet. | |
| 54 | | | | | | | |
| 56 | | | | | | Fine to medium SAND, 5% coarse Sand, trace Gravel, wet | |
| 58 | | 0.2 | | | | | |
| 60 | | 17.9 | | | | Grayish brown, moderately dense, medium SAND, slight naphthalene-like odor, slightly discolored | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-127



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664552.3 **Easting:** 645227.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.5 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/29/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | | 17.9 | | | | Poorly graded fine SAND, 5% medium to coarse Sand, trace Gravel, trace fine, dense, brown to dark brown, dry. | |
| 64 | | | | | | | |
| 66 | 48 | | | | | | |
| 68 | | 21.1 | | | | | 67 - 69 |
| | | 129.9 | | | | | |
| 70 | | 44.1 | | | | | |
| 72 | | 58.9 | | | SP | Poorly graded medium, SAND, 15% fine Sand, 5% coarse Sand, trace Gravel, loose, brown, wet | |
| 74 | | 10.7 | | | | | |
| 76 | 96 | 22.1 | | | | Poorly graded fine SAND, 15% medium Sand, trace coarse Sand, loose, wet, brown. | |
| | | 13.6 | | | | | |
| 78 | | 10.2 | | | | | |
| 80 | | 9.5 | | | | Poorly graded fine to medium SAND, 5% coarse Sand, loose, wet, brown. | |
| | | 8.9 | | | | | |
| | | 7.6 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-127



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664552.3 **Easting:** 645227.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 57.5 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/29/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 40 | 7.6 | | | SP | Poorly graded fine SAND, 5% medium to coarse Sand, trace Gravel, trace fine, dense, brown to dark brown, dry. | |
| | | 1.2 | | | | Poorly graded medium SAND, 10% fine Sand, trace coarse Sand, loose, wet, brown. | |
| 84 | | 1.6 | | | | Poorly graded fine SAND, trace medium Sand, dense, wet, mottled 85% brown, 15% very dark gray. | 83 - 85 |
| | | 3.7 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# AECOM Boring and Well Construction Log

**BORING #:** SB-128



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664558.0 **Easting:** 645285.7 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 56.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/19/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Well graded medium to coarse SAND, Gravel, fill with bricks, wood, and cobbles up to 120 mm, sub angular | |
| 2 | | 0.3 | | | | | |
| | | | | | | | 2 - 4 |
| 4 | | | | | | | |
| | | | | | | | |
| 6 | | | | | FILL | SILT and fine SAND, 20% Gravel, brown to reddish brown, moderately dense, dry, sub rounded cobbles up to 60 mm. | 5 - 7 |
| | | 0.1 | | | | | |
| 8 | 60 | | | | | Well graded coarse GRAVEL, 25% medium to coarse SAND, loose, dry, brown. | |
| | | 0.1 | | | GW | | |
| 10 | | 0.1 | | | | | |
| | | | | | | | |
| 12 | | | | | | Well graded fine SAND, 20% Gravel, 15% medium to coarse Sand, trace fines, loose to moderately dense, dry. Cobbles up to 70 mm at 12' and 14', angular to sub rounded, light reddish brown to brown. | |
| | 60 | 0 | | | | | |
| 14 | | | | | SW | | 13 - 15 |
| | | | | | | | |
| 16 | | | | | | Well graded fine SAND, with 20% Gravel, 15% medium to coarse Sand, trace fines, loose to moderately dense, dry. | |
| | | 1.1 | | | | | |
| 18 | 60 | | | | | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, brown to reddish brown. | |
| | | 0.1 | | | SP | | 18 - 20 |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-128



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664558.0 **Easting:** 645285.7 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 56.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/12/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/19/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 60 | 0 | | | SW | Well graded medium SAND, 20% fine to coarse Gravel, 20% fine Sand, 15% coarse Sand, sub angular to sub rounded, up to 70 mm. | |
| 24 | | | | | | | |
| 26 | 60 | 0 | | | | Well graded fine SAND, 20% medium to coarse Sand, 10% Gravel (up to 30 mm, angular to sub rounded), dark brown, dense, dry.<br>Well graded medium SAND, 15% coarse Sand, 10% Gravel, brown to dark brown, loose, dry. | |
| 28 | | 0 | | | | | |
| 30 | | 0 | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, trace fines, brown, loose, dry. | |
| 32 | 60 | 0 | | | SW | Well graded medium to coarse SAND, 25% Gravel (up to 60 mm) sub angular to sub rounded, 15% fine Sand, brown to light brown, loose, dry. | |
| 34 | | | | | SP | Poorly graded medium to coarse SAND, 10% fine Sand, trace Gravel, trace fines, brown, loose, dry. | 33 - 35 |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-129



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664660.9 **Easting:** 645047.2 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.2 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/3/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 15 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | FILL | Gray fine to coarse SAND, some Silt, some fine to coarse Gravel, cobbled, brick fragments, glass, dry. | |
| 2 | | 0 | | | | | |
| | | 0 | | | | | 2 - 4 |
| 4 | | 0 | | | | | |
| | | | | | | | |
| 6 | | 0 | | | | Black SILT, some fine to coarse Sand, some fine to coarse Gravel, cobbles, numerous wood fragments, very moist, strong petroleum-like odor | 5 - 7 |
| | 60 | | | | Concrete | Concrete | |
| 8 | | 264 | | | | Brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry | |
| 10 | | | | | | | |
| | | 0 | | | SP | | |
| 12 | | | | | | | |
| | 36 | | | | | | 12 - 14 |
| 14 | | 0 | | | | | |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 15.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-130



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664662.1 **Easting:** 645021.3 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/3/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 15 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | FILL | Gray fine to coarse SAND, some fine to coarse Gravel, some Silt, cobbles, numerous brick/concrete fragments, wood, dry. | |
| 2 | | 0 | | | | | |
| | | 0 | | | | | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | | | |
| 6 | 52 | 134 | | | | Black fine to coarse SAND, some fine to coarse Gavel, little Silt, brick, wood, wet, strong petroleum-like odor. | 5 - 7 |
| 8 | | 1.1 | | | Concrete | Concrete | |
| | | | | | GM | Gray SILT, some fine to coarse Gravel, dry. | |
| 10 | | 0.4 | | | SP | Brown fine to coarse SAND, some fine to coarse Gravel, little Silt cobbles, dry. | |
| 12 | | 0 | | | | | |
| | 60 | | | | | | 12 - 14 |
| 14 | | 0 | | | | | |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 15.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-131



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664690.8 **Easting:** 645029.3 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.1 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/3/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/3/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 15 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | | Dark gray/red dense SILT, some fine to coarse Gravel, cobbles, brick fragments, dry, metal. | |
| 2 | | 1.2 | | | FILL | | |
| | | 1.3 | | | | | 3 - 5 |
| 4 | | | | | | | |
| | | 3.8 | | | Concrete | Concrete | |
| 6 | | | | | | | |
| | | 1.6 | | | | Dark brown fine to coarse SAND , some fine to coarse Gravel, some Silt, cobbles, brick/concrete fragments, dry. | |
| 8 | | | | | | | |
| | | 1.6 | | | | | 8 - 10 |
| 10 | | | | | | | |
| | | 2.5 | | | FILL | | |
| 12 | | 0 | | | | | |
| | | | | | | | 12 - 14 |
| 14 | | 0 | | | | | |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 15.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-132



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664642.3 **Easting:** 644897.6 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.1 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/2/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/8/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 20 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | | Brown SILT, some fine to coarse Gravel, little fine to coarse Sand, cobbles, dry. | |
| 2 | | 0 | | | | | |
| | | 0 | | | | | 2 - 4 |
| 4 | | 0 | | | | | |
| | | 0 | | | | Brown fine to coarse SAND, some fine to coarse Gravel, little Silt, numerous cobbles, dry. | |
| 6 | | 0 | | | | | 6 - 8 |
| 8 | 60 | 0 | | | | | |
| | | 0 | | | | | |
| 10 | | 0 | | | FILL | | |
| | | 0 | | | | | |
| 12 | | 0 | | | | | 12 - 14 |
| 14 | 60 | 0 | | | | | |
| | | 0 | | | | | |
| 16 | | 0 | | | | | |
| 18 | 60 | 0 | | | | | |
| | | 0 | | | | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 20.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-132



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664642.3 **Easting:** 644897.6 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.1 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/2/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/8/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 20 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|

**Remarks:** Boring Terminated (ft): 20.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-133



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664642.1 **Easting:** 645037.3 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.6 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/4/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 15 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | | Dark gray fine to coarse SAND, some Silt, some fine to coarse Gravel, cobbles, numerous brick/concrete fragments, wood, dry. | |
| 2 | | 0 | | | | | |
| | | | | | | | 2 - 4 |
| 4 | | 0 | | | FILL | | |
| | | 0 | | | | | |
| | | | | | | Black fine to coarse SAND, some fine to coarse Gravel, cobbles, brick, concrete, wood, metal, wet. | 5 - 7 |
| 6 | | | | | | | |
| | 60 | 2.8 | | | | | |
| 8 | | | | | Concrete | Concrete | |
| | | | | | | Brown fine to coarse SAND, some fine to coarse Gravel, little Silt, cobbles, dry. | |
| 10 | | 0 | | | | | |
| | | | | | | | |
| 12 | | 0 | | | SW | | |
| | 60 | | | | | | 12 - 14 |
| 14 | | 0 | | | | | |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 15.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-134



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664671.1 **Easting:** 644963.3 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.7 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/4/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/4/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 15 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0 | | | FILL | Dark brown fine to coarse SAND, some fine to coarse Gravel, cobbles, brick fragments, dry. | |
| 2 | | 0 | | | | | |
| | | 0 | | | | | |
| 4 | | 0 | | | | | |
| | | 0 | | | | Black SILT, some fine to coarse Sand, some fine to coarse Gravel, cobbles, brick, wood, moist, strong-petroleum like odor. | 5 - 7 |
| 6 | 48 | 225 | | | Concrete | Concrete | |
| 8 | | | | | | Brown fine to coarse SAND, some fine to coarse Gravel, little Silt, cobbles, dry. | |
| 10 | | 1.2 | | | GM | | |
| 12 | | 0 | | | | | |
| | 60 | | | | | | 12 - 14 |
| 14 | | 0 | | | | | |
| | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 15.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-135



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.1 **Easting:** 645060.1 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/21/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/23/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | 0 | | | FILL | Well graded medium to coarse SAND, 30% Gravel (brick pieces, wood, some metal) fine to coarse Gravel (up to 80 mm angular to rounded, 15% fine Sand, trace fines brown to black, loose, dry. | |
| 4 | | | | | | | 3 - 5 |
| | | 14.5 | | | | | |
| 6 | 60 | 0.3 | | | FILL | Well graded medium to coarse SAND, 15% Gravel, 10% fine Sand, contains brick pieces up to 30 mm (angular) medium coarse Gravel, loose, dry. (7.5-9 ft bgs) Slight petroleum-like odor, slightly coated and stained. | |
| 8 | | 132 | | | | | 7 - 9 |
| | | 342 | | | Concrete | Concrete | |
| 10 | | 28.8 | | | | Well graded fine to medium Sand, 25% Gravel (up to 30 mm sub rounded), 15% coarse Sand, loose wet, brown to dark brown. | |
| 12 | 36 | 2.6 | | | | | 12 - 14 |
| 14 | | 4.2 | | | | | |
| 16 | | 1.7 | | | FILL | Well graded fine to medium Sand, 15% Gravel, 15% coarse Sand, 10% fines, moderately dense to loose, brown to orange brown. | |
| 18 | 36 | 1.2 | | | | Well graded fine to medium Sand, 15% Gravel, 15% coarse Sand, 10% fines, moderately dense to loose, brown to orange brown. Slight staining (black). | |
| 20 | | 0.3 | | | | | |
| | | 0.3 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-135



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.1 **Easting:** 645060.1 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/21/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/23/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | 0.3 | | | FILL | Well graded fine to medium Sand, 25% Gravel (up to 30 mm sub rounded), 15% coarse Sand, loose wet, brown to dark brown. Well graded medium to coarse Sand, 20% Gravel (up to 40 mm) sub angular to sub rounded, brown, loose, wet. | |
| | | 3.6 | | | | | |
| 22 | | 11.1 | | | | | |
| | 60 | 39 | | | | Wood debris, fine to medium SAND embedded, odor of decaying wood, slight naphthalene-like odor, staining, slight coating, and sheen. | 22.5 - 24.5 |
| 24 | | 1152 | | | | Poorly graded fine SAND with bands of different colors, orange-red banded with gray-white. | |
| | | 1009 | | | Concrete | Concrete | |
| 26 | | 590 | | | SW | Well graded medium to coarse SAND, 20% Gravel (up to 80 mm), 15% fine Sand, 5% fines dark grayish brown, slight sheen, slight naphthalene-like odor, slight staining. | |
| | | 214 | | | | | |
| 28 | 60 | 19.4 | | | SP | Poorly graded fine SAND, Silt, 15% fines, 5% coarse Sand and Gravel, dense, mottled brown, black, tan, dark gray, dry. | |
| | | 0.6 | | | SW | Well graded medium to coarse Sand, 25% Gravel, 20% Gravel, 20% fine Sand, grayish to tan, loose, dry, very angular to sub rounded. | |
| 30 | | | | | | | |
| | | | | | | Poorly graded medium SAND, 20% fine Sand, 5% coarse Sand, 5% Gravel, dense, mottled dark brown and reddish brown. | |
| 32 | | | | | | | |
| | | 0.8 | | | SP | | |
| 34 | | | | | | | |
| | 60 | | | | | | |
| 36 | | | | | | | |
| | | 10.2 | | | SW | Well graded medium to coarse SAND, 25% Gravel (up to 30 mm, sub angular to rounded) 15% fine SAND, loose, tan to light gray. | |
| 38 | | | | | | Poorly graded fine to medium SAND, 5% coarse Sand, trace Gravel, loose, dry, light brown. | |
| | | 1.4 | | | SP | | |
| | | 0 | | | | | |
| 40 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-135



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.1 **Easting:** 645060.1 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/21/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/23/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 72 | 0 | | | SP | Poorly graded fine to medium SAND, 5% coarse Sand, trace Gravel, loose, dry, light brown. Poorly graded medium to coarse SAND, 20% medium Sand, 5% coarse Sand, trace Gravel, loose wet, brown to dark brown. | |
| 44 | | 6.3 | | | | | |
| 46 | | 2.3 | | | | Poorly graded medium to coarse SAND, 20% fine Sand, 10% Gravel, wet, loose, brown. | |
| 48 | | 0.6 | | | SW | Well graded fine to medium SAND, 20% Gravel, 15% coarse Sand, dry, loose, tan to brown. | |
| 50 | | 0.4 | | | SP | Poorly graded fine to medium SAND, 5% coarse Sand, trace Gravel, loose, brown, moist. | 48 - 50 |
| 52 | 36 | 0 | | | | | |
| 54 | | | | | | | |
| 56 | | | | | | | |
| 58 | | | | | | Poorly graded fine SAND, 10% medium Sand, trace coarse Sand and Gravel, moderately dense, mostly (95%), brown, some gray Sand, wet. | |
| 60 | | 0.5 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-135



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.1 **Easting:** 645060.1 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/21/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/23/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 86 | 0.5 | | | SP | Poorly graded fine to medium SAND, 5% coarse Sand, trace Gravel, loose, brown, moist. | |
| 64 | | 0.9 | | | | Poorly graded medium SAND, 5% coarse Sand, 5% Sand, trace Gravel, loose, wet, brown, slight naphthalene-like odor. | |
| 66 | | 1.1 | | | | | |
| 68 | | 11.5 | | | | | |
| 70 | | 26 | | | | | 68 - 70 |
| 72 | | 88.1 | | | | | |
| 74 | 60 | 59.9 | | | | Poorly graded fine to medium SAND, 5% coarse Sand, loose, brown, wet, slight naphthalene-like odor. | |
| 76 | | 4.3 | | | | | |
| 78 | | 15.8 | | | | | |
| 80 | | 19.5 | | | | | |
| | | 31.2 | | | | | |
| | | 21.6 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-135



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664592.1 **Easting:** 645060.1 | **Logged By:** S. Wright |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.0 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/21/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/23/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 60 | 0.1 | | | SP | Poorly graded fine to medium SAND, 5% coarse Sand, trace Gravel, loose, brown, moist.<br>Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, loose, brown, wet. | |
| 84 | | | | | | | 83 - 85 |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

AECOM

**BORING #:** SB-136



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664560.8 **Easting:** 645007.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.7 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/16/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/21/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| 2 | | | | | FILL | Well graded medium to coarse SAND, 25% Gravel up to 50 mm, brick rubble, wood, urban fill, brown to dark brown, loose dry. | |
| 4 | | 1.4 | | | | | 2 - 4 |
| | | | | | | | |
| 6 | 60 | 2.4 | | | | Well graded silty fine SAND, 20% fines, 15% medium to coarse Sand, 15% Gravel, well rounded<br>Poorly graded fine SAND, 15% medium to coarse Sand, 15% Gravel, 10% fines, slight petroleum-like odor, slight staining, moist, black to dark brown. | 5 - 7 |
| | | 83.6 | | | Concrete | Concrete | |
| 8 | | 2 | | | FILL | Well graded medium to coarse SAND, 25% Gravel, tan, dry, loose. | |
| 10 | | 0.3 | | | | | |
| 12 | 44 | 0 | | | | | |
| 14 | | | | | | | 13 - 15 |
| 16 | 48 | | | | FILL | Well graded GRAVEL up to cobbles, sub angular to sub rounded, 10% brick pieces 20% medium to coarse Sand, wet, some dark brown to reddish brown. | |
| 18 | | 2.6 | | | SW | Well graded fine to medium SAND, 10% coarse Sand, trace Gravel and trace fines, dense moist, grayish brown.<br>Well graded medium to coarse SAND, 20% Gravel, 10% fine Sand, dry, loose, brown to light brown. | |
| | | 2.6 | | | | | |
| 20 | | 0 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-136



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664560.8 **Easting:** 645007.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.7 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/16/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/21/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 60 | 0 | | | SW | Well graded fine to medium SAND, 10% coarse Sand, trace Gravel and trace fines, dense moist, grayish brown. | |
| 24 | | | | | | | |
| 26 | | | | | | | |
| 28 | | | | | | | |
| 30 | | | | | | Well graded fine to medium SAND, 15% coarse Sand and Gravel, tan to light brown, loose, dry. | |
| 32 | 48 | 0 | | | SP | Poorly graded medium to coarse SAND, 20% fine Sand, trace fine Gravel. | |
| 34 | | | | | | Poorly graded fine SAND, medium dense, dry, tan to light brown. | 33 - 35 |
| 36 | | 1.9 | | | SW | Poorly graded medium SAND, 15% fine Sand, 15% coarse Sand, brown, dry, loose. Well graded fine to medium SAND, 15% Gravel, 15% coarse Sand, medium dense, dry, brown. | |
| 38 | 48 | 0 | | | SP | Poorly graded medium to coarse SAND, 15% Gravel, 15% fines, brown. At 38.5 poorly graded fine SAND, 10% medium to coarse Sand, trace Gravel. | |
| 40 | | 0 | | | | Poorly graded fine SAND, 10% medium Sand, thinly laminated. | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

AECOM

**BORING #:** SB-136



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664560.8 **Easting:** 645007.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.7 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/16/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/21/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 48 | 0 | | | SP | Poorly graded medium to coarse SAND, 15% Gravel, 15% fines, brown. At 38.5 poorly graded fine SAND, 10% medium to coarse Sand, trace Gravel.<br>Poorly graded fine to medium SAND, trace coarse Sand and Gravel, brown, loose, dry. | |
| 44 | | | | | SW | Well graded fine to medium SAND, 15% coarse Sand, 10% Gravel, medium dense, brown, dry. | |
| 46 | 54 | 0 | | | SP | Poorly graded fine SAND, trace medium Sand, dense light brown.<br>Poorly graded medium to coarse SAND, 10% Gravel, 10% fine Sand, brown loose dry.<br>Poorly graded fine to medium SAND, 10% coarse Sand, trace Gravel, brown loose dry. | |
| 48 | | | | | | Poorly graded medium to coarse SAND, with 10% fine Sand, trace Gravel. | 47.5 - 49.5 |
| 50 | | | | | | | |
| 52 | 56 | 0 | | | | Poorly graded fine SAND, thin 2 mm wavy banding, brown to reddish brown (some bands with 1.5 mm fine SAND nodules of red, light gray, orange), medium dense. | |
| 54 | | | | | SW | Well graded medium to coarse SAND, 20% Gravel, 5% fine Sand, fine to coarse Gravel sub angular sub rounded, brown.<br>Well graded fine SAND, 20% medium to coarse Sand, 15% Gravel ( angular to sub angular) dense wet, grayish brown. | |
| 56 | 96 | 0.1 | | | GW | Well graded fine GRAVEL, 30% medium to coarse Sand, 15% fine Sand, brown, loose, wet. | |
| 58 | | | | | | | |
| 60 | | 0.1 | | | SP | Poorly graded fine SAND, dense, dark grayish brown, trace medium coarse Sand, trace Gravel, trace fines. | |
| | | | | | SP | Poorly graded medium to coarse SAND, 25% fine Sand, trace Gravel, brown, loose, wet. | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-136



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664560.8 **Easting:** 645007.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.7 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/16/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/21/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| | | 0.1 | | | | Poorly graded medium to coarse SAND, 25% fine Sand, trace Gravel, brown, loose, wet. | |
| 62 | | 0.1 | | | | | |
| | 96 | | | | | | |
| | | 1.3 | | | | | |
| 64 | | | | | | Poorly graded medium to coarse SAND, 25% fine Sand, moderate naphthalene-like odor. | 63 - 65 |
| | | 215 | | | | Poorly graded medium to coarse SAND, 20% fine Sand, trace Gravel, moderate naphthalene-like odor. | |
| 66 | | | | | | | |
| | | | | | SP | | |
| 68 | | | | | | | |
| | | 47.5 | | | | | |
| 70 | | | | | | | |
| | 90 | 122 | | | | | |
| | | 85.8 | | | | | |
| 72 | | | | | | | |
| | | 81.9 | | | | | |
| | | 138.5 | | | | | |
| 74 | | | | | | | |
| | | 64.8 | | | SM | Poorly graded Silty fine SAND, 40% Silt, some Clay, thin banding (1-2 mm) of medium Sand, Silty SAND is reddish brown. | |
| | | | | | | Poorly graded medium to coarse SAND, 20% fine Sand, brown loose wet. | |
| 76 | | | | | | Poorly graded fine to medium SAND, 5% coarse Sand, trace Gravel, brown to reddish brown, loose, wet, slight naphthalene-like odor. | |
| | | 0.8 | | | | | |
| | 120 | | | | SP | | |
| 78 | | | | | | | |
| | | 9.1 | | | | | |
| 80 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-136



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664560.8 **Easting:** 645007.8 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.7 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/16/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 49.5 |
| **Finish Date:** 9/21/2020 | **Borehole Diameter:** 6/4 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| | 120 | 9.8 | | | SP | Poorly graded medium to coarse SAND, 20% fine Sand, brown loose wet. | |
| | | 7.7 | | | | Poorly graded medium to coarse SAND, 15% fine Sand, trace Gravel (up to 20 mm, angular to sub rounded), brown to reddish brown. | |
| 82 | | 16.9 | | | | | |
| | | 0.4 | | | | | |
| 84 | | 0.1 | | | | Poorly graded medium to coarse SAND, 20% fine Sand, trace Gravel (up to 10 mm sub rounded). | 83 - 85 |
| | | 0.2 | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

AECOM

**BORING #:** SB-137



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664604.6 **Easting:** 644929.1 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 59.1 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/16/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 9/24/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 20 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Silty fine to medium SAND, 20% coarse Sand, 25% Silt, 15% Gravel, dark brown loose dry broken brick, wood fragments. | |
| 2 | | 4.8 | | | | | |
| 4 | | | | | | | |
| | 60 | | | | | Well graded fine to medium SAND, 15% Gravel (brick pieces very angular) wood and metal(trace) dark brown, dense, dry. | 5 - 7 |
| 6 | | 6.2 | | | | | |
| | | 6.9 | | | | Wood fiber, black, slightly stained, faint wood decay odor, moist. | |
| 8 | | 121 | | | | | |
| | | 378 | | | Crushed Concrete | Concrete , grayish white, crushed. | |
| 10 | | 2.8 | | | FILL | Well graded fine to medium SAND, 20% coarse Sand, 15% Gravel, loose, drown to tan, metal rebar at 10 ft. | |
| | | 55.2 | | | | Well graded fine to medium SAND, 20% coarse Sand, 15% Gravel, loose, dry. | 10 - 12 |
| 12 | | | | | | | |
| | 60 | 0.3 | | | | | |
| 14 | | 0.2 | | | | | |
| | | 0 | | | SW | Well graded fine to medium SAND, 20% coarse Sand, 15% Gravel, loose, dry, light brown to brown, some coarse Gravel (15%), angular to sub rounded. | |
| 16 | | | | | | | |
| | | 0.5 | | | | | |
| 18 | 54 | | | | | | |
| | | 0 | | | | | 18 - 20 |
| 20 | | | | | | | |

**Remarks:** Boring Terminated (ft): 20.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-138



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664561.3 **Easting:** 644954.6 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/17/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/27/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | | | | FILL | Well graded medium to coarse SAND, 25% fine Sand, trace fines, dark brown, loose, dry. | |
| 2 | | | | | | | 1 - 3 |
| | | 23.8 | | | | | |
| 4 | | | | | | | |
| | | 0.7 | | | | | |
| | | | | | | Well graded fine to medium SAND, 20% coarse Sand, 15% Gravel, trace fines, loose, dry, dark brown to reddish brown. | |
| 6 | | 7.5 | | | | | 5 - 7 |
| | | | | | | Well graded fine to medium SAND, 20% coarse Sand, 15% Gravel, trace fines, loose, dry, dark brown to reddish brown. | |
| 8 | 60 | 12.5 | | | Concrete | Concrete | |
| | | 7.5 | | | | | |
| | | | | | SW | Well graded fine to medium SAND, 15% coarse Sand, 15% Gravel, trace to light brown, loose dry. | |
| 10 | | 0.2 | | | | | |
| | | | | | | | |
| 12 | | | | | | | |
| | 60 | 0.3 | | | | | |
| 14 | | | | | | | 13 - 15 |
| | | 0.2 | | | | | |
| | | | | | | Well graded fine to medium SAND, 15% coarse Sand, 15% fine to coarse Gravel (up to 50 mm, sub rounded) tan, loose, dry. | |
| 16 | | | | | | | |
| | | | | | | | |
| 18 | 48 | 0.1 | | | | | |
| | | | | | GW | Well graded fine to coarse GRAVE (up to 30 mm), 25% medium to coarse Sand, 10% fine Sand, loose, dry, tan, light brown. | |
| 20 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-138



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664561.3 **Easting:** 644954.6 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/17/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/27/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 60 | 0 | | | SP | Poorly graded fine SAND, 10% medium to coarse Sand, 5% fine Gravel, loose, dry, light brownish tan. | |
| 24 | | | | | | | |
| 26 | | | | | | Poorly graded fine SAND, trace medium to coarse Sand, and trace Gravel, trace fines, dense reddish brown(20%) brown, (20%) weak red(5%) dark brown(5%) dry. | |
| | | | | | SW | Poorly graded SAND.<br>Well graded medium to coarse SAND, 15% Gravel, 10% fine Sand, brown to reddish brown, loose, dry. | |
| 28 | | | | | SP | Poorly graded fine to medium SAND, trace fines reddish light brown, loose, dry. | |
| | | | | | SW | Well graded medium to coarse SAND, 15% Gravel, 15% fine Sand, Cobbles 110 mm at 29' sub rounded, loose, reddish brown, dry. | |
| 30 | | | | | SP | Banded fine SAND layers 2-4 mm thick, reddish brown, light gray, brown bands of fine SAND, some bands contain well rounded GRAVEL, dense, dry. | |
| | | | | | | Poorly graded medium to coarse SAND, 15% fine Sand, 10% Gravel, loose, brown to light brown. | |
| 32 | | | | | | | |
| 34 | | | | | | | 33 - 35 |
| 36 | 84 | 0 | | | SP | | |
| 38 | | | | | | | |
| 40 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# AECOM Boring and Well Construction Log

**BORING #:** SB-138



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664561.3 **Easting:** 644954.6 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/17/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/27/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 40 | | | | | | | |
| 42 | 36 | 0 | | | SP | Poorly graded medium to coarse SAND, 15% fine Sand, 10% Gravel, loose, brown to light brown. | |
| 44 | | | | | | | |
| 46 | | | | | | | |
| 48 | | | | | SW | Well graded coarse SAND, 20% fine Gravel.<br>Well graded fine SAND, 10% coarse Sand, 10% fine to coarse Gravel, weak red and brown, dense wet.<br>Well graded fine to medium SAND, 15% Gravel and 15% coarse Sand, brown wet. | |
| 50 | | | | | SP | Poorly graded fine SAND, 10% medium to coarse Sand, 5% Gravel, moderately dense, wet, brown.<br>Poorly graded fine SAND, trace medium Sand, brown, loose, dry.<br>Poorly graded medium SAND, 10% coarse Sand, 10% fine Sand, trace Gravel, loose, wet, brown. | 48 - 50 |
| 52 | 72 | 0 | | | | | |
| 54 | | | | | | | |
| 56 | | | | | | | |
| 58 | | | | | | | |
| 60 | | | | | | Poorly graded fine SAND, trace medium to coarse Sand and Gravel, trace fines, brown, moderately dense, wet. | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-138



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664561.3 **Easting:** 644954.6 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/17/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/27/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 62 | 0 | | | SP | Poorly graded fine SAND, 10% medium to coarse Sand, 5% Gravel, moderately dense, wet, brown.<br>Poorly graded medium SAND, 10% fine Sand, trace coarse Sand, loose, wet, brown. | |
| 64 | | | | | | | |
| 66 | | | | | | | |
| 68 | | | | | | Poorly graded fine SAND, 10% medium Sand trace coarse Sand, moderately dense, wet, brown. | |
| 70 | | | | | | Poorly graded medium SAND, 10% fine Sand, trace coarse Sand, loose, wet, brown. | 68 - 70 |
| 72 | 84 | 0 | | | | | |
| 74 | | | | | | | |
| 76 | | | | | | | |
| 78 | | | | | | | |
| 80 | | | | | | | |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-138



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664561.3 **Easting:** 644954.6 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.8 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 9/17/2020 | **Drilling Method:** Sonic | **Water Level (ft):** 50' |
| **Finish Date:** 9/27/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 85 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 80 | | | | | | | |
| 82 | 34 | 0 | | | SP | Poorly graded fine SAND, 10% medium to coarse Sand, 5% Gravel, moderately dense, wet, brown. | |
| | | | | | | Poorly graded fine SAND, 20% medium Sand, trace coarse Sand loose, wet, brown. | |
| 84 | | | | | | Poorly graded SAND, mostly medium Sand, 5% coarse Sand, 5% fine Sand, loose, wet, brown. | 83 - 85 |

**Remarks:** Boring Terminated (ft): 85.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

# Boring and Well Construction Log

**BORING #:** SB-139



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664608.6 **Easting:** 645070.6 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/18/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 10/18/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 0 | | | | | Asphalt | Asphalt | |
| | | 0.6 | | | FILL | Well graded fine to medium SAND, 15% coarse Sand, 25% Gravel. Fill with bricks, cobbles(up to 100 mm) sub angular to sub rounded. | |
| 2 | | 7.5 | | | | | 2 - 4 |
| 4 | | 6 | | | | | |
| | | 4.6 | | | | | |
| 6 | | 4.1 | | | | Well graded fine to medium SAND, 30% Gravel. Fill includes bricks, wood, cobbles up to 120 mm. Slight staining, slight coating on sediment. Wood at 6-6.5', slight petroleum-like odor, dry to 6', moist to 6.5' | 5 - 6.5 |
| 8 | 60 | 22.8 | | | Concrete | Concrete | |
| | | 20.5 | | | SW | Well graded fine to medium SAND, 15% Gravel, 15% coarse Sand, loose, dry, light reddish brown. | |
| 10 | | 2.6 | | | | | |
| 12 | 54 | 1.7 | | | | | 12 - 14 |
| 14 | | 1.8 | | | GW | Well graded coarse GRAVEL cobbles up to 150 mm, sub angular, 40% fine to medium Sand, 15% coarse Sand, loose, dry. | |
| | | 1 | | | SW | Well graded fine to medium SAND, 20% Gravel, 15% medium Sand, loose, dry, reddish brown to weak red. | |
| 16 | | | | | | | |
| 18 | 48 | 1.3 | | | | | |
| 20 | | | | | | | |

**Remarks:** Boring Terminated (ft): 35.0

NA - Not Applicable / bgs - below ground surface / NAPL - Non-aqueous phase liquid

Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

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*(Continued Next Page)*

# Boring and Well Construction Log

**BORING #:** SB-139



| | | |
|---|---|---|
| **Client:** National Grid | | **Location:** 324 Winthrop Street, Brooklyn, NY |
| **Project:** Flatbush Station A&B | **Northing:** 664608.6 **Easting:** 645070.6 | **Logged By:** J. Shannon |
| **Project #:** 60625627 | **Ground Elevation (NAVD 88):** 58.9 | **Drilling Company:** Island Pump and Tank / Glacier |
| **Start Date:** 10/18/2020 | **Drilling Method:** Sonic | **Water Level (ft):** NA |
| **Finish Date:** 10/18/2020 | **Borehole Diameter:** 6 | **Total Depth (ft):** 35 |

| Depth (ft bgs) | Recovery Length (inches) | PID (ppm) | Visible and Olfactory Impacts | Graphic | USCS Code | Soil and Rock Description Classification Scheme: USCS | Sample Collection Depths |
|---|---|---|---|---|---|---|---|
| 20 | | | | | | | |
| 22 | 84 | 1.3 | | | SW | Well graded fine to medium SAND, 20% Gravel, 15% medium Sand, loose, dry, reddish brown to weak red. | |
| 24 | | | | | | | 23 - 25 |
| 26 | | 0.7 | | | | | |
| 28 | | 1.2 | | | | | |
| 30 | | | | | SP | Poorly graded fine to medium SAND, 10% coarse Sand, 5% Gravel, loose, dry, light reddish brown to brown. | |
| 32 | 40 | 0.9 | | | | Poorly graded fine to medium SAND, 20% Gravel, 15% coarse Sand, loose, dry, reddish brown to brown. | |
| 34 | | 0.6 | | | | Poorly graded fine to medium SAND, trace coarse Sand and Gravel, loose, dry, reddish brown to brown. | 33 - 35 |

**Remarks:** Boring Terminated (ft): 35.0

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Northing and Easting coordinates referenced to New York State Plane NAD83 East.

GW = Groundwarer sample

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# Boring Log

**BORING #: SB-201**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664421.3 **Easting:** 645004.6 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.88 | **Water Level (ft bgs):** 50 |
| **Start Date:** 8/29/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 85.0 |
| **Finish Date:** 8/30/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | ASPHALT | 0.3 | ASPHALT |
| 2 | 60/60 | 1.7 | | SW | 2.0 | Well graded Gravely SAND, mostly medium to coarse sand with 15% gravel, 20% fine sand, 10% fines, loose, dry, dark greyish brown, becoming brown at 1.5 to 2.0 ft bgs. |
| 4 | | 39.5 | | SP | 5.0 | Poorly graded Silty SAND, mostly fine sand with 20% silt, moderately dense, dry, reddish brown, few large cobbles 200 mm, rounded to subrounded, becoming sand with silt, mostly fine SAND with 10% Silt. |
| 6 | | 65.5 | | | | |
| 8 | 27/60 | 108.1 | | SW | | Well graded Gravely SAND, mostly medium to coarse Sand with 20% gravel, 15% fine sand, trace dines, loose, reddish brown, dry. |
| 10 | | 44.9 | | | | |
| 12 | 36/60 | 0 | | | | |
| 14 | | | | | 15.0 | |
| 16 | 12/60 | 0 | | GW | | Well graded Sandy GRAVEL, mostly fine gravel up to 30 mm, subangular, with 25% medium to coarse sand, 10% fine sand, loose. |
| 18 | | | | | | |
| 20 | | | | | 20.0 | |
| 22 | 23/60 | 0 | | SW | | Dark grayish brown SILT, some fine to coarse Gravel, little fine to coarse Sand, few Cobbles, dry. |
| 24 | | | | | | |
| 26 | 24/60 | | | | | |
| 28 | | 0 | | | 28.0 | |
| 30 | | 0 | | SP | | Poorly graded SAND, mostly fine to medium sand with 5% coarse sand, 5% fine gravel, loose, reddish brown, dry.<br>At 32.75 to 33 ft bgs: Gravel with 10% coarse sand.<br>At 38 ft bgs: Silty SAND seam, medium dense, 1" thick. |

**Remarks:**

Boring Terminated (ft): 85.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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*(Continued Next Page)*

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# Boring Log

**BORING #: SB-201**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664421.3 **Easting:** 645004.6 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.88 | **Water Level (ft bgs):** 50 |
| **Start Date:** 8/29/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 85.0 |
| **Finish Date:** 8/30/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 30 | | | | | | |
| 32 | 42/60 | 0 | | SP | | Poorly graded SAND, mostly fine to medium sand with 5% coarse sand, 5% fine gravel, loose, reddish brown, dry.<br>At 32.75 to 33 ft bgs: Gravel with 10% coarse sand.<br>At 38 ft bgs: Silty SAND seam, medium dense, 1" thick. *(continued)* |
| 34 | | 0 | | | | |
| 36 | NR | 0 | | | | |
| 38 | | | | | | |
| 40 | | | | | | 40.0 |
| 42 | 18/60 | 0 | | SP | | Poorly graded SAND, mostly fine sand with trace |
| 44 | | | | | | |
| 46 | 18/60 | 0 | | | | |
| 48 | | | | | | |
| 50 | | | | | | |
| 52 | 20/60 | 0 | | | | |
| 54 | | | | | | |
| 56 | 24/60 | 0 | | | | |
| 58 | | | | | | |
| 60 | | | | | | 60.0 |

**Remarks:**

Boring Terminated (ft): 85.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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*(Continued Next Page)*

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# Boring Log

**BORING #: SB-201**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664421.3 **Easting:** 645004.6 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.88 | **Water Level (ft bgs):** 50 |
| **Start Date:** 8/29/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 85.0 |
| **Finish Date:** 8/30/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 60 | | | | | | |
| 62 | 40/60 | 0 | | SP | | Poorly graded SAND, mostly fine sand with trace medium to coarse sand, loose, wet, brown to reddish brown. |
| 64 | | | | | | |
| 66 | 48/60 | 0 | | | | |
| 68 | | | | | | |
| 70 | | | | | | |
| 72 | 36/60 | 0 | | | | |
| 74 | | | | | | 73.0 |
| | | | | SP | | Poorly graded SAND, mostly fine to medium sand with 15% coarse sand, trace fine gravel, loose, dark brown, wet. 74.0 |
| 76 | 38/60 | 0 | | SP | | Poorly graded SAND, mostly fine sand, with 20 medium sand, trace coarse sand, loose, brown. |
| 78 | | | | | | |
| 80 | | | | | | |
| 82 | 32/60 | 0 | | | | |
| 84 | | | | | | 85.0 |

End of boring at 85.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 85.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-202/SV-202**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664381.9 **Easting:** 645009.2 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 59.39 | **Water Level (ft bgs):** 49.5 |
| **Start Date:** 8/31/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 85.0 |
| **Finish Date:** 8/31/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | ASPHALT | | 0.5 ASPHALT | Grout (0-16 ft bgs) |
| 2 | 60/60 | 0 | | SW | | Well graded SAND/gravel, mostly fine to medium sand, with 15% gravel (up to 30 mm, subrounded to angular). Loose, dry, grayish brown to dark brown. At 2' becoming 25% gravel, very angular and rounded. | |
| 4 | | | | | | 4.0 | |
| | | | | SM | | Poorly graded silty SAND, mostly fine sand with 25% silt, strong brown, moderately dry. | |
| | | | | | | 5.0 | |
| 6 | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 20% gravel, 15% coarse sand, loose, dry, reddish brown to brown. | |
| 8 | 38/60 | 65.7 | | | | | |
| | | 59.6 | | | | | |
| 10 | | 30.3 | | | | 10.0 | |
| 12 | 40/60 | 60.1 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 20% gravel, 15% coarse sand, loose, dry, reddish brown to brown. At 14', red fine sand and gravel layer 2" thick, then becoming light yellowish brown | |
| 14 | | 30.5 | | | | | |
| | | 85.9 | | | | 15.0 | |
| 16 | 45/60 | 72.4 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 20% gravel, 15% coarse sand, loose, dry, reddish brown to brown. | Bentonite (16-18 ft bgs) |
| 18 | | | | | | 18.0 | |
| 20 | | 56.8 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 20% gravel, 15% coarse sand, loose, dry, brown, moist. | Sand pack (18-20 ft bgs) |
| | | 10.9 | | | | 20.0 | 6-inch screen (19.5-20 ft bgs) |
| 22 | 14/60 | 1 | | SW | | At 19' reddish brown SAND. Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines, loose, moist, dark reddish brown. Poor recovery - cobble caught in core barrel. | Bentonite (20-25 ft bgs) |
| 24 | | 8.1 | | | | 25.0 | |
| 26 | 36/60 | 19.6 | | GW | | Well graded GRAVEL with sand. Mostly gravel with 15% coarse sand | Grout (25-85 ft bgs) |
| 28 | | | | | | 28.5 | |
| 30 | | 29 | | SP | | Poorly graded SAND, mostly fine to medium sand with 10%coarse sand, trace gravel, loose, moist, dark reddish brown. | |
| | | | | | | 30.0 | |

**Remarks:**

Boring Terminated (ft): 85.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-202/SV-202**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664381.9 **Easting:** 645009.2 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 59.39 | **Water Level (ft bgs):** 49.5 |
| **Start Date:** 8/31/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 85.0 |
| **Finish Date:** 8/31/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 30 | | | | | | | |
| 32 | 24/60 | 4.4 | | SP | | Poorly graded SAND, mostly fine sand with 5% medium sand, trace coarse sand, loose, dry, yellowish brown. | |
| 34 | | 0.5 | | | | | |
| 36 | 40/60 | 2.9 | | | | | |
| 38 | | 1.7 | | | | | |
| 40 | | 7.9 | | | | | |
| 42 | 27/60 | 0.2 | | | | | |
| 44 | | 0.5 | | | | | |
| 46 | 34/60 | 2 | | | | 45.0 Poorly graded SAND, mostly fine sand with 5% medium sand, trace coarse sand, loose, dry, yellowish brown. Water table at 49.5'. | |
| 48 | | 10.6 | | | | | |
| 50 | | 16.2 | | SP | | | |
| 52 | 0/60 | | | | | | |
| 54 | | | | | | | |
| 56 | 30/60 | 0.5 | | SP | | 55.0 Poorly graded SAND, mostly fine to medium sand with 20% coarse sand, trace gravel, loose wet, brown. | |
| 58 | | | | | | 58.5 | |
| 60 | | | | SP | | Poorly graded SAND, mostly fine sand with trace medium sand, loose, wet, brown. | |

**Remarks:**

Boring Terminated (ft): 85.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-202/SV-202**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664381.9 **Easting:** 645009.2 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 59.39 | **Water Level (ft bgs):** 49.5 |
| **Start Date:** 8/31/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 85.0 |
| **Finish Date:** 8/31/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | Poorly graded SAND, mostly fine sand with trace medium sand, loose, wet, brown. *(continued)* | |
| 62 | 64/60 | 0 | | SP | | | |
| 64 | | | | | | | |
| 66 | 38/60 | 0 | | | | | |
| 68 | | | | | | | |
| 70 | 36/60 | 0 | | | | | |
| 72 | | | | | | | |
| 74 | | | | | | | |
| 76 | 35/60 | 0 | | | | | |
| 78 | | | | | | | |
| 80 | 45/60 | 0 | | | | | |
| 82 | | | | | | | |
| 84 | | | | | | | |
| | | | | | | 85.0 End of boring at 85.0 ft. bgs. | |

**Remarks:**

Boring Terminated (ft): 85.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-203**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664295.4 **Easting:** 645018.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.31 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/28/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/28/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | ASPHALT | 0.5 | ASPHALT |
| 2 | 60/60 | 0 | | SW | 3.0 | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel (less than 20 mm), 15% coarse sand, 5% fines, grayish brown, loose, dry. |
| 4 | | 0 | | SP | 5.0 | Poorly graded silty SAND, mostly fine sand with 25%silt, strong brown, moderately dense, dry. |
| 6 | 36/60 | 2.2 | | SW | | Well graded SAND , mostly fine to medium sand with 10% gravel, 10% coarse sand, trace fine, loose, dry, yellowish brown. |
| 8 | | 4.7 | | | 9.0 | |
| 10 | | 3.3 | | SW | 10.0 | Well graded SAND with gravel, mostly fine to medium sand with 20% gravel, 20% coarse sand, loose, dry, light yellowish brown to brown. |
| 12 | 36/60 | 9.7 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand with 20% fine sand, 20% gravel, trace fines, loose, dry reddish brown to yellowish brown. |
| 14 | | 1.9 | | | | |
| 16 | 24/60 | 2.8 | | SW | 15.0 | Well graded SAND with gravel, mostly medium to coarse sand with 20% fine sand, 20% gravel, trace fines, loose, dry reddish brown to yellowish brown.<br>At 19.5' becoming moist. |
| | | 0.5 | | | | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-203**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664295.4 **Easting:** 645018.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.31 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/28/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/28/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | | | | | |
| 18 | 24/60 | 1.1 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand with 20% fine sand, 20% gravel, trace fines, loose, dry reddish brown to yellowish brown.<br><br>At 19.5' becoming moist. *(continued)* |
| 20 | | 1.4 | | | | 20.0 |
| 22 | 36/60 | 0.5 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand with 20% fine sand, 20% gravel, trace fines, loose, dry reddish brown to yellowish brown. |
| 24 | | 1.5 | | | | |
| | | 0.2 | | | | 25.0 |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-204/SV-204**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664301.4 **Easting:** 645085.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.36 | **Water Level (ft bgs):** 50 |
| **Start Date:** 9/8/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 90.0 |
| **Finish Date:** 9/9/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | 0.5 | CONCRETE | Grout (0-16 ft bgs) |
| 2 | 60/60 | 0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines. Concrete, red bricks down to 2.5', flat concrete 2.5' to 3'. Dry, very dark brown. | |
| 4 | | | | | 5.0 | | |
| 6 | | | | GP | | Poorly graded GRAVEL, mostly fine gravel, very angular, with trace sand (likely wash out of sample), wet, loose, very dark gray. | |
| 8 | 24/60 | | | | 7.5 | | |
| 10 | | 5.4<br>43.9<br>25.2 | | SP | | Poorly graded SAND, mostly find sand with 5% medium sand, trace coarse sand and gravel, loose, moist, brown. Wood pieces in tip of drill bit (small amount, less than 4 oz). | |
| 12 | | | | | 12.5 | | |
| 14 | 34/60 | 60<br>67<br>22.8 | | SW | | Well graded SAND with gravel/ mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, dry reddish brown to light yellowish brown. | |
| 16 | | | | | 15.0 | Well graded SAND with gravel/ mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, reddish brown to light yellowish brown, moist from drill waters. | |
| 18 | 25/60 | | | SW | | | Bentonite (16-18 ft bgs) |
| 20 | | 4.7<br>0.5 | | | 20.0 | | Sand pack (18-20 ft bgs)<br>6-inch screen (19.5-20 ft bgs) |
| 22 | 25/60 | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 20% gravel, 20% coarse sand, loose, dry, brown, gravel up to 40 mm subangular to subrounded. | Bentonite (20-25 ft bgs) |
| 24 | | 9.7<br>41.4 | | | 25.0 | | |
| 26 | 16/60 | | | GP | | Poorly graded GRAVEL, mostly coarse gravel up to 70 mm, subregular to rounded, with 10% sand (mostly medium to coarse), wet (drill fluids), loose brown sand and brown to dark gray gravel. | Grout (25-85 ft bgs) |
| 28 | | | | | | | |
| 30 | | 3.2<br>15.1 | | | 30.0 | | |

**Remarks:**

Boring Terminated (ft): 90.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-204/SV-204**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664301.4 **Easting:** 645085.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.36 | **Water Level (ft bgs):** 50 |
| **Start Date:** 9/8/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 90.0 |
| **Finish Date:** 9/9/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 30 | | | | | | | |
| 32 | 28/60 | | | SP | | Poorly graded SAND, mostly fine sand, 5% medium to coarse sand, trace gravel, loose, moist, grayish brown. | |
| 34 | | 7.7 | | | | 34.0 | |
| | | 18.1 | | SW | | Well graded SAND with gravel, mostly fine sand with 15% gravel, loose, yellowish loam, dry (cored through cobble, broken up). | |
| 36 | | | | | | 35.0 Poorly graded SAND, mostly fine to medium sand, trace coarse sand and gravel, loose, moist, dark yellowish brown. | |
| 38 | 10/60 | 0 | | SP | | | |
| 40 | | | | | | 40.0 | |
| 42 | | | | | | Poorly graded SAND, mostly fine to medium sand, trace coarse sand and gravel, loose, dark yellowish brown, and moist to dry at bottom. | |
| 44 | 27/60 | 0 | | | | | |
| 46 | | | | SP | | | |
| 48 | 0/60 | | | | | | |
| 50 | | | | | | 50.0 | |
| 52 | | | | | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand, loose, wet, dark yellowish brown. | |
| 54 | 17/60 | 0 | | | | | |
| 56 | | | | SP | | | |
| 58 | 31/60 | 0 | | | | | |
| | | | | | | | |
| 60 | | 0<br>3 | | | | | |

**Remarks:**

Boring Terminated (ft): 90.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-204/SV-204**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664301.4 **Easting:** 645085.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.36 | **Water Level (ft bgs):** 50 |
| **Start Date:** 9/8/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 90.0 |
| **Finish Date:** 9/9/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 60 | | | | | | | |
| 62 | 38/60 | 0 | | SP | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand, loose, wet, dark yellowish brown. *(continued)* | |
| 64 | | | | | | | |
| 66 | | | | | | | |
| 68 | 28/60 | | | | | | |
| | | 0.4 | | | | | |
| 70 | | 1.2 | | | | 70.0 | |
| 72 | | | | | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand, loose, wet, dark yellowish brown, moderately dense | |
| | 30/60 | 8.2 | | SP | | | |
| 74 | | 14.6 | | | | | |
| | | 2.5 | | | | 75.0 | |
| 76 | | | | | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand, loose, wet, dark yellowish brown, moderately dense | |
| 78 | 34/60 | 1.9 | | SP | | | |
| | | 3.5 | | | | | |
| 80 | | 65.7 | | | | 80.0 | |
| 82 | | 10.3 | | | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand, loose to medium dense, wet<br><br>From 80' to 83.5': dark yellowish brown mottled with dark grayish brown, slight undefined odor<br><br>From 83.5' to 85': dark yellow and brown | |
| | 38/60 | 14.2 | | SP | | | |
| 84 | | 15 | | | | | |
| | | 24 | | | | 85.0 | |
| 86 | | | | | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand, loose to medium, dense, wet, dark yellowish brown. | |
| 88 | 35/60 | 2.4 | | SP | | | |
| | | 12.9 | | | | | |
| 90 | | 3.8 | | | | 90.0 | |

End of boring at 90.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 90.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-205/SV-205**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664315.7 **Easting:** 645148.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.15 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/24/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/24/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE | Grout (0-16 ft bgs) |
| 2 | 60/60 | 0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15 coarse sand, 5%fines, loose, dry, very dark grayish brown. Gravel cobbles up to 100 mm subrounded to subangular. | |
| 4 | | 57.6 | | | | 5.0 | |
| 6 | 40/60 | 0 | | SP | | Poorly graded SAND, mostly fine sand, with trace medium sand, trace fines, loose, moist, dark brown. | |
| 8 | | | | | | 8.0 | |
| 10 | | | | SW | | Well graded SAND with gravel, mostly medium to coarse sand with 15% gravel, 10% fine sand, 5% fines, loose, dry, dark yellowish brown, gravel up to 30 mm subrounded. | |
| 12 | 24/60 | 0 | | | | | |
| 14 | | | | | | | |
| 16 | 30/60 | 0 | | | | | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-205/SV-205**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664315.7 **Easting:** 645148.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.15 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/24/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/24/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| 18 | 30/60 | 0 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand with 15% gravel, 10% fine sand, 5% fines, loose, dry, dark yellowish brown, gravel up to 30 mm subrounded. *(continued)* | Bentonite (16-18 ft bgs); Sand pack (18-20 ft bgs); 6-inch screen (19.5-20 ft bgs); Bentonite (20-25 ft bgs) |
| 20 | | | | | | | |
| 22 | 36/60 | 0 | | | | | |
| | | | | | | 23.5 | |
| 24 | | | | SP | | Poorly graded SAND, mostly medium to coarse sand, with 15% fine sand, 5% gravel, moist, loose, dark yellowish brown. | |
| | | | | | | 25.0 | |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-206/SV-206**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664310.4 **Easting:** 645273.6 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.17 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/24/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/24/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE | Grout (0-16 ft bgs) |
| 2 | | | | SW | | Well graded SAND and GRAVEL, mostly medium to coarse sand, with 40% gravel (mostly less than 20 mm, angular to subrounded), trace fines. 2.0 | |
| 4 | 60/60 | 0 | | CONCRETE | | CONCRETE 5.0 | |
| 6 | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines. Gravel up to 60 mm subrounded. Loose, moist down to 8', then dry, dark yellowish brown. | |
| 8 | 38/60 | 0 | | | | | |
| 10 | | | | | | 10.0 | |
| 12 | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines. Gravel up to 60 mm subrounded. Loose, moist down to 8', then dry, dark yellowish brown. | |
| 14 | 25/60 | 0 | | | | 14.0 | |
| | | | | SP | | 14.5 Poorly graded SAND, mostly fine sand with trace medium to coarse sand, 5% coarse gravel (20 - 60 mm) subrounded. | |
| | | | | SW | | 15.0 Well graded SAND with gravel, mostly medium to coarse sand, with 15% sand, 15% fines and trace fines, coarse gravel up to 60 mm subrounded. | |
| 16 | 30/60 | 0 | | SP | | Poorly graded SAND mostly fine sand to medium sand, trace coarse dry and fine gravel, loose, dry, yellowish brown. | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-206/SV-206**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664310.4 **Easting:** 645273.6 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.17 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/24/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/24/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| 18 | 30/60 | 0 | | SP | | Poorly graded SAND mostly fine sand to medium sand, trace coarse dry and fine gravel, loose, dry, yellowish brown. *(continued)* | Bentonite (16-18 ft bgs) |
| 20 | | | | | | 20.0 | Sand pack (18-20 ft bgs); 6-inch screen (19.5-20 ft bgs) |
| 22 | 30/60 | 0 | | SP | | Poorly graded SAND mostly fine sand to medium sand, trace coarse dry and fine gravel, loose, dry, yellowish brown. | Bentonite (20-25 ft bgs) |
| 24 | | | | | | 25.0 | |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-207/SV-207**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664437.6 **Easting:** 645330.8 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 56.85 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/7/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/7/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | ASPHALT | | 0.5 ASPHALT | Grout (0-16 ft bgs) |
| 2 | 60/60 | 1.5 | | SP | | Poorly graded SAND with gravel, mostly fine to medium sand, with 20% gravel to 60 mm, (including bricks), 15% coarse sand, loose, wet. 2.0 | |
| 4 | | 14.7 | | SP | | Becoming yellowing brown. 4.0 | |
| 6 | | 5.2 | | GW | | Well graded GRAVEL with sand, mostly fine gravel, subrounded to subangular, with 20% sand (mostly medium to coarse sand), trace fines, loose, wet, very dark brown. 7.0 | |
| 8 | 37/60 | 41.6 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravels, 15% coarse sand, loose, dry, reddish brown. At 9' yellowish brown (broken cobble, angular.) | |
| 10 | | 102.2<br>4.7 | | SW | | 10.0 | |
| 12 | 40/60 | 6.4 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravels, 15% coarse sand, loose, dry, reddish brown. Becomes brown at 12.5'. | |
| 14 | | 31.9<br>13.7 | | SW | | 15.0 | |
| 16 | 17/60 | 36.2 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravels, 15% coarse sand, loose, dry, brown. At 19.5', 1 in cobble cored through. | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-207/SV-207**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664437.6 **Easting:** 645330.8 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 56.85 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/7/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/7/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| 18 | 17/60 | 36.2 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravels, 15% coarse sand, loose, dry, brown.<br><br>At 19.5', 1 in cobble cored through. *(continued)* | Bentonite (16-18 ft bgs)<br>Sand pack (18-20 ft bgs)<br>6-inch screen (19.5-20 ft bgs) |
| 20 | | | | | | 20.0 | |
| 22 | 24/60 | 9 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravels, 15% coarse sand, loose, dry, brown. | Bentonite (20-25 ft bgs) |
| 24 | | | | | | 25.0 | |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-208**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664342.0 **Easting:** 645308.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.12 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/2/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 30.0 |
| **Finish Date:** 9/2/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE |
| | | 0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 25% gravel, 15% coarse sand, dark grayish brown, loose, dry. |
| 2 | | | | | | At 1.5' becoming 15% gravel, yellowish brown. |
| | 60/60 | 0.5 | | | | |
| 4 | | | | | | 4.5 |
| | | 0 | | SM | | Poorly graded silty SAND, mostly fine to medium sand, with 20% fines, 10% medium to coarse sand, 10% gravel, most, loose to moderately dense, dark grayish brown. |
| 6 | | | | | | 7.0 |
| | 36/60 | 5.4 | | SM | | Well graded silty SAND, mostly fine to medium sand, with 20% fines, 10% medium to coarse sand, 10% gravel, moist, loose to moderately dense, dark grayish brown. |
| 8 | | | | | | 8.5 |
| | | 45 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15% coarse sand, loose, dry, brownish yellow, becoming reddish at 9.5'. |
| | | 53.7 | | | | |
| 10 | | | | | | |
| | | | | | | |
| 12 | | | | | | 12.0 |
| | 32/60 | 42.2 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15% coarse sand, loose, dry, light brownish gray becoming yellowish red. |
| | | | | | | At 13.75' to 14', mostly fine to medium SAND, 5% gravel. |
| | | 13.1 | | | | |
| 14 | | | | | | 14.0 |
| | | 26.8 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15% coarse sand, loose, dry, yellowish red becoming light yellowish brown. |
| | 24/60 | | | | | |
| 16 | | | | | | |

**Remarks:**

Boring Terminated (ft): 30.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-208**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664342.0 **Easting:** 645308.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.12 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/2/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 30.0 |
| **Finish Date:** 9/2/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | | | | | |
| 18 | 24/60 | 26.8 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15% coarse sand, loose, dry, yellowish red becoming light yellowish brown. *(continued)* |
| 20 | | 13.2 | | | | 20.0 |
| 22 | 24/60 | 0.9 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15% coarse sand, loose, dry, dark yellowish brown.<br><br>At 24' very pale brown, large cobble subangular to subrounded.<br><br>At 24.5' becoming grayish brown. |
| 24 | | 2.2 | | | | 25.0 |
| 26 | 17/60 | 1.7 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15% coarse sand, loose, dry, yellowish brown.<br><br>Cobble in core barrel - poor recovery. |
| 28 | | | | | | |
| 30 | | | | | | 30.0 |

End of boring at 30.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 30.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-209/SV-209**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664311.9 **Easting:** 645310.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.08 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/25/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/25/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE | Grout (0-16 ft bgs) |
| 2 | 60/60 | 0 | | SW | | Well graded SAND and GRAVEL, mostly medium to coarse sand (40%), and fine to coarse gravel (40%), 15% fine sand, 5% fines. Loose, wet, very dark grayish brown, wet due to ponded water over boring location. | |
| 4 | | | | | | 5.0 | |
| 6 | 54/60 | 93.6 | | SM | | Poorly graded silty SAND, mostly fine sand with 20% fines (silt), fine gravel (asphalt), moderately dense, very dark gray, moist, slight staining. 7.0 | |
| 8 | | 80.6 | | SP | | Poorly graded SAND, mostly fine to medium sand, with trace gravel, coarse sand and fines. Loose, dry, reddish brown. 8.5 | |
| 10 | | 101.7 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravel, 15% coarse sand, gravel up to 60 mm subrounded, loose, dry, light yellowish brown. 10.0 | |
| 12 | 36/60 | 71.2 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravel, 15% coarse sand, gravel up to 60 mm subrounded, loose, dry, dark yellowish brown. | |
| 14 | | | | | | 15.0 | |
| 16 | 30/60 | | | SP | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand and fines, loose, moist (from drilling fluids), very dark gray. | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-209/SV-209**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664311.9 **Easting:** 645310.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.08 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/25/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/25/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| | | 72.7 | | SP | | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand and fines, loose, moist (from drilling fluids), very dark gray. *(continued)* | Bentonite (16-18 ft bgs) |
| 18 | 30/60 | | | | | 18.0 | |
| | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 65% gravel (up to 40 mm subrounded) 10% coarse sand, loose, dry, yellowish brown. | Sand pack (18-20 ft bgs) |
| | | 37.6 | | | | | 6-inch screen (19.5-20 ft bgs) |
| 20 | | | | | | 20.0 | |
| | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 65% gravel (up to 40 mm subrounded) 10% coarse sand, loose, dry, yellowish brown.<br><br>At 23.5' becoming light yellowish brown. | Bentonite (20-25 ft bgs) |
| | | 18.8 | | | | | |
| 22 | 40/60 | | | | | | |
| | | | | | | | |
| 24 | | 13.3 | | | | | |
| | | | | | | 25.0 | |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-210/SV-210**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664229.1 **Easting:** 645028.6 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.43 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/28/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/28/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE | Grout (0-16 ft bgs) |
| 2 | 60/60 | 0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, 10% fines, loose, dry grayish brown to very dark grayish brown. | |
| 4 | | | | SM | | 3.0 Poorly graded silty SAND, mostly fine sand, with 20% fines, moderately dense, dry, strong brown. | |
| 6 | 29/30 | 33.7 | | SW | | 5.0 Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines, loose, dry, yellowish brown. | |
| 8 | | 40.1 | | | | | |
| 10 | | 124.2 | | | | 10.0 Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines, loose, dry, yellowish brown.<br><br>At 13.5' to 13.75', reddish brown.<br>At 13.75' to 15', yellowish brown. | |
| 12 | 42/60 | 31.7 | | SW | | | |
| 14 | | 4.9 | | | | | |
| 16 | | 2.6 | | | | 15.0 Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines, loose, dry, reddish brown to yellowish brown. | |
| | 36/60 | 13.6 | | SW | | | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-210/SV-210**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664229.1 **Easting:** 645028.6 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.43 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/28/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/28/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| | | 0.5 | | | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines, loose, dry, reddish brown to yellowish brown. *(continued)* | Bentonite (16-18 ft bgs) |
| | | 4.5 | | | | | |
| 18 | 36/60 | | | SW | | | Sand pack (18-20 ft bgs) |
| | | 2.7 | | | | | |
| | | 6.3 | | | | | 6-inch screen (19.5-20 ft bgs) |
| 20 | | | | | | 20.0 | |
| | | | | | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, trace fines, loose, dry, yellowish brown. | Bentonite (20-25 ft bgs) |
| | | 8.7 | | | | At 24', becoming medium to coarse SAND with gravel. | |
| 22 | | | | | | | |
| | 38/60 | 0.1 | | SW | | | |
| | | 2.1 | | | | | |
| 24 | | | | | | | |
| | | 2 | | | | | |
| | | | | | | 25.0 | |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-211**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664249.2 **Easting:** 645084.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.35 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/11/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/11/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | ASPHALT | 0.5 | ASPHALT |
| 2 | 60/60 | 0 | | SW | 3.0 | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel (less than 30 mm, very angular to subrounded), 15% coarse sand, 5% fines, loose, dry, very dark grayish brown. |
| 4 | | | | CONCRETE | 4.5 | Concrete blocks from 3 to 4.5', broken up, large pieces up to 6" across, very angular and blocky. |
| | | | | SP | 5.0 | Poorly graded SAND, mostly fine to medium sand, with trace coarse sand and gravel, very dark brown, loose, dry. |
| 6 | 41/60 | 10.3 | | GP | 8.0 | Poorly graded GRAVEL with sand, mostly fine gravel (10 mm) angular, with 20% medium and coarse sand, 10% fine sand, loose, dry, dark grayish brown. |
| 8 | | 12.2 | | SW | 9.0 | Well graded SAND, with gravel, mostly fine to medium sand, with 25% gravel, 20% coarse sand, loose, dry, dark grayish brown. |
| 10 | | 21 | | SM | 13.0 | Poorly graded silty SAND, mostly fine sand, with 15% silt, 5% gravel, dense, dry, reddish brown to yellowish brown. |
| 12 | 19/60 | | | | | |
| 14 | | 12.7 | | SP | 15.0 | Poorly graded SAND, mostly fine sand with trace medium to coarse sand, loose, dry, light brownish gray to 14.5', yellowish-red to 15'. |
| | | 38.3 | | | | |
| 16 | 24/60 | | | SP | | Light brownish gray down to 18.5'. |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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*(Continued Next Page)*

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# Boring Log

**BORING #: SB-211**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664249.2 **Easting:** 645084.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.35 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/11/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/11/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | | | | | |
| 18 | 24/60 | 7.1 | | SP | | Light brownish gray down to 18.5'. *(continued)* |
| | | 114.8 | | | | |
| | | | | | | 18.5 |
| | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 15% coarse sand, loose, dry, yellowish - red. |
| 20 | | 21.3 | | | | 19.5 |
| | | | | SP | | Poorly graded SAND, mostly fine sand, with trace medium sand, coarse sand, loose, dry, reddish yellow. |
| 22 | 34/60 | 10.1 | | SP | | 20.0 |
| | | | | | | Poorly graded SAND, mostly fine sand, with trace medium sand, coarse sand, loose, dry, light grayish brown. |
| | | | | | | 23.0 |
| 24 | | 19.96 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravel, 15% coarse sand, loose, dry, strong brown, becoming light yellowish brown at 24.5', cobbles up to 80 mm, subangular. |
| | | 21.6 | | | | 25.0 |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

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# Boring Log

**BORING #: SB-212/SV-212**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664262.1 **Easting:** 645163.0 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.06 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/2/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 30.0 |
| **Finish Date:** 9/2/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE | Grout (0-16 ft bgs) |
| 2 | 60/60 | 0 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand with 15% gravel, 15% fine sand, trace fines. Loose, dry, dark grayish brown. Gravel up to 30 mm, angular to subrounded. | |
| 4 | | | | | | 5.0 | |
| 6 | | | | GP | | Poorly graded GRAVEL with sand, mostly fine gravel (80% fine gravel, 20% coarse up to 40 mm rounded to subrounded), 20% medium to coarse sand, 5% fine sand, wet, loose, very dark grayish brown to black. | |
| 8 | | 13 | | | | | |
| | | | | | | 9.5 | |
| 10 | | 692 | | GP | | 10.0 Wood debris. Odor of rotting wood and trace creosote-like odor, no staining. | |
| 12 | 37/60 | 607.5 | | GP | | Poorly graded GRAVEL with sand and wood debris, mostly fine gravel, with 25% sand (medium to coarse), 25% wood debris at bottom (12.5'), loose, wet, very dark grayish brown to black. | |
| | | | | | | 12.5 | |
| 14 | | 4.2 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand, with 25% gravel, 20% fine sand, trace fines, loose, wet to moist, dark yellowish brown. | |
| | | 0.7 | | | | | |
| | | 0.3 | | | | 15.0 | |
| 16 | 36/60 | | | SW | | Well graded SAND with gravel, mostly medium to coarse sand, with 25% gravel, 20% fine sand, trace fines, loose, wet to moist, dark yellowish brown. Trace wood fibers down to 19', moist down to 19'. At 19' becoming dry. | |

**Remarks:**

Boring Terminated (ft): 30.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-212/SV-212**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664262.1 **Easting:** 645163.0 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.06 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/2/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 30.0 |
| **Finish Date:** 9/2/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| 18 | 36/60 | 21.2<br>18.5<br>25.8<br>4.4 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand, with 25% gravel, 20% fine sand, trace fines, loose, wet to moist, dark yellowish brown. Trace wood fibers down to 19', moist down to 19'. At 19' becoming dry. *(continued)* | Bentonite (16-18 ft bgs)<br>Sand pack (18-20 ft bgs)<br>6-inch screen (19.5-20 ft bgs) |
| 20 | | | | | | 20.0 | |
| 22 | 18/60 | 13.8 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand, with 25% gravel, 20% fine sand, trace fines, loose, wet to moist, dark yellowish brown. Trace wood fragments. | Bentonite (20-30 ft bgs) |
| 24 | | | | | | 25.0 | |
| 26 | 18/60 | 12.6 | | SW | | Well graded SAND with gravel, mostly medium to coarse sand, with 20% gravel, 15% fine sand, trace fines. Gravel up to 25 mm subrounded. | |
| 28 | | | | | | | |
| 30 | | | | | | 30.0 | |

End of boring at 30.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 30.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-213**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664252.2 **Easting:** 645210.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.15 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/25/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/25/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE |
| 2 | 60/60 | 0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel (up to 2" brick pieces), 15% coarse sand, 5% fines. Loose, dry reddish brown to yellowish brown. |
| 4 | | | | | | 5.0 |
| 6 | 36/60 | 3.4 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel (up to 2" brick pieces), 15% coarse sand, 5% fines. Loose, dry reddish brown to yellowish brown. |
| 8 | | | | | | |
| 10 | | 5.4<br>12.5 | | | | 10.0 |
| 12 | 27/60 | 0.6 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel (up to 2" brick pieces), 15% coarse sand, 5% fines. Loose, dry reddish brown to yellowish brown. |
| 14 | | 0.9 | | | | 15.0 |
| 16 | 18/60 | 1.8 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel (up to 2" brick pieces), 15% coarse sand, 5% fines. Loose, dry reddish brown to yellowish brown. Few cobbles up to 125 mm subangular to subrounded. |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-213**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664252.2 **Easting:** 645210.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.15 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/25/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/25/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | | | | | |
| 18 | 18/60 | 1.8 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel (up to 2" brick pieces), 15% coarse sand, 5% fines. Loose, dry reddish brown to yellowish brown. Few cobbles up to 125 mm subangular to subrounded. *(continued)* |
| 20 | | | | | | 20.0 |
| 22 | 40/60 | 1.7 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel (up to 2" brick pieces), 15% coarse sand, 5% fines. Loose, dry reddish brown to yellowish brown. Few cobbles up to 125 mm subangular to subrounded. |
| | | | | | | |
| 24 | | 0 | | | | |
| | | | | | | |
| | | 0.9 | | | | |
| | | | | | | 25.0 |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-214**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664263.0 **Easting:** 645285.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.17 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/26/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/26/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE |
| 2 | 60/60 | 0 | | SW | | Well graded SAND, with gravel, mostly medium to coarse sand, with 15% gravel, 10% fine sand, trace fines. Loose, dry, dark grayish brown. |
| 4 | | | | SP | | 4.0 Poorly graded SAND, mostly fine to medium sand, with 10% fines, trace coarse sand and fine gravel, loose to medium, dense, dry, yellowish brown. 5.0 |
| 6 | 48/60 | 77.1 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 10% coarse sand. Gravel up to 40 mm subrounded to subangular. Loose, dry, dark yellowish brown becoming light yellowish brown. |
| 8 | | | | | | |
| 10 | | 44.1 | | | | |
| 12 | 36/60 | | | | | |
| 14 | | 11 | | | | |
| | | | | | | |
| | | 37.5 | | | | |
| 16 | 34/60 | | | | | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-214**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664263.0 **Easting:** 645285.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.17 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/26/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/26/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | | | | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 10% coarse sand. Gravel up to 40 mm subrounded to subangular. Loose, dry, dark yellowish brown becoming light yellowish brown. *(continued)* |
| | | 0.8 | | | | |
| 18 | 34/60 | 0.5 | | | | |
| | | 1.7 | | | | |
| 20 | | | | SW | | |
| 22 | 30/60 | 1.4 | | | | |
| 24 | | | | | | 25.0 |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-215/SV-215**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664262.0 **Easting:** 645337.0 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.09 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/26/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/26/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE | Grout (0-16 ft bgs) |
| 2 | 60/60 | 0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel (up to 80 mm, subrounded), 15% coarse sand, 5% fines, loose, dry, dark grayish brown to dark brown. | |
| 4 | | | | | | 5.0 | |
| 6 | 60/60 | 0<br>0<br>0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 10% coarse sand, loose, dry, dark yellowish brown.<br><br>At 7.5' becoming pale brown<br>At 8.5' becoming dark grayish brown<br>At 9.5 becoming reddish brown<br>At 10' becoming pale brown | |
| 8 | | 0<br>0 | | | | | |
| 10 | | 0 | | | | | |
| 12 | 44/60 | 35.6 | | SW | | 12.0 Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 10% coarse sand, loose, dry, dark yellowish brown. | |
| 14 | | 71.7 | | | | 14.0 | |
| | | 32.7 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 10% coarse sand, loose, dry, light yellowish brown. | |
| 16 | 36/60 | | | SW | | 15.0 Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 10% coarse sand, loose, dry, light yellowish brown to reddish brown. | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-215/SV-215**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664262.0 **Easting:** 645337.0 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.09 | **Water Level (ft bgs):** N/A |
| **Start Date:** 8/26/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 8/26/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| 18 | 36/60 | 8.5<br>2.9<br>12.3 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 10% coarse sand, loose, dry, light yellowish brown to reddish brown. *(continued)* | Bentonite (16-18 ft bgs)<br>Sand pack (18-20 ft bgs)<br>6-inch screen (19.5-20 ft bgs) |
| 20 | | | | | | 20.0 | |
| 22 | 37/60 | 11.3<br>25<br>5 | | SW | | Well graded SAND, mostly fine to medium sand with 15% coarse sand, 10% gravel. Loose, dry, yellowish to reddish brown. | Bentonite (20-25 ft bgs) |
| 24 | | 0.7 | | | | 25.0 | |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-216/SV-216**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664390.2 **Easting:** 645307.3 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.04 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/7/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/27/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE | Grout (0-16 ft bgs) |
| | | | | SW | | 1.0 Well graded SAND with gravel, mostly medium to coarse sand, 25% gravel (up to 30 mm), 15% fine sand, trace fines, loose, moist, brown. | |
| 2 | 60/60 | 0 | | SP | | Poorly graded SAND, mostly medium to coarse sand with 10% gravel (large pieces up to 4 - 6 inches), 20% fine sand. Gravel pieces appear to be broken foundation. Loose, moist, very dark grayish brown. | |
| 4 | | | | | | 5.0 | |
| 6 | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravel (up to 30 mm, subrounded), 15% coarse sand, loose, dry, reddish brown to light yellowish brown. | |
| 8 | 26/60 | | | | | | |
| | | 52.4 | | | | | |
| | | | | | | | |
| | | 22.1 | | | | | |
| 10 | | | | | | 10.0 | |
| | | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel (up to 60 mm subangular to subrounded), 15% coarse sands, trace fines, loose, dry, very dark grayish brown. | |
| 12 | | | | | | | |
| | 31/60 | 32.4 | | | | | |
| | | | | | | 13.0 | |
| | | 43.6 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, dry, reddish brown to yellowish brown. | |
| 14 | | | | | | | |
| | | 13.1 | | | | | |
| | | | | | | 15.0 | |
| 16 | 48/60 | | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, dry, reddish brown to yellowish brown. | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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**Phone: (212) 377-8400**

*(Continued Next Page)*

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# Boring Log

**BORING #: SB-216/SV-216**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664390.2 **Easting:** 645307.3 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.04 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/7/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/27/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS | Soil Vapor Point Construction |
|---|---|---|---|---|---|---|---|
| 16 | | | | | | | |
| | | 9 | | | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, dry, reddish brown to yellowish brown. *(continued)* | Bentonite (16-18 ft bgs) |
| | | | | | | | |
| | | 11.3 | | | | | |
| 18 | 48/60 | | | SW | | | Sand pack (18-20 ft bgs) |
| | | 29.8 | | | | | |
| | | | | | | | |
| | | 13.7 | | | | | 6-inch screen (19.5-20 ft bgs) |
| 20 | | | | | | 20.0 | |
| | | 5.6 | | | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, dry, reddish brown to yellowish brown, becoming reddish brown at 22.5'. | Bentonite (20-25 ft bgs) |
| | | | | | | | |
| | | 2.6 | | | | | |
| 22 | | | | | | | |
| | 55/60 | 6.1 | | SW | | | |
| | | | | | | | |
| | | 9.1 | | | | | |
| 24 | | | | | | | |
| | | 6.8 | | | | | |
| | | | | | | 25.0 | |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

Vapor point completed with a 6-inch diameter road box in a concrete pad.

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# Boring Log

**BORING #: SB-217**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664279.5 **Easting:** 645180.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.08 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/12/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 20.0 |
| **Finish Date:** 9/12/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 | CONCRETE |
| 2 | 60/60 | 0 | | SW | | 4.0 | Well graded SAND with gravel, mostly medium to coarse sand, with 20% gravel, 15% fine sand, 5% fines, loose, moist, very dark gray. |
| 4 | | | | SW | | 5.0 | Poorly graded silty SAND, mostly fine sand, with 20% fines, 5% medium to coarse sand, trace gravel, loose to medium dense, moist. |
| 6 | 40/60 | 34.3 | | SM | | 5.5 | Poorly graded silty SAND, mostly fine sand, with 20% fines, 5% medium to coarse sand, trace gravel, loose to medium dense, moist. |
| | | | | CONCRETE | | 6.0 | CONCRETE |
| | | 62.9 | | SW | | 6.5 | Well graded SAND with gravel, mostly fine to medium sand, with 15% gravel, 20% coarse sand, 10% fines, moderately dense, moist mottled, very dark grayish brown and dark yellowish brown. |
| | | | | SP | | 7.0 | Poorly graded SAND, mostly fine to medium sand, with 10% coarse sand, 5% gravel, loose, dry, strong brown. |
| 8 | | 45.4 | | SW | | 8.5 | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, dry, yellowish brown to light brownish gray. Cored through gneissic cobble at end of run. |
| | | 43.8 | | | | | |
| 10 | | | | SW | | 12.0 | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 15% coarse sand, loose, dry, dark yellowish brown. |
| | | 5.9 | | | | | |
| 12 | | 6.8 | | | | | |
| | 30/60 | | | GP | | 12.5 | At 12' cored through broken 1" cobble. |
| | | 14.7 | | SW | | 13.0 | Well graded SAND, mostly fine sand, with 10% medium to coarse sand, 5% gravel, 5% fines, moderately dense, dry, brown to yellowish red. |
| 14 | | | | SW | | | Well graded SAND, mostly fine sand, with 10% medium to coarse sand, 5% gravel, 5% fines, moderately dense, dry, brown to yellowish red. |
| 16 | 36/60 | 10.4 | | | | | |

**Remarks:**

Boring Terminated (ft): 20.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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*(Continued Next Page)*

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# Boring Log

**BORING #: SB-217**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664279.5 **Easting:** 645180.1 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.08 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/12/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 20.0 |
| **Finish Date:** 9/12/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | | | | | |
| 18 | 36/60 | 11.6<br>14.2 | | SW | | Well graded SAND, mostly fine sand, with 10% medium to coarse sand, 5% gravel, 5% fines, moderately dense, dry, brown to yellowish red. *(continued)* |
| 20 | | | | | 20.0 | |

End of boring at 20.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 20.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-218**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664276.3 **Easting:** 645140.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.16 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/12/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/12/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE |
| 2 | 60/60 | 0 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 25% gravel, 20% coarse sand, few bricks and cobbles (up to 80 mm subangular to subrounded). Loose, dry, very dark grayish brown to brown. |
| 4 | | | | | | 5.0 |
| 6 | 24/60 | | | SW | | Well graded SAND with gravel, mostly fine to medium sand, 30% gravel, 20% coarse sand, 5% fines, loose, moist, dark grayish brown to very dark gray. Contains pieces of brick and slag. |
| 8 | | 22.8 | | | | |
| | | 22.3 | | | | |
| | | 3.5 | | | | 9.5 |
| 10 | | | | CONCRETE | | 10.0 Concrete cored through and broken up. |
| | | 18.6 | | CONCRETE | | Concrete broken up, some soil well graded SAND with gravel, mostly fine to medium sand, 30% gravel, 20% coarse sand, loose, dry, grayish brown to light gray. Contains pieces of brick and concrete. |
| 12 | 23/60 | 41.2 | | | | |
| 14 | | | | | | 15.0 |
| | | 24.3 | | CONCRETE | | 15.5 Concrete with metal pieces. |
| 16 | 24/60 | 36.8 | | SW | | 16.0 Well graded SAND with gravel, mostly fine to medium sand with 25% gravel, 15% coarse sand, 5% fines. Moderately dense to dense, dry, mottled reddish brown and dark grayish brown. |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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*(Continued Next Page)*

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# Boring Log

**BORING #: SB-218**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664276.3 **Easting:** 645140.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.16 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/12/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/12/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | 36.8 | | SW | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 10% coarse sand, trace fines, loose, dry, reddish-brown. |
| | | 15.3 | | | | |
| | | | | | | 17.0 |
| 18 | 24/60 | | | | | Well graded SAND with gravel, mostly fine to medium sand with 15% gravel, 10% coarse sand, trace fines, loose, dry, reddish-brown. Cored through boulder at end of run. |
| 20 | | | | | | |
| | | | | SW | | |
| 22 | 18/60 | 11.1 | | | | |
| 24 | | | | | | |
| | | | | | | 25.0 |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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# Boring Log

**BORING #: SB-219**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664236.3 **Easting:** 645165.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.1 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/11/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/11/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 0 | | | | CONCRETE | | 0.5 CONCRETE |
| | | 0 | | SW | | Well Graded SAND with gravel, mostly fine to medium sand, with 25% to gravel, 15% coarse sand, trace fines, loose, dry, dark grayish brown to dark gray. |
| 2 | | 3.7 | | | | |
| | 60/60 | 1.3 | | | | 3.0 |
| 4 | | 1.2 | | SW | | Well graded SAND with gravel, mostly fine to medium sand, with 20% gravel, 20% sand, loose, dry, strong brown. |
| | | 0.1 | | | | 5.0 |
| 6 | | | | CONCRETE | | Cored through broken concrete, gray. |
| | 20/60 | | | | | |
| 8 | | | | | | |
| | | 14.9 | | | | |
| 10 | | 13.4 | | | | |
| | | | | | | |
| 12 | | | | | | |
| | 36/60 | | | | | |
| | | 14.9 | | | | 13.5 |
| 14 | | 2.1 | | SP | | Poorly graded SAND, mostly medium to coarse sand, with 25% fine sand, 10% gravel (components include cement, shells, metal) loose, very dark gray to black, dry. |
| | | 11.1 | | CONCRETE | | 14.5 Layer of wood and concrete broken up, and wire. 15.0 |
| | | | | | | CONCRETE |
| 16 | 21/60 | | | CONCRETE | | |

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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*(Continued Next Page)*

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# Boring Log

**BORING #: SB-219**



| | | |
|---|---|---|
| **Client:** National Grid | **Location:** 329 Clark Avenue, Brooklyn, NY | **Logged By:** J. Shannon |
| **Project:** Flatbush Station A&B | **Northing:** 664236.3 **Easting:** 645165.9 | **Drilling Company:** Aquifer Drilling and Testing |
| **Project #:** 60625627 | **Ground Elevation (ft):** 58.1 | **Water Level (ft bgs):** N/A |
| **Start Date:** 9/11/2021 | **1st Drilling Method:** Hand Auger 0-5 ft bgs | **Total Depth (ft):** 25.0 |
| **Finish Date:** 9/11/2021 | **2nd Drilling Method:** Sonic | |

| Depth (ft bgs) | Recovery Length (inches/inches) | PID (ppm) | Visible and Olfactory Impacts | USCS Code | Graphic | Soil and Rock Description Classification Scheme: USCS |
|---|---|---|---|---|---|---|
| 16 | | | | | | |
| 18 | 21/60 | 5.1 | | CONCRETE | | CONCRETE *(continued)* |
| | | | | | | 19.0 |
| 20 | | 8.2 | | SP | | Poorly graded SAND, mostly medium to coarse sand, 25% fine sand, 10% gravel. |
| | | | | | | 20.0 |
| 22 | | | | SW | | Well graded SAND and GRAVEL, mostly fine to medium sand with 30% gravel, 25% coarse sand, loose, dry, light yellowish brown. |
| 24 | | | | | | |
| | | | | | | 25.0 |

End of boring at 25.0 ft. bgs.

**Remarks:**

Boring Terminated (ft): 25.0

NA - Not Applicable, bgs - below ground surface

Northing and Easting coordinates referenced to New York State Plane NAD83 East

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**Phone: (212) 377-8400**

Location FLATBUSH Date 8-31-20

Project / Client NAT GRID

70s, CLOUDY

| | |
|---|---|
| 0700 | AECOM/LPT ONSITE. |
| 0710 | GLACKER ONSITE. |
| 0720 | H&S MEETING. |
| 0730 | EQUIPMENT CALIBRATED. |
| 0750 | SAW CUTTING FOR TP-101. |
| 0845 | STARTING DIGGING TP-101. |
| 0900 | STARTING DRILLING @ SB-110. |
| 0940 | FOUND 3' DIAM CAST IRON MAIN @ 4' IN TP101. |
| 1000 | NO SIGN OF FOUNDATION IN SOUTHERN END OF TP-101. WILL EXTEND IT. |
| 1100 | FOUND THE EDGE OF THE HOLDER BASE. 4' DEEP. |
| 1200 | COURIER OFF W/ SAMPLES. LUNCH FOR DRILLERS. |
| 1300 | SB-110 @ 35', HIGH PID = 132 PPM @ 6-7'. |

| SB-110 | DEPTH | PID | |
|---|---|---|---|
| | 5-7 | 132 | + DUPE-2-083120. |
| | 12-14 | 0 | |
| | 20-22 | 2.0 | |
| | 33-35 | 0 | + MS/MSD |

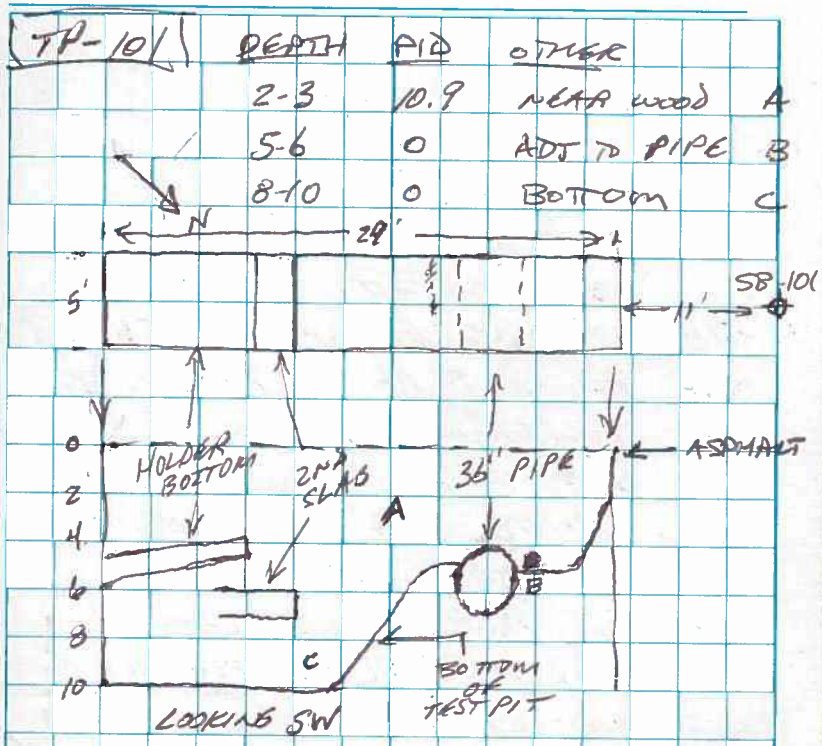
NOTE: SOPHIA FROM LIRO ONSITE @ 0800.



Location FLATBUSH Date 8-31-20

Project / Client NAT. GRID

| TP-101 | DEPTH | PID | OTHER | |
|---|---|---|---|---|
| | 2-3 | 10.9 | NEAR WOOD | A |
| | 5-6 | 0 | ADJ TO PIPE | B |
| | 8-10 | 0 | BOTTOM | C |




1400 TP-101 IS BACKFILLED AND SB-110 IS GROUTED.

1430 SETTING UP RIG @ SB-109.

1530 GLACKER/LPT OFFSITE.

1600 AECOM OFFSITE.

Rite in the Rain.

Location FLATBUSH Date 8-26-20

Project / Client NAT GRID

1115 STARTING DRILLING @ SB-102

NOTE: GLACIER IS DECONNING PRIOR TO DRILING SB-102.

1200 SAME PROBLEM @ SB-109 AS @ SB-110. CONCRETE SLAB @ 2.5-3'.

1215 LUNCH.

1300 BACKFILLING SB-109 + SB-110. RESUMING DRILLING @ SB-102.

NOTE: SOIL SAMPLES COLLECTED @ 1-3' IN BORINGS SB-109 + SB-110. SAMPLE FROM SB-109 ALSO TO BE ANALYZED FOR PFAS.

1315 ISLAND SETTING UP TO HAND D16 TO CONFIRM LOCATION OF 36" GAS MAIN NORTH OF SB-102.

1400 SB-102 @ 35', NO EVIDENCE IMPACTS.

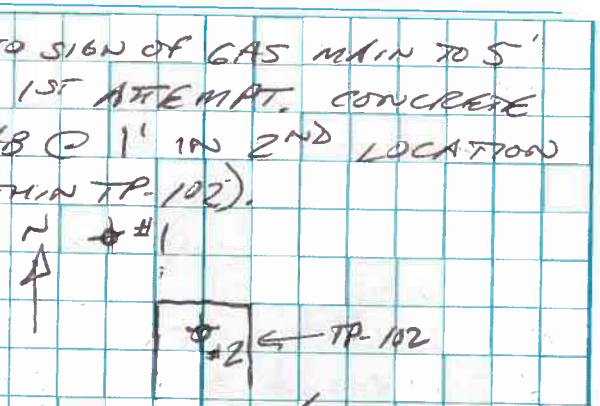
| SB-102 | DEPTH | PID | OTHER |
|---|---|---|---|
| | 6-8 | 0.5 | PFAS |
| | 12-14 | 0 | |
| | 22-24 | 0.2 | |
| | 33-35 | 0 | PFAS |



Location FLATBUSH Date 8-26-20

Project / Client NAT GRID

1430 NO SIGN OF GAS MAIN TO 5' IN 1ST ATTEMPT. CONCRETE SLAB @ 1' IN 2ND LOCATION (WITHIN TP-102).




1530 COURIER OFF W/ SAMPLES. D16 IS SET UP @ SB-103.

1600 GLACIER/IAT OFFSITE.

1615 RECON OFFSITE.

Rite in the Rain

Location FLATBUSH Date 8-27-20

Project / Client NAT GRID

BOs,

0700 AECOM ONSITE.
0710 GLACIER / IPT ONSITE.
0730 EQUIPMENT CALIBRATED.
0730 H+S MEETING.
0830 LIRO CREW ONSITE (JOSH, SOPHIA, AJ). GLACIER / IPT FILLING TOTES W/ WATER.
0930 STARTING DRILLING @ SB-103. TP-102 HAS BEEN SAWCUT, PEELING BACK THE ASPHALT.
1100 JOSH / AJ OFFSITE. SB-103 @ 35', NO EVIDENCE OF IMPACTS.

| SB-103 | DEPTH | PID |
|---|---|---|
| | 6-8 | |
| | 12-14 | |
| | 22-24 | |
| | 33-35 | |

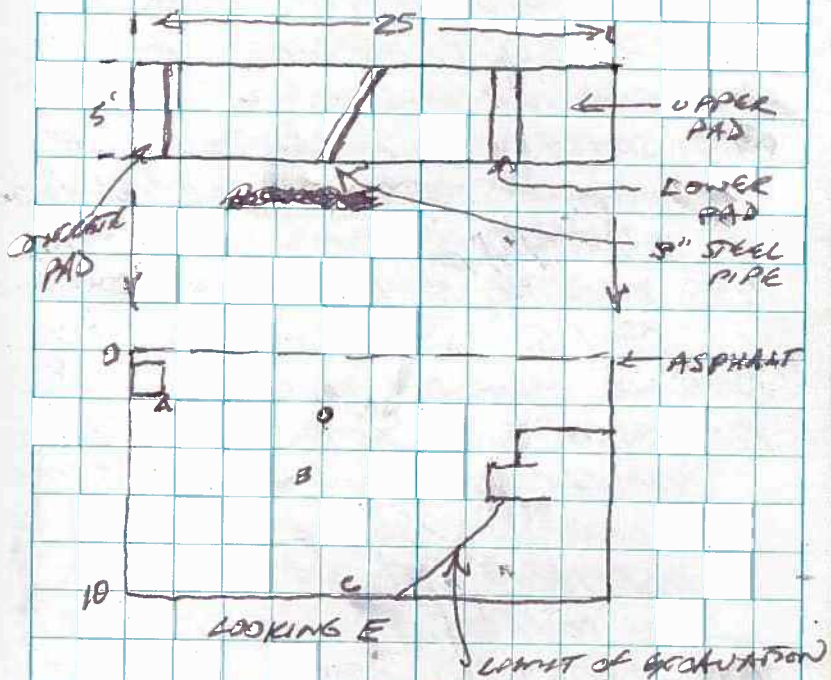
1200 TP-102 IS ~ 10' DEEP @ NORTH END. NO PAD YET. IPT SAWCUT AND PEELED BACK ANOTHER 10' OF ASPHALT. TAKING LUNCH.
1315 LOCATED HOLDER FOUNDATION IN TP-102. 4' DEEP.
1400 COURIER OFF W/ SAMPLES.



Location FLATBUSH Date 8-27-20

Project / Client NAT GRID

| TP-102 | DEPTH | PID | OTHER |
|---|---|---|---|
| A | 1.5-2' | 4.0 | BLACK ASH / CINDERS |
| B | 6-7 | 0 | PURPLE SLAG |
| C | 8-10 | 2.5 | BOTTOM |




1530 TP-102 BACKFILLED, CLEANING UP FOR DAY.
1600 GLACIER / IPT / AECOM OFFSITE

Rite in the Rain

16

Location FLATBUSH Date 9-1-20

Project / Client NAT. GRID

70s, CLOUDY / RAIN

0730 AECOM / IPT / GLACIER / LIRO ONSITE.

0740 H&S MEETING.

0750 EQUIPMENT CALIBRATED.

0800 SETTING UP TO DRILL SB-109 AND SAWCUT TP-103.

0900 STARTING EXCAVATION @ TP-103.

0920 FOUND SLAB IN TP-103. DEEPENING THE EXCAVATION. SLAB @ 2'. PINE ONSITE.

1100 TP-103 @ 10', NO EVIDENCE OF IMPACTS OR THE VALVE PIT. HIGH PID = 2.2 PPM. COLLECTED SOIL SAMPLE @ 8-10' PID: 1.7 PPM.

1215 SB-109 @ 50', TAKING LUNCH.

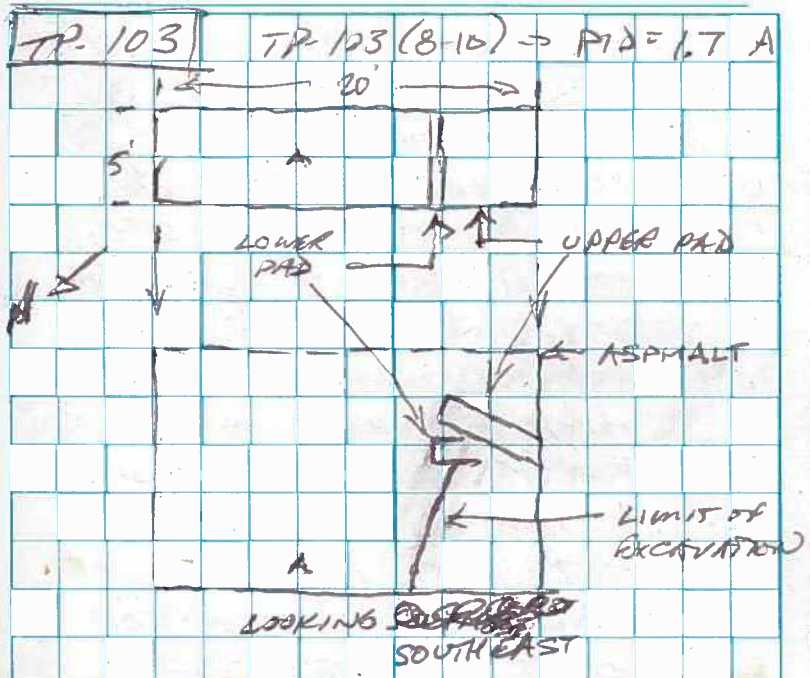
1400 SB-109 @ 55', SCREEN HAS BEEN INSTALLED. GW = 50'. WILL LET IT SET FOR A BIT.

1500 COURIER OFF W/ SAMPLES. GLACIER TRYING TO DEVELOP TEMP WELL @ SB-109 BUT THE TUBING KEEPS JAMMING W/ FINES.

17

Location FLATBUSH Date 9-1-20

Project / Client NAT GRID




NO PID READING > 1.7 PPM IN TP-103.

1600 GLACIER / LIRO OFFSITE.

1615 AECOM OFFSITE

Rite in the Rain

Location FLATBUSH Date 9-2-20

Project / Client NAT. GRID

70s, CLOUDY / RAIN

0700 S. WRIGHT / IPT ONSITE.
0710 GLACIER ONSITE.
0715 H+S MEETING.
0745 HAND CLEARING STEP OUT TO SB-108. BAILING FINES FROM SB-109. SAWCUTTING SW EXTENSION TO TP-101.
0800 ASPHALT COMPANY ARRIVED. THEY ARE HERE TO PREP FOR TOMORROWS PAVING.
0915 FOUND A CONCRETE PAD @ 7' IN SW RUN OF TP-101A. WATER IS PERCHED ON TOP OF IT. WILL TRY TO FIND THE EDGE OF IT TO THE SW.
0945 IPT PRE-CLEARING STEP OUTS FOR SB-110.
1015 EXTENDING TP-101A 10' NE.
NOTE: SB-108 STEP OUT (SB-131) CLEARED TO 5', NO EVIDENCE OF IMPACTS. SAMPLE COLLECTED @ 2-4'.
1100 LOCATED THE NE EDGE OF THE PAD @ 7' IN TP-101A. BACKFILLING THE NORTHEASTERN



Location FLATBUSH Date 9-2-20

Project / Client NAT GRID

WALL OF TP-101A. NO EVIDENCE OF PIPES / STRUCTURES TO 10'.
1115 COLLECTED GW SAMPLE FROM SB-109 USING A BAILER, RESUMING DRILLING OF SB-109 TO 85'.

| TEMP | PH | COND | DO | ORP | TURB |
|---|---|---|---|---|---|
| 19.75 | 8.32 | 0.960 | 5.32 | -31.1 | 910 |

NOTE: BAILER ~5 GAL PRIOR TO SAMPLING.
1130 SB-110 STEPOUT (SB-130) @ 5', NO EVIDENCE OF IMPACTS. SOIL SAMPLE COLLECTED @ 2-4.
1145 EXTENDING TP-101A ANOTHER 10' SW TO EXPOSE PIPE IDED DURING GEOPHYSICAL.
NOTE: NO CAMP TODAY DUE TO THE RAIN.
1230 EXTENDED TP-101A A TOTAL OF 20' TO THE SW. DIDN'T FIND ANY PIPES NOR THE SW EDGE OF THE CONCRETE PAD. TP-101A IS NOW 38' LONG.
1330 SB-109 @ 85', NO EVIDENCE OF IMPACTS. GROUTING HOLE.

| SB-109 | 5-7 | 27-29 | 48-50 | 83-85 |
|---|---|---|---|---|
| | 12-14 | (33-35) | 70-72 → PFAS ONLY | MS/MSD |

Sitting in the Rain.

Location Flatbush Brooklyn, NY Date 09-14-2020

Project / Client Flatbush Station - North Parcel

T. Shanna - AECOM, P. Herrera - AECOM

weather: a mix of clouds and sun, high 75°F, winds NNW at 10 to 15 mph

0705 T. Shanna and P. Herrera on site. Sophie Wakenhorst - LiRO on site for site inspection. IPT on site.

0715 Safety tailgate meeting focused on COVID-19 and hand safety

0730 IPT going to fill up tanks w/water from hydrant.

0735 Calibration of equipment recorded on separate forms. (PID x3, Dust Trak x2)

0840 IPT lay out plastic for excavation of TP-106, cutting through asphalt with saw using water to minimize dust.

0845 Geoprobe resumed drilling on SB-124 at 50 ft. Borehole will be cased with 6" casing down to 60 ft bgs.

0950 Excavator pulling up asphalt in TP-106

0955 SB-124 encountered slight sheen and moderate naphthalene-like odor at

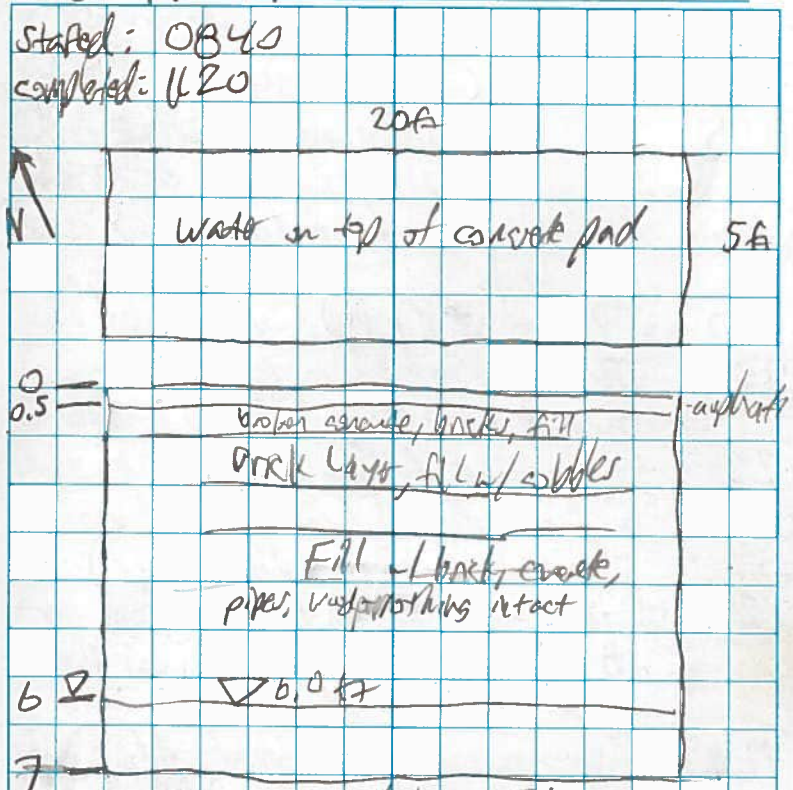


Location _____ Date 09-14-20

Project / Client _____

Test Pit TP-106

Started: 0840
completed: 1120




TP-106 (5-7') sampled at 1120
PID 0.0 ppm
well graded SAND w/gravel, brown to dark brown, mostly med. to coarse SAND, 25% gravel (10% fine SAND. bricks, construction debris (pipes, wires, wood), urban fill

Rite in the Rain

Location _____ Date 9-14-20

Project / Client _____

65-70 ft. High PID of 382 ppm
SB-124 (68-70') PID 382 sampled
1115 TP-106 encountered concrete bed at 10ft bgs, over entire bottom of excavation, w/ standing water ~0.5-1ft deep.
1120 TP-106 (5-7') PID - 0.0 sampled
1140 SB-124 completed to 85ft.
SB-124 (83-85') PID 0.0 sampled.
1230 Excavator filling in TP-106 with excavated soil. (soil showed no impacts and no PID readings)
1235 Contractor starting to mix grout for SB-124, removing casing as they grout the borehole.
1245 Pine Environmental dropped off cables and extra batteries for PIDs.
1330 S. Wardzenburg - Link off site.
1405 TP-106 filled in with excavated material (except asphalt) still requires clean fill to bring excavation up to level/grade. IPT will order clean fill and paving company to arrive on site Thursday, Sept. 17.



Location _____ Date 9-14-20

Project / Client _____

1430 SB-124 grouted to surface and cold asphalt patched. Sonic Rig mobilizing to SB-123
1530 Sonic set up on SB-123 with all equipment necessary to begin drilling. Gloves / IPT off site.
1600 Site is secure. RECON off site.

End of Shift

Location Flatbush, Brooklyn, NY Date 9-15-2020

Project / Client Flatbush Station - National Grid

J. Shaner - AECOM, P. Herren - AECOM

weather: Sunny, high 69°F, NNE winds shifting to SSE at 10 to 15 mph.

0700 On site at Winthrop Street gate. TPT/Bravo on site. Safety meeting focused on COVID-19 and housekeeping.

0730 Sonic Rig set up on SB-123. TPT clearing area around TP-107

0800 Cutting asphalt for TP-107

0815 Drilling started on SB-123

0845 SB-123 (5-7') PID 16.9 sampled.

0940 Excavator started ripping through asphalt for test pit TP-107

1100 TP-107 excavated an hour. PID from bucket 0-5ft 0.5 ppm.

1125 By phone w/ J. Millard, TP-107 will be extended 7ft SE at 5ft bgs.

1130 TP-107 (5-7') PID 18.0 sampled.

1133 SB-123 (20-22') PID 2.5 sampled

1200 CAMP Dust Trak - one decent calibrate - Pine Environmental called to switch out unit.

1230 TP-107 asphalt cut 7ft towards the



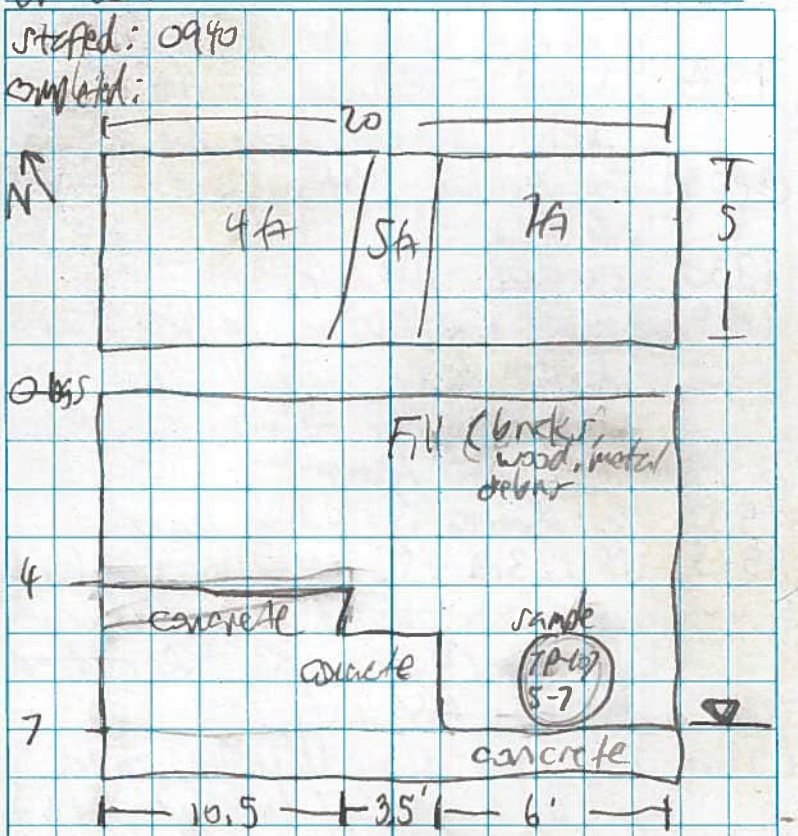
Location Flatbush, Brooklyn NY Date 09-15 2020

Project / Client Flatbush Station - Brooklyn NY

TP-107

started: 0940

completed:




0-5ft - PID 0.5ppm 5-7' PID 18.2

Rite in the Rain

Location Flatbush, Brooklyn, NY Date 9-15-20

Project / Client Flatbush Station, National Grid

southeast, along the original alignment.

1330 TP-107 excavated as shown. Backfilling with excavated material.

@1030 Jon Mitchell - National Grid on site for site visit.

1330 JM-NG off site.

1415 TP-107 backfilled to just below surface and is ready for asphalt. TP-106 still needs clean fill to bring it up enough to asphalt/pave

1500 Test America picked up samples

1515 SB-123@45', 6" casing was binding up, Glacier checked to see if all casing was intact by removing. Re-cased down to 45' bgs.

1550 Gas lines along Winthrop street will be marked on/sketched out to complete gas line sketch.

1600 EBT/Glacier and AECOM off site

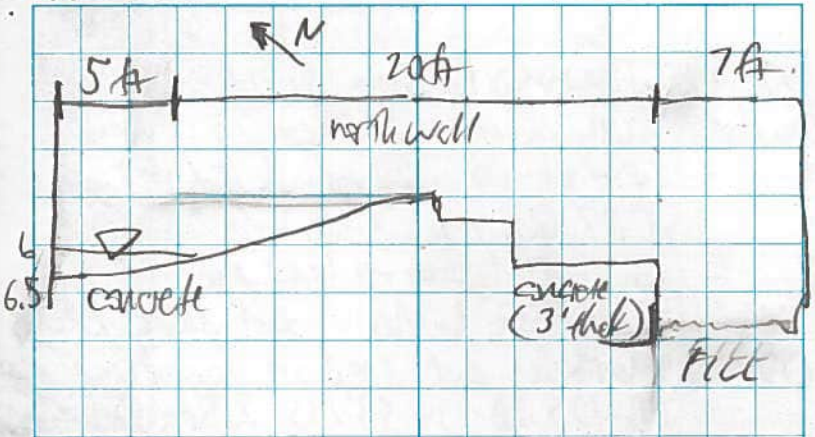
END OF SHIFT.



Location Flatbush, Brooklyn, NY Date 9-15-20

Project / Client Flatbush Station - National Grid

TP-107




Rite in the Rain

Location Flatbush Brooklyn, NY Date 09-16-2020

Project / Client Flatbush Station - National Grid

J. Shannon - AECOM, P. Hamm

0700 J. Shannon / P. Hamm on site.

Weather: partly cloudy, high near 75°F, winds SSW at 10 to 20 mph (75/64)

IPT, Glacier, and S. Waxenberg on site. Safety tailgate meeting focused on COVID-19 and proper PPE

0730 Marking out steel at location SB-133, SB-134, SB-135, & SB-136.

0800 IPT setting up on SB-133 for hand clearing.

0830 Glacier started (reamed) drilling on SB-123 at 45'

0840 SB-133 (2-4') PID 4.8ppm sampled

0855 SB-123 (51-53') PID- 0.2 sampled

0915 SB-123 hit water table at @ 51-53' PID reading of 0.2. At 63-65' PID reading of 3.8, slight petroleum odor

1020 SB-136 hand clearing started.

1030 SB-123 (63-65') PID 3.8 sampled @0915

1035 ~~SB-123 (63-65') PID 0.0 sampled @~~

1200 SB-136 (2-4') PID 1.9 sampled

@1120 SB-123 (83-85') PID

1230 Started grouting on SB-123



Location Flatbush, Brooklyn Date 09-16-2020

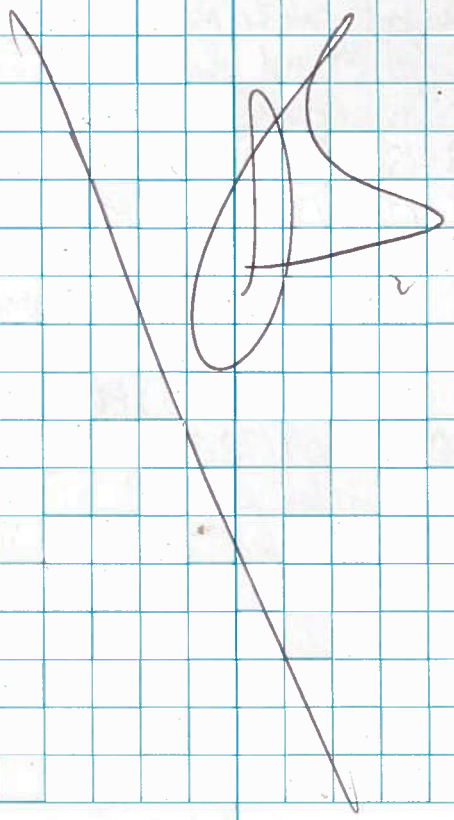
Project / Client Flatbush Station - National Grid

1400 SB-123 grouted to surface, Drill Rig setting up on SB-136 (Airport)

1500 IPT / Glacier off site.

GIS AECOM off site, Site secure.

END OF SHIFT



Rite in the Rain

Location Brooklyn NY Date 09-28-20

Project / Client Flatbush Station / National Grid

T. Shannon - AECOM, P. Hamm - AECOM

Weather: cloudy skies this morning will become partly cloudy this afternoon. High 76°, low 68°, winds S at 10 to 15 mph. Currently 69° and cloudy.

0700 On site at Winthrop street lot. Calibration of equipment and set up of CAMP stations completed.

0730 TP&T/Glocier on site (Cooper way was closed due to accident - local news)

0745 Safety tailgate meeting focused on COVID-19 and schedule, truck safety

0800 TP&T setting up tarp for soil from TP-10B. Glocier setting up on SB-127

0830 Cutting asphalt for TP-10B

0835 Drilling started @ SB-127

~~0905~~ 0905 & 0910 SB-127 (5-7') PID 4.3 sampled for regular route, and total PFAS

~~0907~~ SB-127- DUPE-14-092820 sampled

*0905 SB-127 (5-7') total PFAS

0945 SB-127 (13-15') PID 0.2ppm sampled

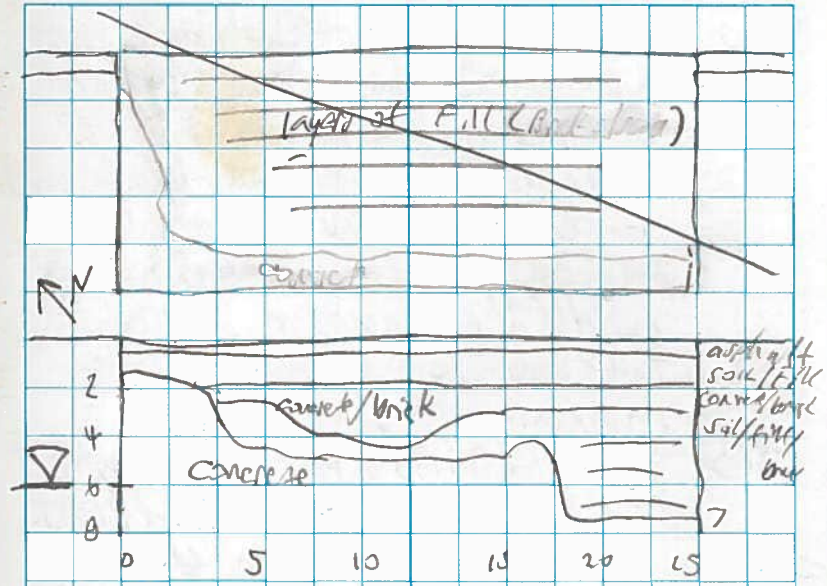
1115 Test Pit TP-10B excavated down to max depth of 7' (concrete pad



Location Date

Project / Client

TP-10B




Rite in the Rain

Location Brooklyn, NY Date 09-28-20

Project / Client Flatbush Station / National Grid

1130 TP-10B had concrete structure at depth of ~5ft bgs, from NW corner to 17' along axis, where it drops down to 7' concrete pad. Water was at 6ft bgs. Slightly stained material present at 5' depth in middle of excavation. Three intervals were collected for sampling: 4', 5', 7'

1315 SB-127 (33-35') PID 0.0 sampled
SB-127 (33-35') PID 2.0 SPLP PFAS and MS/MSD sampled.

1430 TP-10B being backfilled.

1500 Test America courier picked up samples

1515 SB-127 down to 40', had some collapse, cased down to 40'.

1530 Glover / IDW off site. AECOM off site.

EOD DF SMP



Location Brooklyn, NY Date 09-29-20

Project / Client Flatbush Station / National Grid

T. Shamy - AECOM, P. Hamm - AECOM

weather: thunderstorms likely this morning, then a chance of scattered thunderstorms this afternoon. High near 75°, low 65° winds S at 10 to 15 mph. Chance of rain 70%. Currently 69° cloudy

0700 On site at Washington Street Lot. Glover / IDW on site.
Calibration of equipment and set up of CAMP stations.

0715 Safety Meeting on Drill Rig safety

0740 Resumed drilling on SB-127

0830 SB-127 (48-50') PID 0.0 sampled for regular suite and SPLP PFAS

0925 SB-127 (67-69') PID 129.9 sampled.

0930 DUPE-15-09293 PID 129.9 sampled

0945 SB-126 new location cleared to 5ft bgs.

1145 SB-127 (83-85') PID 3.7 ppm sampled

1200 Light rain started, CAMP stations closed

1215 Drilling completed to 85' on SB-127

1355 SB-127 grouted to surface

Rite in the Rain

Location Brooklyn, NY Date 10-14-20

Project / Client Flatbush Station / National Grid

T. Shannon - AECOM, M. Meadows

weather: Partial sunshine, high near 73°F, low 53°. Winds W at 5 to 10 mph. Currently 53° and sunny

0700 On site at Washington Street Lot, Area 3. IPRT/Clean on site. Li Ro - Sophie Waterboring on site

0715 Safety meeting focused on COVID-19 and multiple operations on site today.

0730 GeoProbe station set up and calibration of equipment.

0815 RMSE-5 sampled from decon pad after drilling SB-114

0830 TP-104 cutting through asphalt, water being used.

0845 Sonic drilling setting up on SB-113

0855 Drilling started on SB-113. water in borehole perched on concrete slab. Glacier and case 6" casing down to 10 ft and sample with 4" casing.

0920 SB-113 (8-10') PID 0.7 sampled
SB-113 (8-10 PID 0.7 Total PFAS sampled



Location Brooklyn, NY Date 10-14-20

Project / Client Flatbush Station / National Grid

1005 SB-113 (13-15) PID 0.7 sampled

1010 TP-104 excavation started.

1040 SB-113 (36-38') PID 0.7 sampled
SB-113 (36-38) SPLP PFAS sampled

1045 TP-104 (4-6') middle PID 0.3 sampled

1050 TP-104 (6-7') NE PID 4.0 sampled

1115 TP-104 (8-9') NE PID 14.0 sampled

1325 SB-113 (48-50') PID 0.6 sampled

0930 TP-104 (0-2') Bottom back pads 1.5 ppm (9-10') DD.

@1325 SB-113 (48-50') SPLP PFAS sampled

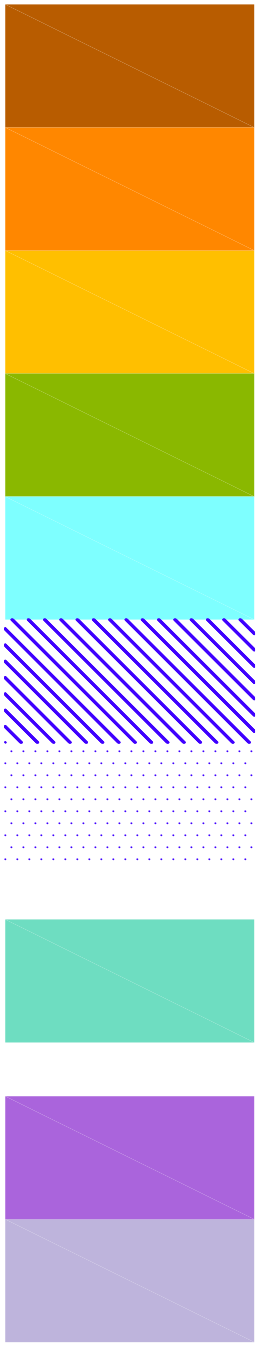
1400 SB-113 drilled and cased down to 60 ft

1415 TP-104 being backfilled. Two concrete ~~slabs~~ pads covered - take pic and hold pad. Diagram on TP-104 boring log and following page

1500 Off site.

END OF SHIFT

Rite in the Rain




NOTES:

1. USE ONLY THE COLOR KEYS FOR THE CONDITIONS THAT ARE ENCOUNTERED AT A GIVEN SITE. IF CONDITIONS DESCRIBED ABOVE DO NOT EXIST, DO NOT USE IN LEGEND.
2. THE COLOR DESCRIPTORS ABOVE ARE TO BE USED IN CONJUNCTION WITH THE "ENVIRONMENTAL TERMINOLOGY FOR SOIL DESCRIPTIONS" BY M. PASTER OF GEI CONSULTANTS, INC.

| | |
|---|---|
| NATIONAL GRID IMPACT COLORS | **COLORS FOR NATIONAL GRID IMPACTS** |
| nationalgrid | February 2011 |

I:\Project\National Grid\All Sites\KeySpan & National Grid COLORS\ Nat Grid Impact Colors_2010-08-25.dwg \Feb 15, 2011

AECOM

# Test Pit Log

**TP-1**

| | | | |
|---|---|---|---|
| **PROJECT NO:** | **60218917** | **TEST PIT DESIGNATION: TP-1** | **SURFACE ELEVATION: NA** |
| **CLIENT:** | **National Grid** | **SITE LOCATION OR AREA: Western Portion of 760 Parkside Avenue** | **START DATE: 6/23/2011** |
| **SITE NAME:** | **Flatbush Station A&B Former Gas Holder S** | **EQUIPMENT USED: Backhoe** | **FINISH DATE: 6/23/2011** |
| **ENGINEER:** | **Shail Pandya** | **OPERATOR: Miller Environmental** | **START TIME: 12:30** |
| **DEPTH WATER ENCOUNTERED:** | **NA** | **TOTAL DEPTH: 8.0 ft bgs** | **FINISH TIME: 16:10** |

| DEPTH (FEET) | VISUAL IMPACTS (FEET) | PID HEADSPACE (PPM) | SOIL STRATIG-RAPHY USCS | SOIL CLASS USCS | SOIL DESCRIPTION LOG | STRUCTURES ENCOUNTERED OR COMMENTS |
|---|---|---|---|---|---|---|
| 1 | | 0.0 | | FILL | Fill material consisting of silty sand, brick and brick fragments, varying size cobbles, debris, and pipes. No Visual impacts or odors detected. | |
| 2 | | 0.0 | | | Analytical sample collected from top of valve housing | |
| 3 | | 0.0 | | | Fill material was observed within both the valve house enclosures with debris and garbage. No odors, PID hits, or visual impacts were observed within the valve house enclosures. | Two brick enclosures are located approximately 30-inches below grade and 3 ft apart. The northern brick enclosure is approximately 3 ft offcenter from the southern brick enclosure. The brick enclosures were approximately 7 ft in diameter. A cast iron valve enclosure was located to the west of the northern brick enclosure. The cast iron valve enclosure was approximately 2 ft bgs. A 2 ft diameter cast iron pipe was located in an east west direction within the southern brick enclosure at 4 ft bgs. |
| 4 | | 0.0 | | | | |
| 5 | | 0.0 | | | | The northern valve house enclosures was excavated intact. The structures included an approximately 7 ft diamter brick enclosure with a 2.5 ft diameter cast iron valvle enclosure to the west of the enclosure. A 2 ft diameter cast iron pipe exited from the brick enclosure below the cast iron valve enclosure in an east west direction at 4 ft bgs. The brick enclosure was jack hammered to observe the condition within the enclosure. A 3 ft diamter vertical cast pipe was centrally located within the brick enclosure with a 2 ft diamter branch exiting the enclosure along the western side into the valvle. |
| 6 | | 0.0 | | | | |
| 7 | | 0.0 | | | | |
| 8 | | 0.0 | | | Sample collected from below the cast iron pipe exiting the valve enclosure and from within the brick enclosure | |
| | | | | | Test pit terminated at 8.0 ft bgs. | |

**Definitions:**

1.) NA - Not Applicable
2.) ft - feet
3.) SAA - Same As Above
4.) bgs - below ground surface
5.) ppm - parts per million
6.) PID - Photo Ionization Meter
7.) NAVD 88 - North American Vertical Datum of 1988
8.) U.S.C.S. - Unified Soil Classification System

AECOM

# Test Pit Log

**TP-1**

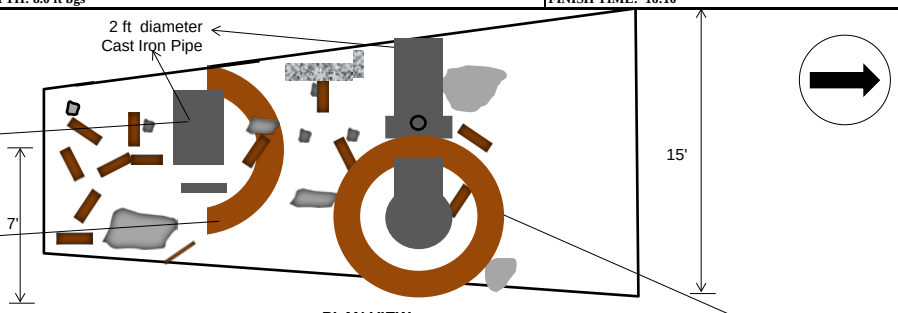
| | | |
|---|---|---|
| PROJECT NO: 60218917 | TEST PIT DESIGNATION: TP-1 | SURFACE ELEVATION: NA |
| CLIENT: National Grid | SITE LOCATION OR AREA: Western Portion of 760 Parkside Avenue | START DATE: 6/23/2011 |
| SITE NAME: Flatbush Station A&B Former Gas Holder | EQUIPMENT USED: Backhoe | FINISH DATE: 6/23/2011 |
| GEOLOGIST: Shail Pandya | OPERATOR: Miller Environmental | START TIME: 12:30 |
| DEPTH WATER ENCOUNTERED: NA | TOTAL DEPTH: 8.0 ft bgs | FINISH TIME: 16:10 |



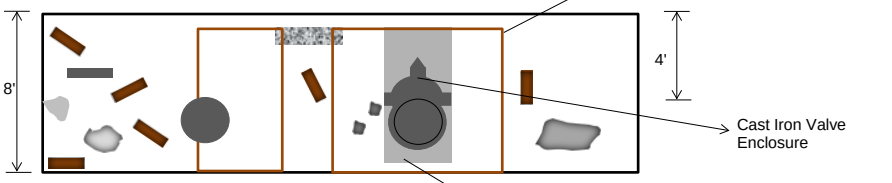


7 ft diameter south brick enclosure; no impacts within 2 ft pipe






**PLAN VIEW**




7 ft diameter north brick enclosure

Cast Iron Valve Enclosure

**CROSS SECTION VIEW**

Sample location inside north brick enclosure






Inside north brick enclosure



AECOM

# Test Pit Log

**TP-2**

| | | | |
|---|---|---|---|
| **PROJECT NO:** | **60218917** | **TEST PIT DESIGNATION: TP-2** | **SURFACE ELEVATION: NA** |
| **CLIENT:** | **National Grid** | **SITE LOCATION OR AREA: Northwestern Portion of 760 Parkside Avenue** | **START DATE: 6/23/2011** |
| **SITE NAME:** | **Flatbush Station A&B Former Gas Holder S** | **EQUIPMENT USED: Backhoe** | **FINISH DATE: 6/23/2011** |
| **ENGINEER:** | **Shail Pandya** | **OPERATOR: Miller Environmental** | **START TIME: 09:50** |
| **DEPTH WATER ENCOUNTERED:** | **NA** | **TOTAL DEPTH: 7.0 ft bgs** | **FINISH TIME: 11:55** |

| DEPTH (FEET) | VISUAL IMPACTS (FEET) | PID HEADSPACE (PPM) | SOIL STRATIG-RAPHY USCS | SOIL CLASS USCS | SOIL DESCRIPTION LOG | STRUCTURES ENCOUNTERED OR COMMENTS |
|---|---|---|---|---|---|---|
| 1 | | 0.0 | | FILL | 0 - 6": Asphalt, concrete, and some bricks.<br>6" - 1': Fill consisting of cobbles and debris and clayey sand. | Concrete pad at surface on eastern portion of test pit.<br>10-inch thick concrete pad observed at 6" bgs on western portion of test pit |
| 2 | | 0.0 | | | 1 - 2': Fill material consisting of bricks, cobbles, and clayey sand; no odors or visual impacts. | 3-inch diameter cast iron pipe entering the test pit in east west direction below the 10-inch concrete pad on the western boundary of the test pit.<br>Bottom of concrete pad observed on eastern portion of the test pit (assumed 2 feet thicj foundation). |
| 3 | | 0.0 | | | 2 - 3': SAA | 3-inch diameter cast iron pipe entering the test pit in east west direction below the 2-feet concrete pad on the eastern boundary of the test pit. |
| 4 | | 0.0 | | | 3': Fill material consisting of cobbles, and silty clay with seavily weathered coal fragments; hydrogen sulfide-like odor, no visual impacts<br>3 - 7': Fill materials with silty clay and large 8"X2'X2' stones; lots of cobbles and bricks. | 10-inch concrete pad extending in east west direction from the western boundary of the test pit to half way of the test pit. |
| 5 | | 0.0 | | | | |
| 6 | | 0.0 | | | | 5-inch diameter cast iron pipe observed in east west direction along the entire length of the test pit from the western boundary wall to the eastern boundary wall. |
| 7 | | 0.0 | | | | Collected sample TP-2 (6-7) |
| | | | | | Test pit terminated at 7.0 ft bgs. | |

**Definitions:**

1.) NA - Not Applicable
2.) ft - feet
3.) SAA - Same As Above
4.) bgs - below ground surface
5.) ppm - parts per million
6.) PID - Photo Ionization Meter
7.) NAVD 88 - North American Vertical Datum of 1988
8.) U.S.C.S. - Unified Soil Classification System

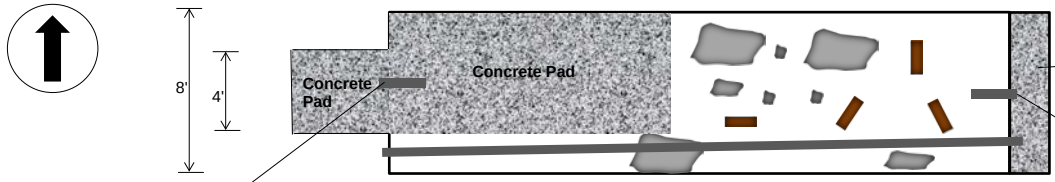
AECOM

# Test Pit Log

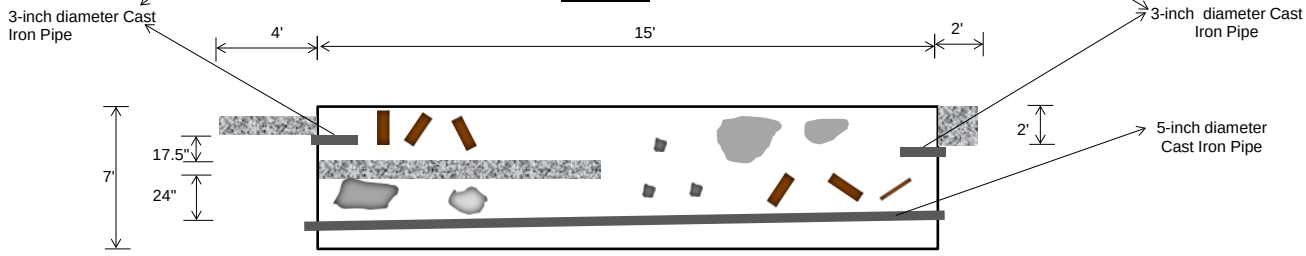
**TP-2**

| | | |
|---|---|---|
| PROJECT NO: 60218917 | TEST PIT DESIGNATION: TP-2 | SURFACE ELEVATION: NA |
| CLIENT: National Grid | SITE LOCATION OR AREA: Northwestern Portion of 760 Parkside Avenue | START DATE: 6/23/2011 |
| SITE NAME: Flatbush Station A&B Former Gas Holder S | EQUIPMENT USED: Backhoe | FINISH DATE: 6/23/2011 |
| GEOLOGIST: Shail Pandya | OPERATOR: Miller Environmental | START TIME: 09:50 |
| DEPTH WATER ENCOUNTERED: NA | TOTAL DEPTH: 7.0 ft bgs | FINISH TIME: 11:55 |






**PLAN VIEW**




**CROSS SECTION VIEW**



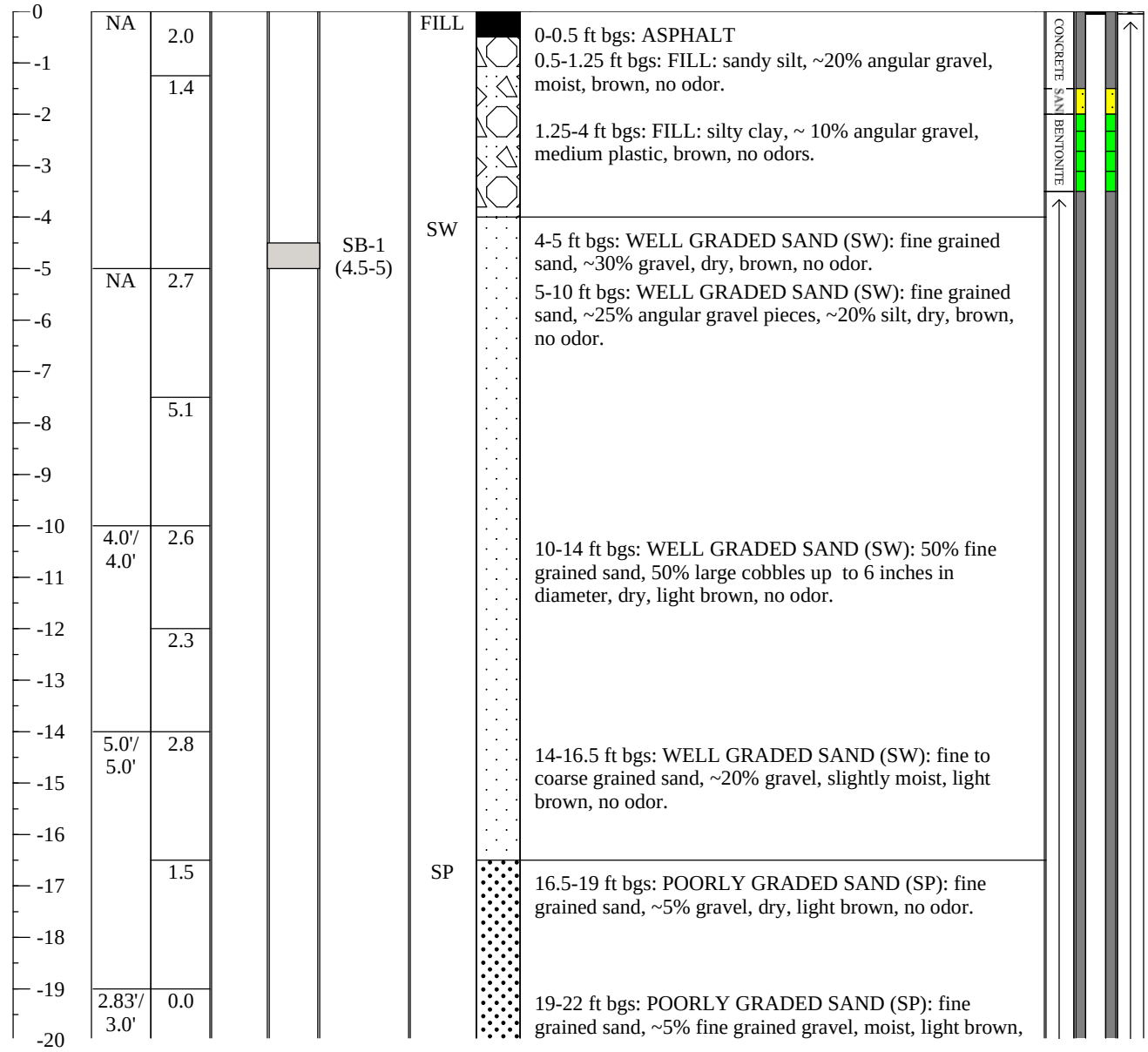


AECOM

# Boring ID: SB-1 / MW-1



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 54 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.36'/57.09' |
| **Date Pre-Cleared:** Jan 24, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 24, 2011 / Jan 25, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW-1 |




Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-1 / MW-1



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 54 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.36'/57.09' |
| **Date Pre-Cleared:** Jan 24, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 24, 2011 / Jan 25, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW-1 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | no odor. | |
| -21 | | | | | | | | | |
| -22 | 3.0'/ 3.5' | 0.2 | | | | SM | | 22-25.5 ft bgs: SILTY SAND (SM):~30% gravel up to 4 inches in diameter, slightly moist, light brown, no odor. | GROUT |
| -23 | | | | | | | | | |
| -24 | | | | | | | | | |
| -25 | | | | | | | | | |
| -26 | 3.16'/ 3.5' | 3.9 | | | | | | 25.5-29 ft bgs: SAA | |
| -27 | | | | | | | | | |
| -28 | | | | | | | | | |
| -29 | 1.42'/ 5.0' | 4.4 | | | | | | 29-34 ft bgs: SILTY SAND (SM): ~10% fine grained gravel, slighty moist, light brown, no odor. | |
| -30 | | | | | | | | | |
| -31 | | | | | | | | | |
| -32 | | | | | | | | | |
| -33 | | | | | | | | | |
| -34 | 3.25'/ 5.0' | 8.9 | | | | SP | | 34-39 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~5% fine grained gravel, slightly moist, light brown, no odor. | |
| -35 | | | | | | | | | |
| -36 | | | | | | | | | |
| -37 | | 26.6 | | | | | | | |
| -38 | | | | | | | | | |
| -39 | 1.25'/ 5.0' | 14.2 | | | | | | 39-44 ft bgs: SAA | PVC RISER |
| -40 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-1 / MW-1



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 54 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.36'/57.09' |
| **Date Pre-Cleared:** Jan 24, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 24, 2011 / Jan 25, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW-1 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | | |
| -41 | | | | | | | | | |
| -42 | | | | | | | | | |
| -43 | | | | | | | | | |
| -44 | 3.42'/ 5.0' | 46.5 | | | SB-1 (44-46.5) | | | 44-49 ft bgs: SAA | BENTONITE |
| -45 | | | | | | | | | |
| -46 | | | | | | | | | |
| -47 | | 1.6 | | | | | | | |
| -48 | | | | | | | | | |
| -49 | 4.83'/ 5.0' | 30.7 | | | | | | 49-54 ft bgs: POORLY GRADED SAND (SP): fine to coarse grained sand, moist, light brown, no odors. | SAND PACK |
| -50 | | | | | | | | | |
| -51 | | | | | | | | | |
| -52 | | 5.3 | | | | | | | |
| -53 | | | | | | | | | |
| -54 | 5.0'/ 5.0' | 6.0 | | | | | | 54-59 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light brown, no odors. | PVC SCREEN |
| -55 | | | | | | | | | |
| -56 | | | | | | | | | |
| -57 | | 4.0 | | | | | | | |
| -58 | | | | | | | | | |
| -59 | 5.0'/ 5.0' | 35.6 | | | SB-1 (59-61.5) | | | 59-64 ft bgs: SAA | SUMP |
| -60 | | | | | | | | | |

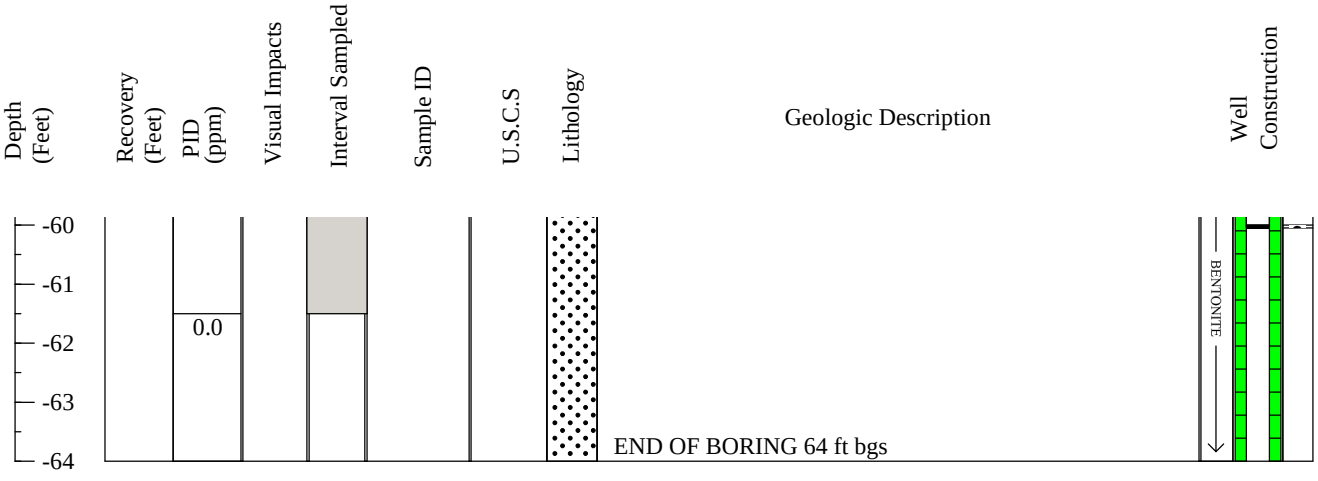
Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-1 / MW-1



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 54 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.36'/57.09' |
| **Date Pre-Cleared:** Jan 24, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 24, 2011 / Jan 25, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW-1 |




Comments: NA: Not Applicable; ft bgs: feet below grade surface; Sonic drilling started at 5 ft bgs.
NR: No Recovery; SAA: Same as above; Visual impacts also include olfactory impacts.
ND: Not Documented; Hand cleared from 0-5 ft bgs.

AECOM

# Boring ID: SB - 2 / MW - 2



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 49 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 55.41'/55.03' |
| **Date Pre-Cleared:** Jan. 25, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 25, 2011 / Jan. 26, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 2 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.7 | | | SB-2 (0.30-1) | FILL | | 0-0.30 ft bgs: ASPHALT<br>0.30-1.0 ft bgs: FILL: silty sand, ~30% gravel, moist, light brown.<br>1.0-7.5 ft bgs: FILL: concrete. | CONCRETE |
| -1 | | | | | | | | | SAND PACK |
| -2 | | | | | | | | | |
| -3 | | | | | | | | | BENTONITE |
| -4 | | | | | | | | | |
| -5 | | | | | | | | | |
| -6 | | | | | | | | | |
| -7 | | | | | | | | | |
| -8 | | 0.6 | | | | SW | | 7.5-9 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~30% cobbles up to 6 inches in diameter, wet from drill water, light brown, no odors. | |
| -9 | 5.0'/ 5.0' | 0.6 | | | | | | 9-14 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~40% cobbles up to 6 inches in diameter, dry, no odors. | |
| -10 | | | | | | | | | |
| -11 | | | | | | | | | |
| -12 | | 0.5 | | | | | | | |
| -13 | | | | | | | | | |
| -14 | 4.75'/ 5.0' | 4.3 | | | | | | 14-19 ft bgs: WELL GRADED SAND (SW): silty sand, ~30% cobbles up to 6 inches in diameter, light brown, dry, no odor. | |
| -15 | | | | | | | | | |
| -16 | | | | | | | | | |
| -17 | | 1.4 | | | | | | | |
| -18 | | | | | | | | | |
| -19 | 2.0'/ 5.0' | 1.9 | | | | | | 19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~25% gravel, moist, brown, no | |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable ft bgs: feet below grade surface Sonic drilling started at 1.0 ft bgs due to concrete obstruction.
NR: No Recovery SAA: Same As Above
ND: Not Documented Hand cleared from 0 to 1.0 ft bgs

AECOM

# Boring ID: SB - 2 / MW - 2



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 49 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 55.41'/55.03' |
| **Date Pre-Cleared:** Jan. 25, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 25, 2011 / Jan. 26, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 2 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | odors. | GROUT / PVC RISER |
| -21 | | | | | | | | | |
| -22 | | 1.2 | | | | | | | |
| -23 | | | | | | | | | |
| -24 | 3.83'/ 5.0' | 1.1 | | | | | | 24-29 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~20% gravel, ~5% cobbles, moist, light brown, no odors. | |
| -25 | | | | | | | | | |
| -26 | | | | | | | | | |
| -27 | | 0.7 | | | | | | | |
| -28 | | | | | | | | | |
| -29 | 2.5'/ 5.0' | 3.5 | | | | | | 29-34 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel, moist to wet from drill water, light brown, no odors. | |
| -30 | | | | | | | | | |
| -31 | | | | | | | | | |
| -32 | | 1.1 | | | | | | | |
| -33 | | | | | | | | | |
| -34 | 3.92'/ 5.0' | 0.5 | | | | | | 34-39 ft bgs: SAA, moist. | |
| -35 | | | | | | | | | |
| -36 | | | | | | | | | |
| -37 | | 0.1 | | | | | | | |
| -38 | | | | | | | | | |
| -39 | 1.75'/ 5.0' | 2.8 | | | | | | 39-44 ft bgs: SAA | |
| -40 | | | | | | | | | |

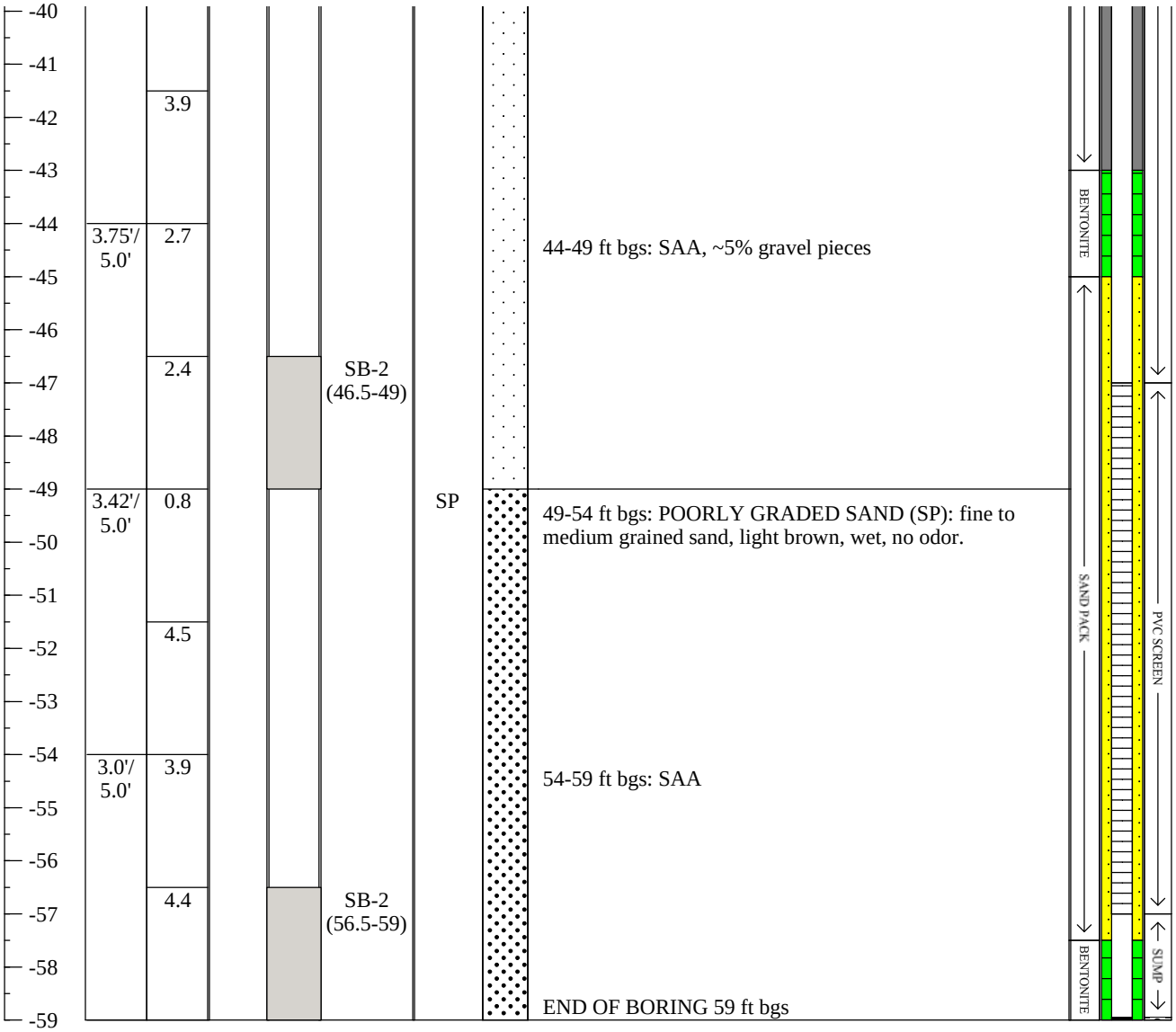
Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same As Above; Hand cleared from 0 to 1.0 ft bgs; Sonic drilling started at 1.0 ft bgs due to concrete obstruction.

AECOM

# Boring ID: SB - 2 / MW - 2



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 49 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 55.41'/55.03' |
| **Date Pre-Cleared:** Jan. 25, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 25, 2011 / Jan. 26, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 2 |




Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same As Above; Hand cleared from 0 to 1.0 ft bgs; Sonic drilling started at 1.0 ft bgs due to concrete obstruction.

AECOM

# Boring ID: SB - 3 / MW - 3



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.23'/57.83' |
| **Date Pre-Cleared:** Feb. 8, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 8, 2011/ Feb. 9, 2011 | **Logged By:** Heather Albert | **Well ID:** MW - 3 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | 1.2 | | | | FILL | | 0-0.42 ft bgs: CONCRETE<br>0.42-1.5 ft bgs: FILL: clay, ~5% fine grained sand, cohesive, somewhat plastic, medium stiff, <10% gray mottled, wet, no odor. | CONCRETE |
| -1 | | | | | | | | | |
| -2 | NA | 2.0 | | | SB-3 (1.5-3) | | | | BENTONITE |
| -3 | NA | 1.3 | | | | | | 1.5-3.0 ft bgs: SAA, unable to hand clear after 3 ft bgs due to cobbles and crushed concrete. | |
| -4 | | | | | | | | 3-5 ft bgs: FILL: medium grained sand, brown, cobbles 1-6 inches in diameter, angular to rounded, grey, crushed concrete, wet, no odor. | |
| -5 | ND | 2.2 | | | | | | | |
| -6 | ND | 3.2 | | | | SW | | 5-6 ft bgs: SAA<br>6-8 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~30% angular gravel up to 1 centimeter in diameter, ~10% cobbles up to 4 inches in diameter, dry, reddish brown, no odors. | |
| -7 | | | | | | | | | |
| -8 | ND | 5.3 | | | | | | 8-10 ft bgs: SAA | |
| -9 | | | | | | | | | |
| -10 | ND | 4.1 | | | | | | | |
| -11 | 3.5'/ 3.0' | 3.3 | | | | | | 10-11 ft bgs: WELL GRADED SAND (SW): ~60% fine to medium grained sand, ~30% cobbles up to 4 inches in diameter, angular to rounded, ~10% silt, non-cohesive, non-plastic, moist, brown, no odors. | |
| -12 | | | | | | | | | |
| -13 | | | | | | | | 11-14 ft bgs: SAA | |
| -14 | 2.58'/ 5.0' | 4.7 | | | | | | | |
| -15 | | | | | | | | 14-19 ft bgs: SAA, ~70% fine to coarse grained sand, ~20% cobbles, ~10% silt. | |
| -16 | | | | | | | | | |
| -17 | | | | | | | | | |
| -18 | | | | | | | | | |
| -19 | 3.0'/ 5.0' | 4.6 | | | | | | 19-24 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% gravel, cobbles 1 centimeter to | |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same As Above; Hand cleared to 3 ft bgs; Sonic drilling started at 3 ft bgs; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 3 / MW - 3



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.23'/57.83' |
| **Date Pre-Cleared:** Feb. 8, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 8, 2011/ Feb. 9, 2011 | **Logged By:** Heather Albert | **Well ID:** MW - 3 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | 2 inches in diameter, subangular to rounded, moist, multi-colored, no odor. | GROUT / PVC RISER |
| -21 | | | | | | | | | |
| -22 | | | | | | | | | |
| -23 | | | | | | | | | |
| -24 | 3.5'/ 5.0' | 4.0 | | | | | | 24-29 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~5% rounded gravel up to 1 centimeter in diameter, slightly moist, brown. | |
| -25 | | | | | | | | | |
| -26 | | | | | | | | | |
| -27 | | | | | | | | | |
| -28 | | | | | | | | | |
| -29 | 3.5'/ 5.0 | 4.6 | | | | | | 29-34 ft bgs: SAA, moist. | |
| -30 | | | | | | | | | |
| -31 | | | | | | | | | |
| -32 | | | | | SB-3 (31.5-34) | | | | |
| -33 | | | | | | | | | |
| -34 | 2.83'/ 5.0' | 3.3 | | | | | | 34-36.5: SAA | |
| -35 | | | | | | | | | |
| -36 | | | | | | | | | |
| -37 | | 4.0 | | | | | | 36.5-39 ft bgs: WELL GRADED SAND (SW): very fine grained sand and silt, non-cohesive, non-plastic, dry to slightly moist, brown, no odor. | |
| -38 | | | | | | | | | |
| -39 | 3.42'/ 5.0' | 3.4 | | | | | | 39-44 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, moist, brown, no odors. | |
| -40 | | | | | | | | | |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same As Above; Hand cleared to 3 ft bgs; Sonic drilling started at 3 ft bgs; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 3 / MW - 3



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.23'/57.83' |
| **Date Pre-Cleared:** Feb. 8, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 8, 2011/ Feb. 9, 2011 | **Logged By:** Heather Albert | **Well ID:** MW - 3 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | | |
| -41 | | | | | | | | | |
| -42 | | | | | | | | | |
| -43 | | | | | | | | | |
| -44 | 2.66'/ 5.0' | 2.9 | | | | SP | | 44-49 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, no odors. | BENTONITE |
| -45 | | | | | | | | | |
| -46 | | | | | | | | | |
| -47 | | 3.1 | | | SB-3 (46.5-49) | | | | SAND PACK |
| -48 | | | | | | | | | |
| -49 | 3.0'/ 5.0' | 2.6 | | | | | | 49-54 ft bgs: SAA, wet. | |
| -50 | | | | | | | | | |
| -51 | | | | | | | | | |
| -52 | | 2.7 | | | | | | | PVC SCREEN |
| -53 | | | | | | | | | |
| -54 | 3.42'/ 5.0' | 1.0 | | | | | | 54-56.5 ft bgs: SAA | |
| -55 | | | | | | | | | |
| -56 | | | | | | | | | |
| -57 | | 2.3 | | | SB-3 (56.5-59) | | | 56.5-59 ft bgs: SAA, very fine grained sand and silt, wet. | |
| -58 | | | | | | | | | BENTONITE |
| -59 | | | | | | | | END OF BORING 59 ft bgs | SUMP |

Comments: NA: Not Applicable; ft bgs: feet below grade surface; Sonic drilling started at 3 ft bgs
NR: No Recovery; SAA: Same As Above; Visual impacts also includes olfactory impacts.
ND: Not Documented; Hand cleared to 3 ft bgs

AECOM

# Boring ID: SB - 4 / MW - 4



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.58'/56.25' |
| **Date Pre-Cleared:** Feb. 10, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 10, 2011 / Feb. 15, 2011 | **Logged By:** Heather Albert | **Well ID:** MW - 4 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.8 | | | | FILL | | 0-0.42 ft bgs: CONCRETE<br>0.42-2.5 ft bgs: FILL: fine to coarse grained sand, ~40% cobbles 0.5 centimeters to 6 inches in diameter, subangular to rounded, moist, brown, no odors. | CONCRETE |
| -1 | | | | | | | | | |
| -2 | | | | | | | | | |
| -3 | NA | 1.0 | | | SB - 4 (2.5-5) | | | 2.5-5 ft bgs: SAA | BENTONITE |
| -4 | | | | | | | | | |
| -5 | ND | 1.0 | | | | | | 5-6 ft bgs: SAA | |
| -6 | ND | 2.4 | | | | | | 6-8 ft bgs: FILL: fine to coarse grained sand, ~20% cobbles up to 4 inches in diameter, rounded, ~20% silt, non-cohesive, non-plastic, soft, moist, brown. | |
| -7 | | | | | | | | | |
| -8 | ND | 2.6 | | | | | | 8-10 ft bgs: SAA | |
| -9 | | | | | | | | | |
| -10 | 3.0'/ 3.0' | 3.6 | | | | | | 10-13 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~1% cobbles up to 2 inches in diameter, subrounded, moist, reddish brown, no odor. | |
| -11 | | | | | | | | | |
| -12 | | | | | | | | | |
| -13 | 3.0'/ 3.0' | 2.0 | | | | SW | | 13-16 ft bgs: WELL GRADED SAND (SW): ~50% fine to coarse grained sand, brown, ~50% cobbles, angular to rounded, up to 4 inches in diameter, multi-colored, moist, no odors. | |
| -14 | | | | | | | | | |
| -15 | | | | | | | | | |
| -16 | 2.5'/ 4.0' | 1.8 | | | | | | 16-20 ft bgs: SAA, cobbles 1-2 inches in diameter. | |
| -17 | | | | | | | | | |
| -18 | | | | | | | | | |
| -19 | | | | | | | | | |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 4 / MW - 4



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.58'/56.25' |
| **Date Pre-Cleared:** Feb. 10, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 10, 2011 / Feb. 15, 2011 | **Logged By:** Heather Albert | **Well ID:** MW - 4 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | 2.5'/ 4.0' | 1.2 | | | | | | 20-25 ft bgs: SAA, drillers using water to advance. | GROUT |
| -21 | | | | | | | | | |
| -22 | | | | | | | | | |
| -23 | | 1.3 | | | | | | | |
| -24 | | | | | | | | | |
| -25 | 3.33'/ 5.0' | 1.4 | | | | | | 25-30 ft bgs: WELL GRADED SAND (SW): fine to coarse sand, brown, ~10% gravel up to 1 centimeter in diameter, rounded, multicolored, moist, no odor. | |
| -26 | | | | | | | | | |
| -27 | | | | | | | | | |
| -28 | | 1.7 | | | | | | | |
| -29 | | | | | | | | | |
| -30 | 3.08'/ 5.0' | 2.0 | | | | SP | | 30-35 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, no odor. | |
| -31 | | | | | | | | | |
| -32 | | | | | | | | | |
| -33 | | 1.6 | | | | | | | |
| -34 | | | | | | | | | |
| -35 | 2.83'/ 5.0' | 1.4 | | | | | | 35-40 ft bgs: SAA | |
| -36 | | | | | | | | | |
| -37 | | | | | | | | | |
| -38 | | | | | | | | | |
| -39 | | | | | | | | | |
| -40 | | | | | | | | | PVC RISER |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0 - 5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 4 / MW - 4



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.58'/56.25' |
| **Date Pre-Cleared:** Feb. 10, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 10, 2011 / Feb. 15, 2011 | **Logged By:** Heather Albert | **Well ID:** MW - 4 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -40 | 3.0'/ 5.0' | 1.6 | | | | | | 40-45 ft bgs: SAA | BENTONITE |
| -41 | | | | | | | | | |
| -42 | | | | | | | | | |
| -43 | | | | | | | | | |
| -44 | | | | | | | | | |
| -45 | 2.0'/ 5.0' | 0.9 | | | | | | 45-50 ft bgs: SAA, light brown. | |
| -46 | | | | | | | | | |
| -47 | | | | | SB - 4 (47-50) | | | | |
| -48 | | 1.2 | | | | | | | |
| -49 | | | | | | | | | |
| -50 | 1.67'/ 5.0' | 1.3 | | | | | | 50-55 ft bgs: SAA | SAND PACK |
| -51 | | | | | | | | | |
| -52 | | | | | | | | | PVC SCREEN |
| -53 | | 1.3 | | | | | | | |
| -54 | | | | | | | | | |
| -55 | 2.67'/ 5.0' | 8.0 | | | | | | 55-60 ft bgs: SAA, very faint petroleum-like odor at bottom. | |
| -56 | | | | | | | | | |
| -57 | | | | | | | | | |
| -58 | | 11.3 | | | | | | | SUMP |
| -59 | | | | | | | | | |
| -60 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

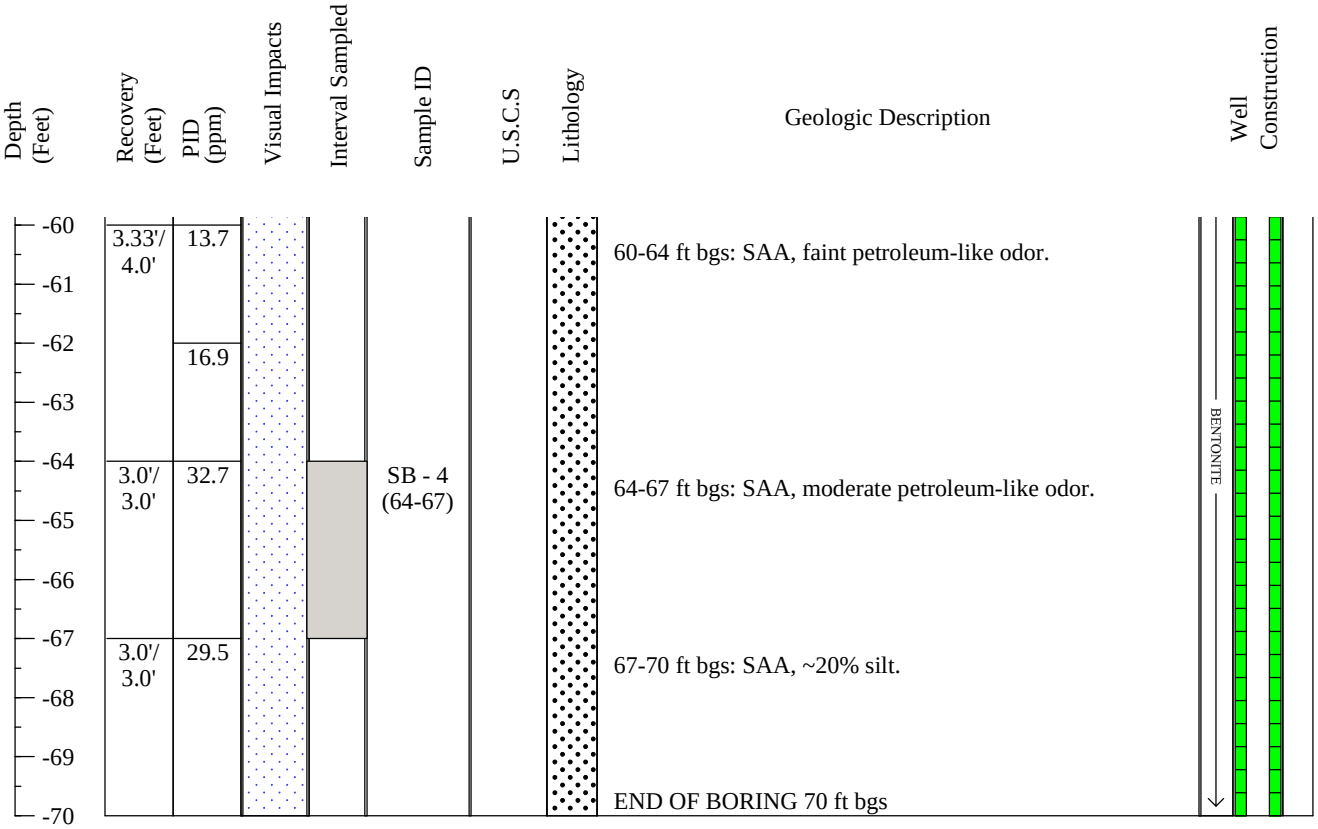
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 4 / MW - 4



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.58'/56.25' |
| **Date Pre-Cleared:** Feb. 10, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 10, 2011 / Feb. 15, 2011 | **Logged By:** Heather Albert | **Well ID:** MW - 4 |




Comments: NA: Not Applicable; SAA: Same As Above; Sonic drilling started at 5 ft bgs.
NR: No Recovery; ft bgs: feet below grade surface; Visual impacts also includes olfactory impacts.
ND: Not Documented; Hand cleared from 0 - 5 ft bgs.

AECOM

# Boring ID: SB-5 / MW-5



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 51 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.58'/59.15' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 19, 2011/Jan. 20, 2011 | **Logged By:** Rolando Arco | **Well ID:** MW-5 |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | NA | ND | | | | FILL | | 0-0.5 ft bgs: CONCRETE. 0.5-4 ft bgs: FILL: dark brown, poorly sorted silty sand. | CONCRETE |
| -1 | | NA | | | | | | | | |
| -2 | | NA | | | | | | | | BENTONITE |
| -3 | | NA | | | | | | | | |
| -4 | | NA | | | | | | | | |
| -5 | 1'/ 2' | NA | 0.3 | | | SB-5 (4.5-5) | | | 4- 5 ft bgs: FILL: brown - yellow clay. 5-7 ft bgs: FILL: light brown clay, one large angular pebble in bottom of spoon, moist. | |
| -6 | | | | | | | | | | |
| -7 | 1.6'/ 2' | 22/ 44/ 58/ 70 | 0.4 | | | | | | 7-8.5 ft bgs: No recovery. | |
| -8 | | | | | | | | | | |
| -9 | 0.75'/ 2' | 12/ 58/ 50/2" | 0.8 | | | | | | 8.5-9 ft bgs: FILL: light brown, poorly sorted sand/gravel mixture, moist. | |
| -10 | | | | | | | | | 9-11 ft bgs: FILL: brown, poorly sorted sand. | |
| -11 | 2'/ 2' | 42/ 48/ 51/ 58 | 1.4 | | | | | | 11-15 ft bgs: FILL: brown, gravel/sand (~60% gravel and ~40% sand), dry. | |
| -12 | | | | | | | | | | |
| -13 | 1'/ 2' | 22/ 48/ 50/ 38 | ND | | | | | | | |
| -14 | | | | | | | | | | |
| -15 | 0.7'/ 2' | 12/ 42/ 22/ 16 | 0.0 | | | | | | 15 -16 ft bgs: FILL: brown, fine, sand, dry. | |
| -16 | | | | | | | SW | | 16-17 ft bgs: WELL GRADED SAND (SW): brown, coarse grained, sand (~70%) and fine gravel (~30%). | |
| -17 | 0.8'/ 2' | 23/ 44/ 50/ 23 | 0.0 | | | | | | 17-19 ft bgs: WELL GRADED GRAVEL (GW): coarse angular gravel, ~25% poorly sorted sand and pulverized rock fragments. | |
| -18 | | | | | | | | | | |
| -19 | NR | 100/ 5" | NA | | | | | | 19-23 ft bgs: NO RECOVERY. | |
| -20 | | | | | | | | | | |

Comments: NA: Not Applicable; HSA: Hollow Stem Auger; Hand cleared from 0-5 ft bgs.
NR: No Recovery; ft bgs: feet below grade surface; Visual impacts also includes olfactory impacts.
Ground Elevation: (surface)/(rim); ND: Not Documented; SAA: Same As Above

AECOM

# Boring ID: SB-5 / MW-5



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 51 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.58'/59.15' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 19, 2011/Jan. 20, 2011 | **Logged By:** Rolando Arco | **Well ID:** MW-5 |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | | | |
| -21 | NR | 100/ 4" | NA | | | | | | | |
| -22 | | | | | | | | | | |
| -23 | 0.7'/ 2' | 42/ 21/ 14/ 16 | 0.0 | | | | | | 23-25 ft bgs: WELL GRADED SAND (SW): light brown, coarse gravelly sand (~50% gravel, ~50% sand), dry. | GROUT |
| -24 | | | | | | | | | | |
| -25 | 0.5'/ 2' | 42/ 20/ 25/ 35 | 0.0 | | | | | | 25-27 ft bgs: SAA, rounded pebbles, pebble observed in shoe of sampler. | |
| -26 | | | | | | | | | | |
| -27 | 0.7'/ 2' | 40/ 18/ 20/ 30 | 0.0 | | | | | | 27-29 ft bgs: WELL GRADED SAND (SW): light brown-yellow, poorly sorted sand, ~ 50% medium to coarse sand, ~10% fine to medium gravel, rounded pebbles, dry. | |
| -28 | | | | | | | | | | |
| -29 | 0.4'/ 2' | 7/ 9/ 10/ 20 | 0.0 | | | | | | 29-31 ft bgs: SAA, finer grained sand from 30.5-31 ft bgs. | |
| -30 | | | | | | | | | | |
| -31 | 2'/ 2' | 16/ 22/ 22/ 25 | 0.0 | | | SB-5 (31-33) | | | 31-31.7 ft bgs: WELL GRADED SAND (SW): light brown to yellow medium to coarse sand, ~10% gravel, dry. | |
| -32 | | | | | | | | | | |
| -33 | 0.7'/ 2' | 8/ 8/ 5/ 25 | 0.0 | | | | | | 31.7-33 ft bgs: WELL GRADED SAND (SW): light brown poorly sorted sand, ~40% coarse sand, ~10% fine gravel, dry. | |
| -34 | | | | | | | | | | |
| -35 | NR | 40/ 70/ 50/3" | NA | | | | | | 33-35 ft bgs: SAA, < 5% silt, dry. | |
| -36 | | | | | | | | | 35-37 ft bgs: NO RECOVERY. | |
| -37 | 0.8'/ 2' | 8/ 12/ 17/ 18 | 0.0 | | | | | | 37-39 ft bgs: SAA (33-35 ft bgs). | |
| -38 | | | | | | | | | | |
| -39 | NR | 38/ 38/ | NA | | | | | | 39-41 ft bgs: NO RECOVERY. | PVC RISER |
| -40 | | | | | | | | | | |

Comments: NA: Not Applicable; HSA: Hollow Stem Auger; Hand cleared from 0-5 ft bgs.
NR: No Recovery; ft bgs: feet below grade surface; Visual impacts also includes olfactory impacts.
Ground Elevation: (surface)/(rim); ND: Not Documented; SAA: Same As Above

AECOM

# Boring ID: SB-5 / MW-5



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 51 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.58'/59.15' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 19, 2011/Jan. 20, 2011 | **Logged By:** Rolando Arco | **Well ID:** MW-5 |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|---|
| -40 | | 38/ 45 | | | | | | | | |
| -41 | 2'/ 2' | 11/ 17/ 25/ 30 | 0.0 | | | | | | 41-43 ft bgs: SAA (37-39 ft bgs). | |
| -42 | | | | | | | | | | |
| -43 | 2'/ 2' | 14/ 22/ 22/ 26 | 0.0 | | | | | | 43-45 ft bgs: WELL GRADED SAND (SW): light brown, well sorted fine sand, ~5% silt, ~5% gravel. | BENTONITE |
| -44 | | | | | | | | | | |
| -45 | 2'/ 2' | 20/ 30/ 26/ 30 | 0.0 | | | | | | 45-47 ft bgs: WELL GRADED SAND (SW): light brown, poorly sorted sand, dry. | |
| -46 | | | | | | | | | | |
| -47 | 2'/ 2' | 14/ 20/ 20/ 28 | 0.0 | | | SB-5 (47-49) | | | 47-49 ft bgs: SAA. | |
| -48 | | | | | | | | | | |
| -49 | 1.6'/ 2' | 10/ 20/ 20/ 19 | 0.0 | | | | | | 49-50.2 ft bgs: SAA. | |
| -50 | | | | | | | | | 50.2-51 ft bgs: WELL GRADED SAND (SW): brown fine sand, moist to wet. | SAND PACK |
| -51 | 2'/ 2' | 10/ 10/ 14/ 20 | 0.0 | | | | | | 51-53 ft bgs: WELL GRADED SAND (SW): brown poorly sorted sand, ~65% medium to coarse sand, ~25% medium to fine sand, ~10% fine gravel (multiple colored, rounded, pebbles), wet. | PVC SCREEN |
| -52 | | | | | | | | | | |
| -53 | 2'/ 2' | 5/ 6/ 4/ 18 | 0.0 | | | | | | 53- 55 ft bgs: SAA. | |
| -54 | | | | | | | | | | |
| -55 | 2'/ 2' | 10/ 25/ 30/ 35 | 0.0 | | | | | | 55-57 ft bgs: SAA. | |
| -56 | | | | | | | | | | |
| -57 | 1.3/ 2' | 28/ 18/ 12/ 18 | 0.0 | | | | | | 57-59 ft bgs: SAA. | |
| -58 | | | | | | | | | | SUMP |
| -59 | 1'/ 2' | 4/ 1/ | 0.0 | | | | | | 59-61 ft bgs: SAA, run water in augers. | |
| -60 | | | | | | | | | | |

Comments: NA: Not Applicable; NR: No Recovery; Ground Elevation: (surface)/(rim); HSA: Hollow Stem Auger; ft bgs: feet below grade surface; ND: Not Documented; Hand cleared from 0-5 ft bgs.; Visual impacts also includes olfactory impacts.; SAA: Same As Above

AECOM

# Boring ID: SB-5 / MW-5



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 51 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.58'/59.15' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 19, 2011/Jan. 20, 2011 | **Logged By:** Rolando Arco | **Well ID:** MW-5 |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|---|
| -60 | | 3/ 10 | | | | | | | | |
| -61 | 1.5'/ 2' | 9/ 14/ 26/ 27 | 0.0 | | | | | | 61-63 ft bgs: SAA. | |
| -62 | | | | | | | | | | |
| -63 | 1.5/ 2' | 16/ 14/ 8/ 24 | 0.0 | | | | | | 63-65 ft bgs: SAA. | |
| -64 | | | | | | | | | | |
| -65 | 0.6'/ 2' | 22/ 13/ 10/ 20 | 0.0 | | | | | | 65-67 ft bgs: SAA. | |
| -66 | | | | | | | | | | |
| -67 | 0.4'/ 2' | 10/ 12/ 4/ 14 | 0.0 | | | | | | 67-69 ft bgs: SAA. | |
| -68 | | | | | | | | | | |
| -69 | 0.7'/ 2' | 10/ 12/ 18/ 30 | 0.0 | | | SB-5 (69-71) | | | 69-71 ft bgs: SAA. | |
| -70 | | | | | | | | | | |
| -71 | | | | | | | | | END OF BORING 71 ft bgs | BENTONITE |

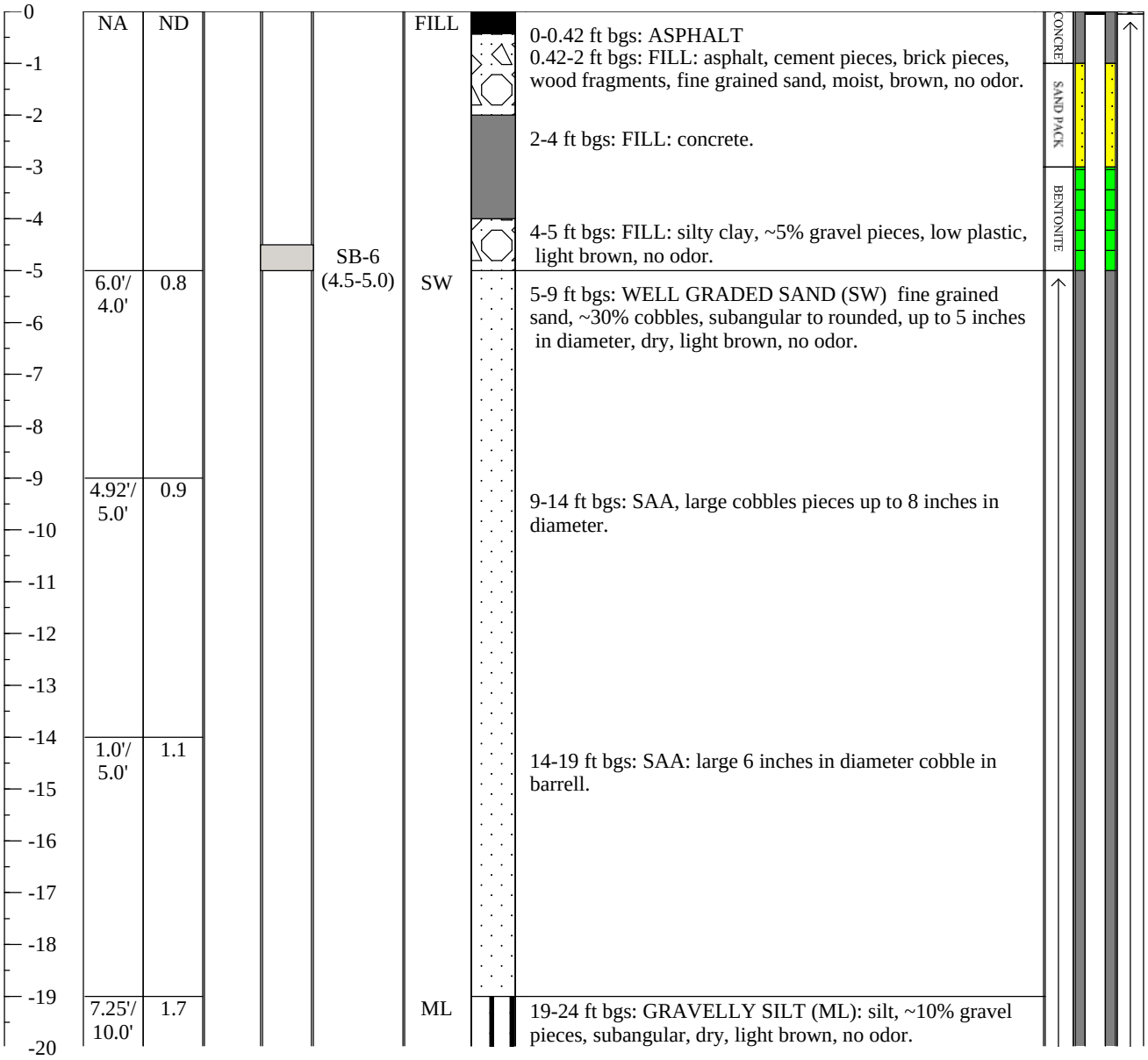
Comments: NA: Not Applicable; NR: No Recovery; Ground Elevation: (surface)/(rim); HSA: Hollow Stem Auger; ft bgs: feet below grade surface; ND: Not Documented; Hand cleared from 0-5 ft bgs.; Visual impacts also includes olfactory impacts.; SAA: Same As Above

AECOM

# Boring ID: SB - 6 / MW - 6



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 74 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.82'/57.49' |
| **Date Pre-Cleared:** Jan. 17, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 17, 2011 / Jan. 18, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 6 |




Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.
Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 6 / MW - 6



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 74 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.82'/57.49' |
| **Date Pre-Cleared:** Jan. 17, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 17, 2011 / Jan. 18, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 6 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | | |
| -21 | | | | | | | | | |
| -22 | | | | | | | | | |
| -23 | | | | | | | | | |
| -24 | | | | | | GW | | 24-29 ft bgs: WELL GRADED GRAVEL (GW): rounded gravel, ~40% fine grained sand, dry, light brown, no odor. | GROUT / PVC RISER |
| -25 | | | | | | | | | |
| -26 | | | | | | | | | |
| -27 | | | | | | | | | |
| -28 | | | | | | | | | |
| -29 | 3.0'/ 5.0' | 0.3 | | | | SW | | 29-34 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, ~10% rounded gravel, dry, light brown, no odors. | |
| -30 | | | | | | | | | |
| -31 | | | | | | | | | |
| -32 | | | | | | | | | |
| -33 | | | | | | | | | |
| -34 | 3.16'/ 5.0' | 0.1 | | | | | | 34-39 ft bgs: SAA, dry to moist. | |
| -35 | | | | | | | | | |
| -36 | | | | | | | | | |
| -37 | | | | | | | | | |
| -38 | | | | | | | | | |
| -39 | 4.0'/ 5.0' | 3.1 | | | | | | 39-40 ft bgs: WELL GRADED SAND (SW): fine grained sand, silt, ~5% gravel, dry to moist, light brown, no odor. | |
| -40 | | | | | | | | | |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0 - 2 ft bgs.; Sonic drilling started at 2 ft bgs due to concrete obstruction. Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 6 / MW - 6



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 74 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.82'/57.49' |
| **Date Pre-Cleared:** Jan. 17, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 17, 2011 / Jan. 18, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 6 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | 40-44 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~5% gravel, dry to moist, light brown, no odor. | BENTONITE |
| -41 | | | | | | | | | |
| -42 | | | | | | | | | |
| -43 | | | | | | | | | |
| -44 | 2.67'/ 5.0' | 13.7 | | | | | | 44-49 ft bgs: SAA, moist, faint gasoline-like odor. | |
| -45 | | | | | | | | | |
| -46 | | | | | | | | | |
| -47 | | | | | | | | | |
| -48 | | | | | | | | | |
| -49 | 5.0'/ 5.0' | 1350 | | | | SP | | 49-54 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, strong gasoline-like odor, gray petroleum staining from 50-52 ft bgs. | SAND PACK |
| -50 | | | | | SB-6 (50-52) | | | | |
| -51 | | | | | | | | | |
| -52 | | | | | | | | | PVC SCREEN |
| -53 | | | | | | | | | |
| -54 | 5.17'/ 5.0' | 328 | | | | | | 54-59 ft bgs: SAA, brown. | |
| -55 | | | | | | | | | |
| -56 | | | | | | | | | |
| -57 | | | | | | | | | |
| -58 | | | | | | | | | |
| -59 | 5.0'/ 5.0' | 84.9 | | | | | | 59-64 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, moderate gasoline-like | SUMP |
| -60 | | | | | | | | | |

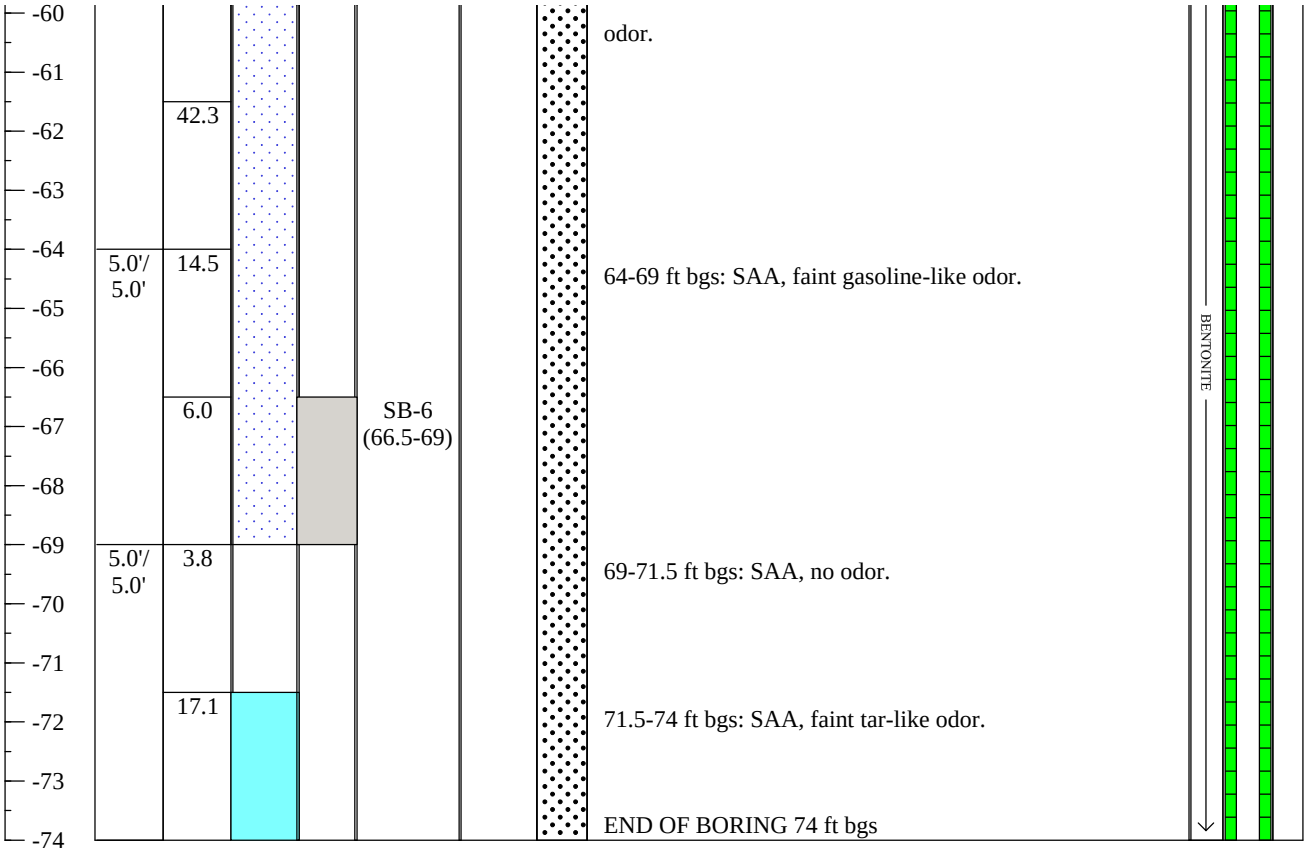
Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.
Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 6 / MW - 6



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 74 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.82'/57.49' |
| **Date Pre-Cleared:** Jan. 17, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 17, 2011 / Jan. 18, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 6 |




Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0 - 2 ft bgs.; Sonic drilling started at 2 ft bgs due to concrete obstruction. Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 7 / MW - 7



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 69 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.23'/57.86' |
| **Date Pre-Cleared:** Jan. 20, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 20, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 7 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.4 | | | | FILL | | 0-0.42 ft bgs: CONCRETE<br>0.42-3 ft bgs: FILL: cement pieces, fine to coarse grained sand, ~10% gravel, slightly moist, light brown, no odor. | CONCRETE |
| -1 | | | | | | | | | |
| -2 | | | | | | | | | SAND PACK |
| -3 | | | | | | | | 3-3.5 ft bgs: FILL: concrete. | |
| -4 | | | | | | SW | | 3.5-5 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% gravel, slightly moist, light brown, no odor. | BENTONITE |
| -5 | 2.0'/ 2.0' | 0.2 | | | SB-7 (4.5-5) | | | | |
| -6 | | 0.2 | | | | | | 5-6 ft bgs: WELL GRADED SAND (SW): silty sand, wet, light brown, no odor. | |
| -7 | 3.0'/ 2.0' | 0.4 | | | | | | 6-7 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% subangular gravel, slightly moist, brown, no odor. | |
| -8 | | | | | | | | | |
| -9 | 4.42'/ 5.0' | 1.0 | | | | | | 7-9 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~25% gravel, angular, up to 4 inches in diameter, dry, brown, no odor. | |
| -10 | | | | | | | | 9-10 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~10% gravel, wet, light brown, no odor. | |
| -11 | | | | | | | | | |
| -12 | | 0.7 | | | | | | 10-14 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~40% gravel up to 4 inches in diameter, moist, brown, no odor. | |
| -13 | | | | | | | | | |
| -14 | 5.42'/ 5.0' | 0.4 | | | | | | 14-19 ft bgs: SAA, fine to medium grained sand. | |
| -15 | | | | | | | | | |
| -16 | | | | | | | | | |
| -17 | | 0.7 | | | | | | | |
| -18 | | | | | | | | | |
| -19 | 5.0'/ 5.0' | 1.1 | | | | | | 19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~40% gravel, moist, brown, no | |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 3 ft bgs.

Sonic driling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

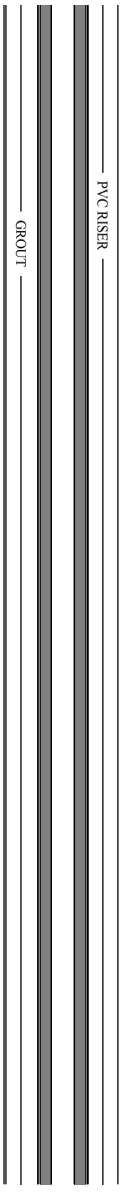
AECOM

# Boring ID: SB - 7 / MW - 7



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 69 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.23'/57.86' |
| **Date Pre-Cleared:** Jan. 20, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 20, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 7 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | odor. | |
| -21 | | | | | | | | | |
| -22 | | 1.4 | | | | | | | |
| -23 | | | | | | | | | |
| -24 | 5.0'/ 5.0' | 1.0 | | | | | | 24-29 ft bgs: SAA, ~30% gravel. | |
| -25 | | | | | | | | | |
| -26 | | | | | | | | | |
| -27 | | 3.1 | | | | | | | |
| -28 | | | | | | | | | |
| -29 | 2.0'/ 5.0' | 0.7 | | | | | | 29-34 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel, moist, brown, no odor. | |
| -30 | | | | | | | | | |
| -31 | | | | | | | | | |
| -32 | | | | | | | | | |
| -33 | | | | | | | | | |
| -34 | 2.75'/ 5.0' | 1.3 | | | | | | 34-39 ft bgs: SAA | |
| -35 | | | | | | | | | |
| -36 | | | | | | | | | |
| -37 | | 2.4 | | | | | | | |
| -38 | | | | | | | | | |
| -39 | 2.0'/ 5.0' | 0.5 | | | | | | 39-49 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% fine gravel, moist, brown, no | |
| -40 | | | | | | | | | |




Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 3 ft bgs.
Sonic driling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 7 / MW - 7



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 69 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.23'/57.86' |
| **Date Pre-Cleared:** Jan. 20, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 20, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 7 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | odor. | BENTONITE |
| -41 | | | | | | | | | |
| -42 | | | | | | | | | |
| -43 | | | | | | | | | |
| -44 | | | | | | | | | |
| -45 | | | | | | | | | |
| -46 | | | | | | | | | |
| -47 | | | | | | | | | |
| -48 | | | | | | | | | |
| -49 | 4.83'/ 5.0' | 0.3 | | | | SP | | 49-54 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, no odors. | SAND PACK |
| -50 | | | | | | | | | |
| -51 | | | | | | | | | |
| -52 | | 0.3 | | | SB-7 (51.5-54) | | | | PVC SCREEN |
| -53 | | | | | | | | | |
| -54 | 5.0'/ 5.0' | 0.7 | | | | | | 54-59 ft bgs: SAA | |
| -55 | | | | | | | | | |
| -56 | | | | | | | | | |
| -57 | | 0.4 | | | | | | | SUMP |
| -58 | | | | | | | | | |
| -59 | 4.83'/ 5.0' | 0.6 | | | | | | 59-64 ft bgs: SAA | |
| -60 | | | | | | | | | |

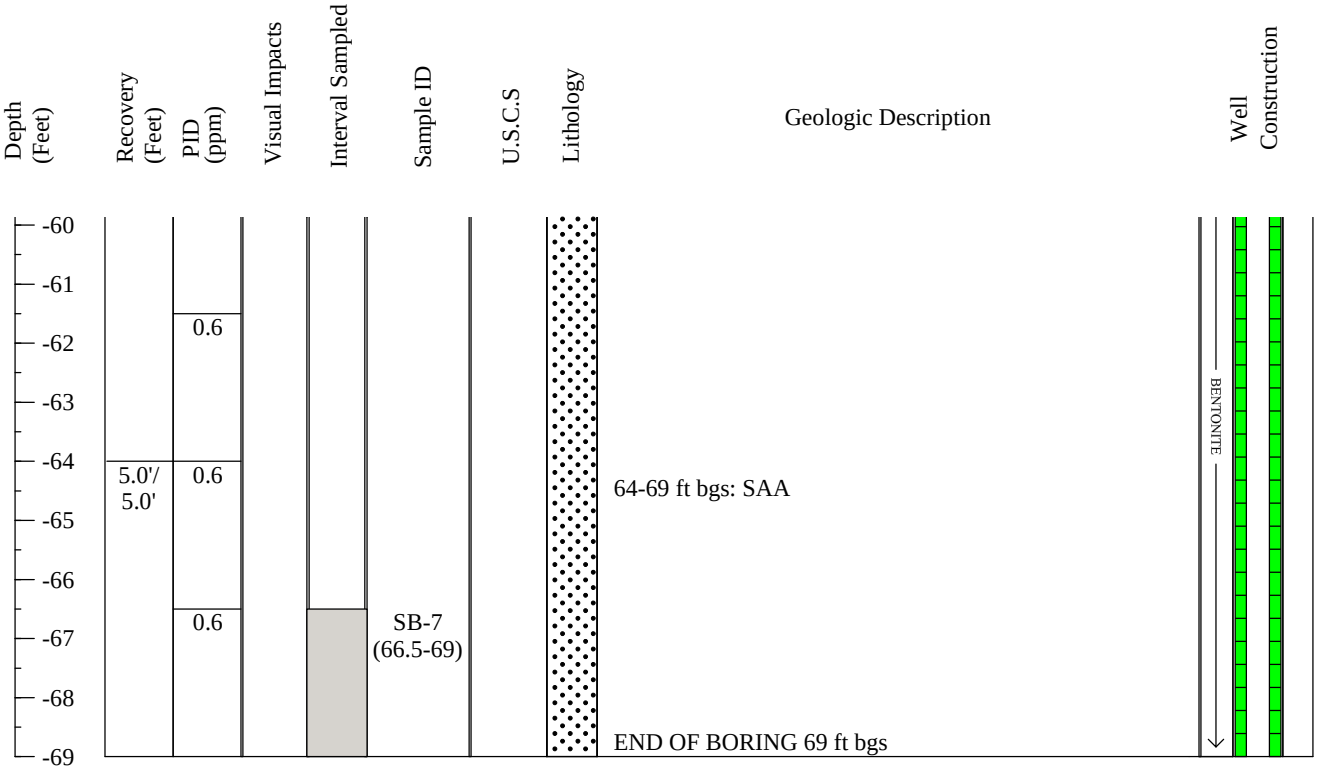
Comments: NA: Not Applicable; SAA: Same As Above; Sonic driling started at 3 ft bgs due to concrete obstruction.
NR: No Recovery; ft bgs: feet below grade surface; Visual impacts also includes olfactory impacts.
ND: Not Documented; Hand cleared from 0 - 3 ft bgs.

AECOM

# Boring ID: SB - 7 / MW - 7



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 69 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.23'/57.86' |
| **Date Pre-Cleared:** Jan. 20, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Jan. 20, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** MW - 7 |




Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0 - 3 ft bgs.; Sonic driling started at 3 ft bgs due to concrete obstruction. Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 8 / MW - 8



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.62'/57.30' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 16, 2011 / Feb. 16, 2011 | **Logged By:** Hallie Garrett | **Well ID:** MW - 8 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.4 | | | | FILL | | 0-0.42 ft bgs: CONCRETE<br>0.42-3 ft bgs: FILL: fine to coarse grained sand, angular gravel and sand, dry, gray. | CONCRETE SAN |
| -1 | | | | | | | | | |
| -2 | | | | | | | | | |
| -3 | 2.0'/ 2.0' | 0.8 | | | SB-8 (3-5) | | | 3-3.33 ft bgs: FILL: concrete and cobbles.<br>3.33-5 ft bgs: FILL: sand, silt, ~20% gravel, angular, wet, medium brown, loose. | BENTONITE |
| -4 | | | | | | | | | |
| -5 | 2.0'/ 2.0' | 0.8 | | | | SW | | 5-7 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% gravel and cobbles up to 8 inches in diameter, moist, medium dense, medium brown. | |
| -6 | | | | | | | | | |
| -7 | 2.0'/ 2.0' | 0.2 | | | | | | 7-9 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~30% gravel and cobbles up to 6 inches in diameter, subrounded to subangular, moist, medium brown. | |
| -8 | | | | | | | | | |
| -9 | 4.58'/ 5.0' | 0.4 | | | | | | 9-14 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel and cobbles up to 4 inches in diameter, subrounded to subangular, moist, medium brown. | |
| -10 | | | | | | | | | |
| -11 | | | | | | | | | |
| -12 | | 0.7 | | | | | | | |
| -13 | | | | | | | | | |
| -14 | 5.0'/ 5.0' | 0.5 | | | | SP | | 14-19 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~5% coarse grained sand, <5% cobble and gravel, subangular to subrounded, moist, medium brown. | |
| -15 | | | | | | | | | |
| -16 | | | | | | | | | |
| -17 | | 0.4 | | | | | | | |
| -18 | | | | | | | | | |
| -19 | 5.0'/ 5.0' | 0.1 | | | | SW | | 19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel up to 2 inches in | |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 8 / MW - 8



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.62'/57.30' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 16, 2011 / Feb. 16, 2011 | **Logged By:** Hallie Garrett | **Well ID:** MW - 8 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | diameter, cobbles up to 8 inches in diameter, subrounded, dry, medium brown. | GROUT / PVC RISER |
| -21 | | | | | | | | | |
| -22 | | 0.9 | | | | | | | |
| -23 | | | | | | | | | |
| -24 | 5.0'/ 5.0' | 2.4 | | | | | | 24-29 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~20% gravel up to 2 inches in diameter, subrounded, ~10% silt, dry, medium dense, medium brown. | |
| -25 | | | | | | | | | |
| -26 | | | | | | | | | |
| -27 | | 1.8 | | | | | | | |
| -28 | | | | | | | | | |
| -29 | 2.5'/ 5.0' | 3.1 | | | | SP | | 29-34 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% coarse grained sand, <5% gravel, subrounded, medium dense, moist, medium brown. | |
| -30 | | | | | | | | | |
| -31 | | | | | | | | | |
| -32 | | 2.0 | | | | | | | |
| -33 | | | | | | | | | |
| -34 | 2.5'/ 5.0' | 0.9 | | | | | | 34-39 ft bgs: SAA | |
| -35 | | | | | | | | | |
| -36 | | | | | | | | | |
| -37 | | 0.9 | | | | | | | |
| -38 | | | | | | | | | |
| -39 | 3.33'/ 5.0' | 1.6 | | | | | | 39-44 ft bgs: POORLY GRADED SAND (SP): fine to coarse grained sand, ~5% coarse grained sand, | |
| -40 | | | | | | | | | |

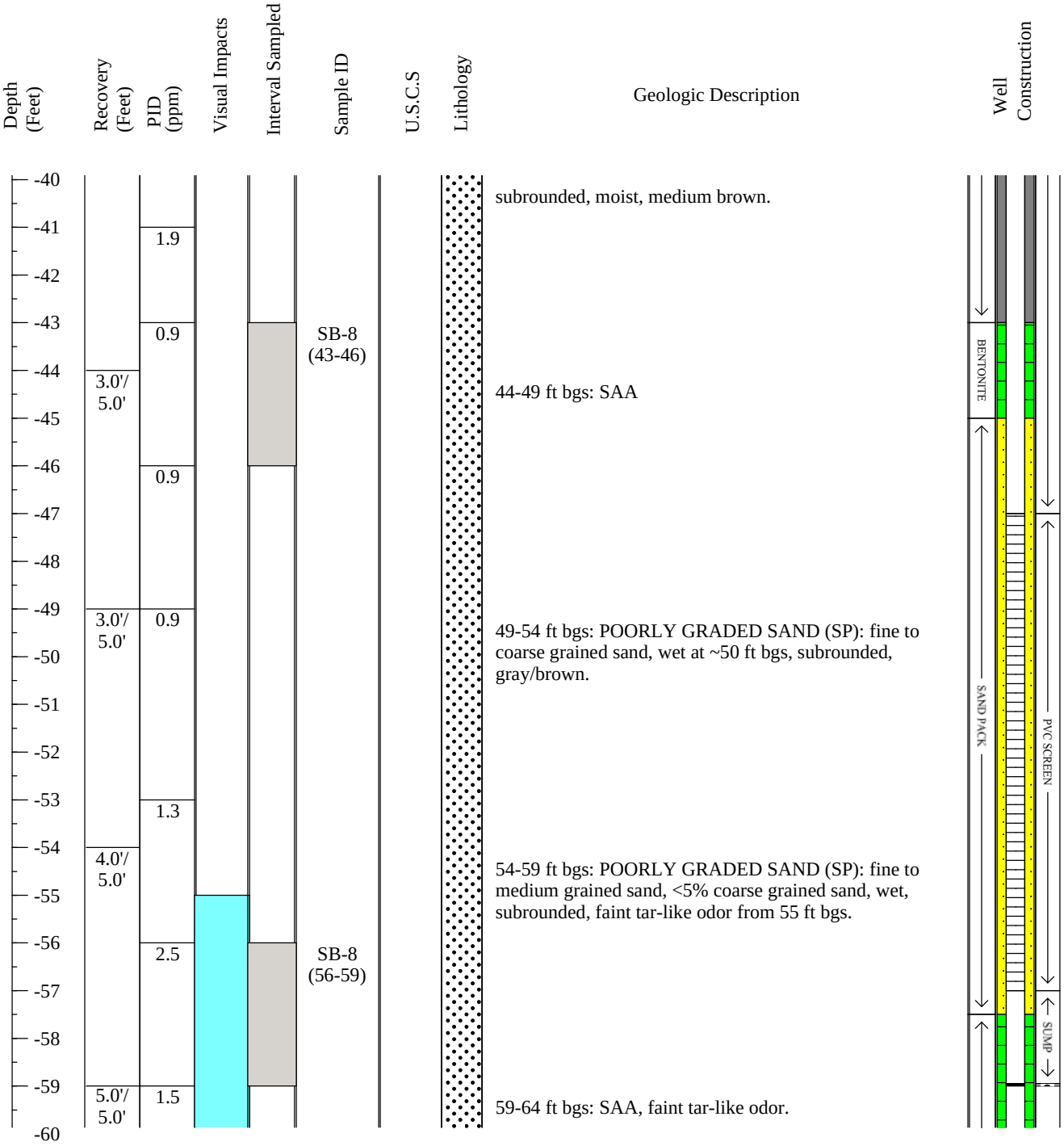
Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0 - 5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 8 / MW - 8



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.62'/57.30' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 16, 2011 / Feb. 16, 2011 | **Logged By:** Hallie Garrett | **Well ID:** MW - 8 |



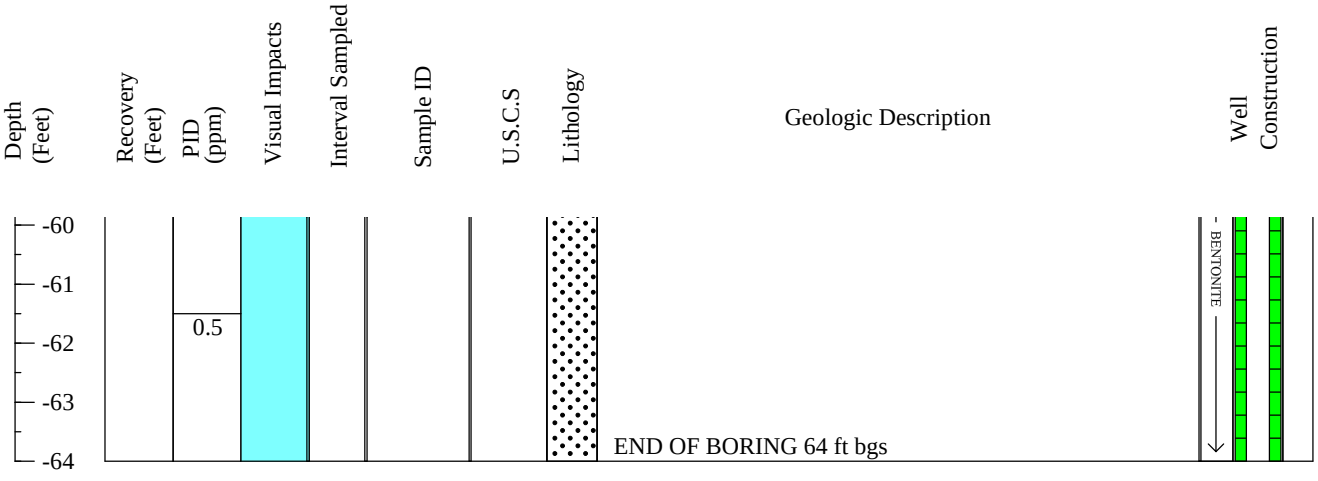

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0 - 5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 8 / MW - 8



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 64 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.62'/57.30' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** Feb. 16, 2011 / Feb. 16, 2011 | **Logged By:** Hallie Garrett | **Well ID:** MW - 8 |




Comments: NA: Not Applicable; SAA: Same As Above; Sonic drilling started at 5 ft bgs.
NR: No Recovery; ft bgs: feet below grade surface; Visual impacts also includes olfactory impacts.
ND: Not Documented; Hand cleared from 0 - 5 ft bgs.

AECOM

# Boring ID: SB - 9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 49 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.22' |
| **Date Pre-Cleared:** Jan. 28, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 28, 2011 / Jan. 28, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | 4.0 | | | | FILL | | 0-0.29 ft bgs: ASPHALT<br>0.29-2 ft bgs: FILL: fine grained sand, ~30% silt, ~25% gravel and brick pieces, moist, brown, faint tar-like odor. |
| -1 | | | | | | | | |
| -2 | | 19.3 | | | SB-9 (2-3) | | | 2-3 ft bgs: SAA |
| -3 | | 6.3 | | | | | | 3-6 ft bgs: SAA, concrete pieces, brick pieces, wood and metal fragments. |
| -4 | | | | | | | | |
| -5 | | | | | | | | |
| -6 | NA | 8.1 | | | SB-9 (6-7) | | | 6-7 ft bgs: FILL: ~80% gravel pieces, ~5% brick fragments, ~15% fine grained sand, moist, stained black, faint tar-like odor. |
| -7 | | 4.8 | | | | | | 7-7.5 ft bgs: FILL: concrete and brick fragments. |
| -8 | | 2.7 | | | SB-9 (8-10) | | | 7.5-8 ft bgs: FILL: fine grained sand, ~25% rounded gravel, dry, light brown, faint tar-like odor. |
| -9 | | | | | | | | 8-10 ft bgs: FILL: fine grained sand, ~25% gravel, dry, light brown, faint tar-like odor. |
| -10 | 4.83'/ 5.0' | 1.8 | | | | | | 10-12.5 ft bgs: FILL: large brick piece top 6 inches, ~60% gravel, angular, ~40% fine grained sand, dry, light brown, no odor. |
| -11 | | | | | | | | |
| -12 | | | | | | | | |
| -13 | | | | | | | | 12.5-15 ft bgs: SAA |
| -14 | | | | | | | | |
| -15 | 3.0'/ 5.0' | 1.9 | | | | SW | | 15-19 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~30% gravel, ~5% cobbles up to 4 inches in diameter, dry, light brown, no odor. |
| -16 | | | | | | | | |
| -17 | | | | | | | | |
| -18 | | | | | | | | |
| -19 | 3.83'/ 5.0' | 4.4 | | | | | | 19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~20% gravel, ~5% cobbles up to 3 inches in diameter, moist, |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-6 ft bgs.

Sonic drilling started at 6 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 49 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.22' |
| **Date Pre-Cleared:** Jan. 28, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 28, 2011 / Jan. 28, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | brown, no odor. |
| -21 | | | | | | | | |
| -22 | | 3.7 | | | | | | |
| -23 | | | | | | | | |
| -24 | 3.5'/ 5.0' | 4.5 | | | | | | 24-29 ft bgs: SAA, no cobbles. |
| -25 | | | | | | | | |
| -26 | | | | | | | | |
| -27 | | 6.2 | | | | | | |
| -28 | | | | | | | | |
| -29 | 3.42'/ 5.0' | 3.5 | | | | SP | | 29-34 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% fine grained gravel, moist, light brown, no odors. |
| -30 | | | | | | | | |
| -31 | | | | | | | | |
| -32 | | | | | | | | |
| -33 | | | | | | | | |
| -34 | 2.16'/ 5.0' | 1.9 | | | | | | 34-39 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~5% fine grained gravel, moist, light brown, no odors. |
| -35 | | | | | | | | |
| -36 | | | | | | | | |
| -37 | | | | | | | | |
| -38 | | | | | | | | |
| -39 | 1.75'/ 5.0' | 7.7 | | | | | | 39-44 ft bgs: SAA |
| -40 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-6 ft bgs.

Sonic drilling started at 6 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 49 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 59 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.22' |
| **Date Pre-Cleared:** Jan. 28, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 28, 2011 / Jan. 28, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | | | | | | | |
| -44 | 3.0'/ 5.0' | 2.0 | | | | | | 44-49 ft bgs: SAA |
| -45 | | | | | | | | |
| -46 | | | | | | | | |
| -47 | | 3.2 | | | | | | |
| -48 | | | | | | | | |
| -49 | 5.0'/ 5.0' | 2.1 | | | | | | 49-54 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light brown, no odors. |
| -50 | | | | | | | | |
| -51 | | | | | | | | |
| -52 | | 1.6 | | | | | | |
| -53 | | | | | | | | |
| -54 | 5.0'/ 5.0' | 1.2 | | | | | | 54-59 ft bgs: SAA |
| -55 | | | | | | | | |
| -56 | | | | | | | | |
| -57 | | 1.9 | | | | | | |
| -58 | | | | | | | | |
| -59 | | | | | | | | END OF BORING 59 ft bgs |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-6 ft bgs.

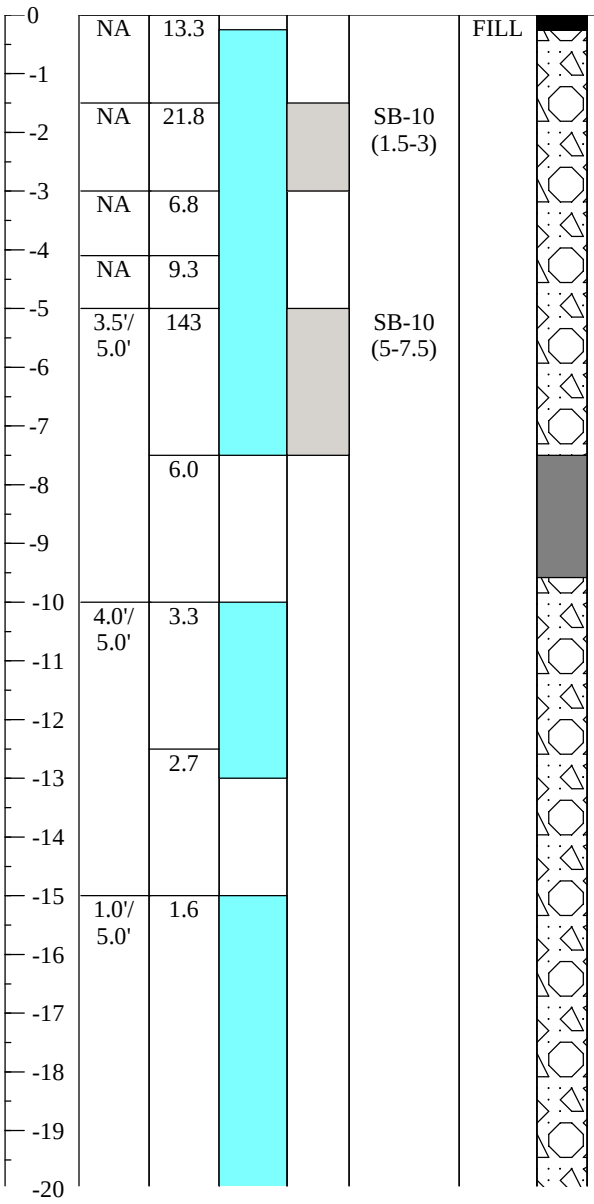
Sonic drilling started at 6 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.46' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 / Feb. 2, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |




Geologic Description

0-0.25 ft bgs: ASPHALT
0.25-1.5 ft bgs: FILL: fine grained sand, ~10% gravel, angular, ~5% brick debris, moist, dark brown, faint tar-like odor.

1.5-3.0 ft bgs: FILL: fine grained sand, ~35% brick debris, ~10% silt, <5% wood framents, 2-2 inch cast iron pipes, copper wires, rebarb, dry, brown, moderate tar-like odor.

3.0-4.1 ft bgs: SAA, faint tar-like odor.

4.1-5 ft bgs: FILL: 4 inches in diameter granite cobble on top, fine grained sand, ~10% gravel and brick debris up to 1 inch in diameter, angular, dry, brown, faint tar-like odor.

5-7.5 ft bgs: FILL: subangular gravel pieces, ~30% silt, ~20% fine grained sand, wet to moist, non-plastic, gray, strong tar-like odor.

7.5-9.58 ft bgs: FILL: concrete pad.

9.58-10 ft bgs: FILL: 50% fine grained sand, 50% gravel, subangular, dry, brown, no odor.

10-13 ft bgs: FILL: gravel up to 4 inches in diameter, ~25% fine grained sand, dry, light brown, faint tar-like odor.

13-15 ft bgs: FILL: gravel, ~40% silty sand, non-plastic, brown, dry, no odor.

15-20 ft bgs: FILL: fine grained sand, ~40% cobbles up tp 3 inches in diameter, subangular, dry, brown, faint tar-like odor.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.46' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 / Feb. 2, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | 1.83'/ 5.0' | 3.6 | | | | | | 20-25 ft bgs: FILL: fine grained sand, ~40% cobbles up to 5 inches in diameter, wet, brown, faint tar-like odor. |
| -25 | NR | NA | | | | | | 25-30 ft bgs: No Recovery, 4 inch in diameter piece of gneiss in core barrel. |
| -30 | NR | NA | | | | | | 30-35 ft bgs: No Recovery |
| -35 | 5.0'/ 5.0' | 1.9 | | | | | | 35-36 ft bgs: FILL: cobbles up to 5 inches in diameter, dry, no odor.<br>36-38 ft bgs: FILL: broken up cement pieces, brick pieces, dry, no odor. |
| -40 | | | | | | | | 38-40 ft bgs: FILL: fine grained sand, ~35% subangular gravel, ~5% brick debris, dry, brown, no odor. |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.46' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 / Feb. 2, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | 5.16'/ 5.0' | 4.8 | | | | | | 40-43 ft bgs: FILL: fine grained sand, ~20% cobbles up to 4 inches in diameter, 10-15% fine grained gravel, <5% brick debris, dry, brown, no odor. |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | 2.2 | | | | SP | | 43-45 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% fine grained gravel, moist to dry, light brown, no odor. |
| -44 | | | | | | | | |
| -45 | 4.0'/ 5.0' | 2.8 | | | | | | 45-49.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% fine grained gravel, moist, light brown, no odor. |
| -46 | | | | | | | | |
| -47 | | | | | | | | |
| -48 | | | | | | | | |
| -49 | | | | | | | | 49.5-50 ft bgs: SAA, wet. |
| -50 | 4.33'/ 5.0' | 3.7 | | | | | | 50-55 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% fine grained gravel, wet, brown, no odor. |
| -51 | | | | | | | | |
| -52 | | | | | | | | |
| -53 | | 2.7 | | | | | | |
| -54 | | | | | | | | |
| -55 | 4.5'/ 5.0' | 11.9 | | | | | | 55-60 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% fine grained gravel, wet, brown, moderate tar-like odor. |
| -56 | | | | | | | | |
| -57 | | | | | | | | |
| -58 | | 28.2 | | | | | | |
| -59 | | | | | | | | |
| -60 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.46' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 / Feb. 2, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -60 | | | | | | | | |
| -61 | 5.16'/ 5.0' | 277 | | | SB-10 (60-62.5) | | | 60-62.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light gray staining, strong tar-like odor. |
| -62 | | | | | | | | |
| -63 | | 174 | | | | | | 62.5-65 ft bgs: SAA, light brown, no staining. |
| -64 | | | | | | | | |
| -65 | 4.25'/ 5.0' | 131 | | | | | | 65-70 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light brown, moderate tar-like odor. |
| -66 | | | | | | | | |
| -67 | | | | | | | | |
| -68 | | 227 | | | | | | |
| -69 | | | | | | | | |
| -70 | 5.33'/ 5.0' | 248 | | | | | | 70-75 ft bgs: SAA, strong tar-like odor. |
| -71 | | | | | | | | |
| -72 | | | | | | | | |
| -73 | | 247 | | | | | | |
| -74 | | | | | | | | |
| -75 | 3.67'/ 5.0' | 51.2 | | | | | | 75-80 ft bgs: POORLY GRADED SAND (SP): fine to coarse grained sand, wet, brown, moderate tar-like odor. |
| -76 | | | | | | | | |
| -77 | | | | | | | | |
| -78 | | 35.4 | | | | | | |
| -79 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.46' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 / Feb. 2, 2011 | **Logged By:** Jessica Ehlen | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -80 | 5.0'/ 5.0' | 3.8 | | | SB-10 (80-82.5) | | | 80-84 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~30% silt, 5-10% patches of gray staining from 1 centimeter to 1 inch throughout, wet, brown, faint tar-like odor. |
| -81 | | | | | | | | |
| -82 | | 3.3 | | | | | | |
| -83 | | | | | | | | 84-85 ft bgs: POORLY GRADED SAND (SP): fine grained sand, wet, brown, faint tar-like odor. |
| -84 | | | | | | | | |
| -85 | | | | | | | | END OF BORING 85 ft bgs |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0 - 5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 11



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 55.6 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.67' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 | **Logged By:** Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.6 | | | | FILL | | 0-1 ft bgs: ASPHALT and asphalt sub-base, dark brown and black. |
| -1 | NA | 6.2 | | | SB-11 (1-2) | | | 1-2 ft bgs: FILL: silty sand, fine grained sand, ~30% silt, ~5% fine to medium grained gravel, angular, 5-10% wood chips, moist, brown, no odor. |
| -2 | NA | 5.2 | | | | | | 2-3 ft bgs: SAA, <5% cobbles. |
| -3 | NA | 3.6 | | | | | | 3-4 ft bgs: SAA, ~25% large cobbles, 3 to 6 inches in diameter, angular to rounded, ~5-10% brick fragments. |
| -4 | 1.5'/ 2.0' | 2.9 | | | | | | 4-6 ft bgs: FILL: silty clay, ~5-10% medium grained sand, ~5-10% small round gravel, ~5-10% brick fragments, cohesive, non-plastic, moist, dark grayish brown, no odor. |
| -5 | | | | | | | | |
| -6 | 1.5'/ 1.5' | 5.2 | | | | | | 6-8.5 ft bgs: FILL: fine to medium grained sand, ~30% cobbles 1 to 5 inches in diameter, ~10% gravel, angular to rounded, moist, brown, no odor, a few inches of dry, gray sand at ~ 8 ft bgs. |
| -7 | | | | | | | | |
| -8 | | | | | | | | |
| -9 | 2.0'/ 2.0' | 4.8 | | | | | | 8.5-10.6 ft bgs: SAA, brown and grayish brown. |
| -10 | | | | | | | | |
| -11 | 5.0'/ 5.0' | 7.9 | | | | | | 10.6-13.1: SAA |
| -12 | | | | | | | | |
| -13 | | 7.7 | | | | | | 13.1-15.6: FILL: large reddish brown brick fragments throughout, <1% wood fragments, cobbles up to 6 inches in diameter. |
| -14 | | | | | | | | |
| -15 | | | | | | | | |
| -16 | 4.1'/ 5.0' | 5.5 | | | | SW | | 15.6-20.6 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% gravel, ~10% cobbles 1 centimeter to 3 inches in diameter, angular to rounded, <5% silt at ~19 ft bgs, moist, brown, silt is reddish brown, no odor. |
| -17 | | | | | | | | |
| -18 | | | | | | | | |
| -19 | | | | | | | | |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 7 ft bgs.

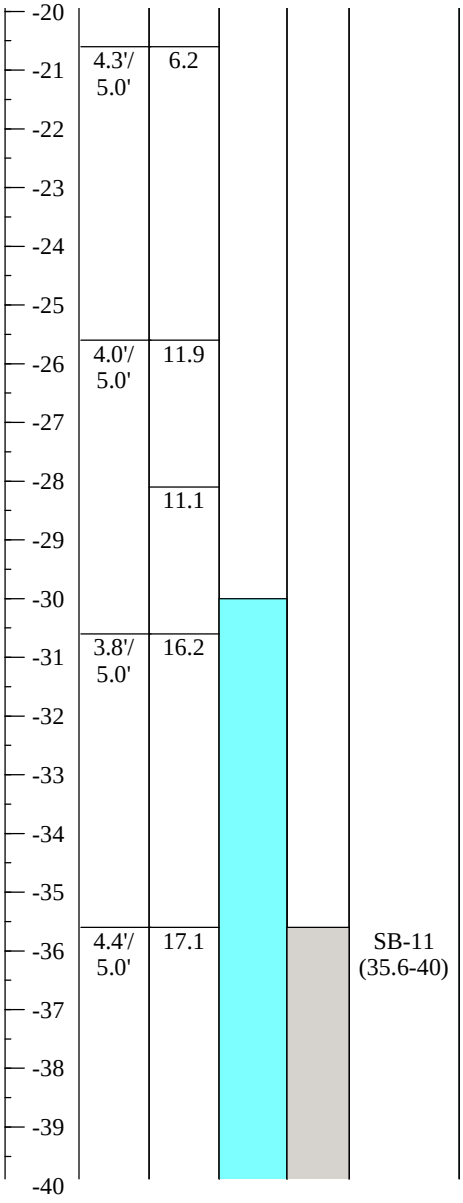
Sonic drilling started at 7 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 11



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 55.6 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.67' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 | **Logged By:** Heather Albert | **Well ID:** NA |




Geologic Description

20.6-21 ft bgs: SAA

21-22 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, <5% small gravel, rounded, moist, grayish brown.

22-25.6 ft bgs: SAA (20.6-21 ft bgs interval).

25.6-28 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% small gravel, rounded, moist, grayish brown.

28-30.6 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, well sorted, moist, tan to brown, faint tar-like odor at 30 ft bgs.

30.6-35.6 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~5% gravel up to 1 centimeter in diameter, rounded, moist 30.6-34.6 ft bgs, dry 34.6-35.6 ft bgs, brown, faint tar-like odor.

35.6-40.6 ft bgs: SAA, ~39-39.25 ft bgs crushed rock, gray, powdery, dry to slightly moist, faint tar-like odor.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 7 ft bgs.

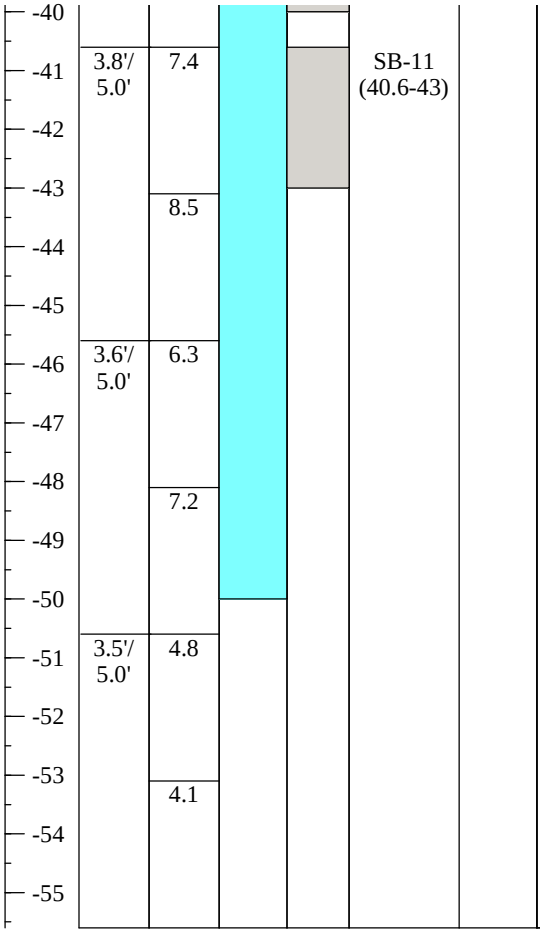
Sonic drilling started at 7 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 11



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** 50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 55.6 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.67' |
| **Date Pre-Cleared:** Jan. 31, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 31, 2011 | **Logged By:** Heather Albert | **Well ID:** NA |




| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | |
| -41 | 3.8'/ 5.0' | 7.4 | | | SB-11 (40.6-43) | | | 40.6-45.6: SAA, less gravel. |
| -42 | | | | | | | | |
| -43 | | 8.5 | | | | | | |
| -44 | | | | | | | | |
| -45 | | | | | | | | |
| -46 | 3.6'/ 5.0' | 6.3 | | | | | | 45.6-50 ft bgs: SAA, 1% gravel, dry to moist. |
| -47 | | | | | | | | |
| -48 | | 7.2 | | | | | | |
| -49 | | | | | | | | |
| -50 | | | | | | | | 50-50.6 ft bgs: POORLY GRADED SAND (SP): fine grained sand, wet, well sorted, brown, no odor. |
| -51 | 3.5'/ 5.0' | 4.8 | | | | | | 50.6-53 ft bgs: SAA |
| -52 | | | | | | | | |
| -53 | | 4.1 | | | | | | 53-55.6 ft bgs: SAA |
| -54 | | | | | | | | |
| -55 | | | | | | | | END OF BORING AT 55.6 ft bgs |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 7 ft bgs.

Sonic drilling started at 7 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 12



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.84' |
| **Date Pre-Cleared:** Feb. 3, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 3, 2011 / Feb. 4, 2011 | **Logged By:** Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | NA | | | | FILL | | 0-0.5 ft bgs: ASPHALT |
| -1 | NA | 3.0 | | | | | | 0.5-2.0 FILL: fine grained sand, ~20% silt, ~10% gravel, 1 centimeter to 2 inches in diameter, large angular pieces, smaller rounded pieces, ~10% cobbles, brick fragments and chuncks, dry to moist, brown, bottom 2 inches gray petroleum staining, no odor. |
| -2 | NA | ND | | | | | | |
| -3 | NA | 16.5 | | | | | | 2-3 ft bgs: FILL: concrete chunks, wet. |
| -4 | | 11.1 | | | SB-12 (3.5-4.5) | | | 3-3.5 ft bgs: FILL: crushed/ brick chunks, ~20% wood, ~20% reddish brown fine to medium grained sand, moist to wet, gray petroleum staining, faint petroleum-like odor. |
| -5 | NA | 3.8 | | | | | | |
| -6 | NA | 3.8 | | | | | | 3.5-4.5 ft bgs: FILL: concrete and fine to medium grained sand, wet, gray petroleum stained, faint petroleum-like odor. |
| -7 | | | | | | | | 4.5-5.5 ft bgs: FILL: gravel and cobbles, angular to rounded, up to 2 inches in diameter, gray coated, <10% medium grained sand, <1% wood chunks, wet, brown and gray, petroleum-like odor. |
| -8 | | | | | | | | |
| -9 | NA | 11.4 | | | | | | 5.5-8.5 ft bgs: FILL: crushed/broken concrete, dry, no staining, no odor. |
| -10 | 3.33'/ 5.0' | 2.8 | | | | | | 8.5-9 ft bgs: FILL: cobbles up to 4 inches in diameter, fine to medium grained sand, ~20% angular gravel up to 1 centimeter in diameter, moist to wet, gray, faint unknown sweet-like odor. |
| -11 | | | | | | | | |
| -12 | | | | | | | | 9-9.5 ft bgs: SAA, wet. |
| -13 | | | | | | | | 9.5-14 ft bgs: SAA, dry. |
| -14 | 4.17'/ 5.0' | 2.2 | | | | SW | | 14-15 ft bgs: WELL GRADED SAND (SW): coarse grained sand, ~10% angular gravel, wet, multi-colored, no odor. |
| -15 | | 1.3 | | | | | | 15-19 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~10% rounded cobbles up to 4 inches in diameter, slightly moist, cobbles are light gray and white. |
| -16 | | | | | | | | |
| -17 | | | | | | | | |
| -18 | | | | | | | | |
| -19 | 1.83'/ 2.0' | 2.2 | | | | | | 19-21 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, grayish brown, ~20% silt, non-cohesive, ~5% gravel and cobbles, |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.
Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 12



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.84' |
| **Date Pre-Cleared:** Feb. 3, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 3, 2011 / Feb. 4, 2011 | **Logged By:** Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | angular to rounded, 1 centimeter to 2 inches in diameter, multi-colored, wet, no odor. |
| -21 | 3.33'/ 4.0' | 3.5 | | | | GW | | 21-25 ft bgs: WELL GRADED GRAVEL (GW): gravel 5 millimeters to 1 centimeter in diameter, rounded to angular, cobbles 1 to 3 inches in diameter, subrounded, ~30% brown fine to coarse grained sand, gray gravel and cobbles, dry, no odor. |
| -22 | | | | | | | | |
| -23 | | | | | | | | |
| -24 | | | | | | | | |
| -25 | 3.25'/ 4.0' | 3.2 | | | | | | 25-29 ft bgs: SAA |
| -26 | | | | | | | | |
| -27 | | | | | | | | |
| -28 | | | | | | | | |
| -29 | 3.42'/ 4.0' | 1.9 | | | | | | 29-34 ft bgs: SAA, ~5% gravel, ~5% cobbles. |
| -30 | | | | | | | | |
| -31 | | | | | | | | |
| -32 | | | | | | | | |
| -33 | | | | | | | | |
| -34 | 3.17'/ 5.0' | 5.1 | | | | SP | | 34-39 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% gravel up to 1 centimeter in diameter, dry, brown, no odor. |
| -35 | | | | | | | | |
| -36 | | | | | | | | |
| -37 | | | | | | | | |
| -38 | | | | | | | | |
| -39 | 4.0'/ 5.0' | 5.7 | | | | | | 39-43 ft bgs: SAA |
| -40 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 12



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.84' |
| **Date Pre-Cleared:** Feb. 3, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 3, 2011 / Feb. 4, 2011 | **Logged By:** Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | 14.3 | | | | | | 43-44 ft bgs: POORLY GRADED SAND (SP): silt, ~30% fine grained sand, slightly cohesive, slightly moist to dry, grayish brown. |
| -44 | 3.0'/ 5.0' | 5.4 | | | | | | 44-49 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% gravel up to 1 centimeter in diameter, dry, brown, no odor. |
| -45 | | | | | | | | |
| -46 | | | | | | | | |
| -47 | | | | | | | | |
| -48 | | | | | | | | |
| -49 | 4.0'/ 5.0' | 7.9 | | | | | | 49-54 ft bgs: SAA |
| -50 | | | | | | | | |
| -51 | | | | | | | | |
| -52 | | | | | | | | |
| -53 | | | | | | | | |
| -54 | 3.67'/ 5.0' | 5.8 | | | | | | 54-56.5 ft bgs: SAA |
| -55 | | | | | | | | |
| -56 | | | | | | | | |
| -57 | | 76 | | | | | | 56.5-59 ft bgs: POORLY GRADED SAND (SP): sandy silt, very fine grained, non-cohesive, non-plastic, wet, grayish brown, very faint petroleum-like odor. |
| -58 | | | | | | | | |
| -59 | 3.5'/ 3.5' | 76.2 | | | | | | 59-62.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, faint petroluem-like odor. |
| -60 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 12



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 57.84' |
| **Date Pre-Cleared:** Feb. 3, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 3, 2011 / Feb. 4, 2011 | **Logged By:** Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -60 | | | | | | | | |
| -61 | | | | | | | | |
| -62 | | | | | | | | |
| -63 | 3.5'/ 3.5' | 1.5 | | | | | | 62.5-66 ft bgs: SAA, moderate petroleum-like odor. |
| -64 | | | | | | | | |
| -65 | | | | | | | | |
| -66 | 3.0'/ 3.5' | 258 | | | | | | 66-69 ft bgs: SAA, increasing fines with depth, ~10% silt, moderate petroleum-like odor. |
| -67 | | | | | | | | |
| -68 | | | | | | | | |
| -69 | 3.0'/ 3.0' | 679 | | | SB-12 (69-72) | SM | | 69-72 ft bgs: SILTY SAND (SM): very fine to medium grained sand, ~30% silt, non-cohesive, non-plastic, moist to wet, brown, moderate petroleum-like odor. |
| -70 | | | | | | | | |
| -71 | | | | | | | | |
| -72 | 3.0'/ 3.0' | 148 | | | | | | 72-75 ft bgs: SAA |
| -73 | | | | | | | | |
| -74 | | | | | | | | |
| -75 | 3.5'/ 3.0' | 55.9 | | | SB-12 (75-77) | | | 75-79 ft bgs: SAA |
| -76 | | | | | | | | |
| -77 | | | | | | | | |
| -78 | | 22.5 | | | | | | |
| -79 | | | | | | | | END OF BORING 79 ft bgs |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 13



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.38' |
| **Date Pre-Cleared:** Feb. 4, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 4, 2011 / Feb. 7, 2011 | **Logged By:** Jessica Ehlen / Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | 9.0 | | | SB-13 (0-1.5) | FILL | | 0-0.25 ft bgs: ASPHALT<br>0.25-1.5 ft bgs: FILL: fine grained sand, ~25% brick debris and cement pieces, dry, brown, no odors. |
| -1 | | | | | | | | |
| -2 | NA | 2.2 | | | | | | 1.5-3 ft bgs: SAA, some black debris, no odor. |
| -3 | NA | 7.9 | | | | | | 3-5 ft bgs: FILL: ~50% medium grained sand, ~40% brick, cobbles, concrete, gray cobbles 0.5 to 4 inches in diameter, ~10% silt, non-cohesive, non-plastic, moist, brown, no odor. |
| -4 | | | | | | | | |
| -5 | NA | 6.2 | | | | | | 5-6 ft bgs: FILL: crushed concrete. |
| -6 | | | | | | | | 6-8 ft bgs: ~50% medium grained sand, ~40% brick, cobbles, crushed concrete, gray cobbles 0.5-4 inches in diameter, ~10% silt, non-cohesive, non-plastic, ~5-10% wood fragments, moist, brown, no odor. |
| -7 | | | | | | | | |
| -8 | NA | 5.3 | | | | | | 8-9 ft bgs: SAA, moisture decreasing with depth. |
| -9 | NA | 4.4 | | | | | | 9-10 ft bgs: FILL: fine to medium grained sand, ~30% cobbles 0.5 centimeters to 5 inches in diameter, angular to rounded, ~20% gravel, ~5-10% brick chunks, moist to wet, brown and reddish brown, no odor. |
| -10 | 2.0'/ 2.0' | 5.1 | | | | SW | | 10-12 ft bgs: WELL GRADED SAND (SW): coarse grained sand, ~30% gravel, ~10% cobbles 0.5 centimeters to 1 inch in diameter, angular to rounded, wet (residual water from top of borehole) to dry, multi-colored, no odor. |
| -11 | | | | | | | | |
| -12 | 2.0'/ 2.0' | 3.5 | | | | | | 12-14 ft bgs: SAA, cobbles up to 2.5 inches in diameter, brown and grayish brown. |
| -13 | | | | | | | | |
| -14 | 2.0'/ 2.5 | 3.6 | | | | | | 14-16.5 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~25% gravel 2 millimeters to 1 centimeter in diameter, ~25% cobbles 0.5 to 2 inches in diameter, angular to rounded, dry, sand is |
| -15 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 13



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.38' |
| **Date Pre-Cleared:** Feb. 4, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 4, 2011 / Feb. 7, 2011 | **Logged By:** Jessica Ehlen / Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -16 | | | | | | | | brown, gravel and cobbles are multi-colored, no odor. |
| -17 | 2.5'/ 2.5' | 3.4 | | | | | | 16.5-19 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~15% gravel up to 1 cenitmeter in diameter, angular to rounded, dry, tan to brown, no odor. |
| -18 | | | | | | | | |
| -19 | 3.0'/ 5.0' | 3.4 | | | | | | 19-24 ft bgs: WELL GRADED SAND (SW): ~50% fine to medium grained sand, ~50% cobbles 0.5 to 4 inches in diameter, angular to rounded, dry, sand is brown, cobbles are gray, no odor. |
| -20 | | | | | | | | |
| -21 | | | | | | | | |
| -22 | | | | | | | | |
| -23 | | | | | | | | |
| -24 | 3.33'/ 5.0' | 4.0 | | | | | | 24-29 ft bgs: SAA |
| -25 | | | | | | | | |
| -26 | | | | | | | | |
| -27 | | | | | | | | |
| -28 | | | | | | | | |
| -29 | 1.67'/ 5.0' | 4.5 | | | | SP | | 29-34 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% rounded gravel up to 1 centimeter in diameter, moist, sand is tan to brown, gravel is multi-colored, no odor. |
| -30 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.

Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 13



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.38' |
| **Date Pre-Cleared:** Feb. 4, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 4, 2011 / Feb. 7, 2011 | **Logged By:** Jessica Ehlen / Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -31 | | | | | | | | |
| -32 | | | | | | | | |
| -33 | | | | | | | | |
| -34 | 1.67'/ 5.0' | 3.4 | | | | | | 34-39 ft bgs: SAA |
| -35 | | | | | | | | |
| -36 | | | | | | | | |
| -37 | | | | | | | | |
| -38 | | | | | | | | |
| -39 | 2.5'/ 5.0' | 3.7 | | | | | | 39-44 ft bgs: SAA |
| -40 | | | | | | | | |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | | | | | | | |
| -44 | 3.0'/ 5.0 | 2.9 | | | | | | 44-49 ft bgs: POORLY GRADED SAND (SP) fine grained sand, dry to moist, brown, no odor. |
| -45 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.

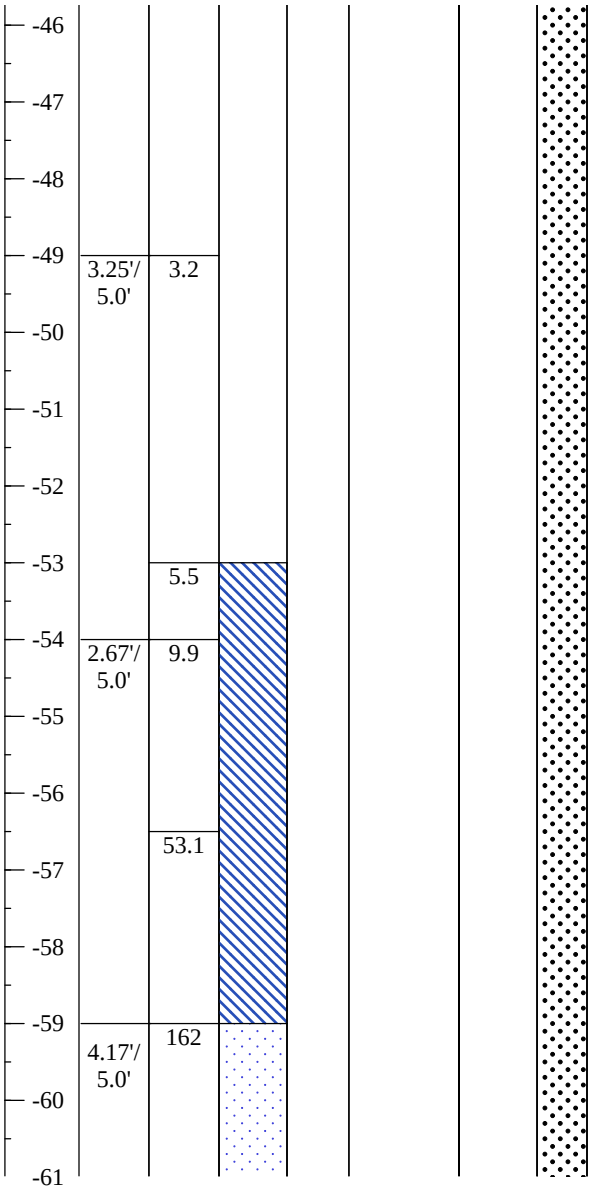
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 13



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.38' |
| **Date Pre-Cleared:** Feb. 4, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 4, 2011 / Feb. 7, 2011 | **Logged By:** Jessica Ehlen / Heather Albert | **Well ID:** NA |




Geologic Description

49-53 ft bgs: SAA

53-54 ft bgs: SAA, fine to coarse grained sand, very faint petroleum-like odor, very slight gray petroleum staining.

54-59 ft bgs: POORLY GRADED SAND (SP) fine grained sand, dry to moist, moderate petroluem-like odor, slight gray petroleum staining.

59-64 ft bgs: SAA, brown, moderate petroleum-like odor.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.

Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 13



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.38' |
| **Date Pre-Cleared:** Feb. 4, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 4, 2011 / Feb. 7, 2011 | **Logged By:** Jessica Ehlen / Heather Albert | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -61 | | | | | | | | |
| | | 188 | | | | | | |
| -62 | | | | | | | | |
| -63 | | | | | | | | |
| -64 | 5.0'/ 5.0 | 1480 | | | SB-13 (64-66.5) | | | 64-66.5 ft bgs: SAA |
| -65 | | | | | | | | |
| -66 | | | | | | | | |
| | | 529 | | | | | | |
| -67 | | | | | | | | 66.5-69 ft bgs: POORLY GRADED SAND (SP) fine grained sand, ~20% silt, moist, non-cohesive, non-plastic, grayish brown, moderate petroleum-like odor. |
| -68 | | | | | | | | |
| -69 | 3.0'/ 3.0' | 498 | | | | | | 69-72 ft bgs: SAA |
| -70 | | | | | | | | |
| -71 | | | | | | | | |
| -72 | 2.67'/ 3.0' | 85.4 | | | | | | 72-75 ft bgs: SAA, no silt, faint petroleum-like odor. |
| -73 | | | | | | | | |
| -74 | | | | | | | | |
| -75 | 3.5'/ 4.0' | 84.5 | | | | | | 75-79 ft bgs: SAA, very faint petroleum-like odor. |
| -76 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.

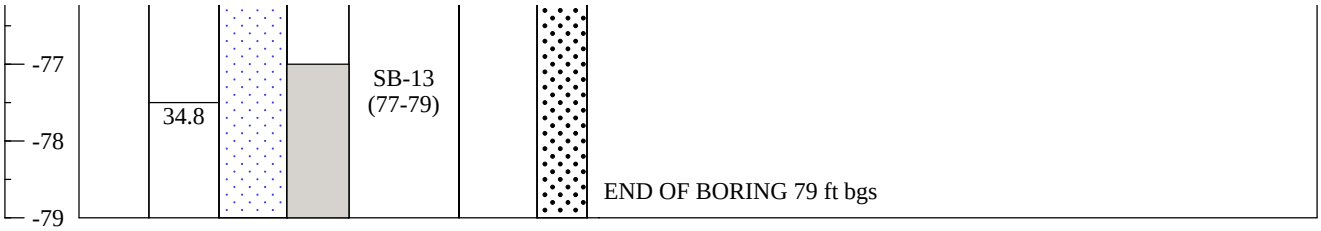
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 13



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 79 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.38' |
| **Date Pre-Cleared:** Feb. 4, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Feb. 4, 2011 / Feb. 7, 2011 | **Logged By:** Jessica Ehlen / Heather Albert | **Well ID:** NA |




Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-14



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 58 ft bgs. |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 57.11' |
| **Date Pre-Cleared:** Jan. 3, 2011 / Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan 5, 2011 / Jan 6, 2011 | **Logged By:** Rolando Arco | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 5.5'/ 5.5' | NA | ND | | | | FILL | | 0-0.4 ft bgs: ASPHALT<br>0.4-5.5 ft bgs: FILL: sand, brick fragments, gravel ranging from small gravel to small cobbles, brown to dark brown. |
| -5 | NR | NA | NA | | | SB-14 (5-5.5) | | | 5.5-12 ft bgs: NO RECOVERY: use air rotary drilling method due to obstructions (cobbles). |
| -12 | 1.6'/ 2' | 165/ 24" | 0.8 | | | | SW | | 12-13.7 ft bgs: WELL GRADED SAND (SW): ~75% fine sand, ~20% gravel, ~5% silt, loose, dry, light brown, no odor. |
| -14 | 1.6'/ 2' | 120/ 24" | 0.6 | | | | | | 13.7-14 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, 1-1 inch in diameter gravel piece, loose, dry, light brown, no odor. |
| -16 | 1.3'/ 2' | 45/ 23/ 37/ 50 | 0.7 | | | | | | 14-16 ft bgs: WELL GRADED SAND (SW): ~85% medium to fine grained sand, 1 inch cobble at 15.7-15.8 ft bgs, moist, loose, brown. |
| -18 | 1.2'/ 2' | 11/ 10/ 24/ 24 | 0.6 | | | | | | 16-18 ft bgs: SAA.<br>18-20 ft bgs: SAA. |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; HSA: Hollow Stem Auger; ft bgs: feet below grade surface; SAA: Same as above; Hand clearance from 0-5 ft bgs.; Air Rotary completed between 5-12 ft bgs.; Hollow Stem Augering started from 12 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-14



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 58 ft bgs. |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 57.11' |
| **Date Pre-Cleared:** Jan. 3, 2011 / Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan 5, 2011 / Jan 6, 2011 | **Logged By:** Rolando Arco | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -20 | 1.2'/ 2' | 9/ 11/ 16/ 35 | 0.7 | | | | | | 20-22 ft bgs: WELL GRADED SAND (SW): coarse to medium grained sand, ~20% gravel, dry, brown. |
| -21 | | | | | | | | | |
| -22 | 1.7'/ 2' | 18/ 10/ 12/ 28 | 0.5 | | | | | | 22-24 ft bgs: SAA, dry, less sorting. |
| -23 | | | | | | | | | |
| -24 | ND | 8/ 10/ 15/ 20 | ND | | | | | | 24-26 ft bgs: WELL GRADED SAND (SW): medium grained sand, well sorted, ~20% gravel, moist, brown to light. brown. |
| -25 | | | | | | | | | |
| -26 | 1.5'/ 2' | 44/ 30/ 22/ 20 | 0.4 | | | | | | 26-28 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% gravel (small gravel), moist, light brown. |
| -27 | | | | | | | | | |
| -28 | 1.5'/ 2' | 6/ 15/ 16/ 12 | 0.5 | | | | | | 28-30 ft bgs: SAA. |
| -29 | | | | | | | | | |
| -30 | 1.7'/ 2' | 14/ 16/ 23/ 30 | 0.4 | | | | | | 30-32 ft bgs: SAA, <5-10% gravel, moist to dry. |
| -31 | | | | | | | | | |
| -32 | 1.5'/ 2' | 18/ 18/ 18/ 25 | 0.5 | | | | | | 32-34 ft bgs: SAA, moist to dry. |
| -33 | | | | | | | | | |
| -34 | 2.0'/ 2' | 16/ 22/ 24/ 25 | 0.5 | | | | | | 34-36 ft bgs: SAA, 1 inch thick lens of fine sand, moist to dry. |
| -35 | | | | | | | | | |
| -36 | 1.7'/ 2' | 12/ 12/ 25/ 30 | 0.5 | | | | | | 36-38 ft bgs: SAA, moist to dry. |
| -37 | | | | | | | | | |
| -38 | 2'/ 2' | 17/ 16/ 25/ 35 | 0.5 | | | | | | 38-40 ft bgs: SAA, moist to dry. |
| -39 | | | | | | | | | |
| -40 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
HSA: Hollow Stem Auger
ft bgs: feet below grade surface
SAA: Same as above
Hand clearance from 0-5 ft bgs.
Air Rotary completed between 5-12 ft bgs.
Hollow Stem Augering started from 12 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-14



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 58 ft bgs. |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 57.11' |
| **Date Pre-Cleared:** Jan. 3, 2011 / Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan 5, 2011 / Jan 6, 2011 | **Logged By:** Rolando Arco | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -40 | 2'/ 2' | 17/ 19/ 23/ 34 | 0.5 | | | | | | 40-42 ft bgs: SAA, moist to dry. |
| -41 | | | | | | | | | |
| -42 | 1.6'/ 2' | 14/ 16/ 22/ 35 | 0.5 | | | | | | 42-44 ft bgs: SAA, moist to dry. |
| -43 | | | | | | | | | |
| -44 | 1.8'/ 2' | 15/ 22/ 23/ 36 | 0.5 | | | | | | 44-46 ft bgs: SAA, moist to dry. |
| -45 | | | | | | | | | |
| -46 | 2'/ 2' | 24/ 33/ 33/ 32 | 0.6 | | | | | | 46-48 ft bgs: SAA, moist. |
| -47 | | | | | | | | | |
| -48 | 2'/ 2' | 22/ 16/ 17/ 18 | 0.5 | | | SB-14 (48-50) | | | 48-48.6 ft bgs: SAA, moist, no gravel.<br>48.6-50 ft bgs: SAA, moist to wet. |
| -49 | | | | | | | | | |
| -50 | 2'/ 2' | 6/ 50/ 25/ 33 | 2.4 | | | | | | 50-52 ft bgs: SAA, wet, brown, faint napthalene-like odor. |
| -51 | | | | | | | | | |
| -52 | 2'/ 2' | 16/ 23/ 33/ 43 | 1.4 | | | | SP | | 52-54 ft bgs: POORLY GRADED SAND (SP): medium grained sand, well sorted, < 5% gravel, wet, faint napthalene-like odor. |
| -53 | | | | | | | | | |
| -54 | 1.2'/ 2' | 6/ 10/ 15/ 20 | 2.8 | | | | | | 54-56 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, well sorted, wet, faint napthalene-like odor. |
| -55 | | | | | | | | | |
| -56 | 1'/ 2' | 6/ 7/ 15/ 25 | 2.1 | | | SB-14 (56-58) | | | 56-58 ft bgs: POORLY GRADED SAND (SP): medium to coarse grained sand, wet, faint napthalene-like odor. |
| -57 | | | | | | | | | |
| -58 | | | | | | | | | END OF BORING 58 ft bgs |

| | | | |
|---|---|---|---|
| Comments: | NA: Not Applicable | ft bgs: feet below grade surface | Hollow Stem Augering started from 12 ft bgs. |
| | NR: No Recovery | SAA: Same as above | Visual impacts also includes olfactory impacts. |
| | ND: Not Documented | Hand clearance from 0-5 ft bgs. | |
| | HSA: Hollow Stem Auger | Air Rotary completed between 5-12 ft bgs. | |

AECOM

# Boring ID: SB-15



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~ 50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 84 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 58.6' |
| **Date Pre-Cleared:** Jan. 3, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 7, 2011/Jan. 11, 2011 | **Logged By:** Rolando Arco | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | NA | NR | | | | FILL | | 0-5 ft bgs: FILL: brown to dark brown, poorly sorted sand, with gravel, cobbles, and brick debris. |
| -5 | | | | | | SB-15 (5.0) | | | 5-6 ft bgs: NOT DOCUMENTED. |
| -6 | 0.7'/ 2' | 20/ 32/ 100/6" | 0.2 | | | | | | 6-6.5 ft bgs: FILL: brown, poorly sorted sand, ~20% gravel. |
| -7 | | | | | | | | | 6.5-8 ft bgs: FILL: brick fragments. |
| -8 | NA | NA | NA | | | | | | 8-10 ft bgs: NO RECOVERY, air rotary drilling method used due to boulder obstruction. |
| -10 | 0.7'/ 2' | NR | 0.3 | | | | SW | | 10-12 ft bgs: WELL GRADED SAND (SW): brown, poorly sorted gravelly sand, dry. |
| -12 | NA | NA | NA | | | | | | 12-14 ft bgs: NO RECOVERY. Air Rotary method used, due to boulder obstruction. |
| -14 | NR | 13/ 5/ 5/ 8 | NA | | | | | | 14-16 ft bgs: NO RECOVERY. |
| -16 | 0.6'/ 2' | 7/ 9/ 23/ 33 | 0.1 | | | | GW | | 16-18 ft bgs: WELL GRADED GRAVEL (GW): brown, poorly sorted, ~80% cobble pieces, ~20% medium to fine grained sand. |
| -18 | 1.2'/ 2' | 28/ 46/ 50/ 50 | 0.1 | | | | | | 18-19.5 ft bgs: WELL GRADED GRAVEL (GW): brown, ~50% cobble pieces, ~50% medium to fine grained sand, moist. |
| -20 | | | | | | | | | 19.5-20 ft bgs: WELL GRADED GRAVEL (GW): dark brown, poorly sorted, cobble pieces. |

Comments: NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-15



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~ 50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 84 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 58.6' |
| **Date Pre-Cleared:** Jan. 3, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 7, 2011/Jan. 11, 2011 | **Logged By:** Rolando Arco | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -20 | NR | 25/ 50/1" | NA | | | | | | 20-22 ft bgs: NO RECOVERY. Brick fragment in spoon (possible slough). |
| -21 | | | | | | | | | |
| -22 | 0.6'/ 2' | 9/ 30/ 50/ 50/3" | 0.2 | | | | SW | | 22-24 ft bgs: WELL GRADED SAND (SW): brown, poorly sorted gravelly sand, dry. |
| -23 | | | | | | | | | |
| -24 | NR | NR | NA | | | | | | 24-26 ft bgs: NO RECOVERY. |
| -25 | | | | | | | | | |
| -26 | 1.3'/ 2' | 11/ 22/ 25/ 25 | 0.5 | | | | SW | | 26-28 ft bgs: WELL GRADED SAND (SW): brown, medium to coarse grained sand, ~10% fine subrounded gravel, moist. |
| -27 | | | | | | | | | |
| -28 | 1.3'/ 2' | 30/ 26/ 22/ 30 | 0.0 | | | | | | 28-30 ft bgs: SAA, with a 3 inch lens of fine sand at 29 ft bgs. |
| -29 | | | | | | | | | |
| -30 | 1.2'/ 2' | 32/ 21/ 32/ 40 | 0.8 | | | | | | 30-32 ft bgs: SAA, fine grained sand towards the bottom of the sample, dry. |
| -31 | | | | | | | | | |
| -32 | 2'/ 2' | 12/ 18/ 46/ 30 | 0.1 | | | | | | 32-34 ft bgs: SAA. |
| -33 | | | | | | | | | 34-35.2 ft bgs: WELL GRADED SAND (SW): dark brown, fine, sand, ~10% gravel. Gravel consists of small, rounded, pebbles. |
| -34 | 1.6'/ 2' | 14/ 25/ 30/ 35 | 0.0 | | | | | | |
| -35 | | | | | | | | | 35.32-36 ft bgs: WELL GRADED SAND (SW): light brown to yellow, medium to coarse grained sand, ~15% gravel, dry to moist. |
| -36 | 1.4'/ 2' | 14/ 19/ 20/ 30 | 0.4 | | | | | | |
| -37 | | | | | | | | | 36-38 ft bgs: WELL GRADED SAND (SW): varves (0.5 inch max) of light brown medium to coarse grained sand and dark brown fine sand; both have ~5-10% of fine rounded gravel, moist. |
| -38 | 1.5/ 2' | 40/ 18/ 30/ 30 | 0.0 | | | | | | |
| -39 | | | | | | | | | 38-40 ft bgs: WELL GRADED SAND (SW): light brown |
| -40 | | | | | | | | | |

Comments: NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-15



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~ 50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 84 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 58.6' |
| **Date Pre-Cleared:** Jan. 3, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 7, 2011/Jan. 11, 2011 | **Logged By:** Rolando Arco | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -40 | 1.5'/ 2' | 8/ 20/ 20/ 15 | 0.0 | | | | | | medium to coarse grained sand at top and bottom of sample. Dark brown fine sand; less then ~5% fine rounded gravel, moist. |
| -41 | | | | | | | | | 40-42 ft bgs: WELL GRADED SAND (SW): SAA, dry. |
| -42 | NR | 100/ 6" | NA | | | | | | 42-44 ft bgs: NO RECOVERY, spoon bouncing on a piece of rock. |
| -43 | | | | | | | | | |
| -44 | 1.5'/ 2' | 13/ 18/ 32/ 40 | 1.3 | | | | SW | | 44-46 ft bgs: WELL GRADED SAND (SW): brown, poorly sorted sand, mica grains, moist, very faint napthalene-like odor. |
| -45 | | | | | | | | | |
| -46 | NR | 100/ 2" | NA | | | | | | 46-48 ft bgs: NO RECOVERY. |
| -47 | | | | | | | | | |
| -48 | 2'/ 2' | 18/ 23/ 28/ 38 | 0.5 | | | | SP | | 48-49.6 ft bgs: POORLY GRADED SAND (SP): dark brown fine sand, dry. |
| -49 | | | | | | | | | |
| -50 | 1.6'/ 2' | 19/ 20/ 19/ 20 | 7.5 | | | | | | 49.6-50 ft bgs: POORLY GRADED SAND (SP): dark brown, medium, sand, slight sheen, moist, very slight napthalene-like odor. |
| -51 | | | | | | | | | |
| -52 | 1.5'/ 2' | 21/ 8/ 10/ 18 | 57.4 | | | | | | 50-52 ft bgs: POORLY GRADED SAND (SP): dark brown, fine grained sand. From 50.6-52 ft bgs sheen and napthalene-like odor, moist. |
| -53 | | | | | | | | | |
| -54 | 2'/ 2' | 11/ 16/ 26/ 44 | 95 | | | | | | 52-54 ft bgs: SAA, few tar-coated grains, napthalene-like odor, wet. |
| -55 | | | | | | | | | 54-56 ft bgs: SAA, black stained, some tar-coated grains, napthalene-like odor, wet. |
| -56 | 1.5'/ 2' | 12/ 13/ 34/ 45 | 61 | | | | | | 56-58 ft bgs: SAA. |
| -57 | | | | | | | | | |
| -58 | 1.5'/ 2' | NA/ 27/ 20/ 15 | 68 | | | | | | 58-60 ft bgs: SAA. |
| -59 | | | | | | | | | |
| -60 | | | | | | | | | |

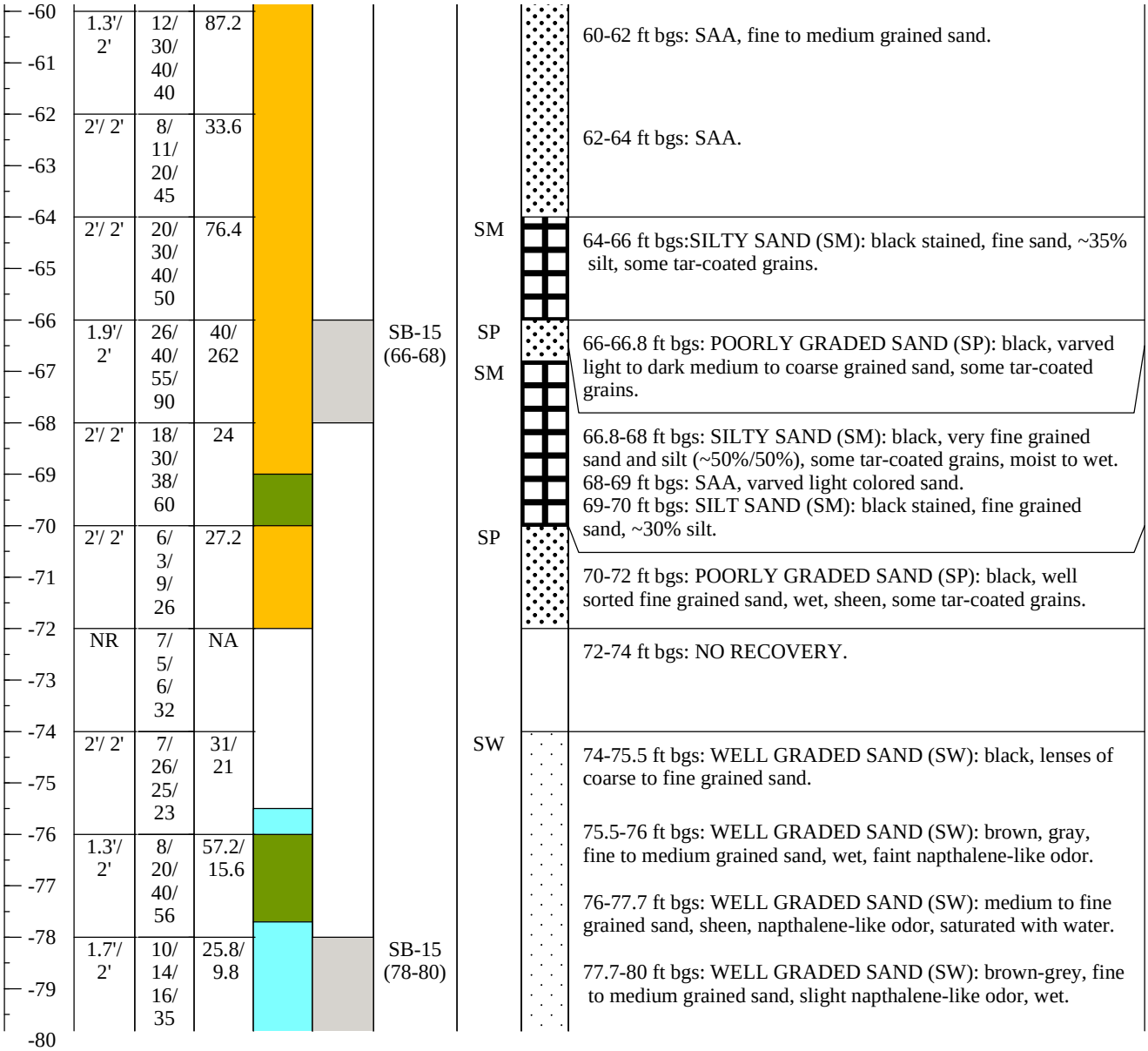
Comments: NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-15



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~ 50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 84 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 58.6' |
| **Date Pre-Cleared:** Jan. 3, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 7, 2011/Jan. 11, 2011 | **Logged By:** Rolando Arco | **Well ID:** N/A |




Comments: NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-15



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** ~ 50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 84 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 58.6' |
| **Date Pre-Cleared:** Jan. 3, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 7, 2011/Jan. 11, 2011 | **Logged By:** Rolando Arco | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -80 | 1.7'/ 2' | 12/ 15/ 22/ 20 | 11.7/ 1.1 | | | | | | 80-82 ft bgs: SAA. |
| -81 | | | | | | | | | |
| -82 | 1.7'/ 2' | 12/ 15/ 32/ 70 | NR | | | | | | 82-84 ft bgs: SAA. |
| -83 | | | | | | | | | END OF BORING 84 ft bgs |
| -84 | | | | | | | | | |

Comments: NA: Not Applicable; NR: Not Recorded; ft bgs - feet below grade surface; ND: Not Documented; SAA: Same As Above; HSA: Hollow Stem Auger; Hand clearing from 0-5 ft bgs.; Hollow stem started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 16



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.13' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 21, 2011 / Jan. 24, 2011 | **Logged By:** Jennifer Pfeiffer | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | NA | | | | FILL | | 0-0.4 ft bgs: CONCRETE<br>0.4-1 ft bgs: FILL: gravel, medium grained sand, brown. |
| -1 | NA | ND | | | | | | |
| | NA | ND | | | | | | 1-1.5 ft bgs: FILL: brick, mortor, rounded brick pieces 4 inches in diameter, subangular and rounded gravel, medium grained sand, dry, dark brown. |
| -2 | NA | NA | | | | | | |
| | 0.1 | 0.1 | | | | | | 1.5-1.8 ft bgs: FILL: concrete pad. |
| -3 | NA | NA | | | | | | |
| -4 | | | | | | | | 1.8-2.5 ft bgs: FILL: fine grained sand, dry, brown. |
| | NA | 0.1 | | | SB-16 (4-5) | | | |
| -5 | | | | | | | | 2.5-4.0: FILL: concrete. |
| | 3.0'/ 3.0' | 0.8 | | | | | | |
| -6 | | | | | | | | 4-5 ft bgs: FILL: medium grained sand, gravel 1 millimeter to 4 inches in diameter, subangular to rounded, loose, dry, brown, no odor. |
| -7 | | | | | | | | |
| | | | | | | | | 5-8 ft bgs: SAA, more cobbles 2 to 4 inches in diameter. |
| -8 | | | | | | | | |
| | 2.0'/ 2.0' | 0.1 | | | | | | 8-10 ft bgs: FILL: medium grained sand, <10 mm gravel throughout, angular, large cobbles throughout, cobbles have mica, loose, dry, tan to brown, no odors. |
| -9 | | | | | | | | |
| -10 | | | | | | | | |
| | 3.0'/ 5.0' | 1.0 | | | | SW | | 10-15 ft bgs: WELL GRADED SAND (SW): medium grained sand, loose, brown, ~25% gravel 1 millimeter to 3 inches in diameter, various colors (red to gray), angular to rounded, moist (top wet from water in casing), no odor. |
| -11 | | | | | | | | |
| -12 | | | | | | | | |
| -13 | | | | | | | | |
| -14 | | | | | | | | |
| -15 | | | | | | | | |
| | 3.0'/ 5.0' | 1.6 | | | | GW | | 15-18 ft bgs: WELL GRADED GRAVEL (GW): gravel throughout, 4 inches in diameter cobble at 17 ft bgs, cobbles throughout, ~25% fine to medium grained sand, loose, dry, brown, no odor. |
| -16 | | | | | | | | |
| -17 | | 34 | | | | | | |
| -18 | | | | | | | | 18-20 ft bgs: WELL GRADED GRAVEL (GW): ~85% gravel ~10 millimeters in diameter, angular, <5% mica throughout, dry, no odor. |
| -19 | | | | | | | | |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-1.5 ft bgs.
Sonic drilling started at 1.5 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 16



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.13' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 21, 2011 / Jan. 24, 2011 | **Logged By:** Jennifer Pfeiffer | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | 4.0'/ 5.0' | 1.0 | | | | | | 20-22.5 ft bgs: WELL GRADED GRAVEL (GW) gravel, ~25% fine to medium grained sand, dry (top wet due to drill water), no odor. |
| -21 | | | | | | | | |
| -22 | | | | | | | | |
| -23 | | 0.5 | | | | | | 22.5-25 ft bgs: SAA, ~25% cobbles, sand loose. |
| -24 | | | | | | | | |
| -25 | 4.0'/ 5.0' | 0.4 | | | | | | 25-26 ft bgs: WELL GRADED GRAVEL (GW): gravel ~10 millimeters in diameter, subrounded, ~5% fine to medium grained sand, loose, dry, brown, no odor. |
| -26 | | 1.6 | | | | SP | | 26-30 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% gravel, loose, dry, brown, no odors. |
| -27 | | | | | | | | |
| -28 | | | | | | | | |
| -29 | | | | | | | | |
| -30 | 4.0'/ 5.0' | 2.4 | | | | | | 30-35 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~10% gravel ~5 millimeters in diameter throughout, loose, moist, brown, no odor. |
| -31 | | | | | | | | |
| -32 | | | | | | | | |
| -33 | | 0.9 | | | | | | |
| -34 | | | | | | | | |
| -35 | 4.0'/ 5.0' | 0.5 | | | | | | 35-37.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, loose, moist, brown. |
| -36 | | | | | | | | |
| -37 | | | | | | | | |
| -38 | | 0.2 | | | | | | 37.5-40 ft bgs: POORLY GRADED SAND (SP): fine grained sand, <10% gravel 5 millimeters in diameter throughout, loose, moist to dry, brown. |
| -39 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-1.5 ft bgs.
Sonic drilling started at 1.5 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 16



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.13' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 21, 2011 / Jan. 24, 2011 | **Logged By:** Jennifer Pfeiffer | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | NR | ND | | | | | | 40-45: NO RECOVERY. |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | | | | | | | |
| -44 | | | | | | | | |
| -45 | 3.5'/ 5.0' | 0.8 | | | | | | 45-47 ft bgs: POORLY GRADED SAND (SP): fine grained sand, <5% gravel 10 millimeters in diameter, random, loose, moist to dry, brown, no odor. |
| -46 | | | | | | | | |
| -47 | | 0.4 | | | SB-16 (47-50) | | | 47-50 ft bgs: SAA, light tan, >5% gravel throughout 1 millimeter to 10 millimeters in diameter. |
| -48 | | | | | | | | |
| -49 | | | | | | | | |
| -50 | 2.5'/ 5.0' | 4.3 | | | | | | 50-52 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, wet, brown. |
| -51 | | | | | | | | |
| -52 | | 1.5 | | | | | | 52-55 ft bgs: SAA, moist. |
| -53 | | | | | | | | |
| -54 | | | | | | | | |
| -55 | 4.0'/ 5.0' | 1.2 | | | | | | 55-57.5 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, no odor. |
| -56 | | | | | | | | |
| -57 | | | | | | | | |
| -58 | | 0.5 | | | | | | 57.5-60 ft bgs: SAA, faint to moderate hydrogen sulfide-like odor. |
| -59 | | | | | | | | |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0-1.5 ft bgs.; Sonic drilling started at 1.5 ft bgs due to concrete obstruction. Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB - 16



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** Sonic | **Total Depth:** 70 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.13' |
| **Date Pre-Cleared:** Jan. 21, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 21, 2011 / Jan. 24, 2011 | **Logged By:** Jennifer Pfeiffer | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -60 | 4.0'/ 5.0' | 2.6 | | | | | | 60-65 ft bgs: SAA, hydrogen sulfide-like and organic-like odor. |
| -61 | | | | | | | | |
| -62 | | | | | | | | |
| -63 | | 2.2 | | | | | | |
| -64 | | | | | | | | |
| -65 | 4.0'/ 5.0' | 2.8 | | | | | | 65-68 ft bgs: SAA, hydrogen sulfide-like and organic-like odor. |
| -66 | | | | | | | | |
| -67 | | | | | | | | |
| -68 | | 4.6 | | | SB-16 (68-70) | ML | | 68-70 ft bgs: SANDY SILT (ML): moist, hydrogen sulfide-like and organic-like odor. |
| -69 | | | | | | | | |
| -70 | | | | | | | | END OF BORING 70 ft bgs |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; SAA: Same As Above; ft bgs: feet below grade surface; Hand cleared from 0-1.5 ft bgs.; Sonic drilling started at 1.5 ft bgs due to concrete obstruction. Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-17



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 52 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.18' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 13, 2011/Jan. 17, 2011 | **Logged By:** Rolando Arco | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 5'/ 5' | NA | NR | | | | FILL | | 0-0.5 ft bgs: CONCRETE<br>0.5-5 ft bgs: FILL: dark brown, poorly sorted sand, with cobbles, brick, and concrete fragments. |
| -5 | 1'/ 2' | NA | 0.1 | | | SB-17 (4.5-5) | | | 5-6.5 ft bgs: FILL: dark brown, poorly sorted sand, ~20% cobbles, moist. |
| -7 | 1.7'/ 2' | NA | 0.0 | | | | | | 6.5-7 ft bgs: FILL: brick fragments.<br>7-9 ft bgs: FILL: dark brown and black, ~15% cobbles, brick, moist. |
| -9 | 0.3/ 2' | 20/ 60/2" | 0.0 | | | | | | 9-11 ft bgs: FILL: SAA. |
| -11 | 0.3'/ 2' | 10/ 70/2" | 0.0 | | | | | | 11-13 ft bgs: FILL: dark brown fine to medium grained sand, ~50% gravel (from 12-13 ft bgs), moist. |
| -13 | 0.2'/ 2' | 50/ 80/4" | 0.0 | | | | | | 13-15 ft bgs: SAA. |
| -15 | NR | NR | 0.0 | | | | | | 15-17 ft bgs: NO RECOVERY, rock fragment in spoon. |
| -17 | 0.5'/ 2' | NR | 0.8 | | | | | | 17-19 ft bgs: FILL: silty sand, ~35% silt, ~5% gravel, dry to moist, stained black. |
| -19 | 0.4'/ 2' | NR | 0.6 | | | | | | 19-21 ft bgs: SAA, large rock fragment in spoon, stained black. |

Comments: NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger

ND: Not Documented
Hand clearing from 0-5 ft bgs.

Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-17



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 52 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.18' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 13, 2011/Jan. 17, 2011 | **Logged By:** Rolando Arco | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -20 | | | | | | | | | |
| -21 | 1.3'/ 2' | 12/ 16/ 32 | 1.9 | | | | | | 21-23 ft bgs: SAA, stained black. |
| -22 | | | | | | | | | |
| -23 | NR | 100/3" | NR | | | | SW | | 23-25 ft bgs: NO RECOVERY, rock fragment in shoe of spoon. |
| -24 | | | | | | | | | |
| -25 | 1.1'/ 2' | 16/ 90/ 32/ 35 | 0.2 | | | | | | 25-27 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~15% fine gravel, moist, black, tar-coated grains, no odor. |
| -26 | | | | | | | | | |
| -27 | 1.4'/ 2' | 32/ 62/ 60/ 70 | 0.5 | | | | | | 27-29 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, ~10% fine gravel, moist, black, less tar-coating than previous sample, no odor. |
| -28 | | | | | | | | | |
| -29 | NR | 80/ 1" | NR | | | | | | 29-31 ft bgs: NO RECOVERY, spoon bouncing on something hard. |
| -30 | | | | | | | | | |
| -31 | 1.3'/ 2' | 40/ 50/ 54/2" | 13.6 | | | SB-17 (31-33) | | | 31-33 ft bgs: WELL GRADED SAND (SW): black stained, fine to medium grained sand, ~5% fine gravel, moist, grains slightly tar-coated, faint tar-like odor. |
| -32 | | | | | | | | | |
| -33 | 1.4'/ 2' | 22/ 62/ 35/ 35 | 3.6 | | | | | | 33-34.7 ft bgs: WELL GRADED SAND (SW): black stained, fine to medium grained sand, ~5% fine angular gravel (quartz), ash fragments, naphthalene-like odor. |
| -34 | | | | | | | | | |
| -35 | 1.4'/ 2' | 40/ 52/ 56/ 40 | 46.1<br>3.4 | | | | | | 34.7-35 ft bgs: WELL GRADED SAND (SW): light brown fine to medium grained sand. |
| -36 | | | | | | | | | 35-36.2 ft bgs: WELL GRADED SAND (SW): fine gravel in an asphalt-like matrix of moderate viscosity, mica flakes, dry to moist, strong tar-like odor. |
| -37 | 1.6'/ 2' | 17/ 14/ 16/ 46 | 0.5 | | | | | | 36.2-37 ft bgs: WELL GRADED SAND (SW): light brown medium to coarse grained sand, dry to moist. |
| -38 | | | | | | | | | |
| -39 | 1.3'/ 2' | 62/ 36/ 22/ | 4.4 | | | | | | 37-39 ft bgs: WELL GRADED SAND (SW): light brown, medium to coarse grained sand, ~10% fine rounded gravel, dry. |
| -40 | | | | | | | | | |

Comments: NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger
ND: Not Documented
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-17



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 52 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.18' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 13, 2011/Jan. 17, 2011 | **Logged By:** Rolando Arco | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -40 | | | | | | | | | |
| -41 | | 35 | | | | | | | |
| -42 | 1.2'/ 2' | 31/ 15/ 15/ 30 | 1.4 | | | | | | 39-41 ft bgs: SAA. |
| -43 | | | | | | | | | 41-43 ft bgs: WELL GRADED SAND (SW): light brown, poorly sorted sand, dry. |
| -44 | 1.5'/ 2' | 19/ 21/ 32/ 35 | 0.3 | | | | | | 43-45 ft bgs: SAA, coarse sand ~25%. |
| -45 | | | | | | | | | |
| -46 | 0.2'/ 2' | 70/6" | 0.0 | | | | | | 45-47 ft bgs: WELL GRADED SAND (SW): dark brown, fine-grained sand. |
| -47 | | | | | | | | | |
| -48 | 1.6'/ 2' | 50/ 20/ 28/ 35 | 2.0 | | | | | | 47-49 ft bgs: WELL GRADED SAND (SW): light brown, poorly sorted sand, dry, ~5% fine subangular to subrounded gravel. |
| -49 | | | | | | | | | |
| -50 | 1.3'/ 2' | 22/ 70/ 42/ 33 | 5.2 | | | SB-17 (49-51) | | | 49-51 ft bgs: SAA,bottom 2" moist to wet, ~5% silt. |
| -51 | | | | | | | | | |
| -52 | 1.6'/ 2' | ND | 4.6 | | | | | | 51-53 ft bgs: SAA, wet at 52 ft bgs. |
| -53 | | | | | | | | | |
| -54 | 2'/ 2' | 22/ 10/ 18/ 35 | 2.4 | | | | | | 53-55 ft bgs: SAA, wet, faint tar-like odor. |
| -55 | | | | | | | | | |
| -56 | 1.8'/ 2' | 10/ 11/ 16/ 30 | 1.5 | | | | | | 55-57 ft bgs: SAA, wet, faint tar-like odor. |
| -57 | | | | | | | | | |
| -58 | 2'/ 2' | 11/ 8/ 5/ 15 | 1.4 | | | | | | 57-59 ft bgs: SAA, wet, faint tar-like odor. |
| -59 | | | | | | | | | |
| -60 | 1.4'/ 2' | 7/ 9/ 18/ | 5.4 | | | | | | 59-61 ft bgs: SAA, wet, faint tar-like odor. |

Comments: NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger

ND: Not Documented
Hand clearing from 0-5 ft bgs.

Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-17



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Fenley and Nicol | **Water Level:** 52 ft bgs |
| **Project Number:** 60144412 | **Drilling Method:** HSA | **Total Depth:** 71 ft bgs |
| **Client:** National Grid | **Sampling Method:** Split spoon | **Ground Elevation:** 59.18' |
| **Date Pre-Cleared:** Jan. 4, 2011 | **Boring Diameter:** 8 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** Jan. 13, 2011/Jan. 17, 2011 | **Logged By:** Rolando Arco | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | Blow Counts | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|---|
| -61 | | 24 | | | | | | | |
| -62 | 1.7'/ 2' | 11/ 27/ 27/ 40 | 6.3 | | | | | | 61- 63 ft bgs: SAA, wet, faint tar-like odor. |
| -63 | 2'/ 2' | 9/ 24/ 40/ 42 | 5.7 | | | | | | 63- 65 ft bgs: SAA, wet, faint tar-like odor. |
| -64 | | | | | | | | | |
| -65 | 1.3'/ 2' | 10/ 12/ 37/ 45 | 7.8 | | | | | | 65-67 ft bgs: SAA, wet, faint tar-like odor. |
| -66 | | | | | | | | | |
| -67 | 1.4'/ 2' | 24/ 6/ 7/ 24 | 8.5 | | | SB-17 (67-69) | | | 67-69 ft bgs: SAA, wet, faint tar-like odor. |
| -68 | | | | | | | | | |
| -69 | 1.6'/ 2' | 5/ 7/ 20/ 45 | 3.1 | | | | | | 69-71 ft bgs: SAA, wet, faint tar-like odor. |
| -70 | | | | | | | | | |
| -71 | | | | | | | | | END OF BORING 71 ft bgs |

Comments: NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger
ND: Not Documented
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-18



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 feet |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.35' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 27, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.4 | | | | FILL | | 0-0.5 ft bgs: CONCRETE. |
| -1 | | 0.5 | | | | | | 0.5-2 ft bgs: FILL: medium to coarse grained sand and gravel (~50%), brick pieces, cobbles, dry. |
| -2 | | 0.5 | | | | | | 2-3 ft bgs: FILL: sandy silty clay, moist, red-tan. |
| -3 | | 0.7 | | | | | | 3-4 ft bgs: FILL: medium to coarse grained sand and gravel (~50%), cobbles, moist, reddish tan. |
| -4 | | 0.3 | | | SB-18 (4-5) | | | 4-5 ft bgs: FILL: medium to coarse grained sand, ~30% gravel, slag piece, moist, reddish brown. |
| -5 | 4.3'/ 5.0' | 0.1 | | | | SW | | 5-10 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and gravel (50/50), cobbles throughout, dry, brown. |
| -6 | | | | | | | | |
| -7 | | | | | | | | |
| -8 | | 0.1 | | | | | | |
| -9 | | | | | | | | |
| -10 | 3.3'/ 5.0' | 1.0 | | | | | | 10-15 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and gravel (50/50), cobbles throughout, moist. |
| -11 | | | | | | | | |
| -12 | | | | | | | | |
| -13 | | 0.4 | | | | | | |
| -14 | | | | | | | | |
| -15 | 4.8'/ 5.0' | 1.5 | | | | | | 15-20 ft bgs: SAA. |
| -16 | | | | | | | | |
| -17 | | | | | | | | |
| -18 | | 1.5 | | | | | | |
| -19 | | | | | | | | |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

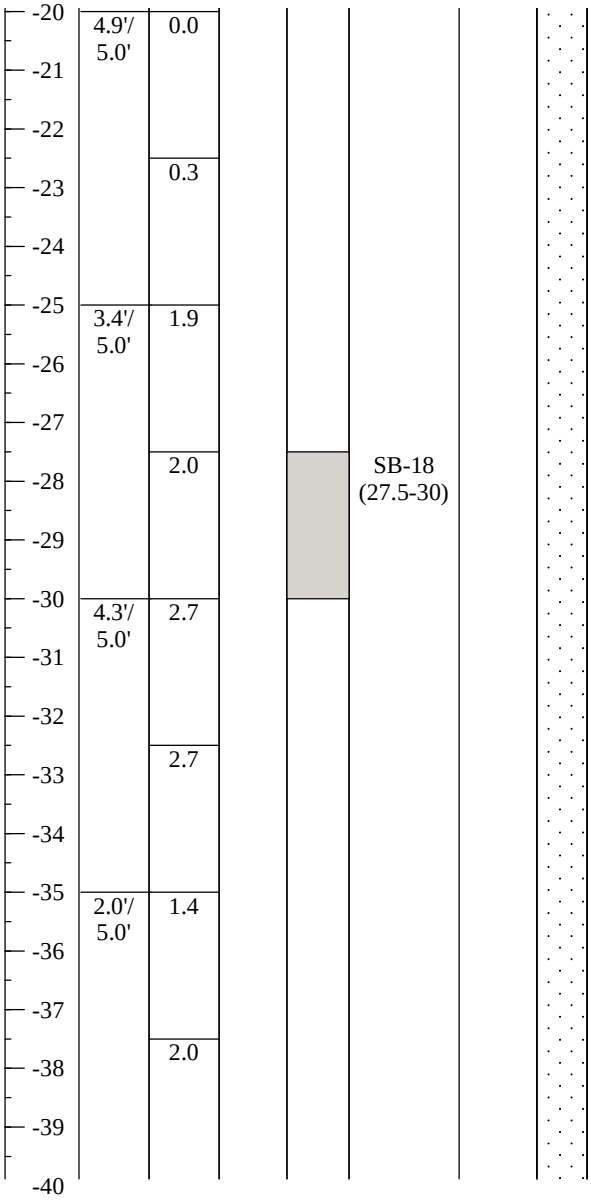
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-18



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 feet |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.35' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 27, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |




Geologic Description

20-25 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand,~10% fine angular gravel, ~5% cobbles, moist, brown.

25-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and gravel (50/50), moist, brown.

30-35 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~25% gravel, loose, moist, brown.

35-40 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% fine to medium sized angular gravel, moist, brown.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-18



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 feet |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.35' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 27, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | 4.8'/ 5.0' | 4.1 | | | | | | 40-44 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~25% fine to medium sized angular gravel, moist, brown. |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | 17.3 | | | SB-18 (42.5-45) | | | |
| -44 | | | | | | | | 44-45 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, loose, dry, light brown. |
| -45 | NR | NR | | | | | | 45-50 ft bgs: No Recovery, sample lost in borehole. |
| -46 | | | | | | | | |
| -47 | | | | | | | | |
| -48 | | | | | | | | |
| -49 | | | | | | | | |
| -50 | 4.3'/ 5.0' | 5.3 | | | | | | 50-55 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, wet at 52 ft bgs, brown. |
| -51 | | | | | | | | |
| -52 | | | | | | | | |
| -53 | | 1.2 | | | | | | |
| -54 | | | | | | | | |
| -55 | 4.6'/ 5.0' | 0.9 | | | | | | 55-60 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown. |
| -56 | | | | | | | | |
| -57 | | | | | | | | |
| -58 | | 0.7 | | | | | | |
| -59 | | | | | | | | |
| -60 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-18



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 feet |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.35' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 27, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -60 | 4.8'/ 5.0' | 1.2 | | | | | | 60-65 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, loose, moist, brown. |
| -61 | | | | | | | | |
| -62 | | | | | | | | |
| -63 | | 1.9 | | | | | | |
| -64 | | | | | | | | |
| -65 | 2.7'/ 5.0' | 1.5 | | | | | | 65-70 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, loose, moist, brown. |
| -66 | | | | | | | | |
| -67 | | | | | | | | |
| -68 | | 2.9 | | | | | | |
| -69 | | | | | | | | |
| -70 | 4.9'/ 5.0' | 2.9 | | | SB-18 (70-72.5) | | | 70-75 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, loose, moist, brown, very faint napthalene-like odor. |
| -71 | | | | | | | | |
| -72 | | | | | | | | |
| -73 | | 1.9 | | | | | | |
| -74 | | | | | | | | |
| -75 | 4.3'/ 5.0' | 0.9 | | | | | | 75-80 ft bgs: SAA, no odors. |
| -76 | | | | | | | | |
| -77 | | | | | | | | |
| -78 | | 0.3 | | | | | | |
| -79 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-18



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 feet |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.35' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 27, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -80 | 4.9'/ 5.0' | 0.9 | | | | | | 80-85 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, loose, moist, brown. |
| -81 | | | | | | | | |
| -82 | | | | | | | | |
| -83 | | 1.0 | | | | | | |
| -84 | | | | | | | | |
| -85 | | | | | | | | END OF BORING at 85 ft bgs |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-19



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.80' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 24, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | NA | | | | FILL | | 0-1 ft bgs: CONCRETE |
| -1 | 1.0'/ 1.0' | 0.8 | | | | | | 1-5 ft bgs: FILL: medium grained sand and angular to rounded gravel (50/50), <5% brick bits, dry. |
| -2 | 1.0'/ 1.0' | 0.5 | | | | | | |
| -3 | 1.0'/ 1.0' | 0.4 | | | | | | |
| -4 | 1.0'/ 1.0' | 0.5 | | | SB-19 (4-5) | | | |
| -5 | 3.4'/ 5.0' | 0.2 | | | | | | 5-7 ft bgs: FILL: medium to coarse grained sand, ~50% large gravel, moist, brown. |
| -6 | | | | | | | | |
| -7 | | | | | | | | 7-7.4 bgs: FILL: fine to medium sized gravel, mostly angular, grey. |
| -8 | | 0.3 | | | | | | 7.4-10 ft bgs: FILL: medium to coarse grained sand, ~5% cobbles, dry, brown. |
| -9 | | | | | | | | |
| -10 | 4.4'/ 5.0' | 0.4 | | | | | | 10-10.9 ft bgs: FILL: medium grained sand, ~5% cobbles, moist, reddish-brown. |
| -11 | | | | | | | | 10.9-15.0 ft bgs: FILL: medium to coarse grained sand, ~25% angular gravel, ~5% cobbles, dry, brown. |
| -12 | | | | | | | | |
| -13 | | 0.8 | | | | | | |
| -14 | | | | | | | | |
| -15 | 2.7'/ 5.0' | ND | | | | | | 15-17 ft bgs: FILL: medium to coarse sized gravel and cobbles, mostly angular, moist. |
| -16 | | | | | | | | |
| -17 | | | | | | SW | | 17-20 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~50% angular gravel, moist, brown. |
| -18 | | 0.7 | | | | | | |
| -19 | | | | | | | | |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-19



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.80' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 24, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | 4.8'/ 5.0' | 0.8 | | | | | | 20-25 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~35% angular gravel, dry, brown. |
| -21 | | | | | | | | |
| -22 | | | | | | | | |
| -23 | | 0.7 | | | | | | |
| -24 | | | | | | | | |
| -25 | 4.9'/ 5.0' | 0.9 | | | | | | 25 - 27 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~35% angular gravel, moist, brown. |
| -26 | | | | | | | | |
| -27 | | | | | | | | 27-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~10% gravel, moist, brown. |
| -28 | | 0.3 | | | | | | |
| -29 | | | | | | | | |
| -30 | 4.5'/ 5.0' | 5.3 | | | | | | 30-32.2 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~20% fine angular gravel, dry, brown. |
| -31 | | | | | | | | |
| -32 | | | | | | | | 32.2-35 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, dry, brown. |
| -33 | | 0.2 | | | | | | |
| -34 | | | | | | | | |
| -35 | 1.3'/ 5.0' | 10.7 | | | | SP | | 35-37 ft bgs: POORLY GRADED SAND (SP): medium grained sand, ~20% fine gravel, dry, brown. |
| -36 | | | | | | | | |
| -37 | | | | | | | | 37-40 ft bgs: No Recovery, sample lost in borehole. |
| -38 | | ND | | | | | | |
| -39 | | | | | | | | |
| -40 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-19



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.80' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 24, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | 3.6'/ 5.0' | 3.9 | | | | | | 40-45 ft bgs: POORLY GRADED SAND (SP): medium grained sand, ~20% fine gravel, dry, brown. |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | 1.7 | | | | | | |
| -44 | | | | | | | | |
| -45 | 4.2'/ 5.0' | 1.2 | | | | SW | | 45-50 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, brown. |
| -46 | | | | | | | | |
| -47 | | | | | | | | |
| -48 | | 0.8 | | | | | | |
| -49 | | | | | | | | |
| -50 | 3.2'/ 5.0' | 1.9 | | | | | | 50-55 ft bgs: SAA, wet at 52 feet. |
| -51 | | | | | | | | |
| -52 | | | | | | | | |
| -53 | | 1.2 | | | | | | |
| -54 | | | | | | | | |
| -55 | 4.8'/ 5.0' | 2.2 | | | | | | 55-60 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, brown. |
| -56 | | | | | | | | |
| -57 | | | | | | | | |
| -58 | | 1.7 | | | | | | |
| -59 | | | | | | | | |
| -60 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

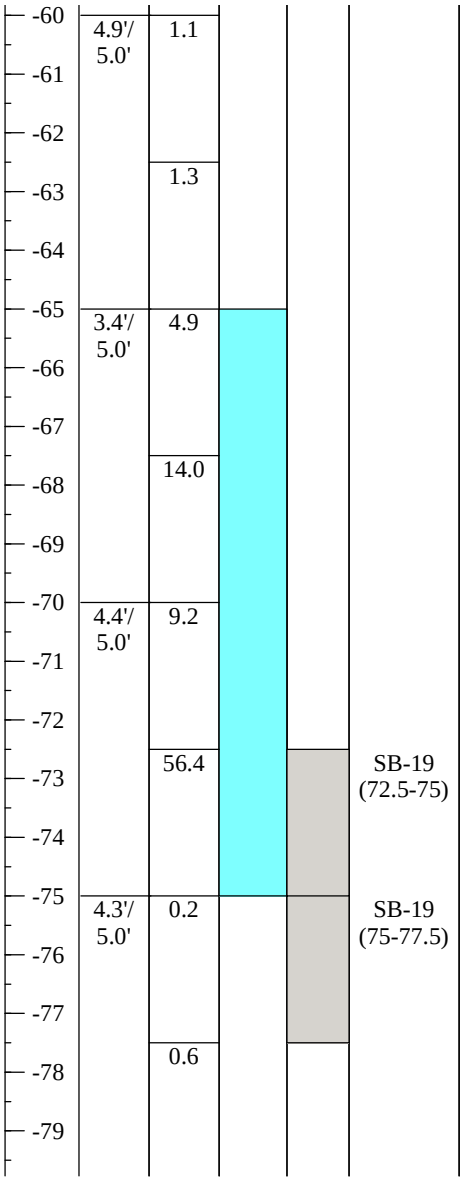
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-19



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.80' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 24, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |




Geologic Description

60-65 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown.

65-70 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, faint naphthalene-like odor.

70-71 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, strong naphthalene-like odor.

71-75 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, strong naphthalene-like odor.

75-80 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-19



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 85 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.80' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 24, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -80 | 3.1'/ 5.0' | 0.8 | | | | | | 80-85 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown. |
| -81 | | | | | | | | |
| -82 | | | | | | | | |
| -83 | | 1.0 | | | | | | |
| -84 | | | | | | | | |
| -85 | | | | | | | | End of Boring 85 ft bgs |

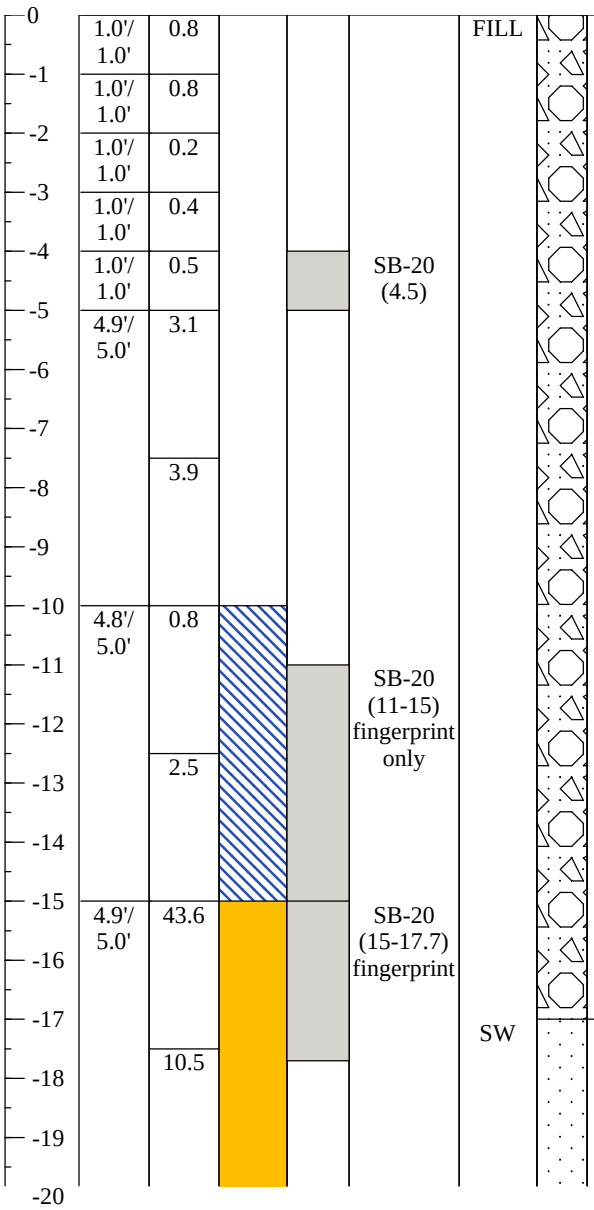
Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-20



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 90 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.36' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 28, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |




Geologic Description

0-1 ft bgs: FILL: medium grained sand and rounded to angular gravel, brick fragments, cobbles.

1-2 ft bgs: SAA, no brick fragments.

2-3 ft bgs: FILL: silty clay of low plasticity, some cobbles, moist, light brown to tan.

3-4 ft bgs: SAA, tan.

4-5 ft bgs: FILL: silty sand and gravel, ~25% cobbles, moist, light brown to tan.

5-6 ft bgs: FILL: fine to medium grained sand, ~50% silt, dry, brown, <10% grey silt.

6-10 ft bgs: FILL: medium to coarse grained sand, ~50% gravel, ~10% cobbles, dry, brown.

10-11 ft bgs: FILL: medium to coarse grained sand, ~30% medium to coarse sized angular gravel, dry, brown, some black staining throughout, faint pertroleum-like odor.

11-15 ft bgs: FILL: medium to coarse grained sand, ~30% gravel, dry, brown, some black staining to trace coating of sand, faint petroleum-like odor.

15-17 ft bgs: FILL: sand, ~50% large angular gravel, moist, black, tar coated sand and gravel throughout, moderate naphthalene-like odor, sheen.

17-20 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, black, tar coated sand and gravel throughout, naphthalene-like odor, sheen.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

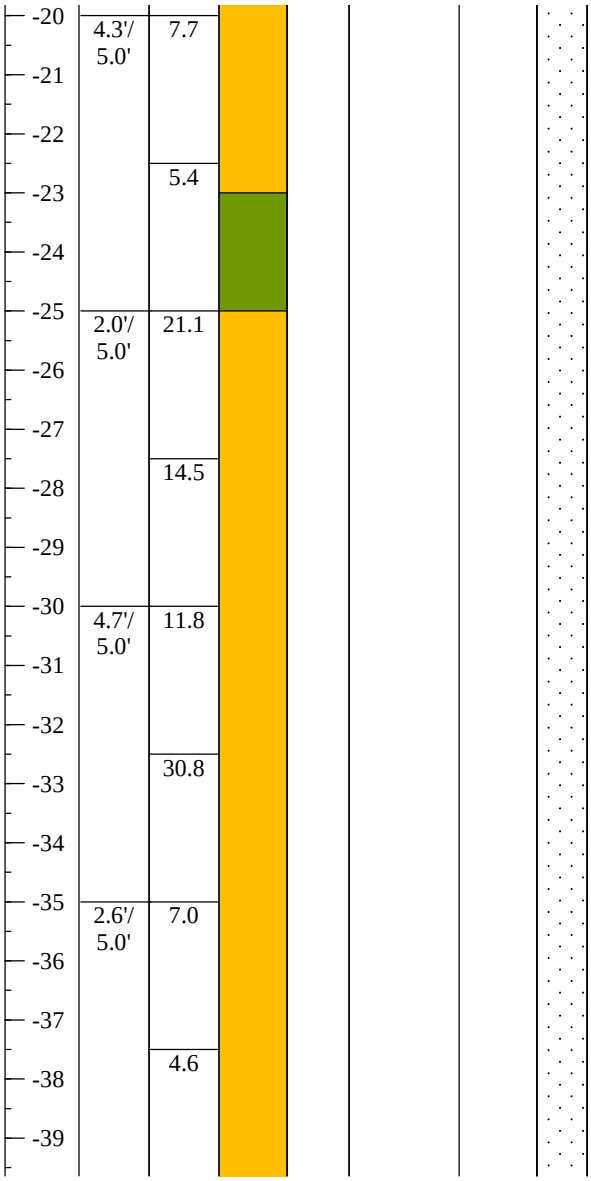
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-20



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 90 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.36' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 28, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |




Geologic Description

20-20.5 ft bgs: SAA.

20.5-23 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% coarse angular gravel, moist, dark brown, some black tar coated sand and gravel, naphthalene-like odor.

23-25 ft bgs: WELL GRADED SAND (SW): medium grained sand, ~20% coarse gravel, some black staining, faint naphthalene-like odor.

25-29 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~50% fine to medium sized gravel, moist, brown, some black tar coated sand, moderate to strong naphthalene-like odor.

29-30 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, some tar coated sand, moderate to strong naphthalene-like odor.

30-31.5 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, some tar coated sand, moderate to strong naphthalene-like odor.

31.5-32.5 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, black, black tar coated sand throughout, moderate to strong naphthalene-like odor and sheen.

32.5-35 ft bgs: WELL GRADED SAND (SW): sand, medium to coarse gravel, moist, brown, some tar coated sand, moderate to strong naphthalene-like odor.

35-40 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, dark brown, black tar coated sand throughout, moderate to strong naphthalene-like odor and sheen.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-20



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 90 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.36' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 28, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | 3.9'/ 5.0' | 3.1 | | | | | | 40-42 ft bgs: SAA, faint naphthalene-like odor. |
| -41 | | | | | | | | |
| -42 | | | | | | SP | | 42-45 ft bgs: POORLY GRADED SAND (SP):medium grained sand, ~30% gravel, moist, brown, some black tar coated sand, moderate to strong naphthalene-like odor. |
| -43 | | 5.0 | | | | | | |
| -44 | | | | | | | | |
| -45 | 3.8'/ 5.0' | 2.0 | | | | | | 45-46 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, some tar coated sand, faint naphthalene-like odor. |
| -46 | | | | | | | | |
| -47 | | | | | | | | 46-50 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, little to trace tar coated sand, faint naphthalene-like odor, slight sheen. |
| -48 | | 3.2 | | | | | | |
| -49 | | | | | | | | |
| -50 | 4.5'/ 5.0' | 14.0 | | | | | | 50-51 ft bgs: SAA. |
| -51 | | | | | | | | 51-53 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, dark brown, some tar coated sand, strong naphthalene-like odor and sheen. |
| -52 | | | | | | | | |
| -53 | | 197.6 | | | | SW | | 53-55 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, black, tar coated sand throughout, strong naphthalene-like odor and heavy sheen. |
| -54 | | | | | | | | |
| -55 | 2.2'/ 5.0' | 75.8 | | | | | | 55-60 ft bgs: WELL GRADED SAND (SW): medium to coarsed grained sand, wet, black, tar coated sand throughout, strong naphthalene-like odor, heavy sheen. |
| -56 | | | | | | | | |
| -57 | | | | | | | | |
| -58 | | 53.4 | | | | | | |
| -59 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

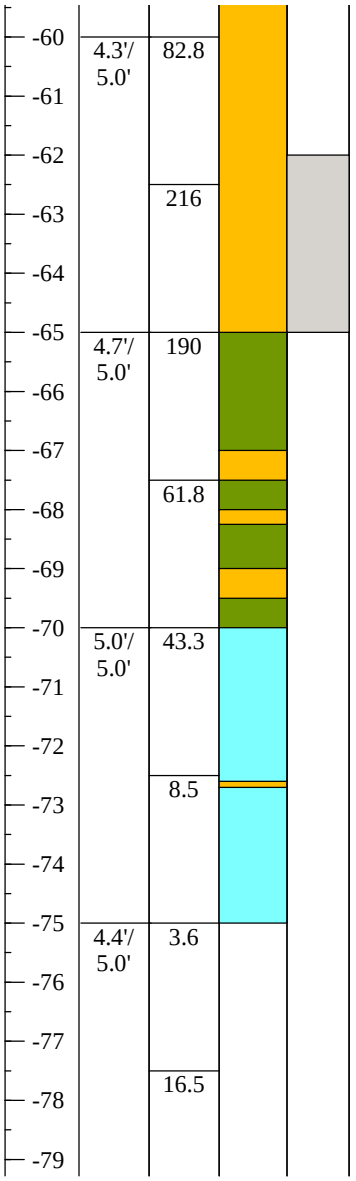
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-20



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 90 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.36' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 28, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |




| Geologic Description |
|---|
| 60-63 ft bgs: SAA. |
| 63-65 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, some black/grey tar coated sand throughout, moderate to strong naphthalene-like odor, sheen. |
| 65-67.5 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, brown, some sheen, strong naphthalene-like odor, tar coated sand lense from 67-67.5 ft bgs. |
| 67.5-70 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~5% silt, moist, brown, ~50% tar coated lenses at 68 ft bgs (3" thick) and 69 ft bgs (5" thick), sheen. |
| 70-75 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, naphthalene-like odor, tar coated lense from 72.6-72.7 ft bgs. |
| 75-80 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown. |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

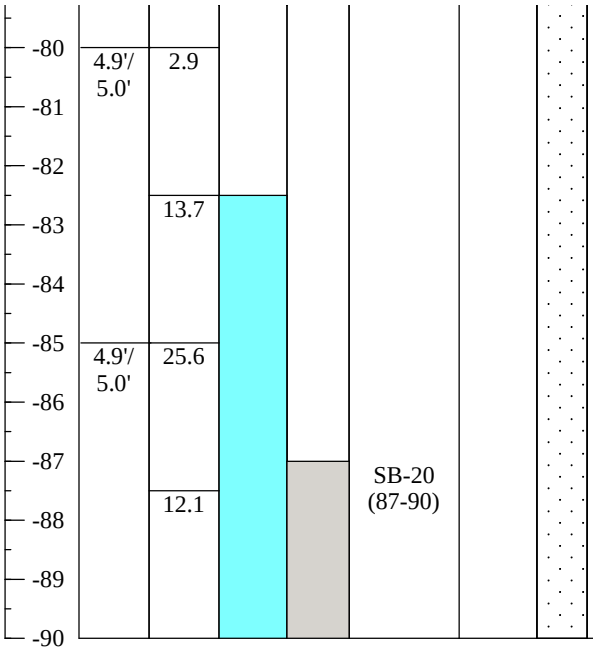
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-20



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~52 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 90 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.36' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 28, 2011 | **Logged By:** Rita Papagian | **Well ID:** N/A |




Geologic Description

80-85 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, very faint naphthalene-like odor from 82.5 to 85 ft bgs.

85-90 ft bgs: SAA, faint naphthalene-like odor from 85-87 ft bgs, very faint naphthalene-like odor from 87-90 ft bgs.

End of Boring 90 ft bgs

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-21



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.41' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 29, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.3 | | | | FILL | | 0-0.25 ft bgs: ASPHALT<br>0.25-1 ft bgs: FILL: medium to coarse grained sand and gravel ~1 millimeter in diameter, <25% cobbles, <25% brick bits, dry, brown.<br>1-2 ft bgs: SAA, more cobbles, moist.<br>2-3 ft bgs: SAA, with ~25% silt, moist.<br>3-3.5 ft bgs: FILL: sandy silty clay and cobbles, plastic, moist, brown/tan.<br>3.5-4.5 ft bgs: FILL: silty clay and cobbles, plastic, moist, tan.<br>4.5-5 ft bgs: FILL: gravelly sand and cobbles, moist. |
| -1 | | 0.2 | | | | | | |
| -2 | | 0.4 | | | | | | |
| -3 | | 0.3 | | | | | | |
| -4 | | 0.2 | | | | | | |
| -5 | 4.6'/ 5.0' | 0.3 | | | SB-21 (4.5-5) | | | 5-6 ft bgs: FILL: medium to coarse grained gravel, ~30% medium to coarse grained sand, dry. |
| -6 | | 0.4 | | | | | | 6-8 ft bgs: FILL: medium to coarse grained sand, loose, dry, brown. |
| -7 | | | | | | | | |
| -8 | | 0.4 | | | | GW | | 8-10 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse grained angular gravel, ~30% medium to coarse grained sand, ~10% cobbles, dry. |
| -9 | | | | | | | | |
| -10 | 2.8'/ 5.0' | 0.8 | | | | | | 10-12.5 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse grained angular gravel, ~30% medium to coarse grained sand, dry, brown. |
| -11 | | | | | | | | |
| -12 | | 0.4 | | | | | | 12.5-15 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse grained angular gravel, ~50% medium to coarse grained sand, loose, dry, gravel color is varied. |
| -13 | | | | | | | | |
| -14 | | | | | | | | |
| -15 | 5.0'/ 5.0' | 0.9 | | | | | | 15-20 ft bgs: SAA. |
| -16 | | | | | | | | |
| -17 | | | | | | | | |
| -18 | | 0.8 | | | | | | |
| -19 | | | | | | | | |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-21



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.41' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 29, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | 2.1'/ 5.0' | 0.7 | | | | | | 20-25 ft bgs: WELL GRADED GRAVEL (GW): gravel, ~30% medium to coarse grained sand, 5 large cobbles ~4-5 inches in diameter, moist. |
| -21 | | | | | | | | |
| -22 | | | | | | | | |
| -23 | | 1.2 | | | | | | |
| -24 | | | | | | | | |
| -25 | 4.0'/ 5.0' | 0.6 | | | | SW | | 25-30 ft bgs: WELL GRADED SAND (SW): medium grained sand, ~30% medium sized angular gravel, slightly moist, loose, brown. |
| -26 | | | | | | | | |
| -27 | | | | | | | | |
| -28 | | 0.9 | | | | | | |
| -29 | | | | | | | | |
| -30 | 3.4'/ 5.0' | 0.8 | | | | | | 30-35 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% medium to fine grained angular gravel, moist. |
| -31 | | | | | | | | |
| -32 | | | | | | | | |
| -33 | | 0.9 | | | | | | |
| -34 | | | | | | | | |
| -35 | 3.0'/ 5.0' | 0.0 | | | | | | 35-40 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown. |
| -36 | | | | | | | | |
| -37 | | | | | | | | |
| -38 | | 0.2 | | | | | | |
| -39 | | | | | | | | |
| -40 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-21



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.41' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 29, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -40 | 4.0'/ 5.0' | 0.4 | | | | | | 40-45 ft bgs: SAA. |
| -41 | | | | | | | | |
| -42 | | | | | | | | |
| -43 | | 0.2 | | | | | | |
| -44 | | | | | | | | |
| -45 | 2.8'/ 5.0' | 0.4 | | | | | | 45-50 ft bgs: SAA. |
| -46 | | | | | | | | |
| -47 | | | | | | | | |
| -48 | | 0.4 | | | | | | |
| -49 | | | | | | | | |
| -50 | 2.5'/ 5.0' | 8.0 | | | | | | 50-55 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown. |
| -51 | | | | | | | | |
| -52 | | | | | | | | |
| -53 | | 1.8 | | | | | | |
| -54 | | | | | | | | |
| -55 | 2.8'/ 5.0' | 2.5 | | | | | | 55-57.5 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown. |
| -56 | | | | | | | | |
| -57 | | | | | | | | |
| -58 | | 9.4 | | | | | | 57.5-60 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, moist, brown, faint naphthalene-like odor. |
| -59 | | | | | | | | |
| -60 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

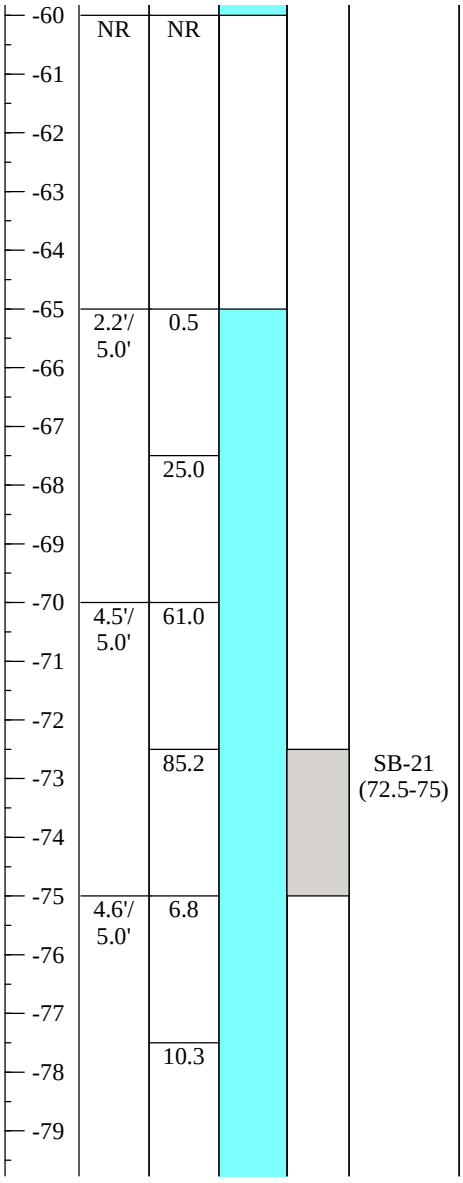
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-21



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.41' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 29, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |




Geologic Description

60-65 ft bgs: No Recovery.

65-67.5 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown, moderate naphthalene-like odor.

67.5-70 ft bgs: medium to coarse grained sand, loose, moist, brown, moderate naphthalene-like odor.

70-75 ft bgs: medium to fine grained sand, loose, moist, brown, moderate naphthalene-like odor.

75-79 ft bgs: POORLY GRADED SAND (SP): medium grained sand, loose, moist, brown, very faint naphthalene-like odor.

79-80 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown, very faint naphthalene-like odor, ~50% dark

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

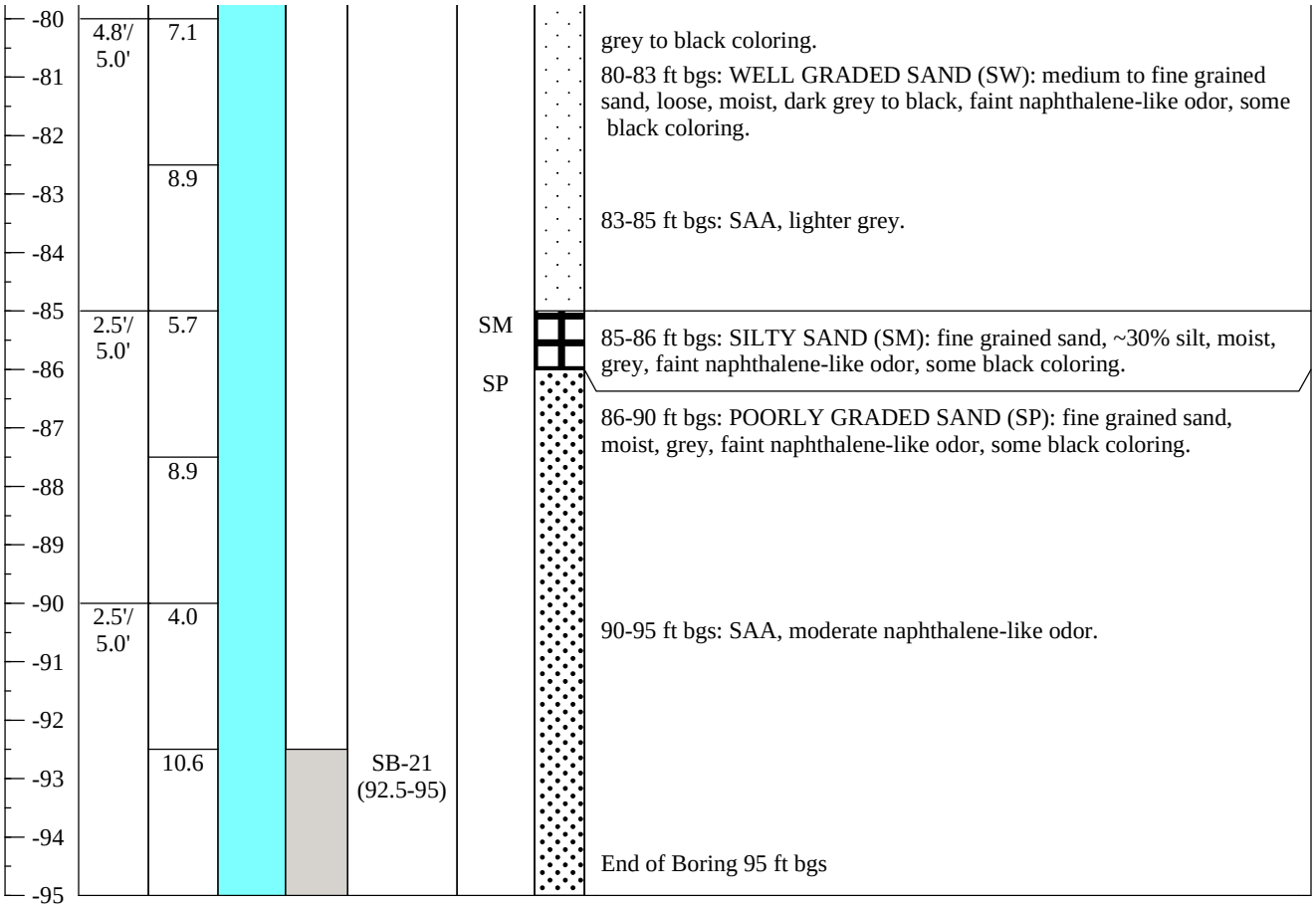
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-21



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.41' |
| **Date Pre-Cleared:** June 23, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 29, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |




Geologic Description

grey to black coloring.

80-83 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, dark grey to black, faint naphthalene-like odor, some black coloring.

83-85 ft bgs: SAA, lighter grey.

85-86 ft bgs: SILTY SAND (SM): fine grained sand, ~30% silt, moist, grey, faint naphthalene-like odor, some black coloring.

86-90 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, grey, faint naphthalene-like odor, some black coloring.

90-95 ft bgs: SAA, moderate naphthalene-like odor.

End of Boring 95 ft bgs

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-22 / MW-9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.30' |
| **Date Pre-Cleared:** July 6, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 6/July 7, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-9 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | 2.9 | | | | FILL | | 0-0.4 ft bgs: CONCRETE<br>0.4-0.6 ft bgs: FILL: medium to coarse grained sand, ~40% medium to coarse gravel, <10% brick and asphalt, dry. | CONCRETE |
| -1 | | 0.7 | | | SB-22 (1-2) | | | 0.6-0.8 ft bgs: CONCRETE<br>0.8-1 ft bgs: SAA (0.4-0.6). | |
| -2 | | 0.3 | | | | | | 1-1.5 ft bgs: FILL: medium to coarse grained sand, ~40% gravel, <10% brick fragments, brown. | |
| -3 | | 0.8 | | | | | | 1.5-1.8 ft bgs: CONCRETE<br>1.8-2.: FILL: ~50% fine grained sand, ~50% silt, brown. | |
| -4 | | 0.3 | | | | | | 2-4 ft bgs: SAA. | |
| -5 | 4.4'/ 5.0' | 0.4 | | | | | | 4-4.3 ft bgs: CONCRETE<br>4.3-5 ft bgs: SAA (1.8-2.0), with <10% asphalt. | BENTONITE |
| -6 | | | | | | | | 5-6.5 ft bgs: FILL: medium to coarse grained sand and medium to coarse angular gravel, dry, brown. | |
| -7 | | | | | | | | | |
| -8 | | 0.4 | | | | | | 6.5-8.5 ft bgs: FILL: medium grained sand, brown, 1 large 5 inch in diameter cobbles at 6.75 ft bgs, dry. | |
| -9 | | | | | | SW | | 8.5-10 ft bgs: WELL GRADED SAND (SW): medium grained sand and medium to fine gravel, dry, brown. | |
| -10 | 4.6'/ 5.0' | 1.0 | | | | | | 10-12 ft bgs: WELL GRADED SAND (SW): medium grained sand, <5% mica, loose, dry, brown. | |
| -11 | | | | | | | | | |
| -12 | | | | | | | | 12-14.5 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~35% coarse angular gravel, loose, dry, brown. | |
| -13 | | 0.7 | | | | | | | |
| -14 | | | | | | | | | |
| -15 | 3.4'/ 5.0' | 1.8 | | | | | | 14.5-15 ft bgs: WELL GRADED SAND (SW): medium grained sand and medium to fine angular gravel, dry, brown. | |
| -16 | | | | | | | | | |
| -17 | | | | | | | | 15-20 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and medium to coarse angular gravel, loose, dry, brown. | |
| -18 | | 1.7 | | | | | | | |
| -19 | | | | | | | | | |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-22 / MW-9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.30' |
| **Date Pre-Cleared:** July 6, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 6/July 7, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-9 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | 4.0'/ 5.0' | 1.4 | | | | | | 20-25 ft bgs: SAA, ~30% cobbles throughout, ~30% gravel, loose from 24-25 ft bgs, dry. | GROUT / PVC RISER |
| -21 | | | | | | | | | |
| -22 | | | | | | | | | |
| -23 | | 1.2 | | | | | | | |
| -24 | | | | | | | | | |
| -25 | 2.5'/ 5.0' | 2.2 | | | | | | 25-27 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% fine gravel, moist, brown. | |
| -26 | | | | | | | | | |
| -27 | | | | | | GW | | 27-28 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse angular gravel, moist. | |
| -28 | | 2.5 | | | | SW | | 28-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and fine gravel, moist, brown. | |
| -29 | | | | | | | | | |
| -30 | 3.8'/ 5.0' | 1.2 | | | | | | 30-35 ft bgs: WELL GRADED SAND (SW): medium grained sand, <30% medium to fine gravel, loose, dry, brown. | |
| -31 | | | | | | | | | |
| -32 | | | | | | | | | |
| -33 | | 1.2 | | | | | | | |
| -34 | | | | | | | | | |
| -35 | 4.6'/ 5.0' | 1.2 | | | | | | 35-39.5 ft bgs: SAA. | |
| -36 | | | | | | | | | |
| -37 | | | | | | | | | |
| -38 | | 3.2 | | | | | | | |
| -39 | | | | | | | | | |
| -40 | | | | | | | | 39.5-40 ft bgs: WELL GRADED SAND (SW): medium to | |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-22 / MW-9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.30' |
| **Date Pre-Cleared:** July 6, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 6/July 7, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-9 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -40 | 2.5'/ 5.0' | 2.8 | | | | | | fine grained sand, <10% silt, dry, brown. | BENTONITE |
| -41 | | | | | | | | 40-45 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, dry, brown. | |
| -42 | | | | | | | | | |
| -43 | | 1.7 | | | | | | | |
| -44 | | | | | | | | | |
| -45 | 2.5'/ 5.0' | 1.8 | | | | | | 45-50 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, dry, brown. | SAND PACK |
| -46 | | | | | | | | | |
| -47 | | | | | | | | | |
| -48 | | 7.1 | | | | | | | PVC SCREEN |
| -49 | | | | | | | | | |
| -50 | NR | NR | | | | | | 50-55 ft bgs: No Recovery | |
| -51 | | | | | | | | | |
| -52 | | | | | | | | | |
| -53 | | | | | | | | | |
| -54 | | | | | | | | | |
| -55 | NR | NR | | | | | | 55-60 ft bgs: No Recovery | SUMP |
| -56 | | | | | | | | | |
| -57 | | | | | | | | | |
| -58 | | | | | | | | | |
| -59 | | | | | | | | | |
| -60 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-22 / MW-9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.30' |
| **Date Pre-Cleared:** July 6, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 6/July 7, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-9 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -60 | 4.0'/ 5.0' | 1.3 | | | | | | 60-62.5 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown. | |
| -61 | | | | | | | | | |
| -62 | | | | | | | | | |
| -63 | | 5.3 | | | | | | 62.5-65 ft bgs: SAA, faint tar-like odor. | |
| -64 | | | | | | | | | |
| -65 | 2.5'/ 5.0' | 3.2 | | | | | | 65-70 ft bgs: SAA, moderate tar-like odor. | |
| -66 | | | | | | | | | |
| -67 | | | | | | | | | |
| -68 | | 6.2 | | | | | | | |
| -69 | | | | | | | | | |
| -70 | 2.8'/ 5.0' | 7.5 | | | | | | 70-72 ft bgs: SAA. | |
| -71 | | | | | | | | | |
| -72 | | | | | | | | 72-73 ft bgs: WELL GRADED SAND (SW): medium to coarse sand, moist, brown. | |
| -73 | | 114.8 | | | | | | 73-75 ft bgs: SAA, strong tar-like odor. | |
| -74 | | | | | | | | | |
| -75 | 3.9'/ 5.0' | 19.8 | | | | | | 75-80 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, brown, faint tar-like odor. | BENTONITE |
| -76 | | | | | | | | | |
| -77 | | | | | | | | | |
| -78 | | 21.4 | | | | | | | |
| -79 | | | | | | | | | |
| -80 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

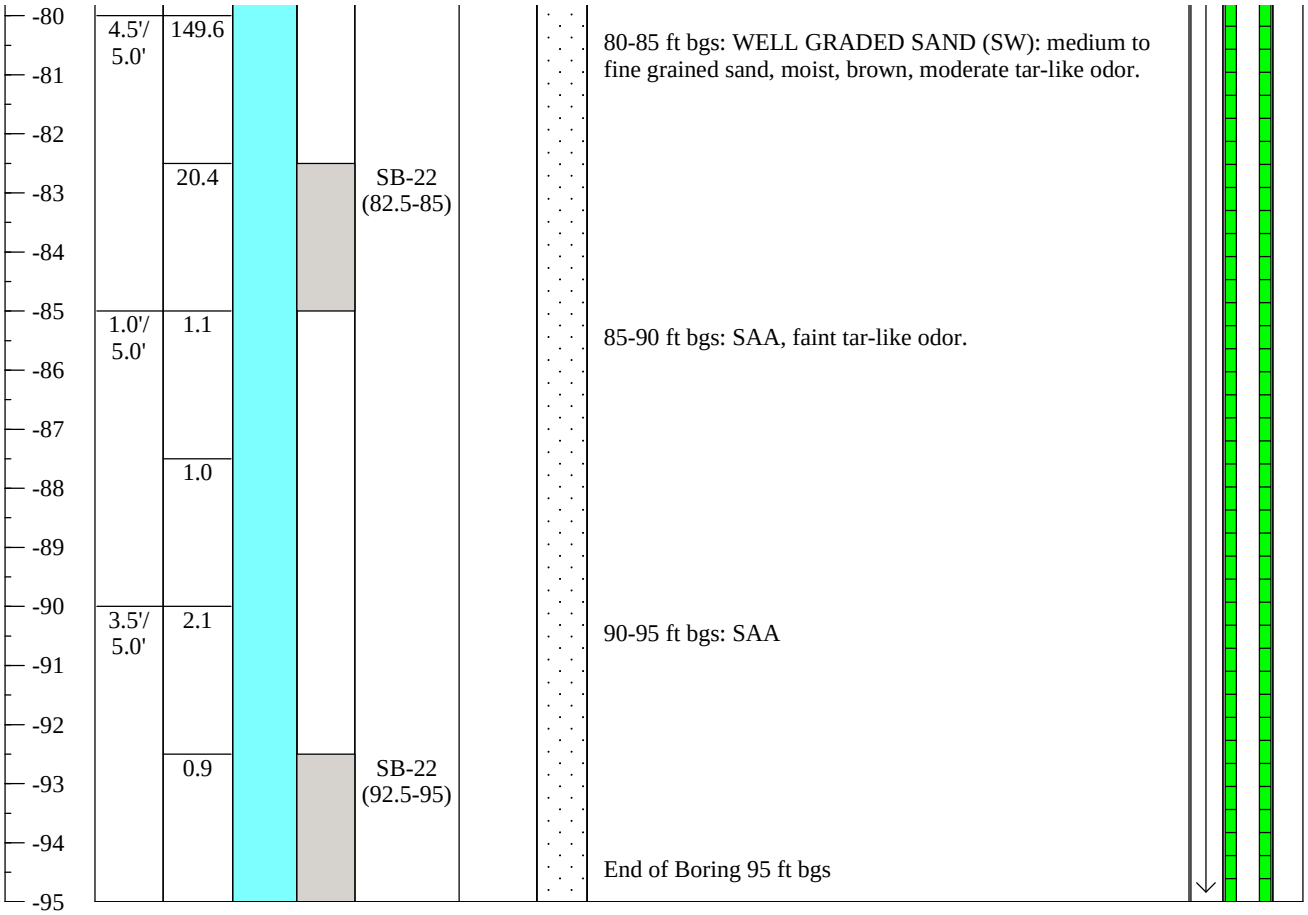
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-22 / MW-9



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.30' |
| **Date Pre-Cleared:** July 6, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 6/July 7, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-9 |




Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-23 / MW-10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.02' |
| **Date Pre-Cleared:** July 11, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 11/July 13, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-10 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.2 | | | | FILL | | 0-0.4 ft bgs: CONCRETE<br>0.4-1 ft bgs: FILL: medium to coarse grained sand, ~40% medium to coarse gravel, <10% brick, <30% root matter, dry, brown.<br>1-2 ft bgs: FILL: fine grained sand and silt, <10% clay, dry, brown.<br>2-2.4 ft bgs: CONCRETE<br>2.4-2.8 ft bgs: FILL: gravel and medium to coarse grained sand, dry, brown.<br>2.8-3 ft bgs: FILL: clay structure.<br>3-4 ft bgs: SAA (2.4-2.8 ft bgs), CONCRETE from 3.4-3.7 ft bgs.<br>4-5 ft bgs: FILL: gravel and medium to coarse grained sand, dry, brown.<br>5-10 ft bgs: FILL: medium to coarse angular gravel and medium to coarse grained sand, 3 large 4 inch in diameter cobbles throughout.<br>10-15 ft bgs: SAA, coarse to fine angular gravel. | CONCRETE SAND BENTONITE |
| -1 | | 0.1 | | | | | | | |
| -2 | | 0.1 | | | | | | | |
| -3 | | 0.2 | | | | | | | |
| -4 | | 1.1 | | | | | | | |
| -5 | 3.9'/ 5.0' | 1.2 | | | | | | | |
| -6 | | | | | | | | | |
| -7 | | | | | | | | | |
| -8 | | 1.0 | | | | | | | |
| -9 | | | | | | | | | |
| -10 | 4.1'/ 5.0' | 2.8 | | | | | | | |
| -11 | | | | | | | | | |
| -12 | | | | | | | | | |
| -13 | | 1.5 | | | | | | | |
| -14 | | | | | | | | | |
| -15 | 3.9'/ 5.0' | 5.1 | | | | SW | | 15-20 ft bgs: WELL GRADED SAND (SW): medium grained sand, <10% medium to fine angular gravel, <10% brick fragments, dry, brown. | |
| -16 | | | | | | | | | |
| -17 | | | | | | | | | |
| -18 | | 2.1 | | | | | | | |
| -19 | | | | | | | | | |
| -20 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-23 / MW-10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.02' |
| **Date Pre-Cleared:** July 11, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 11/July 13, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-10 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -20 | 4.2'/ 5.0' | 1.4 | | | | | | 20-25 ft bgs: WELL GRADED SAND (SW): medium grained sand and medium angular and rounded gravel, dry, brown. | GROUT / PVC RISER |
| -21 | | | | | | | | | |
| -22 | | | | | | | | | |
| -23 | | 1.8 | | | | | | | |
| -24 | | | | | | | | | |
| -25 | 4.9'/ 5.0' | 1.6 | | | | | | 25-26 ft bgs: SAA. | |
| -26 | | | | | | | | | |
| -27 | | | | | | | | 26-30 ft bgs: WELL GRADED SAND (SW): medium grained sand, ~10% medium to fine angular gravel, dry, brown. | |
| -28 | | 1.5 | | | | | | | |
| -29 | | | | | | | | | |
| -30 | 4.2'/ 5.0' | 5.8 | | | | | | 30-35 ft bgs: SAA. | |
| -31 | | | | | | | | | |
| -32 | | | | | | | | | |
| -33 | | 1.5 | | | | | | | |
| -34 | | | | | | | | | |
| -35 | 4.8'/ 5.0' | 5.5 | | | | | | 35-40 ft bgs: SAA, medium to fine grained sand, loose. | |
| -36 | | | | | | | | | |
| -37 | | | | | | | | | |
| -38 | | 1.3 | | | | | | | |
| -39 | | | | | | | | | |
| -40 | | | | | | | | | |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-23 / MW-10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.02' |
| **Date Pre-Cleared:** July 11, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 11/July 13, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-10 |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description | Well Construction |
|---|---|---|---|---|---|---|---|---|---|
| -40 | 4.3'/ 5.0' | 1.7 | | | | | | 40-45 ft bgs: SAA. | BENTONITE |
| -41 | | | | | | | | | |
| -42 | | | | | | | | | |
| -43 | | 2.0 | | | | | | | |
| -44 | | | | | | | | | |
| -45 | 2.5'/ 5.0' | 0.9 | | | | SP | | 45-50 ft bgs POORLY GRADED SAND (SP): fine grained sand, loose, dry, brown. | SAND PACK |
| -46 | | | | | | | | | |
| -47 | | | | | | | | | |
| -48 | | 0.7 | | | | | | | |
| -49 | | | | | | | | | |
| -50 | 3.0'/ 5.0' | 1.1 | | | | SW | | 50-52 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, <10% fine gravel, moist, brown. | |
| -51 | | | | | | | | | |
| -52 | | | | | | SP | | 52-55 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, moist, brown. | |
| -53 | | 1.3 | | | | | | | |
| -54 | | | | | | | | | |
| -55 | 2.0'/ 5.0' | 0.2 | | | | SW | | 55-60 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown, faint tar-like odor from 58-60 ft bgs. | PVC SCREEN |
| -56 | | | | | | | | | |
| -57 | | | | | | | | | |
| -58 | | 1.9 | | | | | | | SUMP |
| -59 | | | | | | | | | |
| -60 | | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

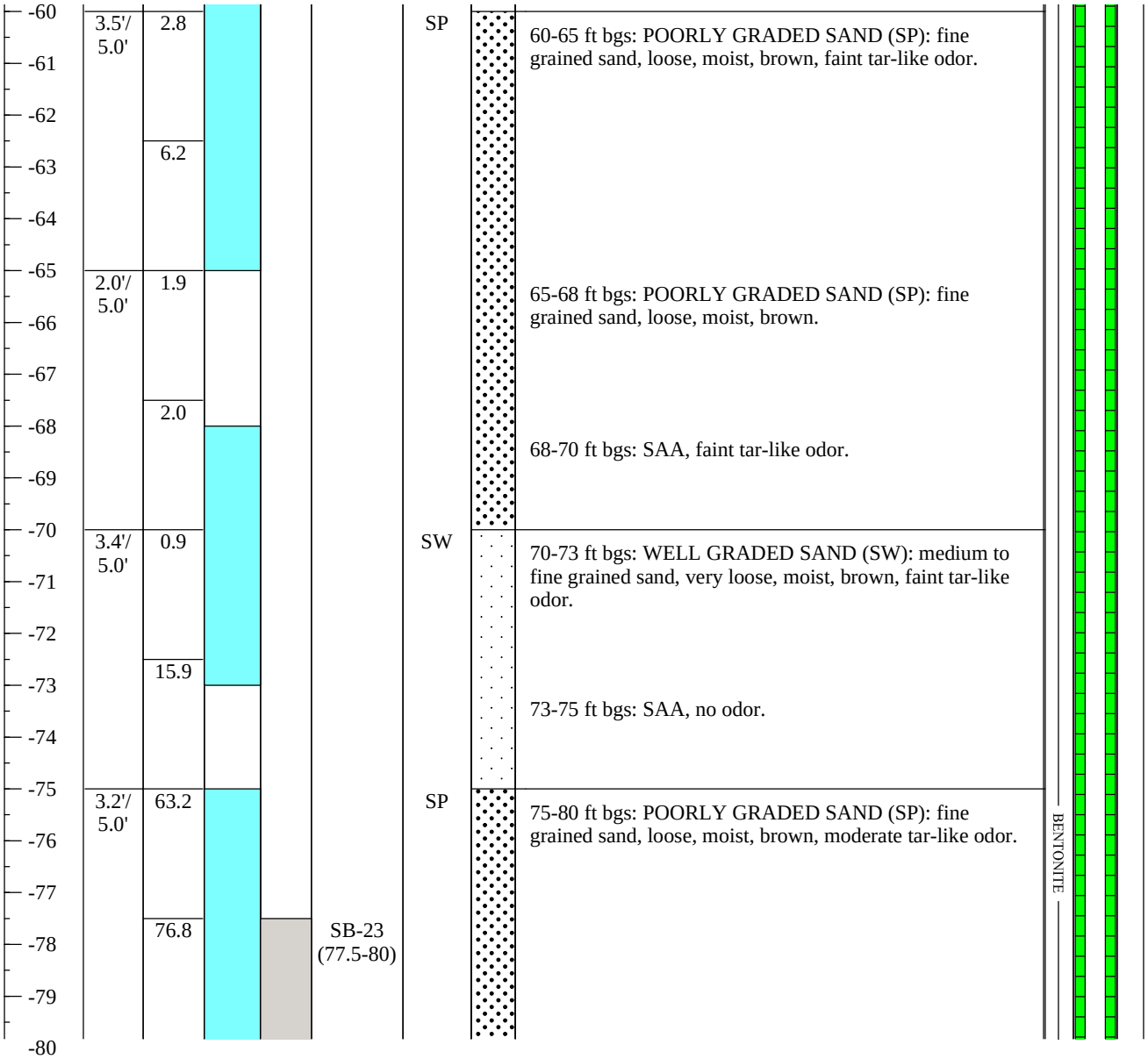
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-23 / MW-10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.02' |
| **Date Pre-Cleared:** July 11, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 11/July 13, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-10 |




Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

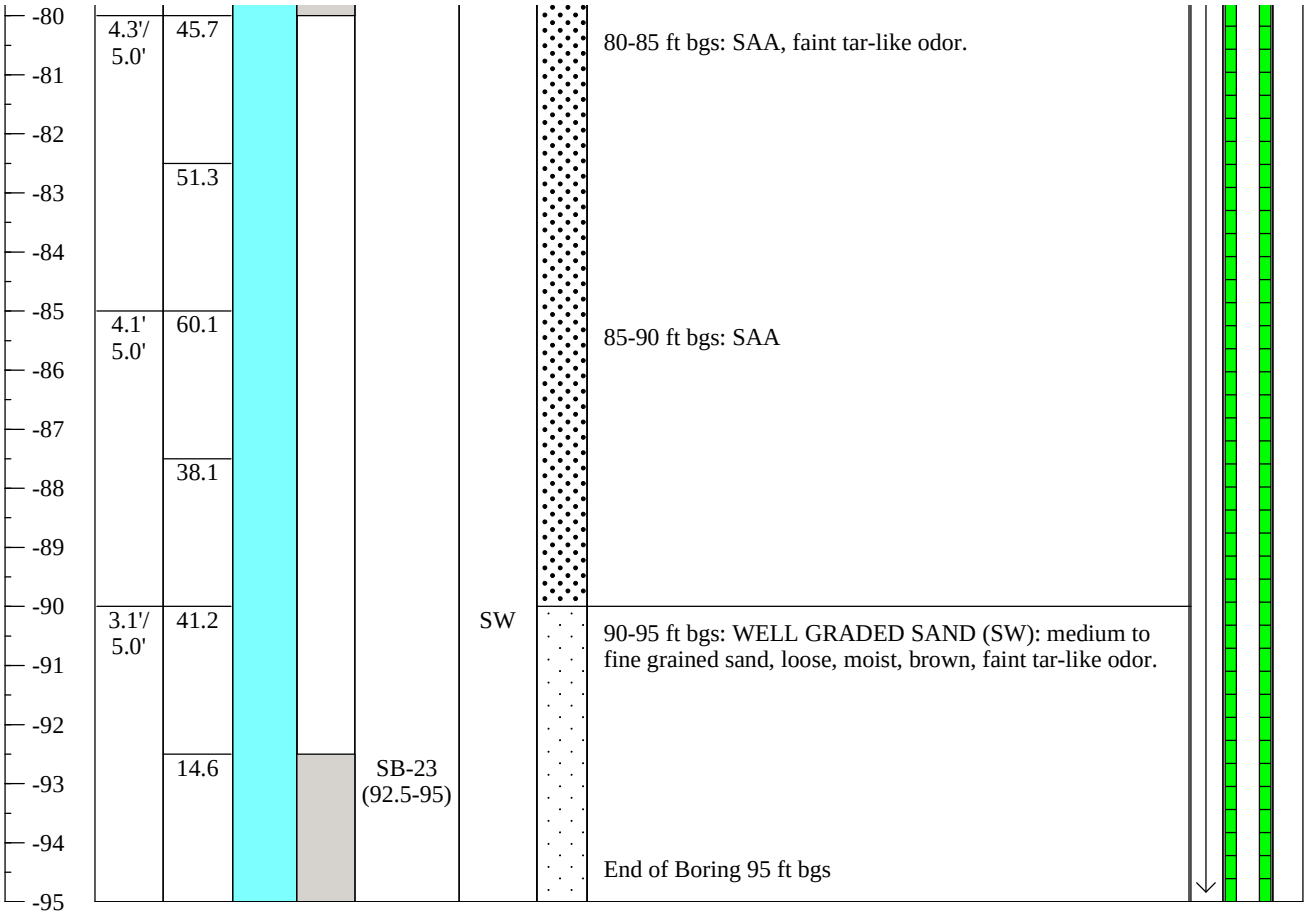
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-23 / MW-10



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 58.02' |
| **Date Pre-Cleared:** July 11, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** Yes |
| **Date Started/Completed:** July 11/July 13, 2011 | **Logged By:** Rita Papagian | **Well ID:** MW-10 |



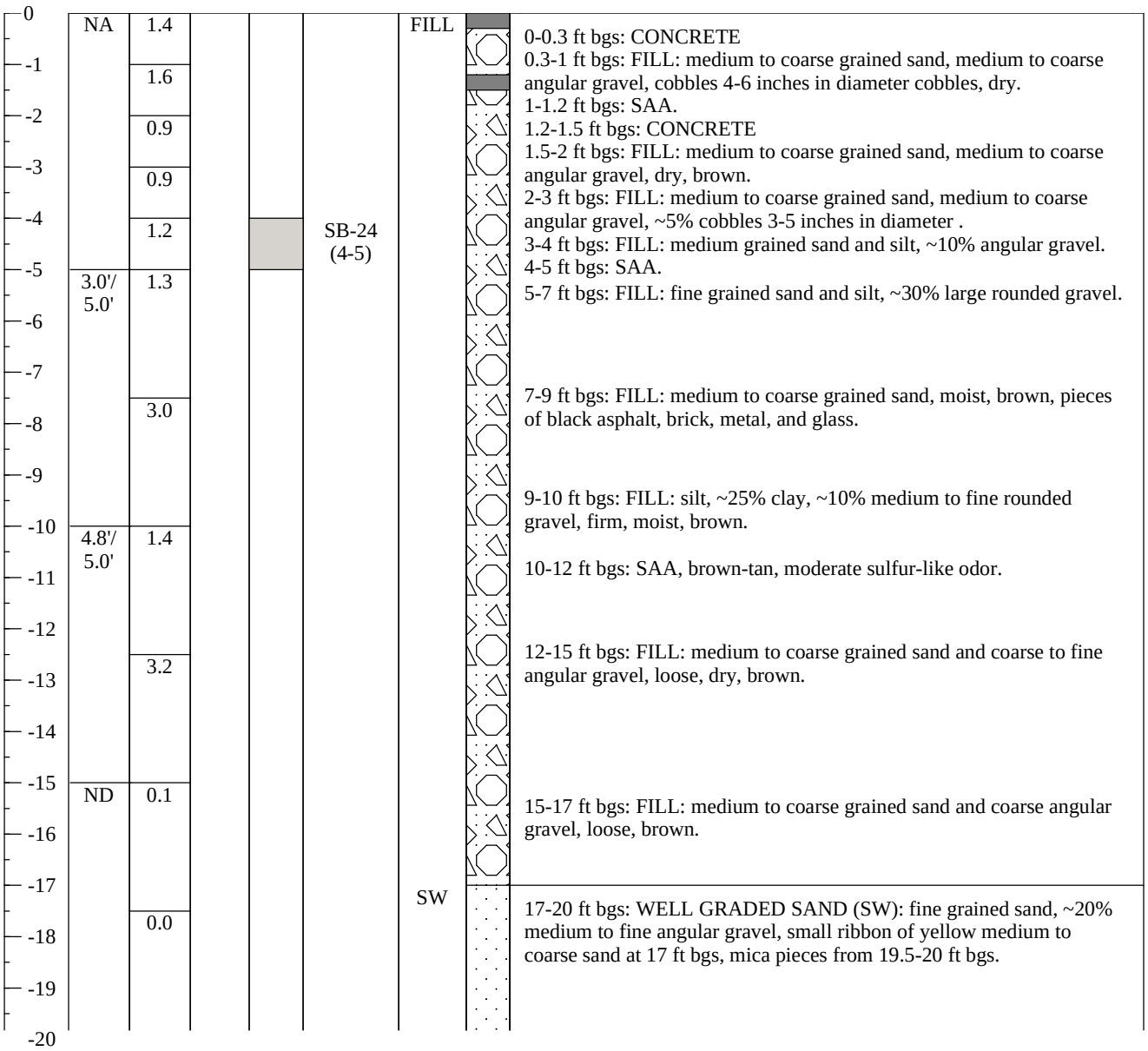

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

# Boring ID: SB-24



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** NA |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 35 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.20' |
| **Date Pre-Cleared:** June 30, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 30, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |




Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-24



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** NA |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 35 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 59.20' |
| **Date Pre-Cleared:** June 30, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** June 30, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | 2.5'/ 5.0' | 0.0 | | | | GW | | 20-21 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse subangular gravel, ~30% coarse sand, loose, moist, brown. |
| -21 | | | | | | SW | | 21-25 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% medium to coarse subangular gravel, loose, moist, brown. |
| -22 | | | | | | | | |
| -23 | | 0.3 | | | | | | |
| -24 | | | | | | | | |
| -25 | 5.0'/ 5.0' | 0.2 | | | | | | 25-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% medium to coarse subangular gravel, loose, dry, brown. |
| -26 | | | | | | | | |
| -27 | | | | | | | | |
| -28 | | 0.2 | | | | | | |
| -29 | | | | | | | | |
| -30 | 2.0'/ 5.0' | 1.0 | | | | | | 30-34 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and medium to fine gravel, loose, moist, brown. |
| -31 | | | | | | | | |
| -32 | | | | | | | | |
| -33 | | 0.2 | | | SB-24 (32.5-35) | | | |
| -34 | | | | | | SP | | 34-35 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, moist, brown. |
| -35 | | | | | | | | End of Boring 35 ft bgs |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-25



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50.5 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.90' |
| **Date Pre-Cleared:** July 7, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** July 8, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| 0 | NA | 0.2 | | | | FILL | | 0-0.4 ft bgs: CONCRETE<br>0.4-0.8 ft bgs: FILL: coarse angular gravel, dry.<br>0.8-1.0 ft bgs: FILL: sand and gravel, dry, brown.<br>1-2 ft bgs: FILL: fine grained sand and silt, dry, brown.<br>2-3 ft bgs: FILL: clay, ~30% silt, <10% black silty clay mottled throughout.<br>3-4 ft bgs: FILL: fine grained sand, ~50% gravel <5% silt, large cobbles throughout, dry, brown.<br>4-5 ft bgs: SAA, <30% gravel, large cobble at 4.8 ft bgs. |
| -1 | | 0.3 | | | | | | |
| -2 | | 0.2 | | | | | | |
| -3 | | 0.1 | | | | | | |
| -4 | | 0.3 | | | SB-25 (4-5) | | | |
| -5 | 3.6'/ 5.0' | 1.5 | | | | | | 5-10 ft bgs: FILL: medium to coarse grained sand and medium to coarse angular gravel, 1-3 inch in diameter cobble at 8 ft bgs, loose, dry, brown. |
| -6 | | | | | | | | |
| -7 | | | | | | | | |
| -8 | | 2.1 | | | | | | |
| -9 | | | | | | | | |
| -10 | 3.8'/ 5.0' | 2.3 | | | | | | 10-15 ft bgs: SAA, 3-4 inch in diameter cobbles throughout, <10% brick fragments, dry. |
| -11 | | | | | | | | |
| -12 | | | | | | | | |
| -13 | | 2.6 | | | | | | |
| -14 | | | | | | | | |
| -15 | NR | NR | | | | SW | | 15-20 ft bgs: No Recovery, cobble in bit. |
| -16 | | | | | | | | |
| -17 | | | | | | | | |
| -18 | | | | | | | | |
| -19 | | | | | | | | |
| -20 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-25



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50.5 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.90' |
| **Date Pre-Cleared:** July 7, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** July 8, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -20 | 3.9'/ 5.0' | 2.1 | | | | | | 20-25 ft bgs: WELL GRADED SAND (SW): SAA (10-15 ft bgs). |
| -21 | | | | | | | | |
| -22 | | | | | | | | |
| -23 | | 6.3 | | | | | | |
| -24 | | | | | | | | |
| -25 | NR | NR | | | | | | 25-30 ft bgs: No Recovery, cobble in bit. |
| -26 | | | | | | | | |
| -27 | | | | | | | | |
| -28 | | | | | | | | |
| -29 | | | | | | | | |
| -30 | 4.0'/ 5.0' | 5.5 | | | | | | 30-35 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, medium gravel, <10% silt, loose, dry, brown. |
| -31 | | | | | | | | |
| -32 | | | | | | | | |
| -33 | | 4.2 | | | | | | |
| -34 | | | | | | | | |
| -35 | 1.0'/ 5.0' | 19.6 | | | | | | 35-39 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and fine gravel, dry. |
| -36 | | | | | | | | |
| -37 | | | | | | | | |
| -38 | | 96.2 | | | | | | |
| -39 | | | | | | SM | | 39-40 ft bgs: SILTY SAND (SM): fine grained sand, ~30% silt, <10% |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

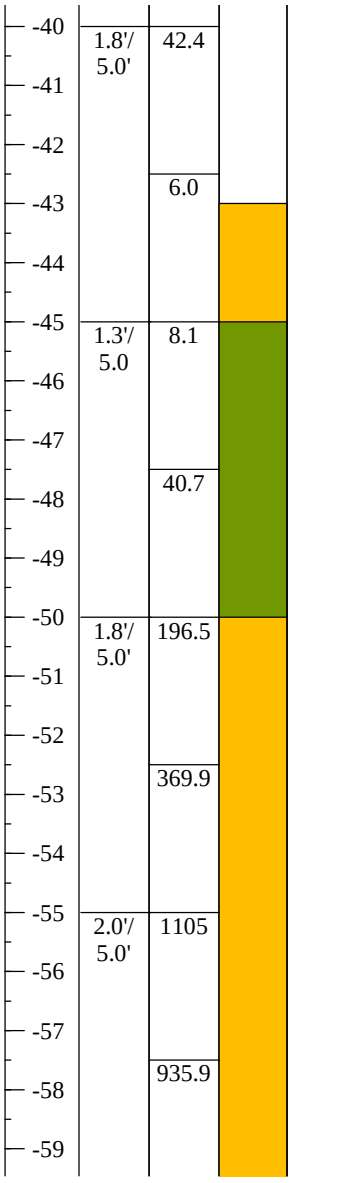
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

# Boring ID: SB-25



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50.5 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.90' |
| **Date Pre-Cleared:** July 7, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** July 8, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |




Geologic Description

grey silt mottled throughout, dry.

40-43 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, <10% fine grained sand, dry, brown.

43-45 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, dry, brown, some tar coated sand, moderate tar-like odor.

45-50 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, wet at 50.5 ft bgs, brown, faint sheen, faint tar-like odor.

50-55 ft bgs: WELL GRADED SAND (SW): medium grained sand, <10% medium to fine angular gravel, moist, brown, tar coated sand throughout, strong tar-like odor, sheen throughout.

55-60 ft bgs: POORLY GRADED SAND (SP) medium grained sand, loose, moist, brown, some tar coated sand, sheen, strong tar-like odor.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-25



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50.5 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.90' |
| **Date Pre-Cleared:** July 7, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** July 8, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -60 | 2.0'/ 5.0' | 1056 | | | | SW | | 60-65 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, <5% silt, moist, brown, tar coated sand throughout, strong tar-like odor, sheen throughout, tar blebs, heavily coated. |
| -61 | | | | | | | | |
| -62 | | | | | | | | |
| -63 | | 866.6 | | | | | | |
| -64 | | | | | | | | |
| -65 | 3.9'/ 5.0' | 733.6 | | | | SP | | 65-68 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, some tar coated sand, strong tar-like odor, sheen and tar blebs. |
| -66 | | | | | | | | |
| -67 | | | | | | | | |
| -68 | | 375.8 | | | | | | 68-70 ft bgs: SAA, no tar-like material coating. |
| -69 | | | | | | | | |
| -70 | 1.0'/ 5.0' | 320.1 | | | | SW | | 70-75 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, strong tar-like odor, sheen. |
| -71 | | | | | | | | |
| -72 | | | | | | | | |
| -73 | | 258.3 | | | | | | |
| -74 | | | | | | | | |
| -75 | 4.0'/ 5.0' | 34.0 | | | | SP | | 75-78 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, moderate tar-like odor. |
| -76 | | | | | | | | |
| -77 | | | | | | | | |
| -78 | | 679.3 | | | | | | 78-80 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, tar coated sand throughout, strong tar-like odor, sheen throughout. |
| -79 | | | | | | | | |

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

# Boring ID: SB-25



| | | |
|---|---|---|
| **Project Name:** Flatbush Station A&B Former Gas Holder | **Drilling Company:** Boart Longyear | **Water Level:** ~50.5 ft bgs |
| **Project Number:** 60218917 | **Drilling Method:** Sonic | **Total Depth:** 95 ft bgs |
| **Client:** National Grid | **Sampling Method:** Disposable plastic liner | **Ground Elevation:** 56.90' |
| **Date Pre-Cleared:** July 7, 2011 | **Boring Diameter:** 6 inches | **Converted To Well (Y/N):** No |
| **Date Started/Completed:** July 8, 2011 | **Logged By:** Rita Papagian | **Well ID:** NA |

| Depth (Feet) | Recovery (Feet) | PID (ppm) | Visual Impacts | Interval Sampled | Sample ID | U.S.C.S | Lithology | Geologic Description |
|---|---|---|---|---|---|---|---|---|
| -80 | 2.1'/ 5.0' | 647.9 | | | | | | 80-84 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, some tar coated sand, strong tar-like odor, sheen throughout. |
| -81 | | | | | | | | |
| -82 | | | | | | | | |
| -83 | | 723.6 | | | SB-25 (82.5-85) | | | |
| -84 | | | | | | | | 84-85 ft bgs: SAA, tar coated sand throughout. |
| -85 | 3.0'/ 5.0' | 154.7 | | | | | | 85-90 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, faint tar-like odor. |
| -86 | | | | | | | | |
| -87 | | | | | | | | |
| -88 | | 38.8 | | | | | | |
| -89 | | | | | | | | |
| -90 | 2.4'/ 5.0' | 4.9 | | | SB-25 (90-92.5) | | | 90-95 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown. |
| -91 | | | | | | | | |
| -92 | | | | | | | | |
| -93 | | 6.1 | | | | | | |
| -94 | | | | | | | | |
| -95 | | | | | | | | End of Boring 95 ft bgs |

Comments: NA: Not Applicable; NR: No Recovery; ND: Not Documented; ft bgs: feet below grade surface; SAA: Same as above; Hand cleared from 0-5 ft bgs.; Sonic drilling started at 5 ft bgs.; Visual impacts also includes olfactory impacts.

# Appendix I

# Standard Operating Procedures

AECOM

January 2012

# Standard Operating Procedures

(AECOM and National Grid)

# AECOM Standard Operating Procedures

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# 1.0 Field Log Books

All field activities will be carefully documented in field log books. Entries will be of sufficient detail that a complete daily record of significant events, observations, and measurements is obtained. The field log book will provide a legal record of the activities conducted at the project site. Accordingly:

- Field books will be assigned a unique identification number.
- Field books will be bound with consecutively numbered pages.
- Field books will be controlled by the Field Team Leader while field work is in progress.
- Entries will be written with waterproof ink.
- Entries will be signed and dated at the conclusion of each day of field work.
- Erroneous entries made while field work is in progress will be corrected by the person that made the entries. Corrections will be made by drawing a line through the error, entering the correct information, and initialing the correction.
- Corrections made after departing the field will be made by the person who made the original entries. Corrections will be made by drawing a line through the error, entering the correct information, and initialing and dating the time of the correction.
- At a minimum, daily field book entries will include the following information:
    - Location of field activity;
    - Date and time of entry;
    - Names and titles of field team members;
    - Names and titles of any site visitors and site contacts;
    - Weather information, for example: temperature, cloud coverage, wind speed and direction;
    - Purpose of field activity;
    - A detailed description of field work conducted;
    - Sample media (soil, sediment, groundwater, *etc*.);
    - Sample collection method;
    - Number and volume of sample(s) taken;

- Description of sampling point(s);
- Volume of groundwater removed before sampling;
- Preservatives used;
- Analytical parameters;
- Date and time of collection;
- Sample identification number(s);
- Sample distribution (*e.g.* laboratory);
- Field observations;
- Any field measurements made, such as pH, temperature, conductivity, water level, *etc.*;
- References for all maps and photographs of the sampling site(s); and
- Information pertaining to sample documentation such as:
    - Bottle lot numbers
    - Dates and method of sample shipment
    - Chain-of-Custody (COC) Record numbers
    - Federal Express Air Bill Number

# 2.0 Field Equipment Decontamination and Management of Investigation Derived Waste

## 2.1 Decontamination Area

A temporary decontamination area lined with polyethylene sheeting will be constructed on-site for decontaminating the drilling equipment. Water collected from the decontamination cleaning activities will be collected in 55-gallon drums and managed as IDW.

## 2.2 Equipment Decontamination

The following procedures will be used to decontaminate equipment used during the field activities:

- All drilling equipment including the drilling rig, augers, bits, rods, tools, split-spoon samplers, and tremie pipe will be cleaned with a high-pressure steam cleaning or hot water pressure washing unit, as appropriate, before beginning work.
- Tools, drill rods, and augers will be placed on sawhorses or polyethylene plastic sheets following steam cleaning or pressure washing. Direct contact with the ground will be avoided.
- All augers, rods, and tools will be decontaminated between each drilling location according to the above procedures.
- The back of the drill rig and all tools, augers, and rods will be decontaminated at the completion of the work and prior to leaving the project site.

### 2.2.1 Sampling Equipment Decontamination

**Suggested Materials:**

- Potable water
- Phosphate-free detergent (*e.g.* Alconox™)
- Distilled water
- Aluminum foil
- Plastic/polyethylene sheeting
- Plastic buckets and brushes
- Personal protective equipment in accordance with the HASP

**Procedures:**

- Prior to sampling, all non-dedicated sampling equipment (bowls, spoons, interface probes, *etc.*) will be either steam cleaned or washed with potable water and a phosphate-free detergent (such as Alconox™). Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, *etc.*

- The sampling equipment will then be rinsed with potable water followed by a deionized water rinse.

- Between rinses, equipment will be placed on polyethylene sheets or aluminum foil if necessary. At no time will washed equipment be placed directly on the ground.

- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location.

## 2.3 Management of Investigation Derived Wastes

### 2.3.1 Decontamination Fluids

Steam-cleaning and decontamination fluids will be collected in 55-gallon drums. The drums will be labeled as investigation derived wastewater subsequently characterized and disposed.

### 2.3.2 Drill Cuttings

Visibly impacted drill cuttings will be contained in 55-gallon drums. The drums will be labeled as investigation derived soils and subsequently characterized and properly disposed.

### 2.3.3 Development and Purge Water

All development and purge water will be contained in 55-gallon drums. The drums will be labeled as investigation derived wastewater and subsequently characterized and properly disposed.

### 2.3.4 Personal Protective Equipment

All personal protective equipment (PPE) will be placed in 55-gallon drums for proper disposal.

### 2.3.5 Dedicated Sampling Equipment

All dedicated groundwater sampling equipment, if used, will be placed in 55-gallon drums for proper disposal.

# 3.0 Drilling and Soil Sampling Procedures

## 3.1 Introduction

Drilling activities during the field work might consist of:

- Soil borings
- Monitoring well installations
- DNAPL collection well installations

These procedures are described in the following section.

## 3.2 Soil Borings and Subsurface Soil Sampling

The following methods will be used for conducting soil borings.

### 3.2.1 Suggested Equipment

- Field book
- Project plans
- Personal protective equipment in accordance with the HASP
- Metal detector
- Stakes and flagging
- One pint containers for lithology samples
- Tape measure
- Decontamination supplies
- Water level indicator
- Photoionization detector (PID) with a 10.2 or 10.6 eV lamp
- Camera
- Clear tape, duct tape
- Aluminum foil

- Laboratory sample bottles
- Coolers and ice
- Shipping supplies

### 3.3 Drilling and Geologic Logging Method

- Soil borings will be advanced using rotosonic, hollow stem auger, or direct push drilling methods. The rotosonic method is preferred.
- Soil samples will be collected continuously to the bottom of the borings using 5 to 10-foot long 4-inch diameter sonic sample bags, 4-foot long, 2-inch diameter macro core samplers or 2-foot long, 2-inch diameter split spoon samplers.
- Soil samples retrieved from the borehole will be visually described for:
    - Percent recovery
    - Soil type
    - Color
    - Moisture content
    - Texture
    - Grain size and shape
    - Consistency
    - Visible and olfactory evidence of staining and/or contamination
    - Any other observations

The descriptions will be in accordance with the Unified Soil Classification System (USCS), American Society for Testing and Materials (ASTM) guidelines, or the modified Burmeister system.

- Soil samples will be immediately screened for the evolution of organic vapors with a PID.
- A representative portion of the sample will be placed in a plastic “zip lock” bag or an eight-ounce sample jar filled approximately half full. The container will be labeled with the boring number and interval sampled. Aluminum foil will be placed on the top of the jar and the cap will be screwed on tightly.
- After a minimum of 10 minutes, the lid will be unscrewed and the tip of the PID will be inserted through the aluminum foil across the cap or into the bag to measure the headspace for organic vapors.

- Remaining soil will be disposed of in accordance with methods specified in the procedure for the management of IDW.
- All borings will be completed as monitoring wells, backfilled with cuttings if soil is not impacted, or sealed with bentonite or cement/bentonite grout following completion.
- All drilling equipment will be decontaminated between each boring in accordance with methods specified in the procedure for field equipment decontamination.
- The designated field geologist will log borehole geology and headspace measurements in the field book and the drilling record along with any other observations (for example, odors, NAPL, soil staining, *etc*.)

### 3.3.1 Soil Sampling

- Samples for VOC analysis will be collected directly from the sonic liners or split-spoons, placed into appropriate containers, and compacted to minimize headspace and pore space. The remaining sample volume will be placed into a stainless steel bowl or plastic bag, homogenized, and placed in appropriate containers for the other analyses.
- The sample containers will be labeled, placed in a laboratory-supplied cooler, and packed on ice (to maintain a temperature of 4ºC). The coolers will be shipped overnight to the laboratory for analysis.
- Chain-of-custody procedures will be followed as outlined in the QAPP.
- The sampling equipment will be decontaminated between samples in accordance with procedures described in the procedure for field equipment decontamination.
- Excess soil remaining after sampling will be contained in accordance with methods specified in the procedure for the management of IDW.
- The sample locations, descriptions, and depths will be recorded in the field book.

## 3.4 Monitoring Well Installation and Development

The following methods will be used for drilling, installing, and developing the monitoring wells.

### 3.4.1 Suggested Equipment

- Field book
- Project plans
- Personal protective equipment in accordance with the HASP
- Metal detector
- Stakes and flagging

- One pint containers for lithology samples
- Tape measure
- Decontamination supplies
- Water level indicator
- Photoionization detector (PID) with a 10.2 or 10.6 eV lamp
- Camera
- Clear tape, duct tape
- Aluminum foil
- Laboratory sample bottles
- Coolers and ice
- Shipping supplies
- Polyethylene disposable bailers (development)
- Polypropylene rope (development)
- Waterra pump or other purge pump (development)
- Stainless steel or glass beakers (development)
- Turbidity meter (development)
- Temperature, conductivity, pH meter (development)

### 3.4.2 Monitoring Well Installation

The monitoring wells will be installed in accordance to the following specifications:

- The monitoring well borings will be advanced with 6-inch diameter sonic casing pipe or 4.25-inch inner diameter (ID) hollow stem augers.
- Wells will be constructed with 2-inch ID, threaded, flush-joint PVC casings and screens.
- Screens will be 10 feet long with 0.01-inch or 0.02-inch slot openings with a 2-foot sump at the base. Alternatives may be used at the discretion of the field geologist and approval of National Grid based on field conditions.
- The annulus around the screens will be backfilled with silica sand having appropriate size (*e.g.* Morie No. 1) to a minimum height of two feet above the top of the screen. Auger flights will be withdrawn as sand is poured in a manner that will minimize hole collapse and bridging.

- A bentonite pellet seal or slurry seal with a minimum thickness of one foot will be placed above the sand pack. The bentonite seal (pellets) will be allowed to hydrate before placement of grout above the seal.

- The remainder of the annular space will be filled with a cement-bentonite grout to the ground surface. The grout will be pumped through a tremie pipe from the bottom up. The grout will be allowed to set for a minimum of 24 hours before wells are developed.

- Each monitoring well will have a locking expandable gas-tight cap and will be contained in a flush-mount vault.

- The concrete seal or pad will be sloped to channel water away from the well, and be deep enough to remain stable during freezing and thawing of the ground.

- The op of the PVC well casing will be marked and surveyed to 0.01 foot, and the elevation will be determined relative to a fixed benchmark or datum.

- The measuring point on all wells will be on the innermost PVC casing.

- Monitoring well construction details will be recorded in the field book and on a construction log.

### 3.4.3 Monitoring Well Development

- After a minimum of 24 hours after completion, the monitoring wells will be developed by surging and pumping. Pumping methods may include using a centrifugal or peristaltic pump and dedicated polyethylene tubing, using a Waterra positive displacement pump and dedicated polyethylene tubing, or other methods at the discretion of the field geologist.

- Water levels will be measured in each well to the nearest 0.01 foot prior to development.

- The wells will be developed until the water in the well is reasonably free of visible sediment (50 NTU if possible or until pH, temperature, and specific conductivity stabilize). A portable nephelometer will be used to take this measurement.

- Development water will be contained in accordance with methods specified in the procedure for the management of IDW.

Following development, wells will be allowed to recover for at least 14 days before groundwater is purged and sampled. All monitoring well development will be overseen by a field geologist and recorded in the field book.

# 4.0 Groundwater Sampling Procedures

## 4.1 Introduction

Groundwater sampling will be conducted on Site monitoring well locations. Procedures for obtaining samples of groundwater are described in this section.

## 4.2 Groundwater Sampling

### 4.2.1 Suggested Equipment

- Field book
- Project plans
- Personal protective equipment in accordance with the HASP
- Water level indicator
- Disposable polyethylene bailers or low flow sampling pump
- Polypropylene rope
- Temperature, conductivity, pH meters
- Turbidity meter
- Dissolved oxygen meter
- 250-mL glass beaker
- Flow through cell (if low flow sampling pump is used)
- Decontamination supplies
- Waterra pump or other purge pump
- Plastic tubing
- Plastic sheeting
- Photovac PID
- Clear tape, duct tape
- Coolers and ice

- Laboratory sample bottles
- Federal Express labels

### 4.2.2 Groundwater Sampling Method

#### 4.2.2.1 Purging

- The number and frequency of groundwater samples to be collected and the associated analytical parameters are summarized in Section 3-3 of the SMP.
- Prior to sampling, the static water level and thickness of any free product will be measured to the nearest 0.01 foot from the surveyed well elevation mark on the top of the PVC casing with a decontaminated oil/water interface probe. NAPL thickness will be determined using a clear bailer or a weighted string. The measurement will be recorded in the field book.
- The probe will be decontaminated according to procedures outlined in the procedures for field equipment decontamination.
- The well will be purged by removing groundwater until field parameters stabilize to within 10% of previous reading; up to 3 well volumes are removed or 1 hour of purging is performed. Purging will be conducted using a low-stress sampling technique such as the USEPA Region 1 Low-Stress sampling guidance.
- If a well goes dry before the required volumes are removed, it will be allowed to recover, purged a second time until dry or the required parameters are met, and sampled when it recovers sufficiently, in accordance with low flow sampling protocol.
- Purge water will be managed and disposed of in accordance with procedures described in the management of IDW.

#### 4.2.2.2 Sampling

- Samples will be collected using dedicated ¼-inch polyethylene tubing and micro purging techniques consistent with low flow sampling protocol.
- Prior to filling the sample bottles, one 250-mL beaker will be filled with water. The temperature, pH, conductivity, oxidation reduction potential, dissolved oxygen, and turbidity will be measured with a pre-calibrated probe and recorded in the field book. If low flow sampling methods are used, these parameters (except turbidity) will be measured within a flow through cell.
- The sample containers will be labeled, placed in a laboratory-supplied cooler and packed on ice (to maintain a temperature of 4ºC). The cooler will be shipped overnight or delivered to the laboratory for analysis.
- Chain-of-custody procedures will be followed as outlined in the QAPP.

Well sampling data will be recorded on groundwater sampling record forms.

# 5.0 Field Instruments and Calibration

All field analytical equipment will be calibrated immediately prior to each day's use and more frequently if required. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. All instrument calibrations will be documented in the project field book and in an instrument calibration log. Records of all instrument calibration will be maintained by the Field Team Leader and will be subject to audit by the Quality Assurance Officer (QAO). Copies of all of the instrument manuals will be maintained on-site by the Field Team Leader. All changes to instrumentation will be noted in the field log book.

The following field instruments will be used during the investigation:

- PID
- pH probe
- Mini-RAM dust meter
- Dissolved oxygen probe
- Specific Conductivity probe
- Temperature probe
- Turbidity meter

Probes used to measure pH, dissolved oxygen, specific conductivity, and temperature are all housed in a single instrument and parameters are measured in a sealed flow through cell.

## 5.1 Portable Photoionization Analyzer

- The photoionization analyzer will be a Thermo 580B (or equivalent), equipped with a minimum 10.2 or 10.6 eV lamp. The PID is capable of ionizing and detecting compounds with an ionization potential of less than 10.6 eV. This accounts for up to 73% of the volatile organic compounds on the Target Compound List.
- Calibration must be performed at the beginning and end of each day of use with a standard calibration gas having an approximate concentration of 100 parts per million of isobutylene. If the unit experiences abnormal perturbation or erratic readings, additional calibration will be required.
- All calibration data must be recorded in field notebooks and on calibration log sheets to be maintained on-site.
- A battery check must be completed at the beginning and end of each working day.

- All changes to the PID will be noted in the field notes (such as bulb or filter cleaning or replacement).

### 5.2 pH

- Calibration of the pH meter must be performed at the start of each day of use, and after very high or low readings as required by this plan, according to manufacturer's instructions.
- National Institute of Standards and Technology (NIST) – traceable standard buffer solutions which bracket the expected pH range will be used. The standards will be pH of 4.0, 7.0, and 10.0 standard units.
- The use of the pH calibration must be used to set the meter to display the value of the standard being checked.
- The calibration data must be recorded on calibration sheets and maintained on-site.

### 5.3 Dissolved Oxygen

Calibration of the dissolved oxygen meter must be performed at the start of each day of use, after very high or low readings (approaching or outside of the theoretical dissolved oxygen range at a given temperature), and after bubbles or spurious readings are observed.

Calibrate the meter to a prepared standard or other method in accordance with manufacturer's instructions and note the scale and units on the meter.

### 5.4 Specific Conductivity and Temperature

- Calibration checks using the conductivity standard must be performed at the start of each day of use, after five to ten readings or after very high or low readings as required by this plan, according to manufacturer's instructions.
- The portable conductivity meter must be calibrated using a reference solution of 200 ohms/cm on a daily basis. Readings must be within five percent to be acceptable.
- The thermometer of the meter must be calibrated against the field thermometer on a weekly basis.

### 5.5 Turbidity Meter

The turbidity meter must be checked at the start of each day of use and at the end of the day according to manufacturer's instructions.

# 6.0 Sample Documentation

## 6.1 Chain of Custody

- A Chain-of-Custody (COC) record will accompany the sample containers during selection and preparation at the laboratory, during shipment to the field, and during return shipment to the laboratory.
- The COC will identify each sample container and the analytical parameters for each, and will list the field personnel that collected the samples, the project name and number, the name of the analytical laboratory that will receive the samples, and the method of sample shipment.
- If samples are split and sent to different laboratories, a copy of the COC record will be sent with each sample shipment.
- The COC will be completed by field personnel as samples are collected and packed for shipment.
- Erroneous markings will be crossed-out with a single line and initialed by the author.
- The REMARKS space will be used to indicate if the sample is a matrix spike, matrix spike duplicate, or matrix duplicate.
- Trip and field blanks will be listed on separate rows.
- After the samples have been collected and sample information has been listed on the COC form, the method of shipment, the shipping cooler identification number(s), and the shipper air bill number will be entered on the COC.
- Finally, a member of the sampling team will write his/her signature, the date, and time on the first RELINQUISHED BY space. Duplicate copies of each COC must be completed.
- One copy of the COC will be retained by sampling personnel. The other copy and the original will be sealed in a plastic bag and taped inside the lid of the shipping cooler.
- Sample shipments will be refrigerated at 4ºC, typically by packing with ice, to preserve the samples during shipment.
- After the shipping cooler is closed, custody seals provided by the laboratory will be affixed to the latch and across the front and back of the cooler lid, and signed by the person relinquishing the samples to the shipper.
- The seal will be covered with clear tape, and the cooler lid will be secured by wrapping with packing tape.
- The cooler will be relinquished by the shipper, typically an overnight carrier.

- The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Project Manager, and the samples will not be analyzed.

- The samples must be delivered to the laboratory within 48 hours of collection.

### 6.2 Sample Documentation

The field team leader will retain a copy of the COC, and, in addition, the field team leader will ensure that the following information about each sample is recorded in the field book:

- Sample identifier
- Identification of sampled media (*e.g.* soil, sediment, groundwater)
- Sample location with respect to a known reference point
- Physical description of sample location
- Field measurements (*e.g.* pH, temperature, conductivity, and water levels)
- Date and time of collection
- Sample collection method
- Volume of groundwater purged before sampling
- Number of sample containers
- Analytical parameters
- Preservatives used
- Shipping information:
    - o Dates and method of sample shipment
    - o Chain-of-Custody Record numbers
    - o Federal Express Air Bill numbers

Sample recipient (*e.g.* laboratory name)

# National Grid Standard Operating Procedures

# Field Descriptions of Samples for Former Manufactured Gas Plant (MGP) Sites

## SOIL SAMPLE DESCRIPTIONS

It is important that descriptive qualifiers are consistently used to characterize degree and nature of contaminant impacts and visual-manual soil classification. The following presents some examples of descriptive qualifiers.

## SOIL LOGGING

- All soils are to be logged using the **Unified Soil Classification** (ASTM D 2488 field descriptions)
- **PID or FID** used to screen all soil samples (Jar Headspace method) – maximum readings should be recorded and included on the logs. PID/FID to be calibrated daily at a minimum
- **Moisture terms** are: Dry, Moist, and Wet
- **Color terms** - use geotechnical color charts - colors may be combined: e.g. red-brown. Color terms should be used to describe the "natural color" of the sample as opposed to staining caused by contamination (see below)
- **Log of each sample interval** should be prepared as follows:

  **[Coarse Grained Example]** NARROWLY GRADED SAND (SP); mostly fine sand; <5% fines; red-brown, moist, environmental/depositional/geologic descriptions.

  **[Fine Grained Example]** SANDY SILT (ML); heterogeneous till structure, nonplastic, ~30% fine to coarse, subangular sand; ~10% subangular fine gravel, max. size ~ 10 mm; brown; environmental/depositional/geologic descriptions.

- **Representativeness** – Soil logs should include particular notes if the field representative believes that there is a possibility the soil sample being described is not representative of the interval sampled.
- **Intervals for Description** – if using a 2' (split spoon) or 4' (Macro-core) long sampler – the field description should not necessarily be for the entire sample interval. It is important to look for, identify, and describe small-scale units and changes within each sample interval.

## DESCRIPTION OF CONTAMINANTS

### Visible Contamination Descriptors

- **Sheen** - iridescent petroleum-like sheen. Not to be used to describe a "bacterial sheen" which can be distinguished by its tendency to break up on the water surface at angles

whereas petroleum sheen will be continuous and will not break up. A field test for sheen is to put a soil sample in a jar of water and shake the sample (jar shake test) , then observe the presence/absence of sheen on the surface of the water in the jar.

- **Stained** - used w/ color (i.e. black or brown stained) to indicate that the soil matrix is stained a color other than the natural (unimpacted) color of the soil.

- **Coated** - soil grains are coated with tar/free product – there is not sufficient free-phase material present to saturate the pore spaces.

- **Blebs** - observed discrete sphericals of tar/free product - but for the most part the soil matrix was not visibly contaminated or saturated. Typically this is residual product.

- **Saturated** - the entirety of the pore space for a sample is saturated with the tar/free product. Care should be taken to ensure that you're not observing water saturating the pore spaces if you use this term. Depending on viscosity, tar/free-phase saturated materials may freely drain from a soil sample.

- **Oil**. Used to characterize free and/or residual product that exhibits a distinct fuel oil or diesel fuel like odor; distinctly different from MGP-related odors/impacts.

- **Tar**. Used to describe free and/or residual product that exhibits a distinct "coal tar" type odor (e.g. naphthalene-like odor). Colors of product can be brown, black, reddish-brown, or gold.

- **Solid Tar**. Used to describe product that is solid or semi-solid phase. The magnitude of the observed solid tar should be described (e.g. discrete granules or a solid layer).

- **Purifier Material**. Purifier material is commonly brown/rust or blue/green wood chips or granular material. It is typically associated with a distinctive sulfur-like odor. Other colors may be present.

**Olfactory Descriptors**

- Use terms such as " tar-like odor" or "naphthalene-like odor" or "fuel oil-like odor" that provide a qualitative description (opinion) as to the possible source of the odor.
- Use modifiers such as strong, moderate, faint to indicate intensity of the observed odor.

**DNAPL/LNAPL**

- A jar shake test should be performed to identify and determine whether observed tar/free-phase product is either denser or lighter than water. In addition, MGP residues can include both light and dense phases - this test can help determine if both light and dense phase materials are present at a particular location.

**Viscosity of Free-Phase Product** – If free-phase product/tar is present a qualitative description of viscosity should be made. Descriptors such as:

- Highly viscous (e.g. taffy-like)
- Viscous (e.g. No. 6 fuel oil or bunker crude like)
- Low viscosity (e.g. No. 2 fuel oil like)

## GROUNDWATER SAMPLING OBSERVATIONS

- Any observations of sheen, blebs, free-phase product/tar, staining or coating of the sampling equipment, odor, etc. that made during sampling of groundwater are to be included in the groundwater sample collection log.

## MGP COLOR CHART

| | | RGB Color | Auto Cad Index |
|---|---|---|---|
|  | **TAR SATURATED** | 255,0,0 | 10 |
|  | **COATED MATERIAL, LENSES** | 255,0,255 | 210 |
|  | **BLEBS, GLOBS, SHEEN** | 255,191,0 | 40 |
|  | **STAINING, ODOR** | 255,255,0 | 50 |
|  | **PETROLEUM IMPACTS SHEEN, STAINING, ODORS** | 127,233,255 | 141 |
|  | **PURIFIER WASTE AND ODOR** | 0,0,255 | 170 |
|  | **NO OBSERVED IMPACTS** | 0,165,0 | 92 |

### 2.4.3 Sampling Interval and Flow Controller Setting

When you request canisters and flow controllers from Air Toxics Ltd., you will be asked for the sampling interval, and the flow controllers will be pre-set prior to shipment according to the table below. The flow controller is set to collect 5 L of sample over the sample interval. Final canister vacuum is targeted at 5 in. Hg. The flow rate is set at standard atmospheric conditions (approximately sea level). If the air sample is a process (pressurized or under vacuum) or is collected at elevation, the canisters will fill faster or slower depending on the sampling conditions. If you specify the pressure of the source at project set-up, we can set the flow controller accordingly. See Section 4 for a discussion of collecting a sample at elevation. The 24-hr flow controllers should not be used for process or source samples.

**Table 2.4.3 Flow Rates for Selected Sampling Intervals (mL/min)**

| Sampling Interval (hrs) | 0.5 | 1 | 2 | 4 | 8 | 12 | 24 |
|---|---|---|---|---|---|---|---|
| 6 L Canister | 167 | 83.3 | 41.7 | 20.8 | 11.5 | 7.6 | 3.5 |
| 1 L Canister | 26.6 | 13.3 | 6.7 | - | - | - | - |

Note: Target fill volumes for 6 L and 1 L canisters are 5,000 mL and 800 mL, respectively.

$$\text{Flow Rate(mL/min)} = \frac{\text{Target Fill Volume (mL)}}{\text{Sampling Interval (min)}}$$

### 2.4.4 Final Canister Vacuum and Flow Controller Performance

Ideally the final vacuum of a 6 L canister should be 5 in. Hg or greater. As long as the differential pressure is greater than 4 in. Hg ambient pressure, then the flow through the device will remain approximately constant as the canister fills. If there is insufficient differential pressure, the flow through the controller will decrease as the canister pressure approaches ambient. Because of the normal fluctuations in the flow rate (due to changes in ambient temperature, pressure, and diaphragm instabilities) during sampling, the final vacuum will range between 2 and 10 in. Hg.

# Compliance Assessment Site Investigation and Remediation

nationalgrid

## General Information

**Observation Date** _____ **Time** _____ AM / PM

**Primary Task of Crew** _____
(e.g., Installing wire, fusing gas line, etc.)

**Additional info on Crew Task** _____

**Observed Department** _____

**Who did you observe?** ◯ **Employees** ◯ **Contractor**

**# of People Observed:** _____

| **Observers** | **Observed Employees or Contractor Company Name** |
|---|---|
| | |
| | |
| | |
| | |

## Location of Observation

**Site Name** _____

**Address** _____ **City** _____ **State** _____

**Location Type** ◯ Company Site ◯ Non-Company Site _____ (e.g., Office, Right of Way, etc.)

## Observation Items

| | | | | | | |
|---|---|---|---|---|---|---|
| **Communication & Risk Assessment** | | | | | | ***Additonal information required under Observation Details*** |
| 1. Crew members demonstrate clear understanding of job hazards and conditions | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 2. Demonstrates clear understanding of the controls necessary to minimize the risks associated wtih the hazards at the job site (demarcation, position of equipment, shoring, atmospheric monitoring, proper ventilation, etc) | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 3. Understands "What's the worst thing that could happen on the job?" | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 4. Daily safety meeting has been documented and performed with crew | ◯ Safe | ◯ Unsafe* | | | | |
| 5. Safety risk assessment was developed before work began | ◯ Safe | ◯ Unsafe* | | | | |
| 6. Job Brief identifies the most significant hazards and controls to mitigate risk. (ie: proximity of energized lines, grounding, shoring, low hanging pipes, etc.) | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| **Personal Protection** | | | | | | ***Additonal information required under Observation Details*** |
| 7. Maintains PPE in good condition | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 8. Wears all required PPE correctly | ◯ Safe | ◯ Unsafe* | | | | |
| **Work Area Safety** | | | | | | ***Additonal information required under Observation Details*** |
| 9. Slippery or untidy areas are cleaned up quickly | ◯ Safe | ◯ Unsafe* | | | | |
| 10. Actively Managing Work Area - Good Housekeeping, maintains walking and work surfaces, clear areas of egress and good lighting for task | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 11. Maintains adequate barriers and signs to protect others from the work area | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 12. Properly handles and stores hazardous chemicals and materials | ◯ Safe | ◯ Unsafe* | | | | |
| 13. Work area air monitoring has been performed and documented | ◯ Safe | ◯ Unsafe* | | | | |
| **Vehicles / Mobile Equipment** | | | | | | ***Additonal information required under Observation Details*** |
| 14. Follows safe vehicle backing procedures | ◯ Safe | ◯ Unsafe* | | | | |
| 15. Loads are secured properly | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 16. Properly positioned vehicle at the work site | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |

| **Vehicles / Mobile Equipment** | | | | | | ***Additonal information required under Observation Details*** |
|---|---|---|---|---|---|---|
| 17. Required distances are maintained from energized lines and equipment | ◯ Safe | ◯ Unsafe* | | | | |
| **Work Methods and Procedures** | | | | | | ***Additonal information required under Observation Details*** |
| 18. Crews understand the applicable sections of the HASP | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 19. Environmental permits/plans are on site and conditions followed | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 20. Exclusion zone is properly delineated | ◯ Safe | ◯ Unsafe* | | | | |
| 21. Follows proper procedures for confined space / enclosed space | ◯ Safe | ◯ Unsafe* | | | | |
| 22. Follows the proper regulatory and corporate safety procedures for trenching, excavation, backfilling, compaction and restoration work | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 23. OSHA certificates and medical monitoring documents are on site | ◯ Safe | ◯ Unsafe* | | | | |
| 24. Proper decon procedures are followed | ◯ Safe | ◯ Unsafe* | | | | |
| 25. The HASP is on site | ◯ Safe | ◯ Unsafe* | | | | |
| 26. Visitor sign in sheet is on site | ◯ Safe | ◯ Unsafe* | | | | |
| 27. Works within applicable minimum approach distances | ◯ Safe | ◯ Unsafe* | | | | |
| **Work Place Environment** | | | | | | ***Additonal information required under Observation Details*** |
| 28. Fire Extinguishers - Placement and Inspection Date | ◯ Safe | ◯ Unsafe* | | | | |
| 29. First Aid equipment is available and fully stocked | ◯ Safe | ◯ Unsafe* | | | | |
| 30. Adequate spill clean up equipment is on site | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 31. Lighting (Safety and Security) within building, garage, yard, parking area and at job site. | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 32. Work site is secure for unauthorized entry | ◯ Safe | ◯ Unsafe* | | | | |
| **Work Practices** | | | | | | ***Additonal information required under Observation Details*** |
| 33. Not climbing or walking over materials, equipment or waste | ◯ Safe | ◯ Unsafe* | | | | |
| 34. Takes precautions when working in unique conditions - uneven surfaces, slopes, steps. | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 35. Follows safe practices when working in or near water | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 36. Maintains awareness of other activities in the work area (distance from moving equipment, work overhead, near excavations, confined areas etc) | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 37. Stockpiles are covered and secured at the end of each work day | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| **Environmental** | | | | | | ***Additonal information required under Observation Details*** |
| 38. Containers of waste appropriately marked | ◯ Safe | ◯ Unsafe* | | | | |
| 39. Ensures waste is properly managed | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 40. Follows procedures / methods to help protect the environment during work activities (use of absorbant materials, covers drains, proper location of equipment, hay bales to protect wetlands, good housekeeping etc.) | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 41. Knows procedures for responding to spills or other releases | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 42. Perimiter air monitoring is performed and documented | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |
| 43. Water quality monitoring is performed and documented | ◯ Poor* | ◯ Needs Improvement* | ◯ Fair | ◯ Good | ◯ Very Good | |

## Observation Details

**Observation Details for Observation #:**

| List Applicable Employees | Primary Cause (See List) | Immediate Action Taken (See List) |
|---|---|---|
| | | |

**Comments**

**Observation Details for Observation #:**

| List Applicable Employees | Primary Cause (See List) | Immediate Action Taken (See List) |
|---|---|---|
| | | |

**Comments**

**Observation Details for Observation #:**

| List Applicable Employees | Primary Cause (See List) | Immediate Action Taken (See List) |
|---|---|---|
| | | |

**Comments**

**Observation Details for Observation #:**

| List Applicable Employees | Primary Cause (See List) | Immediate Action Taken (See List) |
|---|---|---|
| | | |

**Comments**

**Observation Details for Observation #:**

| List Applicable Employees | Primary Cause (See List) | Immediate Action Taken (See List) |
|---|---|---|
| | | |

**Comments**

## Follow-up Items

| Description | Assigned To | Due Date | Complete Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## Additional Comments

| |
|---|
| |

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# Executive Summary

This document presents standard operating procedures (SOPs) for conducting soil vapor intrusion evaluations at National Grid's manufactured gas plant (MGP) sites in New York State. These procedures have been developed on behalf of National Grid in cooperation with the New York State Departments of Health (NYSDOH) and Environmental Conservation (NYSDEC).

These SOPs are based on a current understanding of soil vapor intrusion, existing site-specific conditions at National Grid's MGP sites in New York State, and the current regulatory climate in the state. They have been developed in consideration of NYSDOH's Draft *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH, 2006~~5~~), NYSDEC and NYSDOH input, ~~standards~~ guidance documents issued by the United States Environmental Protection Agency (USEPA), O'Brien & Gere's and Haley & Aldrich's indoor air and soil vapor intrusion evaluation experience and expertise, National Grid's experience in New York State and New England, and consultation with other New York utility companies. As such, this set of SOPs may be updated or modified as the understanding of vapor intrusion continues to evolve, and as guidance documents and regulations are revised and updated. Further, these SOPs may be modified based on site-specific conditions.

Although the regulatory community generally considers soil vapor intrusion of non-chlorinated constituents ~~a~~ "… less of a ~~ower~~ priority in the evaluation of past sites …" (NYSDEC 2006), National Grid is working with the NYSDOH and NYSDEC to identify MGP sites where evaluation of the potential vapor intrusion pathway is warranted. For these sites, a soil vapor intrusion evaluation should be conducted during the Remedial Investigation (RI) phase so it can be adequately addressed in the Feasibility Study (FS) and integrated in the selection of a comprehensive site remedy.

## SOP Objectives

While the NYSDOH guidance document (2006~~5~~) identified above provides general guidance for evaluating soil vapor intrusion for a wide range of sites, this set of SOPs complements that guidance document by focusing on specific procedures for evaluating soil vapor intrusion at MGP sites. Specifically, the primary objectives of these SOPs are to:

1. Establish consistent protocols for collecting and analyzing samples and evaluating data at National Grid's MGP sites in New York State; and

2. Establish uniform work plan and reporting elements for each applicable MGP site, thus streamlining work plan and report development and review.

## Overview of Soil Vapor Intrusion Evaluations

The goal of a soil vapor intrusion evaluation is to assess whether there are complete exposure pathways of soil vapor to indoor air. A complete exposure pathway exists if vapors from MGP-related constituents are migrating through various pathways into nearby buildings at concentrations that may

result in an unacceptable human health risk. If a complete exposure pathway does not exist, then further assessment of soil vapor intrusion is not required, unless there is a relevant change in site conditions, or as noted above, the understanding of soil vapor intrusion evolves and guidance documents and regulations are revised and updated. Because soil vapor intrusion requires a complete pathway to exist between the source of the vapors and the receptor, a phased approach can be applied to establish if a complete pathway exists. This phased approach to soil vapor intrusion evaluations, as it applies to National Grid's MGP sites in New York State, includes:

**Phase 1 – Documentation Review**

**Phase 2 – Soil Vapor Sampling**

**Phase 3 – Sub-Slab Sampling**

**Phase 4 – Indoor Air Sampling**

Please note that not all of these phases may need to be conducted. Depending upon available site-specific data, any one of these phases may be bypassed. For instance, if Phase 1 reveals a high potential for impacted buildings, Phase 2 may be bypassed and the evaluation may proceed directly from Phase 1 to Phase 3 or 4. In addition, Phases 3 and 4 may be conducted simultaneously if site conditions dictate.

The remainder of this document describes the various procedures to review site documentation, conduct sampling, and evaluate sampling data, organized into the four phases outlined above. To facilitate the steps required for each phase, process flow diagrams for all four phases are provided (Figures 1 through 4).

# 1. Phase 1. Documentation Review

## 1.1. Objective

The first phase of the soil vapor intrusion evaluation for an MGP site involves reviewing available site documentation, and supplementing that data as necessary, to identify potential vapor receptors with respect to MGP-impacted soil and groundwater and to identify preferential pathways by which vapors would migrate to those receptors.

The steps of Phase 1 include:

**Step 1. Data Compilation and Review**

**Step 2. Data Evaluation**

**Step 3. Data Reporting**

Figure 1 illustrates a process flow diagram for Phase 1. If, during the Phase 1 documentation review, the data suggest that potential receptors are sufficiently close to potential MGP-impacted soil or groundwater, then the evaluation should proceed to Phase 2. This section discusses the Phase 1 steps in more detail and provides guidance on whether to proceed to Phase 2. Please note that the following steps may be modified based on site-specific conditions.

## 1.2. Step 1. Data Compilation and Review

Step 1 involves compiling and reviewing site-specific data to identify potential vapor receptors, MGP-impacted soil or groundwater, and preferential vapor pathways, as defined in the following subsections. Documentation to be compiled and reviewed includes data collected during the Site Characterization (SC) and/or RI phase, as well as other data/documents generated for the site. For some MGP sites, additional data may be needed to complete this first step, and a site visit may be necessary to collect more data.

### 1.2.1. Identify Potential Vapor Receptors

During the review of site-specific data, potential vapor receptors must be identified and located. Potential receptors are occupied or unoccupied buildings (which are anticipated to be reoccupied in the near future) to which soil vapors could migrate; however, potential receptors do not include:

- Buildings that are occupied infrequently and are not intended for long-term occupancy (such as storage garages and other storage buildings);
- Active and inactive non-residential buildings where large quantities of petroleum products are ~~/were~~ used and/or stored (such as gas stations, auto repair shops, and vehicle staging buildings); and

- Unoccupied buildings owned by National Grid.

Vacant properties are not considered as potential vapor receptors. If no potential vapor receptors are found during this step, then there is no need to continue with the evaluation.

### 1.2.2. Identify Impacted Groundwater and Soil

During this first step, MGP-impacted groundwater and soil must also be identified. After compiling the necessary site-specific data, that information should be reviewed to determine:

- Depth to groundwater;
- Direction of groundwater flow;
- Location, depth, extent, and concentration of potential MGP-related constituents in unsaturated soil and groundwater;
- Location, depth, and extent of NAPL; and
- Presence of an overlying water bearing zone that does not have MGP impacts and provides an effective barrier to vapor migration.

### 1.2.3. Identify Preferential Vapor Pathways

During the review of site-specific documentation, preferential vapor pathways (if any) must be identified. A variety of site features can act as preferential pathways for vapor migration, including:

- Common anthropogenic features such as buried utilities and foundations that are backfilled with gravel or other porous fill. Because soil vapor can migrate horizontally and travel further in these features than in the surrounding native soil, vapors may enter buildings that are in contact with these features.
- Natural, buried drainage channels, which can also act as preferential vapor pathways and must be noted if present or suspected.

Most likely, these features would have been identified during previous investigation activities. Only preferential vapor pathways that overlay or intersect impacted groundwater or soil and abut or lay below the foundation of potential receptors, should be considered in the evaluation. However, features that are in saturated soils *(e.g.*, below the water table) do not act as preferential vapor pathways, and should not be evaluated further unless they are found to be transmitting impacted groundwater.

## 1.3. Step 2. Data Evaluation

The second step of Phase 1 involves evaluating the site-specific data to determine if one or both of the following conditions exist:

Condition 1. MGP-related impacts exist above screening levels in groundwater or detectable levels in unsaturated soil located within 100 feet[1] of a potential receptor.

Condition 2. A potential preferential vapor pathway exists between potential receptors and areas with MGP-related soil or groundwater impacts.

To assess the distance to a receptor (Condition 1), the horizontal distance from the nearest detectable concentration of MGP-impacted groundwater or soil must be determined. In the case of a non-impacted water table or saturated soil layers overlying impacted groundwater or soil, the upper water table serves as a vapor barrier; therefore, these areas should not be considered in this evaluation. It should be noted, that other barriers may also exist and inhibit vapor migration, such as subsurface structures, low-permeable soils, surface water bodies, and other features. These features and their influence on vapor migration need to be evaluated on a site-specific basis.

If one or both of the above conditions exist, then the following screening check~~s~~ must be conducted:

- Compare the impacted groundwater concentrations with the screening levels presented in Table 1. If the concentrations are equal to or greater than the screening levels, then the evaluation should proceed to Phase 2. If the concentrations are less than the screening levels, then further evaluation is not warranted at this time.[1] However, if site conditions change (e.g., soil and/or groundwater impacts increase in concentration or there is a change in property use), then this step must be revisited to confirm if Condition 1 and/or Condition 2 apply and additional investigation is necessary.

~~? Confirm the location of the impacted soil in relation to potential receptors if the site has soil impacts but no groundwater impacts. If the impacted soil lies directly below any receptor, then the evaluation must proceed to Phase 2. If the impacted soil does not lie below any receptors, then further evaluation is not warranted at this time.~~

## 1.4. Step 3. Data Reporting

Upon completion of Steps 1 and 2, a Phase 1 Summary Report must be prepared to document the site conditions and conclusions from this phase. The report should include pertinent MGP-related data/data trends (e.g., from ~~the most~~ recent round~~s~~ of groundwater sampling) or summarize the data/data trends and reference a publicly available document(s) which includes the data. The Phase I Summary Report should also include a site map that shows the following:

- Locations of potential vapor receptors;
- Description of the existing land use (commercial, industrial, residential) and type of commercial or industrial activities at potential vapor receptors;
- Locations of explorations and environmental sampling, such as groundwater monitoring wells, soil boring, and test pits;
- Areas of impacted groundwater and soil;

[1] Guidance from the USEPA recommends that buildings within 100 feet of known soil or groundwater contaminants be evaluated for potential vapor intrusion (USEPA, 2002).

- Soil type;
- Locations of preferential vapor pathways and/or vapor barriers; and
- Distances between impacted groundwater and soil to receptors.

If no further evaluation is warranted, then the Phase 1 Summary Report must be submitted to NYSDEC and NYSDOH stating that no further evaluation is warranted at this time, and include the basis and supporting documentation for this recommendation. If further evaluation is warranted, then the documentation assembled for this report must be included in the Phase 2 ~~Summary Report~~Work Plan (refer to Section 2).

# 2. Phase 2. Soil Vapor Sampling

## 2.1. Objective

Phase 2 involves collecting samples of the soil vapor to assess if vapors exist near potential receptors (which are identified in Phase 1), and at concentrations that would warrant further evaluation. The steps of this phase consist of:

**Step 1. Work Plan Development**

**Step 2. Sampling and Analysis**

**Step 3. Data Evaluation**

**Step 4. Data Reporting**

Figure 2 illustrates a process flow diagram for Phase 2, and the remainder of this section discusses these steps in more detail. Please note that the following steps may be modified based on site-specific conditions.

## 2.2. Step 1. Work Plan Development

Step 1 consists of developing a Sampling and Analysis Work Plan that will include:

- Sampling locations (which should be depicted on a site map included with the work plan), quantities, and rationale ;
- Sampling depths and rationale;
- Sampling and analysis methods*;
- Target analytes and reporting limits*;
- Quality assurance/quality control (QA/QC) program*;
- Data evaluation criteria*; and
- Data reporting.

* Details for these items do not need to be included in the work plan. Instead, refer to the details in this SOP.

Any deviations from these items listed above must be called out and briefly explained in the work plan. The work plan must be submitted to the NYSDEC and NYSDOH for review and approval. The work plan items are discussed below along with the remaining steps of Phase 2.

## 2.3. Step 2. Sampling and Analysis

This step involves implementing the Sampling and Analysis Work Plan that was developed during Step 1. Specifically, this section discusses the rationale for selecting site-specific sampling locations, quantities, and depths, and provides some details on the sampling and analytical methods, target analytes and reporting limits, and QA/QC procedures.

### 2.3.1. Determine Sample Locations, Quantities, and Rationale

Step 2 includes collecting soil vapor samples to assess the presence (if any) and magnitude of MGP-related constituents in soil vapor at the potential vapor receptors identified during Phase 1. This sampling effort could include the following:

- Sampling Near Buildings – Soil vapor samples would be collected near buildings (potential receptors) identified in Step 1 to assess if MGP-related constituents are present in soil vapor near the building. If this effort involves more than one building, sampling should start at a point nearest the contaminant source and work outward until soil vapor concentrations no longer warrant additional sampling.

Sampling locations should be as close as practical to the building without being in the backfill material surrounding the building's foundation. The number of samples to be collected depends on the anticipated degree of variability of soil vapor concentrations surrounding the building. For instance, buildings that are above or close to a relatively high vapor source may have variable soil vapor concentrations surrounding the building, higher nearer the source and lower farther from the source. In this instance, additional sampling may be required to obtain data that are representative. Such sampling may include collection of samples along one or more sides of the building to assess soil vapor and concentration gradients. Alternatively, buildings that are at some distance from a vapor source or are located above groundwater containing similar concentrations may have equivalent soil vapor concentrations along their foundations. In this second instance, less sampling would be required, such as the collection of one or more samples along the building side nearest the vapor source.

- Sub-Slab Representation – Some surface features may act as vapor caps, by capping the soil vapor and preventing or reducing its release rate to atmosphere. Vapor concentrations tend to equilibrate under these caps and spread out horizontally until they reach the edge of the cap where they release to the atmosphere. Soil vapor sample results can represent sub-slab concentrations when:

  - Soil vapor samples are collected under surface features that are contiguous with the building's foundation;
  - The surface feature is in good condition, without major cracks or openings;
  - The foundation is slab-on-grade;
  - Impacted soil is not located directly under the foundation; and
  - Impacted groundwater concentrations under the foundation are relatively uniform.

When these conditions are met, soil vapor sampling locations should be selected near the building's foundation, which may also include a sample collected on one or more sides of the building to assess whether soil vapor surrounding the building is consistent. These surface features should be shown on the site map presented in the Sampling and Analysis Work Plan, and the condition of the surfaces (e.g., broken pavement or concrete slab without cracks) should be noted.

- Ambient Air Sampling — In conjunction with the soil vapor sampling near buildings, at least one ambient air sample should be collected at breathing zone height above ground and immediately upwind of each building. If there are suspected outdoor sources in close proximity to the building, then additional ambient samples should be collected upwind and downwind of the local sources. The purpose of the ambient air sample collected along with soil vapor samples is to assess the site-specific background. This data may be used in data evaluation or planning for future potential sampling events (Steps 3 and 4).

### 2.3.2. Determine Sample Depths

Soil vapor samples should be collected from depths that are equivalent to the depth of the building's foundation slab, if possible. This guideline assumes that the sampling objective is to assess the potential soil vapor concentrations beneath an adjacent building. However, the sampling depth may be modified if the sampling objective is different. Although site-specific information may vary, in the case of slab-on-grade foundations, this depth would most likely be approximately 4 feet below grade. For crawl spaces and basements, samples depths would typically be 5 and 8 feet, respectively.

Other considerations for determining the appropriate soil vapor sample depth include the following:

- Sample depths of 3 feet or more below grade may help minimize potential entrainment of ambient air from the surface into the sample. However, a~~A~~ tracer gas should be used during sampling at any depth to assess whether entrainment of ambient air is not occurring (see Section 2.3.3).

- Selection of target sample depths should also consider the presence of any confining or saturated units in the subsurface. Because soil vapor sampling is not recommended in soils that have become saturated from heavy rain, sampling events should be postponed after a heavy rainfall until the soil has time to drain. Selected soil vapor sample depths should not target the capillary fringe. For the purposes of this document, collection of samples from less than 1 foot above the water table is not recommended.

### 2.3.3. Perform Sampling and Analysis

Detailed soil vapor and ambient air sampling procedures are provided in Appendices A and B, respectively. These procedures can be referenced in the Sampling and Analysis Work Plan. Important sampling and analysis considerations include the following:

- Sampling durations can range from 1 to 8 hours, depending on the practicality of site access.

- Purging and s~~S~~ampling rates must not exceed 0.2 liter per minute.

- Soil vapor samples must be analyzed using USEPA Compendium Method TO-15.

Care should be taken when installing soil vapor probes with direct push or Geoprobe-type drill rigs. The sand used as filter pack or tubing used by some of these contractors is suspected to contaminate the installation with iso-octane and other trimethylpentane isomers. The filter pack material should be glass beads or clean sand that has been confirmed to be free of volatile organic compounds through a laboratory analysis. It is important that the tubing is food grade.

### 2.3.4. Confirm Target Analytes and Reporting Limits

Target analytes are provided in Table 2, including analytes for which Method TO-15 has been validated and additional analytes that the laboratory must report for both soil vapor and ambient air samples. These additional analytes may assist with identifying MGP-related vapors and are identified in the NYSDOH's guidance document (2006~~5~~) as indicator compounds for MGP sites. These additional analytes may be analyzed as tentatively identified compounds (TICs), which assumes semi-quantitation (using the calibration curve of an analyte with similar detector response).

Table 2 also provides reporting limits for the Method TO-15 list of parameters. The actual reporting limits of field samples may be higher due to sample dilution by the laboratory necessary to properly quantify compounds with elevated concentrations (above the instrument's calibration range) and other factors. In some cases, the elevated compounds will not be related to MGP materials. An accurate quantitation of these compounds is not as important as obtaining appropriate reporting limits for potential MGP-related constituents, if possible. Therefore, the laboratory should be instructed to contact National Grid if sample dilution is warranted and not ~~prior~~ to dilute~~ing~~ samples unless approved by National Grid~~to obtain further guidance~~.

A smaller target list may be appropriate if previous sampling was conducted using the list in Table 2. Once previous sample results establish a site-specific list of analytes (often referred to as Compounds of Concern (COCs)), National Grid may request the laboratory to report results of just the COCs for subsequent sampling.

A larger list of target analytes may be appropriate in some instances where there is a probable subsurface contamination from petroleum-based sources other than MGP residuals. The larger list will assist in a forensic analysis that compares the sampling results to typical chemical fingerprints of various other petroleum sources (gasoline, diesel, etc). If a forensic analysis is warranted, a sample from of a known MGP residual soil vapor may also need to be collected. If other petroleum-based sources are suspected in the vicinity of the proposed sampling, assistance should be sought to evaluate and setup such analyses, as this document does not provide all the details on forensic analyses needed for complete guidance.

### 2.3.5. Monitor QA/QC Program

As summarized in Table 3, QA/QC samples may include one blind duplicate soil vapor sample for every 10 field samples. Other details of the QA/QC program include the following:

- The relative percent difference (RPD) between the duplicate sample and the co-located field sample must be less than 30% for results that are greater than five times the reporting limit. If this RPD criterion is exceeded, the results may lack adequate precision and may need to be qualified accordingly. If duplicate pair results are less than five times the reporting limit, RPD calculations are not applicable.

- Trip or equipment blanks are not necessary.

- Prior to use, sample canisters must be pre-certified by the laboratory as clean. Batch certification (one canister analyzed per 10) is adequate for soil vapor and ambient air sampling.

- Canisters must be sampled within 15 days of receipt from the laboratory. Canisters exceeding this time limit should be returned to the laboratory unused.

- Sampled canisters must be analyzed within 30 days of sample collection. Samples analyzed after this date shall have its results flagged during the validation process as "estimated."

- Analytical QA/QC, results, and documentation must meet the requirements of NYSDEC Category B deliverables. The analytical data must be reviewed and a Data Usability Summary Report (DUSR) must be generated.

## 2.4. Step 3. Data Evaluation

Step 3 involves evaluating the data collected during the sampling and analysis program, and includes the following specific tasks:

- Assess whether the constituents detected in the vapors (if any) are MGP-related;

- Compare the sample results to screening criteria of indoor air background and health risk levels; and

- Determine follow-on actions (e.g., continue the investigation, terminate the investigation, or collect more soil vapor data).

Each of these tasks is discussed in more detail below.

### 2.4.1. Assess Whether Vapor Constituents are MGP-Related

Vapor constituents that may result from MGP materials are also common to household and consumer products. As such, results for vapor constituents which may be related to MGP materials should be assessed.

Potential MGP-related constituents include the following:

- Certain volatile aromatic hydrocarbons such as benzene, toluene, ethylbenzene, and xylene (BTEX).

- Certain semivolatile organic compounds (SVOCs) such as naphthalenes, polycyclic aromatic hydrocarbons (PAHs), thiopenes, and some phenolic compounds.

- Additional volatile constituents associated with MGP sites where the carbureted water gas (CWG) process was employed may also include certain C10 through C19 compounds such as alkyl benzenes and normal alkanes.

The presence of the constituents listed above does not necessarily indicate that the vapors are MGP-related. For example, BTEX compounds are common constituents of gasoline. Table 5 lists some of the types of commonly found non-MGP-related sources and their vapor constituents that are similar to MGP-related constituents.

An analysis must be conducted to evaluate the soil vapor data set and determine the source(s) of the soil vapor impacts. The analysis will evaluate the soil vapor data with respect to:

- Potential MGP and non-MGP vapor constituents (Tables 4 and 5);
- Existing groundwater and soil data; and
- Historic and existing activities at and adjacent to the site.

The conclusions of the analysis will be included in the Phase 2 Summary Report (see Section 2.5).

### 2.4.2. Compare Sample Results to Screening Criteria

Soil vapor results must be compared to screening criteria which assume that the resulting indoor air concentrations are equal or less than the one-tenth of the soil vapor concentrations. Indoor air concentrations attributable to vapor intrusion are lower, by orders of magnitude, than soil vapor concentrations due to the attenuation caused by the slab and due to the dilution of the compound into a large volume of indoor air. USEPA guidance recommends an attenuation factor[2] of 0.1 be used to conservatively screen shallow soil vapor concentrations (USEPA, 2002). Actual attenuation factors have been found to be as low as $10^{-5}$. National Grid has elected to conservatively use the 0.1 attenuation factor to screen soil vapor data.

Soil vapor sample results should be divided by 10 and the resultants compared to two types of criteria: 1) background concentrations; and 2) health risk concentrations. Background concentrations are those indoor air concentrations that already exist or are likely to exist without the influence of vapor intrusion. Two sources of background concentrations will be used: 1) site-specific ambient air; and 2) typical indoor air concentrations published by NYSDOH. The highest concentration for a given compound from these two sources of background concentrations will be used. In urban settings, ambient air concentrations may be higher than typical indoor concentrations. Table 6 presents the typical indoor air concentrations for MGP-related constituents.

USEPA's guidance recommends target indoor air concentrations for some MGP-related constituents (USEPA, 2002). The guidance provides three levels of health risk for potential carcinogenic compounds representing $10^{-4}$, $10^{-5}$, and $10^{-6}$ cancer risks. The guidance does not recommend which levels to use for various exposure settings. However, USEPA often uses the $10^{-5}$ risk level when evaluating health risk under the environmental indicators program for residential exposures. National Grid has elected to also use the $10^{-5}$ risk level for residential exposures and the $10^{-4}$ risk level for non-residential exposures. Furthermore, for those non-residential properties where petroleum-related constituents are routinely stored or used, alternate exposure numbers may be appropriate (e.g., Occupational Safety and Health Administration [OSHA] permissible exposure limits [PELs]). Table 6 provides the USEPA health risk levels for potential MGP-related constituents.

[2] Attenuation factor = indoor air concentration / soil vapor concentration

### 2.4.3. Determine Follow-On Actions

After sample results are compared to appropriate screening levels, follow-on actions must be determined. Three data evaluation scenarios and associated actions include:

***Scenario 1:*** All MGP-related constituents in soil vapor are less than 10 times the highest criteria.
***Next Action:*** No further investigation is warranted at this time.

***Scenario 2:*** At least one MGP-related constituent in soil vapor is greater than 10 times the highest criteria. Soil vapor does not represent sub-slab vapor.
***Next Action:*** Proceed to Phase 3 and conduct soil vapor sampling of adjacent buildings, if any.

***Scenario 3:*** At least one MGP-related constituent in soil vapor is greater than 10 times the highest criteria. Soil vapor does represent sub-slab vapor.
***Next Action:*** Proceed to Phase 4 or directly to mitigation. Conduct soil vapor sampling of adjacent buildings, if any.

## 2.5. Step 4. Data Reporting

The final step of Phase 2 involves transmitting data to the State Agencies (which include NYSDEC and NYSDOH) and preparing a Phase 2 Summary Report.

Within 48 hours after receiving data from the laboratory and before data are validated, analytical reports ~~data tables~~ and a figure showing sampling locations must be prepared and transmitted to the State Agencies. Any data summaries should be clearly labeled as preliminary. Receipt of data from the laboratory means the initial receipt of data and not the complete data package that is used for data validation. After validation is complete, any ~~additional~~ changes to the data must be submitted to the Agencies.

After data validation, a ~~complete~~ Phase 2 Summary Report must be submitted to the State Agencies and include the following:

- Phase 1 summary (see Section 1.4);
- Tabulated s~~S~~ummary of validated results of detected compounds;
- Analytical reports showing results of all detected and non-detected compounds;
- Site plan showing sampling locations, impacted groundwater and soil locations, potential vapor receptors, preferential vapor pathways, surface features, and hydraulic vapor barriers;
- Overview of sampling and analysis activities;
- Results of data evaluation; and
- Recommendations for follow-on actions, if appropriate.

The Phase 2 Summary Report will include an evaluation sufficient to conclude that either no further evaluation is warranted at this time or that the evaluation should proceed to Phase 3 or 4.

Article 27, Title 24 of the NYS Environmental Conservation Law (N Y ECL 27-2403(1)) requires any responsible party to provide vapor intrusion test results to the owner of the property that was tested within 30 days of data validation. The date of the finalized DUSR (validated data), discussed in Section 2.3.5, will commence the 30-day period. Results should be submitted in a letter to the property owner from National Grid that presents a table of results showing only detected compounds, an attachment of the laboratory report showing results of all analyzed compounds, and a figure showing locations from where samples were taken. The letter should also provide an interpretation of the results with respect to any follow-on actions based on input from the State Agencies. In order to accommodate input from the State Agencies, the draft letter should be submitted to the State for review at the beginning of or just prior to the start of the 30-day reporting period.

# 3. Phase 3. Sub-Slab Sampling

## 3.1. Objective

Phase 3 involves sub-slab sampling in buildings to assess if vapor from MGP-impacted groundwater and/or soil is present under the slab at such a magnitude that it could potentially intrude into the indoor air. The steps of this phase include:

**Step 1. Building Survey and Chemical Inventory**

**Step 2. Work Plan Development**

**Step 3. Sampling and Analysis**

**Step 4. Data Evaluation**

**Step 5. Data Reporting**

Figure 3 illustrates a process flow diagram for Phase 3. Each of the steps listed above is discussed in more detail below. Please note that the following steps may be modified based on site-specific conditions.

## 3.2. Step 1. Building Survey and Chemical Inventory

For Phase 3 of the evaluation, the first step is to conduct a building survey and chemical inventory to compile the following information:

- Ownership, contact information and address;
- Tenant name(s) and contact information;
- Type of foundation (basement, crawlspace or slab-on-grade);
- Condition of the slab;
- Sub-slab sample location(s);
- Indoor air pressure differential (i.e., negative or positive with respect to outdoor air pressure); and
- Indoor air sources that may contain the same compounds as MGP-related volatile constituents.

The NYSDOH Indoor Air Quality Questionnaire and Building Inventory Field Form (Appendix C) must be completed while conducting the building survey and chemical inventory. The purpose of the chemical inventory at this step is to assess potential indoor air sources in the event that indoor air

sampling (Step 4) is required. When selecting the sampling locations, Dig Safely New York will be called and any sub-slab utilities must be identified and, if possible, reviewed with the property owner to avoid potential damage/injury when drilling.

## 3.3. Step 2. Work Plan Development

The second step is to develop a Sampling and Analysis Work Plan that will include:

- Building survey and chemical inventory findings;
- Building foundation type (i.e., full basement, crawlspaces, slab-on grade);
- Building interior foundations (due to additions, different foundation elevations, etc.)
- Sampling locations and quantities;
- Sampling and analysis methods*;
- Target analytes and reporting limits*;
- QA/QC*;
- Data evaluation criteria*; and
- Data reporting.

* Do not discuss these items in detail in the work plan. Instead, refer to the details in this SOP.

Any deviations from these items listed above must be called out and briefly explained in the work plan. The remaining work plan items are discussed below. The Sampling and Analysis Work Plan should be submitted to NYSDEC and NYSDOH for review and approval prior to implementation.

## 3.4. Step 3. Sampling and Analysis

This step involves sampling and analysis to implement the work plan that was developed during Step 2. Specifically, this section discusses the rationale for selecting sampling locations, quantities, and depths, and provides some details on the sampling and analytical methods, target analytes and reporting limits, and QA/QC procedures.

### 3.4.1. Determine Sample Locations and Quantities

Sub-slab samples must be collected directly beneath the floor of the lowest level of the building. These samples should be collected near the center of the slab and away from slab openings (sumps, drains) and major cracks.

For residential buildings, one sample is usually sufficient. However, if the building is large or contains multiple additions and/or multiple foundation depths, more than one sample should be collected. If a building is directly above a known source area, multiple sub-slab locations should be sampled to evaluate the soil vapor concentration gradient.

Ambient air sampling is not necessary unless ambient air concentrations are expected to have changed since the soil vapor sampling. As stated in Section 2.3.1, the purpose of the ambient air sampling is to establish site-specific background.

### 3.4.2. Perform Sampling and Analysis

Detailed sub-slab sampling procedures are provided in Appendix D. These procedures do not need to be reiterated in the Sampling and Analysis Work Plan. Important sampling and analysis considerations include the following:

- Sampling durations can range from 1 to 24 hours, depending on the practicality of site access.
- Sampling rate should not exceed 0.2 liter per minute.
- Soil vapor samples must be analyzed using USEPA Compendium Method TO-15.

### 3.4.3. Confirm Target Analytes and Reporting Limits

The same target analytes and reporting limits discussed above in Section 2.3.4 for soil vapor sampling should be used for sub-slab sampling. However, a smaller target list may be appropriate if previous sampling was conducted using the list in Table 2. Once previous sample results establish a site-specific list of analytes (often referred to as Compounds of Concern (COCs)), National Grid may request the laboratory to report results of just the COCs for subsequent sampling.

In addition, forensic analyses also discussed in Section 2.3.4 may be an option for sub-slab sampling.

### 3.4.4. Monitor QA/QC Program

The same QA/QC components discussed above in Section 2.3.5 for soil vapor sampling should be used for sub-slab sampling.

## 3.5. Step 4. Data Evaluation

Step 4 of this phase includes the following data evaluation tasks:

- Assess whether the constituents detected in the vapors (if any) are MGP-related;
- Compare the sample results to screening criteria of indoor air background and health risk levels; and
- Determine follow-on actions (e.g., continue the investigation, terminate the investigation, or collect additional sub-slab data).

Refer to Section 2.4 for a discussion of MGP-related vapor constituents and screening criteria. After sample results are compared to appropriate screening levels, follow-on actions must be determined. Two data evaluation scenarios and associated actions include:

***Scenario 1:*** All MGP constituents in sub-slab vapor are less than 10 times the highest criteria.
***Next Action:*** No further investigation is warranted at this time.

***Scenario 2:*** At least one MGP constituent in sub-slab vapor is greater than 10 times the highest criteria.

***Next Action:*** Proceed to Phase 4 or directly to mitigation.

### 3.6. Step 5. Data Reporting

The final step of Phase 3 involves transmitting the sub-slab sampling data to the State Agencies and preparing a Phase 3 Summary Report. Within 48 hours after receiving data from the laboratory and before data are validated, ~~data tables~~analytical reports and a figure showing sampling~~potential receptor~~ locations must be prepared and transmitted to the State Agencies. Any data summaries should be clearly labeled as preliminary. Receipt of data from the laboratory means the initial receipt of data and not the complete data package that is used for data validation. After validation is complete, any ~~additional~~ changes to the data must be submitted to the Agencies.

Following data validation, a ~~complete~~ Phase 3 Summary Report must be submitted to the State Agencies and include:

- Tabulated summary of validated results of detected compounds;
- Analytical reports showing results of all detected and non-detected compounds;

~~? Summary of validated results;~~

- Site plan showing sampling locations, impacted groundwater and soil locations, potential vapor receptors, preferential vapor pathways, surface features, and hydraulic vapor barriers;
- Overview of sampling and analysis activities;
- Results of data evaluation; and
- Recommendations for follow-on actions, if appropriate.

As described in Section 2.5, the results of samples collected from property not owned by National Grid must be provided to the property owner within 30 days of data validation. See Section 2.5 for more detail.

# 4. Phase 4. Indoor Air Sampling

## 4.1. Objective

Phase 4 involves indoor air sampling in buildings identified in Phases 2 and/or 3 to assess if sub-slab vapor is intruding into the indoor space at such a magnitude that it has the potential to cause a health risk. The steps of this phase include:

**Step 1. Building Survey and Chemical Inventory**

**Step 2. Work Plan Development**

**Step 3. Sampling and Analysis**

**Step 4. Data Evaluation**

**Step 5. Data Reporting**

Figure 4 illustrates a process flow diagram for Phase 4. Each of these steps is discussed in more detail below. Please note that the following steps may be modified based on site-specific conditions.

## 4.2. Step 1. Building Survey and Chemical Inventory

If not already completed as part of Phase 3, a site visit to survey the building and inventory indoor chemicals must be conducted (or reconducted as appropriate). The same procedures discussed above in Section 3.2 must be followed. However, some additional tasks for the indoor air sampling program include the following:

- Complete a more detailed chemical survey. Potential sources of VOCs must be identified and photographed. Labels of indoor products should be reviewed for VOC contents; any findings must be recorded on the NYSDOH Indoor Air Quality Questionnaire and Building Inventory Field Form (Appendix C).

- Establish whether the building has a positive or negative pressure with respect to outdoors. Smoke pens may be used to help with this assessment. This may be done immediately before and immediately after indoor air sampling, but not during sampling.

## 4.3. Step 2. Work Plan Development

The second step is to develop a Sampling and Analysis Work Plan that will include:

- Building survey and chemical inventory findings;
- Sampling locations and quantities;
- Sampling and analysis methods*;

- Target analytes and reporting limits*;
- QA/QC*;
- Data evaluation criteria*; and
- Data reporting.

* Details for these items do not need to be included in the work plan. Instead, refer to the details in this SOP.

Any deviations from these items listed above must be called out and briefly explained in the work plan. The remaining work plan items are discussed in more detail below. The Work Plan should be submitted to NYSDEC and NYSDOH for review and approval prior to implementation.

## 4.4. Step 3. Sampling and Analysis

Step 3 involves implementing the work described in the Sampling and Analysis Work Plan. Specifically, this section discusses the rationale for selecting sampling locations and quantities, and provides some details on the sampling and analytical methods, target analytes and reporting limits, and QA/QC procedures.

### 4.4.1. Determine Sample Locations and Quantities

Indoor air samples should be collected from the lowest level of the building. In a large building or buildings with multiple tenants or rooms on the lowest level, more than one sample may be required. Other considerations when collecting indoor air samples include the following:

- Indoor air samples must be collected within the breathing zone, which is approximately 3 to 5 feet above the floor.
- Ambient air sampling must be conducted at the same time and for the same duration as indoor air sampling.
- At least one ambient air sample must be collected at breathing zone height above ground and immediately upwind of the building(s), if possible. For buildings with HVAC intakes, sampling in proximity to the intakes should be considered.
- If suspected outdoor sources are closely located to the building(s), then additional ambient samples must be collected upwind and downwind of those sources.
- One ~~If more than 3 months have lapsed between~~ sub-slab sample~~ing~~ (Phase 3) should be collected concurrently and co-located with each ~~and~~ indoor air sample~~ing, then an additional sub-slab sample may be collected~~.
- Sampling must be conducted under conditions when vapors could potentially migrate and/or accumulate within the indoor air, which is typically when all doors and windows are closed and when the HVAC system is operating. If the property is a business, the sampling should

be conducted during a time of limited activity to avoid door openings to the outdoors, if possible.

#### 4.4.2. Perform Sampling and Analysis

Detailed indoor air sampling procedures are provided in Appendix E, and ambient air sampling procedures are provided in Appendix B. These procedures do not need to be reiterated in the Sampling and Analysis Work Plan. Important sampling and analysis considerations include the following:

- Sampling durations can range from 4 to 24 hours, depending on the practicality of site access and the exposure scenario being evaluated (8 hour sample duration for commercial and industrial settings and 24 hours for residential settings).
- Sampling rate must not exceed 0.2 liter per minute.
- Soil vapor samples must be analyzed using USEPA Compendium Method TO-15.

In addition, building occupants should be instructed that within 24 hours of the sampling and during the sampling to avoid, to the extent possible the activities provided in Appendix F.

#### 4.4.3. Confirm Target Analytes and Reporting Limits

The same target analytes and reporting limits discussed above in Section 2.3.4 for soil vapor sampling should be used for indoor air sampling. ~~Air samples must be analyzed using USEPA Compendium Method TO-15 with instrumentation tuned to low levels, which allows for lower reporting limits as those discussed for soil vapor and sub-slab sample analysis. Table 7 provides a list of TO-15 low level analytes, which is a subset of the analyte list for the standard TO-15 analysis (Table 2). The laboratory must also include additional compounds identified in Table 7.~~ However, at this point previous sampling has been conducted that established a site-specific list of analytes (COCs), National Grid may request the laboratory to report results of just the COCs for subsequent sampling.

#### 4.4.4. Monitor QA/QC Program

The same QA/QC components discussed above for sub-slab sampling in Section 3.3.4 should be used for indoor air sampling, except that canisters must be individually certified clean and not batch certified.

### 4.5. Step 4. Data Evaluation

Step 4 of this phase consists of the following data evaluation tasks:

- Evaluate whether the indoor air sample results are not attributable to vapor intrusion, indoor air sources or ambient air sources;
- Compare the indoor air sample results to criteria of ambient air background and health risk levels; and

- Determine follow-on actions (e.g., discontinue the investigation, additional assessment, or implement mitigation measures).

Each of these tasks is discussed in more detail below.

### 4.5.1. Assess Whether Vapor Constituents are MGP-Related

The primary goal of the assessment is to determine which detected indoor air analytes, if any, are solely or partially attributable to indoor air sources. As such, results for vapor constituents which may be related to MGP materials should be assessed.

- Compare the indoor air results with data from the sub-slab sampling. The ratio of indoor air to sub-slab vapor must be calculated for all analytes detected in both sample types.

- Compare the indoor air results with information obtained from the chemical inventory to verify the assumptions made from the first comparison.

### 4.5.2. Compare Sample Results to Screening Criteria

After completing the forensic analysis summarized above, the next task is to compare any indoor air results that are suspected to be partially or solely attributable to vapor intrusion with ambient air data and USEPA target indoor air concentrations. These indoor air screening criteria are presented in Table 6.

### 4.5.3. Determine Follow-On Actions

After sample results are compared to appropriate screening levels, follow-on actions must be determined. Two data evaluation scenarios and associated actions include:

***Scenario 1:*** No MGP-related constituents in indoor air are attributable to vapor intrusion or all are less than the respective ambient air concentration or background or health risk criteria (whichever is higher).
***Next Action:*** No further investigation is warranted.

***Scenario 2:*** At least one MGP-related constituent in indoor air attributable to vapor intrusion is greater than the respective ambient air concentration, background, and health risk criteria.
***Next Action:*** Resampling or mitigation is warranted.

## 4.6. Step 5. Data Reporting

The final step of Phase 4 involves transmitting the sub-slab, indoor air, and ambient air sampling data to the State Agencies and preparing a Phase 4 Summary Report. Within 48 hours after receiving data from the laboratory and before data are validated, ~~data tables~~analytical reports and a figure showing ~~potential receptor~~sampling locations must be prepared and submitted to the State Agencies. Any data summaries should be clearly labeled as preliminary. Receipt of data from the laboratory means the initial receipt of data and not the complete data package that is used for data validation. After validation is complete, any ~~additional~~ changes to the data must be submitted to the Agencies.

Following data validation, a ~~complete~~ Phase 4 Summary Report will be prepared and submitted to the State Agencies and will include:

- Tabulated summary of validated results of detected compounds;
- Analytical reports showing results of all detected and non-detected compounds;

~~? Summary of validated results;~~

- Site plan showing sampling locations, impacted groundwater and soil locations, potential vapor receptors, preferential vapor pathways, surface features, and hydraulic vapor barriers;
- Overview of sampling and analysis activities;
- Results of data evaluation; and
- Recommendations for follow-on actions.

As described in Section 2.5, the results of samples collected from property not owned by National Grid must be provided to the property owner within 30 days of data validation. See Section 2.5 for more detail.

## References

NYSDEC. 2006. *DER-13 / Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York*. DEC Program Policy. (October 18, 2006)

NYSDOH. 2006~~5~~. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York.* ~~Public Comment Draft~~ (October~~February~~).

USEPA. 2002. *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils.* Office of Solid Waste and Emergency Response (November).

**Table 1**
**Groundwater Screening Levels**

**Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State**

| MGP-Related Constituent | USEPA OSWER Target Groundwater Concentrations (ug/L) [a, b] | | NYS Class GA Groundwater Standard[c] |
|---|---|---|---|
| | Residential | Non-Residential | |
| Benzene | 14 | 140 | 1 |
| Ethylbenzene | 700 | 700 | 5 |
| Toluene | 1500 | 1500 | 5 |
| m,p-Xylenes | 22000 | 22000 | 5 |
| o-Xylene | 33000 | 33000 | 5 |
| Naphthalene | 150 | 150 | 5 |
| 1,2,4-Trimethylbenzene | 24 | 24 | 5 |

*Notes:*

*a. USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (November). $R=10^{-5}$ used for residential. $R=10^{-4}$ used for non-residential.*

*b. ug/L = micrograms per liter*

*c. NYS, Div. Of Water Technical Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limittations, June 1998.*

**Table 2**
**TO-15 Target Analtyes and Reporting Limits**

**Standard Operating Procedures for Soil Vapor Intrusion Evaluations**
**at National Grid MGP Sites in New York State**

| Compound | CAS Number | Reporting Limit (ppbv) | Reporting Limit ($ug/m^3$) |
|---|---|---|---|
| Acetone (2-propanone) | 67-64-1 | 5.0 | 12 |
| Benzene | 71-43-2 | 0.20 | 0.64 |
| Bromodichloromethane | 75-27-4 | 0.20 | 1.3 |
| Bromoethene | 593-60-2 | 0.20 | 0.87 |
| Bromoform | 75-25-2 | 0.20 | 2.1 |
| Bromomethane (Methyl bromide) | 74-83-9 | 0.20 | 0.78 |
| 1,3-Butadiene | 106-99-0 | 0.20 | 0.49 |
| 2-Butanone (Methyl ethyl ketone) | 78-93-3 | 0.50 | 1.5 |
| Carbon disulfide | 75-15-0 | 0.50 | 1.6 |
| Carbon tetrachloride | 56-23-5 | 0.20 | 1.3 |
| Chlorobenzene | 108-90-7 | 0.20 | 0.92 |
| Chloroethane | 75-00-3 | 0.20 | 0.53 |
| Chloroform | 67-66-3 | 0.20 | 0.98 |
| Chloromethane (Methyl chloride) | 74-87-3 | 0.20 | 0.41 |
| 3-Chloropropene (allyl chloride) | 107-05-1 | 0.20 | 0.63 |
| 2-Chlorotoluene (o-Chlorotoluene) | 95-49-8 | 0.20 | 1.04 |
| Cyclohexane | 110-82-7 | 0.20 | 0.69 |
| Dibromochloromethane | 124-48-1 | 0.20 | 2.0 |
| 1,2-Dibromoethane | 106-93-4 | 0.20 | 1.5 |
| 1,2-Dichlorobenzene | 95-50-1 | 0.20 | 1.2 |
| 1,3-Dichlorobenzene | 541-73-1 | 0.20 | 1.2 |
| 1,4-Dichlorobenzene | 106-46-7 | 0.20 | 1.2 |
| Dichlorodifluoromethane (Freon 12) | 75-71-8 | 0.20 | 0.99 |
| 1,1-Dichloroethane | 75-34-3 | 0.20 | 0.81 |
| 1,2-Dichloroethane | 107-06-2 | 0.20 | 0.81 |
| 1,1-Dichloroethene | 75-35-4 | 0.20 | 0.79 |
| 1,2-Dichloroethene (cis) | 156-59-2 | 0.20 | 0.79 |
| 1,2-Dichloroethene (trans) | 156-60-5 | 0.20 | 0.79 |
| 1,2-Dichloropropane | 78-87-5 | 0.20 | 0.92 |
| cis-1,3-Dichloropropene | 10061-01-5 | 0.20 | 0.91 |
| trans-1,3-Dichloropropene | 10061-02-6 | 0.20 | 0.91 |
| 1,2-Dichlorotetrafluoroethane (Freon 114) | 76-14-2 | 0.20 | 1.4 |
| 1,4-Dioxane | 123-91-1 | 5.0 | 18 |
| Ethylbenzene | 100-41-4 | 0.20 | 0.87 |
| 4-Ethyltoluene (p-Ethyltoluene) | 622-96-8 | 0.20 | 0.98 |
| n-Heptane | 142-82-5 | 0.20 | 0.83 |
| Hexachlorobutadiene | 87-68-3 | 0.20 | 2.1 |
| n-Hexane | 110-54-3 | 0.20 | 0.70 |
| Isopropyl Alcohol | 67-63-0 | 5.0 | 12.5 |
| Methylene chloride | 75-09-2 | 0.50 | 1.7 |
| Methyl Butyl Ketone | 591-78-6 | 0.50 | 2.05 |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | 0.50 | 2.05 |
| MTBE (Methyl tert-butyl ether) | 1634-04-4 | 0.50 | 1.8 |
| Styrene | 100-42-5 | 0.20 | 0.85 |
| Tertiary butyl alcohol (TBA) | 75-65-0 | 5.0 | 15 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 0.20 | 1.4 |
| Tetrachloroethene (PCE) | 127-18-4 | 0.20 | 1.4 |
| Toluene | 108-88-3 | 0.20 | 0.75 |
| 1,2,4-Trichlorobenzene | 120-82-1 | 0.50 | 3.7 |
| 1,1,1-Trichloroethane | 71-55-6 | 0.20 | 1.1 |
| 1,1,2-Trichloroethane | 79-00-5 | 0.20 | 1.1 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon TF) | 76-13-1 | 0.20 | 1.5 |
| Trichloroethene (TCE) | 79-01-6 | 0.20 | 1.07 |
| Trichlorofluoromethane (Freon 11) | 75-69-4 | 0.20 | 1.1 |
| 1,2,4-Trimethylbenzene | 95-63-6 | 0.20 | 0.98 |
| 1,3,5-Trimethylbenzene | 108-67-8 | 0.20 | 0.98 |
| 2,2,4-Trimethylpentane | 540-84-1 | 0.20 | 1.08 |
| Vinyl chloride | 75-01-4 | 0.20 | 0.51 |
| Xylenes (m&p) | 1330-20-7 | 0.20 | 0.87 |
| Xylenes (o) | 95-47-6 | 0.20 | 0.87 |
| **Additional Compounds to be Requested** | | | |
| 1,2,3-Trimethylbenzene | 80-62-6 | 0.20 | 0.98 |
| Naphthalene | 91-20-3 | 0.50 | 2.9 |
| 1-Methylnaphthalene | 90-12-0 | TBD | TBD |
| 2-Methylnaphthalene | 91-57-6 | TBD | TBD |
| Tetramethylbenzene | 25619-60-7 | TBD | TBD |
| Indene | 95-13-6 | TBD | TBD |
| Indane | 496-11-7 | TBD | TBD |
| Thiophene | 110-02-1 | TBD | TBD |

Notes:

a. Actual reporting limits of field samples may be higher due to sample dilution by the laboratory to quantify compounds at elevated concentrations.(see note b)

b. The laboratory must notify National Grid prior to sample dilution.

c. ppbv = part per billion by volume

d. ug/m3 = microgram per cubic meter

e. TBD = to be determined

**Table 4**
**Potential MGP-Related Volatile Constituents**

**Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State**

| |
|---|
| Benzene |
| Ethylbenzene |
| Toluene |
| Xylenes |
| Naphthalene |
| Indene |
| Indane |
| 1,2,4-Trimethylbenzene [a] |
| Tetramethylbenzenes [a] |
| n-Nonane [a] |
| n-Decane [a] |
| n-Undecane [a] |
| n-Dodecane [a] |

*Note:*
*a. Volatile constituents associated with petroleum used at MGP sites that employed the carbureted water gas process.*

**Table 6**

**Data Evaluation Criteria**

**Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State**

| MGP-Related Constituent | Typical Indoor Air Concentrations ($ug/m^3$) [a] | | USEPA OSWER Target Indoor Air Concentrations ($ug/m^3$) [b] | |
|---|---|---|---|---|
| | Residential | Non-Residential | Residential | Non-Residential |
| Benzene | 13 | 9.4 | 3.1 | 31 |
| Ethylbenzene | 6.4 | 5.7 | 22 | 220 |
| Toluene | 57 | 43 | 400 | 400 |
| m,p-Xylenes | 11 | 22.2 | 7000 | 7000 |
| o-Xylene | 7.1 | 7.9 | 7000 | 7000 |
| Naphthalene | NA [c] | 5.1 | 3 | 3 |
| Indene | NA | NA | NA | NA |
| Indane | NA | NA | NA | NA |
| 1,2,4-Trimethylbenzene | 9.8 | 9.5 | 6 | 6 |
| n-Nonane | 7.9 | 7.8 | NA | NA |
| n-Decane | 15 | 17.5 | NA | NA |
| n-Undecane | 12 | 22.6 | NA | NA |
| n-Dodecane | 9.2 | 15.9 | NA | NA |

*Notes:*

*a. NYSDOH. 2005. " Guidance for Evaluating Soil Vapor Intrusion in the State of New York". Public Comment Draft ( October 2006 ). As recommended by NYSDOH, typical indoor air concentrations in residential settings are the upper fence values from the NYSDOH 2003 Fuel Oil Study data. Typical concentrations in non-residential settings are the 90th percentile values from the USEPA BASE data. $ug/m^3$ = microgram per cubic meter.*

*b. USEPA. 2002. "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils". Office of Solid Waste and Emergency Response (November). $R=10^{-5}$ used for residential. $R=10^{-4}$ used for non-residential.*

*c. NA = not available*

**APPENDIX A**

**SOIL VAPOR SAMPLE COLLECTION PROCEDURES**

(NYSDEC and NYSDOH Approved, March 15, 2007)

[Updated by National Grid and resubmitted September 18, 2007]

This set of procedures outlines the general steps to collect soil vapor samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations, sample depths, and sampling duration.

Soil Vapor Probe Installation

Permanent and temporary soil vapor probes will be installed using the procedure outlined below:

- Record weather information (temperature, barometric pressure, rainfall, wind speed, and wind direction). Record substantial changes to these conditions that may occur during the course of the probe installation. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Install soil vapor probes using a direct-push drill rig (e.g., GeoProbe® or similar) or manually using a slide hammer. Probes will consist of stainless-steel drive points with stainless steel screens attached to food-grade (inert) Teflon® or polyethylene tubing through which the soil vapor sample will be drawn. Recommended tubing is ¼-inch O.D. flouropolymer tubing that can be found at AMS, Inc. (Item 215.00).

- Attach the drive points to a drive rod (stainless-steel tube) and drive the rod to the target depth, as define in the site-specific work plan.

- Withdraw the drive rods from the hole, leaving the drive point and tubing.

- Place filter pack material, such as glass beads or clean silica sand, in the annular space surrounding the tubing directly above the sample point to a height of approximately 1 to 2 foot. The depth of the filter pack material should always be adequate to prevent the bentonite slurry above from going over the drive point and sample inlet screen. Recommended ground glass blast media can be found at W.W. Grainger, Inc. (Item 6ZC15).

- Place bentonite slurry in the annulus above the filter pack material to provide a seal in the borehole. Ideally, place the bentonite annular seal at least 3 feet thick, although adjustments to this thickness may be required based on site-specific conditions. The entire borehole must be filled to the ground surface with either entirely bentonite or with natural fill between two bentonite seals (one above the filter pack material and one at the ground surface). Permanent installations must have a surface seal made of cement or cement/bentonite grout.

- For permanent installations, install flush-mounted protective covers to protect the probe and the tubing.

- Cut the end of the tubing to allow proper closure of the flush-mounted protective cover, but with a sufficient length of tubing exposed at the surface to facilitate connection of sampling equipment.

- Close or cap the sample tubing following installation and following collection of each sample.

Collection of Soil Vapor Samples

Collecting soil vapor samples will be accomplished by using the following procedure:

- Record weather information (i.e., temperature, barometric pressure, rainfall, wind speed, and wind direction) at the beginning of the sampling event. Also, record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).

- Identify sampling locations on a plot plan that also identifies buildings, other landmarks, and potential sources of VOC contamination to both the surface and outdoor air. Record the depth of the probe screen below grade.

- If necessary, connect additional tubing to the tubing extending from the soil vapor probe to allow for connection to sample collection equipment.

- Calculate the volume of air in the probe, tubing (volume = $\pi r^2 h$), including any additional tubing added in the step above and the annular space between the probe and the native material if sand or glass beads were used.

- Connect a vacuum pump or gas-tight syringe (~60 cubic centimeters [cc]) to the sample tubing. At a flow rate of no more than 0.2 liter per minute (lpm), purge air from the tubing until one to three of the above-calculated air volumes are removed.

- During purging, evaluate the potential for ambient air to be introduced in the soil vapor sample through the annulus of the soil vapor probe or tubing connections using a tracer gas such as helium. The procedures for the tracer gas evaluation are described below. Note that the bentonite used in the probe installation should have sufficient time to seal before the samples are collected. The tracer gas evaluation will verify if the seal is sufficient.

- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the soil vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as identified in the project-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be batch certified as clean by the laboratory.

- Remove the protective brass plug from the canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.

- Connect the tubing from the soil vapor probe to the flow controller.

- Completely open the valve on the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Monitor the vacuum pressure in the canister routinely during sampling.

- Stop sample collection when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

- Provided that no additional sampling is expected to be conducted, either pull out (if practical) or abandon in place the sampling probe. When abandoning, cut the tubing back as far down as practical and cover to surface with native soil.

Tracer Gas Evaluation

The tracer gas evaluation provides a means to evaluate the integrity of the soil vapor probe seal and assess the potential for introduction of ambient air into the soil vapor sample. A tracer gas evaluation should be conducted on all soil vapor probes. After the initial round of sampling and with the approval of the regulating agency, the use of tracer gas may be reduced to a minimum of 10 percent for permanent and semi-permanent probes if the initial round results showed installations with competent seals.

The following tracer gas evaluation procedure uses in-field tracer gas measurements and tracer gases (e.g., helium) that can be measured by portable detectors.

- Retain the tracer gas around the sample probe by filling an air-tight chamber (such as a plastic bucket) positioned over the sample location.

- Make sure the chamber is suitably sealed to the ground surface.

- Introduce the tracer gas into the chamber. The chamber will have tubing at the top of the chamber to introduce the tracer gas into the chamber and a valved fitting at the bottom to let the ambient air out while introducing tracer gas. A tracer gas detector will be attached to the valve fitting at the bottom of the chamber to verify the presence of the tracer gas. Close the valve after the chamber has been enriched with tracer gas at concentrations >50%.

- The chamber will have a gas-tight fitting or sealable penetration to allow the soil vapor sample probe tubing to pass through and exit the chamber.

- After the chamber has been filled with tracer gas, attach the sample probe tubing to a pump that will be pre-calibrated to extract soil vapor at a rate of no more than 0.2 lpm. Purge the tubing using the pump. Calculate the volume of air in the tubing and probe and purge one to three tubing/probe volumes prior measuring the tracer gas concentration.

- Use the tracer gas detector to measure the tracer gas concentration in the pump exhaust.

- Record the tracer gas concentrations in the chamber and in the soil vapor sample.

If the evaluation indicates a high concentration of tracer gas in the sample (>10% of the concentration of the tracer gas in the chamber), then the surface seal is not sufficient and requires improvement via repair or replacement prior to commencement of the sample collection. A non-detectable level of tracer gas is preferred; however, if the evaluation indicates a low potential for introduction of ambient air into the sample (<10% of the concentration of the tracer gas in the chamber), then proceed with the soil vapor sampling. While lower concentrations of tracer gas are acceptable, the impact of the detectable leak on sample results should be evaluated in the sampling report.

**APPENDIX B**

**AMBIENT AIR SAMPLE COLLECTION PROCEDURES**

(NYSDEC and NYSDOH Approved, March 15, 2007)

This set of procedures outlines the general steps to collect ambient air samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations and sampling duration.

The following procedures will be followed for the collection of ambient air samples:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).

- Select a location upwind of the building or other area that is being evaluated. If possible, select a location upwind or near the HVAC air intake for the building being sampled.

- Record weather information (i.e., temperature, barometric pressure, relative humidity, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the ambient air sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be individually certified as clean by the laboratory.

- Place the canister at the sampling location. If the sample should be collected from breathing height (e.g., 3 to 5 feet above ground), then mount the canister on a stable platform such that the sample inlet will be at the proper height.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of custody form for each sample.

- Completely open the valve on the vacuum pressure in the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Document on a field form an outdoor plot sketch that indicates the building being sampled, streets, sampling location, location of potential outdoor air sources, north direction and paved areas. Also record pertinent observations such as odors, readings from field instrumentation, and significant activities in the vicinity that result in air emissions.

- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical). During monitoring, note the vacuum pressure on the gauge.

- Stop sample collection after the scheduled duration of sample collection but make sure that the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valves. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

**NEW YORK STATE DEPARTMENT OF HEALTH**
**INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY**
**CENTER FOR ENVIRONMENTAL HEALTH**

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No._____

Purpose of Investigation_____

**1. OCCUPANT:**

**Interviewed: Y / N**

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

**2. OWNER OR LANDLORD:** (Check if same as occupant ___ )

**Interviewed: Y / N**

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

**3. BUILDING CHARACTERISTICS**

**Type of Building:** (Circle appropriate response)

| | | |
|---|---|---|
| Residential | School | Commercial/Multi-use |
| Industrial | Church | Other: _____ |

**If the property is residential, type?** (Circle appropriate response)

| | | |
|---|---|---|
| Ranch | 2-Family | 3-Family |
| Raised Ranch | Split Level | Colonial |
| Cape Cod | Contemporary | Mobile Home |
| Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other:_____ |

**If multiple units, how many?** _____

**If the property is commercial, type?**

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

**Other characteristics:**

Number of floors_____ Building age_____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

## 4. AIRFLOW

**Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:**

Airflow between floors

_____

_____

_____

Airflow near source

_____

_____

_____

Outdoor air infiltration

_____

_____

_____

Infiltration into air ducts

_____

_____

_____

**5. BASEMENT AND CONSTRUCTION CHARACTERISTICS** (Circle all that apply)

| | | | | |
|---|---|---|---|---|
| **a. Above grade construction:** | wood frame | concrete | stone | brick |
| **b. Basement type:** | full | crawlspace | slab | other _____ |
| **c. Basement floor:** | concrete | dirt | stone | other _____ |
| **d. Basement floor:** | uncovered | covered | covered with _____ | |
| **e. Concrete floor:** | unsealed | sealed | sealed with _____ | |
| **f. Foundation walls:** | poured | block | stone | other _____ |
| **g. Foundation walls:** | unsealed | sealed | sealed with _____ | |
| **h. The basement is:** | wet | damp | dry | moldy |
| **i. The basement is:** | finished | unfinished | partially finished | |
| **j. Sump present?** | Y / N | | | |
| **k. Water in sump?** | Y / N / not applicable | | | |

**Basement/Lowest level depth below grade:** _____(feet)

**Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)**

_____

_____

**6. HEATING, VENTING and AIR CONDITIONING** (Circle all that apply)

**Type of heating system(s) used in this building: (circle all that apply – note primary)**

| | | | |
|---|---|---|---|
| Hot air circulation | Heat pump | Hot water baseboard | |
| Space Heaters | Stream radiation | Radiant floor | |
| Electric baseboard | Wood stove | Outdoor wood boiler | Other _____ |

**The primary type of fuel used is**:

| | | |
|---|---|---|
| Natural Gas | Fuel Oil | Kerosene |
| Electric | Propane | Solar |
| Wood | Coal | |

**Domestic hot water tank fueled by:** _____

| | | | | |
|---|---|---|---|---|
| **Boiler/furnace located in:** | Basement | Outdoors | Main Floor | Other_____ |
| **Air conditioning:** | Central Air | Window units | Open Windows | None |

**Are there air distribution ducts present?** Y / N

**Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.**

_____

_____

_____

_____

## 7. OCCUPANCY

**Is basement/lowest level occupied?** Full-time Occasionally Seldom Almost Never

| **Level** | **General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)** |
|---|---|
| Basement | _____ |
| 1st Floor | _____ |
| 2nd Floor | _____ |
| 3rd Floor | _____ |
| 4th Floor | _____ |

## 8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

**a. Is there an attached garage?** Y / N

**b. Does the garage have a separate heating unit?** Y / N / NA

**c. Are petroleum-powered machines or vehicles stored in the garage** (e.g., lawnmower, atv, car) Y / N / NA
Please specify_____

**d. Has the building ever had a fire?** Y / N When?_____

**e. Is a kerosene or unvented gas space heater present?** Y / N Where? _____

**f. Is there a workshop or hobby/craft area?** Y / N Where & Type? _____

**g. Is there smoking in the building?** Y / N How frequently? _____

**h. Have cleaning products been used recently?** Y / N When & Type? _____

**i. Have cosmetic products been used recently?** Y / N When & Type? _____

**j. Has painting/staining been done in the last 6 months?** Y / N Where & When? _____

**k. Is there new carpet, drapes or other textiles?** Y / N Where & When? _____

**l. Have air fresheners been used recently?** Y / N When & Type? _____

**m. Is there a kitchen exhaust fan?** Y / N If yes, where vented?_____

**n. Is there a bathroom exhaust fan?** Y / N If yes, where vented?_____

**o. Is there a clothes dryer?** Y / N If yes, is it vented outside? Y / N

**p. Has there been a pesticide application?** Y / N When & Type?_____

**Are there odors in the building?** Y / N
If yes, please describe: _____

**Do any of the building occupants use solvents at work?** Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

**Do any of the building occupants regularly use or work at a dry-cleaning service?** (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

**Is there a radon mitigation system for the building/structure?** Y / N Date of Installation: _____
**Is the system active or passive?** Active/Passive

**9. WATER AND SEWAGE**

| | | | | | |
|---|---|---|---|---|---|
| **Water Supply:** | Public Water | Drilled Well | Driven Well | Dug Well | Other: _____ |
| **Sewage Disposal:** | Public Sewer | Septic Tank | Leach Field | Dry Well | Other: _____ |

**10. RELOCATION INFORMATION (for oil spill residential emergency)**

**a. Provide reasons why relocation is recommended:** _____

**b. Residents choose to:** remain in home relocate to friends/family relocate to hotel/motel

**c. Responsibility for costs associated with reimbursement explained?** Y / N

**d. Relocation package provided and explained to residents?** Y / N

**11. FLOOR PLANS**

**Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.**

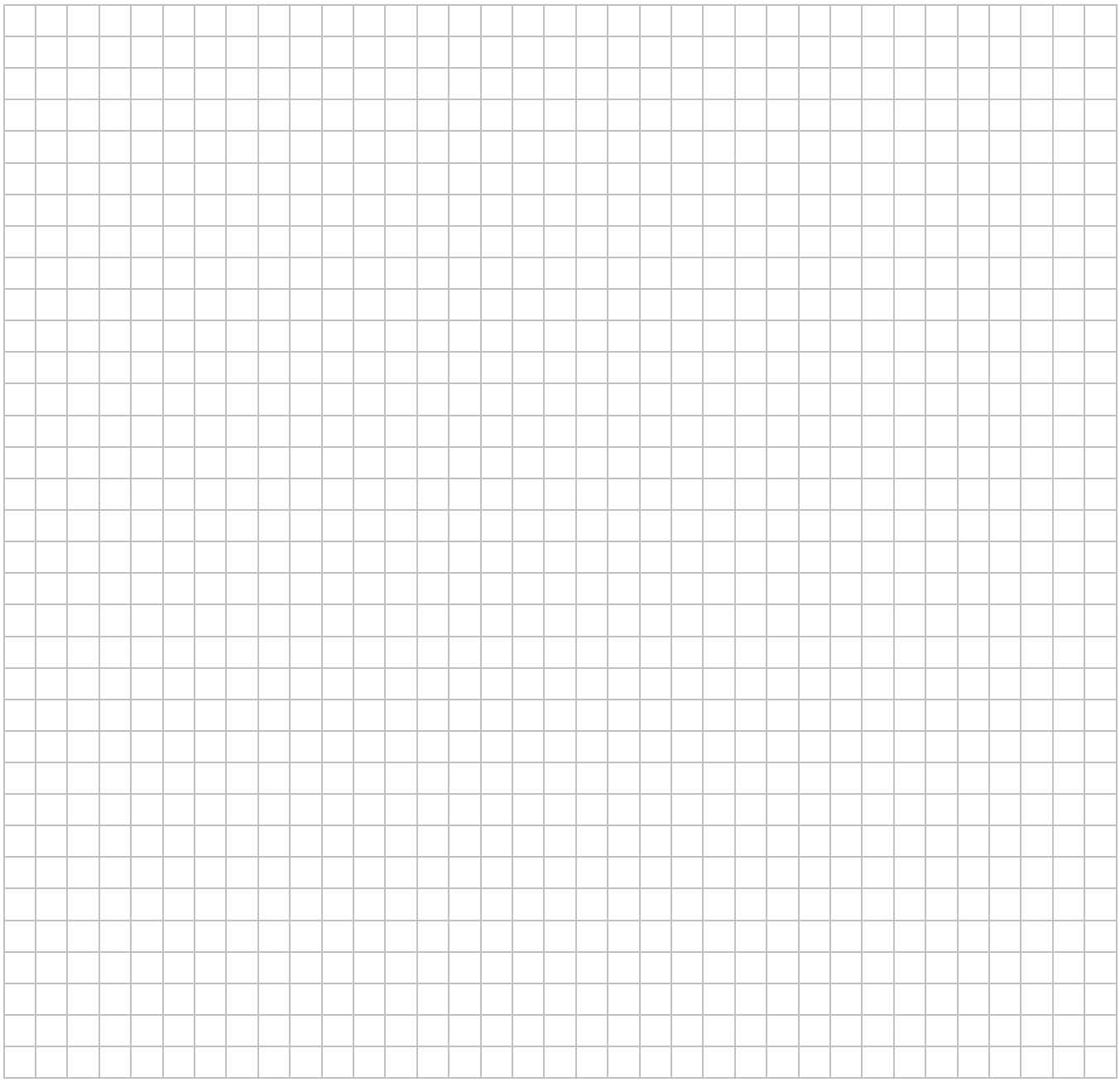
**Basement:**

**First Floor:**

**12. OUTDOOR PLOT**

**Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.**

**Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.**



**13. PRODUCT INVENTORY FORM**

**Make & Model of field instrument used: _____**

**List specific products found in the residence that have the potential to affect indoor air quality.**

| Location | Product Description | Size (units) | Condition* | Chemical Ingredients | Field Instrument Reading (units) | Photo ** Y / N |
|---|---|---|---|---|---|---|
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* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

**APPENDIX D**

**SUB-SLAB VAPOR SAMPLE COLLECTION PROCEDURES**

(NYSDEC and NYSDOH Approved, March 15, 2007)

This set of procedures outlines the general steps to collect sub-slab vapor samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations, sample depths, and sampling duration.

Sub-Slab Vapor Probe Installation

Temporary sampling probes will be installed using the following procedures:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).

- If appropriate, record weather information (temperature, barometric pressure, rainfall, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Identify sampling location(s) on a floor plan that also identifies any slab breeches (e.g., utility penetrations, sumps, drains, and cracks) and locations of HVAC equipment.

- Insert a section of food-grade (inert) Teflon® or other appropriate tubing through a 3/8-inch (approx.) hole drilled through the slab. If necessary, advance the drill bit 2 to 3 inches into the sub-slab material to create an open cavity.

- Install the tubing inlet to the specified sampling depth below the slab, not to exceed 2 inches.

- Seal the annular space between the hole and tubing using 100% beeswax or another inert, non-shrinking sealing compound such as permagum®.

Sub-Slab Vapor Sample Collection

Sub-slab vapor samples will be collected by following the steps outlined below.

- Purge the tubing using a vacuum pump or gas-tight syringe (~60 cc). Calculate the volume of air (volume = $\pi r^2 h$) in the tubing and purge one to three tubing volumes prior to sample collection at a rate no greater than 0.2 liter per minute (lpm).

- Use an evacuated Summa® passivated (or equivalent) canister to collect the sub-slab vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be batch certified as clean by the laboratory.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.

- Connect the tubing from the sub-slab vapor sampling probe to the flow controller.

- Completely open the valve on the canister. Record the time that the valve is opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical).

- Complete the NYSDOH building survey and chemical survey form.

- Stop sample collection after the scheduled duration of sample collected, but when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

- For temporary probes, remove the probe and seal the slab hole with cement. Repair flooring, if any.

**APPENDIX E**

**INDOOR AIR SAMPLE COLLECTION PROCEDURES**

(NYSDEC and NYSDOH Approved, March 15, 2007)

This set of procedures outlines the general steps to collect indoor air samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sampling locations and other indoor air requirements (inventory, etc.).

Indoor air samples will be collected by following the steps outlined below:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).

- Record weather information (temperature, barometric pressure, relative humidity, wind speed, and wind direction) and indoor temperature and humidity at the beginning of the sampling event. Record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Identify sampling location(s) on a floor plan that also identifies locations of HVAC equipment, chemical storage areas, garages, doorways, stairways, sumps, drains, utility perforations, north direction, and separate footing sections

- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the outdoor air sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be individually certified as clean by the laboratory.

- Place the canister at the sampling location. The sample should be collected from breathing height (e.g., 3 to 5 feet above ground). Either mount the canister on a stable platform or attach

a length of inert tubing to the flow controller inlet and support it such that the sample inlet will be at the proper height.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of custody form for each sample.

- Completely open the valve on the vacuum pressure in the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical). During monitoring, note the vacuum pressure on the gauge.

- Complete the NYSDOH building survey and chemical survey form.

- Stop sample collection after the scheduled duration of sample collection, but make sure that the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valves. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

# Appendix F

## Building Owner/Occupant Instructions Prior to Vapor Intrusion Sampling

Some household products and activities can emit chemicals into the indoor air that could interfere with the evaluation of the sampling results. Therefore, it is strongly urged that building occupants refrain from the following activities at least 48 hours before sampling is conducted and during sampling:

- opening windows, fireplace openings or vents;
- keeping doors open for long periods of time;
- operating ventilation fans or air conditioning;
- use of scented candles, air fresheners or odor eliminators;
- smoking;
- use of wood stoves, fireplaces or auxiliary heating equipment, such as a kerosene heater;
- use of paints or varnishes;
- use of cleaning products such as household cleaners, floor cleaners, bathroom cleaners, furniture polish, etc.
- use of cosmetics, including hair spray, nail polish removers and perfume, etc.;
- use of solvents, such as paint thinners, glues, automobile degreasing chemicals, WD-40, etc.;
- use of pesticides (e.g. RAID), herbicides and fungicides;
- use of building repair or maintenance products, such as caulk and roofing tar;
- lawn mowing, paving with asphalt, or snow blowing;
- storing gasoline, oil or petroleum-based or other solvents within the building or attached garage (except for fuel oil tanks); and
- operating or storing automobiles or other gasoline-powered equipment or vehicles in an attached garage.

It should also be noted that any containers of paint, varnish, cleaning products, or solvents stored inside the building should be securely sealed.

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# Ambient Air (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Relative humidity _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

_____

_____

**Site Plan** showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments: _____

_____

_____

_____

_____

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# Indoor Air (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Associated ambient air sample ID _____ Associated sub-slab vapor sample ID _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Relative humidity _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

_____

_____

Indoor air temp ($^{o}$F) _____ Indoor relative humidity (%) _____

Building Survey and Chemical Inventory Form Completed? _____ Photograph IDs _____

**Floor Plan** showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments: _____

_____

_____

_____

_____

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# Sub-slab Vapor (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Associated indoor air sample ID _____ Associated ambient air sample ID _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

_____

_____

Indoor air temp (°F) _____ Indoor relative humidity (%) _____

Building Survey and Chemical Inventory Form Completed? _____ Photograph IDs _____

**Floor Plan** showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments: _____

_____

_____

_____

_____

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# Soil Vapor (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Associated ambient air sample ID _____ Depth of sample point below grade _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

**Site Plan** showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: _____

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# Ambient Air (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Relative humidity _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

_____

_____

**Site Plan** showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments: _____

_____

_____

_____

_____

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# Indoor Air (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Associated ambient air sample ID _____ Associated sub-slab vapor sample ID _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Relative humidity _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

_____

_____

Indoor air temp ($^{o}$F) _____ Indoor relative humidity (%) _____

Building Survey and Chemical Inventory Form Completed? _____ Photograph IDs _____

**Floor Plan** showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments: _____

_____

_____

_____

_____

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# Sub-slab Vapor (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Associated indoor air sample ID _____ Associated ambient air sample ID _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

_____

_____

Indoor air temp (°F) _____ Indoor relative humidity (%) _____

Building Survey and Chemical Inventory Form Completed? _____ Photograph IDs _____

**Floor Plan** showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments: _____

_____

_____

_____

_____

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# Soil Vapor (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

**Sample ID** _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Associated ambient air sample ID _____ Depth of sample point below grade _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature ($^{o}$F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

**Site Plan** showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: _____

# Appendix J
# Field Sampling Plan

Prepared for:
**National Grid**
**Brooklyn, New York**

# Field Sampling and Analytical Plan (Appendix J of Site Management Plan)

**Flatbush Station A&B Former Gas Holder Site**
**Brooklyn, New York**
**NYSDEC Site No.: 224061**
**Order on Consent Index #: A2-0552-0606**

AECOM
January 2012
**Document No.: 60625627**

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# 1.0 Introduction

This Field Sampling and Analytical Plan (FSAP) presents the methods and procedures to be used for performing any ground intrusive, maintenance, and monitoring activities covered under the Site Management Plan [(SMP); AECOM, 2011] for the Flatbush Station A&B Former Gas Holder Site (Site).

## 1.1 Project Description

This document is required as an element of the remedial program at the Site under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by the NYS Department of Environmental Conservation (NYSDEC). The Site was investigated in accordance with Order on Consent Index A2-0552-0606, Site Number 224061 [NYSDEC, 2007], which was executed in 2007. The Site location and layout is shown on Figures 1-1 and 1-2 of the SMP.

The Order on Consent required National Grid, to investigate contaminated media at the Site. For purposes of further discussion in this document, the term "Site" will comprise of portions of three parcels including Block 4827 Lots 24 and 30 (324 Winthrop Street), portion of Block 4828 Lot 21 (329 Clarkson Avenue), and Block 4828 Lot 22 (760 Parkside Avenue), a portion of Parkside Avenue, and a portion of Clarkson Avenue.

After completion of the investigation work described in the Site Characterization Work Plan [AECOM, 2011], some impacts were identified in the subsurface of the Site. This FSAP was developed as an appendix (Appendix H) to the SMP which was prepared to manage remaining contamination at the Site in perpetuity or until extinguishment of the Environmental Easement in accord with NYS Environmental Conservation Law (ECL) Article 71, Title 36.

This document was prepared by AECOM, on behalf of National Grid, in accord with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation [(DER-10); DEC, 2010] and the guidelines provided by NYSDEC.

## 1.2 Scope of Work

The scope of work at the Site covered under this FSAP includes.

- Underground utility work
- Surface/shallow subsurface soil sampling and analysis
- Soil boring advancement, subsurface soil sampling and analysis
- Excavation
- Monitoring well installation and development
- Groundwater sampling and analysis
- Indoor air and ambient air sampling and analysis
- Investigation-derived waste management

- Community air monitoring
- Data validation evaluation, and reporting

This FSAP will be modified for specialized work including:

- Sheet Pile Installation
- Confined Space Activities
- Groundwater Dewatering, Treatment, and Discharge

Any modification to the FSAP will require approval in writing from the NYSDEC. The property owner or its representative must notify National Grid of any scheduled ground intrusive work at least 15 days prior to the start of field activity.

# 2.0 General Field Guidelines

## 2.1 Site Hazards

Potential Site surface hazards, such as sharp objects, overhead power lines, energized areas, vehicular traffic, and building hazards will be identified prior to initiation of the fieldwork. Generally, potential hazards at the project site will be identified during a project site reconnaissance by the project team on the first day of any field activity. Additional safety measures to be undertaken for the work performed during the investigation are addressed in the Health and Safety Plan [(HASP), Appendix D of the SMP].

## 2.2 Underground Utilities

Underground utilities, including electric lines, gas lines, water lines, storm and sanitary sewers, and communication lines will be identified prior to initiation of any subsurface work. Underground utility location will be accomplished as follows:

- All work areas will be flagged or marked out with white paint.
- Dig Safely of New York (800) 272-4480 will be contacted to initiate the locating activities. New York State law requires that Dig Safely of New York be notified at least two working days, and not more than 10 working days, before subsurface work is conducted.
- Companies with subsurface utilities present will locate and mark out all subsurface utility lines.
- Geophysical methods may be used to further evaluate the potential presence of underground utilities in the area of each proposed investigation location.
- Subsurface investigation locations may be hand cleared to five feet below ground surface (bgs) prior to advancing borings with mechanized equipment.

## 2.3 Field Log Books

All field activities will be carefully documented in field log books. Entries will be of sufficient detail that a complete daily record of significant events, observations, and measurements is developed. The field log book will provide a legal record of the activities conducted at the site. Accordingly:

- Field books will be assigned a unique identification number.
- Field books will be bound with consecutively numbered pages.
- Field books will be controlled by the Site Manager while fieldwork is in progress.
- Entries will be written with waterproof ink.
- Entries will be signed and dated at the conclusion of each day of fieldwork.
- Erroneous entries made while fieldwork is in progress will be corrected by the field person that made the entries. Corrections will be made by drawing a line through the error, entering the correct information, and initialing the correction.

- Corrections necessary after departing the field will be made by the person who entered the original information. Corrections will be made by drawing a line through the error, entering the correct information, and initialing and dating the time of the correction.

At a minimum, daily field book entries will include the following information:

- Location of field activity;
- Date and time of entry;
- Names and titles of field team members on site and site contacts;
- Names, titles of any site visitors, as well as the date and time entering and leaving the site;
- Weather information, for example: temperature, cloud coverage, wind speed, and direction;
- Purpose of field activity;
- A detailed description of the fieldwork conducted;
- Sample media (soil, sediment, groundwater, etc.);
- Sample collection method;
- Number and volume of sample(s) taken;
- Description of sampling point(s);
- Volume of groundwater removed before sampling;
- Preservatives used;
- Analytical parameters;
- Date and time of collection;
- Sample identification number(s);
- Sample distribution (e.g., laboratory);
- Field observations;
- All field measurements made, such as volatile organic compounds (VOCs) using a PID, pH, temperature, conductivity, water level, etc.;
- References for all maps and photographs of the sampling site(s); and
- Information pertaining to sample documentation such as:
  - Bottle lot numbers;
  - Dates and method of sample shipments;
  - Chain-of-custody (COC) record numbers; and
  - Federal Express air bill number.

# 3.0 Field Equipment Decontamination and Management of Investigation-Derived Residuals

## 3.1 Decontamination Area

A temporary decontamination area lined with polyethylene sheeting will be constructed on the project site for use during decontamination of the drilling and test pitting equipment. Water collected from the decontamination of activities will be collected in 55-gallon drums or a bulk tank and managed as described in Section 3.3.

## 3.2 Equipment Decontamination

The following procedures will be used to decontaminate equipment used during any activities.

- All equipment including the backhoe bucket; drilling rig; augers; bits; rods; tools; split-spoon samplers; and tremie pipes will be cleaned with a high-pressure, hot water pressure washing unit between locations and following completion of activities.
- Tools, drill rods, and augers will be placed on polyethylene plastic sheets following pressure washing. Direct contact with the ground will be avoided.
- All earth moving equipment, the back of the drill rig and all tools, augers, and rods will be decontaminated at the completion of the work and prior to leaving the project site.

### 3.2.1 Sampling Equipment Decontamination

**Suggested Materials:**

- Potable water;
- Phosphate-free detergent (such as Alconox™);
- Distilled water;
- Aluminum foil;
- Plastic/polyethylene sheeting;
- Plastic buckets and brushes; and
- Personal protective equipment (PPE) in accordance with the HASP.

**Procedures:**

- Prior to sampling, all non-dedicated sampling equipment (bowls, spoons, interface probes, etc.) will be washed with potable water and a phosphate-free detergent (such as Alconox™). Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, etc.
- The sampling equipment will then be rinsed with potable water followed by a de-ionized water rinse.

- Between rinses, equipment will be placed on polyethylene sheets or aluminum foil, if necessary. At no time will washed equipment be placed directly on the ground.
- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location.

## 3.3 Management of Investigation-Derived Residuals

### 3.3.1 Decontamination Fluids

Hot water pressure wash and decontamination fluids will be collected in 55-gallon drums or a bulk tank. The storage drums or tank will be labeled as “pending analysis – investigation-derived residual decon water” and temporarily stored in a plastic-lined containment area pending characterization and proper disposal.

### 3.3.2 Drill Cuttings

Drill cuttings will be contained in 55-gallon drums. The drums will be labeled as “pending analysis – investigation-derived residual – soil from drill cuttings” and temporarily stored in a plastic-lined containment area pending characterization and proper disposal.

### 3.3.3 Development and Purge Water

All development and purge water will be contained in 55-gallon drums or a bulk tank. The drums or tank will be labeled as “pending analysis - investigation derived residual development and purge water” and temporarily stored in a plastic-lined containment area pending characterization and proper disposal.

### 3.3.4 Personal Protective Equipment

All PPE will be placed in 55-gallon drums or a lined cardboard yard box for proper disposal.

### 3.3.5 Dedicated Sampling Equipment

All dedicated groundwater sampling equipment will be placed in 55-gallon drums for disposal.

# 4.0 Soil Sampling and Well Installation Procedures

## 4.1 Introduction

Surface and subsurface activities to be conducted at the Site may consist of utility work; excavation; the advancement of soil borings; collection of soil samples; groundwater monitoring, soil vapor intrusion sampling, and the installation of monitoring wells. These activities will require the use of the following equipment and material:

- Field book;
- Project plans;
- PPE in accordance with the HASP;
- Stakes, flagging and marking paint;
- Plastic bags for soil screening samples;
- Stainless steel or disposable bowls and spoons/spatulas;
- Tape measure;
- Decontamination supplies;
- Water level indicator;
- Electronic oil/water interface probe
- Clear polyethylene disposable bailers (NAPL confirmation in wells);
- Polyethylene disposable bailers (well development);
- Polypropylene rope (well development);
- Waterra™ pump or other purge pump (well development);
- Submersible electric pump (well development);
- Stainless steel or glass beakers (well development);
- Turbidity meter (well development);
- Temperature, conductivity, pH meter (well development).
- PID with a 10.2 or 10.6 eV lamp;
- Camera;
- Clear tape, duct tape;
- Laboratory sample bottles;
- Coolers and ice; and
- Shipping supplies.

Procedures for these activities are described in the following sections.

## 4.2 Excavation

Excavation activities will be dictated by the Contractor hired to conduct the work and will follow the Excavation Work Plan included as Appendix C of the SMP [AECOM, 2012]. During field activities, personnel will stand upwind of the excavation area to the extent possible. Air monitoring and odor mitigation (if necessary) will be conducted in accordance with the Community Air Monitoring Project (CAMP) and HASP. Excavation materials will be photographed and logged for future reference. Material removed from the excavation will be placed on polyethylene sheeting. The location and size of the excavation will be measured and described in the field logbook.

Visually clean soils, such as surface soils, will be segregated from soils that may be impacted. The visually clean soils may be placed back in the excavation with prior approval of the NYSDEC. At a minimum, the top 2 feet of backfilled soil will be visually clean. The excavation will be backfilled as soon as possible after completion and in general prior to the cessation of activities at the end of the day. If excavation resulted in removal of any residual MGP contamination, a demarcation layer as detailed in Appendix C of the SMP [AECOM, 2012] will be placed over the surface prior to backfilling. Following restoration of the excavation, the excavation will be staked/marked to facilitate subsequent location by surveying crews.

### 4.2.1 Soil Borings

Soil borings, if any, may be advanced and sampled with a combination of either rotosonic drilling methods equipped with 4-inch diameter sampling cores or hollow-stem augers (HSAs) equipped with 2-inch or 3-inch diameter split-spoon samplers. In some instances, a direct-push (Geoprobe™) drilling rig equipped with 4-foot long, 2-inch diameter Macro-Core™ samplers may be used if there are access limitations. All drilling equipment will be decontaminated between each boring in accordance with methods specified in Section 3.2.

All locations will be properly abandoned following the collection of samples. Boreholes for the direct-push borings will be filled with bentonite chips. All rotosonic or auger soil borings not used for the construction of monitoring wells will be tremie grouted to the ground surface following the completion of the soil sampling to prevent cross-contamination of permeable zones. The borings will be filled using a cement/bentonite grout mixture with the following specifications:

- Bentonite will be powdered sodium montmorillonite furnished in moisture resistant sacks without additives.
- Cement shall be a low-alkaline Portland cement, Type I in conformance with ASTM C-150 and without additives.
- The cement/bentonite grout mixture shall be to the following proportion:
  - Three sacks (94 pounds) of Type I Portland cement;
  - 14 pounds of granular bentonite (5% mix); and
  - 25 gallons of water.

The cement will be mechanically mixed, above ground, with water from a potable water source. Bentonite will be added to ensure a lump-free consistency. The mixture will be pumped through a tremie pipe as the drill is being withdrawn.

### 4.2.2 Geologic Logging Methods

The field geologist will log borehole geology and headspace measurements, and any other observations (e.g., odors, non aqueous phase liquid (NAPL), soil staining, etc.), in the field book and the Drilling Record shown in Figure 4-1, or similar form. Soil samples retrieved from the borehole/test pit will be visually described for: 1) percent recovery, 2) soil type, 3) color, 4) moisture content, 5) texture, 6) grain size and shape, 7) consistency, 8) visible evidence of staining or other hydrocarbon-related impacts, and 9) any other relevant observations. The descriptions will be in accordance with the Unified Soil Classification System (USCS) and the American Society for Testing and Materials (ASTM) guidelines. Descriptions will also follow National Grid's internal field description guidance [KeySpan, 2005] included in Appendix G SOPs of the SMP [AECOM, 2012].

Immediately after describing the core/test pit wall, a representative soil sample will be placed in a re-sealable plastic (e.g., "ziplock") bag filled approximately half full. The bag will be labeled with the boring number and interval sampled. After allowing the bagged soil to warm the tip of the sample probe attached to the PID will be inserted into the bag to measure the headspace for organic vapors. Soil remaining after completion of sample description, collection, and field screening will be disposed of properly.

### 4.2.3 Collection of Samples

The number and frequency of samples to be collected from each boring and the associated analytical parameters will be based on the field activity. The sample locations, descriptions, and depths will be recorded on the borelogs in the field book.

Samples for laboratory analyses will be collected directly from the sampling spoon (test pits), acetate liners, split-spoons, or core barrel and placed into appropriate containers (for VOC analyses); homogenized (for non-VOC analyses); and compacted to minimize headspace and pore space. Soil used for headspace analysis will not be used for laboratory VOC analysis. The sampling equipment will be decontaminated between samples in accordance with procedures described in Section 3. Soil remaining after completion of sample description, collection, and field screening will be disposed of properly.

The sample containers will be labeled, placed in a laboratory-supplied cooler, and packed with ice. The coolers will then be shipped to the laboratory for analysis. COC procedures will be followed as outlined in Appendix I Quality Assurance Project Plan (QAPP) of the SMP. If there is a delay of sample shipment due to insufficient samples to warrant overnight delivery, the samples will be stored in a cool, secure place with sufficient ice to maintain a temperature of 4˚ C.

## 4.3 Monitoring Well Installation and Development

The following methods will be used for drilling, installing, and developing the monitoring wells;

### 4.3.1 Overburden Monitoring Well Installation

Figure 4-2 illustrates the construction details for a typical overburden monitoring well. Specific details regarding the depth and anticipated screened interval of proposed monitoring wells is provided in the SMP. In general, monitoring wells will be installed according to the following specifications:

- The monitoring well borings will be advanced with either 4.25-inch inner diameter (ID) hollow-stem augers or 4-inch ID flush casing.

- Wells will be constructed with 2-inch ID, threaded, flush-joint, Schedule 40 PVC casings and screens.
- Screens will be 10-feet long with 0.01-inch slot openings (or 0.02-inch, if NAPL present) with a 2-foot DNAPL sump at the base. Alternative screen lengths up to 20 feet long may be used at the discretion of the field geologist and with the approval of DEC, based on site conditions.
- The annulus around the screens will be backfilled with clean silica sand having appropriate size (e.g., Morie No. 1) to a minimum height of 2 feet above the top of the screen. Auger flights or casing will be withdrawn as sand is poured in a manner that will minimize hole collapse and bridging.
- A bentonite chip seal with a minimum thickness of 2 feet will be placed above the sand pack. The bentonite seal will be hydrated with clean, potable water before placement of grout above the seal layer.
- The remainder of the annular space will be filled with cement-bentonite grout to ground surface. The grout will be allowed to set for a minimum of 24 hours before wells are developed.
- Each monitoring well will be a flush-mounted installation with a locking cap.
- The concrete seal or pad will be sloped to channel water away from the well, and be deep enough to remain stable during freezing and thawing of the ground.
- The top of the PVC well casing and ground surface will be marked and surveyed to 0.01 foot, and the elevation will be determined relative to a fixed benchmark or datum.
- The measuring point on all wells will be on the innermost PVC casing.
- Monitoring well construction details will be recorded in the field book and on the Construction Log shown in Appendix H of the SMP.
- If commercially available nested wells are considered to sample multiple aquifer depth zones in the same borehole, they will be discussed with DEC prior to installation.

### 4.3.2 Monitoring Well Development

- After a minimum of 24 hours after installation, the monitoring wells will be developed by surging and pumping. Surging will be performed periodically, across the lengths of screen in 2-foot increments prior to, at interim periods of pumping, and immediately before the final pumping. Pumping methods may include using a centrifugal, submersible, or peristaltic pump and dedicated polyethylene tubing, using a Waterra™ positive displacement pump and dedicated polyethylene tubing, or other methods at the discretion of the field geologist.
- Water levels will be measured in each well to the nearest 0.01 foot prior to development.
- The wells will be developed until the water in the well is reasonably free of visible sediment (50 NTU if possible or until pH, temperature, and specific conductivity stabilize). A portable nephelometer will be used to make the turbidity measurement.
- Development water will be contained in and properly disposed of.

Following development, wells will be allowed to recover for at least 14 days before groundwater is purged and sampled. All monitoring well development will be performed or overseen by a field geologist and recorded in the field book.

# 5.0 Groundwater Sampling Procedures

## 5.1 Introduction

Procedures for obtaining samples of groundwater are described in this section. Groundwater samples will be collected using low-flow, low-stress purge and sampling methods.

Procedures for conducting aquifer conductivity testing are also described in this section. Aquifer conductivity testing will be done by using slug or pneumatic testing methods.

## 5.2 Groundwater Sampling

The number and frequency of the samples that will be collected for laboratory analysis from each well and the analytical parameters are listed in Table 3-1 in the SMP [AECOM, 2012].

The following method will be used to collect groundwater samples from monitoring wells:

### 5.2.1 Required Equipment and Supplies

- Field book
- Project plans
- PPE in accordance with the HASP
- Electronic oil/water interface probe
- Disposable polyethylene bailers and low-flow sampling pump
- Polypropylene rope
- Temperature, conductivity, and pH meter
- Turbidity meter
- Flow-through cell
- Decontamination supplies
- Peristaltic or submersible pump capable of achieving low-flow rates (i.e., 0.5 liters per minute or less)
- Plastic tubing
- Plastic sheeting
- PID
- Clear tape, duct tape
- Coolers and ice
- Laboratory sample bottles
- Federal Express labels

### 5.2.2 Groundwater Sampling Method

#### 5.2.2.1 Purging

- Prior to sampling, the static water level and thickness of any light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL) will be measured to the nearest 0.01 foot from the surveyed well elevation mark on the top of the PVC casing with a decontaminated oil/water interface probe. NAPL thickness will be confirmed using a clear bailer or a weighted string. The measurement will be recorded in the field book.
- The probe will be decontaminated between uses.
- Groundwater from the well will be purged until field parameters stabilize, up to three well volumes are removed, or 1 hour of continuous purging is performed. Field parameters are considered to be stable when three consecutive readings are within the stabilization criteria for that parameter. The stabilization criteria are as follows: 10% or below 10 NTUs for turbidity, 3% for conductivity and temperature, 0.1 unit for pH, and 10 mV for ORP. Purging will be conducted using the low-flow sampling technique specified by the United States Environmental Protection Agency (USEPA) Region 1 in its guidance document entitled “Low-Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells”.
- The flow rate measurement will be approximately 0.5 liter per minute or less.
- If a well goes dry before the required volumes are removed, it will be allowed to recover, purged a second time until dry or the required parameters are met, and sampled when it recovers sufficiently, in accordance with low-flow sampling protocol.
- Purge water will be managed and disposed of properly.
- Peristaltic pumps will not be used to collect VOC samples.

#### 5.2.2.2 Sampling

- Samples will be collected using dedicated 1/4- or 3/8-inch polyethylene tubing and/or bailers.
- Prior to filling the sample bottles, the temperature, pH, conductivity, dissolved oxygen, and oxidation reduction potential (ORP) will be measured within a flow-through cell. Turbidity will be measured with a hand-held turbidity meter. All measurements will be recorded in the field book.
- Three 40-ml VOA vials with Teflon™ lined septa and hydrochloric acid as a preservative will be filled for analysis of VOCs. The VOA vials will be filled to ensure that no bubbles are in the sample. Two 1-liter amber glass sample bottles for SVOC analysis and two 1-liter amber glass bottles for PCB analysis will then be filled followed by a 500 milliliter (mL) plastic bottle preserved with nitric acid for the total metals analysis. An opaque, 500 mL plastic bottle, with sodium hydroxide added for preservative to achieve a pH of >12 will then be filled for the analysis of total cyanide.
- The sample containers will be labeled, placed in a laboratory-supplied cooler, and packed on ice (to maintain a temperature of 4ºC). The cooler will be shipped overnight or delivered to the laboratory for analysis.
- COC procedures will be followed as outlined in the QAPP (Appendix I of the SMP).

- Well sampling data will be recorded on the Groundwater Sampling Record shown in Figure 5-1, or similar form.

# 6.0 Indoor Air Sampling

An indoor air evaluation will be performed at the Site to establish post remedy conditions. The work will be performed in accordance with *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* [DOH, 2006] and the USEPA document entitled *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, Office of Solid Waste and Emergency Response* [USEPA, 2002]. Methods will also be consistent with National Grid's Draft Standard Operating Procedure for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State. A draft Indoor Air Sampling Plan will be submitted to DEC for approval outlining the locations and frequency of the samples.

A pre-sampling survey and a product inventory will be conducted on the day of sampling. The surveys and inventories will be completed in accordance with the NYDOH guidance. The chemical inventory check will be performed at each location to document current conditions with the regard to the storage of chemicals. The previous surveys will be reviewed and any changes in conditions from the previous sampling will be noted. As with previous surveys, a screening for total volatiles will be conducted with a ppbRAE. An ambient air sample will be collected concurrently with the indoor air samples for each property.

The methods to be used for the collection of the indoor air samples and the ambient air sample are summarized as follows:

- The indoor air sample will be collected from a minimum of two-feet above the floor surface.
- The ambient air sample will be collected at a location determined to be upwind at time of sampling.
- The indoor air and ambient air samples will be collected as an integrated (not grab) sample. A laboratory-provided flow controller fixed to a negative pressure vessel (a batch certified clean 6-liter Summa™ canister) will be used to collect the integrated sample. The controller will be a fixed-rate flow controller and the approximate length of the sample time will be set by the laboratory. The flow controllers are fitted with an internal filter to prevent particulates from entering the Summa™ Canister.
- The sample time for the canisters will be set to 8 hours. The collection of the samples in 6-liter canisters over an approximate 8-hour interval will ensure that the samples are collected at the rate specified by the NYSDOH (less than 0.2 liters per minute).
- The sample tubing will be attached to the sampling canister with Swagelok™ fittings.
- Prior to sampling, the initial vacuum in each canister will be checked prior to use to ensure mechanical integrity of the canister. The initial vacuum should be approximately 30 inches mercury (in. Hg).
- To start sampling, the canister ball valve is opened and the initial time and vacuum is recorded.
- The final vacuum should be between 10 and 4 in. Hg, with a target of 5 in. of Hg. The initial and final vacuum in each canister will be recorded on the laboratory chain-of-custody form to be returned to the laboratory with the samples. The gauges provided with the canisters are

accurate only for “indication of change”, and are not sufficiently accurate to provide gauge-to-gauge comparisons. The final vacuum will also be measured in the laboratory.

- Following collection of the sample, the canister will be sealed by closing the ball valve and fitting on the canister inlet. The inlet will then be capped with a laboratory-provided threaded end cap.
- Following collection of the sample, the PID will be used to obtain a final reading from the probe assembly or tubing for the concentration of total organic vapors.
- Quality assurance and quality control samples will include one field duplicate, one trip blank, a laboratory blank and laboratory quality control samples as required by the analytical method.
- The site name, sample identification, canister number, canister certification number, sampler’s name, sample times and date will be recorded on a tag that is attached to each canister.
- The indoor air samples will be shipped overnight to a NY ELAP-certified laboratory for analysis.

The field sampling team will record all information regarding the sampling on field forms. Copies of the field forms that will be used are included as Figures 6-2 and 6-3. Information that will be recorded will include the following: sample identification, date and times of sample collection, identity of the field personnel, sampling methods and equipment, purge volumes and rates, tracer test results, and any other relevant observations made during the sampling. A NYSDOH indoor air quality questionnaire and building inventory form will also be filled out prior to indoor air sampling (Figure 6-4).

# 7.0 Air Monitoring

## 7.1 Introduction

Two types of air monitoring will be performed during the site investigation: 1) work zone monitoring for protection of the workers performing the site investigation, and 2) community air monitoring at the perimeter of the work site for protection of the local community.

## 7.2 Breathing Zone Air Monitoring During Subsurface Work and Sampling

Monitoring of air in the breathing zone within the work site will be conducted periodically during all subsurface work and sampling activities.

- An organic vapor meter (OVM) equipped with a PID will be used to monitor for VOCs or other organic vapors in the breathing zone and borehole, and to screen the samples.
- Additional air monitoring may be required as specified in the HASP (Appendix D of the SMP)..

The PID readings will be recorded in the field book and on the boring log during drilling activities. The procedure for the PID operation and calibration is included in the HASP. Note that equipment calibration will be performed as often as needed to account for changing conditions or instrument readings. The minimum frequency of calibration is specified in the HASP; more frequent calibration will be performed if spurious readings are observed or there are other problems with the instruments.

## 7.3 Community Air Monitoring

Community air monitoring requires real-time monitoring for VOCs, particulates (i.e., dust), and MGP-related odors at the downwind perimeter of each designated work area when certain activities are in progress at impacted sites. The community air monitoring is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels for community air monitoring require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, community air monitoring helps to confirm that work activities do not spread contamination off site through the air.

The procedures and action levels for community air monitoring are presented in the CAMP and in the HASP.

# 8.0 Field Instruments and Calibration

All field analytical equipment will be calibrated immediately prior to each day's use and more frequently if required. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. All instrument calibrations will be documented in the project field book and in an instrument calibration log. Records of all instrument calibration will be maintained by the Field Team Leader. Copies of all of the instrument manuals will be maintained on site by the Field Team Leader. All changes to instrumentation will be noted in the field log book.

The following field instruments will be used during the investigation:

- PID
- Particulate monitors
- Multi-parameter meter (pH, specific conductivity, dissolved oxygen, oxidation reduction, and temperature meter)
- Turbidity meter

## 8.1 Portable Photo-Ionization Detector (PID)

- The photo-ionization detector will be equipped with either a 10.2 or 10.6 eV lamp. In this configuration, the PID is capable of ionizing and detecting compounds that account for over 70% of the VOCs on the USEPA Target Compound List.
- Calibration must be performed at the beginning of each day of use with a standard calibration gas having a concentration of 100 parts per million of isobutylene. If the unit experiences abnormal perturbation or erratic readings, more frequent or additional calibration will be required.
- All calibration data must be recorded in the project field notebooks.
- A battery check must be completed at the beginning and end of each working day.
- All changes to the PID will be noted in the field notes (such as lamp or filter cleaning or replacement or change of instrument).

## 8.2 Multi-Parameter Meter

- Calibration of the meter (YSI or equivalent) must be performed at the start of each day of use, and after very high or low readings as required by this Plan, according to manufacturer's instructions.
- National Institute of Standards and Technology - traceable standard calibration solutions will be used (where applicable). At least one backup meter will also be present on-site in the event of a malfunction.
- The calibration data must be recorded in the project field book each time it is performed.

## 8.3 Turbidity Meter

The turbidity meter must be checked at the start of each day of use according to manufacturer's instructions.

# 9.0 Analytical Program

## 9.1 Environmental Sample Analyses

The laboratory samples for each media and the chemical analyses to be performed are summarized in Table 3-1 of the SMP.

### 9.1.1 Soil Analyses

The majority of the soil samples will be analyzed for the following parameters:

- VOC compounds by USEPA Method 8260B;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270C;

A subset (approximately 20%) of the total number of soil samples will be analyzed for an expanded list of the following parameters:

- Full TCL VOCs by USEPA Method 8260B;
- Full TCL SVOCs by USEPA Method 8270C;
- TAL Metals by USEPA Method 6000-7000 Series;
- Free Cyanide with extraction by USEPA Method 9013A and analysis by ASTM Method D4282-02 (microdiffusion);
- TCL Pesticides by USEPA Method 8081A;
- TCL Herbicides by USEPA Method 8151A; and
- PCBs (as Aroclors) by USEPA Method 8082.

### 9.1.2 Groundwater Analyses

Similar to soils, the majority of groundwater samples will be analyzed for the following parameters:

- VOC compounds by USEPA Method 8260B;
- SVOC compounds by USEPA Method 8270C.

A subset (approximately 20%) of the total number of groundwater samples will be analyzed for an expanded list of the following parameters:

- Full TCL VOCs by USEPA Method 8260B;
- Full TCL SVOCs by USEPA Method 8270C;
- TAL Metals by USEPA Method 6000-7000 Series;
- Total Cyanide by USEPA Method 9012;
- TCL Pesticides by USEPA Method 8081A;

- TCL Herbicides by USEPA Method 8151A; and
- PCBs (as Aroclors) by USEPA Method 8082.

### 9.1.3 Indoor Air/Ambient Air Analyses

The indoor air and ambient air samples will be analyzed for VOCs by USEPA Method TO-15 (including naphthalene). The indoor air samples will also be analyzed for helium by ASTM Method ASTM D-1945. In addition to the standard TO-15 list of compounds, several additional compounds will be analyzed for, including: 1,2,3-trimethyl benzene, 1-methylnaphthalene, 2-methylnaphthalene, tetramethylbenzene, indene, indane, thiophene , 2-methylpentane, isopentane, and 2,3-dimethylpentane.

### 9.1.4 Waste Characterization/Profiling

Sufficient samples (a minimum of two) will be collected during the investigation and analyzed for full RCRA Hazardous Characteristics testing to determine if materials exhibiting hazardous characteristics may be present at the site and to support waste disposal profiling purposes. The analyses to be performed may include, but not be limited to, the following, depending on the medium and the selected disposal facility:

- Total Metals by USEPA Method 6010B (Mercury 7470A);
- Total Petroleum Hydrocarbons (DRO and GRO) by USEPA Method 8015 modified;
- PCBs by USEPA Method 8082;
- TCLP ZHE Extraction by USEPA Method 1311;
- TCLP VOC by USEPA Method 8260B;
- TCLP SVOC by USEPA Method 8270C;
- TCLP RCRA Metals by USEPA Method 6010B (Mercury 7470A);
- Corrosivity by USEPA Method 9045C;
- Ignitability/Flashpoint by USEPA Method 1010A;
- Reactive Cyanide and Reactive Sulfide by USEPA SW-846 Chapter 7, Sections 7.3.3.2 and 7.3.4.2; and
- Total Organic Halogens – USEPA Method 9020B.

## 9.2 Field Quality Control Samples

Field quality control samples will be collected and analyzed to document the accuracy and precision of the samples. The quality control samples are described as follows:

- Trip Blank: One trip blank will accompany each shipment of samples for VOC analysis sent to the laboratory. The trip blank will be analyzed to test for any contaminants introduced while samples are being stored or transported to the laboratory. The trip blanks will be analyzed for volatiles only.
- Field Equipment Blanks: The purpose of the equipment blank is to detect any contamination from sampling equipment, cross-contamination from previously sampled locations, and

contamination caused by conditions at sampling locations (e.g., airborne contaminants). One equipment blank will be collected for every 20 samples per medium collected during sampling with non-disposable sampling equipment. The samples will be collected by pouring analyte-free water, prepared in the laboratory, over decontaminated sampling equipment and collecting it in sample jars. The blanks will be collected in the vicinity of a sample location. This field blank will be analyzed for VOCs, SVOCs, PCBs, total or free cyanide (depending if the blank is from groundwater or soil sampling equipment), and TAL metals.

- Field Duplicates: Field duplicates are collected to determine the precision of the soil samples collected. This is achieved by homogenizing soil (for non-VOC analyses) and splitting it evenly between separate sample jars. Duplicate samples will be collected and analyzed for VOC, SVOCs, PCBs, total or free cyanide (depending if the duplicate sample is from groundwater or soil), and TAL metals. The minimum required number of field duplicates is one for every 20 samples.
- Matrix Spikes, and Matrix Spike Duplicates: These samples are laboratory quality control samples and will be completed as part of the laboratory analytical batch quality control. These samples will be collected in the same manner as the field duplicates. Both the matrix spike and matrix spike duplicate will be collected at the same sample location.

## 9.3 Sample Location Numbering System

- Surface soil samples will be numbered consecutively beginning with SS19 (if applicable).
- Subsurface soil borings will be numbered consecutively beginning with SB240 (soil borings) or SHMW1 (monitoring well borings). Individual samples will also be designated with a depth code (see below).
- Monitoring wells will be numbered consecutively beginning with SHMW1.

## 9.4 Sample Identification

Each sample will be given a unique alphanumeric identifier in accordance with the following classification system:

**Table 9-1 Sample Identification**

| LL* | NN* | N-N | LL |
|---|---|---|---|
| Sample Type | Sample Number | Depth Code | QC Identifier |

| | | |
|---|---|---|
| Sample Type: | GW – Boring Groundwater Grab | MW – Monitoring Well |
| | SB – Soil Boring | SV – Soil Vapor |
| | SS – Surface Soil | IA – Indoor Air |
| | AMB – Ambient Air | |
| Sample Number: | Number referenced to a sample location map. | |
| Depth Code: | Depth in feet of sample interval (0-0.5, 2-4, 10-12, etc.) | |
| QC Identifier: | TB – Trip Blank | MS – Matrix Spike |

EB – Equipment Blank MSD–Matrix Spike Duplicate

MB – Matrix Blank

* L = Letter
* N = Number

Field duplicate samples will be assigned identifiers that do not allow the laboratory to distinguish them as field duplicates. Each sample container will be labeled prior to packing for shipment. The sample identifier, site name, date and time of sampling, and analytical parameters will be written on the label in waterproof ink and recorded in the field book.

## 9.5 Chain-of-Custody

- A Chain-of-Custody (COC) record (Figure 9-1 or similar) will accompany the sample containers during selection and preparation at the laboratory, during shipment to the field, and during return shipment to the laboratory.
- The COC will include the sample identities of each sample container and the analytical parameters for each, and will list the field personnel that collected the samples, preservation method, the project name and number, the name of the analytical laboratory that will receive the samples, and the method of sample shipment.
- If samples are split and sent to different laboratories, such as to a specialty laboratory for fingerprint analysis, a copy of the COC record will be sent with each sample shipment.
- The COC will be completed by field personnel as samples are collected and packed for shipment.
- Erroneous markings will be crossed-out with a single line and initialed by the author.
- The REMARKS space will be used to indicate if the sample is a matrix spike, matrix spike duplicate, or matrix duplicate.
- Trip and field blanks will be listed on separate rows.
- After the samples have been collected and sample information has been listed on the COC form, the method of shipment, the shipping cooler identification number(s), and the shipper airbill number will be entered on the COC.
- Finally, a member of the sampling team will write his/her signature, the date, and time on the first RELINQUISHED BY space.
- One copy of the COC will be retained by sampling personnel. The other copy and the original will be sealed in a plastic bag and taped inside the lid of the shipping cooler.
- Sample shipments will be refrigerated at 4˚C, typically by packing with bagged ice, to preserve the samples during shipment.
- After the shipping cooler is closed, custody seals provided by the laboratory will be affixed to the latch and across the front and back of the cooler lid, and signed by the person relinquishing the samples to the shipper.
- The seal will be covered with clear tape, and the cooler lid will be secured by wrapping with packing tape.
- The cooler will be relinquished to the shipper, typically an overnight carrier.

- The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Project Manager, and the samples will not be analyzed until directed to do so.
- The samples must be delivered to the laboratory within 48 hours of collection.

## 9.6 Sample Documentation

The field team leader will retain a copy of the COC, and, in addition, the field team leader will ensure that the following information about each sample is recorded in the field book:

- Sample identifier;
- Identification of sampled media (e.g., soil, sediment, groundwater);
- Sample location with respect to known reference point;
- Physical description of sample location;
- Field measurements, (e.g., pH, temperature, conductivity, and water levels);
- Date and time of collection;
- Sample collection method;
- Volume of groundwater purged before sampling;
- Number of sample containers;
- Analytical parameters;
- Preservatives used; and
- Shipping information:
  - Dates and method of sample shipments;
  - COC Record numbers;
  - Federal Express Air Bill numbers; and
  - Sample recipient (e.g., laboratory name).

# Figures

AECOM

Figure 4-1

# Boring/Well ID:_____

Page _____ of _____

| | | |
|---|---|---|
| Project Name: | Drilling Company: | Surface Comp: |
| Project Number: | Drilling Method: | Grout (bgs): |
| Date Pre-Cleared: | Rig Type: | Filter Pack (bgs): |
| Date Started Drilling: | Casing ID: | Riser (bgs): |
| Date Finished Drilling: | Water Level While Drilling (bgs): | Well Screen (bgs): |
| Logged By: | Total Depth of Boring (bgs): | Sump (bgs): |

(Note: bgs = below ground surface)

| Depth Range | Blow per 6 Inch | Re-covery ft/ft | PID | Lab Sample ID | USCS | Geologic Description Method:_____ |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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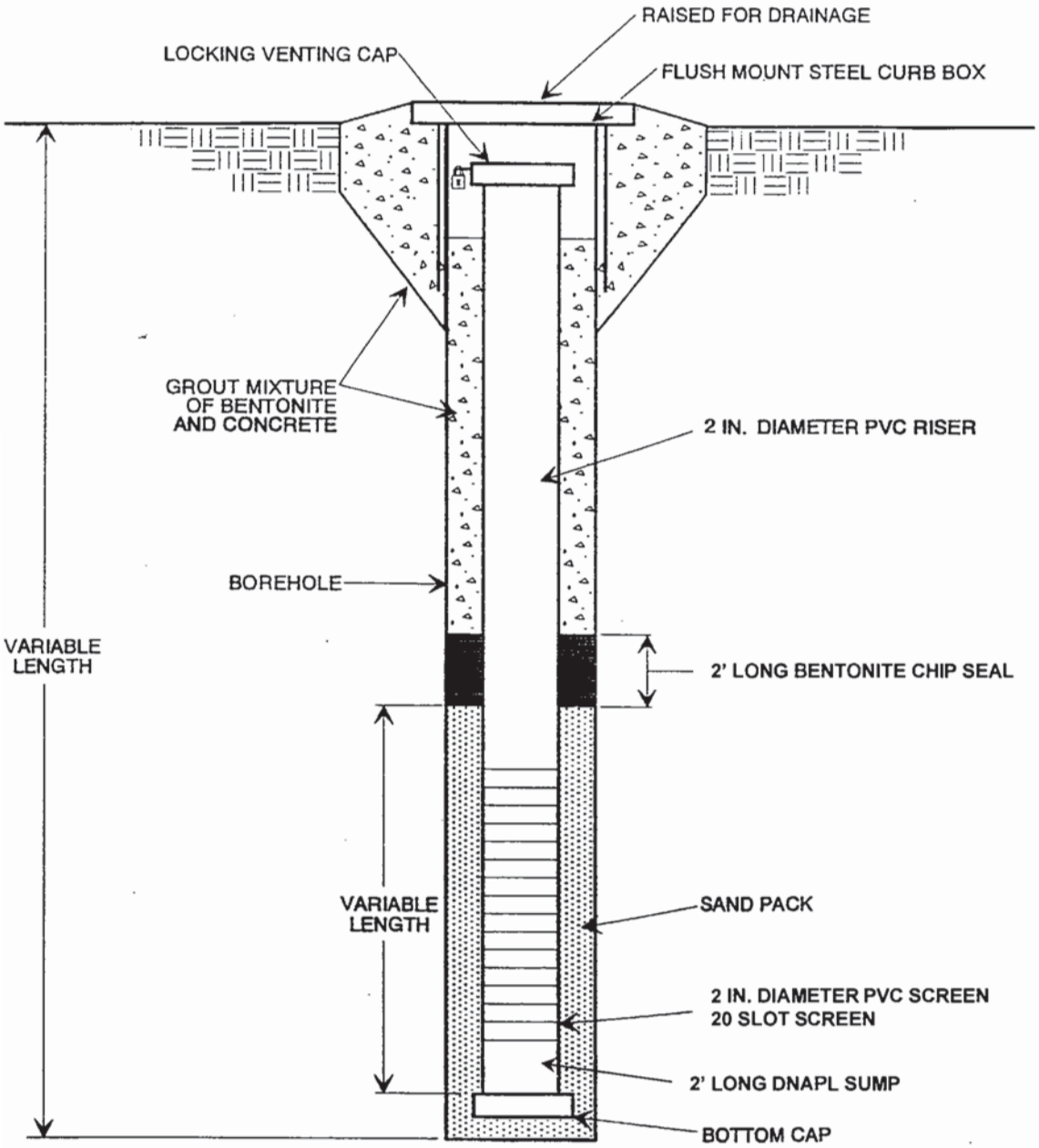
| | | | | | | |

| Lithology: | | Comments: |
|---|---|---|
| 1.) | 5.) | |
| 2.) | 6.) | |
| 3.) | 7.) | |
| 4.) | 8.) | |

**Figure 4-2**

# TYPICAL MONITORING WELL CROSS SECTION



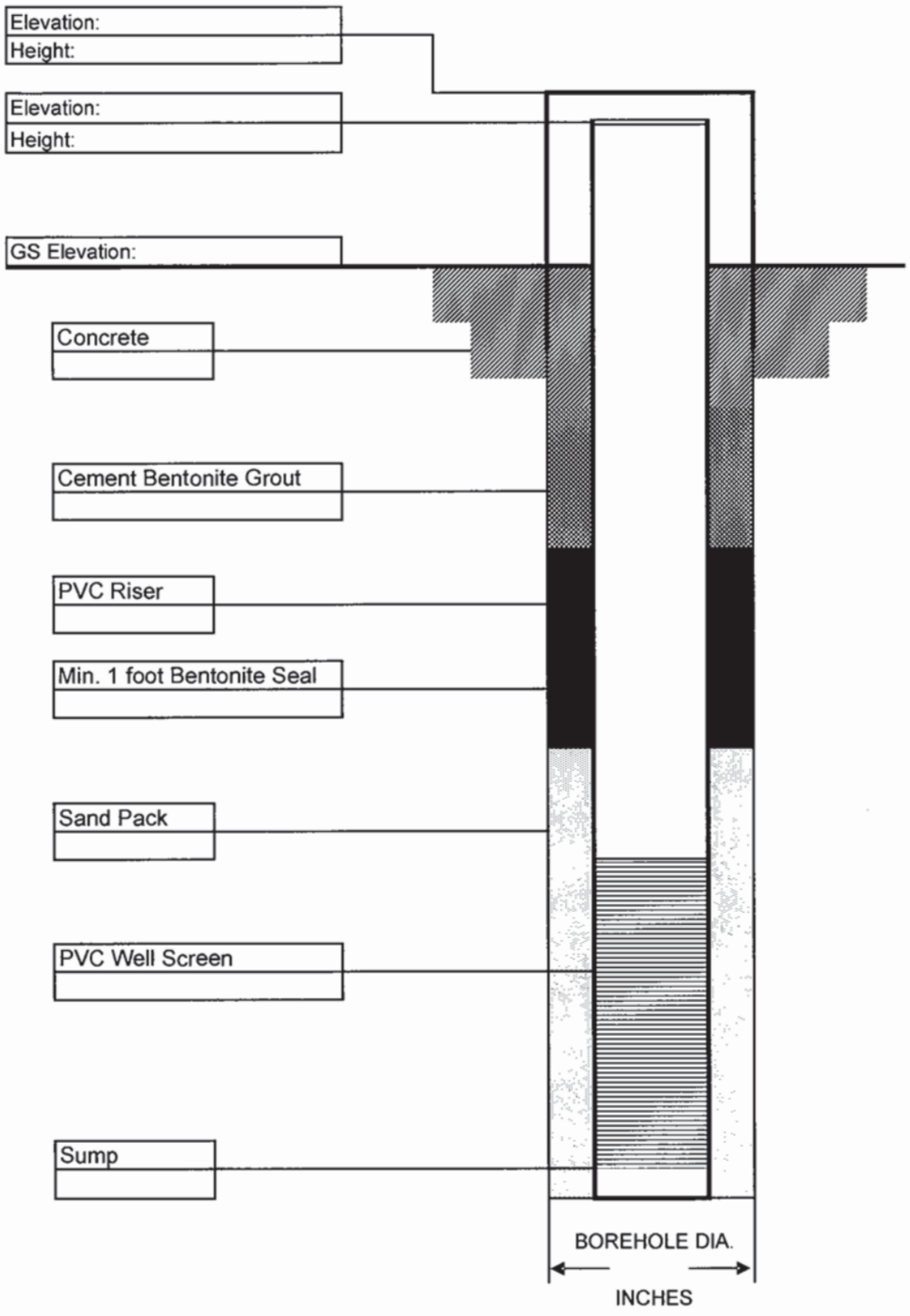

**NOT TO SCALE**

AECOM

**Figure 4-3**

# WELL CONSTRUCTION LOG

| | |
|---|---|
| WELL NO.: | FACILITY/SITE NAME: |
| PROJ. NO.: | CLIENT: |
| INSPECTOR: | DRILLING CONTACTOR: |
| DATE START: | DATE END: |
| LOCATION: | DRILLING METHOD: |




**PROTECTIVE CASING**
Material:
Diameter:
Depth BGS:
Water Tight Seal:
Flushmount:
Weep hole:

**GUARD POSTS**
Material:
No. & Size:

**SURFACE PAD**
Composition:
Size:

**RISER PIPE**
Material:
Schedule:
Joint Type:
O-ring:
Diameter:

**GROUT**
Amt cement:
Amt bentonite:
Amt water:
Tremied:
Interval:

**SEAL**
Material:
Type:
Amount Used:
Interval:

**FILTER PACK**
Material:
Brand Name:
Amount Used:
Grain Size Dist.:
Interval:
Tremied:

**SCREEN**
Material:
Diameter:
Slot Size & Type:
Interval BGS:

**SUMP**
Interval BGS:
Bottom Cap:

**BACKFILL PLUG**
Material:
Setup/Hydration Time:

AECOM

**Figure 5-1**

# LOW-STRESS GROUND WATER SAMPLING FORM

Project Number: _____
Project Name: _____
Date: _____
Weather: _____

Well ID: _____
Sample ID: _____
Permit Number: _____
Well Condition: _____

**PRE-PURGE INFORMATION**

Protective Casing Diameter (inch): _____
Inner Casing Diameter (inch): _____
Inner Casing Material: _____
Purge/Sample Method: _____
Pump Intake Setting* (feet): _____
PID/FID Reading of Well Headspace (ppm)
Before Cap Removal: _____
After Cap Removal: _____

Depth to Product* (feet): _____
Initial Depth to Water* (feet): _____
Product Thickness (feet): _____
Depth to Top of Screen* (feet): _____
Total Depth* (feet): _____
Water Column (feet): _____
Casing Volume (gal): _____
DTW After Pump Installed: _____

**PURGING/SAMPLING INFORMATION**

| Time | Rate (gpm) | Gallons Purged | pH (SI Units) | Conductivity (µohms/cm) | Temp (°C) | Dissolved Oxygen (mg/L) | Turbidity (NTU) | ORP (mv) | Depth to Water (ft) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
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Start Purge Date/Time: _____
End Purge Date/Time: _____
Total Volume Purged (gal): _____
Depth to Water After Purge* (feet): _____

Pre-Sample Depth to Water* (feet): _____
Start Sample Date/Time: _____
End Sample Date/Time: _____
Sampler Names: _____

Observations During Sampling (e.g. slow recharge, turbidity, odor, sheen, PID/FID readings):

_____

_____

_____

AECOM

**Figure 5-1**

# LOW-STRESS GROUND WATER SAMPLING FORM

**Sampling Sequence:**

| Analysis | Method | Container | Number of Bottles | Preservative | Comments |
|---|---|---|---|---|---|
| Volatile Organics | | | | | |
| Base/neutrals | | | | | |
| TPH | | | | | |
| Total Metals | | | | | |
| Dissolved Metals | | | | | |
| Cyanide | | | | | |
| Sulfate and Chloride | | | | | |
| Nitrate and Ammonia | | | | | |
| Preserved Inorganics | | | | | |
| | | | | | |
| | | | | | |
| Non-Preserved Inorg | | | | | |
| | | | | | |
| | | | | | |
| Bacteria | | | | | |
| | | | | | |
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| | | | | | |

Complete those analyses that apply.

Stabilization Ranges
Dissolved Oxygen: +/- 10%
Turbidity: +/- 10%
Specific Conductance: +/- 3%
Temperature: +/-3 %
pH: +/- 0.1 unit
Redox Potential: +/- 10mv

* = Measured from top of inner casing
DTW - Depth to Water
Thermo Environmental Instruments Model 580s OVM w/ 10.2 ev bulb
Water Levels Measured with an Electronic Water Level Meter
Field parameter meter calibration results are recorded in the field book.

Figure 5-2

AECOM

Well ID:

# HYDRAULIC CONDUCTIVITY TEST LOG

Client: _____ Date: _____ Time: Start _____ am/pm
Project No: _____ Finish _____ am/pm
Site Location: _____
Weather Conds: _____ Tester (s): _____

**1. WELL INFORMATION**

a. Ref. Point Elev. _____ e. Total Well Depth _____ i. Screen Length _____

b. Static Depth to GW _____ f. Gravel Pack Diameter _____ j. Geology of Screened Interval

c. Time of GW reading _____ g. Water Column Height _____ (e-b)

d. Static GW Elev.(Ho) _____ (a-b) h. Casing Diameter _____

**2. SLUG INFORMATION** (see back for volume calculation)

a. Slug Length _____

b. Slug Diameter _____

**3. DATA COLLECTION**

a. Method of Data Collection: Manual _____ (see back) Electronic _____

b.Transducer Information
- Make _____
- Model _____
- Serial Number _____
- Offset _____
- Linearity _____
- Scale _____
- Coefficient _____
- Diameter/Length _____

c. Data Logging Information
- Make _____
- Model _____
- Serial Number _____
- Mode _____ (linear or logarithmic)
- Ref. Point (designation) _____ (TOC, Ground Surface, actual el
- Ref. Point value (if elev.) _____

Positive numbers indicate increase or decrease in water level (circle one)

**4. HYDRAULIC TEST INFORMATION**

| Start Time | Test Type (rising, falling) | Electronic File Name | Comments | End Time |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**5. MANUAL WATER LEVEL READINGS** (as needed for control)

| Time | Location | Depth to Water | Time | Location | Depth to Water |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Signature _____ Date _____

Q:\mw97\sops\7720\hydraulicconductivitytestlog.xls, page 1

Figure 5-2

**6. EXPECTED WATER LEVEL DISPLACEMENT CALCULATION** (optional)

a. Diameter of Slug (in) _____
b. Length of Slug (ft) _____
c. Volume/Linear ft of Slug (gal/ft from chart) _____
d. Volume of Slug (gal) _____ (b*c)
e. Diameter of Well (in) _____
f. Volume/Linear ft of Well (gal/ft from chart) _____
g. Expected Change in Water Level _____ (d/f)

Note: Water column height (1-g from front page) should be greater than transducer length plus length of slug, unless well geometry prohibits.

| Volume / Linear Ft. of Pipe | | |
|---|---|---|
| Diam. (in) | Gallon | Liter |
| 0.25 | 0.0025 | 0.0097 |
| 0.375 | 0.0057 | 0.0217 |
| 0.5 | 0.0102 | 0.0386 |
| 0.75 | 0.0229 | 0.0869 |
| 1 | 0.0408 | 0.1544 |
| 1.25 | 0.0637 | 0.2413 |
| 1.5 | 0.0918 | 0.3475 |
| 2 | 0.1632 | 0.6178 |

**7. MANUAL WATER LEVEL MEASUREMENTS**

| Time (HH:MM) | Elapsed Time (min) | Depth to Water from TOC (ft) | Head, h (TOC - water depth) | h/Ho | Comments |
|---|---|---|---|---|---|
| | 0 | | | 1 | |
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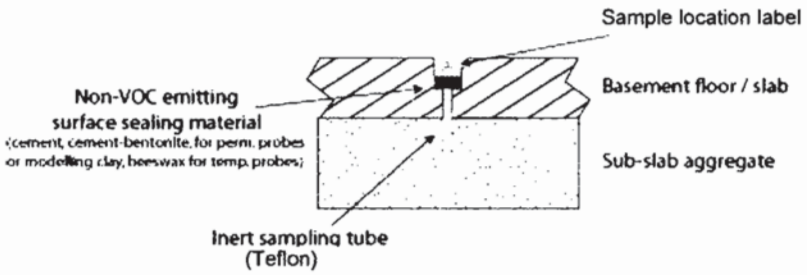
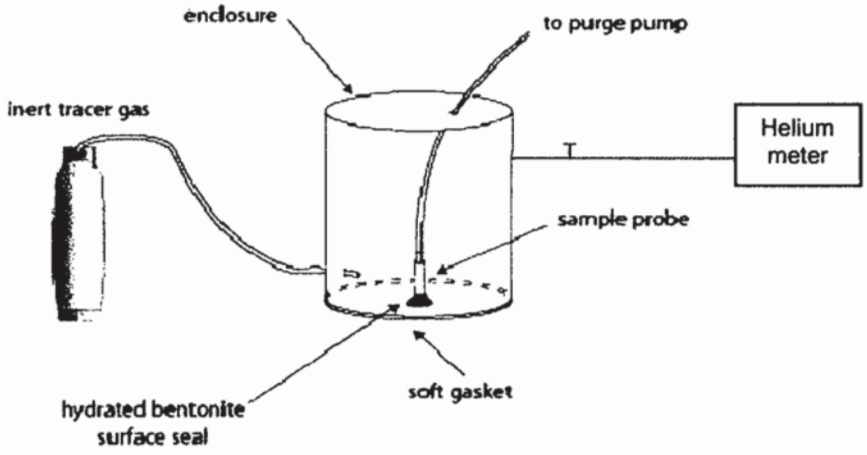



TYPICAL SUB-SLAB SAMPLING PROBE SET UP




TYPICAL HELIUM TRACER TEST SET UP

File: H:\186001\186005057.dwg Layout: HGURE 2-2 User: ustenberg Plotted: Sep 19, 2005 4:00pm Xref's: 186000001

AECOM

| | | | |
|---|---|---|---|
| | | | TYPICAL HELIUM TRACER AND SUB-SLAB |
| DATE. 9/5/06 | DRWN. MLR | | FIGURE 6-1 |

FIGURE 6-2

# Soil Gas Sampling Log Sheet
## Sample ID_____

Client:_____
Project Name:_____
Project Number:_____
Date:_____
Sampler:_____

Location:_____
Canister Number:_____
Core Diameter:_____ Core Material:_____
Core Length:_____
Magnehelic Measurement: (Positive number indicates higher pressure in Core)_____
Depth of Hand Auguring:_____
Soil Type:_____
Method of Probe Advancement:_____
Depth of Probe Advancement:_____ Length Probe is Retracted:_____

| Time of Purging | PID Reading | Time of Purging | PID Reading |
|---|---|---|---|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

Starting Time:_____ Starting Pressure:_____
Finish Time:_____ Final Pressure:_____

Room Dimensions: Length:_____ Width:_____ Height:_____

Comments:

# Indoor Air/Ambient Air Sample
## Sample ID_____

Location:_____
Sample ID:_____
Canister Number:_____
Starting Time:_____ Starting Pressure:_____
Finish Time:_____ Final Pressure:_____

Comments:

General Weather Conditions:_____
Chemical Inventory:

AECOM

FIGURE 6-3

# FIELD SAMPLING DATA SHEET
(One Sample Per Data Sheet)

GENERAL:

PROJECT: _____ DATE(S) SAMPLED: _____

SITE: _____

LOCATION: _____ OPERATOR: _____

PID INSTRUMENT MODEL NO.: _____ CALIBRATED BY: _____
CGI INSTRUMENT MODEL NO.: _____ CALIBRATED BY: _____

| TIME | CGI READING (%) | PID READING (ppm) | DRAGER TUBE (ppm) | LOCATION |
|---|---|---|---|---|
| 1) | | | | |
| 2) | | | | |
| 3) | | | | |
| 4) | | | | |
| 5) | | | | |
| 6) | | | | |
| 7) | | | | |
| 8) | | | | |
| 9) | | | | |
| 10) | | | | |

| CANISTER # | LOCATION | TIME |
|---|---|---|
| | | |
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| DATE/TIME | AMBIENT TEMPERATURE° | BAROMETRIC PRESSURE mm Hg | RELATIVE HUMIDITY % | COMMENTS |
|---|---|---|---|---|
| | | | | |

Data from meteorological station*

AECOM

Figure 6-4

**OSR-3**

**NEW YORK STATE DEPARTMENT OF HEALTH**
**DIVISION OF ENVIRONMENTAL HEALTH ASSESSMENT**
**BUREAU OF TOXIC SUBSTANCE ASSESSMENT**

**INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY**

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date Prepared _____

Preparer's Affiliation _____ Phone No. _____

1. **OCCUPANT**

Name: _____
Address: _____
County: _____

Home Phone No._____ Office Phone No _____

2. **OWNER OR LANDLORD:**
(If different than occupant)

Name: _____
Address: _____

_____

Phone No. _____

**A. <u>Building Construction Characteristics</u>**

Type (circle appropriate responses): Single Family Multiple Dwelling Commercial Public School

| | |
|---|---|
| Ranch | 2-Family |
| Raised Ranch | Duplex |
| Split Level | Apartment House _____ Units |
| Colonial | Number of floors _____ |
| Mobile Home | Other specify _____ |

Residence Age _____ General Description of Building Construction Materials _____

Is the building insulated? Yes / No How air tight is the building?_____

_____

_____

**OSR-3 (continued)**

**B. Basement construction characteristics (circle all that apply):**

1. Full basement, crawlspace, slab on grade, other _____
2. Basement floor: concrete, dirt, other _____
3. Concrete floor: unsealed, painted, covered, with _____
4. Foundation walls: poured concrete, block, laid up stone, other _____
5. The basement is: wet, damp, dry___ Sump present? y / n _____ Water in sump? y / n_____
6. The basement is: finished, unfinished _____
7. Identify potential soil vapor entry points (e.g., cracks, utility ports, etc.)

   _____
8. Describe how air tight the basement is _____

   _____

**C. HVAC (circle all that apply):**

1. The type of heating system(s) used in this residence is/are:

   | | |
   |---|---|
   | Hot Air Circulation | Heat Pump |
   | Hot Water Radiation | Unvented Kerosene Heater |
   | Steam Radiation | Wood stove |
   | Electric Baseboard | Other (specify)_____ |

2. The type(s) of fuel(s) used is/are: Natural Gas, Fuel Oil, Electric, Wood, Coal Solar

   Other (specify)_____
3. Is the heating system's power plant located in the basement or another area? _____
4. Is there air-conditioning? Yes / No Central Air or Window Units?

   Specify the location _____
5. Are there air distribution ducts present? Yes / No
6. Describe the supply and cold air return duct work in the basement including whether there is a cold air return, the tightness of duct joints

   _____

   _____

**OSR-3 (continued)**

**D. Potential Indoor Sources of Pollution**

1. Has the house ever had a fire? Yes / No
2. Is there an attached garage? Yes / No
3. Is a vehicle normally parked in the garage? Yes / No
4. Is there a kerosene heater present? Yes / No
5. Is there a workshop, hobby or craft area in the residence? Yes / No
6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.
7. Is there a kitchen exhaust fan? Yes / No Where is it vented? _____
8. Has the house ever been fumigated? If yes describe date, type and location of treatment.

_____

**E. Water and Sewage (Circle the appropriate response)**

**Source of Water**

Public Water Drilled Well Driven Well Dug Well Other (Specify)_____

**Water Well Specifications:**

Well Diameter _____ Grouted or Ungrouted _____

Well Depth _____ Type of Storage Tank _____

Depth to Bedrock _____ Size of Storage Tank _____

Feet of Casing _____ Describe type(s) of Treatment _____

_____

**Water Quality:**

Taste and/or odor problems? y / n If so, describe _____

How long has the taste and/or odor been present? _____

**Sewage Disposal:** Public Sewer Septic Tank Leach Field Other (Specify) _____

Distance from well to septic system_____ Type of septic tank additive _____

**OSR-3 (continued)**

**F. <u>Plan View</u>**

Draw a plan view sketch for each floor of the residence and if applicable, indicate air sampling locations, possible indoor air pollution sources and PID meter readings.

**OSR-3 (continued)**

**G. <u>Potential Outdoor Sources of Pollution</u>**

Draw a sketch of the area surrounding the residence being sampled. If applicable, provide information on the spill location (if known), potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system if applicable, and a qualifying statement to help locate the site on a topographical map.

Figure 6-4

**Household Products Inventory**

Occupant / residence _____

Investigator: _____ Date: _____

| **Product description (dispenser, size, manufacturer …)** | **VOC Ingredients** |
|---|---|
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# Chain of Custody Record

№ 0476

AECOM

| | |
|---|---|
| Project Name: | Project Number: |
| Send Report To: | Sampler (Print Name): |
| Address: | Sampler (Print Name): |
| | Shipment Method: |
| | Airbill Number: |
| Phone: | Laboratory Receiving: |
| Fax: | |

Analysis Requested

Page ____ of ____

Purchase Order #: _____

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | Number of Containers | Comments, Special Instructions, etc. | Lab Sample ID (to be completed by lab) |
|---|---|---|---|---|---|---|
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| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
|---|---|---|---|
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |

Sample Custodian Remarks (Completed By Laboratory):

| QA/QC Level | | Turnaround | | Sample Receipt | |
|---|---|---|---|---|---|
| Level I | ☐ | Routine | ☐ | Total # Containers Received? | |
| Level II | ☐ | 24 Hour | ☐ | COC Seals Present? | |
| Level III | ☐ | 1 Week | ☐ | COC Seals Intact? | |
| Other | ☐ | Other _____ | | Received Containers Intact? | |
| | | | | Temperature? | |

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

FIGURE 9-1

# Appendix K

# Quality Assurance Project Plan

May 2025

Prepared for:
**National Grid**
**Brooklyn, New York**

# Quality Assurance Project Plan (Appendix K of the Site Management Plan)

**Flatbush Station A&B Former Gas Holder Site**
**Brooklyn, New York**
**NYSDEC Site No.: 224061**
**Order on Consent Index #: A2-0552-0606**

AECOM
January 2012
**Document No.: 60625627**

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# List of Acronyms

| | |
|---|---|
| %R | Percent recovery |
| ASP | Analytical services program |
| ASTM | American Society for Testing Materials |
| CAMP | Community Air Monitoring Plan |
| CAR | Corrective Action Request |
| CLP | Contract laboratory program |
| COC | Chain of custody |
| CRDLs | Contract Required Detection Limits |
| CRQLs | Contract Required Quantitation Limits |
| DQOs | Data quality objectives |
| DUSR | Data Usability Summary Report |
| EDD | Electronic data deliverable |
| ELAP | Environmental Laboratory Accreditation Program |
| GC/MS | Gas Chromatography/Mass Spectroscopy |
| HASP | Health and safety plan |
| LIMS | Laboratory information management system |
| MDLs | Method detection limits |
| MGP | Manufactured gas plant |
| MS | Matrix spike |
| MSD | Matrix spike duplicate |
| NIST | National Institute of Standards and Technology |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSDOH | New York State Department of Health |
| PA | Preliminary assessment |
| PID | Photoionization detector |
| PQL | Practical quantitation limit |
| QA | Quality assurance |
| QAO | Quality assurance officer |
| QAPP | Quality Assurance Project Plan |
| QC | Quality control |
| RPD | Relative percent difference |
| SOPs | Standard operating procedures |

| | |
|---|---|
| SVOA | Semivolatile organic analysis |
| SVOCs | Semivolatile organic compounds |
| TCLP | Toxicity characteristics leaching procedure |
| USEPA | United States Environmental Protection Agency |
| VOA | Volatile organic analysis |
| VOCs | Volatile organic compounds |

# 1.0 Introduction

This Quality Assurance Project Plan (QAPP) details the protocols and procedures that will be followed during any ground intrusive and monitoring activities covered under the Site Management Plan [(SMP); AECOM, December 2011] for the Flatbush Station A&B Former Gas Holder Site (Site)located in Brooklyn, New York. The purpose of these protocols and procedures is to ensure that all project activities will be performed in a manner consistent with the data quality objectives (DQOs) established for the project and all data collected are precise, accurate, representative, comparable, and complete.

## 1.1 Project Description

This document is required as an element of the remedial program at the Site under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by the New York State Department of Environmental Conservation (NYSDEC). The Site was investigated in accordance with Order on Consent Index A2-0552-0606, Site Number 224061 [NYSDEC, 2007], which was executed on October 5, 2005. The Site location and layout is shown on Figures 1-1 and 1-2 of the SMP.

### 1.1.1 General

The Order on Consent required National Grid, to investigate contaminated media at the Site. For purposes of further discussion in this document, the term “Site” will comprise of portions of three parcels including Block 4827 Lots 24 and 30 (324 Winthrop Street), portion of Block 4828 Lot 21 (329 Clarkson Avenue), and Block 4828 Lot 22 (760 Parkside Avenue), a portion of Parkside Avenue, and a portion of Clarkson Avenue.

After completion of the investigation work described in the Site Characterization Work Plan [AECOM, 2011], some impacts were identified in the subsurface of the Site. This FSAP was developed as an appendix (Appendix H) to the SMP which was prepared to manage remaining contamination at the Site in perpetuity or until extinguishment of the Environmental Easement in accord with NYS Environmental Conservation Law (ECL) Article 71, Title 36.

This document was prepared by AECOM, on behalf of National Grid, in accord with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation [(DER-10); DEC, 2010] and the guidelines provided by NYSDEC.

## 1.2 Scope of Work

The scope of work covered under this QAPP includes but is not limited to:

- Underground utility work
- Surface/shallow subsurface soil sampling and analysis
- Soil boring advancement, subsurface soil sampling and analysis
- Excavation of test pits, soil sampling and analysis

- Monitoring well installation and development
- Groundwater sampling and analysis
- Indoor air and ambient air sampling and analysis
- Investigation-derived waste management
- Community air monitoring
- Site survey
- Data validation evaluation, and reporting

## 1.3 Data Quality Objectives

DQOs are qualitative and quantitative statements to ensure that data of known and appropriate quality are obtained during any activities. Data will be used to achieve the overall objectives of the project. These objectives are to:

- Identify potential residual Manufactured Gas Plant (MGP) contamination during any subsurface activity.
  - Data will identify MGP-related constituents in soil and groundwater.
  - Data will be collected using a systematic method to delineate the perimeter of MGP-related impacts.
  - Analytical methods will be of sufficient sensitivity that method detection limits (MDLs) and practical quantitation limits (PQLs) measure constituent concentrations at or below constituent NYSDEC guidance values.
- Perform, if necessary, an indoor air survey in accordance with NYS Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York. The DQOs for vapor intrusion data include the following items.
  - Data will identify MGP-related constituents in indoor air (if present).
  - Data will be collected using a systematic method to determine whether vapor intrusion of MGP-related impacts is occurring.
  - Analytical methods will be of sufficient sensitivity to meet a minimum PQL of at most one part per billion.

### 1.3.1 Data Quality Levels

There are five analytical levels of data quality which may be used to accomplish these objectives. They are typically designated as follows:

- Level I – Field screening or analysis using portable instruments, calibrated to non-compound specific standards
- Level II – Field analysis using portable instruments, calibrated to specific compounds
- Level III – Non-Contract Laboratory Program (CLP/ASP) laboratory methods
- Level IV – ASP-CLP Routine Analytical Services methods
- Level V – Non-standard analytical methods.

To meet the specific objectives of this project, Levels I and III data quality levels will be utilized.

#### 1.3.1.1 Level I – Field Screening Methods

These tests, which are quantitative and/or semi-quantitative, are classified as field screening evaluations, even though they typically are not used for characterization purposes.

Soil and soil headspace screening will be conducted using a photoionization detector (PID) to determine the soil boring interval(s) that will be submitted for analytical laboratory analysis.

In addition, as part of the Health and Safety Plan (HASP) and the Community Air Monitoring Plan (CAMP), worker safety and ambient air quality may be monitored using one or more of a variety of field screening tests. Applicable equipment may include but not be limited to: a PID, Draeger tubes, and personal monitors to test for volatile organic vapors, or a combustible gas indicator to test for explosive potential. Worker health and safety requirements are specified in the HASP.

#### 1.3.1.2 Level III – Non-Contract Laboratory Program (CLP/ASP) Laboratory Methods

Samples will be analyzed according to the required United States Environmental Protection Agency (USEPA) SW-846, ASTM, and USEPA Compendium air methods described in the most recent editions of the USEPA reference methods (see section 7.0). Data will be analyzed using Level III Non-Contract Laboratory Program (CLP/ASP) laboratory methods; however, the laboratory will provide Level IV data packages for all data including hazardous waste classification data. Laboratory data will be reported in the New York State Analytical Services Program (ASP) Category B deliverables format. This level of data quality will ensure the generation of legally and technically defensible data for project use. The laboratory performing the analysis of samples will be certified for the specific parameters pursuant to NYSDOH ELAP Certification program.

# 2.0 Project Organization

Any field activity will be completed for National Grid by an environmental contractor (the Contractor), who will arrange for analytical services and provide an onsite field representative to perform the oversight, soil logging, soil sampling, surveying, and groundwater sampling. The Contractor will also perform the data interpretation and reporting tasks.

Any field activity to be completed on behalf of the respective Property owner must require at least 15 day notification to National Grid and DEC.

Key contacts for this project are as follows:

***National Grid Project Manager:***

Name: Mike Quinlan
Address: 175 East Old Country Road, Hicksville, New York 11801
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Fax: (718) 963-5611
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***NYSDEC Project Manager:***

Name: John Miller
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# 3.0 Quality Assurance/Quality Control Objectives for Measurement of Data

## 3.1 Introduction

The quality assurance and quality control (QA/QC) objectives for all measurement data include precision, accuracy, representativeness, completeness, and comparability. These objectives are defined in following subsections. They are formulated to meet the requirements of the USEPA SW-846. The analytical methods and their Contract Required Quantitation Limits (CRQLs) and Contract Required Detection Limits (CRDLs) are provided in Section 7.

## 3.2 Precision

Precision is an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Specifically, it is a quantitative measurement of the variability of a group of measurements compared to their average value (USEPA, 1987). Precision is usually stated in terms of standard deviation, but other estimates such as the coefficient of variation (relative standard deviation), range (maximum value minus minimum value), relative range, and relative percent difference (RPD) are common.

For this Site, field sampling precision will be determined by analyzing coded duplicate samples (labeled so that the laboratory does not recognize them as duplicates) for the same parameters, and then, during data validation (Section 8), calculating the RPD for field duplicate sample results.

Analytical precision will be determined by the laboratory by calculating the RPD for the results of the analysis of internal QC duplicates and matrix spike duplicates. The formula for calculating RPD is as follows:

$$RPD = \frac{|V1 - V2|}{(V1 + V2)/2} \times 100$$

where:

RPD= Relative Percent Difference

V1, V2 = The two values to be compared

|V1 - V2| = The absolute value of the difference between the two values

(V1 + V2)/2 = The average of the two values

For soil samples, the data quality objectives for analytical precision, calculated as the RPD between duplicate analyses, is presented in Table 3-1.

The same is presented for groundwater in Table 3-2 and air samples in Table 3-3.

**Table 3-1 Quality Control Limits For Soil Samples**

| Analytical | Analytical Method [a] | Matrix Spike (MS) Compounds | Laboratory Accuracy and Precision | | | Surrogate Compounds | Surrogate Recovery (%) |
|---|---|---|---|---|---|---|---|
| | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | LCS [d] Recovery (%) | | |
| VOCs [e] | 8260B | 1,1-Dichloroethane | 77-139 | 20 | 50-150 | Toluene-d8 | 63-124 |
| | | Trichloroethene | 81-129 | 20 | 82-113 | Bromofluorobenzene | 50-133 |
| | | Benzene | 83-135 | 20 | 81-118 | 1,2-Dichloroethane-d4 | 54-142 |
| | | Toluene | 79-140 | 20 | 81-115 | | |
| | | Chlorobenzene | 80-141 | 20 | 83-114 | | |
| SVOCs [f] | 8270C | Phenol | 42-105 | 20 | 48-96 | Nitrobenzene-d5 | 28-110 |
| | | 2-Chlorophenol | 52-107 | 20 | 54-92 | 2-Fluorobiphenyl | 32-109 |
| | | 1,4-Dichlorobenzene | 40-101 | 20 | 57-86 | Terphenyl-d14 | 30-150 |
| | | N-Nitroso-di-n-propylamine | 63-97 | 20 | 49-99 | Phenol-d5 | 29-104 |
| | | 1,2,4-Trichlorobenzene | 42-98 | 20 | 57-93 | 2-Fluorophenol | 23-104 |
| | | 4-Chloro-3-methylphenol | 60-100 | 20 | 57-92 | 2,4,6-Tribromophenol | 24-112 |
| | | Acenaphthene | 65-100 | 20 | 52-97 | | |
| | | 4-Nitrophenol | 45-95 | 20 | 24-120 | | |
| | | 2,4-Dinitrotoluene | 56-104 | 20 | 61-101 | | |
| | | Pentachlorophenol | 33-111 | 20 | 32-102 | | |
| | | Pyrene | 49-120 | 20 | 53-103 | | |
| PCBs (as Aroclors) | 8082 | Aroclor-1016 | 55-128 | 20 | 67-121 | TCMX | 44-141 |
| | | Aroclor-1260 | 58-140 | 20 | 78-128 | DCB | 34-145 |

| Analytical | Analytical Method [a] | Matrix Spike (MS) Compounds | Laboratory Accuracy and Precision | | | Surrogate Compounds | Surrogate Recovery (%) |
|---|---|---|---|---|---|---|---|
| | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | LCS [d] Recovery (%) | | |
| Pesticides | 8081A | 4,4'-DDD | 35-165 | 20 | 86-133 | TCMX | 30-158 |
| | | 4,4'-DDE | 50-144 | 20 | 80-130 | DCB | 30-161 |
| | | 4,4'-DDT | 23-170 | 20 | 72-141 | | |
| | | Aldrin | 57-145 | 20 | 84-133 | | |
| | | alpha-BHC | 37-154 | 20 | 81-136 | | |
| | | beta-BHC | 51-161 | 20 | 83-132 | | |
| | | delta-BHC | 43-159 | 20 | 77-131 | | |
| | | gamma-BHC (Lindane) | 48-159 | 20 | 83-135 | | |
| | | alpha-Chlordane | 44-156 | 20 | 88-132 | | |
| | | gamma-Chlordane | 61-147 | 20 | 87-135 | | |
| Pesticides (cont.) | 8081A | Dieldrin | 41-154 | 20 | 81-129 | | |
| | | Endosulfan II | 52-151 | 20 | 85-132 | | |
| | | Endosulfan sulfate | 32-162 | 20 | 76-135 | | |
| | | Endrin | 31-165 | 20 | 82-134 | | |
| | | Endrin aldehyde | 48-152 | 20 | 85-134 | | |
| | | Endrin ketone | 70-141 | 20 | 87-132 | | |
| | | Heptachlor | 41-155 | 20 | 85-132 | | |
| | | Heptachlor epoxide | 44-160 | 20 | 86-132 | | |
| | | Methoxychlor | 44-163 | 20 | 82-137 | | |
| | | Toxaphene | 50-150 | 20 | 50-150 | | |

| Analytical | Analytical Method [a] | Matrix Spike (MS) Compounds | Laboratory Accuracy and Precision | | | Surrogate Compounds | Surrogate Recovery (%) |
|---|---|---|---|---|---|---|---|
| | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | LCS [d] Recovery (%) | | |
| Herbicides | 8151A | 2,4,5-TP (Silvex) | 47-128 | 20 | 47-128 | 2,4-DCAA | 50-130 |
| | | 2,4,5-T | 72-130 | 20 | 72-130 | | |
| | | 2,4-D | 55-122 | 20 | 55-122 | | |
| | | 2,4-DB | 75-125 | 20 | 75-125 | | |
| Inorganics [h] | 6010B | Inorganic Analyte | 75-125 [i] | 20 [j] | 80-120 | NA | NA |
| | 6020 | | 75-125 [i] | 20 [j] | 80-120 | NA | NA |
| | 7471A | | 75-125 [i] | 20 [j] | 80-120 | NA | NA |
| | ASTM D4282-02 (free cyanide) | | 75-125 [i] | 20 [j] | 90-110 | NA | NA |

Notes

(a) Analytical Methods: USEPA SW-846, 3rd edition, Revision 1, November 1990, any subsequent revisions shall supersede this information
(b) Matrix Spike/Matrix Spike Duplicate
(c) Relative Percent Difference
(d) Laboratory Control Sample
(e) Target Compound List Volatile Organic Compounds
(f) Target Compound List Semivolatile Organic Compounds
(g) Limits are advisory only
(h) Target Analyte List Inorganics (metals and cyanide)
(i) Matrix spike only
(j) Laboratory duplicate RPD
NA - Not Applicable

**Table 3-2 Quality Control Limits for Water Samples**

| Analytical | Analytical Method [a] | Matrix Spike Compounds | Laboratory Accuracy and Precision | | | Surrogate Compounds | Surrogate Recovery (%) |
|---|---|---|---|---|---|---|---|
| | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | LCS [d] Recovery (%) | | |
| VOCs [e] | 8260B | 1,1-Dichloroethane | 55-139 | 20 | 55-139 | Toluene-d8 | 83-117 |
| | | Trichloroethene | 55-138 | 20 | 61-138 | Bromofluorobenzene | 74-123 |
| | | Benzene | 85-121 | 20 | 66-125 | 1,2-Dichloroethane-d4 | 75-124 |
| | | Toluene | 83-123 | 20 | 68-121 | | |
| | | Chlorobenzene | 85-119 | 20 | 70-122 | | |
| SVOCs [f] | 8270C | Phenol | 11-48 | 20 | 10-100 | Nitrobenzene-d5 | 30-120 |
| | | 2-Chlorophenol | 35-99 | 20 | 41-91 | 2-Fluorobiphenyl | 35-111 |
| | | 1,4-Dichlorobenzene | 49-88 | 20 | 53-91 | Terphenyl-d14 | 26-135 |
| | | N-Nitroso-di-n-propylamine | 55-127 | 20 | 54-116 | Phenol-d5 | 30-77 |
| | | 1,2,4-Trichlorobenzene | 62-105 | 20 | 59-104 | 2-Fluorophenol | 30-78 |
| | | 4-Chloro-3-methylphenol | 12-125 | 20 | 46-97 | 2,4,6-Tribromophenol | 27-118 |
| | | Acenaphthene | 68-99 | 20 | 63-101 | | |
| | | 4-Nitrophenol | 10-89 | 20 | 10-78 | | |
| | | 2,4-Dinitrotoluene | 61-99 | 20 | 67-106 | | |
| | | Pentachlorophenol | 39-107 | 20 | 33-100 | | |
| | | Pyrene | 72-112 | 20 | 64-108 | | |
| PCBs (as Aroclors) | 8082 | Aroclor-1016 | 30-150 | 20 | 65-126 | TCMX | 42-133 |
| | | Aroclor-1260 | 36-147 | 20 | 76-131 | DCB | 30-141 |
| Pesticides | 8081A | 4,4'-DDD | 55-177 | 20 | 86-134 | TCMX | 30-150 |
| | | 4,4'-DDE | 54-126 | 20 | 89-126 | DCB | 45-131 |

| Analytical | Analytical Method [a] | Matrix Spike Compounds | Laboratory Accuracy and Precision | | | Surrogate Compounds | Surrogate Recovery (%) |
|---|---|---|---|---|---|---|---|
| | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | LCS [d] Recovery (%) | | |
| Pesticides (continued) | 8081A | 4,4'-DDT | 55-160 | 20 | 74-138 | | |
| | | Aldrin | 57-167 | 20 | 83-131 | | |
| | | alpha-BHC | 63-178 | 20 | 87-136 | | |
| | | beta-BHC | 50-150 | 20 | 88-131 | | |
| | | delta-BHC | 98-131 | 20 | 78-128 | | |
| | | gamma-BHC (Lindane) | 89-138 | 20 | 86-133 | | |
| | | alpha-Chlordane | 69-144 | 20 | 88-131 | | |
| | | gamma-Chlordane | 76-126 | 20 | 92-133 | | |
| Pesticides (cont.) | 8081A | Dieldrin | 72-136 | 20 | 81-132 | | |
| | | Endosulfan I | 84-127 | 20 | 91-132 | | |
| | | Endosulfan II | 79-138 | 20 | 90-129 | | |
| | | Endosulfan sulfate | 84-134 | 20 | 99-130 | | |
| | | Endrin | 75-143 | 20 | 87-130 | | |
| | | Endrin aldehyde | 62-160 | 20 | 95-133 | | |
| | | Endrin ketone | 87-135 | 20 | 90-130 | | |
| | | Heptachlor | 63-131 | 20 | 85-131 | | |
| | | Heptachlor epoxide | 82-125 | 20 | 89-132 | | |
| | | Methoxychlor | 76-161 | 20 | 88-139 | | |
| | | Toxaphene | 50-150 | 20 | 50-150 | | |
| Herbicides | 8151A | 2,4,5-TP (Silvex) | 48-140 | 20 | 48-140 | 2,4-DCAA | 45-140 |
| | | 2,4,5-T | 60-145 | 20 | 60-145 | | |

| Analytical | Analytical Method [a] | Matrix Spike Compounds | Laboratory Accuracy and Precision | | | Surrogate Compounds | Surrogate Recovery (%) |
|---|---|---|---|---|---|---|---|
| | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | LCS [d] Recovery (%) | | |
| Herbicides (continued) | 8151A | 2,4-D | 60-138 | 20 | 60-138 | | |
| | | 2,4-DB | 75-125 | 20 | 75-125 | | |
| Inorganics [h] | 6010B | Inorganic Analyte | 75-125 [i] | 20 [j] | 80-120 | NA | NA |
| | 6020 | | 75-125 [i] | 20 [j] | 80-120 | NA | NA |
| | 7470A | | 75-125 [i] | 20 [j] | 80-120 | NA | NA |
| | 9012 (cyanide) | | 75-125 [i] | 20 [j] | 80-120 | NA | NA |

Notes

(a) Analytical Methods: USEPA SW-846, 3rd edition, Revision 1, November 1990, any subsequent revisions shall supersede this information

(b) MS/MSD = Matrix Spike/Matrix Spike Duplicate

(c) RPD = Relative Percent Difference

(d) LCS = Laboratory Control Sample

(e) Target Compound List Volatile Organic Compounds

(f) Target Compound List Semivolatile Organic Compounds

(g) Limits are advisory only

(h) Target Analyte List Inorganics (metals and cyanide)

(i) Matrix spike only

(j) Laboratory duplicate RPD

NA - Not Applicable

**Table 3-3 Quality Control Limits for Air Samples**

| Analytical Parameter | Analytical Method [a] | Analyte Compounds | LCS [d] Recovery (%) | Duplicate RPD [c], [e] (%) | Laboratory Accuracy and Precision | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | Surrogate Compounds | Surrogate Recovery (%) |
| VOCs | TO-15 Mod. | Acetone | 60-140 | 25 | NA | NA | Toluene-d8 | 70-130 |
| | | Bromodichloromethane | 60-140 | 25 | | | Bromofluorobenzene | 70-130 |
| | | Butadiene, 1,3- | 60-140 | 25 | | | 1,2-Dichloroethane-d4 | 70-130 |
| | | Carbon Disulfide | 60-140 | 25 | | | | |
| | | Chloro-1-Propene, -3 (Allyl Chloride) | 60-140 | 25 | | | | |
| | | Chlorodibromomethane | 60-140 | 25 | | | | |
| | | Cumene | 60-140 | 25 | | | | |
| | | Dichloroethylene, Trans-1,2- | 60-140 | 25 | | | | |
| | | Dioxane, 1,4- | 60-140 | 25 | | | | |
| | | Hexane | 60-140 | 25 | | | | |
| | | Methyl Ethyl Ketone | 60-140 | 25 | | | | |
| | | Methyl Isobutyl Ketone | 60-140 | 25 | | | | |
| | | Methyl Tert-Butyl Ether (MTBE) | 60-140 | 25 | | | | |
| | | Naphthalene | 60-140 | 25 | | | | |
| | | Propylbenzene, N- | 60-140 | 25 | | | | |
| | | Tribromomethane (Bromoform) | 60-140 | 25 | | | | |
| | | Cyclohexane | 60-140 | 25 | | | | |
| | | 2-Hexanone | 60-140 | 25 | | | | |
| | | 4-Ethyltoluene | 60-140 | 25 | | | | |

| Analytical Parameter | Analytical Method [a] | Analyte Compounds | LCS [d] Recovery (%) | Duplicate RPD [c], [e] (%) | Laboratory Accuracy and Precision | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | Surrogate Compounds | Surrogate Recovery (%) |
| | | Ethanol | 60-140 | 25 | | | | |
| | | Heptane | 60-140 | 25 | | | | |
| | | 2-Methylpentane | 60-140 | 25 | | | | |
| | | Isopentane | 60-140 | 25 | | | | |
| | | 2,3-Dimethylpentane | 60-140 | 25 | | | | |
| | | 2,2,4-Trimethylpentane | 60-140 | 25 | | | | |
| | | Indene | 60-140 | 25 | | | | |
| | | Indan | 60-140 | 25 | | | | |
| | | Thiopene | 60-140 | 25 | | | | |
| | | 2-Propanol | 60-140 | 25 | | | | |
| | | Tetrahydrofuran | 60-140 | 25 | | | | |
| VOCs | TO-15 Mod. | Benzene | 70-130 | 25 | NA | NA | Toluene-d8 | 70-130 |
| | | Bromomethane | 70-130 | 25 | | | Bromofluorobenzene | 70-130 |
| | | Carbon Tetrachloride | 70-130 | 25 | | | 1,2-Dichloroethane-d4 | 70-130 |
| | | Chlorobenzene | 70-130 | 25 | | | | |
| | | Chloroethane | 70-130 | 25 | | | | |
| | | Chloroform | 70-130 | 25 | | | | |
| | | Dibromoethane, 1,2- (Ethylene Dibromide) | 70-130 | 25 | | | | |
| | | Dichlorobenzene, 1,2- | 70-130 | 25 | | | | |

| Analytical Parameter | Analytical Method [a] | Analyte Compounds | LCS [d] Recovery (%) | Duplicate RPD [c], [e] (%) | Laboratory Accuracy and Precision | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | Surrogate Compounds | Surrogate Recovery (%) |
| | | Dichlorobenzene, 1,3- | 70-130 | 25 | | | | |
| | | Dichlorobenzene, 1,4- | 70-130 | 25 | | | | |
| | | Dichlorodifluoromethane (Freon 12) | 70-130 | 25 | | | | |
| | | Dichloroethane, 1,1- | 70-130 | 25 | | | | |
| | | Dichloroethane, 1,2- | 70-130 | 25 | | | | |
| | | Dichloroethylene, 1,1- | 70-130 | 25 | | | | |
| | | Dichloroethylene, Cis-1,2- | 70-130 | 25 | | | | |
| | | Dichloromethane (Methylene Chloride) | 70-130 | 25 | | | | |
| | | Dichloropropane, 1,2- | 70-130 | 25 | | | | |
| | | Dichloropropene, Cis-1,3- | 70-130 | 25 | | | | |
| | | Dichloropropene, Trans-1,3- | 70-130 | 25 | | | | |
| | | 1,2-Dichloro-1,1,2,2,-tetrafluoroethane | 70-130 | 25 | | | | |
| | | Ethyl Benzene | 70-130 | 25 | | | | |
| | | Fluorotrichloromethane (Freon 11) | 70-130 | 25 | | | | |
| | | Methyl Chloride | 70-130 | 25 | | | | |
| | | Styrene | 70-130 | 25 | | | | |
| | | Tetrachloroethane, 1,1,2,2- | 70-130 | 25 | | | | |
| | | Tetrachloroethylene (PCE) | 70-130 | 25 | | | | |
| | | Toluene | 70-130 | 25 | | | | |

| Analytical Parameter | Analytical Method [a] | Analyte Compounds | LCS [d] Recovery (%) | Duplicate RPD [c], [e] (%) | Laboratory Accuracy and Precision | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | MS/MSD [b] Recovery (%) | MS/MSD RPD [c] (%) | Surrogate Compounds | Surrogate Recovery (%) |
| | | Trichloro-1,2,2-Trifluoroethane, 1,1,2- | 70-130 | 25 | | | | |
| | | Trichlorobenzene, 1,2,4- | 70-130 | 25 | | | | |
| VOCs | TO-15 Mod. | Trichloroethane, 1,1,1- | 70-130 | 25 | NA | NA | Toluene-d8 | 70-130 |
| | | Trichloroethane, 1,1,2- | 70-130 | 25 | | | Bromofluorobenzene | 70-130 |
| | | Trimethylbenzene, 1,3,5- | 70-130 | 25 | | | 1,2-Dichloroethane-d4 | 70-130 |
| | | Vinyl Chloride | 70-130 | 25 | | | | |
| | | m,p-xylene | 70-130 | 25 | | | | |
| | | o-xylene | 70-130 | 25 | | | | |
| | | Hexachlorobutadiene | 70-130 | 25 | | | | |
| | | alpha-chlorotoluene | 70-130 | 25 | | | | |
| Fixed Gas | ASTM D1945 Mod. | Helium | 75-125 | 30 | NA | NA | NA | NA |

Notes

(a) USEPA, 1999. Compendium Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared-Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). January 1999.

American Society of Testing Materials, 2003. D1945-03. Standard Test Method for Analysis of Natural Gas by Gas Chromatograph, 2003.

(b) Matrix Spike/Matrix Spike Duplicate

(c) Relative Percent Difference

(d) Laboratory Control Sample

(e) Laboratory duplicate RPD

NA - Not Applicable

## 3.3 Accuracy

Accuracy is a measure of the degree of agreement of a measured value with the true or expected value of the quantity of concern (Taylor, 1987), or the difference between a measured value and the true or accepted reference value. The accuracy of an analytical procedure is best determined by the analysis of a sample containing a known quantity of material, and is expressed as the percent of the known quantity which is recovered or measured. The recovery of a given analyte is dependent upon the sample matrix, method of analysis, and the specific compound or element being determined. The concentration of the analyte relative to the detection limit of the analytical method is also a major factor in determining the accuracy of the measurement. Concentrations of analytes which are close to the detection limits are less accurate because they are more affected by such factors as instrument "noise". Higher concentrations will not be as affected by instrument noise or other variables and thus will be more accurate.

Sampling accuracy may be determined through the assessment of the analytical results of field blanks and trip blanks for each sample set. Analytical accuracy is typically assessed by examining the percent recoveries of surrogate compounds that are added to each sample (organic analyses only), and the percent recoveries of matrix spike compounds added to selected samples and laboratory blanks. Additionally, initial and continuing calibrations must be established and be within method control limits. Instrument and method analytical accuracy can then be determined for any sample set.

Accuracy is normally measured as the percent recovery (%R) of a known amount of analyte, called a spike, added to a sample (matrix spike) or to a blank (blank spike). The %R is calculated as follows:

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where:

%R = Percent recovery
SSR = Spike sample result: concentration of analyte obtained by analyzing the sample with the spike added
SR = Sample result: the background value, i.e., the concentration of the analyte obtained by analyzing the sample
SA = Spiked analyte: concentration of the analyte spike added to the sample

The acceptance limits for accuracy for each parameter are presented in Tables 3-1, 3-2, and 3-3.

## 3.4 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of the sampling program (USEPA, 1987). Samples must be representative of the environmental media being sampled. Selection of sample locations and sampling procedures will incorporate consideration of obtaining the most representative sample possible.

Field and laboratory procedures will be performed in such a manner as to ensure, to the degree that is technically possible, that the data derived represents the in-place quality of the material sampled.

Every effort will be made to ensure that chemical compounds will not be introduced into the sample via sample containers, handling, and analysis. Decontamination of sampling devices and digging equipment will be performed between samples. Analysis of field blanks, trip blanks, and method blanks will also be performed to monitor for potential sample contamination from field and laboratory procedures.

The assessment of representativeness also must consider the degree of heterogeneity in the material from which the samples are collected. Sampling heterogeneity will be evaluated during data validation through the analysis of coded field duplicate samples. The analytical laboratory will also follow acceptable procedures to assure the samples are adequately homogenized prior to taking aliquots for analysis, so the reported results are representative of the sample received.

Chain-of-custody procedures will be followed to document that contamination of samples has not occurred during container preparation, shipment, and sampling. Details of blank, duplicate and chain-of-custody procedures are presented in Sections 4 and 5.

## 3.5 Completeness

Completeness is defined as the percentage of measurements made which are judged to be valid (USEPA, 1987). The QC objective for completeness is generation of valid data for at least 90 percent of the analyses requested. Completeness is defined as follows for all sample measurements:

$$\%C = \frac{V}{T} \times 100$$

where:

%C = Percent completeness
V = Number of measurements judged valid
T = Total number of measurements

## 3.6 Comparability

Comparability expresses the degree of confidence with which one data set can be compared to another (USEPA, 1987). The comparability of all data collected for this project will be ensured by:

- Using identified standard methods for both sampling and analysis phases of this project,
- Requiring traceability of all analytical standards and/or source materials to the USEPA or National Institute of Standards and Technology (NIST),
- Requiring that all calibrations be verified with an independently traceable standard from a source other than that used for calibration (if applicable),
- Using standard reporting units and reporting formats including the reporting of QC data,
- Performing a complete data validation on all of the analytical results, including the use of data qualifiers in all cases where appropriate,
- Requiring that all validation qualifiers be considered any time an analytical result is used for any purpose.

These steps will ensure all future users of either the data or the conclusions drawn from them will be able to judge the comparability of these data and conclusions.

# 4.0 Sampling Program

## 4.1 Introduction

The sampling program, if necessary, will provide data concerning the presence and the nature and extent of contamination of groundwater, soil, and air. This section presents sample collection procedures, sample container preparation procedures, sample preservation procedures, sample holding times, and field QC sample requirements.

## 4.2 Sample Collection

Soil, groundwater, and air samples may be collected at the Site. The location and frequency of sampling and the methods selected for field procedures and laboratory analysis are described in detail in the SMP.

## 4.3 Sample Container Preparation and Sample Preservation

All sample containers will be new and will meet the specifications required by the USEPA. Copies of the sample container QC analyses will be provided by the laboratory for each container lot used for sample collection. The containers will be labeled and the appropriate preservatives will be added. The container requirements are shown in Tables 4-1, 4-2, and 4-3.

Samples shall be preserved according to the preservation techniques given in Tables 4-1 through 4-3. Preservatives will be added to the sample bottles by the laboratory prior to their shipment in sufficient quantities to ensure that proper sample pH is met. Following sample collection, the sample bottles should be placed on ice in the shipping cooler, cooled to 4 ± 2 ºC with ice, and delivered to the laboratory within 48 hours of collection. Chain-of-custody (COC) procedures are described in Section 5.

## 4.4 Sample Holding Times

The sample holding times for organic and inorganic parameters are given in Tables 4-1 through 4-3 and must be in accordance with the NYSDEC ASP requirements. Holding times for Toxicity Characteristic Leaching Procedure (TCLP) samples are given in Table 4-4. The NYSDEC ASP holding times must be strictly adhered to by the laboratory. Any holding time exceedances must be reported to National Grid.

## 4.5 Field Quality Control Samples

To assess field sampling and decontamination performance, two types of "blanks" will be collected and submitted to the laboratory for analyses. In addition, the precision of field sampling procedures will be assessed by collecting coded field duplicates and matrix spike/matrix spike duplicates (MS/MSD). The blanks will include the following.

- Trip Blanks – A trip blank will be prepared before the sample containers are sent by the laboratory. The trip blank will consist of a 40-ml VOA vial containing distilled, deionized water, which accompanies the water sample bottles into the field and back to the laboratory. A trip

blank will be included with each shipment of water samples for volatiles analysis. The trip blank will be analyzed for volatile organic compounds to assess any contamination from sampling, transport, storage, and internal laboratory procedures.

- Rinseate Blanks – Rinseate blanks will be taken at a minimum frequency of one per 20 field samples per sample matrix. Rinseate blanks are used to determine the effectiveness of the decontamination procedures for sampling equipment. It is a sample of reagent water provided by the laboratory that has passed through a decontaminated bailer or other sampling apparatus. It is usually collected as a last step in the decontamination procedure, prior to taking an environmental sample. The rinseate blank may be analyzed for all or some of the parameters of interest.

The duplicates collected to assess field sampling/laboratory precision and sample homogeneity will consist of the following.

- Coded Field Duplicate – To determine the representativeness of the sampling methods, coded field duplicates will be collected. The samples are termed "coded" because they will be labeled in such a manner that the laboratory will not be able to determine that they are field duplicate samples. This will eliminate any possible bias that could arise. Field duplicates will be taken at a minimum frequency of one per 20 field samples per sample matrix.

- Matrix Spike/Matrix Spike Duplicate (MS/MSD) – MS/MSD samples (MS/MSD for organics; MS and laboratory duplicate for inorganics) will be collected at a frequency of one pair per 20 field samples. MS/MSD samples are used to assess the effect of the sample matrix on the recovery of target compounds or target analytes. The advisory acceptance limits for MS/MSD %R and RPDs are given in Tables 3-1 and 3-2.

**Table 4-1 Soil and Waste Sample Containerization and Holding Times**

| Analysis | Bottle Type | Preservation [(a)] | Holding Time [(b)] |
|---|---|---|---|
| Volatile Organic Compounds (VOCs) | Wide-mouth glass w/ Teflon lined cap | Cool to 4ºC | 10 days |
| Extractable Organic Compounds [(c)] | Wide-mouth glass w/ Teflon lined cap | Cool to 4ºC | 10 days* |
| Metals | Wide-mouth plastic or glass | Cool to 4ºC | 6 months, except mercury (26 days) |
| Cyanide | Wide-mouth plastic | Cool to 4ºC | 10 days |
| TCLP Organic Compounds | Wide-mouth glass w/ Teflon lined cap | Cool to 4ºC | See Table 4-5 |
| TCLP Metals | Wide-mouth plastic or glass | Cool to 4ºC | See Table 4-5 |
| Total Petroleum Hydrocarbons (TPH) | DRO: Clear glass<br>GRO: Clear glass | DRO: Cool to 4ºC<br>GRO: Cool to 4ºC | DRO: 7 days to extraction/40 days to analysis<br>GRO: 14 days |
| Corrosivity | Clear glass | None | Analyze ASAP |
| Ignitability | Clear glass | None | Analyze ASAP |
| Reactive Cyanide and Sulfide | Clear glass | None | Analyze ASAP |
| Total Organic Halogens | Amber glass | pH < 2 with $H_2SO_4$,<br>Cool to 4ºC,<br>Dark | 28 days |

Notes
(a) All samples to be preserved with ice during collection and transport
(b) Days from verified time of sample receipt (VTSR).
(c) Semivolatile organic compounds, PCBs, pesticides, herbicides.

* Sohxlet or sonication procedures for extraction and concentration of soil/waste samples for SVOCs must be completed within 5 days of VTSR. Sohxlet or sonication procedures for extraction and concentration of soil/sediment/waste samples for PCBs must be completed within 5 days of VTSR. Extracts of soil samples must be analyzed within 40 days of extraction.

**Table 4-2 Water Sample Containerization and Holding Times**

| Analysis | Bottle Type | Preservation [(a)] | Holding Time [(b)] |
|---|---|---|---|
| Volatile Organic Compounds (VOCs) | (2) 40 mL glass vial with Teflon septum | Cool to 4ºC | 10 days |
| Extractable Organic Compounds [(c)] | 1000 mL glass w/ Teflon-lined cap | Cool to 4ºC | 5 days* |
| Metals | 1000 mL plastic bottle | Nitric Acid to pH < 2<br>Cool to 4ºC | 6 months, except mercury (26 days) |
| Cyanide | 500 mL plastic bottle | NaOH to pH > 12<br>Cool to 4ºC | 10 days |

Notes

(a) All samples to be preserved in ice during collection and transport.

(b) Days from validated time of sample receipt (VTSR)

(c) Semivolatile organic compounds, PCBs, pesticides, herbicides

* Continuous liquid-liquid extraction is the required extraction for water samples for SVOCs. Continuous liquid-liquid extraction and concentration of water samples for SVOC analysis must begin within 5 days and be completed within 7 days of VTSR. Extracts of water samples must be analyzed within 40 days of extraction.

**Table 4-3 Soil Gas Sample Containerization and Holding Times**

| Analysis | Bottle Type | Preservation | Holding Time [(b)] |
|---|---|---|---|
| Volatile Organic Compounds (VOCs) | 6 L Summa® canister [(a)] | NA | 30 days |
| Fixed Gases (Helium) | 6 L Summa® canister [(a)] | NA | 30 days |

Notes

(a) Stainless steel SUMMA® canisters must be certified clean by the laboratory using TO-15 § 8.4.1. The canisters will be delivered to the field with a pressure of 28-30" Hg. Canisters received with a vacuum pressure less than 25" Hg will not be used.

(b) Days from date of sample collection. The holding time for the TO-15 analysis is 30 days. The holding time for an evacuated canister is 30 days. After 30 days, unused canisters must be exchanged for recently cleaned canisters.

**Table 4-4 TCLP [(a)] Sample Holding Times**

| Analytical Parameter | From: Sample Collection<br>To: TCLP Extraction* | From: TCLP Extraction<br>To: Preparative Extraction | From: Preparative Extraction<br>To: Determinative Analysis |
|---|---|---|---|
| Volatiles | 7 days | NA | 7 days |
| Semivolatiles | 5 days | 7 days | 40 days |
| PCBs (as Aroclors) | 5 days | 7 days | 40 days |
| Mercury | 5 days | NA | 28 days |
| Metals (except Mercury) | 180 days | NA | 180 days |

Notes:
NA - Not Applicable.
(a) Toxicity Characteristic Leaching Procedure.

*Times shown are from verified time of sample receipt (VSTR).

# 5.0 Sample Tracking and Custody

## 5.1 Introduction

This section presents sample custody procedures for both the field and laboratory. Implementation of proper custody procedures for samples collected in the field is the responsibility of field personnel. Both laboratory and field personnel involved in collection and transfer of samples will be trained as to the purpose and procedures for sample custody prior to implementation.

Evidence of sample traceability and integrity is provided by COC procedures. These procedures document the sample traceability from the selection and preparation of the sample containers by the laboratory, to sample collection, to sample shipment, to laboratory receipt and analysis. The sample custody flowchart is shown in Figure 5-1. A sample is considered to be in a person's custody if the sample is:

- In a person's possession,
- Maintained in view after possession is accepted and documented,
- Locked and tagged with Custody Seals so that no one can tamper with it after having been in physical custody,
- In a secured area which is restricted to authorized personnel.

## 5.2 Field Sample Custody

A COC record (Figure 5-2 or similar) accompanies the sample containers from selection and preparation at the laboratory, during shipment to the field for sample collection and preservation, and during the return to the laboratory. Triplicate copies of the COC must be completed for each sample set collected.

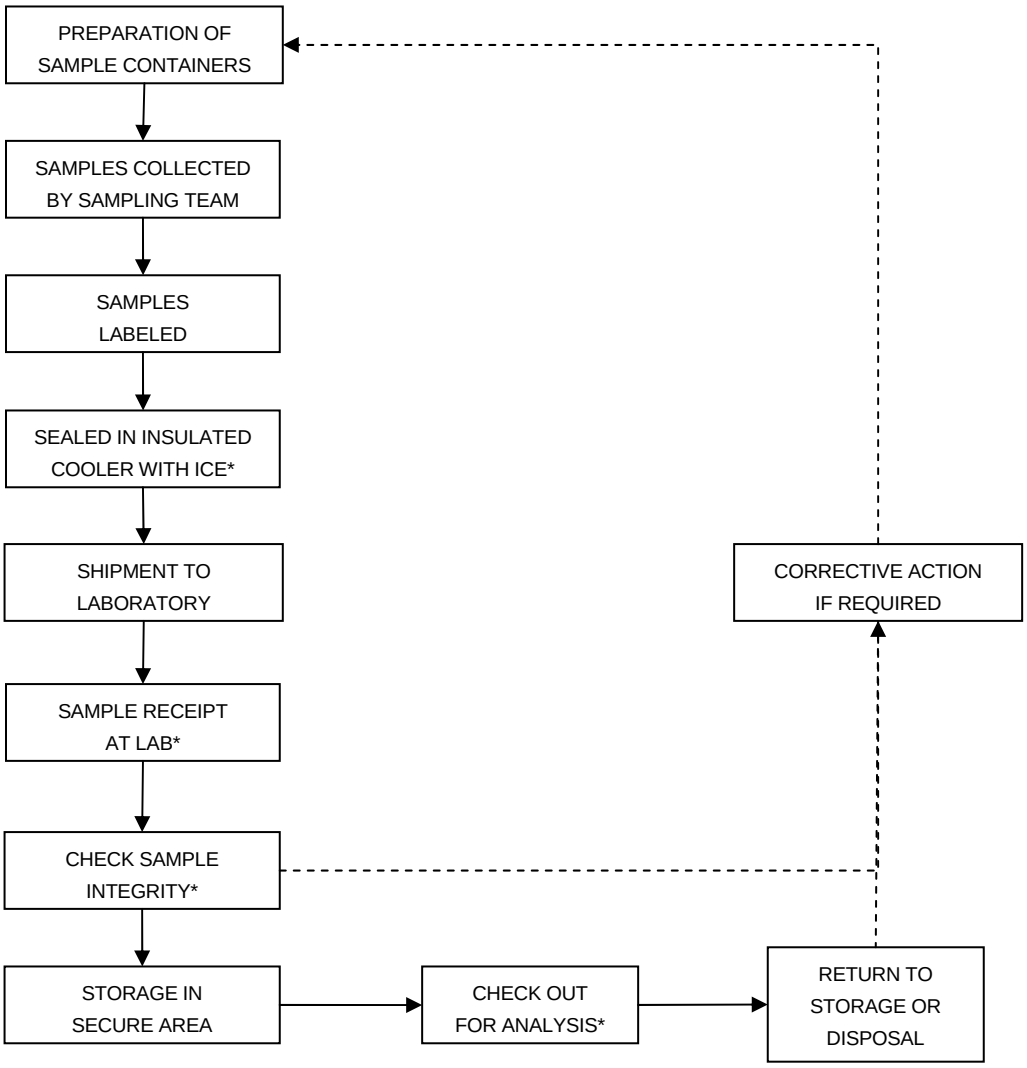
The COC lists the field personnel responsible for taking samples, the project name and number, the name of the analytical laboratory to which the samples are sent, and the method of sample shipment. The COC also lists a unique description of every sample bottle in the set. If samples are split and sent to different laboratories, a copy of the COC record will be sent with each sample.

The **REMARKS** space on the COC is used to indicate if the sample is a matrix spike, matrix spike duplicate, or any other sample information for the laboratory. Since they are not specific to any one sample point, trip and field blanks are indicated on separate rows. Once all bottles are properly accounted for on the form, a sampler will write his or her signature and the date and time on the first **RELINQUISHED BY** space. The sampler will also write the method of shipment, the shipping cooler identification number, and the shipper airbill number on the top of the COC. Errors in field records will be crossed out with a single line in ink and initialed by the author.

One copy of the COC is retained by sampling personnel and the other two copies are put into a sealable plastic bag and taped inside the lid of the shipping cooler. The cooler lid is closed, custody

seals provided by the laboratory are affixed to the latch and across the back and front of the cooler lid, and the person relinquishing the samples signs their name across the seal. The seal is taped, and the cooler is wrapped tightly with clear packing tape. It is then relinquished by field personnel to personnel responsible for shipment, typically an overnight carrier. The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Project Manager, and the sample(s) will not be analyzed.

**Figure 5-1 Sample Custody Flowdown**




*Requires Sign-Off On Chain-Of-Custody.

**Figure 5-2 Chain-Of-Custody Record**

## CHAIN OF CUSTODY RECORD

Client Name | Purchase Order | Analyses Requested | Turnaround Time | Compliance Monitoring

Address | Phone/Fax # | Standard: Other: | Yes:

City | State | Zip | Report Attention: | Rush: | No:

Sampled by: | Signature: | 24 Hr ____ | Lab Use Only

48 Hr ____ | Sub-Sample

Remarks | pH <2 >12

| Date Sampled | Time Sampled | Sample Type * | Sample Identification | Preservative* See Key Below | Number of Containers | | |

## 5.3 Laboratory Sample Custody

The Project Manager or Field Team Leader will notify the laboratory of upcoming field sampling activities and the subsequent shipment of samples to the laboratory. This notification will include information concerning the number and type of samples to be shipped as well as the anticipated date of arrival.

The following laboratory sample custody procedures will be used:

- The laboratory will designate a sample custodian who will be responsible for maintaining custody of the samples and for maintaining all associated records documenting that custody.

- Upon receipt of the samples, the custodian will check cooler temperature, and check the original COC documents and compare them with the labeled contents of each sample container for correctness and traceability. The sample custodian will sign the COC record and record the date and time received.

- Care will be exercised to annotate any labeling or descriptive errors. In the event of documentation or sample integrity issues, the laboratory will immediately contact the Project Manager or Field Team Leader as part of the corrective action process. A qualitative assessment of each sample container will be performed to note any anomalies, such as broken or leaking bottles. This assessment will be recorded as part of the incoming COC procedure.

- The soil, water, and air samples will be stored in a secured area until analyses commence, at a temperature of approximately 4 ± 2 ˚C if required.

- A laboratory tracking record will accompany the sample or sample fraction through final analysis for control.

A copy of the tracking record will accompany the laboratory report and will become a permanent part of the project records.

# 6.0 Calibration Procedures

## 6.1 Field Instruments

All field analytical equipment will be calibrated immediately prior to each day's use. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. Records of all instrument calibration will be maintained by the Field Team Leader. Copies of all the instrument manuals will be maintained onsite by the Field Team Leader.

Calibration procedures for instruments used for monitoring health and safety hazards (e.g., photoionization detector [PID] and explosimeter) are provided in the HASP. More frequent calibration may be needed depending on conditions encountered in the field.

## 6.2 Laboratory Instruments

The laboratory will follow all calibration procedures and schedules as specified in the sections of the USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods given in Section 7.

# 7.0 Analytical Procedures

## 7.1 Introduction

Soil, water, and waste samples will be analyzed according to the USEPA SW-846 "*Test Methods for Evaluating Solid Waste*," November 1986, 3rd edition and subsequent updates. Air and soil gas samples will be analyzed according to the USEPA Compendium Method TO-15, *Determination of VOCs in Air Collected in Specially Prepared-Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*, January 1999 and helium (fixed gas) analyses will be performed using American Society for Testing Materials (ASTM), Method 1945 modified. The methods to be used for the laboratory analysis of water and soil samples are presented in Tables 7-1 and 7-2. The soil gas and ambient air samples will be analyzed by USEPA Method TO-15 as presented in Table 7-3. These methods were selected because they attain the quantitation limits and DQOs required by the project, which are compiled on Tables 7-1 through 7-3. All analytical analysis will be conducted at an ELAP certified laboratory as per Section 1.3.1.2.

**Table 7-1 Project Quantitation Limits for Soil and Water**

| CAS No. | Analysis/Compound | Method | Quantitation Limits | | State of New York Standards | |
|---|---|---|---|---|---|---|
| | | | Water (µg/L) | Soil (µg/kg) | Water [a] (µg/L) | Soil [b] (µg/kg) |
| **Volatile Organics** | | | | | | |
| 71-55-6 | 1,1,1-Trichloroethane | SW8260B | 5 | 5 | 5 | 800 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | SW8260B | 5 | 5 | 5 | 600 |
| 79-00-5 | 1,1,2-Trichloroethane | SW8260B | 5 | 5 | 1 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethane | SW8260B | 5 | 5 | 5 | |
| 75-34-3 | 1,1-Dichloroethane | SW8260B | 5 | 5 | 5 | 200 |
| 75-35-4 | 1,1-Dichloroethene | SW8260B | 5 | 5 | 5 | 400 |
| 120-82-1 | 1,2,4-Trichlorobenzene | SW8260B | 5 | 5 | 5 | 3400 |
| 96-12-8 | 1,2-Dibromo-3-Chloropropane | SW8260B | 5 | 5 | 0.04 | |
| 106-93-4 | 1,2-Dibromoethane | SW8260B | 5 | 5 | 0.0006 | |
| 95-50-1 | 1,2-Dichlorobenzene | SW8260B | 5 | 5 | 3 | 7900 |
| 107-06-2 | 1,2-Dichloroethane | SW8260B | 5 | 5 | 0.6 | 100 |
| 78-87-5 | 1,2-Dichloropropane | SW8260B | 5 | 5 | 1 | |
| 541-73-1 | 1,3-Dichlorobenzene | SW8260B | 5 | 5 | 3 | 1600 |
| 106-46-7 | 1,4-Dichlorobenzene | SW8260B | 5 | 5 | 3 | 8500 |
| 78-93-3 | 2-Butanone | SW8260B | 25 | 25 | 50 | 300 |
| 591-78-6 | 2-Hexanone | SW8260B | 25 | 25 | 50 | |
| 108-10-1 | 4-Methyl-2-Pentanone | SW8260B | 25 | 25 | | 1000 |
| 67-64-1 | Acetone | SW8260B | 25 | 25 | 50 | 200 |
| 71-43-2 | Benzene | SW8260B | 5 | 5 | 1 | 60 |
| 75-27-4 | Bromodichloromethane | SW8260B | 5 | 5 | 50 | |
| 75-25-2 | Bromoform | SW8260B | 5 | 5 | 50 | |
| 74-83-9 | Bromomethane | SW8260B | 5 | 5 | 5 | |
| 75-15-0 | Carbon Disulfide | SW8260B | 5 | 5 | | 2700 |
| 56-23-5 | Carbon Tetrachloride | SW8260B | 5 | 5 | 5 | 600 |
| 108-90-7 | Chlorobenzene | SW8260B | 5 | 5 | 5 | 1700 |
| 75-00-3 | Chloroethane | SW8260B | 5 | 5 | 5 | 1900 |
| 67-66-3 | Chloroform | SW8260B | 5 | 5 | 7 | 300 |
| 74-87-3 | Chloromethane | SW8260B | 5 | 5 | 5 | |
| 156-59-2 | cis-1,2-Dichloroethene | SW8260B | 5 | 5 | 5 | |
| 10061-01-5 | cis-1,3-Dichloropropene | SW8260B | 5 | 5 | 0.4 | |
| 110-82-7 | Cyclohexane | SW8260B | 5 | 5 | | |
| 124-48-1 | Dibromochloromethane | SW8260B | 5 | 5 | 50 | |
| 75-71-8 | Dichlorodifluoromethane | SW8260B | 5 | 5 | 5 | |
| 100-41-4 | Ethyl Benzene | SW8260B | 5 | 5 | 5 | 5500 |
| 98-82-8 | Isopropylbenzene | SW8260B | 5 | 5 | 5 | |
| 79-20-9 | Methyl Acetate | SW8260B | 5 | 5 | | |
| 1634-04-4 | Methyl tert-butyl Ether | SW8260B | 5 | 5 | | |
| 108-87-2 | Methylcyclohexane | SW8260B | 5 | 5 | | |
| 75-09-2 | Methylene Chloride | SW8260B | 5 | 5 | 5 | 100 |
| 100-42-5 | Styrene | SW8260B | 5 | 5 | 930 | |
| 10061-02-6 | t-1,3-Dichloropropene | SW8260B | 5 | 5 | 0.4 | |

| CAS No. | Analysis/Compound | Method | Quantitation Limits | | State of New York Standards | |
|---|---|---|---|---|---|---|
| | | | Water (µg/L) | Soil (µg/kg) | Water [a] (µg/L) | Soil [b] (µg/kg) |
| 127-18-4 | Tetrachloroethene | SW8260B | 5 | 5 | 5 | 1400 |
| 108-88-3 | Toluene | SW8260B | 5 | 5 | 5 | 1500 |
| 156-60-5 | trans-1,2-Dichloroethene | SW8260B | 5 | 5 | 5 | 300 |
| 79-01-6 | Trichloroethene | SW8260B | 5 | 5 | 5 | 700 |
| 75-69-4 | Trichlorofluoromethane | SW8260B | 5 | 5 | 5 | |
| **Volatile Organics (continued)** | | | | | | |
| 75-01-4 | Vinyl Chloride | SW8260B | 5 | 5 | 2 | 200 |
| 136777-61-2 | m/p-Xylenes | SW8260B | 10 | 10 | 5 | 1200 |
| 95-47-6 | o-Xylene | SW8260B | 5 | 5 | 5 | |
| **Semivolatile Organics** | | | | | | |
| 92-52-4 | 1',1-Biphenyl | SW8270C | 10 | 330 | 5 | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | SW8270C | 10 | 330 | 5 | |
| 95-95-4 | 2,4,5-Trichlorophenol | SW8270C | 10 | 330 | | 100 |
| 88-06-2 | 2,4,6-Trichlorophenol | SW8270C | 10 | 330 | | |
| 120-83-2 | 2,4-Dichlorophenol | SW8270C | 10 | 330 | | 400 |
| 105-67-9 | 2,4-Dimethylphenol | SW8270C | 10 | 330 | | |
| 51-28-5 | 2,4-Dinitrophenol | SW8270C | 10 | 330 | | 200 |
| 121-14-2 | 2,4-Dinitrotoluene | SW8270C | 10 | 330 | 5 | |
| 606-20-2 | 2,6-Dinitrotoluene | SW8270C | 10 | 330 | 5 | 1000 |
| 91-58-7 | 2-Chloronaphthalene | SW8270C | 10 | 330 | 10 | |
| 95-57-8 | 2-Chlorophenol | SW8270C | 10 | 330 | | 800 |
| 91-57-6 | 2-Methylnaphthalene | SW8270C | 10 | 330 | | 36400 |
| 95-48-7 | 2-Methylphenol | SW8270C | 10 | 330 | | 100 |
| 88-74-4 | 2-Nitroaniline | SW8270C | 10 | 330 | 5 | 430 |
| 88-75-5 | 2-Nitrophenol | SW8270C | 10 | 330 | | 330 |
| 91-94-1 | 3,3'-Dichlorobenzidine | SW8270C | 10 | 330 | 5 | n/a |
| 65794-96-9 | 3+4-Methylphenols | SW8270C | 10 | 330 | | 900 |
| 99-09-2 | 3-Nitroaniline | SW8270C | 10 | 330 | 5 | 500 |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | SW8270C | 10 | 330 | | |
| 101-55-3 | 4-Bromophenyl-phenyl ether | SW8270C | 10 | 330 | | |
| 59-50-7 | 4-Chloro-3-methylphenol | SW8270C | 10 | 330 | | 240 |
| 106-47-8 | 4-Chloroaniline | SW8270C | 10 | 330 | 5 | 220 |
| 7005-72-3 | 4-Chlorophenyl-phenyl ether | SW8270C | 10 | 330 | | |
| 100-01-6 | 4-Nitroaniline | SW8270C | 10 | 330 | 5 | |
| 100-02-7 | 4-Nitrophenol | SW8270C | 10 | 330 | | 100 |
| 83-32-9 | Acenaphthene | SW8270C | 10 | 330 | 20 | 50000 |
| 208-96-8 | Acenaphthylene | SW8270C | 10 | 330 | | 41000 |
| 98-86-2 | Acetophenone | SW8270C | 10 | 330 | | |
| 120-12-7 | Anthracene | SW8270C | 10 | 330 | 50 | 50000 |
| 1912-24-9 | Atrazine | SW8270C | 10 | 330 | 7.5 | |
| 56-55-3 | Benzo(a)anthracene | SW8270C | 10 | 330 | 0.002 | 224 |
| 50-32-8 | Benzo(a)pyrene | SW8270C | 10 | 330 | ND | 61 |
| 205-99-2 | Benzo(b)fluoranthene | SW8270C | 10 | 330 | 0.002 | 1100 |
| 191-24-2 | Benzo(g,h,i)perylene | SW8270C | 10 | 330 | | 50000 |

| CAS No. | Analysis/Compound | Method | Quantitation Limits | | State of New York Standards | |
|---|---|---|---|---|---|---|
| | | | Water (µg/L) | Soil (µg/kg) | Water [a] (µg/L) | Soil [b] (µg/kg) |
| 207-08-9 | Benzo(k)fluoranthene | SW8270C | 10 | 330 | 0.002 | 1100 |
| 100-52-7 | Benzaldehyde | SW8270C | 10 | 330 | | |
| 111-91-1 | bis(2-Chloroethoxy)methane | SW8270C | 10 | 330 | 5 | |
| 111-44-4 | bis(2-Chloroethyl)ether | SW8270C | 10 | 330 | 1 | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | SW8270C | 10 | 330 | 5 | 50000 |
| 85-68-7 | Butylbenzylphthalate | SW8270C | 10 | 330 | 50 | 50000 |
| 105-60-2 | Caprolactam | SW8270C | 10 | 330 | | |
| 86-74-8 | Carbazole | SW8270C | 10 | 330 | | |
| 218-01-9 | Chrysene | SW8270C | 10 | 330 | 0.002 | 400 |
| 53-70-3 | Dibenzo(a,h)anthracene | SW8270C | 10 | 330 | | 14 |
| **Semivolatile Organics (continued)** | | | | | | |
| 132-64-9 | Dibenzofuran | SW8270C | 10 | 330 | | 6200 |
| 84-66-2 | Diethylphthalate | SW8270C | 10 | 330 | 50 | 7100 |
| 131-11-3 | Dimethylphthalate | SW8270C | 10 | 330 | 50 | 2000 |
| 84-74-2 | Di-n-butylphthalate | SW8270C | 10 | 330 | 50 | 8100 |
| 117-84-0 | Di-n-octyl phthalate | SW8270C | 10 | 330 | 50 | 50000 |
| 206-44-0 | Fluoranthene | SW8270C | 10 | 330 | 50 | 50000 |
| 86-73-7 | Fluorene | SW8270C | 10 | 330 | 50 | 50000 |
| 118-74-1 | Hexachlorobenzene | SW8270C | 10 | 330 | 0.04 | 410 |
| 87-68-3 | Hexachlorobutadiene | SW8270C | 10 | 330 | 0.5 | |
| 77-47-4 | Hexachlorocyclopentadiene | SW8270C | 10 | 330 | 5 | |
| 67-72-1 | Hexachloroethane | SW8270C | 10 | 330 | 5 | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | SW8270C | 10 | 330 | 0.002 | 3200 |
| 78-59-1 | Isophorone | SW8270C | 10 | 330 | 50 | 4400 |
| 91-20-3 | Naphthalene | SW8270C | 10 | 330 | 10 | 13000 |
| 98-95-3 | Nitrobenzene | SW8270C | 10 | 330 | 0.4 | 200 |
| 621-64-7 | N-Nitroso-di-n-propylamine | SW8270C | 10 | 330 | | |
| 86-30-6 | N-Nitrosodiphenylamine | SW8270C | 10 | 330 | 50 | |
| 87-86-5 | Pentachlorophenol | SW8270C | 10 | 330 | | 1000 |
| 85-01-8 | Phenanthrene | SW8270C | 10 | 330 | 50 | 50000 |
| 108-95-2 | Phenol | SW8270C | 10 | 330 | | 30 |
| 129-00-0 | Pyrene | SW8270C | 10 | 330 | 50 | 50000 |
| **Metals** | | | | | | |
| 7429-90-5 | Aluminum | 6010B / 6020 | 50 | 5000 | 2000 | SB |
| 7440-36-0 | Antimony | 6010B / 6020 | 25 | 2500 | 6 | SB |
| 7440-38-2 | Arsenic | 6010B / 6020 | 10 | 1000 | 50 | 7500 |
| 7440-39-3 | Barium | 6010B / 6020 | 50 | 5000 | 2000 | 300000 |
| 7440-41-7 | Beryllium | 6010B / 6020 | 3 | 300 | 3 | 160 |
| 7440-43-9 | Cadmium | 6010B / 6020 | 3 | 300 | 5 | 1000 |
| 7440-70-2 | Calcium | 6010B / 6020 | 1000 | 100000 | | SB |
| 7440-47-3 | Chromium | 6010B / 6020 | 5 | 500 | 100 | 10000 |
| 7440-48-4 | Cobalt | 6010B / 6020 | 15 | 1500 | 5 | 30000 |
| 7440-50-8 | Copper | 6010B / 6020 | 10 | 1000 | 1000 | 25000 |
| 7439-89-6 | Iron | 6010B / 6020 | 50 | 5000 | 600 | 2000000 |
| 7439-92-1 | Lead | 6010B / 6020 | 6 | 600 | 50 | 400 [c] |

| CAS No. | Analysis/Compound | Method | Quantitation Limits | | State of New York Standards | |
|---|---|---|---|---|---|---|
| | | | Water (µg/L) | Soil (µg/kg) | Water [a] (µg/L) | Soil [b] (µg/kg) |
| 7439-95-4 | Magnesium | 6010B / 6020 | 1000 | 100000 | 35000 | SB |
| 7439-96-5 | Manganese | 6010B / 6020 | 10 | 1000 | 600 | SB |
| 7440-02-0 | Nickel | 6010B / 6020 | 20 | 2000 | 200 | 13000 |
| 7440-09-7 | Potassium | 6010B / 6020 | 1000 | 100000 | | SB |
| 7782-49-2 | Selenium | 6010B / 6020 | 10 | 1000 | 20 | 2000 |
| 7440-22-4 | Silver | 6010B / 6020 | 5 | 500 | 100 | SB |
| 7440-23-5 | Sodium | 6010B / 6020 | 1000 | 100000 | | SB |
| 7440-28-0 | Thallium | 6010B / 6020 | 20 | 2000 | 0.5 | SB |
| 7440-62-2 | Vanadium | 6010B / 6020 | 20 | 2000 | | 150000 |
| 7440-66-6 | Zinc | 6010B / 6020 | 20 | 2000 | 5000 | 20000 |
| 7439-97-6 | Mercury | 7471A | 0.2 | 10 | 1.4 | 100 |
| **Inorganics** | | | | | | |
| n/a | Cyanide, Free | ASTM D4282-02 / 9013A | | 60 | | |
| n/a | Cyanide, Total | 9012 / 9010A | 10 | | 400 | |
| **Pesticides** | | | | | | |
| 72-54-8 | 4,4'-DDD | 8081 | 0.05 | 1.7 | 0.3 | 2900 |
| 72-55-9 | 4,4'-DDE | 8081 | 0.05 | 1.7 | 0.2 | 2100 |
| 50-29-3 | 4,4'-DDT | 8081 | 0.2 | 1.7 | 0.2 | 2100 |
| 309-00-2 | Aldrin | 8081 | 0.05 | 1.7 | ND | 41 |
| 319-84-6 | alpha-BHC | 8081 | 0.05 | 1.7 | 0.01 | 110 |
| 319-85-7 | beta-BHC | 8081 | 0.2 | 1.7 | 0.04 | 200 |
| 319-86-8 | delta-BHC | 8081 | 0.05 | 1.7 | 0.04 | 300 |
| 58-89-9 | gamma-BHC (Lindane) | 8081 | 0.05 | 1.7 | 0.05 | 60 |
| 5103-71-9 | alpha-Chlordane | 8081 | 0.05 | 1.7 | | 540 |
| 5566-34-7 | gamma-Chlordane | 8081 | 0.05 | 1.7 | | 540 |
| 57-74-9 | Chlordane | 8081 | 0.5 | 17 | 0.05 | 540 |
| 60-57-1 | Dieldrin | 8081 | 0.05 | 1.7 | 0.004 | 44 |
| 959-98-8 | Endosulfan I | 8081 | 0.05 | 1.7 | | 900 |
| 33213-65-9 | Endosulfan II | 8081 | 0.05 | 1.7 | | 900 |
| 1031-07-8 | Endosulfan sulfate | 8081 | 0.05 | 1.7 | | 1000 |
| 72-20-8 | Endrin | 8081 | 0.05 | 1.7 | ND | 100 |
| 7421-93-4 | Endrin aldehyde | 8081 | 0.05 | 1.7 | 5 | |
| 53494-70-5 | Endrin ketone | 8081 | 0.05 | 1.7 | 5 | |
| 76-44-8 | Heptachlor | 8081 | 0.05 | 1.7 | 0.04 | 100 |
| 1024-57-3 | Heptachlor epoxide | 8081 | 0.05 | 1.7 | 0.03 | 20 |
| 72-43-5 | Methoxychlor | 8081 | 0.05 | 1.7 | 35 | |
| 8001-35-2 | Toxaphene | 8081 | 0.5 | 17 | 0.06 | |
| **PCB's** | | | | | | |
| 12674-11-2 | Aroclor-1016 | 8082 | 0.5 | 17 | 0.09* Applies to the sum of the PCBs | 1000 (total surface soil) 10000 (total subsurface |
| 11104-28-2 | Aroclor-1221 | 8082 | 0.5 | 17 | | |
| 11141-16-5 | Aroclor-1232 | 8082 | 0.5 | 17 | | |
| 53469-21-9 | Aroclor-1242 | 8082 | 0.5 | 17 | | |
| 12672-29-6 | Aroclor-1248 | 8082 | 0.5 | 17 | | |

| CAS No. | Analysis/Compound | Method | Quantitation Limits | | State of New York Standards | |
|---|---|---|---|---|---|---|
| | | | Water (µg/L) | Soil (µg/kg) | Water [(a)] (µg/L) | Soil [(b)] (µg/kg) |
| 11097-69-1 | Aroclor-1254 | 8082 | 0.5 | 17 | | soil) |
| 11096-82-5 | Aroclor-1260 | 8082 | 0.5 | 17 | | |
| 37324-23-5 | Aroclor-1262 | 8082 | 0.5 | 17 | | |
| 11100-14-4 | Aroclor-1268 | 8082 | 0.5 | 17 | | |
| **Herbicides** | | | | | | |
| 93-72-1 | 2,4,5-TP (Silvex) | 8151 | 2 | 67 | 0.26 | 700 |
| 93-76-5 | 2,4,5-T | 8151 | 2 | 67 | | 1900 |
| 94-75-7 | 2,4-D | 8151 | 2 | 67 | | 500 |
| 94-82-6 | 2,4-DB | 8151 | 2 | 67 | | |

Notes:

N/A - Not Applicable

SB - soil background

ND - not detected

(a) - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, NYSDEC, October 1993, reissued June 1998

(b) - Determination of Soil Cleanup Objectives and Cleanup Levels, NYSDEC, January 24, 1994

(c) - EPA Guidance on Residential Lead-Based Paint, Lead Contaminated Dust, and Lead Contaminated Soil, July 14, 1994

**Table 7-2 Practical Quantitation Limits (PQLs) for TCLP**

| Compound | SW-846 Analysis | Water (µg/L) |
|---|---|---|
| **TCLP Volatile Organic Compounds** | | |
| Benzene | 1311 / 8260B | 25 |
| Carbon Tetrachloride | 1311 / 8260B | 25 |
| Chloroform | 1311 / 8260B | 25 |
| 1,2-Dichloroethane | 1311 / 8260B | 25 |
| 1,1-Dichloroethene | 1311 / 8260B | 25 |
| 2-Butanone | 1311 / 8260B | 125 |
| Tetrachloroethene | 1311 / 8260B | 25 |
| Trichloroethene | 1311 / 8260B | 25 |
| Vinyl Chloride | 1311 / 8260B | 25 |
| **TCLP Semivolatile Organic Compounds** | | |
| 2-Methylphenol | 1311 / 3510 / 8270B | 10 |
| 3 & 4-Methylphenol | 1311 / 3510 / 8270B | 10 |
| 1,4-Dichlorobenzene | 1311 / 3510 / 8270B | 10 |
| 2,4-Dinitrotoluene | 1311 / 3510 / 8270B | 10 |
| Hexachlorobutadiene | 1311 / 3510 / 8270B | 10 |
| Hexachloroethane | 1311 / 3510 / 8270B | 10 |
| Hexachlorobenzene | 1311 / 3510 / 8270B | 10 |
| Nitrobenzene | 1311 / 3510 / 8270B | 10 |
| Pentachlorophenol | 1311 / 3510 / 8270B | 10 |
| Pyridine | 1311 / 3510 / 8270B | 10 |
| 2,4,5-Trichlorophenol | 1311 / 3510 / 8270B | 10 |
| 2,4,6-Trichlorophenol | 1311 / 3510 / 8270B | 10 |
| **TCLP Metals** | | |
| Arsenic | 1311 / 3010 / 6010B | 10 |
| Barium | 1311 / 3010 / 6010B | 50 |
| Cadmium | 1311 / 3010 / 6010B | 3 |
| Chromium | 1311 / 3010 / 6010B | 5 |
| Lead | 1311 / 3010 / 6010B | 6 |
| Selenium | 1311 / 3010 / 6010B | 10 |

| | | |
|---|---|---|
| Silver | 1311 / 3010 / 6010B | 5 |
| Mercury | 7470A | 0.2 |
| **TCLP Pesticides** | | |
| Chlordane | 1311 / 8081A | 0.5 |
| Endrin | 1311 / 8081A | 0.05 |
| Heptachlor (and its hydroxide) | 1311 / 8081A | 0.05 |
| Lindane | 1311 / 8081A | 0.05 |
| Methoxychlor | 1311 / 8081A | 0.05 |
| Toxaphene | 1311 / 8081A | 0.5 |
| **TCLP Pesticides** | | |
| 2,4-D | 1311 / 8151A | 2 |
| 2,4,5-TP Silvex | 1311 / 8151A | 2 |

Notes:
ND - Not Determined

**Table 7-3 Project Quantitation Limits for Air**

| Analysis / Compound | Method | Quantitation Limits Soil Gas/Air ($\mu g/M^3$) |
|---|---|---|
| **Fixed Gases** | | |
| Helium | ASTM D1945 mod. | 16360 (0.01%) |
| **Volatile Organics** [1] | | |
| Freon 12 | TO-15 Mod. | 0.81 |
| Freon 114 | TO-15 Mod. | 1.14 |
| Chloromethane | TO-15 Mod. | 0.34 |
| Vinyl Chloride | TO-15 Mod. | 0.42 |
| Bromomethane | TO-15 Mod. | 0.63 |
| Chloroethane | TO-15 Mod. | 0.43 |
| Freon 11 | TO-15 Mod. | 0.92 |
| 1,1-Dichloroethene | TO-15 Mod. | 0.64 |
| Freon 113 | TO-15 Mod. | 1.26 |
| Methylene Chloride | TO-15 Mod. | 0.56 |
| 1,1-Dichloroethane | TO-15 Mod. | 0.66 |
| cis-1,2-Dichloroethene | TO-15 Mod. | 0.64 |
| Chloroform | TO-15 Mod. | 0.81 |
| 1,1,1-Trichloroethane | TO-15 Mod. | 0.89 |
| Carbon Tetrachloride | TO-15 Mod. | 1.03 |
| Benzene | TO-15 Mod. | 0.52 |
| 1,2-Dichloroethane | TO-15 Mod. | 0.66 |
| Trichloroethene | TO-15 Mod. | 0.89 |
| 1,2-Dichloropropane | TO-15 Mod. | 0.76 |
| cis-1,3-Dichloropropene | TO-15 Mod. | 0.74 |
| Toluene | TO-15 Mod. | 0.61 |
| trans-1,3-Dichloropropene | TO-15 Mod. | 0.74 |
| 1,1,2-Trichloroethane | TO-15 Mod. | 0.89 |
| Tetrachloroethene | TO-15 Mod. | 1.11 |
| 1,2-Dibromoethane (EDB) | TO-15 Mod. | 1.26 |

| Analysis / Compound | Method | Quantitation Limits Soil Gas/Air ($\mu g/M^3$) |
|---|---|---|
| Chlorobenzene | TO-15 Mod. | 0.76 |
| Ethyl Benzene | TO-15 Mod. | 0.71 |
| m,p-Xylene | TO-15 Mod. | 0.71 |
| o-Xylene | TO-15 Mod. | 0.71 |
| Styrene | TO-15 Mod. | 0.69 |
| 1,1,2,2-Tetrachloroethane | TO-15 Mod. | 1.13 |
| 1,3,5-Trimethylbenzene | TO-15 Mod. | 0.81 |
| 1,2,4-Trimethylbenzene | TO-15 Mod. | 0.81 |
| 1,3-Dichlorobenzene | TO-15 Mod. | 0.98 |
| 1,4-Dichlorobenzene | TO-15 Mod. | 0.98 |
| alpha-Chlorotoluene | TO-15 Mod. | 0.85 |
| 1,2-Dichlorobenzene | TO-15 Mod. | 0.98 |
| 1,2,4-Trichlorobenzene | TO-15 Mod. | 6.12 |
| Hexachlorobutadiene | TO-15 Mod. | 8.69 |
| Propylene | TO-15 Mod. | 1.4 |
| 1,3-Butadiene | TO-15 Mod. | 1.77 |
| Acetone | TO-15 Mod. | 1.93 |
| Carbon Disulfide | TO-15 Mod. | 2.58 |
| trans-1,2-Dichloroethene | TO-15 Mod. | 3.22 |
| 2-Butanone (MEK) | TO-15 Mod. | 2.42 |
| Hexane | TO-15 Mod. | 2.9 |
| Tetrahydrofuran | TO-15 Mod. | 2.42 |
| Cyclohexane | TO-15 Mod. | 2.74 |
| 1,4-Dioxane | TO-15 Mod. | 2.9 |
| Bromodichloromethane | TO-15 Mod. | 5.47 |
| 4-Methyl-2-pentanone | TO-15 Mod. | 3.38 |
| 2-Hexanone | TO-15 Mod. | 3.38 |
| Dibromochloromethane | TO-15 Mod. | 6.92 |
| Bromoform | TO-15 Mod. | 8.37 |
| 4-Ethyltoluene | TO-15 Mod. | 4.03 |

| Analysis / Compound | Method | Quantitation Limits Soil Gas/Air ($\mu g/M^3$) |
|---|---|---|
| Ethanol | TO-15 Mod. | 1.55 |
| Methyl tert-butyl ether | TO-15 Mod. | 2.9 |
| Heptane | TO-15 Mod. | 3.38 |
| Naphthalene | TO-15 Mod. | 4.35 |
| 2-Methylpentane | TO-15 Mod. | 2.9 |
| Isopentane | TO-15 Mod. | 2.42 |
| 2,3-Dimethylpentane | TO-15 Mod. | 3.38 |
| 2,2,4-Trimethylpentane | TO-15 Mod. | 3.86 |
| Indene | TO-15 Mod. | 3.86 |
| Indane | TO-15 Mod. | 3.86 |
| Thiophene | TO-15 Mod. | 2.74 |
| 2-Propanol | TO-15 Mod. | 1.93 |

Notes

(1) The final quantitation limit (QL) is adjusted to reflect the initial pressurization step, dilution required to bring target analyte levels into the calibration range, and/or minimize matrix interferences

Final QL = QL * DF, DF was assumed to be 1.61 for a 6-L Canister, with 5 in. Hg Final Canister Pressure.

# 8.0 Data Reduction, Assessment, and Reporting

## 8.1 Data Reduction

Data collected in the field will be reduced in accordance with SW-846 protocols and reviewed by the laboratory QA personnel. The criteria used to identify and quantify the analytes will be those specified for the applicable methods in the USEPA SW-846 and subsequent updates.

## 8.2 Data Quality Assessment

NYSDEC recommends two levels of data review. The basic review is a Data Usability Summary Report (DUSR). Current NYSDEC policy is to require this level of review for analytical data on most sites. Full data validation is called for at sites where the data will be used in litigation, or where problems are expected with data quality (such as where matrix interference is expected to be significant). The laboratory deliverables (i.e., NYSDEC ASP Category B) are the same in both cases, and a DUSR can be upgraded to full validation at a later time if necessary. For this Site a DUSR will be performed.

Based on the results of data assessment, the validated analytical results reported by the laboratory will be assigned one of the following USEPA-defined data usability qualifiers:

- U – Not detected at given value,
- UJ – Estimated not detected at given value,
- J – Estimated value,
- N – Presumptive evidence at the value given,
- R – Result not useable,
- No Flag – Result accepted without qualification.

Trained and experienced data assessors, who meet NYSDEC approval criteria, will perform the data review. Résumés of people who will perform the data validation and prepare the DUSR will be provided to NYSDEC for review and approval, upon request.

### 8.2.1 Data Usability Summary Report

Data will be evaluated and qualification applied in accordance with the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, USEPA-540-R-07-003, July 2007 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA-540-R-04-004, October 2004, as they applied to the analytical methods employed. A DUSR will be generated in accordance with USEPA Region II guidelines.

The DUSR will include a review and an evaluation of all the analytical results. To ensure compliance with the analytical method protocols the following parameters will be reviewed:

- Chain-of-custody forms,

- Holding times,
- Initial and continuing calibrations,
- Blanks,
- Laboratory control standards and matrix spikes,
- Surrogate recoveries,
- Matrix interference checks,
- Field and laboratory duplicates,
- Sample data.

The DUSR will contain a description of the samples and parameters reviewed. Any deficiencies identified during the review will be noted and the effect on the generated data will be discussed. Any re-sampling or reanalysis recommendations will be then be made to the Project Manager. The DUSR will be electronically transmitted to the NYSDEC within 15 business days of validating the data and no later than 45 business days from receiving the laboratory data.

### 8.2.2 Data Validation

The determination to validate data will be made based on the presence of data anomalies, suspect data, or laboratory issues. Data will be validated and qualifications applied in accordance with *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, USEPA-540-R-07-003, July 2007 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA-540-R-04-004, October 2004, as they applied to the analytical methods employed. If applicable, a data validation report will be prepared and reviewed by the Quality Assurance Office (QAO) before issuance. The data validation report will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and COC procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method. A detailed assessment of each sample delivery group will follow. For each of the organic analytical methods, the following parameters will be assessed:

- Holding times,
- Instrument tuning,
- Instrument calibrations,
- Blank results,
- System monitoring compounds or surrogate recovery compounds (as applicable),
- Internal standard recovery results,
- MS and MSD results,

- Field duplicate results,
- Target compound identification,
- Result calculations,
- Pesticide cleanup (if applicable),
- Compound quantitation and reported detection limits,
- System performance,
- Results verification.

For each of the inorganic compounds, the following will be assessed:

- Holding times,
- Calibrations,
- Blank results,
- Interference check sample,
- Laboratory check samples,
- Duplicates,
- Matrix Spike(s),
- Furnace atomic absorption analysis QC,
- ICP serial dilutions,
- Results verification and reported detection limits,
- Result calculations.

## 8.3 Data Reporting

The data package provided by the laboratory will contain all items discussed above in a NT ASP Category B “CLP-equivalent” format. Data quality issues will be discussed in a case narrative included with the data report. The completed copies of the COC records (both external and internal) accompanying each sample from time of initial bottle preparation to completion of analysis shall be attached to the analytical reports.

Two copies of the analytical data packages and an electronic data deliverable (EDD) will be provided by the laboratory approximately 30 days after receipt of a complete sample delivery group. The Project Manager will immediately arrange for filing one package. A second copy and the EDD will be

used to generate summary tables. These tables will form the database for assessment of the site contamination condition.

The EDD format required is current format Earths of EQuIS® Environmental Data Management Software.

Each EDD must be formatted and copied using an MS-DOS operating system. To avoid transcription errors, data will be loaded directly into the ASCII format from the laboratory information management system (LIMS). If this cannot be accomplished, the consultant should be notified via letter of transmittal indicating that manual entry of data is required for a particular method of analysis. All EDDs must also undergo a QC check by the laboratory before delivery. The original data, tabulations, and electronic media are stored in a secure and retrievable fashion.

The Project Manager or Task Manager will maintain close contact with the QA reviewer to ensure all nonconformance issues are resolved prior to use of the data. The EDDs and data validation report will be electronically transmitted to the NYSDEC within 15 business days of validating the data and no later than 45 business days from receiving the laboratory data.

# 9.0 Internal Quality Control Checks

QC procedures and checks are used to evaluate the precision and accuracy of analytical data. Field QC checks are used to identify potential problems associated with sample collection procedures. Laboratory QC checks are used to identify problems associated with sample preparation and analysis.

## 9.1 Field Quality Control Checks

To check the quality of data from field sampling efforts, blanks and duplicate samples will be collected for analysis. Field duplicate and rinseate blank samples will be collected at a frequency of one in 20 samples. Trip blank samples will be analyzed at a frequency of one per each shipment of VOC samples. Field MS/MSD samples will be collected at a frequency of one in 20 samples. These samples will be treated as separate samples for identification, logging, and shipping purposes. Analytical results for blanks and duplicates will be reported with the field sample data.

## 9.2 Laboratory Quality Control Checks

The analytical laboratory must have an implemented QC program documented in a QA manual to ensure the reliability and validity of the analysis performed at the laboratory. All analytical procedures are documented in writing as standard operating procedures (SOPs) and each SOP must include a QC section that addresses the minimum QC requirements for the procedure. The internal QC checks differ slightly for each individual procedure, but in general the QC requirements include the following:

- Method blanks,
- Reagent/preparation blanks (applicable to inorganic analysis),
- Instrument blanks,
- MS/MSDs ,
- Surrogate spikes (organic methods only),
- Analytical spike (applicable to graphite furnace analysis),
- Laboratory control samples,
- Internal standard areas for GC/MS analysis,
- Mass tuning for GC/MS analysis,
- Endrin/4,4'-DDT degradation checks for pesticide analysis,
- Second, dissimilar column confirmation for pesticide and polychlorinated biphenyl (PCB) analysis.

All data obtained will be properly recorded. The data package will include a full deliverable package capable of allowing the recipient to reconstruct QC information and compare it to QC acceptance criteria. The laboratory will reanalyze any samples associated with nonconforming quality control checks, if sufficient volume is available. It is expected that sufficient volumes/weights of samples will be collected to allow for reanalysis when necessary.

# 10.0 Performance and System Audits and Frequency

Two types of audit procedures are conducted during any environmental work: performance and system audits. These audits are performed on the laboratory as well as field activities. The laboratory and field auditors will be independent of the function they will be auditing. Audits will be documented and maintained by the respective Laboratory or Contractor Project Manager.

## 10.1 Performance Audits

### 10.1.1 Laboratory Performance Audits

Laboratory performance audits are administered by the laboratory QA department on a periodic basis (e.g., semi-annually). The audit samples are used to monitor accuracy and identify and resolve problems in sample preparation and analysis techniques, which lead to the generation of nonconforming data.

The laboratory performance audits include verification of each analyst's record keeping, proper use and understanding of procedures, and accuracy evaluation. Corrective action will be taken for any performance failure noted.

### 10.1.2 Field Performance Audits

The QAO or designee will perform field performance audits of the field sample team on an annual basis at a minimum. The field team leader will review all field data. The analytical results of the field blanks and replicate samples are indirect audits of the level of performance of field activities. If a nonconformance is found in the evaluation of field QC data, corrective action will be taken to resolve the issue. The corrective action will be documented.

## 10.2 System Audits

### 10.2.1 Laboratory System Audits

Laboratory system audits will be conducted against the QA Manual and the administrative and method SOPs, by the laboratory QA department, on an annual basis. System audits are used to ensure that all aspects of the laboratory's QC program are implemented and effective. This involves a thorough review of all laboratory practices and documentation to confirm that work is performed according to project specifications.

Outside agency performance and system audits may be used to verify contract compliance or the laboratory's ability to meet requirements for analytical methods and documentation. Copies of current certifications and accreditations may be used in lieu of an audit by the Contractor Project Manager.

### 10.2.2 Field System Audits

The QAO or designee shall perform field system audits of the field sampling team on an annual basis at a minimum. All field activities will be audited to ensure that the field work is being performed according to the approved work plans, QAPP, and method procedures. Accuracy, precision, and documentation clarity will be evaluated. Any time a deficiency is noted during an ongoing systems

audit, the project manger or designee will inform the field staff immediately so that corrective actions may be implemented.

# 11.0 Preventive Maintenance

## 11.1 Field Instrument Preventive Maintenance

Written procedures will establish the schedule for servicing critical items in order to minimize the downtime of the measurement system(s). Field instruments will be checked and calibrated daily before use. Calibration checks will be documented on the field calibration log sheets. Critical spare parts such as tape and batteries will be kept on-site to reduce potential downtime. Backup instruments and equipment will be available on-site or within 1-day shipment to avoid delays in the field schedule.

## 11.2 Laboratory Instrument Preventive Maintenance

Designated laboratory employees regularly perform routine scheduled maintenance and repair of all instruments. All maintenance that is performed is documented in the laboratory's operating records. All laboratory instruments are maintained in accordance with manufacturer's specifications. The laboratory's QA Manual specifies the typical frequency with which components of key analytical instruments or equipment will be serviced.

## 11.3 Records

Logs shall be established to record maintenance and service. All maintenance records will be controlled and traceable to the designated equipment, instruments, tools, or gauges. Records produced shall be reviewed, maintained, and filed by the operators at the laboratories. The QAO may audit the field maintenance records to verify complete adherence to these procedures.

# 12.0 Corrective Action

## 12.1 Introduction

The following procedures have been established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, and corrected.

## 12.2 Procedure Description

When a significant condition adverse to quality is noted at site, laboratory, or subcontractor location, the cause of the condition will be determined and corrective action will be taken to preclude recurrence. Condition identification, cause, reference documents, and corrective action planned to be taken will be documented and reported to the QAO, Contractor Project Manager, Field Team Leader, and involved contractor management, at a minimum. Implementation of corrective action is verified by documented follow-up action.

All project personnel have the responsibility, as part of the normal work duties, to promptly identify, report, and investigate conditions adverse to quality. Corrective actions will be initiated as follows.

- When predetermined acceptance standards are not attained
- When procedure or data compiled are determined to be deficient
- When equipment or instrumentation is found to be faulty
- When samples and analytical test results are not clearly traceable
- When quality assurance requirements have been violated
- When designated approvals have been circumvented
- As a result of system and performance audit findings
- As a result of a management assessment
- As a result of laboratory/field comparison studies
- As required by USEPA SW-846 and subsequent updates, or by the NYSDEC ASP

Project management and staff, such as field teams, remedial response planning personnel, and laboratory groups, will monitor on-going work performance in the normal course of daily responsibilities. Work may be audited at the sites, laboratories, or contractor locations. Activities or documents ascertained to be nonconforming with quality assurance requirements will be documented. Corrective actions will be mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the Task Manager.

Personnel assigned to quality assurance functions will have the responsibility to issue and control Corrective Action Request (CAR) Forms (Figure 12-1 or similar). The CAR identifies the out-of-compliance condition, reference document(s), and recommended corrective action(s) to be administered. The CAR is issued to the personnel responsible for the affected item or activity. A copy is also submitted to the Contractor Project Manager. The individual to whom the CAR is addressed returns the requested response promptly to the QA personnel, affixing his/her signature and date to the corrective action block, after stating the cause of the conditions and corrective action to be taken. The QA personnel maintain the log for status of CARs, confirms the adequacy of the intended corrective action, and verifies its implementation. CARs will be retained in the project file.

Any project personnel may identify issues requiring corrective action; however, the QAO is responsible for documenting, numbering, logging, and verifying the closeout action. The Contractor Project Manager will be responsible for ensuring that all recommended corrective actions are implemented, documented, and approved.

**Figure 12-1 Corrective Action Form**

| |
|---|
| **CORRECTIVE ACTION REQUEST**<br><br>Number: _____ Date: _____ |
| TO: _____<br><br>You are hereby requested to take corrective actions indicated below and as otherwise determined by you to (a) resolve the noted condition and (b) to prevent it from recurring. Your written response is to be returned to the project quality assurance manager by<br>_____ |
| CONDITION: |
| REFERENCE DOCUMENTS: |
| RECOMMENDED CORRECTIVE ACTIONS: |
| _____ _____ _____ _____ _____ _____<br>Originator Date Approval Date Approval Date |
| RESPONSE |
| CAUSE OF CONDITION |
| CORRECTIVE ACTION<br><br>(A) RESOLUTION<br><br>(B) PREVENTION<br><br>(C) AFFECTED DOCUMENTS |
| C.A. FOLLOW-UP:<br><br>CORRECTIVE ACTION VERIFIED BY: _____<br><br>DATE:_____ |

# 13.0 References

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