# 210 N. 12th STREET

**BROOKLYN, NEW YORK**

**BLOCK 2291 LOT 17**

# Remedial Investigation Report

**NYC BCP Site Number: 12CBCP024K**
**NYC OER E-Designation Project Number: 12EHAZ050K**

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LIST OF ACRONYMS

| Acronym | Definition |
|---|---|
| AOC | Area of Concern |
| CAMP | Community Air Monitoring Plan |
| COC | Contaminant of Concern |
| CPP | Citizen Participation Plan |
| CSM | Conceptual Site Model |
| DER-10 | New York State Department of Environmental Conservation Technical Guide 10 |
| FID | Flame Ionization Detector |
| GPS | Global Positioning System |
| HASP | Health and Safety Plan |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| IRM | Interim Remedial Measure |
| NAPL | Non-aqueous Phase Liquid |
| NYC BCP | New York City Brownfield Cleanup Program |
| NYC DOHMH | New York City Department of Health and Mental Hygiene |
| NYC OER | New York City Office of Environmental Remediation |
| NYS DOH ELAP | New York State Department of Health Environmental Laboratory Accreditation Program |
| OSHA | Occupational Safety and Health Administration |
| PID | Photoionization Detector |
| QEP | Qualified Environmental Professional |
| RI | Remedial Investigation |
| RIR | Remedial Investigation Report |
| SCO | Soil Cleanup Objective |
| SPEED | Searchable Property Environmental Electronic Database |

# CERTIFICATION

I, Charles Sosik, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Remedial Investigation for the 210 N. 12th Street Site, (NYC BCP Site No. 12CBCP024K). I am responsible for the content of this Remedial Investigation Report (RIR), have reviewed its contents and certify that this RIR is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.

Charles B. Sosik, P.G. 10/20/11

Qualified Environmental Professional Date Signature

# EXECUTIVE SUMMARY

The Remedial Investigation Report (RIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to RCNY§ 43-1407(f). The remedial investigation (RI) described in this document is consistent with applicable guidance.

**Site Location and Current Usage**

The Site is located at 210 N. 12$^{th}$ Street in the Williamsburg section of Brooklyn, New York and is identified as Block 2291 and Lot 17 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is 0.24-acres (10,487-sq.ft.) and is bounded by N. 12th Street to the north, an existing 4-story building on Lot 51 to the south, Driggs Avenue to the east, and new residential construction on Lot 1 to the west. A map of the site boundary is shown in **Figure 2**. Currently, the Site is a vacant lot. Construction on the lot was initiated in 2007 and included the excavation and disposal of the top 2-4 feet of soil across the Site. The construction project stalled during the recent economic downturn and has remained in this state for the past 3-4 years.

**Summary of Proposed Redevelopment Plan**

The proposed development at the Site includes the construction of a new 8-story apartment building. The structure will be steel, block and plank (Const. Class: I-B as per NYC BC) with Wood Pile foundation. The building includes parking, recreational space, mechanical space as well as a lobby on the first floor and apartments from floor 2 to 8. The 9th floor is allocated as storage space for each of the residential units. The gross floor area is approximately 47,000 ft$^2$ and has 43 residential apartments. The project does not include a basement level. The footprint of the new building covers the entire lot and there are no proposed landscaped or exposed soil areas.

The layout of the proposed site development is presented in **Figure 3**. The current zoning designation is M1-2/R7A. The proposed use is consistent with existing zoning for the property.

**Summary of Past Uses of Site and Areas of Concern**

Historic use of the property includes industrial / commercial including a chemical manufacturer,

a paint/ink manufacturer, and a textile manufacturer.

The AOCs identified for this site include:

1. Former UST area
2. Historic Fill
3. Past use as chemical manufacturing/ storage

**Summary of the Work Performed under the Remedial Investigation**

ADIR Group, LLC performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 12 soil borings across the entire project Site, and collected 23 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 5 groundwater monitoring wells throughout the Site to establish groundwater flow and collected 11 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 3 soil vapor probes around Site perimeter and collected 3 samples for chemical analysis.

**Summary of Environmental Findings**

1. Elevation of the property is 14 feet above sea level.
2. Depth to groundwater ranges from 3 to 6 feet at the Site.
3. Groundwater flow is generally from south to north beneath the Site.
4. The stratigraphy of the site, from the surface down, consists of 10 feet of fill material overlying clay with native bog material that extends as deep as 20 feet below feet below the surface.
5. Soil samples tested during the remedial investigation showed a variety of petroleum VOCs in most samples collected and many of these samples exceeded Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs). Of these, three VOCs, all benzene derivatives exceeded Track 2 Restricted Residential SCOs. Total petroleum related VOC concentrations exceeded 100 ppm in some cases and are attributed to a petroleum spill onsite that is being actively managed by NYSDEC. PCE, TCE and other chlorinated hydrocarbons were not detected in onsite soil samples. Similarly, SVOCs were also

commonly identified in soil. Various PAH compounds exceeded Track 1 SCOS including 6 PAH compounds that also exceeded Track 2 Restricted Residential SCOs. PAH compounds are attributed to both the petroleum spill in soils in the vicinity of the USTs and to the presence of historical fill onsite. Petroleum discharges to soil and groundwater are currently being addressed by NYS DEC under Spill number 0703695. Pesticides were not detected in onsite soils and PCBs were detected in several soil samples but were found at low concentrations and below Track 1 SCOs. The 2007 investigation showed that soils contain a variety of metals above both Track 1 and Track 2 Restricted Residential SCOs, including arsenic (6 of 15 samples exceed Track 2), copper (1 of 15 samples exceed Track 2), lead (9 of 15 samples exceed Track 2), mercury (10 of 15 exceed Track 2) and selenium (1 of 15 samples exceed Track 2). The relatively high concentrations of metals are likely related to the historic fill at the site and also possibly to the result of historic manufacturing operations at the site. Considerable removal of soil from the site was performed by a prior developer and ranges from the top 2 to 4 feet of soil and much of the soil exceeding SCOs has already been removed from the property, as confirmed by the September 2011 sampling.

6. Groundwater samples tested during the remedial investigation showed a variety of petroleum VOCs in groundwater. In 2001, concentrations of 9 of these compounds exceed Part 703.5 Class GA groundwater quality standards (GQS), however sampling in 2011 show only 3 to 5 compounds above GQS and limited to two of the four sampling locations. Concentrations of total VOCs ranged from 474 to 948 ug/L in 2007 and from non-detect to 203 ug/L in June 2011 and from non-detect to 26 ug/L in September 2011. The September 2011 results showed a total of 3 parameters slightly above GQS. The petroleum VOCs reported are attributed to a petroleum spill onsite that is being actively managed by NYSDEC. Six SVOCs were also reported in groundwater above GQS in 2007, however, SVOCs in groundwater were not detected in 2011. No PCE or TCE were identified in onsite groundwater samples. Pesticides and PCBs were not detected in groundwater. Metals in groundwater were observed above GQS, including arsenic and sodium. The most recent sampling event showed arsenic at 40 ug/l and moderately above the GWS of 25 ug/l.
7. Soil vapor samples tested during the remedial investigation showed a wide variety of VOCs including BTEX and associated petroleum derivative compounds. Petroleum

compounds were generally low and consistent with background levels though some portion may be attributable to the on-site spill. Several chlorinated VOC were also identified including PCE, which was found in 2 of 3 samples with a maximum concentration of 200 ug/m3, and TCE, which was found in 2 of 3 samples with a maximum concentration of 5.6 ug/m3. PCE and TCE were not detected in any onsite soil or groundwater samples and are attributed to offsite sources. Acetone and methylene chloride were also identified in vapor samples.

# REMEDIAL INVESTIGATION REPORT

## 1.0 SITE BACKGROU-ND

Adir Group, LLC has applied to enroll in the New York City Brownfield Cleanup Program (NYC BCP) to investigate and remediate a 0.24-acre site located at 210 N. 12th Street in the Williamsburg section of Brooklyn, New York. Residential use is proposed for the property. A Remedial Investigation (RI) was completed at the site in April 2007. This RIR summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY§ 43-1407(f).

### 1.1 SITE LOCATION AND CURRENT USAGE

The Site is located at 210 N. 12th Street in the Williamsburg section of Brooklyn, New York and is identified as Block 2291 and Lot 17 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is 0.24-acres (10,487-sq.ft.) and is bounded by N. 12th Street to the north, an existing 4-story building on Lot 51 to the south, Driggs Avenue to the east, and new residential construction on Lot 1 to the west. A map of the site boundary is shown in **Figure 2**. Currently, the Site is a vacant construction lot. Construction on the lot was initiated in 2007 and included the excavation and disposal of the top 2-4 feet of soil across the Site. The construction project stalled during the economic downturn beginning in 2007 and has remained in this state for the past 3-4 years.

### 1.2 PROPOSED REDEVELOPMENT PLAN

The proposed development at the Site includes the construction of a new 8-story apartment building. The structure shall be steel, block and plank (Const. Class: I-B as per NYC BC) with Wood Pile foundation. The building includes parking, recreational space, mechanical space as well as a lobby on the first floor. The building will include a total of 43 residential apartments including five 1-bedroom apartments and two 2-bedroom apartments on floors 2 through 6; two 2-bedroom and two 3-bedroom on the 7th floor; and two 2-bedroom and one 3-bedroom on the 8th floor. The 9th floor is allocated as storage space for each of the residential units. The gross

floor area is approximately 47,000 $ft^2$. The project does not include a basement level. The footprint of the new building covers the entire lot and there are no proposed landscaped or exposed soil areas.

The layout of the proposed site development is presented in **Figure 3**. The current zoning designation is M1-2/R7A. The proposed use is consistent with existing zoning for the property.

## 1.3 DESCRIPTION OF SURROUNDING PROPERTY

Historically the neighborhood was predominantly commercial and light industrial, however in the past 10 years many of the properties have been redeveloped with multi-family residential buildings. Adjacent properties include:

- North: N. 12th Street and McCarren Park,
- South: 4-story building used as office space,
- East: Church and adjacent community greenspace
- West: new construction, mixed use residential-commercial (retail) building

There are no identified schools or daycare facilities located within a 500 foot radius. **Figure 4** shows the surrounding land usage.

# 2.0 SITE HISTORY

## 2.1 PAST USES AND OWNERSHIP

Historic use of the property has been industrial / commercial including a chemical manufacturer, a paint/ink manufacturer, and a textile manufacturer.

## 2.2 PREVIOUS INVESTIGATIONS

*Phase I ESA – PWGC 3/07*

The Phase I Report prepared by PWGC was completed for the combined lots (including both the subject Lot 17 and the adjacent Lot 51). The report indicated that the past use of the property included a chemical manufacturer, a paint/ink manufacturer and a textile manufacturer. The report also identified one closed 3,000 gallon fuel oil UST in place on offsite adjacent lot 51 and two onsite 2,000 gallon gasoline USTs removed in 2006.

*Phase II Subsurface Investigation – PWGC 8/07*

P.W. Grosser Consulting performed a Phase II subsurface investigation in August 2007 which included both the subject lot (17) and the adjacent lot (51) to the south.

The Phase II included the installation of sixteen borings and seven groundwater monitoring wells. Phase II report identified SVOCs and metals in several soil samples. The report also identified greatest VOC and lead concentrations present in soils in the vicinity of the two former gasoline USTs.

VOCs above 703.5 Class GA Groundwater Quality Standards were detected in 4 of 10 samples in the vicinity of the former gasoline USTs. SVOCs, at concentrations slightly exceeding the NYSDEC Groundwater Standards, were detected in three of the ten groundwater samples collected.

The soil results when compared to CP51 restricted residential soil cleanup objectives indicate that only a single parameter, 1,2,4-trimethybenze, exceeded the objectives at only 3 locations B8,

B9 and B12. The results of the groundwater samples demonstrate that the level of soil contamination is not significantly affecting groundwater quality.

## 2.3 SITE INSPECTION

EBC personnel inspected the Site on June 10, 2011 during the supplemental subsurface investigation performed at the request of the NYSDEC in reference to Spill No. 0703695. The inspection described the property as vacant land in which had been prepared for the construction of a new building. This work included excavation and removal of onsite soils from 2 to 4 feet below existing grade and the installation of wooden piles throughout the property. **Figure 5** shows the extent of excavation conducted in 2007. **Figure 6** shows the locations of installed piles present at the site and the location of soil, soil gas and groundwater sampling points.

## 2.4 AREAS OF CONCERN

The AOCs identified for this site include:

1. Former UST Area (shown on the Site plan Figure 2).
2. Historic Fill in shallow soils
3. Past use as chemical manufacturing/ storage

# 3.0 PROJECT MANAGEMENT

## 3.1 PROJECT ORGANIZATION

The Qualified Environmental Profession (QEP) responsible for preparation of this RIR is Charles B. Sosik, P.G.

## 3.2 HEALTH AND SAFETY

All work described in this RIR was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

## 3.3 MATERIALS MANAGEMENT

All material encountered during the RI was managed in accordance with applicable laws and regulations.

# 4.0 REMEDIAL INVESTIGATION ACTIVITIES

ADIR Group, LLC performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a geophysical investigation of the property (in 2006);
3. Installed 12 soil borings across the entire project Site, and collected 23 soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed 5 groundwater monitoring wells throughout the Site to establish groundwater flow and collected 11 groundwater samples for chemical analysis to evaluate groundwater quality;
5. Installed 3 soil vapor probes around Site perimeter and collected 3 samples for chemical analysis.

## 4.1 GEOPHYSICAL INVESTIGATION

As documented in the Phase II Subsurface Investigation Report (PWGC 4/07), a geophysical survey of the property was previously performed in March 2006 by Naeva Geophysics. The purpose of the survey was to determine if undocumented USTs and any other buried objects were present. According to geophysical report, Naeva performed the survey using a split-box metal detector (Fisher Model TW-6) and ground penetrating radar (GPR). Anomalies detected with the TW-6 then investigated further using GPR. The results of the survey identified two USTs on Lot 17. The USTs on Lot 17 were subsequently removed.

## 4.2 BORINGS AND MONITORING WELLS

**Drilling and Soil Logging**

In September 2011, 7 additional soil borings were completed to assess residual impacts after the top 2-4 feet of soil was excavated in 2007.

*April 2007*: On June 28 and 29, 2007, PWGC advanced 8 soil borings on the Lot 17 Site using a track mounted Geoprobe probe rig. Continuous macro core sampling was performed in foor foot intervals to a final depth of 8 to 12 feet below grade at each location in each boring. A PWGC hydrogeologist was on-site during the April 2007 sampling to characterize and field screen the samples for the presence of VOCs using a PID.

*June 2011***:** A total of 4 soil borings (B10, B12, B13 and B15) were advanced on June 10, 2011, as shown on **Figure 7**. All borings were advanced to a final depth of 20 feet below grade by continuous core sampling utilizing a five-foot steel macro-core sampler with acetate liners and Geoprobe direct-push equipment. The dual tube method of sampling was used at all locations to maintain sample core integrity and to obtain representative samples. During the June 2011 supplemental investigation, soil samples were collected continuously from grade to the soil boring termination depth of 20 feet to fully characterize the soil column and vertical extent of contamination. Retrieved sample cores (in 5 foot lengths) were field screened for the presence of VOCs with a photo-ionization detector (PID) and visually inspected for evidence of contamination. Elevated PID readings and petroleum odors were observed in samples from the 5-7 foot intervals of borings B10 and B12. No physical evidence of contamination was observed in the intervals above or below the 5-7 foot depth of these borings or in any interval of the remaining borings (B13, B15).

*September 2011:* Boring logs include a description of soil/fill types; soil screening results from field visual, olfactory and PID; depth to groundwater; soil characteristics, appearance and mottling; presence of odor, vapors, soil discoloration; and presence of free and/or residual product.

Boring logs are provided in **Appendix A**. A map showing the location of soil borings and monitor wells is shown in **Figure 7**.

**Groundwater Monitoring Well Construction**

As requested by the DEC, groundwater monitoring wells were installed at each boring location. Wells were constructed of 1-inch pvc with 10 feet of 0.010 slot screen installed to a total depth of 15 feet. Monitor well locations are shown on **Figure 7**.

**Survey**

As part of the June 2011 investigation, the relative casing elevation of each of the wells (MW-10, MW-12, MW-13, MW-15) was surveyed to the nearest 0.010 foot using a Topcon A-6 site level.

The horizontal position of the borings and wells was located to the nearest 0.10 foot by obtaining measurements from the property lines or other permanent Site feature.

**Water Level Measurement**

As part of the June 2011 investigation following completion of groundwater wells the depth to groundwater was measured in each of the monitoring wells to the nearest 0.010 ft using an electronic water level meter. Water level and survey data are included in **Table 1**.

## 4.3 SAMPLE COLLECTION AND CHEMICAL ANALYSIS

Sampling performed as part of the field investigation was conducted for all Areas of Concern and also considered other means for bias of sampling based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. All media including soil, groundwater and soil vapor have been sampled and evaluated in the RIR. Discrete (grab) samples have been used for final delineation of the nature and extent of contamination and to determine the impact of contaminants on public health and the environment. The sampling performed and presented in this RIR provides sufficient basis for evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment, and selection of a final remedy.

**Soil Sampling**

*April 2007*:

Two soil sample intervals from each boring were retained for analysis of volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270. All borings were collected utilizing a four-foot steel macro-core sampler with acetate liners and Geoprobe direct-push equipment. Non-disposable sampling equipment was cleaned using distilled water and Alconox detergent with a distilled water rinse prior to the collection of each sample.

Two soil sample intervals from each boring, with the exception of the borings performed in the basement of the existing building, were submitted for analysis of volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, pesticides/PCBs and TAL Metals. Soil samples were delivered, via courier service, under

chain of custody documentation and were analyzed by a New York State Department of Health certified laboratory.

*June 2011*: Two soil sample intervals from each boring were retained for analysis of volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270. All borings were collected utilizing a five-foot steel macro-core sampler with acetate liners and Geoprobe direct-push equipment. The dual tube method of sampling was used at all locations to maintain sample core integrity and to obtain representative samples. A new acetate liner was used at each location to prevent cross contamination between samples. Non-disposable sampling equipment was cleaned using distilled water and Alconox detergent with a distilled water rinse prior to the collection of each sample.

In accordance with the requested protocol, two samples were retained from each boring location: one sample from unsaturated zone representing the highest PID reading and one sample from the groundwater interface. This resulted in one sample from the 5-7 foot interval and one from the 8-10 foot interval of each of the four borings.

Samples were retained in properly labeled, laboratory supplied glassware and placed in individual, labeled, zip lock bags. After placing in the bags, the samples were stored in a cooler with water and ice to maintain a temperature of 4oC. Samples were transported under chain-of-custody documentation to EBC's office by the sampling crew and picked up by laboratory dispatched courier for delivery to the laboratory.

*September 2011*: All borings were collected utilizing a five-foot steel macro-core sampler with acetate liners and Geoprobe direct-push equipment. The dual tube method of sampling was used at all locations to maintain sample core integrity and to obtain representative samples. A new acetate liner was used at each location to prevent cross contamination between samples. Non-disposable sampling equipment was cleaned using distilled water and Alconox detergent with a distilled water rinse prior to the collection of each sample.

In accordance with the requested protocol, one to two samples were retained from each boring based on the location and interval for which the confirmatory sampling was required. This

resulted in one sample from the 0-2 ft interval at all 7 locations (B7-B9, B11, B12, B13, B15), one sample from the 5-7 ft interval of B11 and one sample from the 6-8 ft interval at B15.

Samples were retained in properly labeled, laboratory supplied glassware and placed in individual, labeled, zip lock bags. After placing in the bags, the samples were stored in a cooler with water and ice to maintain a temperature of 4oC. Samples were transported under chain-of-custody documentation to EBC's office by the sampling crew and picked up by laboratory dispatched courier for delivery to the laboratory. Samples were submitted for analysis of one or more of the following heavy metals depending on location: arsenic, copper, lead or mercury.

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements are addressed by the laboratory for all data generated. This includes the preparation and analysis of method blanks at the required frequency and surrogate recovery analysis before purging or extraction. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

A total of 32 soil samples (April 2007, June 2011, September 2011 ) were collected for chemical analysis during this RI. Data on soil sample collection for chemical analyses, including dates of collection and sample depths, are reported in **Tables 2 through 8**. **Figure 7** shows the location of samples collected in this investigation.

**Groundwater Sampling**

*April 2007:* Sample collection during the 2007 subsurface investigation consisted of purging a minimum of three casing volumes from each well with a persistaltic pump followed by sample collection using a disposable polyethylene bailer and transferred directly into laboratory supplied glassware. Groundwater samples collected from the temporary wells were collected from polyethylene tubing which was discarded between sampling locations.

*June and July 2011:* During the 2011 supplemental investigation each of the wells was sampled using a peristaltic pump and polyethylene tubing which was replaced between sampling locations. Each of the wells pumped dry and had to be allowed to recharge to collect enough water to fill a 1 liter bottle and two 40 ml vials. The recharge rate into the wells was extremely slow due to the clay material and lack of a good water transmitting zone.

At the DEC's request, a second round of groundwater samples were collected from the monitoring wells on July 13, 2011.

Samples were retained in properly labeled, and pre-acidified (VOCs) laboratory supplied glassware and placed in individual, labeled, zip lock bags. After placing in the bags, the samples were stored in a cooler with water and ice to maintain a temperature of 4oC. Samples were transported under chain-of-custody documentation to EBC's office by the sampling crew and picked up by laboratory dispatched courier for delivery to the laboratory.

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements are addressed by the laboratory for all data generated. This includes the preparation and analysis of method blanks at the required frequency and surrogate recovery analysis before purging or extraction. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

A total of eleven groundwater samples (April 2007, June/July 2011, September 2011) were collected for chemical analysis during this RI. were collected for chemical analysis during this RI. The two samples collected in April 2007 were submitted for analysis of VOCs, SVOCs, PCBs, Pesticides, and Metals. The 8 samples collected in June/July 2011 were only analyzed for STARS list VOCs and SVOCs. The 2 samples collected in September 2011 were only analyzed for specific metals identified at levels above their respective Track 2 Restricted Residential SCOs in soil borings. Groundwater sample collection data is reported in **Tables 9-15**. Sampling logs with information on purging and sampling of groundwater monitor wells for the April 2007 investigation are included in the April 2007. Phase II Report.. Groundwater sampling logs for the

2011 supplemental investigation are included in **Appendix B**. **Figure 7** shows the location of the groundwater samples. Laboratories and analytical methods are shown below.

**Soil Vapor Sampling**

Three soil vapor probes were installed and three soil vapor samples were collected for chemical analysis during this RI. Vapor implants were installed on September 2, 2011, using Geoprobe™ equipment and tooling. The vapor implants that were installed were the Geoprobe™ Model AT86 series, which are constructed of a 6-inch length of double woven stainless steel wire. The implants were installed to a depth of 3 feet below grade at all locations. Each implant was attached to ¼ inch polyethylene tubing which extended approximately 18 inches beyond that needed to reach the surface. The tubing was capped with a ¼ inch plastic end to prevent the infiltration of foreign particles into the tube. Coarse sand was placed around the vapor implant to a height of approximately 1 foot above the bottom of the implant. The remainder of the borehole was sealed with a bentonite slurry to the surface.

Prior to collecting the sample, one to three volumes (i.e., the volume of the sample probe and tube) of air was purged from the implant using a calibrated vacuum pump. After purging, a 6-liter Summa® canister, fitted with a 2-hour flow regulator, was attached to the surface tube of each of the six vapor implants. Sample identification, date, start time, start vacuum, end time and end vacuum were recorded on tags attached to each canister and on a sample log sheet (**Appendix C**). Samples were submitted to York Laboratory Services, Inc. for laboratory analysis of VOCs EPA Method TO-15.

Soil vapor sampling locations are shown in **Figure 7**. Soil vapor sample results are reported in **Table 16**. Soil vapor sampling logs are included in **Appendix C**. Methodologies used for soil vapor assessment conform to the NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.

**Chemical Analysis**

Chemical analytical work presented in this RIR has been performed in the following manner:

| Factor | Description |
|---|---|
| Quality Assurance Officer | The chemical analytical quality assurance is performed by the analytical laboratory. |
| Chemical Analytical Laboratory | Chemical analytical laboratory(s) used in the RI is NYS ELAP certified and were Alpha Woods Hole Labs, Analytical Laboratory Services, Inc. and York Analytical Laboratories |
| Chemical Analytical Methods | Soil analytical methods:<br>• TAL Metals by EPA Method 6010C (rev. 2007);<br>• VOCs by EPA Method 8260C (rev. 2006);<br>• SVOCs by EPA Method 8270D (rev. 2007);<br>• Pesticides by EPA Method 8081B (rev. 2000);<br>• PCBs by EPA Method 8082A (rev. 2000)<br>Groundwater analytical methods:<br>• TAL Metals by EPA Method 6010C (rev. 2007);<br>• VOCs by EPA Method 8260C (rev. 2006);<br>• SVOCs by EPA Method 8270D (rev. 2007);<br>• Pesticides by EPA Method 8081B (rev. 2000);<br>• PCBs by EPA Method 8082A (rev. 2000)<br>Air analytical methods:<br>• VOCs by EPA Method TO15 |

**Results of Chemical Analyses**

Laboratory data for all media are summarized in **Tables 2-15**. Laboratory reports for all samples evaluated in this RIR are provided in digital form in **Appendix D**.

# 5.0 ENVIRONMENTAL EVALUATION

## 5.1 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

**Stratigraphy**

According to the boring logs, soils at the site consist primarily of clay with fill material in the upper 10 feet, and clay with native bog material from 10-20 feet below the surface. Groundwater is limited to a narrow zone within the clay-fill material. Historically this area was low-lying marsh-land which was filled beginning in the early to mid 1800's. Excavation work performed on the adjacent property to the west noted fill materials including ash and pottery to a depth of 15 feet followed by a bog mat and clay.

**Hydrogeology**

Groundwater is present at a depth of approximately 3 feet below the surface. Groundwater recharge and flow through the site is expected to be minimal due to thinness of the saturated zone and the low hydraulic conductivity of the materials present. These conditions were observed during excavation for a basement level foundation on the adjacent property to the west. Following the initial pumping of accumulated water in the excavation recharge for the entire area was less than 100 gallons per day.

A table of water level data for all monitor wells is included in **Table 1**. The average depth to groundwater is 3 feet below the surface and the range in depth is 3 to 6 feet. A map of groundwater level elevations with groundwater contours and inferred flow lines is shown in **Figure 8**. Groundwater flow is from south to north.

## 5.2 SOIL SAMPLING RESULTS

Soil sample results were compared to the Unrestricted Use and Restricted Residential Use Soil Cleanup Objectives (SCOs) as presented in NYSDEC CP51 Soil Cleanup Guidance (10/21/10). Analytical data for the soil samples are summarized in **Tables 2 through 8**, and a copy of the laboratory analytical report is included in **Appendix D**.

Soil samples tested during the remedial investigation showed a variety of petroleum VOCs in most samples collected and many of these samples exceeded Track 1 Unrestricted Use Soil

Cleanup Objectives (SCOs). Of these, three VOCs, all benzene derivatives exceeded Track 2 Restricted Residential SCOs. Total petroleum related VOC concentrations exceeded 100 ppm in some cases and are attributed to a petroleum spill onsite that is being actively managed by NYSDEC. PCE, TCE and other chlorinated hydrocarbons were not detected in onsite soil samples. Similarly, SVOCs were also commonly identified in soil. Various PAH compounds exceeded Track 1 SCOS including 6 PAH compounds that also exceeded Track 2 Restricted Residential SCOs. PAH compounds are attributed to both the petroleum spill in soils in the vicinity of the USTs and to the presence of historical fill onsite. Petroleum discharges to soil and groundwater are currently being addressed by NYS DEC under Spill number 0703695. Pesticides were not detected in onsite soils and PCBs were detected in several soil samples but were found at low concentrations and below Track 1 SCOs. The 2007 investigation showed that soils contain a variety of metals above both Track 1 and Track 2 Restricted Residential SCOs, including arsenic (6 of 15 samples exceed Track 2), copper (1 of 15 samples exceed Track 2), lead (9 of 15 samples exceed Track 2), mercury (10 of 15 exceed Track 2) and selenium (1 of 15 samples exceed Track 2). The relatively high concentrations of metals are likely related to the historic fill at the site and also possibly to the result of historic manufacturing operations at the site. Considerable removal of soil from the site was performed by a prior developer and ranges from the top 2 to 4 feet of soil and much of the soil exceeding SCOs has already been removed from the property, as confirmed by the September 2011 sampling.

Data collected during the RI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Site.

## 5.3 GROUNDWATER SAMPLING RESULTS

Groundwater sample results were compared to the water quality standards specified in NYSDEC Groundwater Quality Standards (GQSs). Analytical data for the groundwater samples are summarized in **Tables 9 through 15**.

Groundwater samples tested during the remedial investigation showed a variety of petroleum VOCs in groundwater. In 2007, concentrations of 9 of these compounds exceed Part 703.5 Class GA groundwater quality standards (GQS), however sampling in June 2011 show only 3 to 5 compounds above GQS and limited to two of the four sampling locations. Concentrations of total

VOCs ranged from 474 to 948 ug/L in 2007 and from non-detect to 203 ug/L in June 2011 and from non-detect to 26 ug/L in July 2011. The July 2011 results showed a total of 3 parameters slightly above GQS. The petroleum VOCs reported are attributed to a petroleum spill onsite that is being actively managed by NYSDEC. Six SVOCs were also reported in groundwater above GQS in 2007, however, SVOCs in groundwater were not detected in 2011. No PCE or TCE were identified in onsite groundwater samples. Pesticides and PCBs were not detected in groundwater. Metals in groundwater were observed above GQS, including arsenic and sodium. The most recent sampling event showed arsenic at 40 ug/l and moderately above the GWS of 25 ug/l.

Data collected during the RI is sufficient to delineate the distribution of contaminants in groundwater at the Site.

## 5.4 SOIL VAPOR SAMPLING RESULTS

Soil vapor samples tested during the remedial investigation showed a wide variety of VOCs including BTEX and associated petroleum derivative compounds. Petroleum compounds were generally low. Several chlorinated VOC were also identified including PCE, which was found in 2 of 3 samples with a maximum concentration of 200 ug/m3, and TCE, which was found in 2 of 3 samples with a maximum concentration of 5.6 ug/m3. PCE and TCE were not detected in any onsite soil or groundwater samples and are attributed to offsite sources. Acetone and methylene chloride were also identified in vapor samples.

Data collected during the RI is sufficient to delineate the distribution of contaminants in soil vapor at the Site. A summary table of data for chemical analyses performed on soil vapor samples is included in **Table 16**.

## 5.5 HAZARDOUS WASTE DISPOSAL STATEMENT

Based on an evaluation of the data and information from the RIR, disposal of significant amounts of hazardous waste is not suspected at this site.

## 5.6 IMPEDIMENTS TO REMEDIAL ACTION

A recent survey of the site shows the tops of 130 wooden support pilings which were previously installed on the site as part of the new buildings foundation. Foundation plans however show 180

pilings which the developer confirms have been installed but which may be partially covered by soil. Any excavation on the site will be impeded and/or severely limited by the presence of these pilings.

# ***TABLES***

**Table 1**
**210 N. 12th Street, Brooklyn, New York**
**Well Survey Data**

| Well No. | Reading | Casing Elevation | DTW | GW ELV |
|---|---|---|---|---|
| MW10 | 3.00 | 97.00 | 6.78 | 90.22 |
| MW12 | 6.32 | 93.68 | 3.34 | 90.34 |
| MW13 | 6.34 | 93.66 | 3.32 | 90.34 |
| MW15 | 3.36 | 96.64 | 6.12 | 90.52 |
| | | | | |

TABLE 2
210 N. 12th Street, Brooklyn, New York
Soil Analytical Results
Volatile Organic Compounds
PWGC - April 2007

| COMPOUND | **Track 1 Unrestricted Cleanup Objectives | **Restricted Residential Cleanup Objectives | B7 (0-2 ft) | B8 (2-4 ft) | B8(6-8 ft) | B9(6-8 ft) | B10(0-2 ft) | B10(6-8 ft) | B11(0-2 ft) | B11(6-8 ft) | B12(0-2 ft) | B12(6-8 ft) | B13(0-2 ft) | B13(6-8 ft) | B15(0-2 ft) | B15(6-8 ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ug/Kg | | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| 1,1,1,2-Tetrachloroethane | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 680 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloro-1,2,2-tricfluoroethane (Freon 113) | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 270 | 26,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 330 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2,4-Trimethylbenzene | 3,600 | 52,000 | ND | ND | **67,000** | **150,000** | **1100** | ND | **860** | ND | **190,000** | ND | | ND | **140,000** | **13,000** |
| 1,2-Dichlorobenzene | 1,100 | 10,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 20 | 3,100 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,3,5-Trimethylbenzene | 8,400 | 52,000 | ND | ND | **22,000** | ND | **680** | ND | ND | ND | **680** | ND | | ND | **51,000** | ND |
| 1,3-Dichlorobenzene | 2,400 | 49,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,3-Dichloropropane | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 1,800 | 13,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acetone | 50 | 100,000 | ND | **180** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 60 | 4,800 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 760 | 2,400 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 1,100 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroform | 370 | 49,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 1,000 | 41,000 | ND | ND | **10,000** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Isopropylbenzene | | | **2,000** | **3** | ND | **16,000** | **28** | **7,200** | ND | **34,000** | ND | **17,000** | ND | **10,000** | **4,400** | **3,700** |
| MTBE | 930 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene chloride | 50 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| n-Butylbenzene | 12,000 | - | ND | ND | **17,000** | **20,000** | **250** | **6,300** | **58** | **36,000** | ND | **23,000** | ND | **13,000** | **5,200** | **12,000** |
| n-Propylbenzene | 3,900 | 100,000 | **7,300** | **10** | **11,000** | **44,000** | 81 | **18,000** | 45 | **75,000** | 4.1 | **37,000** | ND | **29,000** | **9,800** | **11,000** |
| Naphthalene | 12,000 | 100,000 | ND | ND | ND | ND | 72 | ND | ND | ND | ND | 9100 | ND | ND | ND | ND |
| o-Xylene | 260 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Isopropyltoluene | | | ND | 61 | **8,300** | **10,000** | **100** | ND | ND | ND | ND | 5500 | ND | ND | ND | ND |
| p-&m-Xylenes | 260 | 100,000 | ND | ND | **29,000** | ND | 67 | ND | ND | ND | ND | **2,000** | ND | ND | ND | ND |
| sec-Butylbenzene | 11,000 | 100,000 | **7,100** | **11** | **9,300** | **19,000** | 80 | **17,000** | 51 | **51,000** | 3 | **18,000** | ND | **20,000** | ND | **11,000** |
| tert-Butylbenzene | 5,900 | 100,000 | ND | ND | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 1,300 | 19,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 700 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethylene | 470 | 21,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | 20 | 900 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

**Notes:**

** - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

**Bold/highlighted- Indicated exceedance of the Unrestricted SCOs**

**Bold/highlighted- Indicated exceedance of the Restricted Residential SCOs**

TABLE 3
210 N. 12th Street, Brooklyn, New York
Soil Analytical Results
Semi-Volatile Organic Compounds
PWGC - April 2007

| COMPOUND | **Track 1 Unrestricted Cleanup Objectives | **Restricted Residential Cleanup Objectives | B7 (0-2 ft) | B8 (2-4 ft) | B8(6-8 ft) | B9(0-2 ft) | B9(6-8 ft) | B10(0-2 ft) | B10(6-8 ft) | B11(0-2 ft) | B11(6-8 ft) | B12(0-2 ft) | B12(6-8 ft) | B13(0-2 ft) | B13(6-8 ft) | B15(0-2 ft) | B15(6-8 ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ug/Kg | | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| 1,2,4-Trichlorobenzene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,4-Dinitrotoluene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | | | 500 | 2200 | 400 | 380 | 430 | 400 | 470 | 410 | 4400 | 400 | 430 | 1800 | 420 | 390 | 480 |
| 2-Chloronaphthalene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | | | 51 | ND | ND | 120 | 400 | ND | 400 | 460 | 8700 | ND | 380 | 470 | 1700 | 390 | 140 |
| 3,3'-Dichlorobenzidine | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Nitroaniline | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Bromophenyl phenyl ether | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloro-3-methylphenol | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chloroaniline | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Chlorophenyl phenyl ether | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Nitroaniline | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 20,000 | 100,000 | 45 | 410 | 180 | ND | 240 | ND | 21 | ND | 1200 | ND | 100 | 440 | ND | 56 | 42 |
| Acenaphthylene | 100,000 | 100,000 | ND | 680 | 200 | 22 | 180 | 130 | 77 | 120 | 3800 | ND | 22 | ND | ND | 45 | 93 |
| Aniline | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | | 100,000 | 57 | 1600 | 620 | 38 | 400 | 88 | 140 | 230 | 6200 | 88 | 84 | 360 | 130 | 170 | 170 |
| Benzo(a)anthracene | 1,000 | 1,000 | 120 | 4100 | 1600 | 110 | 1700 | 260 | 1200 | 940 | 18000 | 300 | 260 | 840 | 170 | 510 | 440 |
| Benzo(a)pyrene | 1,000 | 1,000 | 78 | 4100 | 1300 | 73 | 1700 | 520 | 1200 | 1100 | 23000 | 400 | 220 | 660 | 110 | 470 | 370 |
| Benzo(b)fluoranthene | 1,000 | 1,000 | 82 | 4100 | 900 | 110 | 1100 | 430 | 800 | 770 | 22000 | 250 | 140 | 460 | 84 | 400 | 280 |
| Benzo(g,h,i)perylene | 100,000 | 100,000 | 39 | 2800 | 750 | 81 | 900 | 550 | 820 | 800 | 11000 | 370 | 110 | 350 | ND | 390 | 210 |
| Benzo(k)fluoranthene | 800 | 3,900 | 79 | 4100 | 1400 | 140 | 1900 | 700 | 1300 | 1200 | 16000 | 430 | 230 | 750 | 130 | 620 | 510 |
| Butyl benzyl phthalate | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bis(2-chloroethoxy)methane | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bis(2-chloroethyl)ether | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bis(2-ethylhexyl)phthalate | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chrysene | 1,000 | 3,900 | 110 | 3200 | 1200 | 200 | 1400 | 220 | 970 | 790 | 14000 | 270 | 200 | 660 | 140 | 440 | 380 |
| Dibenzo(a,h)anthracene | 330 | 330 | ND | 770 | 210 | 27 | 310 | 140 | 240 | 3700 | 140 | ND | 240 | ND | ND | 77 | ND |
| Dibenzofuran | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Diethylphthalate | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dimethylphthalate | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Di-n-butylphthalate | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Di-n-octylphthalate | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluoranthene | 100,000 | 100,000 | 330 | 9800 | 3400 | 490 | 2300 | 180 | 1200 | 1300 | 24000 | 400 | 400 | 1900 | 520 | 990 | 1200 |
| Fluorene | 30,000 | 30,000 | 52 | 490 | 230 | ND | 280 | ND | 40 | ND | 2400 | ND | 53 | 390 | 120 | 86 | 77 |
| Hexachlorobenzene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexachlorobutadiene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexachloroethane | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 500 | 500 | 44 | 2800 | 780 | 76 | 950 | 520 | 820 | 810 | 12000 | 330 | 120 | 380 | ND | 400 | 220 |
| Isophorone | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 12,000 | 100,000 | 170 | ND | 160 | 260 | 460 | 100 | 240 | 450 | 1900 | ND | 930 | 900 | 1200 | 510 | 130 |
| Nitrobenzene | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Nitrosodiphenylamine | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Nitrosodi-n-propylamine | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 100,000 | 100,000 | 200 | 6400 | 2200 | 370 | 1200 | 84 | 320 | 600 | 12000 | 160 | 170 | 1400 | 460 | 650 | 460 |
| Phenol | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pyrene | 100,000 | 100,000 | 350 | 8800 | 3200 | 370 | 2100 | 240 | 1400 | 1400 | 19000 | 390 | 350 | 1800 | 430 | 880 | 1000 |
| Pyridine | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

**Notes:**

** - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

**NA - Guidance value not available**

**Bold/highlighted- Indicated exceedance of the Unrestricted SCOs**

**Bold/highlighted- Indicated exceedance of the Restricted Residential SCOs**

TABLE 4
210 N. 12th Street, Brooklyn, New York
Soil Analytical Results
Pesticides / PCBs
PWGC - April 2007

| COMPOUND | **Track 1 Unrestricted Cleanup Objectives | **Restricted Residential Cleanup Objectives | B7 (0-2 ft) | B8 (2-4 ft) | B8(6-8 ft) | B9(0-2 ft) | B9(6-8 ft) | B10(0-2 ft) | B10(6-8 ft) | B11(0-2 ft) | B11(6-8 ft) | B12(0-2 ft) | B12(6-8 ft) | B13(0-2 ft) | B13(6-8 ft) | B15(0-2 ft) | B15(6-8 ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg | µg/Kg |
| **4,4-DDD** | 3.3 | 13000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **4,4-DDE** | 3.3 | 8900 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **4,4-DDT** | 3.3 | 7900 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Aldrin** | 5 | 97 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **alpha-BHC** | 20 | 480 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **beta-BHC** | 36 | 360 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Chlordane Total** | 94 | 4,200 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **delta-BHC** | 40 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Dieldrin** | 5 | 200 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Endosulfan I** | 2,400 | 24,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Endosulfan II** | 2,400 | 24,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Endosulfan Sulfate** | 2,400 | 24,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Endrin** | 14 | 11,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Endrin ketone** | NS | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Heptachlor** | 42 | 2,100 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Heptachlor epoxide** | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **gamma-BHC** | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Methoxychlor** | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **trans-Chlordane** | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCB-1016** | 100 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCB-1221** | 100 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCB-1232** | 100 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCB-1242** | 100 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCB-1248** | 100 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **PCB-1254** | 100 | 1,000 | ND | ND | ND | ND | ND | ND | **57.4** | **44.9** | ND | ND | ND | ND | ND | **39.5** | **63.5** |
| **PCB-1260** | 100 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Endrin aldehyde** | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Toxaphene** | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

**Notes:**

** - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

U - Analyte not detected

**NA - Guidance value not available**

**Bold/highlighted- Indicated exceedance of the Unrestricted SCOs**

**Bold/highlighted- Indicated exceedance of the Restricted Residential SCOs**

TABLE 5
210 N. 12th Street, Brooklyn, New York
Soil Analytical Results
Metals
PWGC - April 2007

| COMPOUND | **Track 1 Unrestricted Cleanup Objectives | **Restricted Residential Cleanup Objectives | B7 (0-2 ft) | B8 (2-4 ft) | B8(6-8 ft) | B9(0-2 ft) | B9(6-8 ft) | B10(0-2 ft) | B10(6-8 ft) | B11(0-2 ft) | B11(6-8 ft) | B12(0-2 ft) | B12(6-8 ft) | B13(0-2 ft) | B13(6-8 ft) | B15(0-2 ft) | B15(6-8 ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg |
| **Aluminum** | | | **5,300** | **4,600** | **8,100** | **5,500** | **5,500** | **6,700** | **8,300** | **4,500** | **4,600** | **7,400** | **12,000** | **4,700** | **6,700** | **5,700** | **5,400** |
| **Antimony** | | | ND | **7.3** | ND | **6** | ND | ND | **3.9** | **7.6** | ND | **4.1** | ND | ND | ND | **4.4** | ND |
| **Arsenic** | 13 | 16 | **22** | **18** | **5.9** | **35** | **9.2** | **3.8** | **11** | **7.8** | **12** | **21** | **2.9** | **10** | **7.9** | **33** | **17** |
| **Barium** | 350 | 400 | **85** | **200** | **63** | **380** | **80** | **39** | **140** | **160** | **180** | **220** | **62** | **320** | **80** | **200** | **270** |
| **Beryllium** | 7 | 72 | **0.32** | **0.26** | **0.57** | **0.51** | **0.29** | **0.36** | **0.47** | **0.29** | **0.29** | **0.57** | **0.71** | **0.37** | **0.51** | **0.44** | **0.39** |
| **Cadmium** | 2.5 c | 4 | ND | **2.2** | ND | **2.6** | ND | ND | ND | **0.92** | ND | **1.2** | ND | **0.92** | ND | **3.4** | **0.84** |
| **Calcium** | | | **25000** | **70000** | **1400** | **3500** | **4400** | **40000** | **45000** | **12000** | **8600** | **6800** | **1800** | **12000** | **3400** | **11000** | **11000** |
| **Chromium** | 30 c | 180 | **22** | **37** | **27** | **21** | **17** | **11** | **20** | **63** | **81** | **88** | **21** | **21** | **21** | **21** | **18** |
| **Cobalt** | | | **4.6** | **5.3** | **7.6** | **11** | **15** | **3.3** | **5.9** | **6.7** | **6.8** | **13** | **6.6** | **5.4** | **11** | **6.2** | **9.5** |
| **Copper** | 50 | 270 | **260** | **170** | **26** | **800** | **50** | **11** | **67** | **170** | **110** | **210** | **16** | **320** | **53** | **220** | **210** |
| **Iron** | | | **22000** | **14000** | **19000** | **38000** | **59000** | **8100** | **18000** | **16000** | **24000** | **21000** | **22000** | **9500** | **48000** | **14000** | **23000** |
| **Lead** | 63 c | 400 | **480** | **1400** | **54** | **1300** | **160** | **30** | **420** | **400** | **1400** | **710** | **90** | **430** | **740** | **660** | **1000** |
| **Magnesium** | | | **3100** | **5100** | **2200** | **1900** | **1400** | **11000** | **4200** | **1400** | **1300** | **2200** | **1800** | **3400** | **1800** | **2200** | **2000** |
| **Manganese** | 1600 c | 2,000 | **350** | **140** | **400** | **460** | **530** | **400** | **340** | **160** | **360** | **350** | **630** | **470** | **540** | **180** | **240** |
| **Mercury** | 0.18 c | 0.81 | **4** | **12** | **0.14** | **30** | **0.42** | **0.41** | **1.5** | **9.2** | **2** | **9.1** | **0.17** | **27** | **0.19** | **3.4** | **4.4** |
| **Nickel** | 30 | 310 | **4** | **10** | **14** | **24** | **18** | **12** | **11** | **10** | **13** | **21** | **12** | **15** | **18** | **13** | **16** |
| **Potassium** | | | **16** | **1400** | **1200** | **1000** | **950** | **850** | **1200** | **700** | **720** | **960** | **750** | **1100** | **1200** | **780** | **740** |
| **Selenium** | 3.9c | 180 | **850** | ND | ND | ND | **2.5** | ND | ND | ND | ND | ND | ND | ND | ND | **4.2** | **3.4** |
| **Silver** | 2 | 180 | ND | ND | ND | **0.52** | ND | ND | ND | ND | ND | ND | ND | **0.5** | ND | ND | ND |
| **Sodium** | | | ND | **5700** | **130** | **2200** | **130** | **530** | **910** | **1300** | **180** | **1400** | **320** | **2000** | **290** | **2200** | **1600** |
| **Thallium** | | | **1000** | ND | ND | ND | **2.5** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Vanadium** | | | ND | **16** | **33** | **30** | **31** | **14** | **20** | **17** | **20** | **32** | **35** | **16** | **32** | **22** | **23** |
| **Zinc** | 109 c | 10,000 | **17** | **3500** | **49** | **1100** | **73** | **71** | **260** | **600** | **380** | **690** | **45** | **960** | **100** | **1100** | **710** |

**Notes:**

** - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

**NA - Guidance value not available**

**Bold/highlighted- Indicated exceedance of the Unrestricted SCOs**

**Bold/highlighted- Indicated exceedance of the Restricted Residential SCOs**

TABLE 6
210 N. 12th Street, Brooklyn, New York
Soil Analytical Results 6-10-11
Volatile Organic Compounds

| COMPOUND | Unrestricted Soil Cleanup Objectives | Restricted Residential Soil Cleanup Objectives | B10 5-7 ft | B10 8-10 ft | B12 5-7 ft | B12 8-10 ft | B13 5-7 ft | B13 8-10 ft | B15 5-7 ft | B15 8-10 ft |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| **1,2,4-Trimethylbenene** | 3,600 | 52,000 | ND | 2.2 | 214,000 | 10.8 | 6 | ND | 25 | 20.7 |
| **1,3,5-Trimethylbenzene** | 8,400 | 52,000 | ND | ND | 55,300 | 2.4 | ND | ND | ND | 6.2 |
| **Benzene** | 60 | 4,800 | 2.3 | ND | ND | ND | ND | ND | ND | ND |
| **Ethylbenzene** | 1,000 | 41,000 | 65.7 | 4 | 50,300 | 8 | 5.1 | ND | 4.9 | 9.2 |
| **Isopropylbenzene** | | | 5,050 | 27.1 | 19,500 | ND | 4 | ND | 10.9 | 4.4 |
| **MTBE** | 930 | 100,000 | ND | ND | ND | ND | ND | ND | ND | ND |
| **Naphthalene** | | | 24.1 | ND | 14,700 | ND | ND | ND | ND | ND |
| **n-Butylbenzene** | 12,000 | 100,000 | ND | 10 | ND | ND | ND | ND | 13.3 | ND |
| **n-Propylbenzene** | 3,900 | 100,000 | 11,200 | 37 | **45,400** | ND | ND | ND | 18.6 | 3.9 |
| **o-Xylene** | 260 | 100,000 | 9.5 | ND | ND | 3.7 | ND | ND | ND | 3.5 |
| **p-&m-Xylenes** | 260 | 100,000 | 85.8 | 6.3 | ND | 21.9 | 78 | ND | 7.9 | 19.7 |
| **p-Isopropyltoluene** | | | ND | ND | 14,300 | ND | ND | ND | ND | ND |
| **sec-Butylbenzene** | 11,000 | 100,000 | **15,900** | 47 | **32,400** | ND | ND | ND | 29.7 | ND |
| **tert-Butylbenzene** | 5,900 | 100,000 | ND | ND | ND | ND | ND | ND | 2.8 | ND |
| **Toluene** | 700 | 100,000 | 6.0 | ND | ND | ND | ND | ND | ND | 3.7 |
| **Total VOCs** | | | 32,343 | 133 | 445,900 | 47 | 93 | 0 | 113 | 71 |

**Notes:**

** - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

**NS - No Standard**

**Bold/highlighted- Indicated exceedance of the Unrestricted SCOs**

**Bold/highlighted- Indicated exceedance of the Restricted Residential SCOs**

TABLE 7
210 N. 12th Street, Brooklyn, New York
Soil Analytical Results 6-10-11
Semi-Volatile Organic Compounds

| COMPOUND | Unrestricted Soil Cleanup Objectives | Restricted Residential Soil Cleanup Objectives | B10 5-7 ft | B10 8-10 ft | B12 5-7 ft | B12 8-10 ft | B13 5-7 ft | B13 8-10 ft | B15 5-7 ft | B15 8-10 ft |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| **Acenaphthene** | 20,000 | 10,000 | ND | 70.2 | ND | 544 | ND | 66 | 84 | ND |
| **Acenaphthylene** | 100,000 | 100,000 | ND | ND | ND | 355 | ND | ND | ND | 97 |
| **Anthracene** | 100,000 | 100,000 | ND | ND | ND | 3,280 | ND | 162 | ND | 68 |
| **Benzo(a)anthracene** | 1,000 | 1,000 | 220 | 197 | ND | **6,850** | ND | 434 | 157 | 386 |
| **Benzo(a)pyrene** | 1,000 | 1,000 | 330 | 166 | ND | **5,230** | ND | 408 | 153 | 445 |
| **Benzo(b)fluoranthene** | 1,000 | 1,000 | 361 | 160 | ND | **3,710** | ND | 368 | 121 | 402 |
| **Benzo(g,h,i)perylene** | 100,000 | 100,000 | ND | 117 | ND | 3,350 | ND | 288 | 107 | 410 |
| **Benzo(k)fluoranthene** | 800 | 3,900 | 406 | 163 | ND | **4,180** | ND | 411 | 140 | 455 |
| **Chrysene** | 1,000 | 3,900 | 251 | 191 | ND | **6,450** | ND | 475 | 176 | 458 |
| **Dibenzo(a,h)anthracene** | 330 | 330 | ND | ND | ND | **1,320** | ND | 101 | ND | 147 |
| **Fluoranthene** | 100,000 | 100,000 | 319 | 409 | ND | 13,000 | 71 | 1,040 | 413 | 749 |
| **Fluorene** | 30,000 | 30,000 | ND | ND | ND | 777 | ND | 92 | 65 | ND |
| **Indeno(1,2,3-cd)pyrene** | 500 | 500 | 137 | 104 | ND | **3,080** | ND | 247 | 102 | 371 |
| **Naphthalene** | 12,000 | 100,000 | 24.1 | ND | **14,700** | ND | ND | ND | 29.7 | ND |
| **Phenanthrene** | 100,000 | 100,000 | 103 | 215 | ND | 8,350 | ND | 658 | 287 | 309 |
| **Pyrene** | 100,000 | 100,000 | 285 | 352 | ND | 10,500 | ND | 785 | 358 | 685 |

**Notes:**

* - NYSDEC Technical and Administative Guidance Memorandum 4046, 1994

** - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

**NS - No Standard**

**Bold/highlighted- Indicated exceedance of the Unrestricted SCOs**

**Bold/highlighted- Indicated exceedance of the Restricted Residential SCOs**

TABLE 8
210 N. 12th Street, Brooklyn, New York
Soil Analytical Results
Metals
September 2011

| COMPOUND | NYSDEC Part 375-6 Unrestricted Use Soil Cleanup Objectives* | NYSDEC Part 375-6 Restricted Residential Use Soil Cleanup Objectives* | NYSDEC Part 375-6 Commercial Use Soil Cleanup Objectives* | NYSDEC Part 375-6 Industrial Use Soil Cleanup Objectives* | B7 0-2' (4-6' BOSG) mg/Kg | B8 0-2' (4-6' BOSG) mg/Kg | B9 0-2' (4-6' BOSG) mg/Kg | B11(0-2') (3-5' BOSG) mg/Kg | B11(5-7') (8-10' BOSG) mg/Kg | B12(0-2') (3-5' BOSG) mg/Kg | B13(0-2') (3-5' BOSG) mg/Kg | B15(0-2') (2-4' BOSG) mg/Kg | B15(6-8') (8-10' BOSG) mg/Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | 13c | 16 | 16 | 16 | | | **19.1** | | | | | **8.13** | |
| **Copper** | 50 | 270 | 270 | 10,000 | | | **134** | | | | | | |
| **Lead** | 63c | 400 | 1,000 | 3,900 | | **1260** | **504** | **2140** | **3720** | **624** | | | |
| **Mercury** | 0.18c | 0.81 | 2.8 | 5.7 | **1.72** | **ND** | **ND** | **ND** | | | **ND** | **ND** | **ND** |

**Notes:**

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

BOSG - Below original surface grade

TABLE 9
210 N. 12th Street, Brooklyn, New York
Groundwater Analytical Results
Volatile Organic Compounds
April 2007

| Compound | NYSDEC Groundwater Quality Standards | Sample ID | |
|---|---|---|---|
| **Volatile Organic Compounds by 8260 - ug/L** | | **B8-GW** | **B11-GW** |
| 1,1,1,2-Tetrachloroethane | 5 | ND | ND |
| 1,1,1-Trichloroethane | 5 | ND | ND |
| 1,1,2,2-Tetrachloroethane | 5 | ND | ND |
| 1,1,2-Trichloroethane | 1 | ND | ND |
| 1,1-Dichloroethane | 5 | ND | ND |
| 1,1-Dichloroethylene | | ND | ND |
| 1,1-Dichloropropylene | | ND | ND |
| 1,2,3-Trichlorobenzene | 5 | ND | ND |
| 1,2,3-Trichloropropane | 0.04 | ND | ND |
| 1,2,4-Trimethylbenzene | 5 | **250** | ND |
| 1,2,4-Trichlorobenzene | 5 | ND | ND |
| 1,2-Dibromo-3-Chloropropane | 0.04 | ND | ND |
| 1,2-Dibromoethane | | ND | ND |
| 1,2-Dichlorobenzene | 3 | ND | ND |
| 1,2-Dichloroethane | 0.6 | ND | ND |
| 1,2-Dichloropropane | | ND | ND |
| 1,3,5-Trimethylbenzene | 5 | **99** | ND |
| 1,3-Dichlorobenzene | 3 | ND | ND |
| 1,3-Dichloropropane | 5 | ND | ND |
| 1,4-Dichlorobenzene | 3 | ND | ND |
| 2,2-Dichloropropane | 5 | ND | ND |
| 2-Chlorotoluene | 5 | ND | ND |
| 4-Chlorotoluene | 5 | ND | ND |
| Benzene | 1 | ND | ND |
| Bromobenzene | 5 | ND | ND |
| Bromochloromethane | 5 | ND | ND |
| Bromodichloromethane | | ND | ND |
| Bromoform | | ND | ND |
| Bromomethane | 5 | ND | ND |
| Carbon Tetrachloride | 5 | ND | ND |
| Chlorobenzene | 5 | ND | ND |
| Chloroethane | 5 | ND | ND |
| Chloroform | 7 | ND | ND |
| Chloromethane | | ND | ND |
| cis-1,2-Dichlorethyelene | | ND | ND |
| cis-1,3-Dichloropropylene | | ND | ND |
| Dibromochloromethane | | ND | ND |
| Dibromomethane | 5 | ND | ND |
| Dichlorodifluoromethane | 5 | ND | ND |
| Ethyl Benzene | 5 | **120** | ND |
| Hexachlorobutadiene | | ND | ND |
| Isopropylbenzene | 5 | **18** | **150** |
| MTBE | 10 | ND | ND |
| Methylene Chloride | 5 | ND | ND |
| Naphthalene | | **34** | ND |
| n-butylbenzene | 5 | **38** | **32** |
| n-propylbenzene | 5 | **36** | **220** |
| o-Xylene | 5 | ND | ND |
| p- & m- Xylenes | 5 | **330** | ND |
| p-Isopropyltoluene | | ND | ND |
| sec-Butylbenzene | 5 | **23** | **72** |
| Styrene | 5 | ND | ND |
| tert-butylbenzene | 5 | ND | ND |
| Tetrachloroethylene | 5 | ND | ND |
| Toluene | 5 | ND | ND |
| trans-1,2-Dichloroethylene | | ND | ND |
| trans-1,3-Dichloropropylene | | ND | ND |
| Trichloroethylene | 5 | ND | ND |
| Trichlorofluoromethane | 5 | ND | ND |
| Vinyl Chloride | 2 | ND | ND |

**Notes:**
ND - Not detected
**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

TABLE 10
210 N. 12th Street Brooklyn, New York
Groundwater Analytical Results
Semi-Volatile Organic Compounds
PWGC - April 2007

| Compound | NYSDEC Groundwater Quality Standards | Sample ID | |
|---|---|---|---|
| **Semi-Volatile Organic Compounds by 8270 - ug/L** | | **B8-GW** | **B11-GW** |
| 1,2,4-Trichlorobenzene | 5 | ND | ND |
| 1,2-Dichlorobenzene | 3 | ND | ND |
| 1,3-Dichlorobenzene | 3 | ND | ND |
| 1,4-Dichlorobenzene | 3 | ND | ND |
| 2,4-Dinitrotoluene | 5 | ND | ND |
| 2,6-Dinitrotoluene | 5 | ND | ND |
| 2-Chloronaphthalene | | ND | ND |
| 2-Chlorophenol | | ND | ND |
| 2-Methylnapththalene | NS | **6.3** | **18** |
| 2-Nitroaniline | 5 | ND | ND |
| 3,3-Dichlorobenzidine | 5 | ND | ND |
| 3-Nitroaniline | 5 | ND | ND |
| 4-Bromophenyl phenyl ether | | ND | ND |
| 4-Chloroaniline | | ND | ND |
| 4-Chlorophenyl phenyl ether | | ND | ND |
| 4-Methylphenol | | ND | ND |
| 4-Nitroaniline | 5 | ND | ND |
| Acenaphthene | 5 | **0.27** | **2.9** |
| Acenaphthylene | | ND | **4.3** |
| Anthracene | | **0.26** | **5.5** |
| Benzidine | 5 | ND | ND |
| Benzo(a)anthracene | 0.002 | ND | **14** |
| Benzo(a)pyrene | ND | ND | **19** |
| Benzo(b)fluoranthene | 0.002 | ND | **11** |
| Benzo(g,h,i)perylene | NS | ND | **9.6** |
| Benzo(k)fluoranthene | 0.002 | ND | **20** |
| Benzyl alcohol | | ND | ND |
| bis(2-Chloroethyl)ether | 1 | ND | ND |
| bis(2-chloroisopropyl)ether | | ND | ND |
| bis(2-Ethylhexyl)phthalate | 5 | ND | ND |
| Butylbenzylphthalate | | ND | ND |
| Chrysene | 0.002 | ND | **9.2** |
| Dibenzo(a,h)anthracene | 50 | ND | **3.5** |
| Dibenzofuran | | ND | ND |
| Diethylphthalate | | ND | ND |
| Dimethylphthalate | | ND | ND |
| Di-n-butylphthalate | | ND | ND |
| Di-n-octyl phthalate | | ND | ND |
| Fluoranthene | 50 | **1** | **23** |
| Fluorene | 50 | **0.39** | **4** |
| Hexachlorobenzene | 0.04 | ND | ND |
| Hexachlorobutadiene | 0.5 | ND | ND |
| Hexachlorocyclopentadiene | 5 | ND | ND |
| Hexachloroethane | 5 | ND | ND |
| Indeno(1,2,3-cd)pyrene | 0.002 | ND | **11** |
| Isophorone | | ND | ND |
| Naphthalene | 10 | **18** | **3.1** |
| Nitrobenzene | 0.4 | ND | ND |
| N-Nitroso-di-n-propylamine | | ND | ND |
| N-Nitrosodiphenylamine | | ND | ND |
| Phenanthrene | 50 | **1.1** | **14** |
| Phenol | 5 | ND | ND |
| Pyrene | 50 | **0.64** | **19** |

**Notes:**

ND - Not detected

**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

TABLE 11
210 N. 12th Street, Brooklyn, New York
Groundwater Analytical Results
Pesticides/PCBs
PWGC - April 2007

| COMPOUND | NYSDEC GROUNDWATER QUALITY STANDARDS | B8-GW | B11-GW |
|---|---|---|---|
| Pesticides and PCBs | (µg/L) | (µg/L) | (µg/L) |
| **4,4-DDD** | **0.3** | ND | ND |
| **4,4-DDE** | **0.2** | ND | ND |
| **4,4-DDT** | **0.2** | ND | ND |
| **Aldrin** | **ND** | ND | ND |
| **alpha-BHC** | **0.01** | ND | ND |
| **beta-BHC** | **0.04** | ND | ND |
| **Chlordane** | **0.05** | ND | ND |
| **delta-BHC** | **0.04** | ND | ND |
| **Dieldrin** | **0.004** | ND | ND |
| **Endosulfan I** | | ND | ND |
| **Endosulfan II** | | ND | ND |
| **Endosulfan Sulfate** | | ND | ND |
| **Endrin** | **ND** | ND | ND |
| **Endrin aldehyde** | **5** | ND | ND |
| **Endrin Ketone** | | ND | ND |
| **gamma-BHC** | **0.05** | ND | ND |
| **Heptachlor** | **0.04** | ND | ND |
| **Heptachlor epoxide** | **0.03** | ND | ND |
| **Methoxychlor** | **35** | ND | ND |
| **Total PCBs** | | ND | ND |
| **Aroclor-1016** | **0.09** | ND | ND |
| **Aroclor-1221** | **0.09** | ND | ND |
| **Aroclor-1232** | **0.09** | ND | ND |
| **Aroclor-1242** | **0.09** | ND | ND |
| **Aroclor-1248** | **0.09** | ND | ND |
| **Aroclor-1254** | **0.09** | ND | ND |
| **Aroclor-1260** | **0.09** | ND | ND |

**Notes:**
ND - Non-detect
**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

Table 12
210 N. 12th Street, Brooklyn, New York
Groundwater Analytical Results
TAL Filtered Metals
PWGC - April 2007

| COMPOUND | NYSDEC GROUNDWATER QUALITY STANDARDS | B8-GW (DISSOLVED) | B11-GW (DISSOLVED) |
|---|---|---|---|
| Priority Pollutant Metals | (µg/L) | (µg/L) | (µg/L) |
| **Aluminum** | **NS** | ND | ND |
| **Antimony** | **3** | ND | ND |
| **Arsenic** | **25** | **75.3** | **1.4** |
| **Barium** | **100** | **7.1** | **10.7** |
| **Beryllium** | **3** | ND | ND |
| **Cadmium** | **5** | ND | ND |
| **Calcium** | **NS** | **11000** | **9500** |
| **Chromium** | **50** | ND | ND |
| **Cobalt** | **NS** | ND | ND |
| **Copper** | **200** | ND | ND |
| **Iron** | **500** | **27** | **20.0** |
| **Lead** | **25** | ND | ND |
| **Magnesium** | **3500** | **950** | **2300** |
| **Manganese** | **300** | **14.7** | **39.1** |
| **Nickel** | **100** | ND | ND |
| **Potassium** | **NS** | **1100** | **3200.0** |
| **Selenium** | **10** | ND | ND |
| **Silver** | **50** | ND | ND |
| **Sodium** | **2000** | **2100** | **16000** |
| **Thallium** | **0.5** | ND | ND |
| **Vanadium** | **NS** | ND | ND |
| **Zinc** | **2000** | ND | ND |
| **Mercury** | **0.7** | ND | ND |

**Notes:**
ND - ND
**NS - No Standard**
**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

TABLE 13
210 N. 12th Street, Brooklyn, New York
Groundwater Analytical Results 6-10-11
Volatile Organic Compounds

| Compound | NYSDEC Groundwater Quality Standards | Sample ID | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds by 8260 - ug/L** | | **6/10/11 B10** | **7/13/11 B10** | **6/10/11 B12** | **7/13/11 B12** | **6/10/11 B13** | **7/13/11 B13** | **6/10/11 B15** | **7/13/11 B15** |
| 1,2,4-Trimethylbenzene | 5 | ND | ND | 1.2 | ND | ND | ND | **22.7** | **9.3** |
| 1,3,5-Trimethylbenzene | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 1 | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethyl Benzene | 5 | 1 | ND | ND | ND | ND | ND | 1.2 | ND |
| Isopropylbenzene | 5 | **57.9** | 3.0 J | ND | ND | ND | ND | **11.3** | **5.7** |
| MTBE | 10 | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 10* | ND | 1.7 J,B | ND | ND | ND | ND | ND | ND |
| n-butylbenzene | 5 | **7.4** | 1.1 J | ND | ND | ND | ND | 3.1 | ND |
| n-propylbenzene | 5 | **79.0** | 3.8 J | 1.0 | ND | ND | ND | **16.3** | **6.1** |
| o-Xylene | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| p- & m- Xylenes | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| p-Isopropyltoluene | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| sec-Butylbenzene | 5 | **50.2** | **5.4** | 2.3 | ND | ND | ND | **11.8** | 3.7 |
| tert-butylbenzene | 5 | **7.0** | 2.0 J | ND | ND | ND | ND | 2.6 | 1.1 |
| Toluene | 5 | ND | ND | ND | ND | ND | ND | 1.4 | ND |
| **Total VOCs** | | 203 | 17 | 5 | 0 | 0 | 0 | 70 | 26 |

**Notes:**
ND - Not detected
**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**
*Guidance Value Only - No Standard for this compound.

TABLE 14
210 N. 12th Street, Brooklyn, New York
Groundwater Analytical Results 6-10-11
Semi-Volatile Organic Compounds

| Compound | NYSDEC Groundwater Quality Standards | Sample ID | | | |
|---|---|---|---|---|---|
| **Semi-Volatile Organic Compounds by 8270 - ug/L** | | **B10** | **B12** | **B13** | **B15** |
| Acenaphthene | 5 | ND | ND | ND | ND |
| Acenaphthylene | | ND | ND | ND | ND |
| Anthracene | | ND | ND | ND | ND |
| Benzo(a)anthracene | | ND | ND | ND | ND |
| Benzo(a)pyrene | ND | ND | ND | ND | ND |
| Benzo(b)fluoranthene | | ND | ND | ND | ND |
| Benzo(g,h,i)perylene | | ND | ND | ND | ND |
| Benzo(k)fluoranthene | | ND | ND | ND | ND |
| Chrysene | | ND | ND | ND | ND |
| Dibenzo(a,h)anthracene | | ND | ND | ND | ND |
| Fluoranthene | 50 | ND | ND | ND | ND |
| Fluorene | | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | | ND | ND | ND | ND |
| Naphthalene | 10* | ND | ND | ND | ND |
| Phenanthrene | 50 | ND | ND | ND | ND |
| Pyrene | | ND | ND | ND | ND |

**Notes:**

ND - Not detected

NS - Not sampled

**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

*Guidance Value Only - No Standard for this compound.

Table 15
210 N. 12th Street, Brooklyn, New York
Groundwater Analytical Results
Metals
September 2011

| METALS | NYSDEC GROUNDWATER QUALITY STANDARDS (mg/L) | Dissolved | | Total | |
|---|---|---|---|---|---|
| | | GW8 (µg/L) | GW16 (µg/L) | GW8 (µg/L) | GW16 (µg/L) |
| **Arsenic** | **25** | **40.5** | ND | **41.9** | **19.2** |
| **Copper** | **200** | ND | ND | ND | **27** |
| **Lead** | **25** | **15.5** | **13.1** | **68** | **511** |
| **Mercury** | **0.7** | ND | **0.6** | **0.3** | **1.3** |

**Notes:**
ND - ND
**NS - No Standard**
**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard for Drinking water source (GA)**
Standards apply to dissolve form only

**TABLE 16**
**210 N. 12th Street, Brooklyn, New York**
**Soil Gas - Volatile Organic Compounds**
**September 2011**

| COMPOUNDS ANALYZED BY CHEMTECH | EPA Shallow Soil Gas Concentrations | NYSDOH Soil Outdoor Background Levels | NYSDOH Air Guidance Value | SG-1 | SG-2 | SG-5 |
|---|---|---|---|---|---|---|
| | (µg/m$^3$) [b] | (µg/m$^3$) [a] | (µg/m$^3$) [c] | (µg/m$^3$) | (µg/m$^3$) | (µg/m$^3$) |
| 1,1,1-Trichloroethane | 22,000 | <2.0 - 2.8 | **100** | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.42 | <1.5 | | ND | ND | ND |
| 1,1,2-Trichloroethane | 1.5 | <1.0 | | **1.4** | ND | ND |
| 1,1-Dichloroethane | 5,000 | <1.0 | | ND | ND | ND |
| 1,1-Dichloroethene | 2,000 | <1.0 | | ND | ND | ND |
| 1,2,4-Trichlorobenzene | 20,000 | NA | | ND | ND | ND |
| 1,2,4-Trimethylbenzene | 60 | <1.0 | | **26** | **5.3** | **1.9** |
| 1,2-Dichlorobenzene | 2,000 | <2.0 | | ND | ND | ND |
| 1,2-Dichloroethane | 0.94 | <1.0 | | **1.5** | ND | ND |
| 1,2-Dichloropropane | 40 | <1.0 | | ND | ND | ND |
| 1,3,5-Trimethylbenzene | 60 | <1.0 | | **16** | ND | ND |
| 1,3-Butadiene | 0.087 | NA | | ND | ND | ND |
| 1,3-Dichlorobenzene | 1,100 | <2.0 | | ND | ND | ND |
| 1,4-Dichlorobenzene | 8,000 | NA | | ND | ND | ND |
| 1,4-Dioxane | | | | ND | ND | ND |
| 2,2,4-Trimethylpentane | NA | NA | | **1.3** | ND | **1.7** |
| Acetone | 3,500 | NA | | **23** | **96** | **74** |
| Benzene | 3.1 | <1.6 - 4.7 | | **3** | ND | **0.89** |
| Benzyl Chloride | 0.5 | NA | | ND | ND | ND |
| Bromodichloromethane | 1.4 | <5.0 | | ND | ND | ND |
| Bromoform | 22 | <1.0 | | ND | ND | ND |
| Bromomethane | NA | <1.0 | | ND | ND | ND |
| Carbon Disulfide | 7,000 | NA | | ND | ND | ND |
| Carbon Tetrachloride | 1.6 | <3.1 | **50** | **0.90** | ND | **1.0** |
| Chlorobenzene | 600 | <2.0 | | **1.1** | ND | ND |
| Chloroethane | 100,000 | NA | | ND | ND | ND |
| Chloroform | 1.1 | <2.4 | | **24** | ND | ND |
| Chloromethane | NA | <1.0 - 1.4 | | ND | ND | ND |
| cis-1,2-Dichloroethene | NA | <1.0 | | ND | ND | ND |
| cis-1,3-Dichloropropene | NA | NA | | ND | ND | ND |
| Cyclohexane | NA | NA | | ND | ND | **1.2** |
| Dibromochloromethane | NA | <5.0 | | **2.6** | ND | ND |
| Ethyl Acetate | 32,000 | NA | | ND | ND | ND |
| Ethylbenzene | 22 | <4.3 | | **9.5** | ND | ND |
| Freon 11 | | | | **2.6** | **4.1** | **5.6** |
| Heptane | NA | NA | | **2.0** | **2.4** | **0.95** |
| Hexachloro-1,3-butadiene | NA | NA | | ND | ND | ND |
| Hexane | NA | <1.5 | | **6.6** | **2.2** | **73** |
| Isopropyl Alcohol | NA | NA | | **42** | **3.1** | **2.9** |
| Xylene (m&p) | 7,000 | <4.3 | | **32** | **6** | **1.8** |
| MTBE | 30,000 | NA | | ND | ND | ND |
| Methylene Chloride | NA | <3.4 | **60** | **3.5** | **36** | **290** |
| Xylene (o) | 7,000 | <4.3 | | **15** | ND | ND |
| p-ethyltoluene | | | | **22** | **4** | **1.7** |
| Propylene | NA | NA | | ND | ND | ND |
| Styrene | 10,000 | <1.0 | | ND | ND | ND |
| Tetrachloroethylene | 8.1 | | **100** | **17** | **200** | ND |
| Tetrahydrofuran | NA | NA | | **11** | ND | ND |
| Toluene | 4,000 | 1.0 - 6.1 | | **30** | **6.9** | **2.5** |
| trans-1,2-Dichloroethene | NA | NA | | **6.60** | ND | ND |
| trans-1,3-Dichloropropene | 6 | NA | | ND | ND | ND |
| Trichloroethylene | 0.22 | <1.7 | **50** | **0.67** | **5.6** | ND |
| Vinyl Acetate | 2,000 | NA | | ND | ND | ND |
| Vinyl Bromide | | | | ND | ND | ND |
| Vinyl Chloride | 3 | <1.0 | | ND | ND | ND |
| | | | | | | |
| *Total PVOCs** | | | | | | |
| *Total CVOCs*** | | | | | | |
| *Total VOCs**** | | | | | | |

Notes:
NA No guidance value or standard available
(a) NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New
(b) USEPA Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), Table 2c, Risk=1 x$10^{-6}$

(c)Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006. New York State Department of Health.
* Petroleum Volatile Organic Compounds
** Chlorinated Volatile Organic Compounds
** * Volatile Organic Compounds (excluding acetone)
Yellow Shaded - Value detected above NYSDOH Air Guidance Value vapor/Indoor Air Matrix 1 or 2 which would require at a minimum, monitoring.

TABLE 4
454 Driggs Avenue, Brooklyn, New York
Groundwater Analytical Results 6-10-11
Semi-Volatile Organic Compounds

| Compound | NYSDEC Groundwater Quality Standards | Sample ID | | | |
|---|---|---|---|---|---|
| **Semi-Volatile Organic Compounds by 8270 - ug/L** | | **B10** | **B12** | **B13** | **B15** |
| Acenaphthene | 5 | ND | ND | ND | ND |
| Acenaphthylene | | ND | ND | ND | ND |
| Anthracene | | ND | ND | ND | ND |
| Benzo(a)anthracene | | ND | ND | ND | ND |
| Benzo(a)pyrene | ND | ND | ND | ND | ND |
| Benzo(b)fluoranthene | | ND | ND | ND | ND |
| Benzo(g,h,i)perylene | | ND | ND | ND | ND |
| Benzo(k)fluoranthene | | ND | ND | ND | ND |
| Chrysene | | ND | ND | ND | ND |
| Dibenzo(a,h)anthracene | | ND | ND | ND | ND |
| Fluoranthene | 50 | ND | ND | ND | ND |
| Fluorene | | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | | ND | ND | ND | ND |
| Naphthalene | 10* | ND | ND | ND | ND |
| Phenanthrene | 50 | ND | ND | ND | ND |
| Pyrene | | ND | ND | ND | ND |

**Notes:**

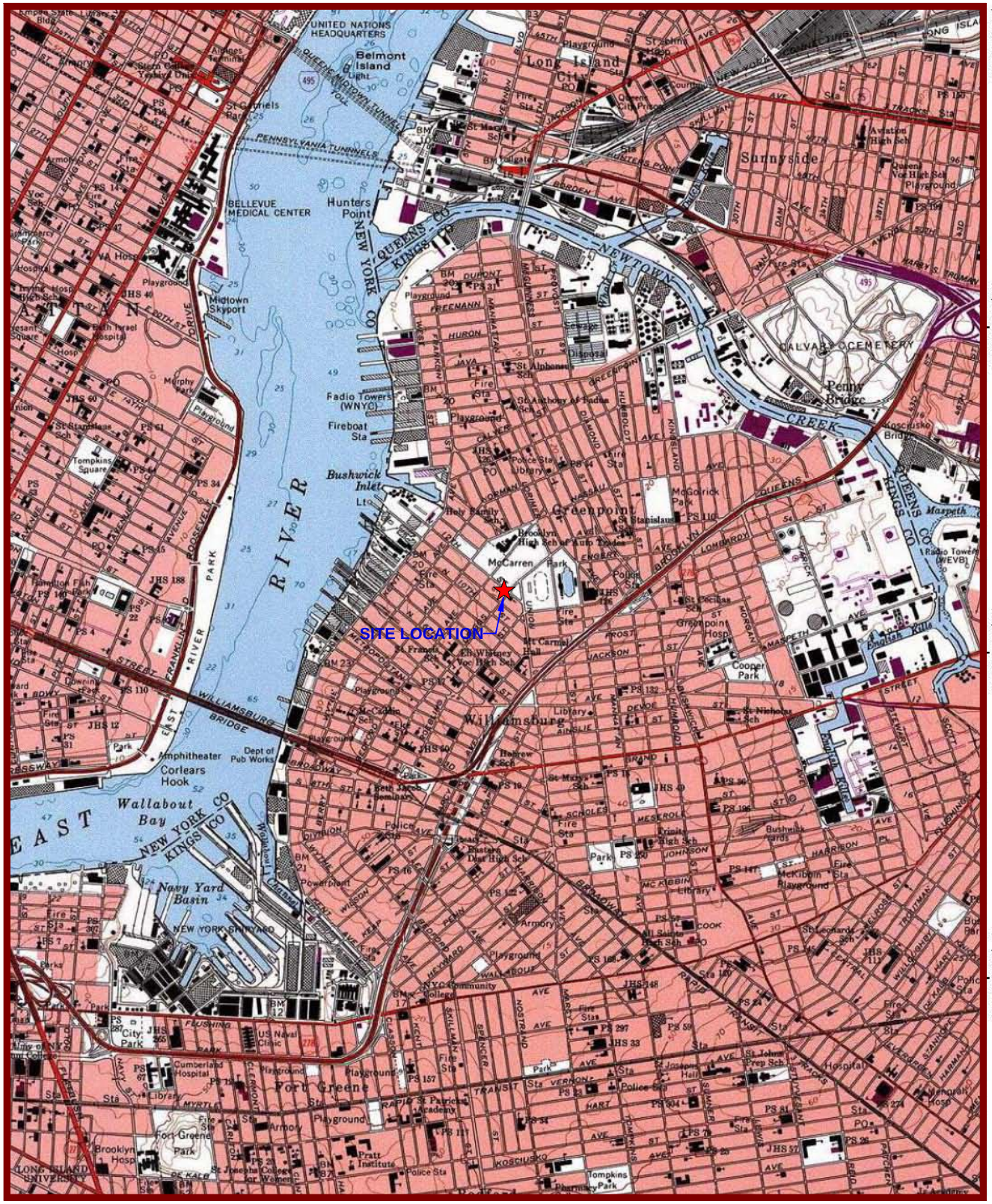
ND - Not detected

NS - Not sampled

**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

*Guidance Value Only - No Standard for this compound.

# ***FIGURES***




USGS Brooklyn Quadrangle 1995, Contour Interval = 10 feet

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
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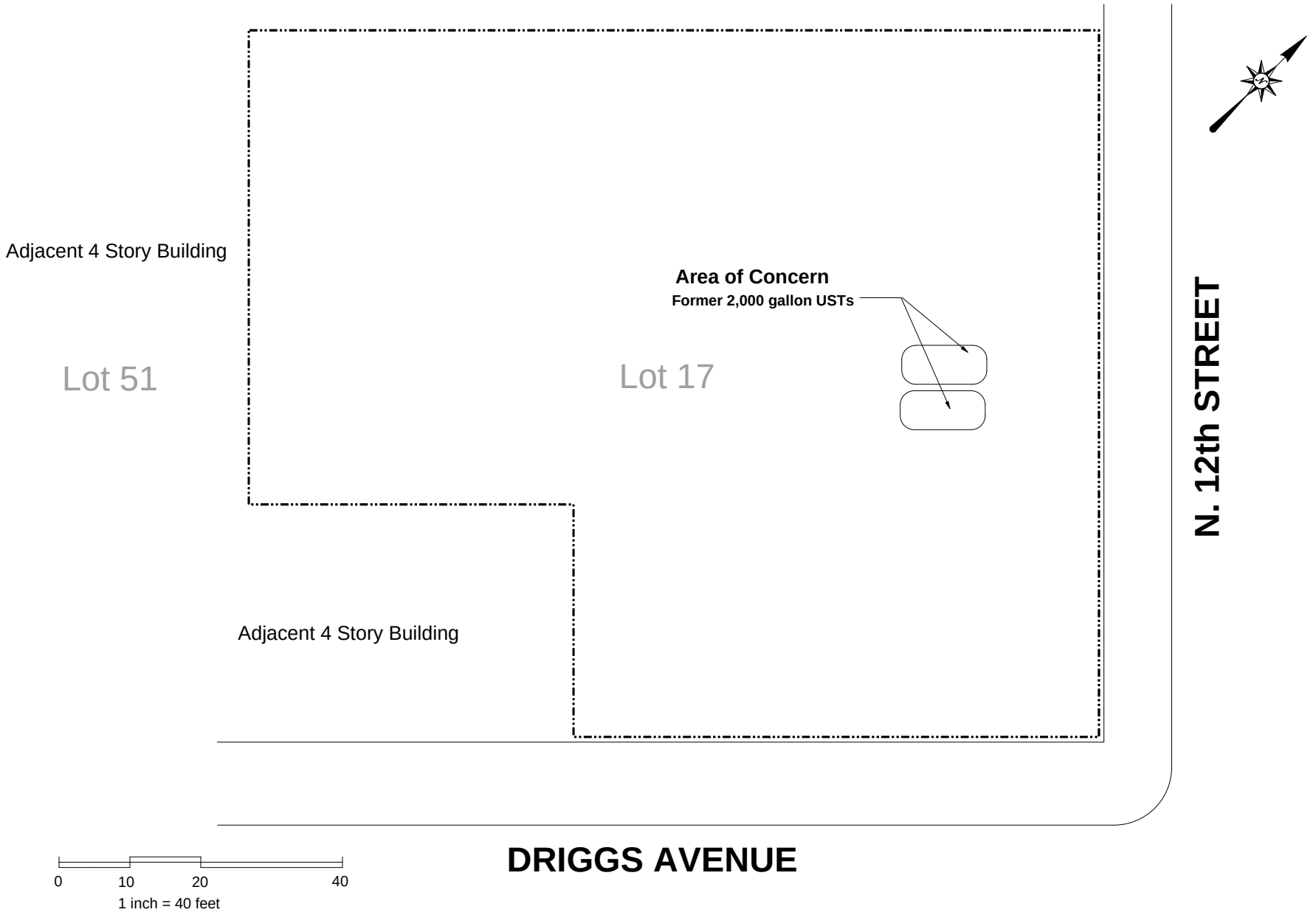
Fax 631. 924 .2870

210 N. 12th Street, BROOKLYN, NY

BLOCK 2291 LOT 17

FIGURE 1 SITE LOCATION MAP

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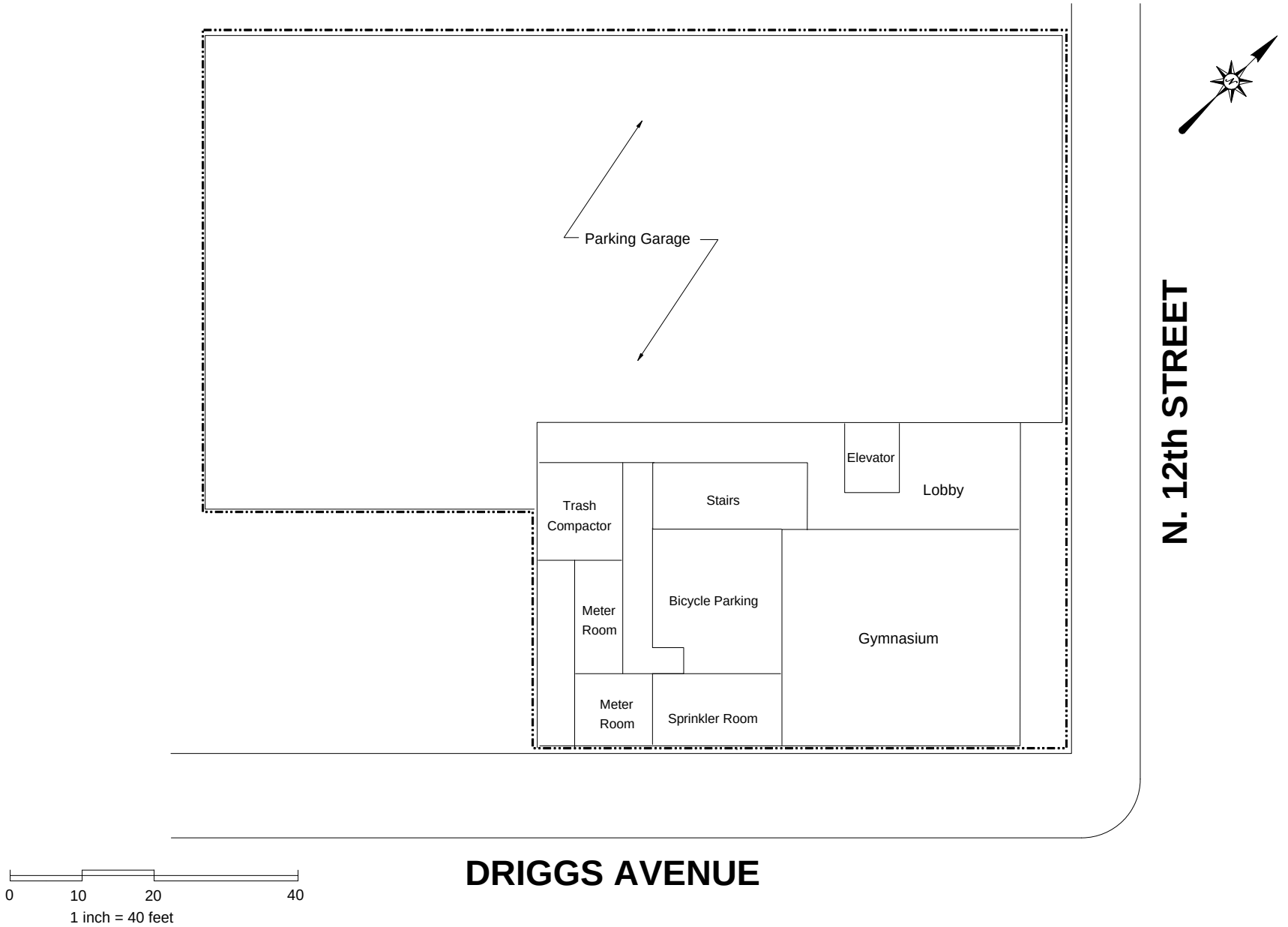
210 N. 12th Street, Brooklyn, NY
Block 2291 Lot 17

**FIGURE 2** SITE PLAN

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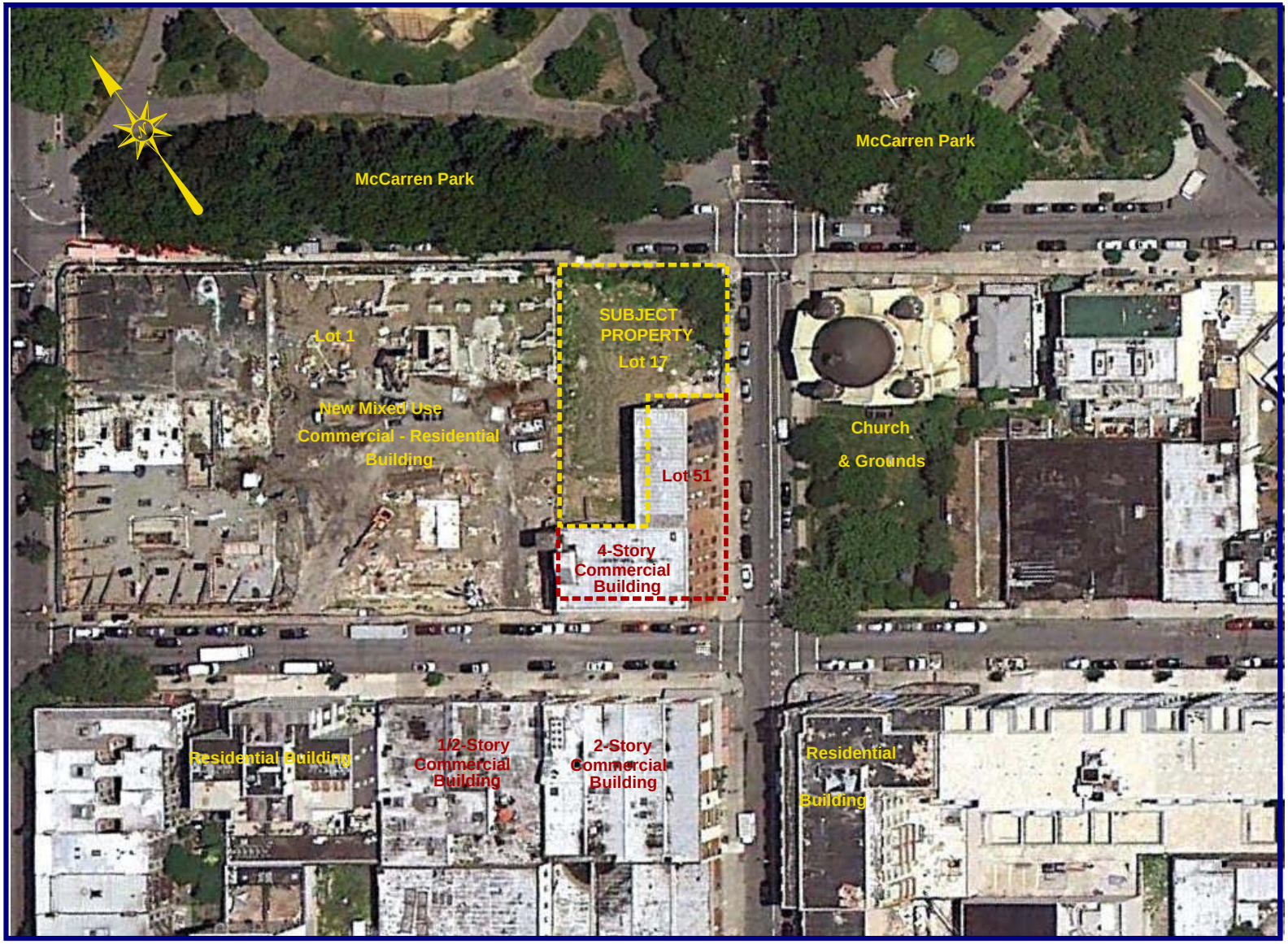
210 N. 12th Street, Brooklyn, NY
Block 2291 Lot 17

**FIGURE 3** Redevelopment Plan

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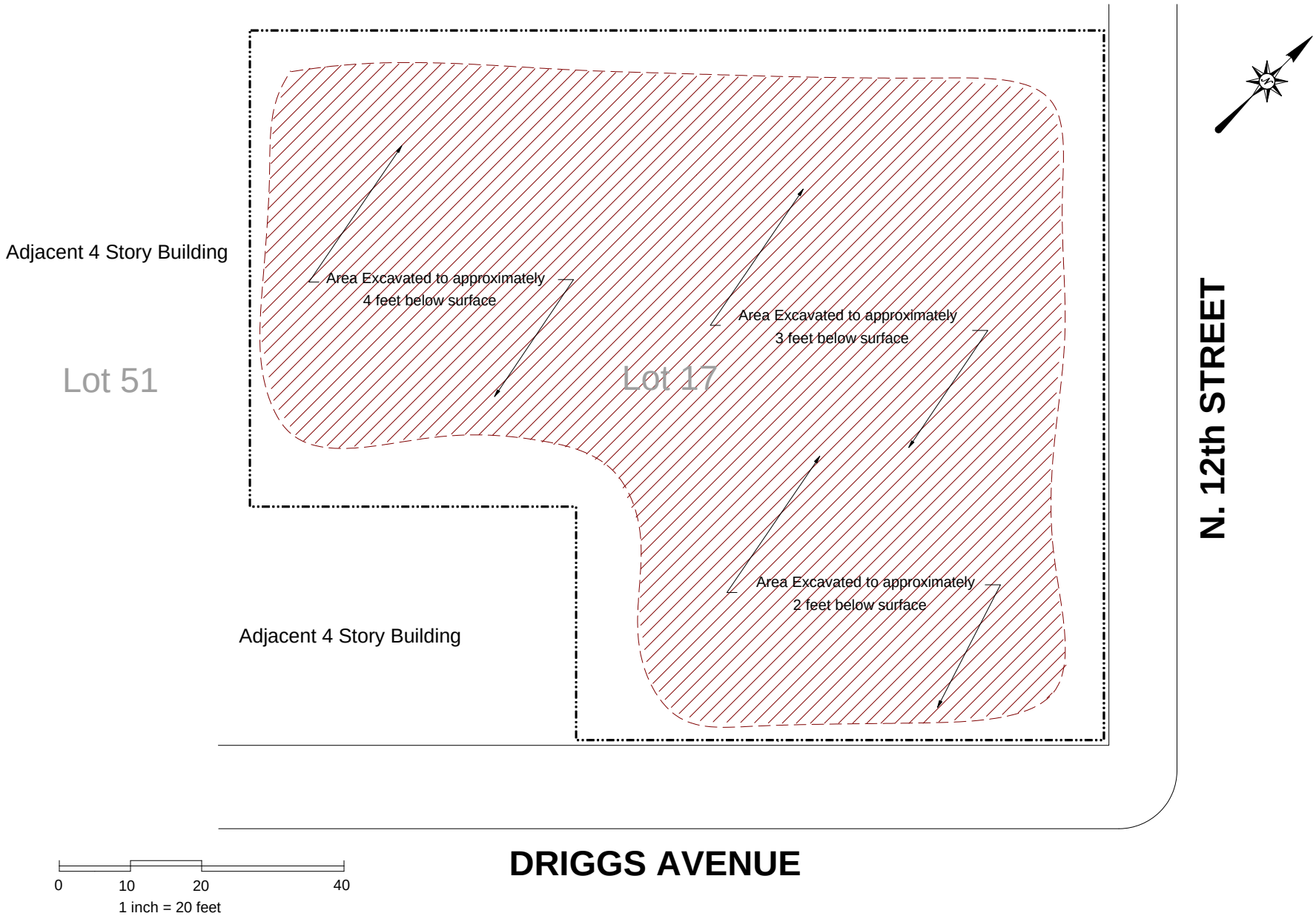
454 Driggs Avenue, Brooklyn, NY
Surrounding Land Use

**FIGURE 4**

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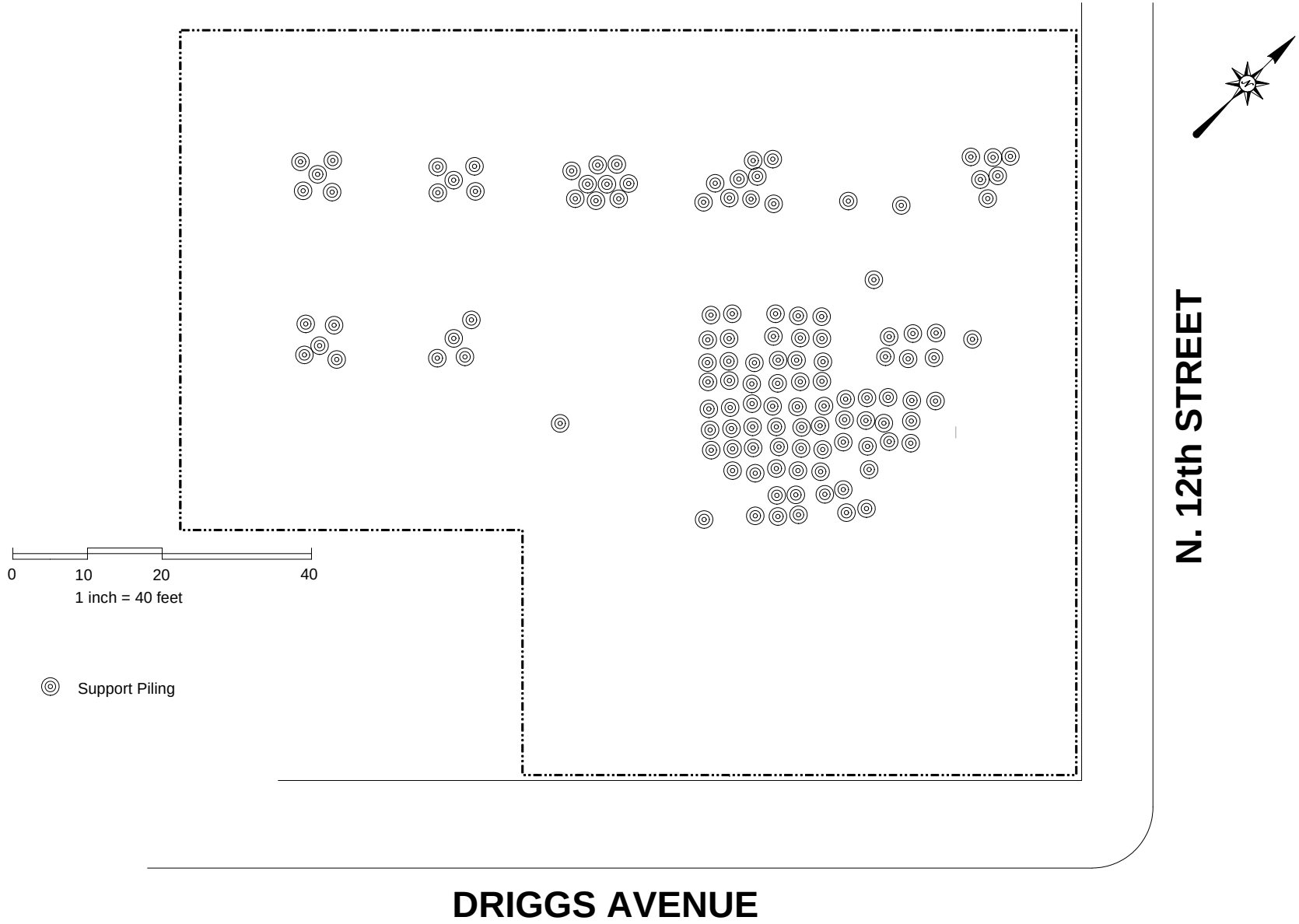
210 N. 12th Street, Brooklyn, NY
Block 2291 Lot 17

**FIGURE 5** Former Excavated Area

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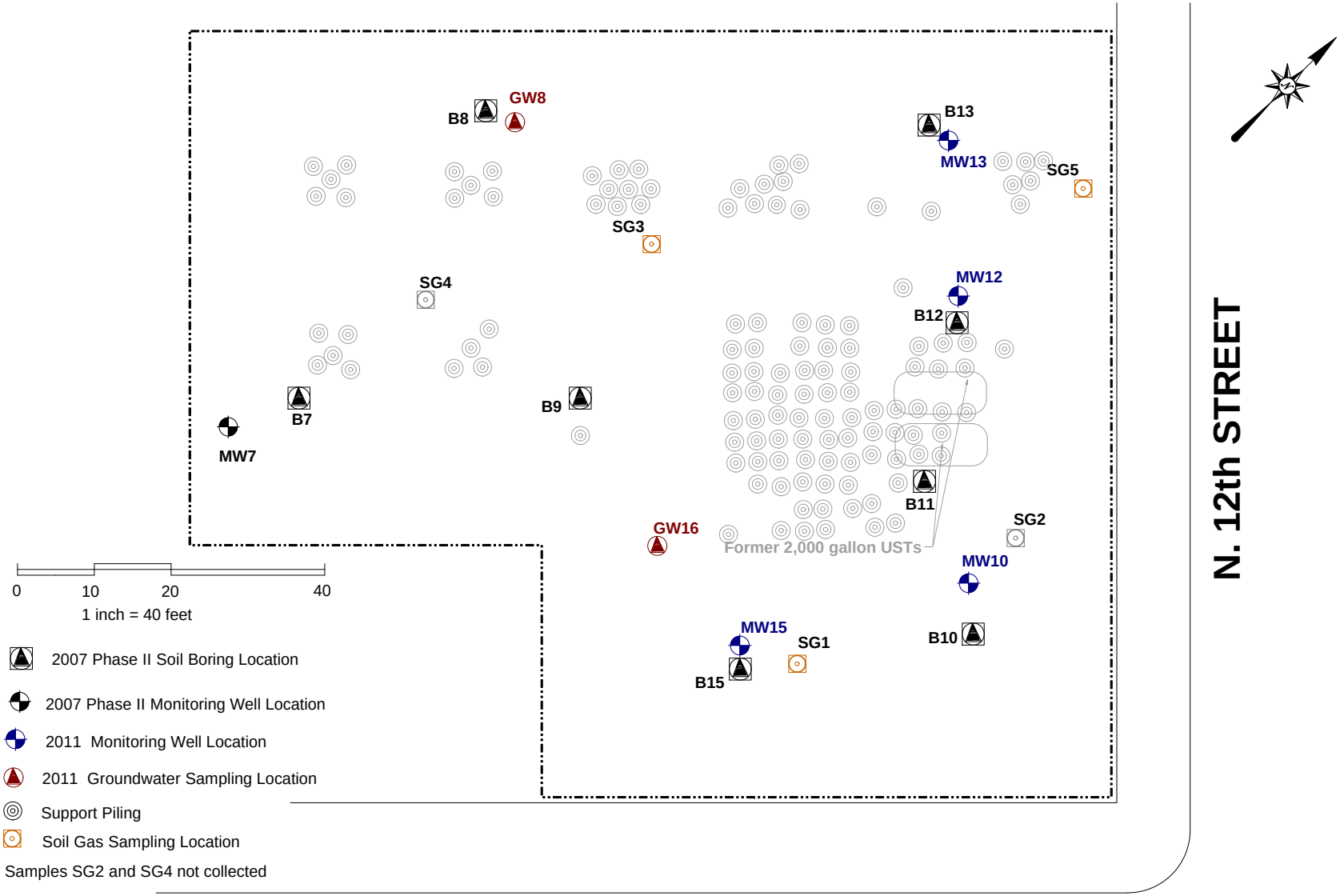
210 N. 12TH STREET, BROOKLYN, NY
BLOCK 2291 LOT 17

FIGURE 6 LOCATION OF EXISITNG PILINGS

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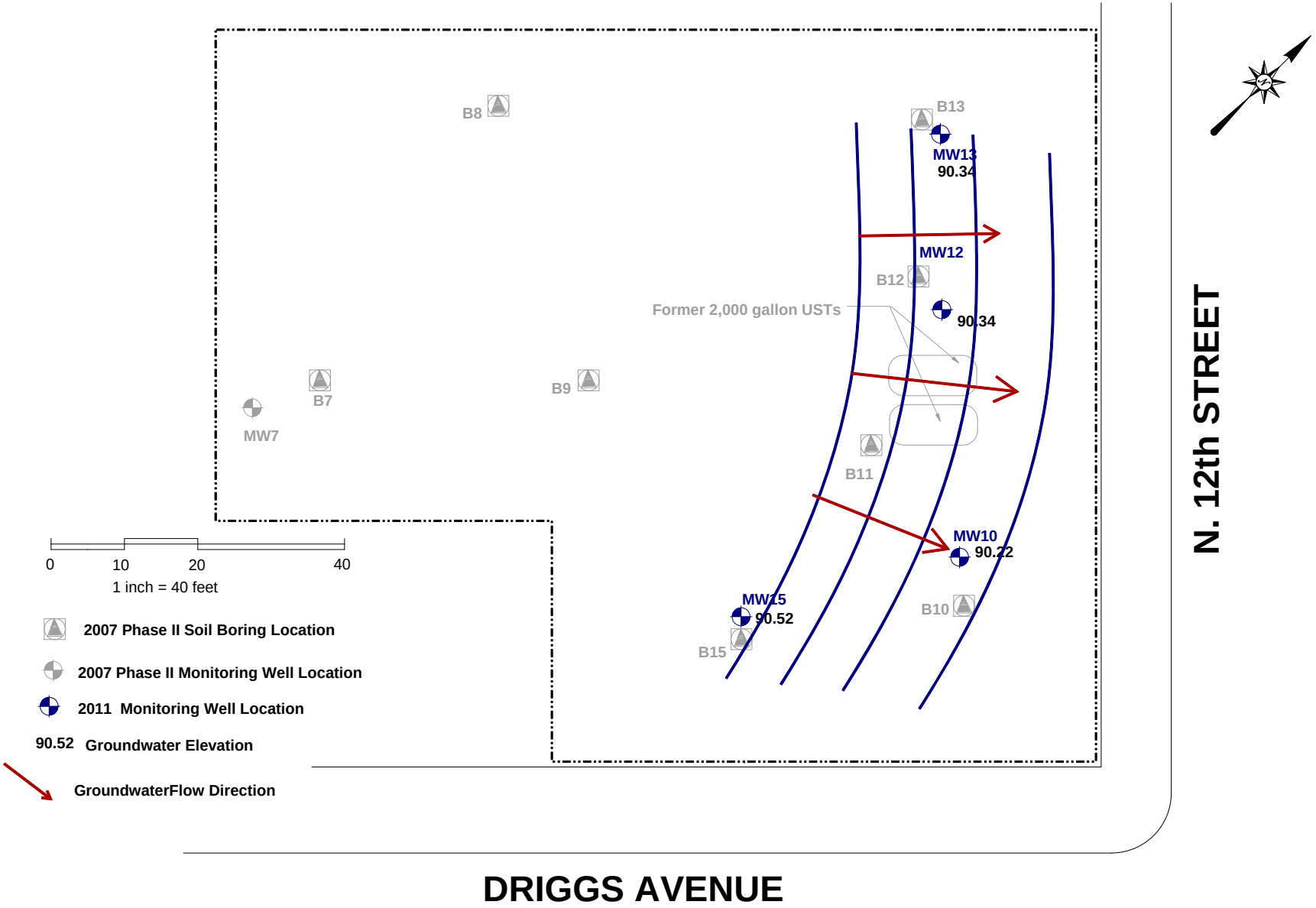
210 N. 12th Street, Brooklyn, NY
Block 2291 Lot 17

**FIGURE 7** 2007 & 2011 Sampling Locations

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210 N. 12th Street, Brooklyn, NY
Block 2291 Lot 17

**FIGURE 7** Groundwater Elevation

# ***APPENDIX A***
# ***DRILL LOGS***

# Geologic Boring Log Details

ENVIRONMENTAL BUSINESS CONSULTANTS

## B10 Boring Log

| | | | | |
|---|---|---|---|---|
| Location: Performed eastof B12 at previous B10 location. | | Depth to Water (ft. from grade.) | | Site Elevation Datum |
| Site Name: ADR 1101 | Address: 454 Driggs Avenue, Brooklyn, NY | Date | DTW | Ground Elevation |
| | | Groundwater depth | | |
| Drilling Company: Eastern Environmental Solutions, Inc. | Method: Dual Tube Geoprobe 6610 | | | Well Specifications |
| Date Started: 6/10/2011 | Date Completed: 6/10/2011 | 8 ft | | 1" pvc, 10 foot 0.010 slot 5 foot riser |
| Completion Depth: 20 feet | Field Techician C. Sosik | | | |

| B3 (NTS) | DEPTH (ft below grade) | SAMPLES Reco-very (in.) | Blow per 6 in. | PID (ppm) | SOIL DESCRIPTION |
|---|---|---|---|---|---|
| | 0 | | | | |
| | to 5 | 18 | | 0.0 | clay matrix<br>no odor |
| | to 10 | 18 | | 120.0 | Fill material and ash in grey black sandy-silty clay matrix.<br>slight petro odor<br>*Sample retaimed at 5-7 feet and at 8-10 feet |
| | to 15 | 24 | | 5.1 | Silty grey clay with bog matt middle 1 ft<br>No odor. |
| | to 20 | 24 | | 0.0 | Dark grey clay w/bog material bottom 6". No odor |
| | | | | | |
| | | | | | |

# Geologic Boring Log Details

ENVIRONMENTAL BUSINESS CONSULTANTS

## B12 Boring Log

| | | | | |
|---|---|---|---|---|
| Location: Performed eastof B13 at previous B12 location. | | Depth to Water (ft. from grade.) | | Site Elevation Datum |
| Site Name: ADR 1101 | Address: 454 Driggs Avenue, Brooklyn, NY | Date | DTW | Ground Elevation |
| | | Groundwater depth | | |
| Drilling Company: Eastern Environmental Solutions, Inc. | Method: Dual Tube Geoprobe 6610 | | | Well Specifications |
| Date Started: 6/10/2011 | Date Completed: 6/10/2011 | 8 ft | | 1" pvc, 10 foot 0.010 slot 5 foot riser |
| Completion Depth: 20 feet | Field Techician C. Sosik | | | |

| B3 (NTS) | DEPTH (ft below grade) | SAMPLES Reco-very (in.) | Blow per 6 in. | PID (ppm) | SOIL DESCRIPTION |
|---|---|---|---|---|---|
| | 0 | | | | |
| | to 5 | 36 | | 0.0 | Fill materials (brick, concrete, etc.) in brown clay matrix<br>no odor |
| | to 10 | 24 | | 220.0 | Dark grey to black silty clay with some ash.<br>petro odor<br>*Sample retaimed at 5-7 feet and at 8-10 feet |
| | to 15 | 30 | | 5.1 | Brown silty clay with bog matt top 1 ft followed by grey to light grey clay<br>No odor. |
| | to 20 | 30 | | 0.0 | Grey to light grey clay. No odor. |
| | | | | | |
| | | | | | |

# Geologic Boring Log Details

ENVIRONMENTAL BUSINESS CONSULTANTS

## B13 Boring Log

| | | | | |
|---|---|---|---|---|
| Location: Performed northwest corner at previous B13 location. | | Depth to Water (ft. from grade.) | | Site Elevation Datum |
| Site Name: ADR 1101 | Address: 454 Driggs Avenue, Brooklyn, NY | Date | DTW | Ground Elevation |
| | | Groundwater depth | | |
| Drilling Company: Eastern Environmental Solutions, Inc. | Method: Dual Tube Geoprobe 6610 | | | Well Specifications |
| Date Started: 6/10/2011 | Date Completed: 6/10/2011 | 8 ft | | 1" pvc, 10 foot 0.010 slot 5 foot riser |
| Completion Depth: 20 feet | Field Techician C. Sosik | | | |

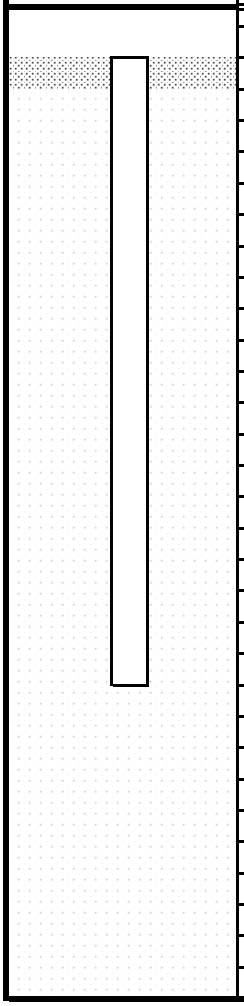
| B3 (NTS) | DEPTH (ft below grade) | SAMPLES Reco-very (in.) | Blow per 6 in. | PID (ppm) | SOIL DESCRIPTION |
|---|---|---|---|---|---|
| | 0 | | | | |
| | to 5 | 36 | | 0.0 | Fill materials (brick, concrete, etc.) in brown clay matrix<br>no odor |
| | to 10 | 24 | | 0.0 | Fill material top 6" w/bricks in brwn clay matrix.<br>Brwn sandy clay middle 6" followed by grey-black silt.<br>no odor<br>*Sample retaimed at 5-7 feet and at 8-10 feet |
| | to 15 | 30 | | 0.0 | Brown silty clay top 6" followed by 2 ft bog matt andgrey to light grey clay intermixed.<br>No odor. |
| | to 20 | 30 | | 0.0 | Grey - black bog material fop 6" followed by grey to light grey clay. No odor. |
| | | | | | |
| | | | | | |

# Geologic Boring Log Details

ENVIRONMENTAL BUSINESS CONSULTANTS

## B15 Boring Log

| | | | | |
|---|---|---|---|---|
| Location: Performed north of building at previous B15 location. | | Depth to Water (ft. from grade.) | | Site Elevation Datum |
| Site Name: ADR 1101 | Address: 454 Driggs Avenue, Brooklyn, NY | Date | DTW | Ground Elevation |
| | | Groundwater depth | | |
| Drilling Company: Eastern Environmental Solutions, Inc. | Method: Dual Tube Geoprobe 6610 | | | Well Specifications |
| Date Started: 6/10/2011 | Date Completed: 6/10/2011 | 8 ft | | 1" pvc, 10 foot 0.010 slot 5 foot riser |
| Completion Depth: 20 feet | Field Techician C. Sosik | | | |

| B3 (NTS) | DEPTH (ft below grade) | SAMPLES Reco-very (in.) | Blow per 6 in. | PID (ppm) | SOIL DESCRIPTION |
|---|---|---|---|---|---|
|  | 0 | | | | |
| | 0 to 5 | 12 | | 0.0 | Fill materials in brown clay matrix |
| | 5 to 10 | 36 | | 20.0 | Fill material in clay matrix, clay wet at 8'. Faint petro odor. *Sample retaimed at 5-7 feet and at 8-10 feet |
| | 10 to 15 | 30 | | 0.0 | clay, wet, no odor |
| | 15 to 20 | 0 | | | No return |
| | | | | | |
| | | | | | |

# ***ATTACHMENT B***

# ***GROUNDWATER SAMPLING LOGS***

# GROUNDWATER PURGE / SAMPLE LOGS

ENVIRONMENTAL BUSINESS CONSULTANTS

Well I.D.: MW-10

Date: 6/11/2011

Well Depth (from TOC): 15

Equipment: Geopump 2 peristaltic pump

Static Water Level (from TOC): 6.8

Height of Water in Well: 8.2

Gallons of Water per Well Volume: 0.328

Flow Rate: 400ml/min.

| Time | Pump Rate | Gal. Removed | pH | Cond. (mS/cm) | Temp. (deg. C) | DO (mg/L) | Comments |
|---|---|---|---|---|---|---|---|
| 1132 | 400ml/min | | | | | | Slightly turbid |
| 1135 | 400ml/min | 0.3 | | | | | Pumped dry |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

# GROUNDWATER PURGE / SAMPLE LOGS

ENVIRONMENTAL BUSINESS CONSULTANTS

Well I.D.: MW-12

Date: 6/11/2011

Well Depth (from TOC): 15

Equipment: Geopump 2 peristaltic pump

Static Water Level (from TOC): 3.34

Height of Water in Well: 11.66

Gallons of Water per Well Volume: 0.4664

Flow Rate: 400ml/min.

| Time | Pump Rate | Gal. Removed | pH | Cond. (mS/cm) | Temp. (deg. C) | DO (mg/L) | Comments |
|---|---|---|---|---|---|---|---|
| 1215 | 400ml/min | | | | | | Slightly turbid |
| 1220 | 400ml/min | 0.5 | | | | | Pumped dry |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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# GROUNDWATER PURGE / SAMPLE LOGS

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Well I.D.: MW-13

Date: 6/11/2011

Well Depth (from TOC): 13

Equipment: Geopump 2 peristaltic pump

Static Water Level (from TOC): 3.32

Height of Water in Well: 9.68

Gallons of Water per Well Volume: 0.3872

Flow Rate: 400ml/min.

| Time | Pump Rate | Gal. Removed | pH | Cond. (mS/cm) | Temp. (deg. C) | DO (mg/L) | Comments |
|---|---|---|---|---|---|---|---|
| 1145 | 400ml/min | | | | | | Slightly turbid |
| 1200 | 400ml/min | 1 | | | | | clear |
| | | | | | | | |
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# GROUNDWATER PURGE / SAMPLE LOGS

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Well I.D.: MW-15

Date: 6/11/2011

Well Depth (from TOC): 15

Equipment: Geopump 2 peristaltic pump

Static Water Level (from TOC): 6.12

Height of Water in Well: 8.88

Gallons of Water per Well Volume: 0.3552

Flow Rate: 400ml/min.

| Time | Pump Rate | Gal. Removed | pH | Cond. (mS/cm) | Temp. (deg. C) | DO (mg/L) | Comments |
|---|---|---|---|---|---|---|---|
| 1120 | 400ml/min | | | | | | Slightly turbid |
| 1122 | 400ml/min | 0.5 | | | | | Pumped dry |
| | | | | | | | |
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# APPENDIX C
# SOIL GAS SAMPLING LOGS

**YORK**
ANALYTICAL LABORATORIES, INC.
120 RESEARCH DR. STRATFORD, CT 06615
(203) 325-1371 FAX (203) 357-0166

# Field Chain-of-Custody Record - AIR

**NOTE:** York's Std. Terms & Conditions are listed on the back side of this document. This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions unless superseded by written contract.

**York Project No.** 11I0423

| YOUR Information | Report To: | Invoice To: | YOUR Project ID | Turn-Around Time | Report Type/Deliverables |
|---|---|---|---|---|---|
| Company: ERC | Company: " | Company: " | 454 Driggs Avenue Brooklyn, NY | RUSH - Same Day ☐ | Summary Report ✓ |
| Address: 1908 Middle Country Rd. Ridge, NY | Address: | Address: | Purchase Order No. | RUSH - Next Day ☐ | Summary w/ QA Summary |
| Phone No. (631)-504-6000 | Phone No. | Phone No. | | RUSH - Two Day ☐ | CT RCP Package |
| Contact Person: Charlie Sosik | Attention: | Attention: | | RUSH - Three Day ☐ | NY ASP A Package |
| E-Mail Address: | E-Mail Address: | E-Mail Address: | Samples from: CT___ NY ✓ NJ___ | RUSH - Four Day ☐ | NY ASP B/CLP Pkg |
| | | | | Standard(5-7 Days) ✓ | NJDEP Reduced |
| | | | | | *Electronic Deliverables:* |
| | | | | | EDD (Specify Type) |
| | | | | | Standard Excel |
| | | | | | Regulatory Comparison Excel |

***Print Clearly and Legibly. All information must be complete. Samples will NOT be logged in and the turn-around time clock will not begin until any questions by York are resolved.***

Samples Collected/Authorized By (Signature)

Dominick Mosca
Name (printed)

**Air Matrix Codes**

- AI - INDOOR Ambient Air
- AO- OUTDOOR Amb. Air
- AE- Vapor Extraction Well/ Process Gas/Effluent
- AS- SOIL Vapor/Sub-Slab

**TO15 Volatiles and Other Gas Analyses**

| | |
|---|---|
| EPA TO-15 List | EPA TO-14A List |
| NYSDEC VI list | Tentatively Identified Compounds |
| NYSDEC STARS List | Air VPH |
| Project Specific List by TO-15 | Helium |
| NJDEP Target List | Methane |
| CTDEP RCP Target List | OTHER_____ |

**Detection Limits Required**

- ≤ 1 ug/m³ ____
- NYSDEC VI Limits____ (VI = vapor intrusion)
- NJDEP low level ____
- Routine Survey ____
- Other_____

**Special Instructions**

| Sample Identification | Date Sampled | AIR Matrix | Canister Vacuum Before Sampling (in. Hg) | Canister Vacuum Afer Sampling (in. Hg) | Choose Analyses Needed from the Menu Above and Enter Below | Sampling Media |
|---|---|---|---|---|---|---|
| SG 1 | 9·12·2011 | | -30 | -7 | TO-15 | 6 Liter Summa canister___ Tedlar Bag___ |
| SG 2 | | | -30 | -18 | TO-15 | 6 Liter Summa canister___ Tedlar Bag___ |
| ~~SG 3~~ | | | ~~-30~~ | ~~-4~~ | ~~TO-15~~ | 6 Liter Summa canister___ Tedlar Bag___ |
| SG 5 | | | -30 | -8 | TO-15 | 6 Liter Summa canister___ Tedlar Bag___ |
| | | | | | | 6 Liter Summa canister___ Tedlar Bag___ |
| | | | | | | 6 Liter Summa canister___ Tedlar Bag___ |
| | | | | | | 6 Liter Summa canister___ Tedlar Bag___ |
| | | | | | | 6 Liter Summa canister___ Tedlar Bag___ |
| | | | | | | 6 Liter Summa canister___ Tedlar Bag___ |
| | | | | | | 6 Liter Summa canister___ Tedlar Bag___ |

Comments

Samples Relinquished By — Date/Time: 9·12·2011

Samples Relinquished By — Date/Time:

Samples Received By — Date/Time: 9/13/11 1305

Samples Received in LAB by — Date/Time: 9/13/11 1620

# ***ATTACHMENT D***
# ***LABORATORY REPORTS***