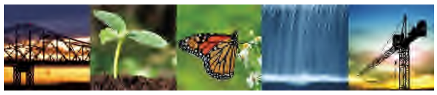

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CONSTRUCTION MANAGEMENT

SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT

11 SPENCER STREET SITE
NYSBCP SITE No. C224204

11 SPENCER STREET
BROOKLYN, NEW YORK
Block 1716 Lot 21

July, 2017

PREPARED FOR:

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List of Acronyms

Acronym	Definition
AS	Air Sparging
AOC	Area of Concern
AGV	Air Guidance Values
ASTM	American Society for Testing and Materials
AWQS	Ambient Water Quality Standards
BCA	Brownfield Clean-up Agreement
BCP	Brownfield Cleanup Program
BGS	Below Ground Surface
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
CHASP	Construction Health and Safety Plan
Cr^{6+}	Hexavalent Chromium
CSOP	Contractors Site Operation Plan
CVOCs	Chlorinated Volatile Organic Compounds
DCR	Declaration of Covenants and Restrictions
DER	Department of Environmental Remediation
DNAPL	Dense Non-Aqueous Phase Liquid
DUSR	Data Usability Summary Report
ECs/ICs	Engineering and Institutional Controls
EPA	Environmental Protection Agency

ESA	Environmental Site Assessment
FER	Final Engineering Report
GC	General Contractor
GPS	Global Positioning System
GZA	GZA GeoEnvironmental of New York
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
LNAPL	Light Non-Aqueous Phase Liquid
MCG/M^3	Micrograms per Cubic Meter
NOC	Notice of Completion
NYC VCP	New York City Voluntary Clean-up Program
NYC DEP	New York City Department of Environmental Protection
NYC DOB	New York City Department of Buildings
NYC DOF	New York City Department of Finance
NYC OER	New York City Office of Environmental Remediation
NYCRR	New York Codes Rules and Regulations
NYS DEC	New York State Department of Environmental Conservation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
NYS ELAP	Environmental Laboratory Accreditation Program
ORP	Oxygen Release Compound
OM&M	Operation, Maintenance and Monitoring

OSHA	United States Occupational Health and Safety Administration
PBS	Petroleum Bulk Storage
PCBs	Polychlorinated Biphenols
PCE	Tetrachloroethene
PE	Professional Engineer
PID	Photo Ionization Detector
PPE	Personal Protective Equipment
PPM	Parts Per Million
QA/QC	Quality Assurance/ Quality Control
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RECs	Recognized Environmental Condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
RMZ	Residual Management Zone
Sanborn	Sanborn Fire Insurance Map
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SHWS	Solid Hazardous Waste Site
SMMP	Soil/ Materials Management Plan

SVI	Soil Vapor Intrusion (Guideline)
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
TCE	Trichloroethene
TOGS	Technical and Operational Guidance Series
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, David M. Winslow, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Work Plan was prepared in accordance with the applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Name 7/12/17
Date

1.0 INTRODUCTION

This Remedial Investigation (RI) Report was prepared by Goldberg Zoino Associates of New York, P.C. d/b/a GZA GeoEnvironmental of New York. (GZA) on behalf of the W Group of Brooklyn, LLC (The W Group) for the property located at 11 Spencer Street in the Williamsburg section of Brooklyn, New York (the Site.) **Figure 1** portrays the Site location. In March 2015, ITF Corporation (former owner) filed an application with the New York State Department of Environmental Conservation (NYSDEC), to admit the Project Site into the New York State Brownfield Cleanup Program (BCP). The application was deemed complete by the NYSDEC and the project (Site No.C224204) was subsequently accepted into the BCP with ITF Corporation classified as a “Participant”. In May 2015, The W Group of Brooklyn LLC as the new owner of the property, filed an amendment to the Brownfield Cleanup Agreement (BCA) to replace ITF as Requestor. The amended BCA was executed by DEC on March 16, 2015 and subsequently amended to reflect the new ownership on May 20, 2015.

The general objectives of the RI process were as follows:

- Evaluate the nature and extent of the constituents of concern (COCs) and assess potential effects on the public health, welfare, and the environment related to the release or potential release of COCs at or from the Site;
- Compile the related (i.e., current and previous) data from relevant parties, including Merrit Environmental Consulting Corp (MECC), Laurel Environmental Associates, LTD. (Laurel), AMC Engineering, LLC, Environmental Business Consultants, Inc.(EBC), into a single, comprehensive RI Report;
- Assess the validation of the previous and current data; and evaluate the need for supplemental remedial investigation and, if needed, propose the potential soil boring or monitoring well locations;
- Delineate the vertical and horizontal extent of contaminated soil, groundwater, soil vapor, indoor and outdoor air; and
- Develop and evaluate alternatives for remedial action, if needed, to prevent, mitigate, or otherwise respond to or remedy a release or potential release of COCs at or from the Site.

The overall objectives of the project are to prepare the Site for commercial use (or restricted residential use) and to remediate known and unknown environmental conditions at the site to the satisfaction of the NYSDEC and the New York State Department of Health (NYSDOH).

2.0 SITE BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The street address for the Site is 11 Spencer Street, Brooklyn, NY. The Site is located in Bedford-Stuyvesant section of Brooklyn, New York and is identified as Block 1716 and Lot 21 on the New York City Department of Finance Tax Map 2015000102740. The Site is situated on an approximately 0.315-acre area bounded by Flushing Avenue and a 5-story commercial building to the north, a 1-story manufacturing building to the south, a 1-story auto repair facility and a 1-story manufacturing building to the east, and Spencer Street and a 1-story manufacturing building to the west (**Figure 2**). The Site has 40 feet (ft) of street frontage on Spencer Street and 50 ft of street frontage on Flushing Avenue (**Figure 2**). There are no identified daycare centers in the immediate area of the Site. However, there are two schools, including one located 2 blocks to the east on Warsaw Place, and the second located 700 ft northwest of the Site on Wallabout Street. The Site is completely occupied by a T-shaped vacant one-story former manufacturing building with no basement. The Site was previously used by a metal fabrication shop.

2.2 SITE GEOLOGY / HYDROGEOLOGY

Based on the MECC and EBC description of the soil boring logs, subsurface soils at the Site include a silty non-native fill with ash and other rubble to a depth of 5 ft. Crushed rock and course sand grading (at some locations) to fine sand and silt was present beneath the fill material to the water table at approximately 13 ft below grade. This was followed by a medium to coarse grained sand to the depth of 20 ft. GZA observed cobbles and wet course sand from the depth of 20 to 50 ft below grade.

The elevation of the Site ranges from 14 to 15 ft above sea level using the National Geodetic Vertical Datum (NGVD). The area topography gradually slopes down to the north. EBC had conducted three rounds of groundwater gauging at the Site. GZA gauged groundwater at Feb 27, 2017 and confirmed that groundwater encountered at a depth ranging from 11 to 15 ft below ground surface (bgs) (**Table 1)**. Groundwater contour maps are provided as **Figure 3A through Figure 3D**. Based on regional groundwater elevation maps, groundwater is expected to flow towards the south/southeast/east. This direction is consistent with the studies performed on Sites located approximately two blocks to the west (Flushing Avenue - Bedford Avenue).

2.3 REDEVELOPMENT PLANS

The Site is currently zoned as M1-2. M1 districts typically include light industrial uses, such as woodworking shops, repair shops, and wholesale service and storage facilities. Certain commercial uses are also allowed. The W Group has no plans to redevelop the property at the present time and is currently evaluating potential occupants for the property.

2.4 SITE HISTORY

The Site was a former sheet metal manufacturing building. Delta Metal Products Co., Inc. operated at the site from at least 1991. The Delta Metal is a generator of hazardous waste under EPA ID NYD001287671. The following wastes were generated from the Site during 1989 to 1995: Tetrachloroethene (PCE), 1,1,1-TCA (or methyl chloroform), toluene, cyanide, and methyl ethyl ketone (or Butanone). Records show a historical Underground Storage Tank (UST) for toluene and an Aboveground Storage Tank (AST) for 1,1,1-TCA under the CBS ID 2-000024.

3.0 SUMMARY OF PREVIOUS INVESTIGATIONS

A series of subsurface investigations were performed at the Site by a potential purchaser, the former owner, and the current owner since August / September 2014 as follows:

- Focused Subsurface Investigation Report, Various Parcels - Spencer Street and Flushing Avenue, Brooklyn, NY, Merrit Environmental Consulting Corp. August 21, 2014.
- Supplemental Focused Subsurface Investigation Report, 1-11 Spencer St. (476-478 Flushing Ave.), 12 Spencer St. (735 Bedford Ave.), 15-27 Spencer St. (28-32 Walworth Street) & 466 Flushing Avenue, Brooklyn, NY, Merrit Environmental Consulting Corp. September 17, 2014.
- Soil Vapor Intrusion Study, 11 Spencer Street, Brooklyn, NY Lots 16, 18, 20 and 21. Laurel Environmental Associates, LTD. January 9, 2015.
- Interim Remedial Measure Work Plan, 11 Spencer Street Site, Brooklyn, NY, Block 1716 Lot 21, NYSBCP Site No. C224204, AMC Engineering, PLLC, November 2015
- Remedial Investigation Work Plan, 11 Spencer Street Site, Brooklyn, NY, Block 1716 Lot 21, NYSBCP Site No. C224204, Environmental Business Consultants, Inc., January 2016

The following lab packages and associated figures were also provided:

- Source Delineation Sampling, Environmental Business Consultants, Inc., November - December 2015
- Supplemental remedial investigation sampling, Environmental Business Consultants, Inc., May, October, and November 2016

Copies of previous investigation reports and data summaries are provided in **Appendix A**.

3.1 JULY 2014 – FOCUSED SUBSURFACE INVESTIGATION REPORT (MECC)

On July 21, 2014, MECC performed a subsurface investigation at 6 lots (Block 1716 Lots 16, 20, 21 and 24, Block 1760 Lot 14 and Block 1715 Lot 29) including the subject lot (Block 1716 Lot 21), as part of a due diligence investigation for a potential purchaser. Fourteen borings (14) were installed within the former sheet metal manufacturing building, the parking lot, and the two unimproved lots in this area; seven of them were converted into temporary groundwater monitoring wells. Continuous soil samples were collected for field screening at all of the borings. MECC recorded the PID readings, odors or physical signs of contamination. The details of the soil borings and lab reports are provided in the MECC Report, Appendices B and C.

MECC reported that chlorinated volatile organic compounds (CVOCs) in soil were above NYSDEC unrestricted use soil cleanup objectives (UUSCOs) at a single boring location, B10, at a concentration of 32,000 µg/kg. PCE and trichloroethene (TCE) were above NYSDEC Ambient Water Quality Standards (AWQS) in all groundwater samples with PCE ranging from 8.5 micrograms per liter (µg/L) at B8 to 47,000 µg/L at B10. TCE ranged from 6.4 µg/L at B14 to 250 µg/L at B10. The results and a potential shallow groundwater PCE plume are shown in **Figure 6A.** Other CVOCs reported above AWQS at the Site included cis-1,2, dichloroethene in 3 wells ranging from 17 µg/L in B1 to 95 µg/L in B6; 1,1,1-trichloroethane (1,1,1-TCA) in four wells ranging from 18 µg/L in B9 to 3,100 µg/L in B10; and, 1,1-dichloroethane in one well above NYSDEC AWQS at a concentration of 7.3 µg/L.

In summary, groundwater sample B10 GW was reported to contain the greatest PCE concentration (47,000 µg/L) in comparison with the remaining groundwater analysis results. A soil sample collected at B10 at a depth of 9 to 10 ft also contained an elevated PCE concentration of 32,000 µg/kg. MECC believed that Soil Boring B10 was installed at or near the source of the PCE release, which appears to be the concrete pit within the former sheet metal manufacturing building. MECC concluded that the primary contaminant consisted of PCE and additional VOCs that were identified as PCE degradation products.

3.2 SEPTEMBER 2014 – SUPPLEMENTAL FOCUSED SUBSURFACE INVESTIGATION REPORT (MECC)

On September 3, 2014, a hydraulic direct push drill rig was utilized to install a total of five (5) additional temporary monitoring wells to assess the horizontal and vertical extent of the CVOC plume. Three (3) of monitoring wells (B18 through B20) were installed within the 11 Spencer Street building (vacant industrial building). One (1) well (B21) was installed at the north side of the vacant lot near the intersection of Spencer Street and Flushing Avenue. A second well (B22) was installed within the exterior stockyard at the south side of the Site. One soil sample was collected from B 17 at 9 ft (refusal at 10 ft bgs); five deep groundwater samples were collected from 31 ft to 35 ft bgs and three shallow groundwater samples were collected from the water table zone (13 ft to 17 ft bgs). All the soil samples were analyzed under EPA Method 8260. The details of the lab reports are provided in Appendix A of the MECC Report.

Laboratory analysis of the groundwater samples show that PCE was detected at 210 µg/l in the deep groundwater sample collected from Soil Boring B19 at 31 to 35 ft bgs, which was installed adjacent to the concrete pit inside the former metal fabrication building within the Site. The NYSDEC AWQS for PCE in groundwater is 5 µg/l. This pit area was previously found to be the location of the highest concentrations of CVOCs in shallow groundwater. The results showed that a contamination had migrated vertically at the Site. Other deep groundwater samples collected at greater distances from the concrete pit were reported to contain lower concentrations of CVOCs in comparison with that detected in B19. The results and potential deeper groundwater PCE plume are shown in **Figure 6B.**

Additionally, a shallow groundwater sample collected from the soil boring (B18) installed adjacent to an apparent former flammable materials storage room at the west side of the Site was reported to contain toluene (a petroleum-related VOC) at a concentration of 66,000 µg/l greater than its NYSDEC AWQS of 5 µg/l. The deep groundwater sample collected from this boring also was reported to contain toluene at an elevated concentration of 860 µg/l. PCE was also detected at an elevated concentration in this deep sample (46 µg/l) (**Figure 7A**).

In summary, PCE and TCE contamination exist in both the shallow and deeper groundwater intervals sampled at the Site. An elevated concentration of toluene was also detected in groundwater near the west side of the Site.

3.3 JANUARY 2015 – SOIL VAPOR INTRUSION STUDY (LAUREL ENVIRONMETNAL ASSOCIATES, LTD.)

On December 12, 2014, Laurel Environmental Associates, LTD. (Laurel) performed a soil vapor intrusion investigation at the Site and the adjacent properties. A total of five sub-slab (SS), five indoor air (IA), and one outdoor ambient (OA) air samples were collected. Specifically, two sub-slab soil vapor and two indoor air samples (SS-1, SS-2, IA-1 and IA-2) were collected from the Site (11 Spencer Street); One sub-slab and one indoor air sample (SS-3 and IA-3) was collected from the property adjoining to the south (15 Spencer Street); One sub-slab and one indoor air sample (SS-4 and IA-4) was collected from property to the south (23 Spencer Street). One sub-slab and one indoor air sample (SS-5 and IA-5) was collected from building adjacent to the west (735 Bedford Avenue). In addition, one ambient outdoor air sample was collected from outside 17 Spencer Street. The details of the lab reports are provided in the Laurel Report Attachments.

The sub slab and indoor air samples identified as SS-1, IA-1, SS-2, IA-2, SS-3, and IA-3, collected from the Site and the property adjoining to the south, were found to contain concentrations of compounds above the acceptable guidance levels as set forth by NYSDOH Matrix. Specifically, the SS1 sub-slab air sample located in the vicinity of the concrete pit showed PCE and TCE at concentrations of 1,200,000 µg/m^3 and 88,700 µg/m^3; The SS2 sample collected in the central area of the main building showed 2,520 µg/m^3 for PCE and 1,160 µg/m^3 for TCE. The indoor air samples from source area IA1 showed PCE and TCE at concentrations 22 µg/m^3 and 4.73 µg/m^3, IA2 sample collected in the central area of the main building showed 9,150 µg/m^3 of PCE and 943 µg/m^3 of TCE. These results above the guidance matrices levels for mitigation, as well as the adjoining property located at 17 Spencer Street.

Samples collected from 23 Spencer Street, designated as SS-4 and IA-4 exhibited concentrations of PCE, TCE, and Carbon Tetrachloride at elevated levels. The NYSDOH Matrix determines that reasonably practicable actions should be implemented to reduce exposure. Samples collected from 735 Bedford Avenue, designated SS-5 and IA-05 detected concentrations of Carbon Tetrachloride at elevated levels that also require reasonable and practical action to identify the sources and to reduce under the NYSDOH Matrix, no other compounds analyzed for have been detected in this sample. However, Carbon Tetrachloride was found in outdoor air at higher concentrations, so the indoor area reading may represent background. These results are shown in **Table 4A** and **Figure 9A**.

3.4 NOVEMBER - DECEMBER 2015 - SOURCE DELINEATION SAMPLING (ENVIRONMENTAL BUSINESS CONSULTANTS, INC.)

On November 17, 2015, EBC mobilized to the Site to further delineate the extent of CVOCs contamination in the vicinity of the concrete pit (8 ft x 24 ft x 3.5 ft depth), located in the western wing of the 11 Spencer building. This effort included advancing eight soil borings (15SB3-15SB10) around the east, west and south sides of the structure. Soil samples were collected continuously in 5-foot intervals using a Geoprobe™ dual-tube sampling system. Soil samples were retrieved using a 1.125-inch diameter, 5-foot long dual-tube sampler with disposable acetate liners to preserve sample integrity. At each boring location samples were collected continuously in 5 ft cores to a depth of 20 f bgs. Samples were collected at the groundwater interface between 10-12 ft and at a depth of 18-20 ft. All the soil samples were analyzed under EPA Method 8260. The details of the soil borings and lab reports are compiled in EBC Source Delineation documents (EBC provided all the associated documents)

PCE was reported above UUSCOs but below restricted residential soil cleanup objectives (RRSCOs) at the 10-12 ft interval in four of the eight borings including 15SB3, 15SB4, 15SB5, and 15SB10. The PCE ranged from 2,100 µg/kg in SB5 to 6,100 µg/kg in SB3. PCE was also reported above UUSCOs in the 15-17 ft interval at boring SB7 at 1,900 µg/kg. PCE was not reported above UUSCOs in the 18-20 ft interval from any of the borings

1,4-dioxane was reported in six of the eight borings including 15SB3-15SB6, 15SB8 and 15SB 10. Concentrations ranged from 230 µg/kg in 15SB8 to 41,000 µg/kg in 15SB10, above the UUSCOs of 100 µg/kg. One sample collected at SB-10 was detected above the RRSCOs.

In addition to the samples collected at 10-12 ft and at 18-20 ft intervals, a sample (15 SB6) of a black stained layer exhibiting chemical odors was collected at approximately 3 ft below grade. The results from this sample reported multiple VOCs including 1,1,1-TCA, 1,1-dichloroethane, 1,2- dichloroethane, benzene, chloroform, cis-1,2-dichloroethene (cis-1,2-DCE), 1-4 dioxane, PCE and TCE above UUSCOs. PCE was reported at 1,000,000 µg/kg and TCE was reported at 88,000 µg/kg, above their respective restricted commercial soil cleanup objectives (RCSCOs).

Based on this information, a second supplemental investigation occurred on December 2, 2015 to delineate the extent of the black stained layer (at the 3-5' bgs interval). This work included twelve borings. Two of borings were located within the concrete pit (15B1 PIT, 151B2 PIT) and at 2-3 ft below the base of the pit (3.5 ft below surface grade). Five borings were also advanced targeting potential black stained interval (3-3.5 ft) based on five of the previous eight borings (SB3-SB5, SB8, SB9). Borings were also advanced at five additional locations (B13-B16, B19) with sample intervals of 2-4 ft and 10-12 ft. the Samples collected from the concrete pit exhibited PCE concentrations ranging from 13,000 µg/kg to 110,000 µg/kg. Elevated PCE was reported at the 3-3.5 ft interval (within the black stained layer) ranging from 5,200 µg/kg in B19 to 2,600,000 µg/kg in B5. Although TCE was not reported beneath the concrete pit base (15B1 PIT and 15B2 PIT), it was reported in the black stained layer in all 10 borings ranging from 1,200 in B9 to 480,000 µg/kg in B15. PCE and TCE were not reported above the SCOs in any of the 10-12 ft interval of the five new borings (B13-B16, B19).

In summary, samples collected from shallow soil (0-5 ft bgs) showed the PCE concentrations ranged from 5,200 µg/kg in B19 to 2,600,000 µg/kg in SB5. Soil samples collected from 10 ft to 17 ft bgs interval showed the PCE concentrations (ranged from 1,900 µg/kg in SB7 to 6,100 µg/kg in SB3) above the UUSCOs but less than RRSCOs or RCSCOs. PCE was not reported above UUSCOs the 18-20 ft interval from any of the borings. These results are shown in **Table 2A** and **Figure 4A**.

3.5 FEBRUARY 2016 – OFF-SITE SOIL VAPOR INTRUSION REPOTRT (ENVIRONMENTAL BUSINESS CONSULTANTS, INC.)

On February 15, 2016, EBC installed two sub-slab soil vapor implants (SS1 and SS2) below the basement slab of the adjacent building located at 470 Flushing Avenue in Brooklyn, NY. The property is improved with a five story industrial building currently occupied by a television production company with a full basement level. The sub-slab soil vapor implants were installed by drilling a ½ inch hole through the concrete slab with a handheld drill and then inserting a ¼ inch polyethylene tube to no more than 2 inches below the base of the slab. EBC also performed indoor air sampling which consisted of the collection and laboratory analysis of two indoor air samples (IA1 and IA2) from within the basement and the first floor and one outdoor air sample (OA1) to provide background information.

Petroleum related VOCs were detected at low concentrations in the sub-slab soil gas samples, and were not detected above outdoor/background concentrations in the two indoor air samples collected at the Site. Trichloroethylene was detected above NYSDOH Matrix 2 in sub- slab sample SS-2 at a concentration of 3,000 µg/m^3 with indoor air at 0.83 µg/m^3. No CVOCs exceedance were observed in SS-1 and IA-1. Based on these findings, EBC concluded that CVOC hotspot located at 11 Spencer Street had an impact on the sub-slab vapor of 470 Flushing Avenue. Details are provided in **Figure 9B.**

3.6 MAY- NOVEMBER 2016 - SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING (ENVIRONMENTAL BUSINESS CONSULTANTS, INC.)

At the direction of the NYSDEC, EBC mobilized to the Site to further evaluate the nature and extent of the on-Site contamination and identify all sources of contamination (horizontal/vertical) that may be associated with the Site. Between May 2016 and November 2016, EBC performed the following supplemental investigation:

- A geophysical survey was performed to identify unknown tanks and buried structures at the Site.
- Advancement of thirty-one (31) additional soil borings on-Site and off-Site

- Installation of nineteen (19) monitoring points, ten permanent and nine temporary, for groundwater
- Installation of seven (7) sub slab and three (3) soil vapor samples

Soil Samples: Additional soil borings (SB 1601 through 1627, TSP2 through TSP 6) were installed across the Site to delineate the extent of soil impact and to obtain additional information on soil quality with respect to NYSDEC SCOs; Soil samples were collected continuously in 5-foot intervals using a Geoprobe™ dual-tube sampling system. Soil samples were retrieved using a 1.125-inch diameter, 5-foot long dual-tube sampler with disposable acetate liners to preserve sample integrity. Samples were collected continuously in 5 ft cores to a depth of 15 ft bgs. Soil Samples were collected from a shallow interval at 2-4 ft bgs and from the groundwater interface at a depth of 10-12 ft bgs. All the soil samples were analyzed under EPA Method 8260 – VOCs. Six (6) of the soil samples from SB1601, SB1605, SB1607, SB1611, SB1612, SB1614 were collected for full TCL/TAL analysis.

The details of the soil borings and lab reports are compiled in EBC's Supplemental Investigation folder.

At the shallow interval, PCE concentrations were reported above the NYSDEC UUSCOs and RRSCOs at two soil borings adjacent to the suspected source area at concentrations of 380,000 µg/kg in SB1602 and 28,000 µg/kg in SB1605. A soil sample, SB1624, collected from the shallow interval at the location adjacent to 12-16 Walworth Street contained an elevated PCE concentration of 47,000 µg/kg. PCE was also observed above the RRSCOs at SB 1612 (65,000 µg/kg). PCE in shallow soil were reported lower than the RRSCOs but above the NYSDEC UUSCOs at soil borings SB1601, SB1603 through SB 1604 through SB1606, SB1609 through SB1611, SB1613, SB1614, SB1617, SB1619, SB1622, SB1623, SB1625, and SB 1626. Most of these boring locations are located within the Site; and some extend to the parking lot area (SB 1609, SB 1619 and SB 1610) and southern area adjacent to the property (SB 1603, SB 1604 and SB 1617 at Lot 20). PCE concentrations in the shallow soil were reported less than the UUSCOs at soil borings along Flushing Avenue (SB1621 and SB1627), the southern boundary area of the Site (SB1615 and SB1616), and the side walk along the Walworth Street (TSP2 through TSP6).

At the shallow interval, TCE concentrations were reported above the NYSDEC UUSCOs and RRSCOs at three soil borings adjacent to the suspected source area at a concentration of 330,000 µg/kg in SB1602, downgradient area at a concentration of 56,000 µg/kg in SB1612, and parking area at a concentration of 24,000 µg/kg in SB1608.

Three (SB 1601, SB1605, SB1607) out of six soil samples showed lead and mercury concentrations above the NYSDEC RRSCOs at shallow soils. Five (SB1601, SB1605, SB1607, SB1611, SB1614) out of six samples showed SVOCs concentrations such as benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene above the NYSDEC RRSCOs.

Soil samples collected from 10 ft to 12 ft bgs at three borings adjacent to 12-16 Walworth Street showed PCE concentrations of 3,400 µg/kg in SB 1624, and 3,100 µg/kg in SB1625. These concentrations are above the NSYDEC UUSCOs but are lower than the NYSDEC RRSCOs or RSCOs. All of the other borings outside the source area from the 10 to 12 ft bgs interval contained PCE concentrations below the NYSDEC UUSCOs. The results and sampling locations are presented in **Table 2C** and **Figure 4B.**

Groundwater Samples: Permanent monitoring wells (MW1601 through MW1614) and temporary wells (TSP1 through TSP 9) were installed at locations upgradient of the Site, on-Site, and downgradient to evaluate groundwater impacts. The permanent monitoring wells were constructed using 1-inch diameter poly-vinyl chloride (PVC) casing and ten ft of 0.010 inch slotted PVC well screen installed to a total depth of 20 ft. A No. 00 Morie or equivalent filter sand was placed in the borehole to within 2 ft above the top of the screen. A 1-foot hydrated bentonite seal was placed on top of the filter sand and the remainder of the borehole was backfilled to grade. Groundwater samples were collected from the newly installed monitoring wells through the use of dedicated polyethylene tubing and a peristaltic pump with disposable peristaltic pump tubing. Groundwater samples from each monitoring well were submitted for laboratory analysis of VOCs, SVOCs, pesticides / PCBs and metals. Details of the well construction logs and lab reports are compiled in EBC's Supplemental Investigation folder.

Permanent well MW1603, located at the former concrete pit (source area) showed the presence of PCE, TCE, cis-1,2-DCE and Vinyl Chloride (VC) at concentrations of 2,900 µg/l, 99 µg/l, 140 µg/l, and 24 µg/l, respectively. 1,1,1-TCA (Methyl chloroform) was detected as high as 100 µg/l in this area. A temporary well point (TSP7), installed by EBC on the Western Side of Spencer Street (upgradient), indicated that there is an upgradient source of PCE. PCE, TCE, cis-1,2-DCE and VC, were detected at concentrations of 120,000 µg/l, 38,000 µg/l, 11,000 µg/l, and 120 µg/l, respectively at this location. In addition, 1,1,1-TCA was detected at 86,000 µg/l at this location. Permanent well MW1607 installed by EBC along the eastern side of the property showed the presence of PCE. PCE, TCE, cis-1,2-DCE, and VCat concentrations of 2,600 µg/l, 99 µg/l, 59 µg/l, and 7.1 µg/l, respectively, at this location. In 2007, PW Grosser collected several groundwater samples from the monitoring wells located on an adjacent property – 12-16 Walworth Street, Brooklyn NY. This property is located directly east and downgradient of the 11 Spencer Street Site. PCE, TCE, cis-1,2-DCE and VC were detected at concentrations of 30,845 µg/l, 48,675 µg/l, 164,000 µg/l, and 2,277 µg/l at MW-2. Monitoring well GP-1 also showed elevated PCE, TCE, and cis-1,2-DCE at concentrations of 3,175 µg/l, 2,315 µg/l, and 387 µg/l, respectively. In addition, five temporary wells installed along the sidewalk of Walworth Street also indicated the presence of PCE, TCE, cis-1,2-DCE and VC at concentrations of 220 µg/l, 57 µg/l, 22.000 µg/l, and 7,800 µg/l, respectively. The results and potential plumes are presented in **Table 3A** and **Figures 5A** and **6C.**

Sub-Slab Vapor and Soil Vapor Samples: Sub-slab vapor and soil gas were collected to evaluate vapor phase VOCs on-Site and in the surrounding parcels. Sub-slab sampling points were set to 1 to 2 inches below the bottom of the existing concrete slab to evaluate the current extent of vapors beneath the existing building. The soil gas implants were installed with Geoprobe™ equipment at depths of about 8-ft bgs and constructed in a similar manner to minimize possible discrepancies. Flow rates for both purging and collecting did not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling. Samples were collected in Summa® canisters which had been certified clean by the laboratory and analyzed by using USEPA Method TO-15. All samples were collected over a 2-hour period of time and submitted to a NYSDOH certified laboratory, Phoenix Environmental Laboratories, Inc. Details of the lab reports are compiled in EBC's Supplemental Investigation folder.

The sub slab samples, identified as SS-1 through SS-7 were collected from the on-Site area at 1 to 2 inches below slab. Soil Gas samples are identified as SG1 through SG3 and were collected from on-Site and the adjacent parking lot area at a depth of 8 ft bgs. Sub Slab and Soil Gas samples were found to contain concentrations of VOCs above the Matrix 1 and Matrix 2 acceptable guidance levels for Evaluating Soil Vapor Intrusion in the State of New York. Specifically, the sub slab sample SS1 located in the vicinity of the former metal washing area exhibited PCE and TCE at concentrations of 198,000 µg/m^3 and 26,200 µg/m^3, above the guidance matrices levels for mitigation. Sub-slab sample SS6 collected along 816 Walworth Street contained 247,000 ug/m3 for PCE and 155,000 ug/m3 for TCE. Another sub-slab sample, SS5, sample collected along 816 Walworth Street also contained elevated concentrations of PCE (31,000 ug/m3) and for TCE (34,000 ug/m3). The soil gas sample SG1 collected along Spencer Street contained PCE and TCE at concentrations of 153,000 and 4,350 ug/m3; Soil gas collected from the Parking lot area contained PCE above the NYSDOH Matrix 2. Samples collected along 816 Walworth Street (SS5 and SS6) area exhibited 1,1,1-TCA and carbon tetrachloride concentrations requiring mitigation. The results are presented in **Table 4B** and **Figure 9C.**

4.0 SUPPLEMENTAL REMEDIAL INVESTIGATION

4.1 SUPPLEMENTAL REMEDIAL INVESTIGATION APPROACH

Based on conversations with the NYSDEC, GZA performed a supplemental remedial investigation for the 11 Spencer Street Site which targeted the on-Site vertical extent of the upgradient plume, on-Site source plume and the downgradient plume. In addition, biological and geochemical samples were collected to evaluate current conditions to provide data for potential on-Site remedies. All samples were analyzed by Alpha Analytical, a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory. Biogeochemical analysis was performed by Microbial Insights of Knoxville, Tennessee. Supplemental remedial investigation laboratory reports are provided in **Appendix E. Figures 5B** and **6D** represent the supplemental investigation sample locations and results. Below is a summary of the elements of the supplemental investigation:

- Profiling of the on-Site soil by installation of three deep soil borings down to approximate 50 ft bgs at MWC-1, MWC-2, and MWC-3 locations)

- Installation of nine monitoring wells (within clusters MWC-1 through MWC-3). The clusters consisted of three wells each, installed on the western portion of the Site, in the source area and near the eastern property line downgradient as shown in **Figure 5B**. Each cluster has a well advanced to depths of approximately 25' bgs, 35' bgs and 50' bgs with screened intervals approximately from, 19'-24' bgs, 29'-34' and 44-49'. A one foot sump, composed of solid PVC riser was also installed on the bottom of each well to evaluate the presence of a dense non-aqueous phase liquid (DNAPL) that may exist. After installation, the monitoring wells were developed and sampled for VOCs including 1,4 Dioxane;

- Redevelopment of Monitoring wells MW 1601, MW 1602, MW 1603, MW 1605, and MW 1607;

- Collection and analysis of groundwater samples from each redeveloped well for VOC's including 1,4 Dioxane.

- Biogeochemical analysis of the groundwater in the newly installed monitoring wells and the redeveloped monitoring wells. Analysis consisted of field measurements for Dissolved Oxygen (DO), Oxygen Reducing Potential (ORP), pH, temperature and specific conductance and laboratory analysis of, nitrate, sulfate, ferrous iron, divalent manganese, total organic carbon and alkalinity. In addition, we analyzed one sample from the source area (MWC-2S) for a microbial array to identify the composition of the microbial community to evaluate if sufficient dechlorinators are present to support degradation after the source soils are remediated.

A detailed description of investigative procedures is included in GZA's Quality Assurance Project Plan (QAPP), provided in **Appendix B**. Investigation activities were performed in accordance with a site-specific Health and Safety Plan (**Appendix C**).

4.1.1 Subcontractors

GZA contracted with Aquifer Drilling and Testing, Inc. (ADT) of New York, NY to install the nine permanent monitoring wells. ADT is New York licensed and complied with requirements regarding mark-out of subsurface utilities prior to initiation of intrusive activities.

Alpha Analytical (Alpha) of Westborough, Massachusetts (Certification No. 07010) conducted laboratory analysis of soil and groundwater samples.

Microbial Insights of Knoxville, Tennessee performed QuantArray-Chlor analysis to provide the quantification of a variety of halorespiring bacteria (Dehalococcoides, Dehalobacter, Dehalogenimonas, Desulfitobacterium, etc.) and functional genes.

4.1.2 Soil Boring Installation

To profile the soil conditions at the Site, three soil borings were advanced using direct push methods at locations adjacent to the three proposed clusters before permanent monitoring well installation. Borings MWC-1, MWC-2, and MWC-3, were advanced to the depth of 47 ft bgs, 43 ft bgs, and 15 ft bgs. Refusal was encountered several times at MWC-3 area (downgradient area). Soils were classified, screened with a photoionization detector (PID) and observed for visual/olfactory signs of contamination. Three samples were selected from the soil boring MWC-2 installed from the source area at the 3 to 4 ft bgs, 11 to12 ft bgs, and 18 to19 ft bgs intervals for EPA 8260 VOCs analysis. One sample was also collected from MWC-1 at the 20 to 21 ft bgs interval for total metal analysis. Soil boring logs are provided in **Appendix G**.

4.1.3 Permanent Monitoring Well Installation

The permanent monitoring wells were installed using a hollow stem auger drill rig combined with mud rotary drilling (mixture of water and high yield bentonite). With some minor exceptions, the following is a summary of the well construction, by depth interval:

- Shallow monitoring wells (S-series): Approximate 25 ft deep; 5 ft of screen;

- Deep monitoring wells (D-series): approximate 35 ft deep; 5 ft of screen;
- Deeper monitoring wells (DD-series): approximate 40-50 ft deep; 5 ft of screen.

Each well was constructed as 2-inch diameter wells with Schedule-40 machine slotted PVC screens and risers. The annular space of the wells was filled with #2 sand extending approximately two feet above the top of the screen. A layer of bentonite was placed above the sand packs and the borings were sealed with cement extending to the ground surface. The wells were completed with a flush mount curb box and locking gripper cap. Well installation/construction summary and logs are provided in **Table 5** and **Appendix G**.

After installation, the permanent wells were developed using a submersible pump and dedicated polyethylene tubing to remove fine materials generated during well installation activities until the groundwater was nearly free of turbidity. The purge water and soil cuttings were containerized in a 55-gallon drum and stored on-Site pending analysis and prior to disposal of off-Site. Details are provided in **Table 5**

4.1.4 Groundwater Sampling Procedures

GZA utilized low flow sampling procedures for groundwater sampling. Prior to sampling each monitoring well, the headspace was measured using a PID and the water level was measured using an electronic water level meter. Before sampling, the wells were purged utilizing a low-flow submersible stainless steel pump with dedicated Teflon®-lined polyethylene tubing connected to a transparent flow cell. Groundwater from each well was purged using low pumping rates (less than 500 ml/min) so as to limit drawdown of the water level. Wells were purged until turbidity, pH, temperature, dissolved oxygen and specific conductivity stabilized. Field measurements, collected from the flow cell, were recorded in the field logbook during and after purging, and before sampling. Purging was performed with the pump intake placed at the bottom of the well screen or the bottom of the water column to ensure that all stagnant water in the well is removed, while not stirring up sediment that may have accumulated on the bottom of the well.

Purge volumes for conventional and low flow sampling procedures were monitored and recorded. Samples were collected in laboratory prepared sample bottles (pre-preserved, as appropriate), placed in ice-packed coolers maintained at approximately 4°C under proper chain of custody procedures for transportation to the laboratory. Well purge data sheets are provided in **Appendix H**.

4.1.5 Laboratory Methodologies

Three (3) soil samples were selected for VOCs analysis by EPA Method 8270 and one of the soil samples was analyzed for RCRA Metals. All the groundwater samples collected from the newly installed monitoring wells and the redeveloped monitoring wells were analyzed for VOCs by U.S. Environmental Protection Agency (EPA) Method 8260 including 1,4 Dioxane (8260SIM).

All groundwater samples were analyzed by Alpha for the following biogeochemical parameters to evaluate the feasibility of monitored natural attenuation (MNA) and to characterize the biogeochemistry of the groundwater and assess remedial scenarios:

- Dissolved Iron (EPA 200.7); Nitrate, Nitrate, Sulfate and Total Organic Carbon (EPA 415.1)
- Iron and Manganese (EPA 6010B), Sulfur (Combustion IR), Total Organic Carbon (Lloyd Kahn)

The groundwater sample collected from the source area (MWC-2S) was analyzed for QuantArray chlor by Microbial Insights to detect and quantify specific microorganisms and functional genes.

4.1.6 Quality Assurance and Quality Control.

The RI was conducted in accordance with GZA's Quality Assurance Project Plan (QAPP) that is provided in **Appendix B**. GZA's sampling program included several types of quality assurance/quality control (QA/QC) samples and measures to ensure the usability of the data. QA/QC samples included equipment rinsate/field blanks, trip blanks, sample duplicates and matrix spike/matrix spike duplicates (MS/MSDs).

When applicable, the sample result summary tables list the laboratory method detection limit (MDL) at which a compound was non-detectable. The laboratory results were reported to the sample-specific practical quantitation limit (PQL), equal to the sample-specific MDL, supported by the instrument calibrations.

GZA prepared a Data Usability Summary Report for the data provided in this RIR. The assessment and evaluation included a review of all laboratory data packages to assess laboratory performance and the quality of the analytical data produced with consideration for its intended purpose. The reliability of laboratory data is supported by compliance with sample holding times and laboratory MDLs below cleanup criteria. Accuracy and precision of the laboratory analytical methods are maintained by the use of calibration and calibration verification procedures, laboratory control samples, and surrogate, matrix, and analytical spikes. In general, all data quality was appropriate for its intended use. Review of the laboratory data packages indicates that all holding times were met and no significant non-conformance issues were reported. In some instances, laboratory MDLs were reported to be above applicable standards due to dilution for high concentration of compounds. Based on the Data Quality Assessment, the analytical data are of sufficient quality for the intended purpose and can be relied upon. Details of the lab report are provided in **Appendix E**. The Electronic Data Deliverables (EDD) and Data Usability Summary Report (DUSR) for all of the samples discussed in this report and not previously submitted to NYDEC are under preparation and will be submitted after a well survey.

4.1.7 Investigation Derived Waste

Soils, purge water, development water, and personal protective equipment (PPE) generated during this RI were containerized in 55-gallon drums and labeled for waste analysis and disposal. A total of seven (7) soil and four (4) groundwater drums were produced during this investigation. In total, eight (8) drums of soil and five (5) drums of groundwater were produced from this investigation and the previous investigation performed by EBC. The EPA RCRA generator ID for the Site is NYD001287671. All the drums will be shipped for disposal as hazardous materials.

4.2 HELATH AND SAFETY PLAN

The work outlined above was completed under a GZA site-specific Health and Safety Plan (HASP) (Appendix C). in accordance with OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. The health and safety procedures includes dust and carbon monoxide monitoring for worker protection. GZA's work was completed in Modified Level D personal protective equipment (PPE); however, workers were prepared to elevate to more protective PPE based on the conditions encountered during field activities.

4.3 APPLICABLE STANDARDS

The following chemical-specific SCGs and guidelines have been identified for soil for this Site:

- The NYSDEC Part 375 Environmental Remediation Program and the associated CP-51 Soil Cleanup Guidance Policy provide guidance (SCOs) concerning remediation levels for various contaminants present in soil.

The following chemical-specific SCGs have been identified for groundwater at the Site:

- 6 NYCRR Part 703 Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations and Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (Division of Water Technical and Operational Guidance Series 1.1.1).

The following chemical-specific guidelines have been identified for soil vapor/indoor air at the Site:

- The NYSDOH Guidance Document for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) provides guidance concerning remediation levels for various contaminants that may be present in indoor air and soil vapor.

4.4 SUPPLEMENTAL INVESTIGATION SAMPLING RESULTS

4.4.1 Soil Sampling results

Table 2D provides a summary of the analytical results from the soil sampling event. **Figure 4B** provides the soil boring locations as well as a summary of soil data from the sampling event. Details of the soil boring logs are provided in **Appendix G.**

PCE was detected greater than its RRSCOs in all three soil samples collected from MWC-2 with concentrations of 400,000 µg/kg at 3 ft to 4ft bgs, 900,000 µg/kg at 11 ft to 12ft bgs, and 370,000 µg/kg at 18ft to19ft bgs. TCE was reported above its RRSCOs at 11-12 ft with a concentration of 51 µg/kg. Total metals detected at MWC-1 were lower than their respective UUSCOs.

4.4.2 Groundwater Sampling results

Table 3B provides a summary of the analytical results from the groundwater samples. **Figure 5B** provides the well locations as well as a summary of groundwater data from the sampling event. **Figure 6D** provides iso-concentrations of PCE in cross section using data from the monitoring wells.

1,1,1-TCA, PCE, TCE, and cis-1,2-DCE were detected at concentrations greater than their respective NYSDEC AWQS. Specifically, PCE was detected above the AWQS of 5 µg/L in all samples with the exception of MWC1-DD. The highest concentration of PCE was detected in monitoring well MW-1607 at 23,000 µg/L, which is located downgradient of the Site. Elevated PCE was present in the wells from a source area, including Well MW1603 at 18,000 µg/L, MWC2-S at 240 µg/L, MWC2-D at 1,300 µg/L, MWC2-DD at 220 µg/L, and MW-1605 at 1,500 µg/L. PCE was not detected in MWC1-DD located upgradient of the Site. PCE was observed above the NYSDEC AWQS in the two deep wells: MWC2-DD and MWC3-DD.. 1,1,1-TCA was detected at concentrations greater than the AWQS of 5 µg/L in samples collected at MW1603, MW-1605, and MW1607. The highest concentration of 1,1,1-TCA was detected in MW1607 at a concentration of 370 µg/L. 1,1,1-TCA was found slightly above the NYSDEC AWQS at MW 1601, MW 1602, and MWC-2D.

TCE was present in all the groundwater samples. Twelve out of fourteen samples contained TCE concentrations above the NYSDEC AWQS of 5 µg/L, including wells located in the source area, upgradient, and downgradient of the Site. The highest concentrations of TCE was identified in downgradient monitoring well MW-1607 at 150 µg/L. cis-1,2-DCE (an intermediate degradation product) was identified in various samples above its respective NYSDEC AWQS. The highest concentration of cis-1,2-DCE was identified in the sample collected from MW-1603 at a concentration of 53 µg/L which is greater than its NYSDEC AWQS of 5 µg/L.

1,4-dioxane was detected at wells collected in the source area including: MW 1603 at 550 µg/L, MWC2-S at 5,200 µg/L, MWC2-D at 960 µg/L, MWC2-DD at 53 µg/L, MW 1602 at 22 µg/L; and downgradient well MW-1607 at 440 µg//L. There is no AWQS for 1,4-dioxane. These results are consistent with the results from MECC, where 1,4-dioxane was reported in six of the eight soil borings at the on-Site source area including SB3, SB4, SB5, SB6, SB8, SB10, SB15, and SB16. Concentrations ranged from 230 µg/kg in SB8 to 41,000 µg/kg in SB10. The results are shown in **Figure 8.**

Toluene was present in all clusters at concentrations greater than the AWQS of 5 µg/L, including MWC1-S at 320 µg/L, MWC1-D at 1,700 µg/L, MWC1-DD at 220 µg/L, MWC2-S at 260 µg/L, MWC3-D at 8.1 µg/L. The results are shown in **Figure 7B.**

4.4.3 Baseline Biogeochemical Parameters

Intrinsic biological degradation is typically the dominant natural attenuation mechanism in groundwater plumes with low to moderate seepage velocities. Declining concentrations of PCE and TCE[1] provide primary evidence for intrinsic biodegradation via reductive dechlorination. Secondary evidence of intrinsic biodegradation includes increases in biodegradation intermediates DCE and VC, and changes in biogeochemical parameters including elevated genetic markers

[1] If PCE concentrations are high, TCE concentrations can be stable or increasing, because TCE is a degradation product of PCE.

for dechlorinating bacteria and their enzyme functional genes, low redox potential (ORP), circumneutral pH (pH between 6 and 8 standard units), elevated alkalinity, low oxygen, nitrate, and sulfate concentrations, and elevated concentrations of organic carbon (TOC), dissolved iron and manganese, methane, ethane, and ethene. A summary of the analytical results for biogeochemical parameters collected during this baseline sampling is provided in **Table 3B**. Details of the lab reports are provided in **Appendix E.**

The microbial population summary figures in **Appendix E** present the concentrations of target populations (e.g. Dehalobacter spp. (DHBt) and Desulfuromonas spp. (DSM)) and functional genes compared to typically observed values to give an overview of the potential for biodegradation of groups of compounds by anaerobic and aerobic pathways. At MWC-2S, bacterial populations capable of reductive dechlorination of TCE, DCE, and vinyl chloride were detected at moderate to high concentrations. Likewise, at least two bacterial groups capable of anaerobic biodegradation of PCE and TCE were detected in the MWC-2S sample. Coincidentally, the cis-1,2, DCE and vinyl chloride production observed at the site may be due to reductive dechlorination of PCE. Functional genes encoding enzymes responsible for aerobic (co)metabolism were detected at moderate concentrations (Toluene Monooxygenase (RMO).

5.0 CONCEPTUAL SITE MODEL

5.1 ON SITE SOURCES AND PLUMES

VOC contamination at the Site consists of CVOC related contaminants at high concentrations within a thin 2-8 inch black stained layer around the east, west and south areas of the concrete pit at a depth of approximately 2-4 ft below the surface at borings 15B5 and 15B15 at source area. High concentrations of PCE and TCE were also observed in soil samples collected from the groundwater interface 10-12 ft bgs and saturated soils at 18-19 ft bgs from Cluster MWC2 (source area). In the on-Site source area, CVOCs have migrated downward to the water table as indicated by the high dissolved PCE concentration of 18,000 µg/l in a sample collected adjacent to the concrete pit. Groundwater samples collected west, northwest, northeast and southeast of the tank all have lower dissolved PCE concentrations ranging from 130 µg/L to 1,500 µg/L suggesting the migration in groundwater.

The release scenario is unknown. However, based on the vertical distribution of contamination with the highest concentrations in soil at 2-4 ft below the surface, it would appear to be a surface or near surface release associated with process activities associated with the concrete pit. This would likely be related to the metal finishing process with the release occurring over time as opposed to a one time accidental spill. The contamination appears to have migrated laterally at the 2-4 ft interval with vertical migration as evidenced by the presence of the CVOC concentrations in groundwater and saturated soil. The CVOCs are also partitioned to the vapor phase from impacted soil and groundwater with high concentrations of PCE, TCE, TCA, and other CVOCs in subslab soil gas.

PCE was reported in considerably higher concentrations than TCE indicating that PCE was the primary solvent used at this Site. The presence of cis-1,2-DCE is evidence that reductive dechlorinization is currently taking place. This fact, combined with the lower concentration of TCE vs that of PCE, suggests that some or all of the TCE may be present as a degradation product of PCE and may not have been released as a separate solvent. The presence of TCA and its degradation products is evidence that it was likely used as a solvent at the Site.

1,4-dioxane was reported previously at the on-Site source area ranging from 230 µg/kg in SB8 to 41,000 µg/kg in SB10. 1,4-dioxane was also found from groundwater in the source area on the Site ranging from 22 µg/L to 5,200 µg/L. According to the CBS records, the chlorinated solvents 1,1,1-TCA was stored on-site. Therefore, 1,4-Dioxane is a likely contaminant with 1,1,1-trichloroethane [TCA] because of its widespread use as a stabilizer for chlorinated solvents (EPA 2013a; Mohr 2001).

High concentrations of toluene were detected in groundwater samples collected from the west side of the 11 Spencer Street building (upgradient area) at Soil Boring B18 and Wells at the Cluster MWC-1.

5.2 CONSIDERATIONS REGARDING OFF-SITE SOURCES AND COMMINGLED PLUMES

Based on groundwater flow direction and spatial distribution of CVOCs, it appears that there are three commingled plumes at the Site: An upgradient off-Site plume from historic operations directly west of the 11 Spencer Street Site; the on-Site plume associated with the former operations at the 11 Spencer Street Site and associated soil contamination and a third plume at 12-16 Walworth Street (downgradient).

In the downgradient area, some of the contamination has comingled with the off-site PCE plume at 816 Walworth Street with highest PCE concentration of 23,000 µg/L reported at MW-1607.

6.0 HUMAN HEALTH RISK EVALUATION ....

A qualitative exposure assessment consists of characterizing the exposure setting (including the physical environment and potentially exposed human populations), identifying exposure pathways, and evaluating chemical fate and transport. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has the following five elements:

1. Receptor population
2. Contaminant source
3. Contaminant release and transport mechanism
4. Point of exposure
5. Route of exposure

An exposure pathway is complete when all five elements of an exposure pathway are documented; a potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented but could reasonably occur. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway does not exist in the present and will not exist in the future.

6.1 RECEPTOR POPULATION

The receptor population includes the people who are or may be exposed to contaminants at a point of exposure. The identification of potential human receptors is based on the characteristics of the Site, the surrounding land uses, and the probable future land uses. The Site is currently vacant. Therefore, receptors would only include construction/maintenance workers that may be employed to perform work on the property. However, soil vapor and groundwater contamination may impact off-site properties. The reasonably anticipated future use of the Site is for commercial purposes which is consistent with surrounding property use and zoning. Exposed receptors under the future use scenario may be comprised of indoor workers, outdoor workers (e.g., groundskeepers or maintenance staff), and construction workers who may be employed at or perform work on the property. Site visitors/customers may also be considered receptors; however, their exposure would be similar to that of the indoor worker but at a lesser frequency and duration. Therefore, consideration of the construction worker is conservatively protective of the Site visitor. In addition, workers in off-Site adjoining buildings may be exposed to vapors.

6.2 CONTAMINANT SOURCES

The source of contamination is defined as either the source of contaminant release to the environment (such as a waste disposal area or point of discharge) or the impacted environmental medium (soil, air, water) at the point of exposure. Sections 4.0 and 5.0 discusses the COCs present in the Site media at elevated concentrations. In general, these are limited to CVOCs, to a lesser extent of toluene and 1,4 dioxane in soil and groundwater, and .metals and SVOCs observed in the shallow soil.

6.3 CONTAMINANT RELEASE AND TRANSPORT MECHANISMS

Contaminant release and transport mechanisms carry contaminants from the source to points where people may be exposed, and are specific to the type of contaminant and Site use. For CVOC present in soil and groundwater, the potential exists for exposure through pathways associated with soil gas migration. This would include the indoor vapor intrusion pathway (also referred to as “soil vapor intrusion”); And skin contact, inhalation, and incidental ingestion of volatile organics present in soil and groundwater when construction workers involved in subsurface activities where volatiles are present at elevated concentration.

Concerning the indoor air pathway, the NYSDOH has issued a guidance document for assessing potential impacts to indoor air via soil vapor intrusion. The sub-slab vapor and indoor air samples collected during the Soil Vapor Intrusion Study by

Laurel (2015)and Supplemental Remedial Investigation performed by EBC (May 2016) were assessed by the NYSDOH Soil Vapor Intrusion Guidance matrices. Based on the concentrations of PCE, TCE, and 1,1,1-TCA ,and carbon tetrachloride on the Site, the matrices recommended: "mitigate" and "monitor soil vapor/indoor air," respectively. As such, under the current and future use scenario, soil vapor intrusion is a relevant transport mechanism. Concerning skin contact, inhalation, and incidental ingestion of volatile organics present in soil and groundwater, the potential exists for exposure to VOCs for construction workers involved in subsurface activities where volatiles are present at elevated concentration.

6.4 POINT OF EXPOSURE

The point of exposure is a location where actual or potential human contact with a contaminated medium may occur. Based on the exceedances of commercial and industrial SCOs as well as RRSCOs for CVOCs and exceedance of AWQS/GVs for VOCs in groundwater, the point of exposure is defined as the whole site .

6.5 ROUTE OF EXPOSURE

The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, dermal absorption). Based on the types of receptors and points of exposure identified above, potential routes of exposure are listed below:

Current Use Scenario

- Construction/Utility Worker –skin contact, inhalation, and incidental ingestion
- Visitors/Occupant – inhalation

Future Use Scenario

- Construction/Utility Worker –skin contact, inhalation, and incidental ingestion
- Visitors/Occupant – inhalation

6.6 EXPOSURE ASSESSMENT SUMMARY

Based on the above assessment, the potential exposure pathways for the current and future use conditions are listed below.

Current Use Scenario

- Construction/Utility Worker – direct contact, incidental ingestion, and inhalation of volatile contaminants present in soil and groundwater during intrusive activities, and inhalation of volatile organics present in soil and groundwater via indoor door air migration.

- Visitors/Occupant: inhalation of volatile organics present in soil and groundwater via indoor door air migration.

Future Use Scenario

- Construction/Utility Worker – direct contact, incidental ingestion, and inhalation of volatile contaminants present in soil and groundwater during intrusive activities, and inhalation of volatile organics present in soil and groundwater via indoor door air migration.

- Visitors/Occupant: inhalation of volatile organics present in soil and groundwater via indoor door air migration.

  In most instances, these exposures can be mitigated through the use of engineering controls including, soil vapor extraction, placement of asphalt, and construction of vapor barriers or sub-slab depressurization systems in existing or newly constructed buildings; proper soil/fill management during intrusive activities; and personal protective equipment (PPE);

7.0 FISH AND WILDLIFE IMPACT ANALYSIS

The Site is a former commercial manufacturing facility located within a highly-developed area of the City of Brooklyn. The Site former and current site is predominantly covered with asphalt, concrete and buildings, which provide little or no wildlife habitat or food value, and/or access to the detected subsurface contamination. No natural waterways are present on or adjacent to the Site. The future use is a commercial redevelopment. As such, no unacceptable ecological risks are expected under the current and future use scenario.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 NATURE AND EXTENT OF CONTAMINATION

Based on the results of the investigation and the Qualitative Human Health Exposure Assessment, the following conclusions were made:

1. The source of the PCE release is likely from the concrete pit within the former sheet metal manufacturing building. The primary contaminant consists of PCE and VOCs that are known as PCE degradation products.

2. The onsite PCE contamination in soil has been horizontally and vertically delineated. Soil samples at and/or near the onsite source area were reported to contain the greatest PCE concentration from the surface soil down to 19 ft bgs. Soil samples collected along the adjacent property – 12-16 Walworth Street, Brooklyn NY also contain elevated PCE concentration. It appears that these soil borings were installed at or near the source of another PCE/TCE release, which is located directly east and downgradient of the 11 Spencer Street Site.

3. Based on groundwater flow direction and the spatial distribution of dissolved CVOCs, it appears that there are three commingled plumes at the Site: An upgradient off-Site plume from historic operations directly west of the 11 Spencer Street Site; the on-Site plume associated with the former operations at the 11 Spencer Street Site and associated soil contamination and a third plume at 12-16 Walworth Street (downgradient). Furthermore, it appears that the highest concentrations of PCE was associated with an off-Site (downgradient) Plume.

4. For the on-Site plume, the dissolved CVOCs have been substantially delineated vertically with reductions from approximate 18,722 µg/l at a depth of 18 to 250 µg/l at a depth of 47.

5. 1,4-dioxane was reported previously from the soil at source area ranging from 230 µg/kg in SB8 to 41,000 µg/kg in SB10. 1,4-dioxane was also found from groundwater in the source area on the Site ranging from 22 µg/L to 5,200 µg/L.

6. High concentrations of toluene were previously detected in groundwater samples collected from the west side of the 11 Spencer Street building (upgradient area) at B18; toluene was also found in wells at the Cluster MWC1.

7. Based on the review of the Remedial Investigation and Supplemental Remedial Investigation results conducted by Environmental Business Consultants (EBC), soil and soil vapor have been fully delineated. PCE and other VOCs were detected in on-Site and off-Site soil vapor samples at levels that are above NYSDOH Soil Vapor Intrusion Guidance Matrices.

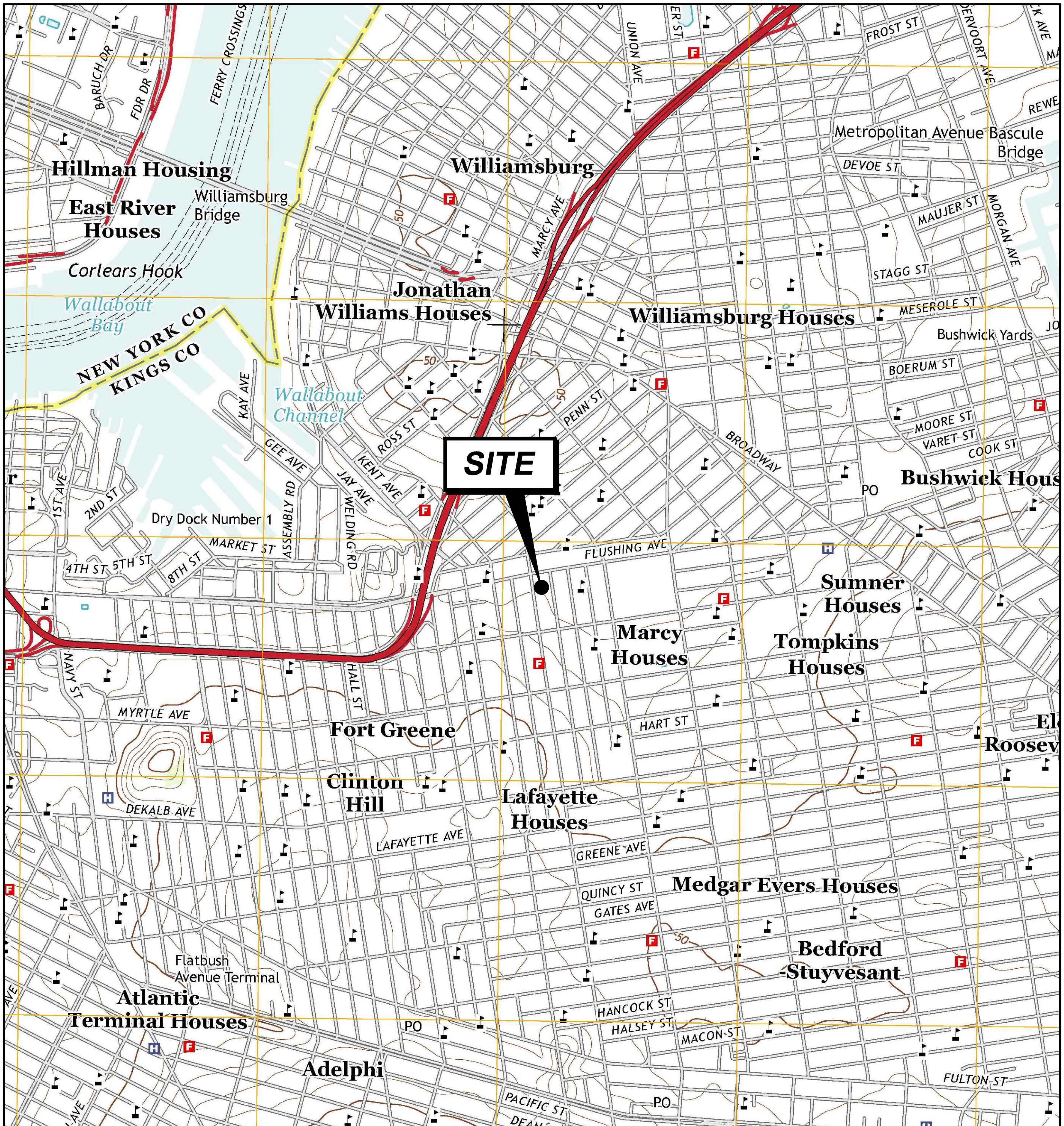
8.2 INTERIM REMEDIAL MEASURES

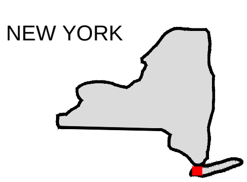
The results of the RI identified the presence of SVOCs and VOCs in the on-Site and off-Site groundwater at concentrations that exceed the NYSDEC AWQS. VOCs were also detected in on-Site and off-Site soil vapor samples at levels that, based on the NYSDOH Soil Vapor Intrusion Guidance, require mitigation. Based on these findings, it is recommended that an Interim Remedial Measure (IRM) be implemented to address the source area of VOCs as well as mitigate on-site soil vapor concentrations and the potential for off-site soil vapor impacts to surrounding properties. The details of the soil vapor extraction and air sparging system were provided in an individual IRM Work Plan and submitted to NYSDEC and NYSDOH for approval (July 11, 2017).

8.3 ALTERNATIVES ANALYSIS REPORT

An Alternatives Analysis Report (AAR) is being prepared to scope and formulate remedial alternatives to address the presence of SVOCs, metals, and VOCs in on- Site soils and the presence of SVOCs and VOCs in both on and off Site groundwater. The AAR will evaluate applicable remedial alternatives in order to select the most appropriate remedial alternatives.

Figures





QUADRANGLE LOCATION

SOURCE:
USGS TOPOGRAPHIC MAP: BROOKLYN, NY (2013).
CONTOUR INTERVAL 10 FT., NAVD-1988, ORIGINAL
SCALE 1:24,000 (1" = 2,000 FT.).

N
W E
S

11 SPENCER STREET
BROOKLYN, NEW YORK

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

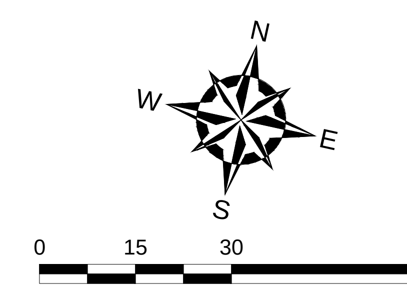
SITE LOCATION PLAN

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 2,000'	1
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

SOURCE: 2016 GOOGLE EARTH PROFESSIONAL, IMAGERY DATE 6/25/2016.

LEGEND:

PROPERTY BOUNDARY



SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

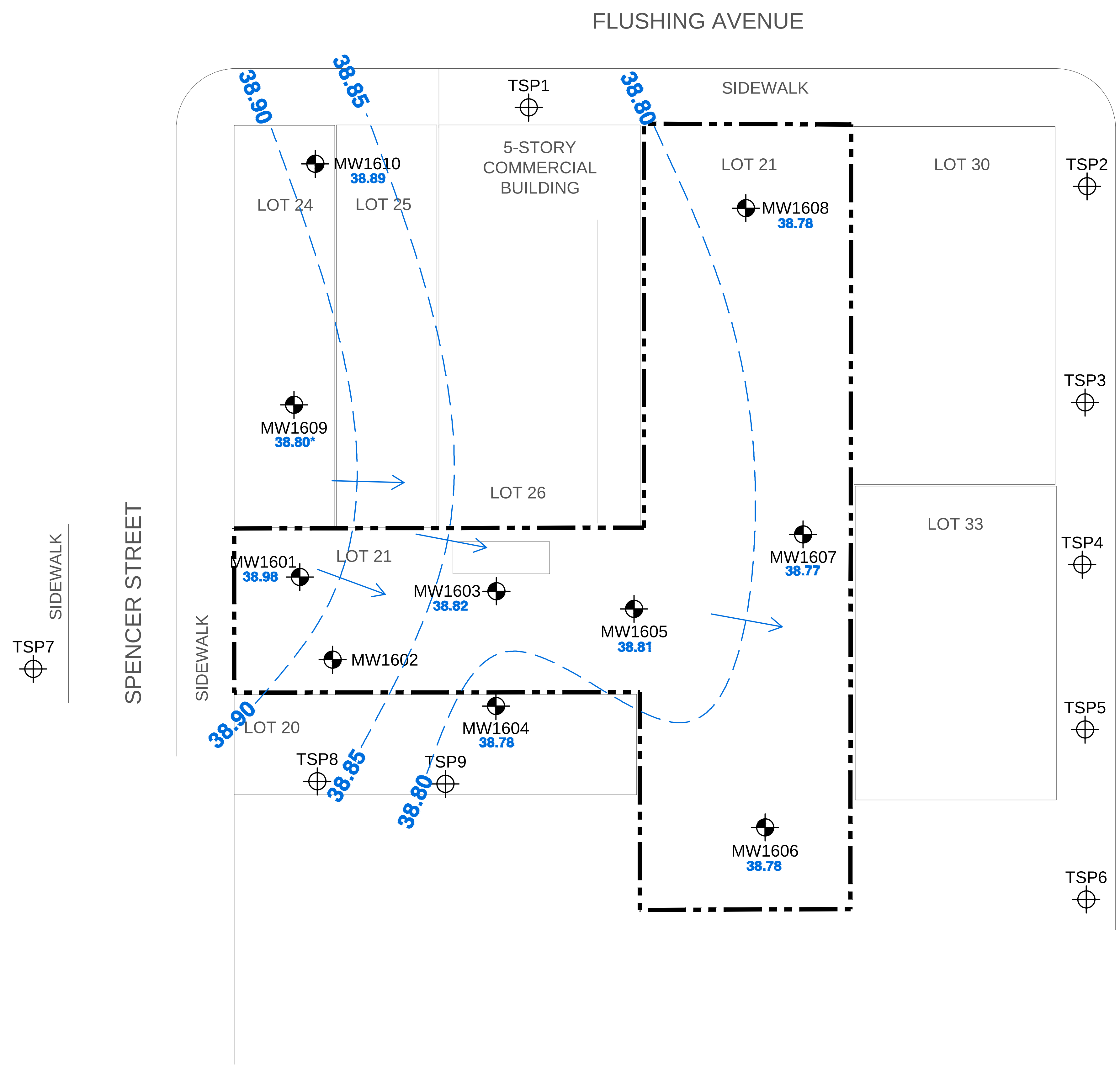
11 SPENCER STREET
BROOKLYN, NEW YORK

SITE PLAN

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE 2
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

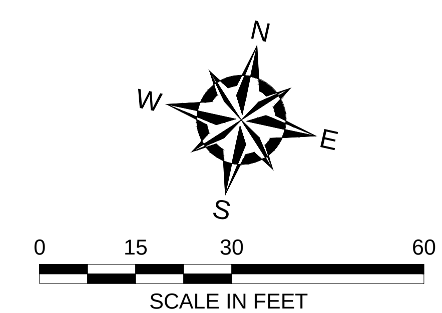


LEGEND:

- PROPERTY BOUNDARY
- MONITORING WELL LOCATION
- TEMPORARY PROBE SAMPLING POINT
- GROUNDWATER CONTOUR
- 38.77 GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION

NOTE:

1. DATA WAS OBTAINED FROM AN ELECTRONIC FILE PROVIDED BY THE PREVIOUS CONSULTANTS, ENVIRONMENTAL BUSINESS CONSULTANTS, LLC., ENTITLED "GROUNDWATER CONTOUR MAP NEW SURVEY 5/17/2016 DTW."



NO.	ISSUE/DESCRIPTION	BY	DATE

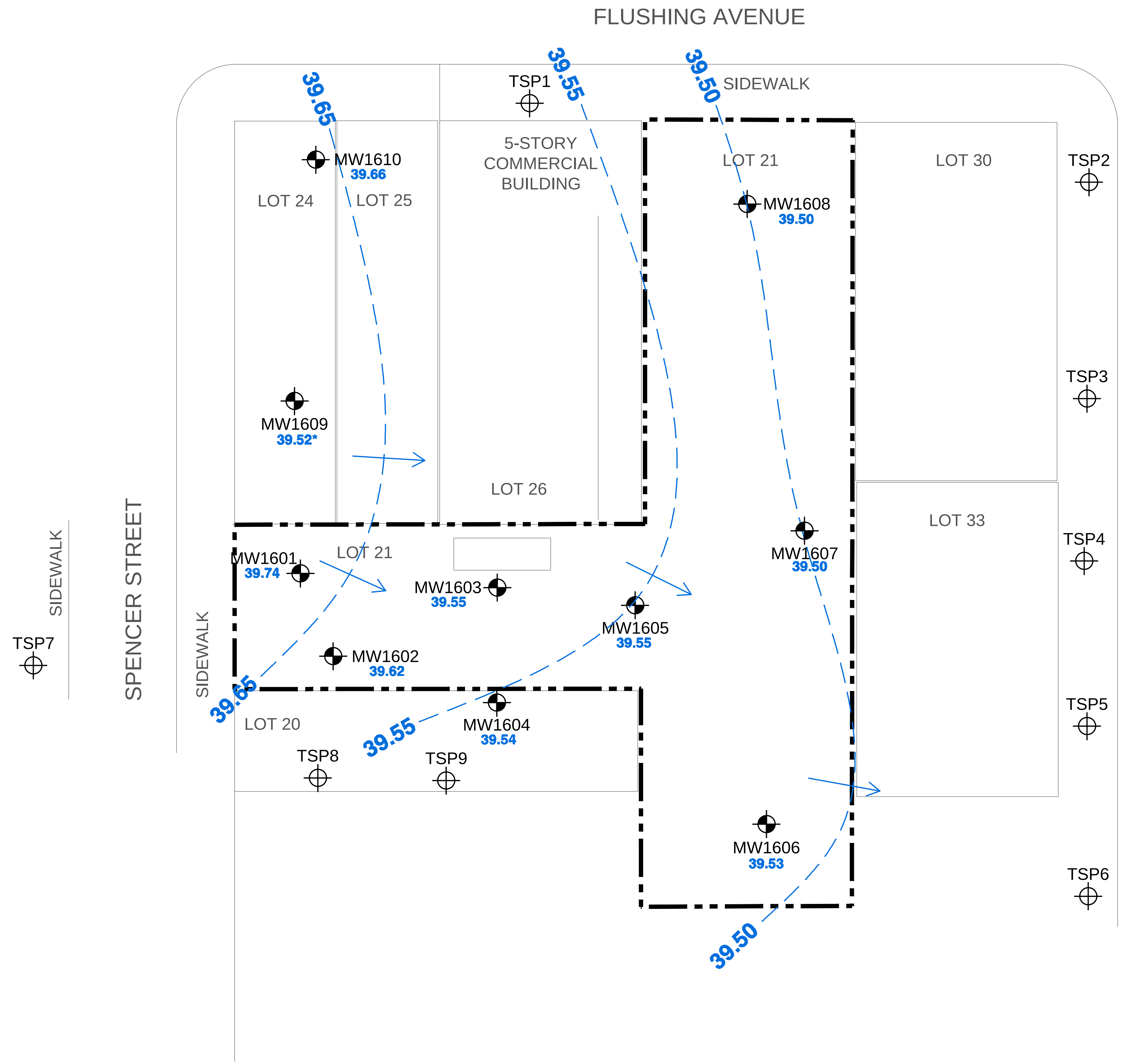
11 SPENCER STREET
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP
MAY 17, 2016

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	3A
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

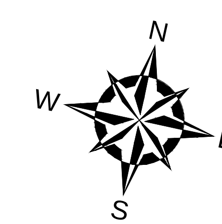


LEGEND:

- PROPERTY BOUNDARY
- MONITORING WELL LOCATION
- TEMPORARY PROBE SAMPLING POINT
- GROUNDWATER CONTOUR
- 39.50 GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION

NOTE:

1. DATA WAS OBTAINED FROM AN ELECTRONIC FILE PROVIDED BY THE PREVIOUS CONSULTANTS, ENVIRONMENTAL BUSINESS CONSULTANTS, LLC., ENTITLED "GROUNDWATER CONTOUR MAP NEW SURVEY 8/10/2016 DTW."



SCALE IN FEET

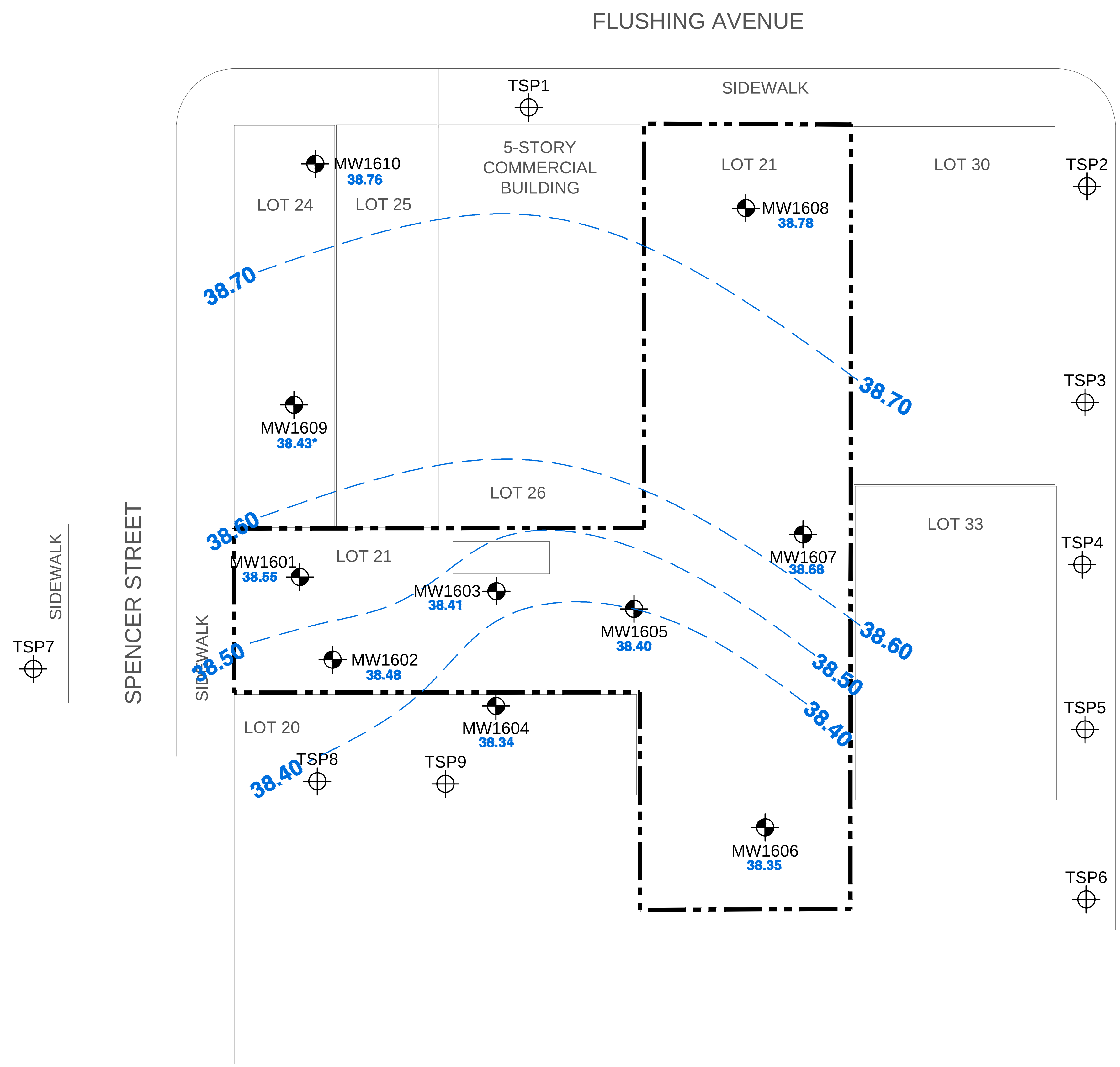
NO.	ISSUE/DESCRIPTION	BY	DATE

11 SPENCER STREET
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP
AUGUST 10, 2016

PREPARED BY: GZA GeoEnvironmental of New York, Engineers and Scientists, 104 WEST 29TH STREET, 10TH FLOOR, NEW YORK, NEW YORK 10001	PREPARED FOR: THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	3B
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

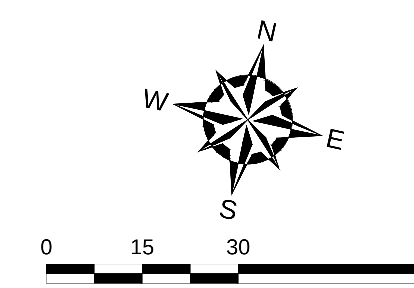


LEGEND:

- PROPERTY BOUNDARY
- MONITORING WELL LOCATION
- TEMPORARY PROBE SAMPLING POINT
- GROUNDWATER CONTOUR
- 38.68 GROUNDWATER ELEVATION

NOTE:

1. DATA WAS OBTAINED FROM AN ELECTRONIC FILE PROVIDED BY THE PREVIOUS CONSULTANTS, ENVIRONMENTAL BUSINESS CONSULTANTS, LLC., ENTITLED "GROUNDWATER CONTOUR MAP NEW SURVEY 11/23/2016 DTW."



NO.	ISSUE/DESCRIPTION	BY	DATE

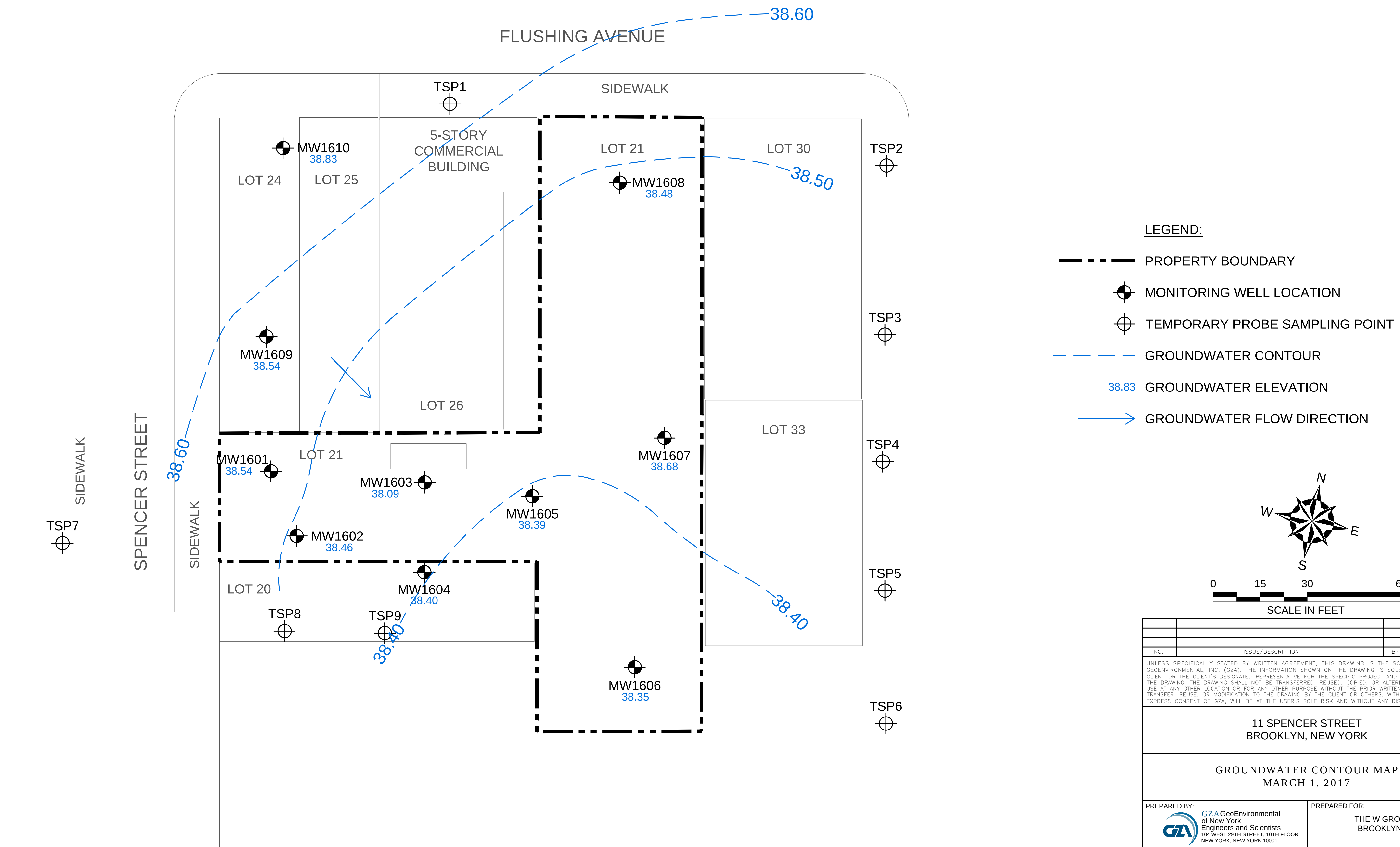
11 SPENCER STREET
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP
NOVEMBER 23, 2016

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	3C
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



NO.	ISSUE/DESCRIPTION	BY	DATE

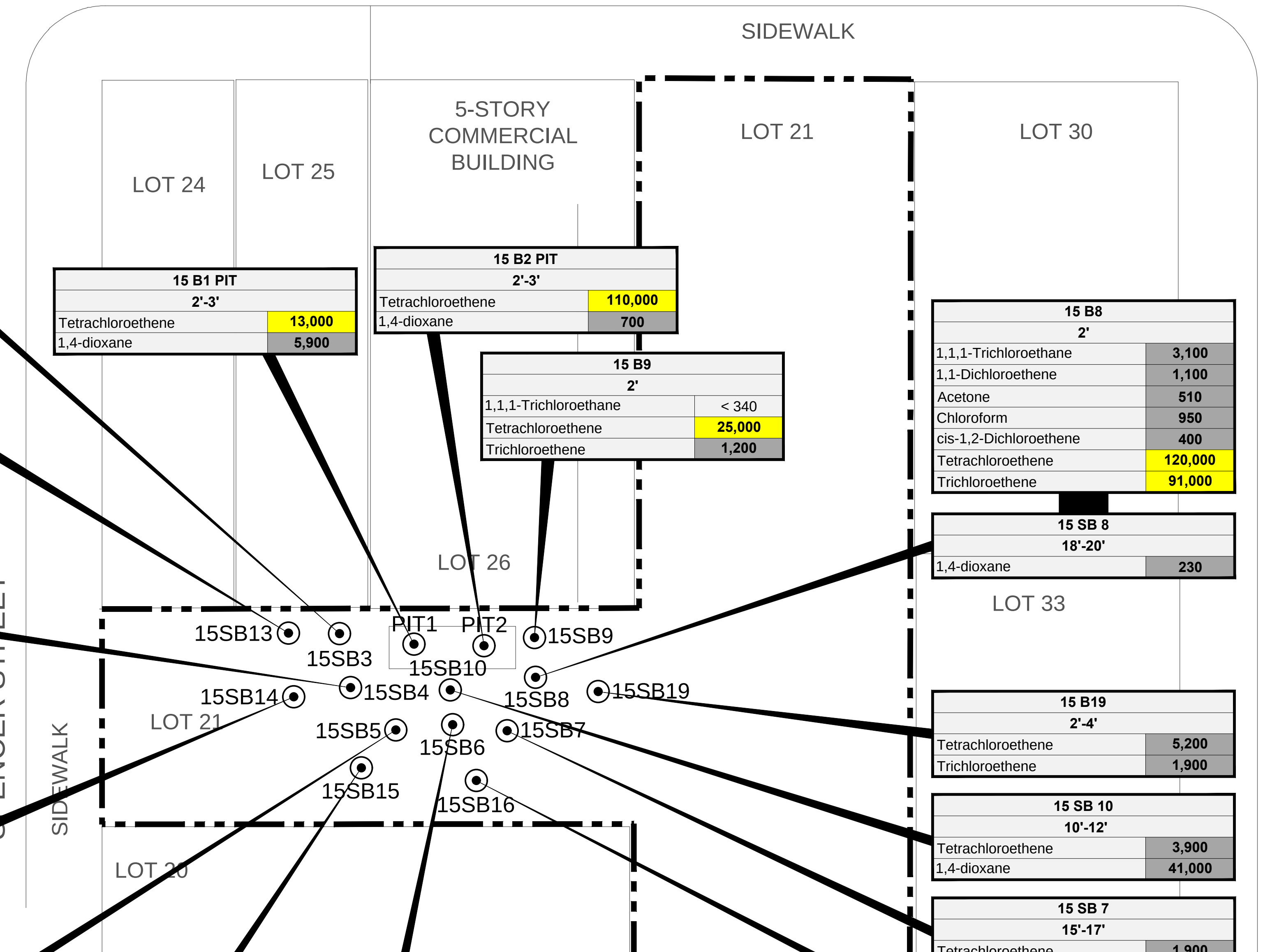
11 SPENCER STREET
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP
MARCH 1, 2017

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

PREPARED FOR:
THE W GROUP OF
BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	3D
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



15 B3	
2'	
1,1,1-Trichloroethane	3,200
1,1-Dichloroethene	470
Acetone	360
Tetrachloroethene	96,000
Trichloroethene	8,600

15 SB 3	
10'-12'	
Tetrachloroethene	6,100

15 SB 3	
18'-20'	
1,4-dioxane	700

15 B13	
2'-4'	
Benzene	86
Tetrachloroethene	15,000
Trichloroethene	3,400

15 B4	
2'	
1,1,1-Trichloroethane	5,300
1,1-Dichloroethane	300
1,1-Dichloroethene	1,100
cis-1,2-Dichloroethene	700
Tetrachloroethene	740,000
Trichloroethene	180,000

15 SB 4	
10'-12'	
Tetrachloroethene	2,600
1,4-dioxane	680

15 B14	
0'-2'	
Tetrachloroethene	30,000
Trichloroethene	8,200

15 B5	
2'	
1,1,1-Trichloroethane	22,000
1,1-Dichloroethane	490
1,1-Dichloroethene	2,000
1,2-Dichloroethane	110
Benzene	130
Chloroform	830
cis-1,2-Dichloroethene	560
Methylene chloride	1,700
Tetrachloroethene	2,600,000
Trichloroethene	93,000

15 SB 5	
10'-12'	
Tetrachloroethene	2,100
1,4-dioxane	3,400

15 B1 PIT	
2'-3'	
Tetrachloroethene	13,000
1,4-dioxane	5,900

15 B2 PIT	
2'-3'	
Tetrachloroethene	110,000
1,4-dioxane	700

15 B9	
2'	
1,1,1-Trichloroethane	< 340
Tetrachloroethene	25,000
Trichloroethene	1,200

15 B15	
2'-4'	
1,1,1-Trichloroethane	26,000
1,1-Dichloroethane	1,600
1,1-Dichloroethene	4,700
1,2-Dichloroethane	79
Benzene	190
Chloroform	1,500
cis-1,2-Dichloroethene	4,300
Methylene chloride	490
Tetrachloroethene	1,900,000
Trichloroethene	480,000
1,4-dioxane	11,000

15 B15	
10'-12'	
Tetrachloroethene	2,800
1,4-dioxane	1,200

15 SB 6	
3'-5'	
1,1,1-Trichloroethane	5,500
1,1-Dichloroethene	1,500
1,2-Dichloroethane	93
Benzene	68
Chloroform	400
cis-1,2-Dichloroethene	430
Methylene chloride	1,900
Tetrachloroethene	1,000,000
Trichloroethene	88,000
1,4-dioxane	6,300

15 SB 6	
10'-12'	
1,4-dioxane	7,700

15 B8	
2'	
1,1,1-Trichloroethane	3,100
1,1-Dichloroethene	1,100
Acetone	510
Chloroform	950
cis-1,2-Dichloroethene	400
Tetrachloroethene	120,000
Trichloroethene	91,000

15 SB 8	
18'-20'	
1,4-dioxane	230

15 B19	
2'-4'	
Tetrachloroethene	5,200
Trichloroethene	1,900

15 SB 10	
10'-12'	
Tetrachloroethene	3,900
1,4-dioxane	41,000

15 SB 7	
15'-17'	
Tetrachloroethene	1,900

15 B16	
2'-4'	
Tetrachloroethene	48,000
Trichloroethene	4,500

15 B16	
10'-12'	
1,4-dioxane	110

LEGEND:

- PROPERTY BOUNDARY
- SOURCE DELINEATION BORING
- EXCEEDS NYS UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
- EXCEEDS BOTH NYS UNRESTRICTED USE SOIL CLEANUP OBJECTIVES AND RESTRICTED RESIDENTIAL SOIL CLEANUP

NOTES:

1. THE SOIL SAMPLES WERE COLLECTED FROM NOVEMBER AND DECEMBER 2015.
2. UNITS ARE IN µg/kg.

N W E S

0 15 30 60

SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

11 SPENCER STREET
BROOKLYN, NEW YORK

SOURCE AREA SOIL RESULTS ABOVE SCOs (2015)

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

PREPARED FOR: THE W GROUP OF BROOKLYN, LLC

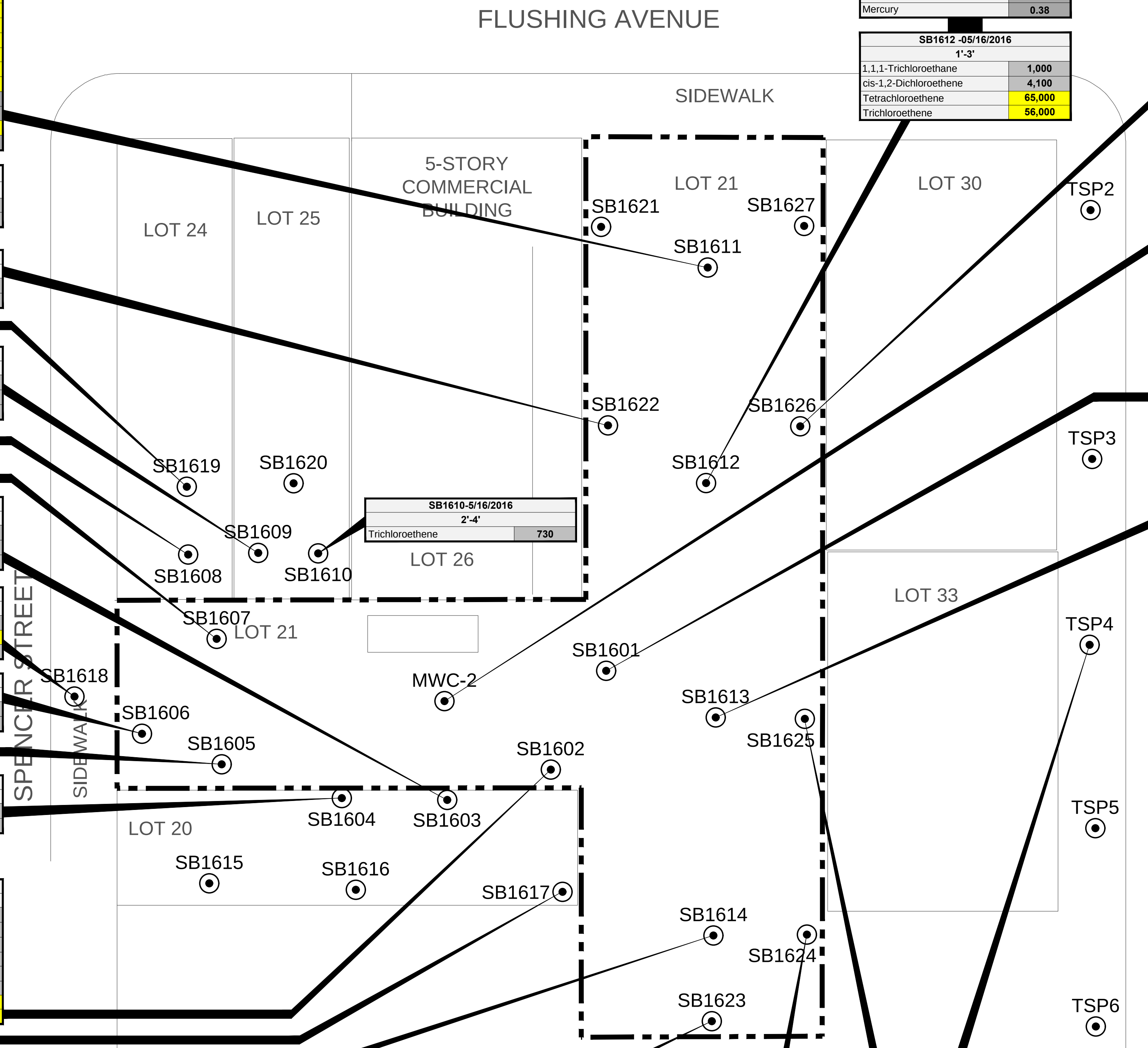
PROJ MGR: JB | REVIEWED BY: JB | CHECKED BY: DW | FIGURE

DESIGNED BY: ZS | DRAWN BY: MT | SCALE: 1" = 30'

DATE: MAY 2017 | PROJECT NO. 12.0076527.00 | REVISION NO.

4A

SHEET NO.



SB1611-5/16/2016	
0 -2'	
Benz(a)anthracene	4,600
Benzo(a)pyrene	4,500
Benzo(b)fluoranthene	4,500
Benzo(k)fluoranthene	4,300
Chrysene	5,000
Dibenz(a,h)anthracene	1,000
Indeno(1,2,3-cd)pyrene	3,500
Copper	74.7
Lead	336
Mercury	0.84
Zinc	240

SB1611-5/16/2016	
2'-4'	
Tetrachloroethene	1,500
Trichloroethene	3,200

SB1622-10/16/2016	
2'-4'	
Tetrachloroethene	2,400
Trichloroethene	7,200

SB1619-10/16/2016	
2'-4'	
Tetrachloroethene	2,900
Trichloroethene	640

SB1608 -05/16/2016	
1'-3'	
Acetone	360
cis-1,2-Dichloroethene	1,500
Tetrachloroethene	2,000
Toluene	1,400
Trichloroethene	24,000

SB1609 -05/16/2016	
1'-3'	
Acetone	450
Toluene	3,200
Trichloroethene	6,600

SB1607-5/16/2016	
0 -2'	
Benz(a)anthracene	3,800
Benzo(a)pyrene	3,800
Benzo(b)fluoranthene	3,600
Benzo(k)fluoranthene	3,200
Chrysene	4,900
Indeno(1,2,3-cd)pyrene	2,500
Arsenic	19.7
Barium	1,780
Copper	139
Lead	1,130
Mercury	3.89
Zinc	737

SB1603 -05/18/2016	
0 -2'	
Acetone	230
Tetrachloroethene	5,800
Trichloroethene	590

SB1610-5/16/2016	
2'-4'	
Trichloroethene	730

SB1618-11/8/2016	
2'-4'	
cis-1,2-Dichloroethene	1,800
Tetrachloroethene	28,000
Trichloroethene	2,900

SB1606-5/16/2016	
2'-4'	
Tetrachloroethene	4,600
Trichloroethene	490

SB1605- 5/16/2016	
0 -2'	
Benz(a)anthracene	23,000
Benzo(a)pyrene	19,000
Benzo(b)fluoranthene	16,000
Benzo(k)fluoranthene	4,100
Chrysene	24,000
Dibenz(a,h)anthracene	4,100
Indeno(1,2,3-cd)pyrene	12,000
Arsenic	22
Barium	459
Cadmium	2.99
Copper	227
Lead	2,090
Mercury	4.81
Zinc	1,330

SB1605-5/16/2016	
2'-4'	
Tetrachloroethene	28,000
Trichloroethene	5,100

SB1604 -05/18/2016	
0 -2'	
Tetrachloroethene	7,400
Trichloroethene	610

SB1602 -05/18/2016	
1'-3'	
1,1,1-Trichloroethane	1,700
1,1,2-Trichloroethane	440
Acetone	380
Benzene	72
Chloroform	780
cis-1,2-Dichloroethene	13,000
Tetrachloroethene	380,000
Trichloroethene	330,000

SB1617-10/16/2016	
2'-4'	
Tetrachloroethene	8,400
Trichloroethene	5,900

SB 1614 -5/18/2016	
0 -2'	
Benz(a)anthracene	10,000
Benzo(a)pyrene	9,000
Benzo(b)fluoranthene	7,400
Benzo(k)fluoranthene	6,600
Chrysene	10,000
Dibenz(a,h)anthracene	1,300
Indeno(1,2,3-cd)pyrene	5,800
Lead	214
Mercury	0.77
Zinc	111

SB1614 -05/18/2016	
1'-3'	
Acetone	390
Tetrachloroethene	7,700
Trichloroethene	6,200

SB1623-10/16/2016	
2'-4'	
Trichloroethene	1,500

SB1624-10/16/2016	
2'-4'	
cis-1,2-Dichloroethene	980
Tetrachloroethene	47,000
Trichloroethene	21,000

SB1624-10/16/2016	
10'-12'	
Tetrachloroethene	3,400
Trichloroethene	2,200

SB1625-10/16/2016	
2'-4'	
Tetrachloroethene	5,000
Trichloroethene	1,300

SB1625-10/16/2016	
10'-12'	
Tetrachloroethene	3,100
Trichloroethene	1,200

TSP4-10/26/2016	
10'-12'	
cis-1,2-Dichloroethene	910

SB1612 -5/16/2016	
0 -2'	
Copper	95.8
Lead	106
Mercury	0.38

SB1612 -05/16/2016	
1'-3'	
1,1,1-Trichloroethane	1,000
cis-1,2-Dichloroethene	4,100
Tetrachloroethene	65,000
Trichloroethene	56,000

SB1626-10/16/2016	
2'-4'	
cis-1,2-Dichloroethene	390
Tetrachloroethene	8,100
Trichloroethene	14,000

MWC2-2/22/2017	
3'-4'	
cis-1,2-Dichloroethene	520
Tetrachloroethene	400,000
1,1,1-Trichloroethane	420
Trichloroethene	20,000
11'-12'	
cis-1,2-Dichloroethene	660
Tetrachloroethene	900,000
1,1,1-Trichloroethane	970
Trichloroethene	51,000
18'-19'	
cis-1,2-Dichloroethene	530
Tetrachloroethene	370,000
1,1,1-Trichloroethane	420
Trichloroethene	17,000

SB 1601 -5/18/2016	
0 -2'	
Benz(a)anthracene	3,300
Benzo(a)pyrene	3,100
Benzo(b)fluoranthene	2,900
Benzo(k)fluoranthene	2,600
Chrysene	3,600
Dibenz(a,h)anthracene	560
Indeno(1,2,3-cd)pyrene	2,200
Copper	55.3
Lead	573
Mercury	1.23
Zinc	212

SB 1601 -5/18/2016	
3'-5'	
cis-1,2-Dichloroethene	390
Tetrachloroethene	14,000
Trichloroethene	9,700

SB1613-5/18/2016	
2'-4'	
Tetrachloroethene	2,200
Trichloroethene	950

SB1613-5/18/2016	
10'-12'	
Trichloroethene	520

LEGEND:

PROPERTY BOUNDARY

SOIL BORING LOCATION

EXCEEDS NYS UNRESTRICTED USE SOIL CLEANUP OBJECTIVES

EXCEEDS BOTH NYS RESTRICTED RESIDENTIAL SOIL CLEANUP

NOTES:

1. THE SOIL SAMPLES WERE COLLECTED FROM NOVEMBER AND DECEMBER 2015.
2. UNITS ARE IN μg/kg.

N W E S

0 15 30 60

SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

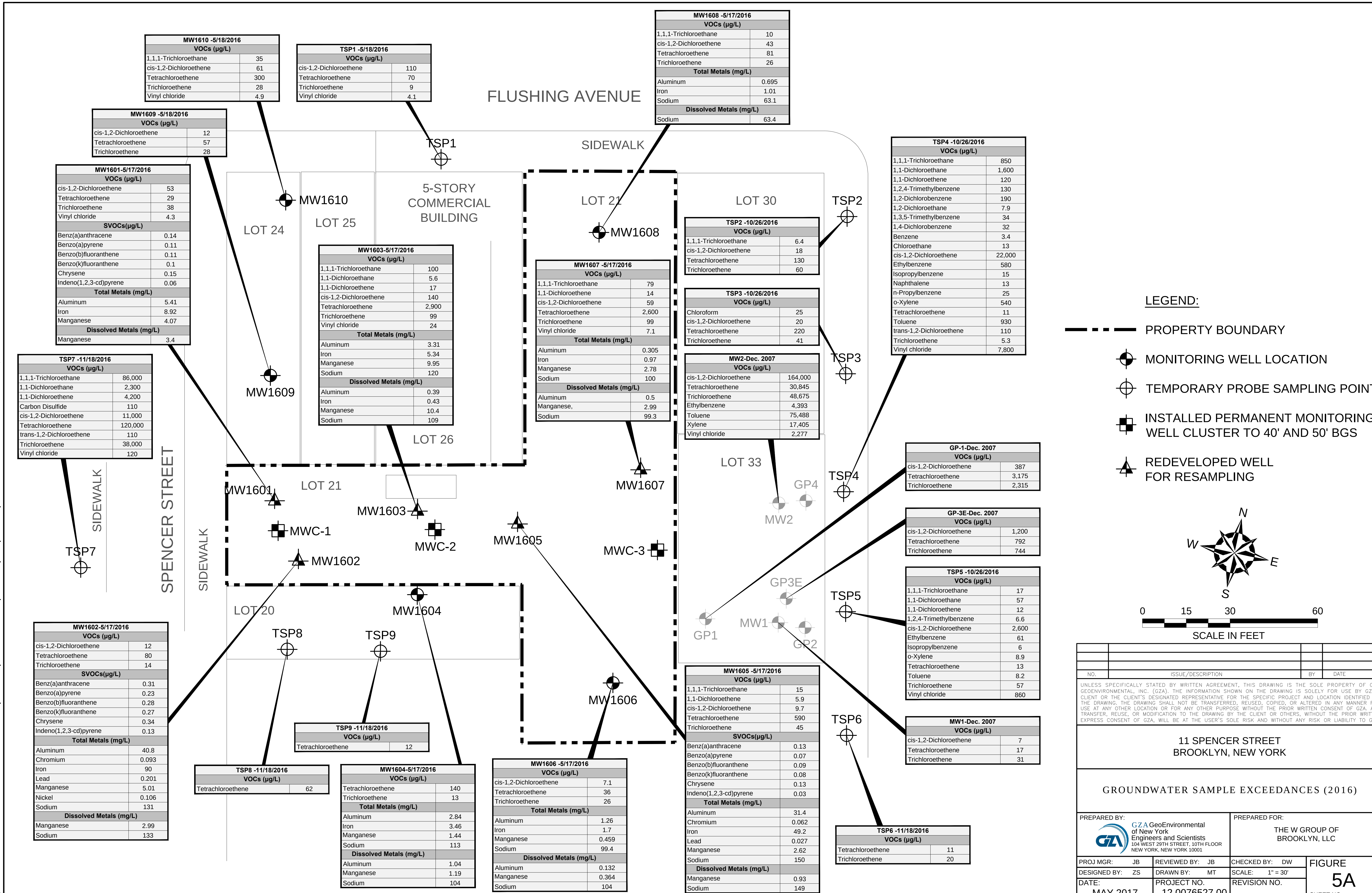
11 SPENCER STREET
BROOKLYN, NEW YORK

SUPPLEMENTAL SOIL RESULTS ABOVE SCOs (2016 AND 2017)

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	4B
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



MW1610 -5/18/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	35
cis-1,2-Dichloroethene	61
Tetrachloroethene	300
Trichloroethene	28
Vinyl chloride	4.9

TSP1 -5/18/2016	
VOCs (µg/L)	
cis-1,2-Dichloroethene	110
Tetrachloroethene	70
Trichloroethene	9
Vinyl chloride	4.1

MW1608 -5/17/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	10
cis-1,2-Dichloroethene	43
Tetrachloroethene	81
Trichloroethene	26
Total Metals (mg/L)	
Aluminum	0.695
Iron	1.01
Sodium	63.1
Dissolved Metals (mg/L)	
Sodium	63.4

MW1609 -5/18/2016	
VOCs (µg/L)	
cis-1,2-Dichloroethene	12
Tetrachloroethene	57
Trichloroethene	28

MW1601-5/17/2016	
VOCs (µg/L)	
cis-1,2-Dichloroethene	53
Tetrachloroethene	29
Trichloroethene	38
Vinyl chloride	4.3
SVOCs(µg/L)	
Benz(a)anthracene	0.14
Benzo(a)pyrene	0.11
Benzo(b)fluoranthene	0.11
Benzo(k)fluoranthene	0.1
Chrysene	0.15
Indeno(1,2,3-cd)pyrene	0.06
Total Metals (mg/L)	
Aluminum	5.41
Iron	8.92
Manganese	4.07
Dissolved Metals (mg/L)	
Manganese	3.4

TSP7 -11/18/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	86,000
1,1-Dichloroethane	2,300
1,1-Dichloroethene	4,200
Carbon Disulfide	110
cis-1,2-Dichloroethene	11,000
Tetrachloroethene	120,000
trans-1,2-Dichloroethene	110
Trichloroethene	38,000
Vinyl chloride	120

MW1603-5/17/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	100
1,1-Dichloroethane	5.6
1,1-Dichloroethene	17
cis-1,2-Dichloroethene	140
Tetrachloroethene	2,900
Trichloroethene	99
Vinyl chloride	24
Total Metals (mg/L)	
Aluminum	3.31
Iron	5.34
Manganese	9.95
Sodium	120
Dissolved Metals (mg/L)	
Aluminum	0.39
Iron	0.43
Manganese	10.4
Sodium	109

MW1607 -5/17/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	79
1,1-Dichloroethene	14
cis-1,2-Dichloroethene	59
Tetrachloroethene	2,600
Trichloroethene	99
Vinyl chloride	7.1
Total Metals (mg/L)	
Aluminum	0.305
Iron	0.97
Manganese	2.78
Sodium	100
Dissolved Metals (mg/L)	
Aluminum	0.5
Manganese,	2.99
Sodium	99.3

TSP2 -10/26/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	6.4
cis-1,2-Dichloroethene	18
Tetrachloroethene	130
Trichloroethene	60

TSP3 -10/26/2016	
VOCs (µg/L)	
Chloroform	25
cis-1,2-Dichloroethene	20
Tetrachloroethene	220
Trichloroethene	41

MW2-Dec. 2007	
VOCs (µg/L)	
cis-1,2-Dichloroethene	164,000
Tetrachloroethene	30,845
Trichloroethene	48,675
Ethylbenzene	4,393
Toluene	75,488
Xylene	17,405
Vinyl chloride	2,277

TSP4 -10/26/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	850
1,1-Dichloroethane	1,600
1,1-Dichloroethene	120
1,2,4-Trimethylbenzene	130
1,2-Dichlorobenzene	190
1,2-Dichloroethane	7.9
1,3,5-Trimethylbenzene	34
1,4-Dichlorobenzene	32
Benzene	3.4
Chloroethane	13
cis-1,2-Dichloroethene	22,000
Ethylbenzene	580
Isopropylbenzene	15
Naphthalene	13
n-Propylbenzene	25
o-Xylene	540
Tetrachloroethene	11
Toluene	930
trans-1,2-Dichloroethene	110
Trichloroethene	5.3
Vinyl chloride	7,800

GP-1-Dec. 2007	
VOCs (µg/L)	
cis-1,2-Dichloroethene	387
Tetrachloroethene	3,175
Trichloroethene	2,315

GP-3E-Dec. 2007	
VOCs (µg/L)	
cis-1,2-Dichloroethene	1,200
Tetrachloroethene	792
Trichloroethene	744

TSP5 -10/26/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	17
1,1-Dichloroethane	57
1,1-Dichloroethene	12
1,2,4-Trimethylbenzene	6.6
cis-1,2-Dichloroethene	2,600
Ethylbenzene	61
Isopropylbenzene	6
o-Xylene	8.9
Tetrachloroethene	13
Toluene	8.2
Trichloroethene	57
Vinyl chloride	860

MW1-Dec. 2007	
VOCs (µg/L)	
cis-1,2-Dichloroethene	7
Tetrachloroethene	17
Trichloroethene	31

MW1602-5/17/2016	
VOCs (µg/L)	
cis-1,2-Dichloroethene	12
Tetrachloroethene	80
Trichloroethene	14
SVOCs(µg/L)	
Benz(a)anthracene	0.31
Benzo(a)pyrene	0.23
Benzo(b)fluoranthene	0.28
Benzo(k)fluoranthene	0.27
Chrysene	0.34
Indeno(1,2,3-cd)pyrene	0.13
Total Metals (mg/L)	
Aluminum	40.8
Chromium	0.093
Iron	90
Lead	0.201
Manganese	5.01
Nickel	0.106
Sodium	131
Dissolved Metals (mg/L)	
Manganese	2.99
Sodium	133

TSP9 -11/18/2016	
VOCs (µg/L)	
Tetrachloroethene	12

TSP8 -11/18/2016	
VOCs (µg/L)	
Tetrachloroethene	62

MW1604-5/17/2016	
VOCs (µg/L)	
Tetrachloroethene	140
Trichloroethene	13
Total Metals (mg/L)	
Aluminum	2.84
Iron	3.46
Manganese	1.44
Sodium	113
Dissolved Metals (mg/L)	
Aluminum	1.04
Manganese	1.19
Sodium	104

MW1606 -5/17/2016	
VOCs (µg/L)	
cis-1,2-Dichloroethene	7.1
Tetrachloroethene	36
Trichloroethene	26
Total Metals (mg/L)	
Aluminum	1.26
Iron	1.7
Manganese	0.459
Sodium	99.4
Dissolved Metals (mg/L)	
Aluminum	0.132
Manganese	0.364
Sodium	104

MW1605 -5/17/2016	
VOCs (µg/L)	
1,1,1-Trichloroethane	15
1,1-Dichloroethene	5.9
cis-1,2-Dichloroethene	9.7
Tetrachloroethene	590
Trichloroethene	45
SVOCs(µg/L)	
Benz(a)anthracene	0.13
Benzo(a)pyrene	0.07
Benzo(b)fluoranthene	0.09
Benzo(k)fluoranthene	0.08
Chrysene	0.13
Indeno(1,2,3-cd)pyrene	0.03
Total Metals (mg/L)	
Aluminum	31.4
Chromium	0.062
Iron	49.2
Lead	0.027
Manganese	2.62
Sodium	150
Dissolved Metals (mg/L)	
Manganese	0.93
Sodium	149

TSP6 -11/18/2016	
VOCs (µg/L)	
Tetrachloroethene	11
Trichloroethene	20

NO.	ISSUE/DESCRIPTION	BY	DATE

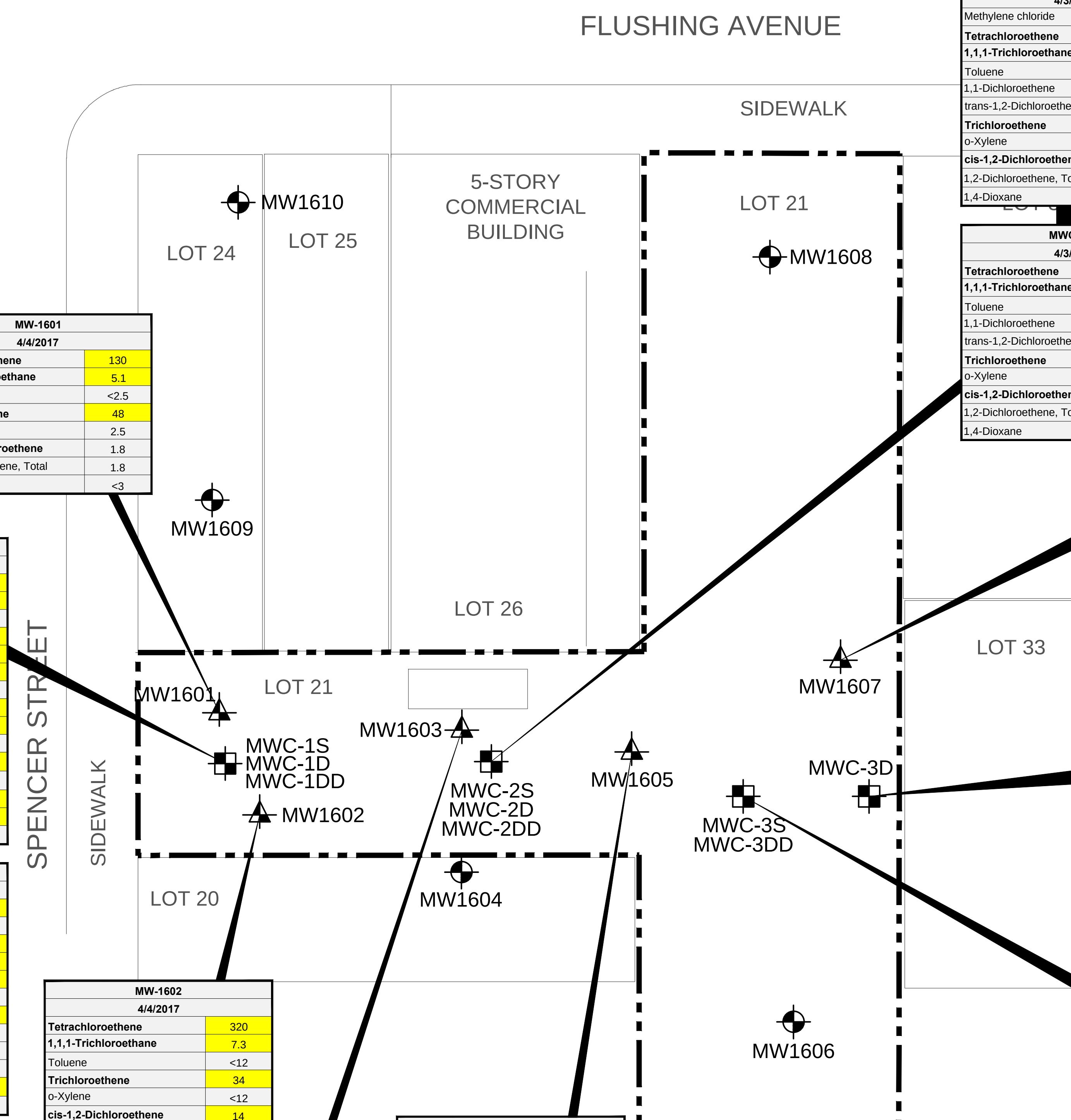
11 SPENCER STREET
BROOKLYN, NEW YORK

GROUNDWATER SAMPLE EXCEEDANCES (2016)

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	5A
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



MW-1601	
4/4/2017	
Tetrachloroethene	130
1,1,1-Trichloroethane	5.1
Toluene	<2.5
Trichloroethene	48
o-Xylene	2.5
cis-1,2-Dichloroethene	1.8
1,2-Dichloroethene, Total	1.8
1,4-Dioxane	<3

MWC-1S	
4/4/2017	
1,1,2-Trichloroethane	23
Tetrachloroethene	31
1,1,1-Trichloroethane	<12
Benzene	1.2
Toluene	320
Ethylbenzene	11
trans-1,2-Dichloroethene	<12
Trichloroethene	8.9
p/m-Xylene	25
o-Xylene	4.8
cis-1,2-Dichloroethene	15
1,2-Dichloroethene, Total	15
1,3,5-Trimethylbenzene	5.6
1,2,4-Trimethylbenzene	16
1,4-Dioxane	<15

MWC-1D	
4/4/2017	
Tetrachloroethene	7.2
1,1,1-Trichloroethane	<5
Benzene	2.4
Toluene	1700
Ethylbenzene	7.2
Trichloroethene	2.1
p/m-Xylene	11
o-Xylene	3.1
cis-1,2-Dichloroethene	2.8
1,2-Dichloroethene, Total	2.8
1,2,4-Trimethylbenzene	8.4
1,4-Dioxane	<6

MWC-1DD	
4/4/2017	
1,1,2-Trichloroethane	9.1
Tetrachloroethene	4.5
1,1,1-Trichloroethane	<5
Benzene	3
Toluene	220
trans-1,2-Dichloroethene	<5
Trichloroethene	4.9
o-Xylene	1.9
cis-1,2-Dichloroethene	1.4
1,2-Dichloroethene, Total	1.4
1,4-Dioxane	<6

MW-1602	
4/4/2017	
Tetrachloroethene	320
1,1,1-Trichloroethane	7.3
Toluene	<12
Trichloroethene	34
o-Xylene	<12
cis-1,2-Dichloroethene	14
1,2-Dichloroethene, Total	14
1,4-Dioxane	22

MW-1603	
4/3/2017	
Tetrachloroethene	18000
1,1,1-Trichloroethane	330
Toluene	<500
trans-1,2-Dichloroethene	<500
Trichloroethene	92
o-Xylene	<500
cis-1,2-Dichloroethene	<500
1,2-Dichloroethene, Total	<500
1,4-Dioxane	550

MW-1605	
4/3/2017	
Tetrachloroethene	1500
1,1,1-Trichloroethane	48
Toluene	<25
1,1-Dichloroethene	6.7
trans-1,2-Dichloroethene	<25
Trichloroethene	80
o-Xylene	<25
cis-1,2-Dichloroethene	41
1,2-Dichloroethene, Total	41
1,4-Dioxane	60

MWC-2S	
4/3/2017	
Methylene chloride	15
Tetrachloroethene	240
1,1,1-Trichloroethane	<25
Toluene	260
1,1-Dichloroethene	<5
trans-1,2-Dichloroethene	<25
Trichloroethene	32
o-Xylene	10
cis-1,2-Dichloroethene	<25
1,2-Dichloroethene, Total	25
1,4-Dioxane	5200

MWC-2D	
4/3/2017	
Methylene chloride	9.7
Tetrachloroethene	1300
1,1,1-Trichloroethane	5.8
Toluene	2.6
1,1-Dichloroethene	1.5
trans-1,2-Dichloroethene	<5
Trichloroethene	67
o-Xylene	<5
cis-1,2-Dichloroethene	2.6
1,2-Dichloroethene, Total	2.6
1,4-Dioxane	960

MWC-2DD	
4/3/2017	
Tetrachloroethene	220
1,1,1-Trichloroethane	<5
Toluene	<5
1,1-Dichloroethene	<1
trans-1,2-Dichloroethene	<5
Trichloroethene	28
o-Xylene	<5
cis-1,2-Dichloroethene	2.8
1,2-Dichloroethene, Total	2.8
1,4-Dioxane	53

MW-1607	
4/3/2017	
Tetrachloroethene	23000
1,1,1-Trichloroethane	370
Toluene	<620
trans-1,2-Dichloroethene	<620
Trichloroethene	150
o-Xylene	<620
cis-1,2-Dichloroethene	<620
1,2-Dichloroethene, Total	<620
1,4-Dioxane	440

MWC-3D	
4/3/2017	
Chloroform	15
Tetrachloroethene	260
1,1,1-Trichloroethane	3.3
Toluene	8.1
trans-1,2-Dichloroethene	<6.2
Trichloroethene	120
o-Xylene	<6.2
cis-1,2-Dichloroethene	13
1,2-Dichloroethene, Total	13
1,4-Dioxane	<7.5

MWC-3S	
4/4/2017	
Tetrachloroethene	31
1,1,1-Trichloroethane	<2.5
Toluene	<2.5
trans-1,2-Dichloroethene	<2.5
Trichloroethene	11
o-Xylene	<2.5
cis-1,2-Dichloroethene	8.9
1,2-Dichloroethene, Total	8.9
1,4-Dioxane	<3

MWC-3DD	
4/3/2017	
Tetrachloroethene	16
1,1,1-Trichloroethane	<2.5
Toluene	<2.5
trans-1,2-Dichloroethene	<2.5
Trichloroethene	25
o-Xylene	<2.5
cis-1,2-Dichloroethene	3.4
1,2-Dichloroethene, Total	3.4
1,4-Dioxane	<3

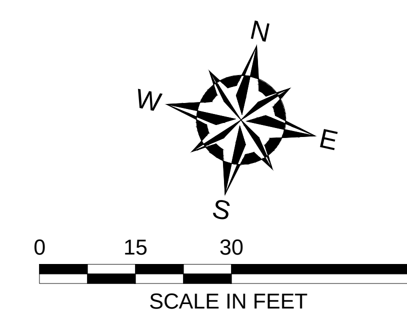
LEGEND:

PROPERTY BOUNDARY

MONITORING WELL LOCATION

INSTALLED PERMANENT MONITORING WELL CLUSTER TO 40' AND 50' BGS

REDEVELOPED WELL FOR RESAMPLING



NO.	ISSUE/DESCRIPTION	BY	DATE

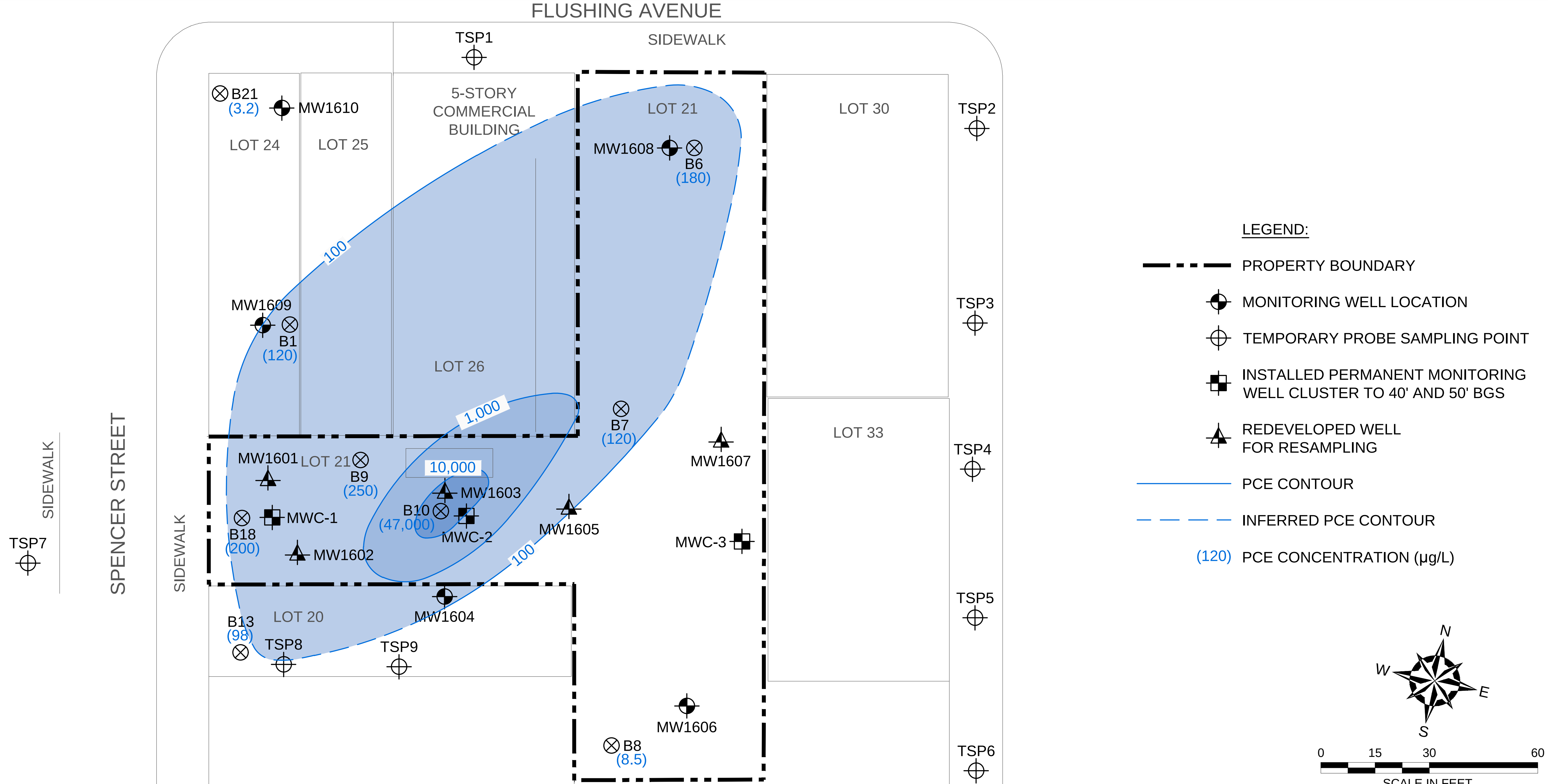
11 SPENCER STREET
BROOKLYN, NEW YORK

SUPPLEMENTAL GROUNDWATER
SAMPLE EXCEEDANCES

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	5B
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



NO.	ISSUE/DESCRIPTION	BY	DATE

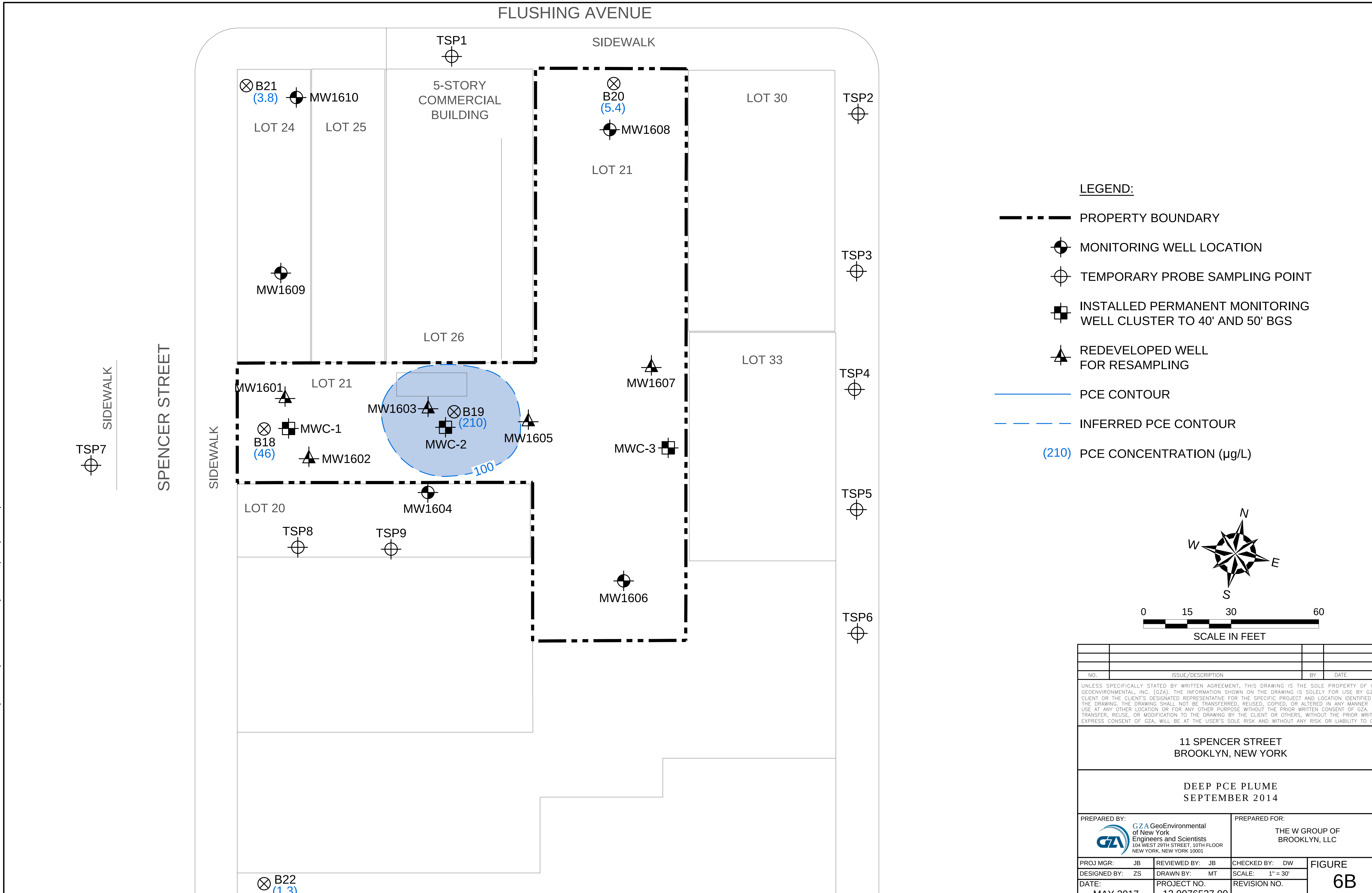
11 SPENCER STREET
BROOKLYN, NEW YORK

SHALLOW PCE PLUME
JULY 2014

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

PREPARED FOR:
THE W GROUP OF
BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	6A
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



NO.	ISSUE/DESCRIPTION	BY	DATE

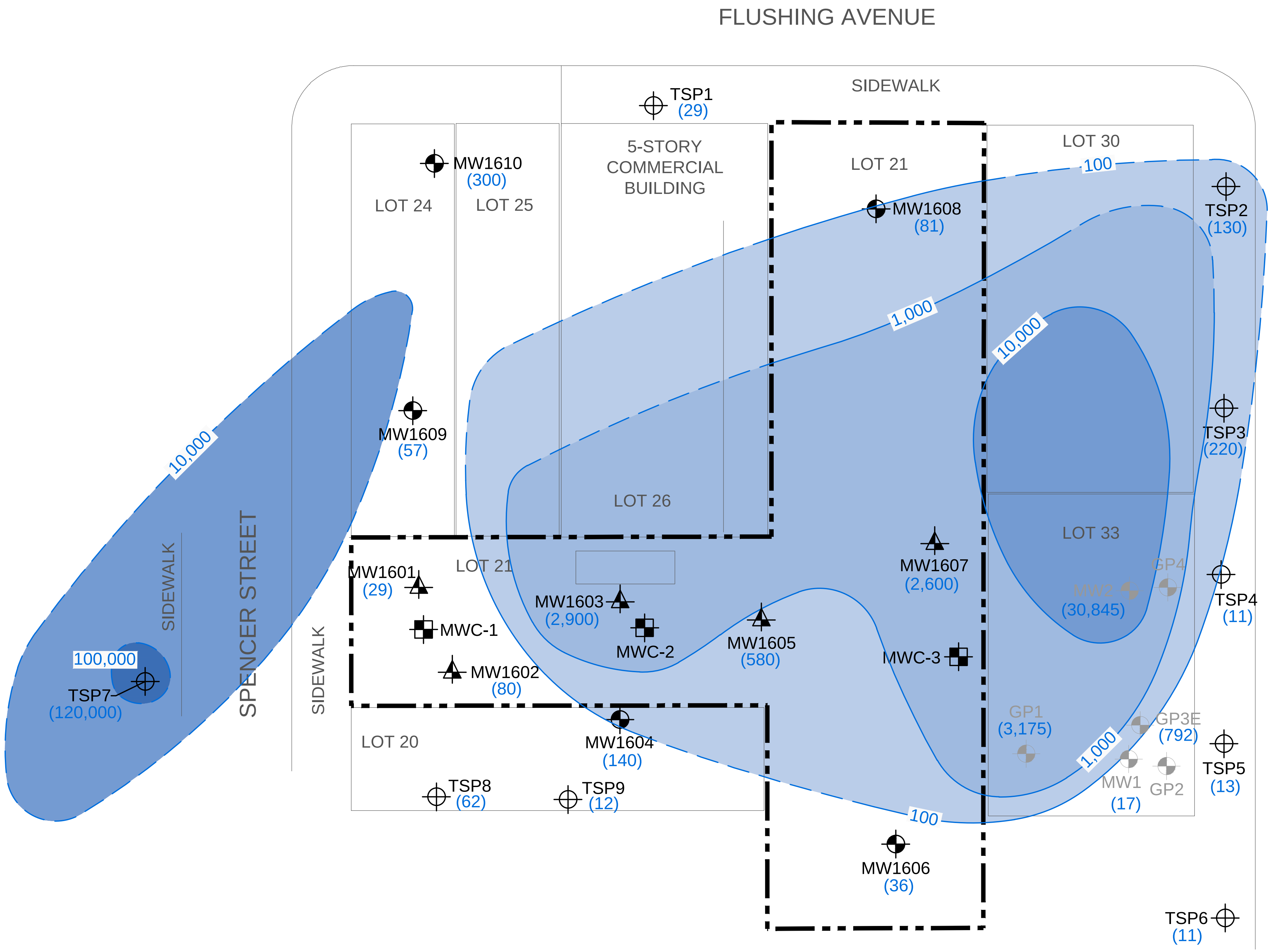
11 SPENCER STREET
BROOKLYN, NEW YORK

DEEP PCE PLUME
SEPTEMBER 2014

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

PREPARED FOR:
THE W GROUP OF
BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE 6B
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



LEGEND:

PROPERTY BOUNDARY

MONITORING WELL LOCATION

TEMPORARY PROBE SAMPLING POINT

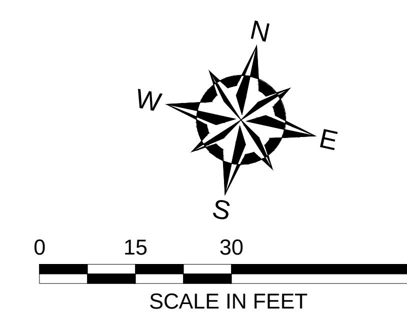
INSTALLED PERMANENT MONITORING WELL CLUSTER TO 40' AND 50' BGS

REDEVELOPED WELL FOR RESAMPLING

PCE CONTOUR

INFERRED PCE CONTOUR

(220) PCE CONCENTRATION (μg/L)



NO.	ISSUE/DESCRIPTION	BY	DATE

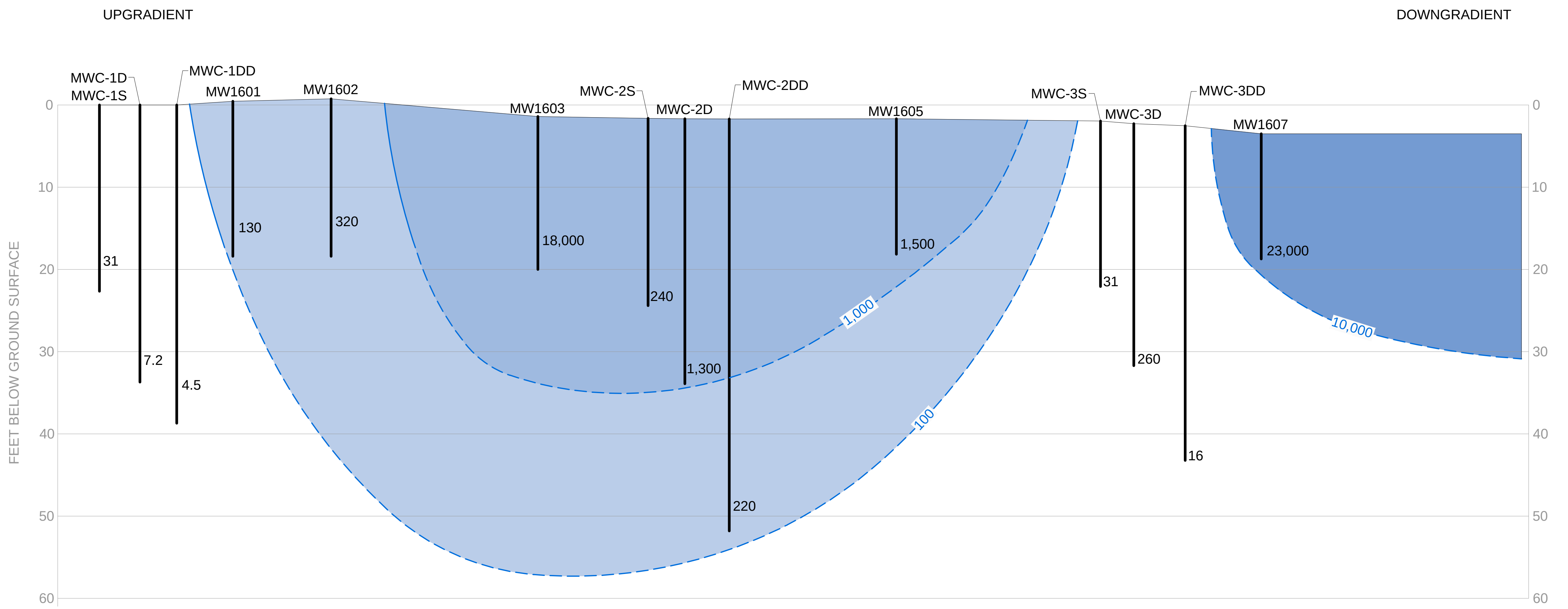
11 SPENCER STREET
BROOKLYN, NEW YORK

SHALLOW PCE PLUME
MAY 2016 - NOVEMBER 2016

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	6C
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



LEGEND:

PCE CONTOUR

INFERRED PCE CONTOUR

(220) PCE CONCENTRATION (µg/L)

NO.	ISSUE/DESCRIPTION	BY	DATE

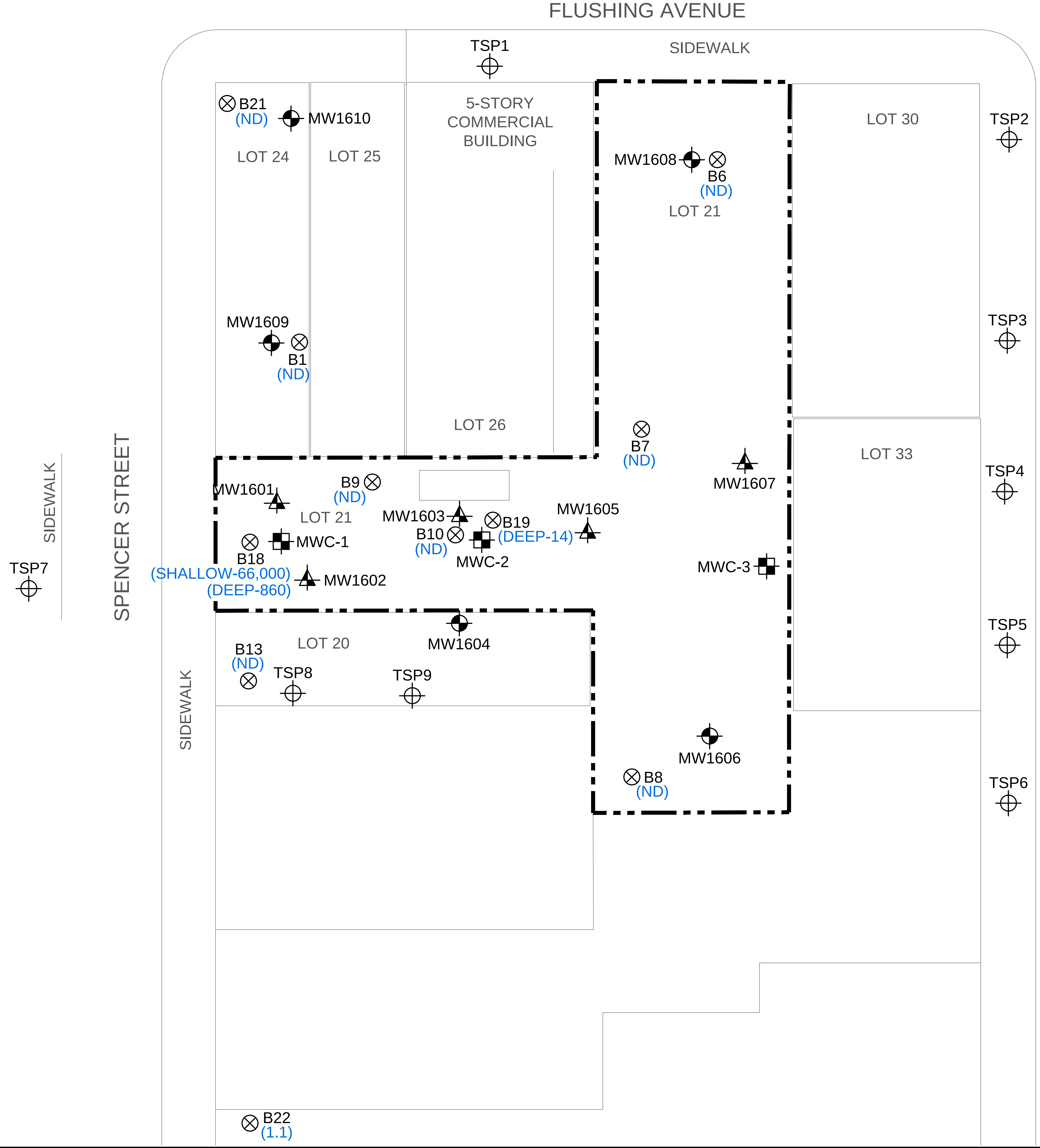
11 SPENCER STREET
BROOKLYN, NEW YORK

PCE PLUME CROSS SECTION
APRIL 2017

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: NOT TO SCALE	6D
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

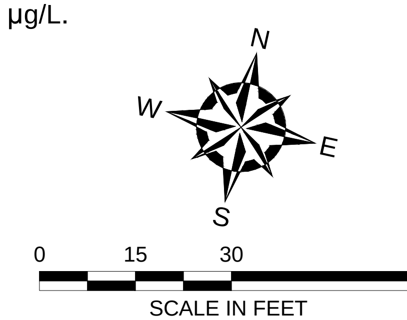


LEGEND:

- PROPERTY BOUNDARY
- MONITORING WELL LOCATION
- TEMPORARY PROBE SAMPLING POINT
- INSTALLED PERMANENT MONITORING WELL CLUSTER TO 40' AND 50' BGS
- REDEVELOPED WELL FOR RESAMPLING
- (66,000) TOLUENE CONCENTRATION
- (ND) NON-DETECTABLE

NOTE:

1. UNITS ARE IN µg/L.



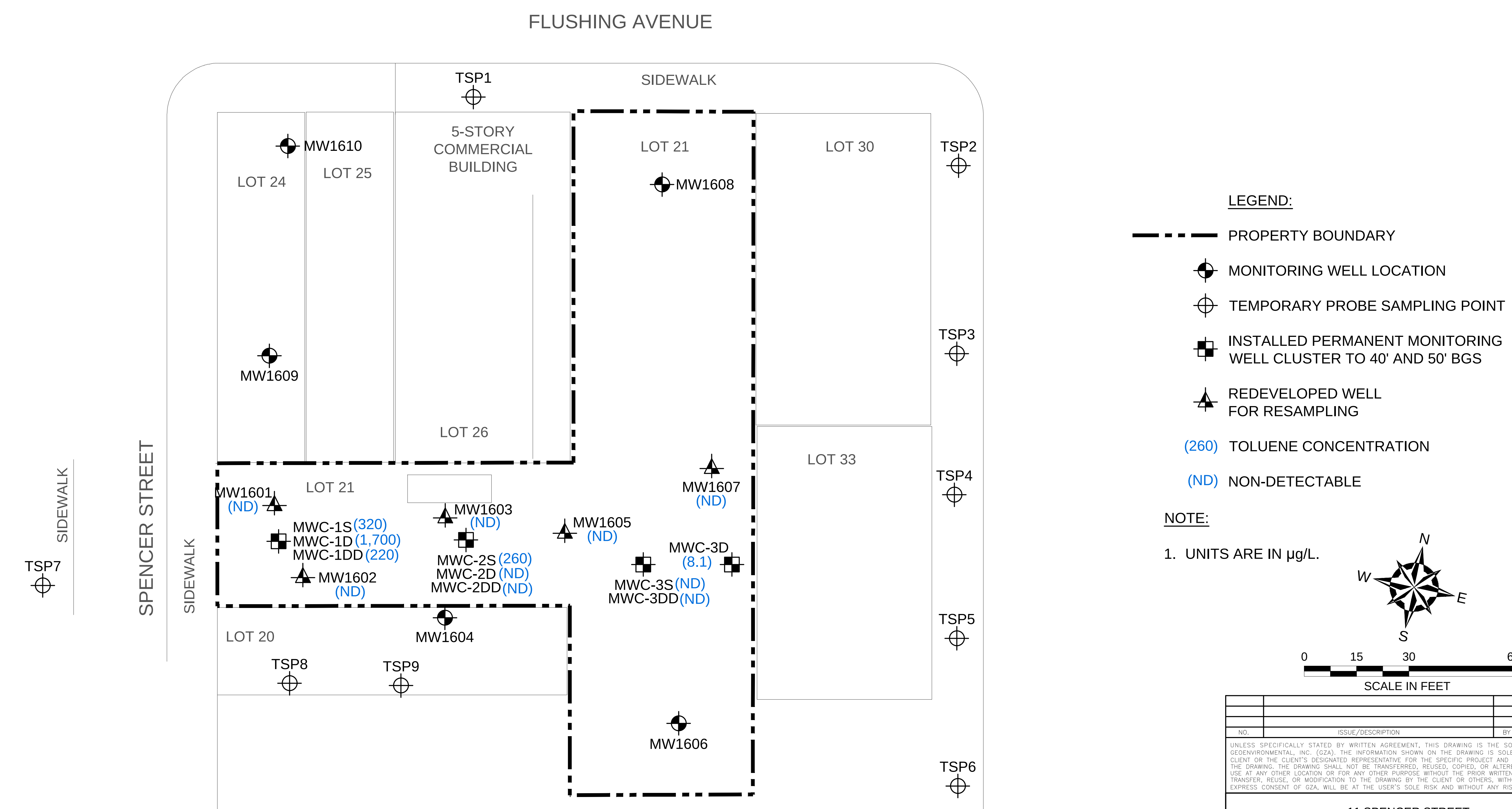
NO.	ISSUE/DESCRIPTION	BY	DATE

11 SPENCER STREET
BROOKLYN, NEW YORK

TOLUENE EXCEEDANCE IN GROUNDWATER (2014)

PREPARED BY: GZA GeoEnvironmental of New York, Engineers and Scientists, 104 WEST 29TH STREET, 10TH FLOOR, NEW YORK, NEW YORK 10001	PREPARED FOR: THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	7A
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



NO.	ISSUE/DESCRIPTION	BY	DATE

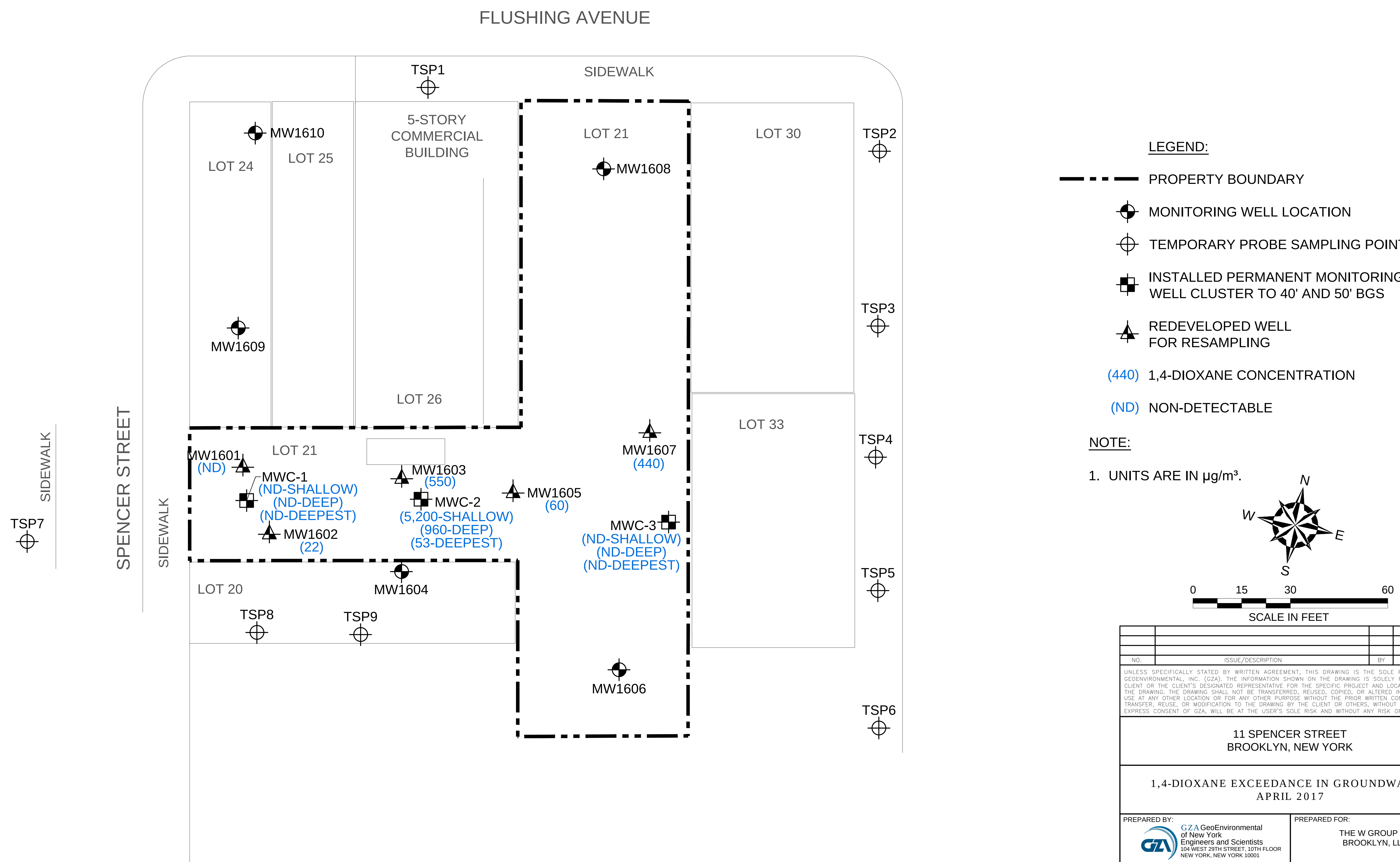
11 SPENCER STREET
BROOKLYN, NEW YORK

TOLUENE EXCEEDANCE IN GROUNDWATER (2017)

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	7B
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



NO.	ISSUE/DESCRIPTION	BY	DATE

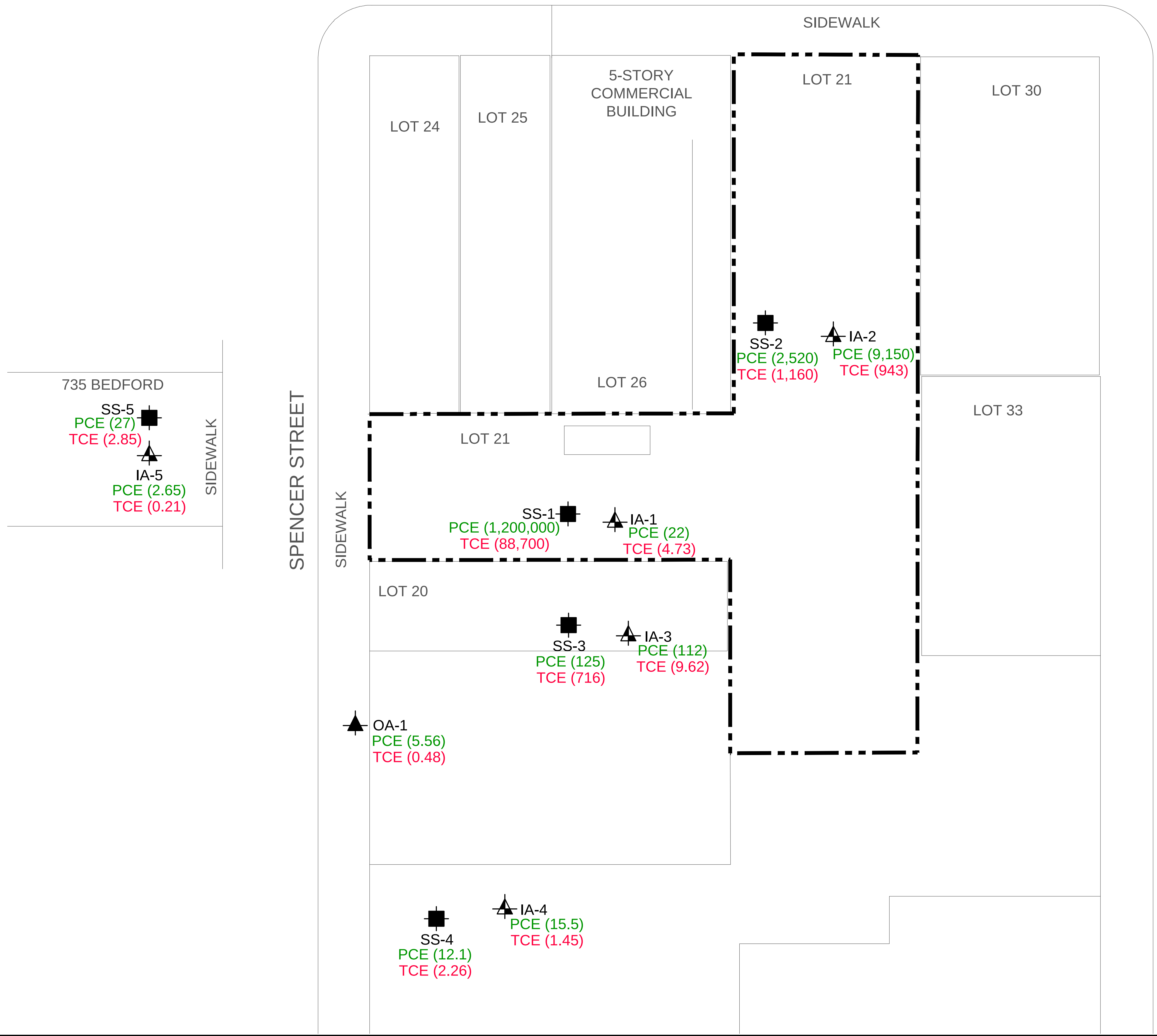
11 SPENCER STREET
BROOKLYN, NEW YORK

1,4-DIOXANE EXCEEDANCE IN GROUNDWATER
APRIL 2017

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE 8
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

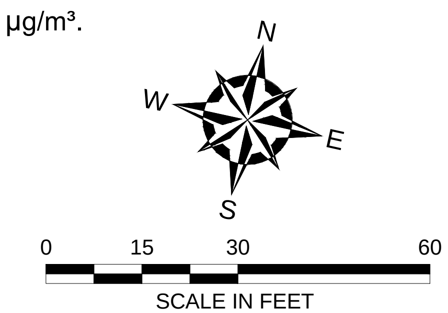


LEGEND:

- PROPERTY BOUNDARY
- SUB-SLAB SAMPLE LOCATION PERFORMED BY PREVIOUS CONSULTANT
- INDOOR AIR SAMPLE PERFORMED BY PREVIOUS CONSULTANT
- OUTDOOR AIR SAMPLE PERFORMED BY PREVIOUS CONSULTANT

NOTE:

1. UNITS ARE IN µg/m³.



NO.	ISSUE/DESCRIPTION	BY	DATE

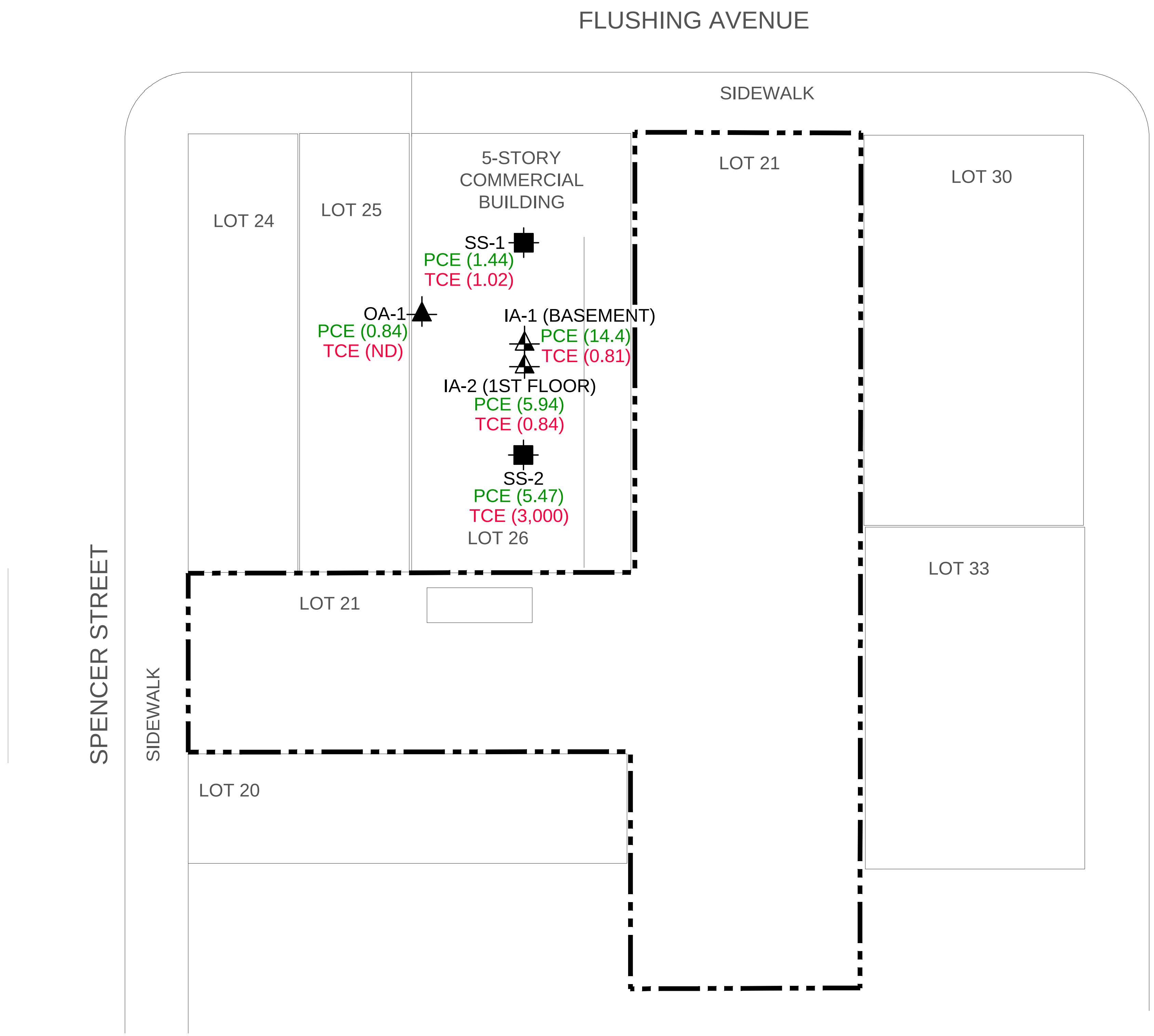
11 SPENCER STREET
BROOKLYN, NEW YORK

INDOOR AIR AND SUB-SLAB
VAPOR DETECTIONS (2014)

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

PREPARED FOR:
THE W GROUP OF
BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	9A
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

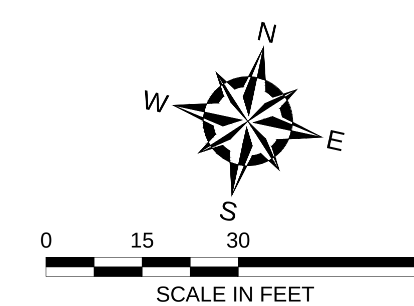


LEGEND:

- PROPERTY BOUNDARY
- SUB-SLAB VAPOR SAMPLE
- INDOOR AIR SAMPLE
- OUTDOOR AIR SAMPLE

NOTE:

1. UNITS ARE IN µg/m³.



NO.	ISSUE/DESCRIPTION	BY	DATE

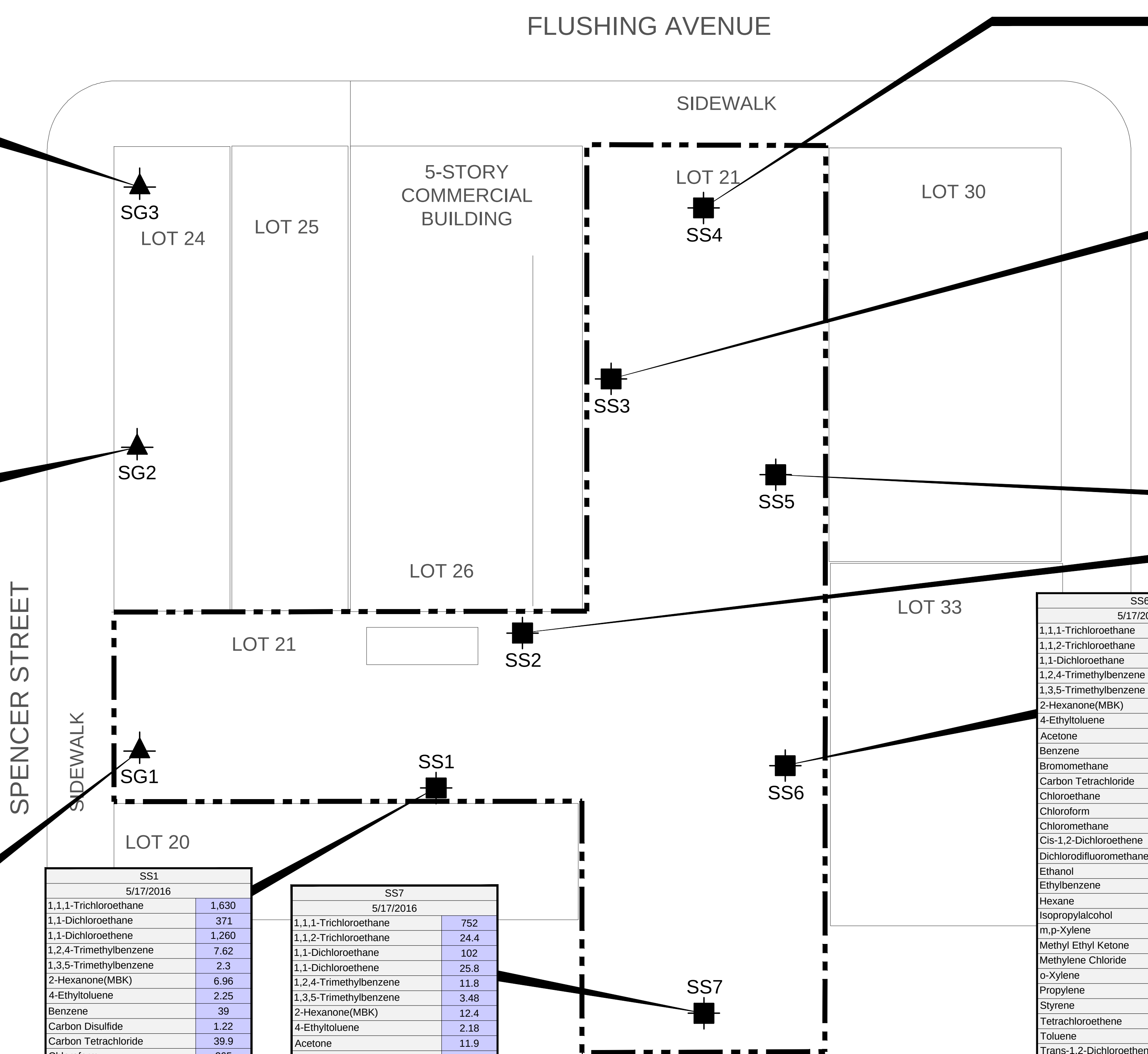
11 SPENCER STREET
BROOKLYN, NEW YORK

INDOOR AIR AND SUB-SLAB VAPOR DETECTIONS FEBRUARY 2016

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE 9B
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.



SG3	
5/17/2016	
1,1,1-Trichloroethane	85.1
1,2,4-Trimethylbenzene	10.8
1,3,5-Trimethylbenzene	3.59
2-Hexanone(MBK)	8.43
4-Ethyltoluene	2.49
Acetone	45.3
Benzene	1.06
Carbon Disulfide	2.1
Chloroform	10.1
Dichlorodifluoromethane	2.4
Ethanol	19.8
Ethylbenzene	5.29
Heptane	1.05
Hexane	1.74
Isopropylalcohol	2.51
m,p-Xylene	22.5
Methyl Ethyl Ketone	90.5
o-Xylene	8.33
Propylene	7.65
Styrene	1.38
Tetrachloroethene	4,790
Toluene	11.7
Trichloroethene	301
Trichlorofluoromethane	2.93
Trichlorotrifluoroethane	1.89

SG2	
5/17/2016	
1,1,1-Trichloroethane	206
1,2,4-Trimethylbenzene	9.04
1,3,5-Trimethylbenzene	3.01
4-Ethyltoluene	2.48
Acetone	215
Benzene	3.58
Carbon Disulfide	9.09
Chloromethane	1.09
Dichlorodifluoromethane	1.79
Ethanol	34.3
Ethylbenzene	11.8
Heptane	167
Hexane	398
m,p-Xylene	40.9
Methyl Ethyl Ketone	248
o-Xylene	13.2
Propylene	198
Styrene	1.33
Tetrachloroethene	2,600
Toluene	29.2
Trichloroethene	166
Trichlorofluoromethane	4.36
Trichlorotrifluoroethane	35.5

SG1	
5/17/2016	
1,1-Dichloroethane	287
1,1-Dichloroethene	81.6
1,2,4-Trimethylbenzene	15.7
1,3,5-Trimethylbenzene	4.9
4-Ethyltoluene	3.64
Acetone	91.6
Benzene	29.9
Carbon Disulfide	33.9
Carbon Tetrachloride	3.26
Chloroethane	3.27
Chloroform	117
Cis-1,2-Dichloroethene	1,810
Cyclohexane	44.7
Dichlorodifluoromethane	6.18
Ethanol	26.4
Ethylbenzene	19.1
Heptane	82.3
Hexane	52.8
Isopropylalcohol	5.4
Isopropylbenzene	1.87
m,p-Xylene	62.1
Methylene Chloride	3.41
o-Xylene	21.8
Propylene	34.1
Styrene	1.68
Tetrachloroethene	15,300
Toluene	606
Trans-1,2-Dichloroethene	31.3
Trichloroethene	4,350
Trichlorofluoromethane	69.1
Trichlorotrifluoroethane	3.9
Vinyl Chloride	1.65

SS1	
5/17/2016	
1,1,1-Trichloroethane	1,630
1,1-Dichloroethane	371
1,1-Dichloroethene	1,260
1,2,4-Trimethylbenzene	7.62
1,3,5-Trimethylbenzene	2.3
2-Hexanone(MBK)	6.96
4-Ethyltoluene	2.25
Benzene	39
Carbon Disulfide	1.22
Carbon Tetrachloride	39.9
Chloroform	265
Cis-1,2-Dichloroethene	349
Cyclohexane	7.05
Dichlorodifluoromethane	11.5
Ethanol	29.9
Ethylbenzene	5.42
Hexachlorobutadiene	1.68
Hexane	1.67
Isopropylalcohol	4.08
m,p-Xylene	22
Methyl Ethyl Ketone	14.9
Methylene Chloride	10.2
o-Xylene	7.42
Styrene	1.84
Tetrachloroethene	198,000
Toluene	8.62
Trans-1,2-Dichloroethene	28.5
Trichloroethene	26,200
Trichlorofluoromethane	3,480
Trichlorotrifluoroethane	11.4

SS7	
5/17/2016	
1,1,1-Trichloroethane	752
1,1,2-Trichloroethane	24.4
1,1-Dichloroethane	102
1,1-Dichloroethene	25.8
1,2,4-Trimethylbenzene	11.8
1,3,5-Trimethylbenzene	3.48
2-Hexanone(MBK)	12.4
4-Ethyltoluene	2.18
Acetone	11.9
Benzene	14.7
Carbon Tetrachloride	69.8
Chloroform	167
Cis-1,2-Dichloroethene	939
Cyclohexane	1.46
Dichlorodifluoromethane	177
Ethanol	36.2
Ethylbenzene	6.94
Heptane	1.87
Hexane	2.66
Isopropylalcohol	4.32
m,p-Xylene	28.8
Methyl Ethyl Ketone	66.6
Methylene Chloride	1.22
o-Xylene	9.59
Propylene	3.63
Styrene	1.56
Tetrachloroethene	17,600
Toluene	8.62
Trans-1,2-Dichloroethene	140
Trichloroethene	43,500
Trichlorotrifluoroethane	7.09

SS3	
5/17/2016	
1,1,1-Trichloroethane	949
1,1-Dichloroethane	23.3
1,2,4-Trimethylbenzene	6.68
1,3,5-Trimethylbenzene	2.12
2-Hexanone(MBK)	6.26
4-Ethyltoluene	1.57
Acetone	25.9
Benzene	1.8
Carbon Tetrachloride	81.7
Chloroform	139
Cis-1,2-Dichloroethene	30.7
Dichlorodifluoromethane	2.5
Ethanol	26.4
Ethylbenzene	4.2
Hexane	1.17
Isopropylalcohol	4.72
m,p-Xylene	17.1
Methyl Ethyl Ketone	26.6
Methylene Chloride	2.2
o-Xylene	5.9
Propylene	2.13
Styrene	1.51
Tetrachloroethene	1,080
Toluene	6.44
Trichloroethene	3,520
Trichlorofluoromethane	9.21
Trichlorotrifluoroethane	218

SS4	
5/17/2016	
1,1,1-Trichloroethane	146
1,1-Dichloroethane	11.7
1,2,4-Trimethylbenzene	6.39
1,3,5-Trimethylbenzene	2.17
2-Hexanone(MBK)	16.7
4-Ethyltoluene	1.67
Acetone	19.4
Benzene	2.16
Carbon Disulfide	1.85
Carbon Tetrachloride	1.08
Chloroform	72.2
Cis-1,2-Dichloroethene	151
Cyclohexane	1.82
Dichlorodifluoromethane	2.46
Ethanol	38.6
Ethylbenzene	6.94
Heptane	1.74
Hexane	1.86
Isopropylalcohol	4.37
m,p-Xylene	26.9
Methyl Ethyl Ketone	81.3
Methylene Chloride	1.28
o-Xylene	8.55
Propylene	3.68
Styrene	1.68
Tetrachloroethene	1,440
Toluene	12.1
Trans-1,2-Dichloroethene	3.96
Trichloroethene	1,330
Trichlorofluoromethane	6.51
Trichlorotrifluoroethane	7.15

SS5	
5/17/2016	
1,1,1-Trichloroethane	10,300
1,1,2-Trichloroethane	10.9
1,1-Dichloroethane	465
1,1-Dichloroethene	543
1,2,4-Trimethylbenzene	8.4
1,3,5-Trimethylbenzene	2.67
2-Hexanone(MBK)	14.1
4-Ethyltoluene	2.39
Acetone	14.2
Benzene	7.41
Carbon Tetrachloride	433
Chloroform	204
Cis-1,2-Dichloroethene	7,290
Cyclohexane	2.94
Dichlorodifluoromethane	2.81
Ethanol	30.9
Ethylbenzene	6.68
Heptane	1.45
Hexane	1.79
Isopropylalcohol	5.04
m,p-Xylene	27.1
Methyl Ethyl Ketone	46.3
Methylene Chloride	4.79
o-Xylene	8.72
Propylene	9.72
Styrene	1.69
Tetrachloroethene	31,000
Toluene	9.68
Trans-1,2-Dichloroethene	120
Trichloroethene	34,000
Trichlorofluoromethane	30
Trichlorotrifluoroethane	2,470
Vinyl Chloride	1.51

SS2	
5/17/2016	
1,1,1-Trichloroethane	67.1
1,1-Dichloroethane	1.69
1,1-Dichloroethene	6.54
1,2,4-Trimethylbenzene	3.2
1,3,5-Trimethylbenzene	1.31
2-Hexanone(MBK)	2.57
Acetone	13.6
Benzene	1.19
Carbon Tetrachloride	0.67
Chloroform	2.3
Chloromethane	1.14
Cis-1,2-Dichloroethene	1.38
Dichlorodifluoromethane	2.47
Ethanol	36.9
Ethylbenzene	1.99
Heptane	1.2
Hexane	1.75
Isopropylalcohol	4.96
m,p-Xylene	6.55
Methyl Ethyl Ketone	16.5
Methylene Chloride	1.69
o-Xylene	2.4
Propylene	2.73
Tetrachloroethene	270
Toluene	5.76
Trichloroethene	62.3
Trichlorofluoromethane	7.97

SS6	
5/17/2016	
1,1,1-Trichloroethane	8,560
1,1,2-Trichloroethane	53.6
1,1-Dichloroethane	914
1,2,4-Trimethylbenzene	10
1,3,5-Trimethylbenzene	3.05
2-Hexanone(MBK)	13.2
4-Ethyltoluene	2.25
Acetone	49.1
Benzene	25.8
Bromomethane	3.03
Carbon Tetrachloride	1,440
Chloroethane	1.16
Chloroform	326
Chloromethane	1.58
Cis-1,2-Dichloroethene	15,000
Dichlorodifluoromethane	2.59
Ethanol	26
Ethylbenzene	7.64
Hexane	2.73
Isopropylalcohol	6.29
m,p-Xylene	29.7
Methyl Ethyl Ketone	45.4
Methylene Chloride	3.75
o-Xylene	10.3
Propylene	14.5
Styrene	1.31
Tetrachloroethene	247,000
Toluene	9.68
Trans-1,2-Dichloroethene	121
Trichloroethene	155,000
Trichlorofluoromethane	386
Trichlorotrifluoroethane	85.8
Vinyl Chloride	12.4

LEGEND:

PROPERTY BOUNDARY

SUBSLAB VAPOR SAMPLING LOCATION

SOIL GAS SAMPLING LOCATION

NOTE:

1. UNITS ARE IN µg/m³.

NO.	ISSUE/DESCRIPTION	BY	DATE

11 SPENCER STREET
BROOKLYN, NEW YORK

SOIL GAS AND SUB-SLAB SOIL VAPOR DETECTIONS MAY 2016

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

PREPARED FOR:
THE W GROUP OF BROOKLYN, LLC

PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 30'	9C
DATE: MAY 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

Tables

Table 1- Groundwater Elevation Measurements
Site No. C224204
11 Spencer Street
Brooklyn, New York

Well ID	Well Diameter (inches)	Total Depth, BTOC (feet)	Well Screen Interval (feet)	TOC Elevation[1] (feet)	Depth to Water[2] (feet)	Groundwater Elevation[2] (feet)	Depth to Water[3] (feet)	Groundwater Elevation[3] (feet)	Depth to Water[4] (feet)	Groundwater Elevation[4] (feet)
MW-1601	1	20	10 to 20	52.34	13.36	38.98	12.6	39.74	13.8	38.54
MW-1602	1	19.8	10 to 20	52.3	13.41	38.89	12.68	39.62	13.84	38.46
MW-1603	1	19.81	10 to 20	52.28	13.76	38.52	13.03	39.25	14.19	38.09
MW-1604	1	19.25	10 to 20	53.2	14.42	38.78	13.66	39.54	14.8	38.40
MW-1605	1	19.82	10 to 20	52.84	14.03	38.81	13.29	39.55	14.45	38.39
MW-1606	1	19.2	10 to 20	52.75	13.97	38.78	13.22	39.53	14.4	38.35
MW-1607	1	19.3	10 to 20	52.73	13.96	38.77	13.23	39.50	14.05	38.68
MW-1608	1	17.25	10 to 20	51.63	12.85	38.78	12.13	39.50	17.25	34.38
MW-1609	1	20	10 to 20	51.72	12.92	38.80	12.2	39.52	13.18	38.54
MW-1610	1	19.55	10 to 20	50.91	12.02	38.89	11.25	39.66	12.08	38.83

Notes

Below Top of Casing (BTOC), Top of Casing (TOC)

1 - Elevation is relative to Brooklyn Highway Datum being 2.56 above NGVD29

2 - Groundwater measurements collected on May 17, 2016 by EBC

3 - Groundwater measurements collected on August 10, 2016 by EBC

4 - Groundwater measurements collected on March 1, 2017 by GZA

Table 2A - Source Delineation Soil Sample Exceedances (2015)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	15 B1 PIT BK31397 12/2/2015 2'-3' ug/kg		15 B2 PIT BK31398 12/2/2015 2'-3' ug/kg		15 SB 3 BK25256 11/17/2015 10'-12' ug/kg		15 SB 3 BK25257 11/17/2015 18'-20' ug/kg		15 B3 BK31399 12/2/2015 2' ug/kg		15 SB 4 BK25258 11/17/2015 10'-12' ug/kg		15 SB 4 BK25259 11/17/2015 18'-20' ug/kg	
			Result	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
VOCs By SW8260C																
1,1,1-Trichloroethane	100,000	680	94	J	450		65	J	12		**3,200**		60		2.8	J
1,1,2,2-Tetrachloroethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,1,2-Trichloroethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,1-Dichloroethane	26,000	270	< 120	U	< 100	U	< 4.1	U	< 4.0	U	55	J	< 3.0	U	< 4.6	U
1,1-Dichloroethene	100,000	330	< 240	U	< 210	U	< 4.1	U	1.2	J	**470**		2.9	J	0.99	J
1,1-Dichloropropene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,2,4-Trimethylbenzene	52,000	3,600	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,2-Dibromoethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,2-Dichlorobenzene	100,000	1,100	< 240	U	44	J	< 4.1	U	< 4.0	U	< 270	U	0.36	J	< 4.6	U
1,2-Dichloroethane	3,100	20	< 24	U	< 20	U	< 4.1	U	< 4.0	U	< 27	U	< 3.0	U	< 4.6	U
1,2-Dichloropropane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,3,5-Trimethylbenzene	52,000	8,400	< 240	U	< 210	U	< 4.1	U	< 4.0	U	73	J	< 3.0	U	< 4.6	U
1,3-Dichlorobenzene	49,000	2,400	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,3-Dichloropropane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
1,4-Dichlorobenzene	13,000	1,800	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Acetone	100,000	50	< 240	U	< 210	U	5.7	JS	< 40	U	**360**	JS	< 30	U	< 46	U
Benzene	4,800	60	< 48	U	< 41	U	< 4.1	U	< 4.0	U	< 55	U	0.36	J	< 4.6	U
Bromobenzene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Bromochloromethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Bromodichloromethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Carbon Disulfide			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Chlorobenzene	100,000	1,100	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Chloroform	49,000	370	< 240	U	< 210	U	< 4.1	U	< 4.0	U	100	J	0.5	J	< 4.6	U
Chloromethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
cis-1,2-Dichloroethene	100,000	250	< 240	U	< 210	U	< 4.1	U	1.3	J	< 140	U	0.32	J	5.7	
Dibromomethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Dichlorodifluoromethane			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Ethylbenzene	41,000	1,000	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Isopropylbenzene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
m&p-Xylene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Methyl Ethyl Ketone	100,000	120	< 240	U	< 210	U	< 25	U	< 24	U	< 270	U	< 18	U	< 28	U
Methyl t-butyl ether (MTB	100,000	930	< 480	U	< 410	U	< 8.2	U	< 8.0	U	< 550	U	< 6.0	U	< 9.2	U
Methylene chloride	100,000	50	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Naphthalene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
n-Butylbenzene	100,000	12,000	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
n-Propylbenzene	100,000	3,900	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
o-Xylene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
p-Isopropyltoluene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
sec-Butylbenzene	100,000	11,000	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Styrene			< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
tert-Butylbenzene	100,000	5,900	< 240	U	< 210	U	< 4.1	U	< 4.0	U	< 270	U	< 3.0	U	< 4.6	U
Tetrachloroethene	19,000	1,300	**13,000**	D	**110,000**	D	**6,100**		870		**96,000**	D	**2,600**		390	
Toluene	100,000	700	< 240	U	< 210	U	< 4.1	U	< 4.0	U	58	J	0.55	J	0.5	J
trans-1,2-Dichloroethene	100,000	190	< 120	U	< 100	U	< 4.1	U	< 4.0	U	< 140	U	< 3.0	U	< 4.6	U
Trichloroethene	21,000	470	110	J	180	J	420		23		**8,600**	D	18		69	J
Vinyl chloride	900	20	< 24	U	< 20	U	< 4.1	U	< 4.0	U	< 27	U	< 3.0	U	< 4.6	U
1,1,1,2-Tetrachloroethane			< 970	U	< 820	U	< 16	U	< 16	U	< 1100	U	< 3.0	U	< 18	U
Tert-butyl alcohol			< 4800	U	< 4100	U	< 82	U	< 80	U	< 5500	U	< 60	U	< 92	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	**5,900**		< 1600	U	< 82	U	**700**		< 2200	U	**680**		< 92	U

Notes:

400 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
6,100 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligrams per kilogram.
Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2A - Source Delineation Soil Sample Exceedances (2015)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID / Lab Sample Number / Sampling Date / Sampling Depth / Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	15 B4 / BK31400 / 12/2/2015 / 2' / ug/kg		15 B5 / BK31401 / 12/2/2015 / 2' / ug/kg		15 SB 5 / BK25260 / 11/17/2015 / 10'-12' / ug/kg		15 SB 5 / BK25261 / 11/17/2015 / 18'-20' / ug/kg		15 SB 6 / BK25262 / 11/17/2015 / 10'-12' / ug/kg		15 SB 6 / BK25263 / 11/17/2015 / 18'-20' / ug/kg		15 SB 6 / BK25253 / 11/17/2015 / 3'-5' / ug/kg	
			Result	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
VOCs By SW8260C																
1,1,1-Trichloroethane	100,000	680	**5,300**		**22,000**	D	68	J	< 2.7	U	17	J	< 4.3	U	**5,500**	
1,1,2,2-Tetrachloroethane			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,1,2-Trichloroethane			< 320	U	200	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,1-Dichloroethane	26,000	270	**300**	J	**490**		< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	220	
1,1-Dichloroethene	100,000	330	**1,100**		**2,000**		1.7	J	< 2.7	U	0.67	J	< 4.3	U	**1,500**	
1,1-Dichloropropene			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,2,4-Trimethylbenzene	52,000	3,600	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,2-Dibromoethane			< 320	U	58	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,2-Dichlorobenzene	100,000	1,100	81	J	63	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,2-Dichloroethane	3,100	20	< 32	U	**110**		< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	**93**	J
1,2-Dichloropropane			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,3,5-Trimethylbenzene	52,000	8,400	54	J	67	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	67	J
1,3-Dichlorobenzene	49,000	2,400	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,3-Dichloropropane			< 64	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
1,4-Dichlorobenzene	13,000	1,800	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Acetone	100,000	50	< 320	U	< 220	U	< 32	U	< 27	U	< 40	U	< 43	U	< 1900	U
Benzene	4,800	60	45	J	**130**		0.36	J	< 2.7	U	< 4.0	U	< 4.3	U	**68**	J
Bromobenzene			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Bromochloromethane			< 320	U	300		< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	1200	
Bromodichloromethane			< 320	U	140	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	43	J
Carbon Disulfide			< 320	U	< 220	U	< 3.2	U	0.79	J	< 4.0	U	1.8	J	< 190	U
Chlorobenzene	100,000	1,100	< 320	U	120	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Chloroform	49,000	370	300	J	**830**		0.5	J	< 2.7	U	0.44	J	< 4.3	U	**400**	
Chloromethane			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
cis-1,2-Dichloroethene	100,000	250	**700**		**560**		0.56	J	0.69	J	< 4.0	U	0.73	J	**430**	
Dibromomethane			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	91	J
Dichlorodifluoromethane			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Ethylbenzene	41,000	1,000	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Isopropylbenzene			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
m&p-Xylene			< 320	U	47	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Methyl Ethyl Ketone	100,000	120	< 320	U	< 220	U	< 19	U	< 16	U	< 24	U	< 26	U	< 1200	U
Methyl t-butyl ether (MTB	100,000	930	< 640	U	< 440	U	< 6.4	U	< 5.4	U	< 7.9	U	< 8.5	U	< 390	U
Methylene chloride	100,000	50	< 320	U	**1,700**	S	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	**1,900**	S
Naphthalene			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
n-Butylbenzene	100,000	12,000	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
n-Propylbenzene	100,000	3,900	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
o-Xylene			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
p-Isopropyltoluene			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
sec-Butylbenzene	100,000	11,000	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Styrene			< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
tert-Butylbenzene	100,000	5,900	< 320	U	< 220	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 190	U
Tetrachloroethene	19,000	1,300	**740,000**	D	**2,600,000**	D	**2,100**		110	J	730		99	J	**#######**	D
Toluene	100,000	700	38	J	110	J	0.49	J	< 2.7	U	< 4.0	U	< 4.3	U	78	J
trans-1,2-Dichloroethene	100,000	190	< 160	U	28	J	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	22	J
Trichloroethene	21,000	470	**180,000**	D	**93,000**	D	48	J	1.9	J	26	J	1.8	J	**88,000**	D
Vinyl chloride	900	20	< 32	U	< 20	U	< 3.2	U	< 2.7	U	< 4.0	U	< 4.3	U	< 20	U
1,1,1,2-Tetrachloroethane			< 1300	U	89	J	< 3.2	U	< 11	U	< 4.0	U	< 4.3	U	< 780	U
Tert-butyl alcohol			< 6400	U	< 4400	U	27	J	< 54	U	< 79	U	< 85	U	< 3900	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	< 2600	U	< 4400	U	**3,400**		< 54	U	**7,700**		< 85	U	**6,300**	

Notes:

400 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
6,100 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligrams per kilogram.
Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2A - Source Delineation Soil Sample Exceedances (2015)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID / Lab Sample Number / Sampling Date / Sampling Depth / Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SOIL DUPLICATE BK25264 11/17/2015 ug/kg		15 SB 7 BK25265 11/17/2015 10'-12' ug/kg		15 SB 7 BK25266 11/17/2015 15'-17' ug/kg		15 SB 8 BK25267 11/17/2015 12'-14' ug/kg		15 SB 8 BK25268 11/17/2015 18'-20' ug/kg		15 B8 BK31404 12/2/2015 2' ug/kg		15 B9 BK31405 12/2/2015 2' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs By SW8260C																
1,1,1-Trichloroethane	100,000	680	28	J	17	J	11		2.9	J	2.4	J	**3,100**		**940**	
1,1,2,2-Tetrachloroethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,1,2-Trichloroethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,1-Dichloroethane	26,000	270	< 3.7	U	< 3.8	U	2.3	J	< 3.3	U	< 4.0	U	200	J	< 170	U
1,1-Dichloroethene	100,000	330	0.73	J	0.41	J	52		0.86	J	0.41	J	**1,100**		330	J
1,1-Dichloropropene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,2,4-Trimethylbenzene	52,000	3,600	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,2-Dibromoethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,2-Dichlorobenzene	100,000	1,100	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,2-Dichloroethane	3,100	20	< 3.7	U	< 3.8	U	0.38	J	< 3.3	U	< 4.0	U	< 24	U	< 34	U
1,2-Dichloropropane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,3,5-Trimethylbenzene	52,000	8,400	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	72	J	< 340	U
1,3-Dichlorobenzene	49,000	2,400	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
1,3-Dichloropropane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 67	U
1,4-Dichlorobenzene	13,000	1,800	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Acetone	100,000	50	**210**	JS	< 38	U	< 36	U	< 33	U	< 40	U	**510**	JS	< 340	U
Benzene	4,800	60	0.38	J	< 3.8	U	0.38	J	< 3.3	U	< 4.0	U	26	J	< 59	U
Bromobenzene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Bromochloromethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Bromodichloromethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Carbon Disulfide			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Chlorobenzene	100,000	1,100	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Chloroform	49,000	370	< 3.7	U	< 3.8	U	1.1	J	0.38	J	< 4.0	U	**950**		41	J
Chloromethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
cis-1,2-Dichloroethene	100,000	250	0.65	J	0.73	J	3.3	J	0.87	J	< 4.0	U	**400**		< 170	U
Dibromomethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Dichlorodifluoromethane			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Ethylbenzene	41,000	1,000	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Isopropylbenzene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
m&p-Xylene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Methyl Ethyl Ketone	100,000	120	< 22	U	< 23	U	< 21	U	< 20	U	< 24	U	< 240	U	< 340	U
Methyl t-butyl ether (MTB	100,000	930	< 7.3	U	< 7.6	U	< 7.1	U	< 6.6	U	< 8.0	U	< 490	U	< 670	U
Methylene chloride	100,000	50	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Naphthalene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	1500		72	J
n-Butylbenzene	100,000	12,000	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
n-Propylbenzene	100,000	3,900	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
o-Xylene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
p-Isopropyltoluene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
sec-Butylbenzene	100,000	11,000	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Styrene			< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
tert-Butylbenzene	100,000	5,900	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 240	U	< 340	U
Tetrachloroethene	19,000	1,300	840		780		**1,900**		230		500		**120,000**	D	**25,000**	D
Toluene	100,000	700	0.85	J	< 3.8	U	< 3.6	U	0.5	J	< 4.0	U	< 240	U	< 340	U
trans-1,2-Dichloroethene	100,000	190	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 120	U	< 170	U
Trichloroethene	21,000	470	42	J	66	J	37		12		2.2	J	**91,000**	D	**1,200**	
Vinyl chloride	900	20	< 3.7	U	< 3.8	U	< 3.6	U	< 3.3	U	< 4.0	U	< 24	U	< 34	U
1,1,1,2-Tetrachloroethane			< 3.7	U	< 15	U	< 3.6	U	< 13	U	< 16	U	< 980	U	< 1300	U
Tert-butyl alcohol			< 73	U	< 76	U	< 71	U	< 66	U	< 80	U	< 4900	U	< 6700	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	**180**		47	J	100		< 66	U	**230**		< 2000	U	< 2700	U

Notes:

400 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
6,100 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligrams per kilogram.
Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2A - Source Delineation Soil Sample Exceedances (2015)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	15 SB 9 BK25269 11/17/2015 15'-17' ug/kg		15 SB 9 BK25270 11/17/2015 18'-20' ug/kg		15 SB 10 BK25271 11/17/2015 10'-12' ug/kg		15 SB 10 BK25272 11/17/2015 18'-20' ug/kg		TRIP BLANK HI BK25273 11/17/2015 ug/kg		TRIP BLANK LI BK25274 11/17/2015 ug/kg		15 B13 BK31402 12/2/2015 2'-4' ug/kg	
			Result	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
VOCs By SW8260C																
1,1,1-Trichloroethane	100,000	680	0.75	J	3.4	J	110		1.1	J	< 250	U	< 5.0	U	300	
1,1,2,2-Tetrachloroethane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,1,2-Trichloroethane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,1-Dichloroethane	26,000	270	< 3.8	U	< 4.0	U	1	J	< 3.7	U	< 250	U	< 5.0	U	< 150	U
1,1-Dichloroethene	100,000	330	< 3.8	U	1.1	J	4.1		0.46	J	< 250	U	< 5.0	U	< 300	U
1,1-Dichloropropene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,2,4-Trimethylbenzene	52,000	3,600	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	2100	
1,2-Dibromoethane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,2-Dichlorobenzene	100,000	1,100	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,2-Dichloroethane	3,100	20	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 30	U
1,2-Dichloropropane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,3,5-Trimethylbenzene	52,000	8,400	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	1100	
1,3-Dichlorobenzene	49,000	2,400	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,3-Dichloropropane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
1,4-Dichlorobenzene	13,000	1,800	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Acetone	100,000	50	< 38	U	4.5	JS	< 33	U	12	JS	< 2500	U	< 50	U	< 300	U
Benzene	4,800	60	< 3.8	U	< 4.0	U	0.68	J	< 3.7	U	< 250	U	< 5.0	U	**86**	J
Bromobenzene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Bromochloromethane			< 3.8	U	< 4.0	U	0.89	J	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Bromodichloromethane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Carbon Disulfide			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Chlorobenzene	100,000	1,100	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Chloroform	49,000	370	< 3.8	U	< 4.0	U	1.3	J	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Chloromethane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
cis-1,2-Dichloroethene	100,000	250	< 3.8	U	< 4.0	U	0.69	J	4.6		< 250	U	< 5.0	U	< 150	U
Dibromomethane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Dichlorodifluoromethane			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Ethylbenzene	41,000	1,000	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	140	J
Isopropylbenzene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	45	J
m&p-Xylene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	1000	
Methyl Ethyl Ketone	100,000	120	< 23	U	< 24	U	< 20	U	< 22	U	< 1500	U	< 30	U	< 300	U
Methyl t-butyl ether (MTB	100,000	930	< 7.5	U	< 8.0	U	< 6.6	U	< 7.4	U	< 500	U	< 10	U	< 600	U
Methylene chloride	100,000	50	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Naphthalene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	260,000	D
n-Butylbenzene	100,000	12,000	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
n-Propylbenzene	100,000	3,900	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
o-Xylene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	670	
p-Isopropyltoluene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	43	J
sec-Butylbenzene	100,000	11,000	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Styrene			< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	130	J
tert-Butylbenzene	100,000	5,900	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 300	U
Tetrachloroethene	19,000	1,300	590		240		**3,900**		420		< 250	U	< 5.0	U	**15,000**	D
Toluene	100,000	700	< 3.8	U	0.84	J	0.65	J	< 3.7	U	< 250	U	< 5.0	U	250	J
trans-1,2-Dichloroethene	100,000	190	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 150	U
Trichloroethene	21,000	470	0.62	J	1.6	J	28		43	J	< 250	U	< 5.0	U	**3,400**	
Vinyl chloride	900	20	< 3.8	U	< 4.0	U	< 3.3	U	< 3.7	U	< 250	U	< 5.0	U	< 30	U
1,1,1,2-Tetrachloroethane			< 3.8	U	< 16	U	< 13	U	< 3.7	U	< 250	U	< 20	U	< 1200	U
Tert-butyl alcohol			< 75	U	< 80	U	< 66	U	< 74	U	< 5000	U	< 100	U	< 6000	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	< 75	U	< 80	U	**41,000**		< 74	U	< 5000	U	< 100	U	< 2400	U

Notes:

400 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
6,100 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligrams per kilogram.
Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2A - Source Delineation Soil Sample Exceedances (2015)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID / Lab Sample Number / Sampling Date / Sampling Depth / Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	15 B13 / BK31403 / 12/2/2015 / 10'-12' / ug/kg		15 B14 / BK31406 / 12/2/2015 / 0'-2' / ug/kg		15 B14 / BK31407 / 12/2/2015 / 10'-12' / ug/kg		SOIL DUPLICAT / BK31408 / 12/2/2015 / ug/kg		15 B16 / BK31409 / 12/2/2015 / 2'-4' / ug/kg		15 B16 / BK31410 / 12/2/2015 / 10'-12' / ug/kg		15 B15 / BK31411 / 12/2/2015 / 2'-4' / ug/kg		15 B15 / BK31412 / 12/2/2015 / 10'-12' / ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs By SW8260C																		
1,1,1-Trichloroethane	100,000	680	0.38	J	280		6.5		**11,000**	D	390		5.8		**26,000**	D	18	J
1,1,2,2-Tetrachloroethane			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
1,1,2-Trichloroethane			< 3.3	U	< 210	U	< 2.8	U	89	J	< 200	U	< 3.0	U	470		< 140	U
1,1-Dichloroethane	26,000	270	< 3.3	U	< 100	U	< 2.8	U	**240**		< 200	U	< 3.0	U	**1,600**		< 140	U
1,1-Dichloroethene	100,000	330	< 3.3	U	< 210	U	0.49	J	**830**		34	J	0.52	J	**4,700**		< 140	U
1,1-Dichloropropene			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
1,2,4-Trimethylbenzene	52,000	3,600	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
1,2-Dibromoethane			< 3.3	U	< 210	U	< 2.8	U	30	J	< 200	U	< 3.0	U	< 340	U	< 140	U
1,2-Dichlorobenzene	100,000	1,100	< 3.3	U	< 210	U	< 2.8	U	22	J	< 200	U	< 3.0	U	390		< 140	U
1,2-Dichloroethane	3,100	20	< 3.3	U	< 20	U	< 2.8	U	**44**	J	< 20	U	< 3.0	U	**79**	J	< 14	U
1,2-Dichloropropane			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
1,3,5-Trimethylbenzene	52,000	8,400	< 3.3	U	< 210	U	< 2.8	U	50	J	< 200	U	< 3.0	U	140	J	< 140	U
1,3-Dichlorobenzene	49,000	2,400	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
1,3-Dichloropropane			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 68	U	< 140	U
1,4-Dichlorobenzene	13,000	1,800	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Acetone	100,000	50	< 33	U	< 210	U	2.8	JS	< 180	U	< 200	U	< 30	U	< 340	U	< 140	U
Benzene	4,800	60	< 3.3	U	< 42	U	< 2.8	U	**64**		< 59	U	< 3.0	U	**190**		< 57	U
Bromobenzene			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Bromochloromethane			< 3.3	U	< 210	U	< 2.8	U	110	J	< 200	U	< 3.0	U	< 340	U	< 140	U
Bromodichloromethane			< 3.3	U	< 210	U	< 2.8	U	71	J	< 200	U	< 3.0	U	< 340	U	< 140	U
Carbon Disulfide			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Chlorobenzene	100,000	1,100	< 3.3	U	< 210	U	< 2.8	U	57	J	< 200	U	< 3.0	U	< 340	U	< 140	U
Chloroform	49,000	370	< 3.3	U	< 210	U	< 2.8	U	**440**		< 200	U	< 3.0	U	**1,500**		< 140	U
Chloromethane			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
cis-1,2-Dichloroethene	100,000	250	< 3.3	U	45	J	0.53	J	**290**		39	J	0.65	J	**4,300**		< 140	U
Dibromomethane			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Dichlorodifluoromethane			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Ethylbenzene	41,000	1,000	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Isopropylbenzene			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
m&p-Xylene			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	73	J	< 140	U
Methyl Ethyl Ketone	100,000	120	< 20	U	< 210	U	< 17	U	< 180	U	< 200	U	< 18	U	< 340	U	< 140	U
Methyl t-butyl ether (MTB	100,000	930	< 6.5	U	< 420	U	< 5.6	U	< 360	U	< 390	U	< 5.9	U	< 680	U	< 280	U
Methylene chloride	100,000	50	< 3.3	U	< 210	U	< 2.8	U	**640**	S	< 200	U	< 3.0	U	**490**	S	< 140	U
Naphthalene			1.9	J	490		< 2.8	U	230		190	J	< 3.0	U	370		63	J
n-Butylbenzene	100,000	12,000	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
n-Propylbenzene	100,000	3,900	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
o-Xylene			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
p-Isopropyltoluene			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
sec-Butylbenzene	100,000	11,000	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Styrene			< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
tert-Butylbenzene	100,000	5,900	< 3.3	U	< 210	U	< 2.8	U	< 180	U	< 200	U	< 3.0	U	< 340	U	< 140	U
Tetrachloroethene	19,000	1,300	160	J	**30,000**	D	860		**760,000**	D	**48,000**	D	610		**1,900,000**	D	**2,800**	
Toluene	100,000	700	< 3.3	U	< 210	U	< 2.8	U	55	J	< 200	U	< 3.0	U	180	J	< 140	U
trans-1,2-Dichloroethene	100,000	190	< 3.3	U	< 100	U	< 2.8	U	< 180	U	< 98	U	< 3.0	U	120	J	< 140	U
Trichloroethene	21,000	470	3.7		**8,200**		28		**55,000**	D	**4,500**		51	J	**480,000**	D	470	
Vinyl chloride	900	20	< 3.3	U	< 20	U	< 2.8	U	< 18	U	< 20	U	< 3.0	U	< 34	U	< 14	U
1,1,1,2-Tetrachloroethane			< 13	U	< 840	U	< 11	U	41	J	< 790	U	< 12	U	190	J	< 570	U
Tert-butyl alcohol			< 65	U	< 4200	U	< 56	U	< 3600	U	< 3900	U	< 59	U	< 6800	U	< 2800	U
1,4-dioxane By SW8260C																		
1,4-dioxane	13,000	100	< 65	U	< 1700	U	< 56	U	**2,100**	J	< 1600	U	**110**		**11,000**		**1,200**	J

Notes:

400 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives

6,100 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives

mg/kg - Milligrams per kilogram.

Qual - Laboratory data qualifier.

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

NS - No Standard

Table 2A - Source Delineation Soil Sample Exceedances (2015)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID / Lab Sample Number / Sampling Date / Sampling Depth / Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	15 B19 BK31413 12/2/2015 2'-4' ug/kg		15 B19 BK31414 12/2/2015 10'-12' ug/kg		TRIP BLANK LOW BK25254 11/17/2015 ug/kg		TRIP BLANK HIGH BK25255 11/17/2015 ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs By SW8260C										
1,1,1-Trichloroethane	100,000	680	58	J	2.2	J	< 5.0	U	< 250	U
1,1,2,2-Tetrachloroethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,1,2-Trichloroethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,1-Dichloroethane	26,000	270	< 48	U	1.2	J	< 5.0	U	< 250	U
1,1-Dichloroethene	100,000	330	< 240	U	1.9	J	< 5.0	U	< 250	U
1,1-Dichloropropene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,2,4-Trimethylbenzene	52,000	3,600	< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,2-Dibromoethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,2-Dichlorobenzene	100,000	1,100	< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,2-Dichloroethane	3,100	20	< 24	U	< 2.5	U	< 5.0	U	< 250	U
1,2-Dichloropropane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,3,5-Trimethylbenzene	52,000	8,400	< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,3-Dichlorobenzene	49,000	2,400	< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,3-Dichloropropane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
1,4-Dichlorobenzene	13,000	1,800	< 240	U	< 2.5	U	< 5.0	U	< 250	U
Acetone	100,000	50	< 240	U	< 25	U	< 50	U	< 2500	U
Benzene	4,800	60	< 48	U	< 2.5	U	< 5.0	U	< 250	U
Bromobenzene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
Bromochloromethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
Bromodichloromethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
Carbon Disulfide			< 240	U	< 2.5	U	< 5.0	U	< 250	U
Chlorobenzene	100,000	1,100	< 240	U	< 2.5	U	< 5.0	U	< 250	U
Chloroform	49,000	370	< 240	U	1.2	J	< 5.0	U	< 250	U
Chloromethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
cis-1,2-Dichloroethene	100,000	250	84	J	9.5		< 5.0	U	< 250	U
Dibromomethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
Dichlorodifluoromethane			< 240	U	< 2.5	U	< 5.0	U	< 250	U
Ethylbenzene	41,000	1,000	< 240	U	< 2.5	U	< 5.0	U	< 250	U
Isopropylbenzene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
m&p-Xylene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
Methyl Ethyl Ketone	100,000	120	< 240	U	< 15	U	< 30	U	< 1500	U
Methyl t-butyl ether (MTB	100,000	930	< 480	U	< 5.0	U	< 10	U	< 500	U
Methylene chloride	100,000	50	< 240	U	< 2.5	U	< 5.0	U	< 250	U
Naphthalene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
n-Butylbenzene	100,000	12,000	< 240	U	< 2.5	U	< 5.0	U	< 250	U
n-Propylbenzene	100,000	3,900	< 240	U	< 2.5	U	< 5.0	U	< 250	U
o-Xylene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
p-Isopropyltoluene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
sec-Butylbenzene	100,000	11,000	< 240	U	< 2.5	U	< 5.0	U	< 250	U
Styrene			< 240	U	< 2.5	U	< 5.0	U	< 250	U
tert-Butylbenzene	100,000	5,900	< 240	U	< 2.5	U	< 5.0	U	< 250	U
Tetrachloroethene	19,000	1,300	**5,200**		220		< 5.0	U	< 250	U
Toluene	100,000	700	< 240	U	< 2.5	U	< 5.0	U	< 250	U
trans-1,2-Dichloroethene	100,000	190	< 120	U	< 2.5	U	< 5.0	U	< 250	U
Trichloroethene	21,000	470	**1,900**		48		< 5.0	U	< 250	U
Vinyl chloride	900	20	< 24	U	< 2.5	U	< 5.0	U	< 250	U
1,1,1,2-Tetrachloroethane			< 960	U	< 10	U	< 5.0	U	< 1000	U
Tert-butyl alcohol			< 4800	U	< 50	U	< 100	U	< 5000	U
1,4-dioxane By SW8260C										
1,4-dioxane	13,000	100	< 1900	U	< 50	U	< 100	U	< 5000	U

Notes:

400 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
6,100 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligrams per kilogram.
Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2B - Soil Delineation Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1605		SB1607		SB1611		SB1612 0-2		SB 1601		SB 1614		OIL DUPLICATE	
Lab Sample Number			BN33830		BN33831		BN33832		BN33833		BN36056		BN36057		BN36058	
Sampling Date			5/16/2016		5/16/2016		5/16/2016		5/16/2016		5/18/2016		5/18/2016		5/18/2016	
Sampling Depth			0 -2'		0 -2'		0 -2'		0 -2'		0 -2'		0 -2'		15'-18'	
Units			Soil		Soil		Soil		Soil		Solid		Solid		Solid	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Miscellaneous/Inorganics																
Percent Solid			90		88		88		85		92		89		92	
Total Cyanide (SW9010C Distill.)	27	27	2.64		4.46		0.676		0.498	B	0.331	B	0.427	B	0.668	
Metals, Total																
Aluminum			6210		8860		7030		3560		6010		7740		5440	
Antimony			6.4		3.5		< 1.8	U	< 1.8	U	< 1.8	U	< 1.9	U	< 1.9	U
Arsenic	16	13	**22**		**19.7**		7.1		4.6		9		6		6.9	
Barium	400	350	**459**		**1,780**		142		59.2		174		120		164	
Beryllium	72	7.2	0.44		0.46		0.49		0.31		0.52		0.53		0.49	
Cadmium	4.3	2.5	**2.99**		1.78		1.23		0.21	B	0.57		0.18	B	0.45	
Calcium			38000		52300		10700		79400		15900		10300		15500	
Chromium		30	30		27.7		21.2		11.3		20.3		17.6		17.2	
Cobalt			12.4		10.2		8.29		5.25		8.54		7.6		7.77	
Copper	270	50	**227**		**139**		**74.7**		**95.8**		**55.3**		27.4		48.9	
Iron			78800		56600		34000		9600		32300		18200		22600	
Lead	400	63	**2,090**		**1,130**		**336**		**106**		**573**		**214**		**564**	
Magnesium			2840		3770		1920		2980		4320		2530		4210	
Manganese	2,000	1,600	588		523		343		175		369		334		331	
Mercury	0.81	0.18	**4.81**		**3.89**		**0.84**		**0.38**		**1.23**		**0.77**		**1.35**	
Nickel	310	30	29		27.1		16.2		11.9		17.9		13.8		14.9	
Potassium			903		1170		785		809		1400		1560		1270	
Sodium			341		811		120		401		278		331		265	
Vanadium			32.3		24.3		22.2		18.7		28.9		27.9		27.4	
Zinc	10,000	109	**1,330**		**737**		**240**		59.2		**212**		**111**		**201**	
Semivolatiles By SW8270D																
2-Methylnaphthalene			320		140	J	< 260	U	< 270	U	160	J	1300		110	J
2-Methylphenol (o-cresol)	100,000	330	< 260	U	< 260	U	< 260	U	< 270	U	< 250	U	< 260	U	< 250	U
Acenaphthene	100,000	20,000	1300		340		< 260	U	< 270	U	450		2700		340	
Acenaphthylene	100,000	100,000	2100		180	J	200	J	< 270	U	< 250	U	950		160	J
Anthracene	100,000	100,000	5200		890		720		< 270	U	900		5600		1100	
Benz(a)anthracene	1,000	1,000	**23,000**		**3,800**		**4,600**		570		**3,300**		**10,000**		**4,400**	
Benzo(a)pyrene	1,000	1,000	**19,000**		**3,800**		**4,500**		560		**3,100**		**9,000**		**4,200**	
Benzo(b)fluoranthene	1,000	1,000	**16,000**		**3,600**		**4,500**		500		**2,900**		**7,400**		**3,800**	
Benzo(ghi)perylene	100,000	100,000	12000		2300		2900		380		1900		4900		2600	
Benzo(k)fluoranthene	3,900	800	**4,100**		**3,200**		**4,300**		460		**2,600**		**6,600**		**3,400**	
Carbazole			1300		550		< 190	U	< 190	U	370		2300		370	
Chrysene	3,900	1,000	**24,000**		**4,900**		**5,000**		700		**3,600**		**10,000**		**4,900**	
Dibenz(a,h)anthracene	330	330	**4,100**		200		**1,000**		< 190	U	**560**		**1,300**		**620**	
Dibenzofuran		7,000	990		300		< 260	U	< 270	U	330		2400		260	
Fluoranthene	100,000	100,000	43000		8300		6800		980		5200		23000		6300	
Fluorene	100,000	30,000	1300		300		< 260	U	< 270	U	330		2600		290	
Indeno(1,2,3-cd)pyrene	500	500	**12,000**		**2,500**		**3,500**		370		**2,200**		**5,800**		**2,900**	
Naphthalene	100,000	12,000	740		240	J	< 260	U	< 270	U	360		2200		220	J
Phenanthrene	100,000	100,000	24000		6800		2000		500		4600		24000		5000	
Pyrene	100,000	100,000	44000		8400		6100		1100		5100		20000		6300	

Notes:

100	This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
1500	This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg -	Milligrams per kilogram.
	For dual column analysis, the lowest quantitated concentration is being
Qual -	Laboratory data qualifier.
U -	The compound was not detected at the indicated concentration.
J -	Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS -	No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1605 BN33810 5/16/2016 2'-4' ug/kg		SB1605 BN33811 5/16/2016 10'-12' ug/kg		SB1606 BN33812 5/16/2016 2'-4' ug/kg		SB1606 BN33813 5/16/2016 7'-9' ug/kg		SB1606 BN33814 5/16/2016 10'-12' ug/kg		SB1607 BN33815 5/16/2016 2'-4' ug/kg		SB1607 BN33816 5/16/2016 10'-12' ug/kg		SB1608 BN33817 5/16/2016 1'-3' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C																		
1,1,1-Trichloroethane	100,000	680	530		< 4.0	U	66	J	0.51	J	3.1	J	2.5	J	< 3.8	U	< 260	U
1,1,2,2-Tetrachloroethane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,1,2-Trichloroethane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,1-Dichloroethane	26,000	270	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,1-Dichloroethene	100,000	330	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,2,4-Trimethylbenzene	52,000	3,600	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	140	J
1,2-Dibromo-3-chloropropane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,2-Dichlorobenzene	100,000	1,100	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,2-Dichloroethane	3,100	20	< 20	U	< 4.0	U	< 20	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 20	U
1,2-Dichloropropane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,3,5-Trimethylbenzene	52,000	8,400	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	95	J
1,3-Dichlorobenzene	49,000	2,400	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,3-Dichloropropane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
1,4-Dichlorobenzene	13,000	1,800	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
4-Methyl-2-pentanone			< 750	U	< 20	U	< 1200	U	< 16	U	< 16	U	< 23	U	< 19	U	760	J
Acetone	100,000	50	< 150	U	< 40	U	< 230	U	5.5	JS	7	JS	< 46	U	< 38	U	**360**	JS
Benzene	4,800	60	< 60	U	< 4.0	U	< 47	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 52	U
Carbon Disulfide			< 150	U	< 4.0	U	< 230	U	0.82	J	1	J	< 4.6	U	< 3.8	U	< 260	U
Carbon tetrachloride	2,400	760	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Chlorobenzene	100,000	1,100	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Chloroethane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Chloroform	49,000	370	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Chloromethane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
cis-1,2-Dichloroethene	100,000	250	250		< 4.0	U	240		0.89	J	53	J	5.7		< 3.8	U	**1,500**	
Ethylbenzene	41,000	1,000	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	0.48	J	< 3.8	U	170	J
m&p-Xylene			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	55	J	< 3.8	U	1,300	
Methyl Ethyl Ketone	100,000	120	< 120	U	< 24	U	< 120	U	< 19	U	< 19	U	< 28	U	< 23	U	< 120	U
Methyl t-butyl ether (MTBE)	100,000	930	< 300	U	< 7.9	U	< 470	U	< 6.2	U	< 6.3	U	< 9.2	U	< 7.5	U	< 520	U
Methylene chloride	100,000	50	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Naphthalene			140	J	< 4.0	U	49	J	< 3.1	U	0.83	J	< 4.6	U	< 3.8	U	< 260	U
n-Butylbenzene	100,000	12,000	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
n-Propylbenzene	100,000	3,900	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
o-Xylene			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	1.9	J	< 3.8	U	440	
sec-Butylbenzene	100,000	11,000	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
tert-Butylbenzene	100,000	5,900	< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Tetrachloroethene	19,000	1,300	**28,000**	D	53	J	**4,600**		360		810		580		4.1		**2,000**	
Tetrahydrofuran (THF)			< 300	U	< 7.9	U	< 470	U	< 6.2	U	< 6.3	U	< 9.2	U	< 7.5	U	< 520	U
Toluene	100,000	700	< 150	U	< 4.0	U	30	J	0.38	J	2	J	48	J	< 3.8	U	**1,400**	
trans-1,2-Dichloroethene	100,000	190	< 150	U	< 4.0	U	< 190	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	99	J
Trichloroethene	21,000	470	**5,100**	D	1.1	J	**490**		28	J	110	J	270		1.2	J	**24,000**	D
Trichlorofluoromethane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Trichlorotrifluoroethane			< 150	U	< 4.0	U	< 230	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 260	U
Vinyl chloride	900	20	< 20	U	< 4.0	U	< 20	U	< 3.1	U	< 3.2	U	< 4.6	U	< 3.8	U	< 20	U
1,1,1,2-Tetrachloroethane			< 600	U	< 16	U	< 930	U	< 12	U	< 13	U	< 18	U	< 15	U	< 1000	U
1,4-dioxane By SW8260C																		
1,4-dioxane	13,000	100	< 3000	U	< 79	U	< 4700	U	< 62	U	< 63	U	< 92	U	< 75	U	< 5200	U

Notes:
100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Millig
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Labor
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1608 BN33818 5/16/2016 10'-12' ug/kg		SB1609 BN33819 5/16/2016 1'-3' ug/kg		SB1609 BN33820 5/16/2016 10'-12' ug/kg		SB1610 BN33821 5/16/2016 2'-4' ug/kg		SB1610 BN33822 5/16/2016 10'-12' ug/kg		SB1611 BN33823 5/16/2016 2'-4' ug/kg		SB1611 BN33824 5/16/2016 10'-12' ug/kg		SB1612 BN33825 5/16/2016 2'-4' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C																		
1,1,1-Trichloroethane	100,000	680	< 3.8	U	80	J	< 3.3	U	< 4.1	U	< 3.2	U	0.6	J	< 3.6	U	**1,000**	
1,1,2,2-Tetrachloroethane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,1,2-Trichloroethane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,1-Dichloroethane	26,000	270	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	97	J
1,1-Dichloroethene	100,000	330	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,2,4-Trimethylbenzene	52,000	3,600	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,2-Dibromo-3-chloropropane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,2-Dichlorobenzene	100,000	1,100	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,2-Dichloroethane	3,100	20	< 3.8	U	< 20	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 20	U
1,2-Dichloropropane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,3,5-Trimethylbenzene	52,000	8,400	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,3-Dichlorobenzene	49,000	2,400	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,3-Dichloropropane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
1,4-Dichlorobenzene	13,000	1,800	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
4-Methyl-2-pentanone			< 19	U	< 1200	U	< 16	U	< 21	U	< 16	U	< 18	U	< 18	U	< 1500	U
Acetone	100,000	50	< 38	U	**450**	JS	< 33	U	7.7	JS	< 32	U	5.8	JS	< 36	U	< 300	U
Benzene	4,800	60	< 3.8	U	< 49	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 59	U
Carbon Disulfide			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Carbon tetrachloride	2,400	760	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	140	J
Chlorobenzene	100,000	1,100	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Chloroethane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Chloroform	49,000	370	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	140	J
Chloromethane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
cis-1,2-Dichloroethene	100,000	250	2	J	150	J	< 3.3	U	< 4.1	U	< 3.2	U	4.7		< 3.6	U	**4,100**	
Ethylbenzene	41,000	1,000	< 3.8	U	47	J	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
m&p-Xylene			< 3.8	U	360		< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Methyl Ethyl Ketone	100,000	120	< 23	U	< 120	U	< 20	U	< 25	U	< 19	U	< 21	U	< 21	U	< 300	U
Methyl t-butyl ether (MTBE)	100,000	930	< 7.5	U	< 490	U	< 6.5	U	< 8.2	U	< 6.3	U	< 7.1	U	< 7.1	U	< 590	U
Methylene chloride	100,000	50	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Naphthalene			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
n-Butylbenzene	100,000	12,000	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
n-Propylbenzene	100,000	3,900	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
o-Xylene			< 3.8	U	110	J	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
sec-Butylbenzene	100,000	11,000	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
tert-Butylbenzene	100,000	5,900	< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Tetrachloroethene	19,000	1,300	3.6	J	470		44	J	75	J	0.7	J	**1,500**		79	J	**65,000**	D
Tetrahydrofuran (THF)			< 7.5	U	< 490	U	< 6.5	U	< 8.2	U	< 6.3	U	< 7.1	U	< 7.1	U	< 590	U
Toluene	100,000	700	< 3.8	U	**3,200**		< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
trans-1,2-Dichloroethene	100,000	190	< 3.8	U	38	J	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	36	J
Trichloroethene	21,000	470	45	J	**6,600**		89	J	**730**		0.56	J	**3,200**		41	J	**56,000**	D
Trichlorofluoromethane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Trichlorotrifluoroethane			< 3.8	U	< 250	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 300	U
Vinyl chloride	900	20	< 3.8	U	< 20	U	< 3.3	U	< 4.1	U	< 3.2	U	< 3.6	U	< 3.6	U	< 20	U
1,1,1,2-Tetrachloroethane			< 15	U	< 980	U	< 13	U	< 16	U	< 13	U	< 14	U	< 14	U	< 1200	U
1,4-dioxane By SW8260C																		
1,4-dioxane	13,000	100	< 75	U	< 4900	U	< 65	U	< 82	U	< 63	U	< 71	U	< 71	U	< 5900	U

Notes:

100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives

200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives

mg/kg - Millig

For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

Qual - Labor

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

NS - No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1612 BN33826 5/16/2016 10'-12' ug/kg		SOIL DUPLICATE BN33827 5/16/2016 ug/kg		TRIP BLANK HIGH BN33828 5/16/2016 ug/kg		TRIP BLANK LOW BN33829 5/16/2016 ug/kg		SB 1613 BN36037 5/18/2016 2'-4' ug/kg		SB 1613 BN36038 5/18/2016 10'-12' ug/kg		SB 1602 BN36039 5/18/2016 1'-3' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C																
1,1,1-Trichloroethane	100,000	680	2.4	J	< 3.1	U	< 250	U	< 5.0	U	2.5	J	8.9		**1,700**	
1,1,2,2-Tetrachloroethane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
1,1,2-Trichloroethane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	0.88	J	< 310	U
1,1-Dichloroethane	26,000	270	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	5.5		**440**	
1,1-Dichloroethene	100,000	330	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	1.8	J	120	J
1,2,4-Trimethylbenzene	52,000	3,600	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
1,2-Dibromo-3-chloropropane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
1,2-Dichlorobenzene	100,000	1,100	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	2.4	J	< 310	U
1,2-Dichloroethane	3,100	20	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 31	U
1,2-Dichloropropane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
1,3,5-Trimethylbenzene	52,000	8,400	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	84	J
1,3-Dichlorobenzene	49,000	2,400	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
1,3-Dichloropropane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
1,4-Dichlorobenzene	13,000	1,800	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	0.5	J	< 310	U
4-Methyl-2-pentanone			< 16	U	< 15	U	< 1300	U	< 25	U	< 14	U	< 19	U	< 1500	U
Acetone	100,000	50	< 33	U	< 31	U	< 2500	U	< 50	U	3.9	JS	4.6	JS	**380**	JS
Benzene	4,800	60	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	**72**	J
Carbon Disulfide			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
Carbon tetrachloride	2,400	760	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	2.5	J	430	
Chlorobenzene	100,000	1,100	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
Chloroethane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
Chloroform	49,000	370	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	0.59	J	2.8	J	**870**	
Chloromethane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
cis-1,2-Dichloroethene	100,000	250	3.7		3.2		< 250	U	< 5.0	U	86	J	110		**13,000**	
Ethylbenzene	41,000	1,000	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
m&p-Xylene			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	81	J
Methyl Ethyl Ketone	100,000	120	< 20	U	< 18	U	< 1500	U	< 30	U	< 17	U	< 23	U	< 120	U
Methyl t-butyl ether (MTBE)	100,000	930	< 6.5	U	< 6.1	U	< 500	U	< 10	U	< 5.7	U	< 7.7	U	< 610	U
Methylene chloride	100,000	50	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
Naphthalene			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	1.3	J	< 3.9	U	< 310	U
n-Butylbenzene	100,000	12,000	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
n-Propylbenzene	100,000	3,900	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
o-Xylene			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
sec-Butylbenzene	100,000	11,000	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
tert-Butylbenzene	100,000	5,900	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
Tetrachloroethene	19,000	1,300	190	J	3.8		< 250	U	< 5.0	U	**2,200**		940		**380,000**	
Tetrahydrofuran (THF)			< 6.5	U	< 6.1	U	< 500	U	< 10	U	< 5.7	U	< 7.7	U	< 610	U
Toluene	100,000	700	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	63	J
trans-1,2-Dichloroethene	100,000	190	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	150	J
Trichloroethene	21,000	470	61	J	45	J	< 250	U	< 5.0	U	**950**		**520**		**330,000**	
Trichlorofluoromethane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
Trichlorotrifluoroethane			< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 310	U
Vinyl chloride	900	20	< 3.3	U	< 3.1	U	< 250	U	< 5.0	U	< 2.9	U	< 3.9	U	< 20	U
1,1,1,2-Tetrachloroethane			< 13	U	< 12	U	< 1000	U	< 20	U	< 11	U	< 15	U	< 1200	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	66		< 61	U	< 5000	U	< 100	U	< 57	U	< 77	U	< 6100	U

Notes:

100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Millig
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Labor
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB 1602 BN36040 5/18/2016 10'-12' ug/kg		SB 1614 BN36041 5/18/2016 1'-3' ug/kg		SB 1614 BN36042 5/18/2016 10'-12' ug/kg		SB 1603 BN36043 5/18/2016 0'-2' ug/kg		SB 1603 BN36044 5/18/2016 10'-12' ug/kg		SB 1603 BN36045 5/18/2016 13'-15' ug/kg		SB 1604 BN36046 5/18/2016 0'-2' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C																
1,1,1-Trichloroethane	100,000	680	3.7	J	< 270	U	< 3.9	U	34	J	< 3.8	U	0.37	J	54	J
1,1,2,2-Tetrachloroethane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,1,2-Trichloroethane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,1-Dichloroethane	26,000	270	2.1	J	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 220	U
1,1-Dichloroethene	100,000	330	0.57	J	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,2,4-Trimethylbenzene	52,000	3,600	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,2-Dibromo-3-chloropropane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,2-Dichlorobenzene	100,000	1,100	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,2-Dichloroethane	3,100	20	< 4.1	U	< 20	U	< 3.9	U	< 20	U	< 3.8	U	< 3.2	U	< 20	U
1,2-Dichloropropane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,3,5-Trimethylbenzene	52,000	8,400	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,3-Dichlorobenzene	49,000	2,400	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,3-Dichloropropane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
1,4-Dichlorobenzene	13,000	1,800	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
4-Methyl-2-pentanone			< 21	U	< 1300	U	< 19	U	< 1100	U	< 19	U	< 16	U	< 1400	U
Acetone	100,000	50	4.8	JS	**390**	JS	< 39	U	**230**	JS	5.8	JS	4.7	JS	< 270	U
Benzene	4,800	60	< 4.1	U	< 54	U	< 3.9	U	< 43	U	< 3.8	U	< 3.2	U	< 55	U
Carbon Disulfide			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Carbon tetrachloride	2,400	760	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Chlorobenzene	100,000	1,100	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Chloroethane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Chloroform	49,000	370	2.6	J	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Chloromethane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
cis-1,2-Dichloroethene	100,000	250	41		210	J	2.4	J	< 220	U	< 3.8	U	< 3.2	U	< 220	U
Ethylbenzene	41,000	1,000	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
m&p-Xylene			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Methyl Ethyl Ketone	100,000	120	< 25	U	< 270	U	< 23	U	< 220	U	< 23	U	< 19	U	< 270	U
Methyl t-butyl ether (MTBE)	100,000	930	< 8.2	U	< 540	U	< 7.7	U	< 430	U	< 7.6	U	< 6.4	U	< 550	U
Methylene chloride	100,000	50	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Naphthalene			< 4.1	U	610		< 3.9	U	73	J	0.83	J	< 3.2	U	< 270	U
n-Butylbenzene	100,000	12,000	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
n-Propylbenzene	100,000	3,900	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
o-Xylene			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
sec-Butylbenzene	100,000	11,000	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
tert-Butylbenzene	100,000	5,900	< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Tetrachloroethene	19,000	1,300	400		**7,700**		65	J	**5,800**		120	J	79	J	**7,400**	
Tetrahydrofuran (THF)			< 8.2	U	< 540	U	< 7.7	U	< 430	U	< 7.6	U	< 6.4	U	< 550	U
Toluene	100,000	700	< 4.1	U	< 270	U	< 3.9	U	110	J	0.98	J	< 3.2	U	< 270	U
trans-1,2-Dichloroethene	100,000	190	< 4.1	U	< 110	U	< 3.9	U	< 130	U	< 3.8	U	< 3.2	U	< 110	U
Trichloroethene	21,000	470	250		**6,200**		20		**590**		29	J	4.4		**610**	
Trichlorofluoromethane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Trichlorotrifluoroethane			< 4.1	U	< 270	U	< 3.9	U	< 220	U	< 3.8	U	< 3.2	U	< 270	U
Vinyl chloride	900	20	< 4.1	U	< 20	U	< 3.9	U	< 20	U	< 3.8	U	< 3.2	U	< 20	U
1,1,1,2-Tetrachloroethane			< 16	U	< 1100	U	< 15	U	< 860	U	< 3.8	U	< 13	U	< 1100	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	< 82	U	< 5400	U	< 77	U	< 4300	U	< 76	U	< 64	U	< 5500	U

Notes:

100	This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200	This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg -	Milligrams
	For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual -	Laboratory
U -	The compound was not detected at the indicated concentration.
J -	Data indicates the presence of a compound that meets the identification criteria.
	The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS -	No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB 1604 BN36047 5/18/2016 10'-12' ug/kg		SB 1601 BN36048 5/18/2016 3'-5' ug/kg		SB 1601 BN36049 5/18/2016 13'-15' ug/kg		HI TRIP BLANK BN36050 5/18/2016 ug/kg		LOW TRIP BLANK BN36051 5/18/2016 ug/kg		SB1615 BV53645 10/16/2016 2'-4' ug/kg		SB1616 BV53646 10/16/2016 2'-4' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C																
1,1,1-Trichloroethane	100,000	680	0.47	J	130	J	2.9	J	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,1,2,2-Tetrachloroethane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,1,2-Trichloroethane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,1-Dichloroethane	26,000	270	< 4.6	U	6.4		1.1	J	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,1-Dichloroethene	100,000	330	< 4.6	U	2.2	J	1.8	J	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,2,4-Trimethylbenzene	52,000	3,600	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,2-Dibromo-3-chloropropane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,2-Dichlorobenzene	100,000	1,100	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,2-Dichloroethane	3,100	20	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,2-Dichloropropane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,3,5-Trimethylbenzene	52,000	8,400	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,3-Dichlorobenzene	49,000	2,400	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,3-Dichloropropane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,4-Dichlorobenzene	13,000	1,800	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
4-Methyl-2-pentanone			< 23	U	< 20	U	< 16	U	< 1300	U	< 25	U	< 16	U	< 25	U
Acetone	100,000	50	< 46	U	5.4	JS	4	JS	< 2500	U	< 50	U	5.3	JS	< 25	U
Benzene	4,800	60	< 4.6	U	1.1	J	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Carbon Disulfide			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Carbon tetrachloride	2,400	760	< 4.6	U	3	J	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Chlorobenzene	100,000	1,100	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Chloroethane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Chloroform	49,000	370	< 4.6	U	39	J	1.1	J	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Chloromethane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
cis-1,2-Dichloroethene	100,000	250	< 4.6	U	**390**		10		< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Ethylbenzene	41,000	1,000	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
m&p-Xylene			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Methyl Ethyl Ketone	100,000	120	< 28	U	< 24	U	< 19	U	< 1500	U	< 30	U	< 19	U	< 30	U
Methyl t-butyl ether (MTBE)	100,000	930	< 9.2	U	< 7.9	U	< 6.2	U	< 500	U	< 10	U	< 6.2	U	< 9.9	U
Methylene chloride	100,000	50	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Naphthalene			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	460		62	J
n-Butylbenzene	100,000	12,000	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
n-Propylbenzene	100,000	3,900	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
o-Xylene			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
sec-Butylbenzene	100,000	11,000	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
tert-Butylbenzene	100,000	5,900	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Tetrachloroethene	19,000	1,300	27		**14,000**		220	J	< 250	U	< 5.0	U	0.75	J	400	
Tetrahydrofuran (THF)			< 9.2	U	< 7.9	U	< 6.2	U	< 500	U	< 10	U	< 6.2	U	< 9.9	U
Toluene	100,000	700	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
trans-1,2-Dichloroethene	100,000	190	< 4.6	U	0.87	J	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Trichloroethene	21,000	470	3.2	J	**9,700**		53		< 250	U	< 5.0	U	0.73	J	82	J
Trichlorofluoromethane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Trichlorotrifluoroethane			< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
Vinyl chloride	900	20	< 4.6	U	< 4.0	U	< 3.1	U	< 250	U	< 5.0	U	< 3.1	U	< 5.0	U
1,1,1,2-Tetrachloroethane			< 18	U	< 1100	U	< 12	U	< 1000	U	< 20	U	< 12	U	< 20	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	< 92	U	< 79	U	< 62	U	< 5000	U	< 100	U	< 47	U	< 74	U

Notes:

100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligra
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Laborat
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1617 BV53647 10/16/2016 2'-4' ug/kg		SB1619 BV53648 10/16/2016 2'-4' ug/kg		SB1620 BV53649 10/16/2016 2'-4' ug/kg	2'-4'	SB1621 BV53650 10/16/2016 2'-4' ug/kg		SB1622 BV53651 10/16/2016 2'-4' ug/kg		SB1623 BV53652 10/16/2016 2'-4' ug/kg	
			Result	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Volatiles By SW8260C														
1,1,1-Trichloroethane	100,000	680	52	J	390		1.3	J	0.81	J	150	J	1.4	J
1,1,2,2-Tetrachloroethane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,1,2-Trichloroethane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,1-Dichloroethane	26,000	270	< 260	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,1-Dichloroethene	100,000	330	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,2,4-Trimethylbenzene	52,000	3,600	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,2-Dibromo-3-chloropropane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,2-Dichlorobenzene	100,000	1,100	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,2-Dichloroethane	3,100	20	< 32	U	< 23	U	< 5.1	U	< 2.9	U	< 25	U	< 3.7	U
1,2-Dichloropropane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,3,5-Trimethylbenzene	52,000	8,400	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,3-Dichlorobenzene	49,000	2,400	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,3-Dichloropropane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
1,4-Dichlorobenzene	13,000	1,800	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
4-Methyl-2-pentanone			< 1600	U	< 1200	U	< 25	U	< 14	U	< 1300	U	< 19	U
Acetone	100,000	50	< 320	U	< 230	U	< 25	U	3.8	JS	< 250	U	< 19	U
Benzene	4,800	60	< 58	U	< 46	U	< 5.1	U	< 2.9	U	< 51	U	< 3.7	U
Carbon Disulfide			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Carbon tetrachloride	2,400	760	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Chlorobenzene	100,000	1,100	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Chloroethane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Chloroform	49,000	370	< 320	U	< 230	U	< 5.1	U	< 2.9	U	140	J	0.47	J
Chloromethane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
cis-1,2-Dichloroethene	100,000	250	69	J	< 230	U	< 5.1	U	0.6	J	57	J	3.9	
Ethylbenzene	41,000	1,000	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
m&p-Xylene			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Methyl Ethyl Ketone	100,000	120	< 320	U	< 230	U	< 30	U	< 17	U	< 250	U	< 22	U
Methyl t-butyl ether (MTBE)	100,000	930	< 640	U	< 460	U	< 10	U	< 5.7	U	< 510	U	< 7.4	U
Methylene chloride	100,000	50	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Naphthalene			410		560		< 5.1	U	230		< 250	U	680	
n-Butylbenzene	100,000	12,000	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
n-Propylbenzene	100,000	3,900	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
o-Xylene			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
sec-Butylbenzene	100,000	11,000	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
tert-Butylbenzene	100,000	5,900	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Tetrachloroethene	19,000	1,300	**8,400**		**2,900**		110	J	580		**2,400**		1,000	
Tetrahydrofuran (THF)			< 640	U	< 460	U	< 10	U	< 5.7	U	< 510	U	< 7.4	U
Toluene	100,000	700	< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
trans-1,2-Dichloroethene	100,000	190	< 160	U	< 190	U	< 5.1	U	< 2.9	U	< 150	U	0.47	J
Trichloroethene	21,000	470	**5,900**		**640**		41	J	410		**7,200**		**1,500**	
Trichlorofluoromethane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	1.5	J
Trichlorotrifluoroethane			< 320	U	< 230	U	< 5.1	U	< 2.9	U	< 250	U	< 3.7	U
Vinyl chloride	900	20	< 32	U	< 23	U	< 5.1	U	< 2.9	U	< 25	U	< 3.7	U
1,1,1,2-Tetrachloroethane			< 1300	U	< 930	U	< 20	U	< 11	U	< 1000	U	< 15	U
1,4-dioxane By SW8260C														
1,4-dioxane	13,000	100	< 4800	U	< 3500	U	< 76	U	< 43	U	< 3800	U	< 56	U

Notes:

100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligra
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Laborator
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID / Lab Sample Number / Sampling Date / Sampling Depth / Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1624 BV53653 10/16/2016 2'-4' ug/kg		SB1624 BV53654 10/16/2016 10'-12' ug/kg		SB1625 BV53655 10/16/2016 2'-4' ug/kg		SB1625 BV53656 10/16/2016 10'-12' ug/kg		SB1626 BV53657 10/16/2016 2'-4' ug/kg		SB1626 BV53658 10/16/2016 10'-12' ug/kg		SB1627 BV53659 10/16/2016 2'-4' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C																
1,1,1-Trichloroethane	100,000	680	94	J	38		< 210	U	53		62	J	17		< 3.4	U
1,1,2,2-Tetrachloroethane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
1,1,2-Trichloroethane			< 260	U	2.3	J	< 210	U	0.86	J	< 230	U	< 3.4	U	< 3.4	U
1,1-Dichloroethane	26,000	270	< 260	U	2.1	J	< 210	U	7		< 230	U	< 3.4	U	< 3.4	U
1,1-Dichloroethene	100,000	330	< 260	U	0.72	J	< 210	U	1.7	J	< 230	U	0.79	J	< 3.4	U
1,2,4-Trimethylbenzene	52,000	3,600	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
1,2-Dibromo-3-chloropropane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
1,2-Dichlorobenzene	100,000	1,100	< 260	U	< 3.7	U	28	J	38		170	JD	< 3.4	U	< 3.4	U
1,2-Dichloroethane	3,100	20	< 26	U	< 3.7	U	< 21	U	< 3.4	U	< 23	U	< 3.4	U	< 3.4	U
1,2-Dichloropropane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
1,3,5-Trimethylbenzene	52,000	8,400	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
1,3-Dichlorobenzene	49,000	2,400	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
1,3-Dichloropropane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
1,4-Dichlorobenzene	13,000	1,800	< 260	U	< 3.7	U	< 210	U	12		< 230	U	< 3.4	U	< 3.4	U
4-Methyl-2-pentanone			< 1300	U	< 19	U	< 1100	U	< 17	U	< 1200	U	< 17	U	< 17	U
Acetone	100,000	50	< 260	U	< 19	U	< 210	U	< 17	U	< 230	U	< 17	U	< 17	U
Benzene	4,800	60	< 53	U	< 3.7	U	< 43	U	< 3.4	U	< 47	U	< 3.4	U	< 3.4	U
Carbon Disulfide			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
Carbon tetrachloride	2,400	760	< 260	U	10		< 210	U	6.5		< 230	U	< 3.4	U	< 3.4	U
Chlorobenzene	100,000	1,100	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
Chloroethane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
Chloroform	49,000	370	< 260	U	1.6	J	< 210	U	1.2	J	< 230	U	< 3.4	U	< 3.4	U
Chloromethane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
cis-1,2-Dichloroethene	100,000	250	**980**		76		170	J	150		**390**		4		0.44	J
Ethylbenzene	41,000	1,000	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
m&p-Xylene			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
Methyl Ethyl Ketone	100,000	120	< 260	U	< 22	U	< 210	U	< 20	U	< 230	U	< 20	U	< 20	U
Methyl t-butyl ether (MTBE)	100,000	930	< 530	U	< 7.4	U	< 430	U	< 6.7	U	< 470	U	< 6.8	U	< 6.7	U
Methylene chloride	100,000	50	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
Naphthalene			56	J	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
n-Butylbenzene	100,000	12,000	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
n-Propylbenzene	100,000	3,900	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
o-Xylene			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
sec-Butylbenzene	100,000	11,000	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
tert-Butylbenzene	100,000	5,900	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
Tetrachloroethene	19,000	1,300	**47,000**	D	**3,400**		**5,000**		**3,100**		**8,100**	D	220		7	
Tetrahydrofuran (THF)			< 530	U	< 7.4	U	< 430	U	< 6.7	U	< 470	U	< 6.8	U	< 6.7	U
Toluene	100,000	700	< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
trans-1,2-Dichloroethene	100,000	190	< 160	U	< 3.7	U	< 170	U	0.59	J	< 190	U	< 3.4	U	< 3.4	U
Trichloroethene	21,000	470	**21,000**	D	**2,200**		**1,300**		**1,200**		**14,000**	D	24		8.7	
Trichlorofluoromethane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	< 3.4	U	< 3.4	U
Trichlorotrifluoroethane			< 260	U	< 3.7	U	< 210	U	< 3.4	U	< 230	U	0.48	J	< 3.4	U
Vinyl chloride	900	20	< 26	U	< 3.7	U	< 21	U	< 3.4	U	< 23	U	< 3.4	U	< 3.4	U
1,1,1,2-Tetrachloroethane			< 1100	U	2	J	< 860	U	1.3	J	< 930	U	< 14	U	< 13	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	< 4000	U	< 56	U	< 3200	U	< 50	U	< 3500	U	< 51	U	< 50	U

Notes:

100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milli
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Labo
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1627 BV53660 10/16/2016 10'-12' ug/kg		SOIL DUPLICATE BV53661 10/16/2016 SOIL DUPLICATE ug/kg		TRIP BLANK HIGH BV53662 10/16/2016 ug/kg		TRIP BLANK LOW BV53663 10/16/2016 ug/kg		TSP2 BV68035 10/26/2016 2'-4' ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C												
1,1,1-Trichloroethane	100,000	680	1.1	J	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,1,2,2-Tetrachloroethane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,1,2-Trichloroethane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,1-Dichloroethane	26,000	270	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,1-Dichloroethene	100,000	330	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,2,4-Trimethylbenzene	52,000	3,600	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,2-Dibromo-3-chloropropane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,2-Dichlorobenzene	100,000	1,100	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,2-Dichloroethane	3,100	20	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,2-Dichloropropane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,3,5-Trimethylbenzene	52,000	8,400	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,3-Dichlorobenzene	49,000	2,400	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,3-Dichloropropane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,4-Dichlorobenzene	13,000	1,800	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
4-Methyl-2-pentanone			< 15	U	< 17	U	< 1300	U	< 25	U	< 20	U
Acetone	100,000	50	< 15	U	< 17	U	< 1300	U	< 25	U	14	JS
Benzene	4,800	60	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Carbon Disulfide			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Carbon tetrachloride	2,400	760	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Chlorobenzene	100,000	1,100	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Chloroethane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Chloroform	49,000	370	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Chloromethane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
cis-1,2-Dichloroethene	100,000	250	1.4	J	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Ethylbenzene	41,000	1,000	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
m&p-Xylene			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Methyl Ethyl Ketone	100,000	120	< 18	U	< 20	U	< 1500	U	< 30	U	< 24	U
Methyl t-butyl ether (MTBE)	100,000	930	< 6.1	U	< 6.8	U	< 500	U	< 10	U	< 8.0	U
Methylene chloride	100,000	50	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Naphthalene			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
n-Butylbenzene	100,000	12,000	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
n-Propylbenzene	100,000	3,900	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
o-Xylene			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
sec-Butylbenzene	100,000	11,000	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
tert-Butylbenzene	100,000	5,900	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Tetrachloroethene	19,000	1,300	11		490		< 250	U	< 5.0	U	2.8	J
Tetrahydrofuran (THF)			< 6.1	U	< 6.8	U	< 500	U	< 10	U	< 8.0	U
Toluene	100,000	700	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
trans-1,2-Dichloroethene	100,000	190	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Trichloroethene	21,000	470	13		130	J	< 250	U	< 5.0	U	0.42	J
Trichlorofluoromethane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Trichlorotrifluoroethane			< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
Vinyl chloride	900	20	< 3.1	U	< 3.4	U	< 250	U	< 5.0	U	< 4.0	U
1,1,1,2-Tetrachloroethane			< 12	U	< 14	U	< 1000	U	< 20	U	< 16	U
1,4-dioxane By SW8260C												
1,4-dioxane	13,000	100	< 46	U	< 51	U	< 3800	U	< 75	U	< 60	U

Notes:
100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligrams
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Laboratory
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	TSP3 BV68036 10/26/2016 2'-4' ug/kg		TSP4 BV68037 10/26/2016 2'-4' ug/kg		TSP5 BV68038 10/26/2016 2'-4' ug/kg		TSP6 BV68039 10/26/2016 2'-4' ug/kg		TSP2 BV68040 10/26/2016 10'-12' ug/kg		TSP3 BV68041 10/26/2016 10'-12' ug/kg		TSP4 BV68042 10/26/2016 10'-12' ug/kg		TSP5 BV68043 10/26/2016 10'-12' ug/kg	
			Result	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Volatiles By SW8260C																		
1,1,1-Trichloroethane	100,000	680	< 4.1	U	4.2		< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	240	J	< 3.7	U
1,1,2,2-Tetrachloroethane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,1,2-Trichloroethane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,1-Dichloroethane	26,000	270	< 4.1	U	0.67	J	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	43		< 3.7	U
1,1-Dichloroethene	100,000	330	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	9.6		< 3.7	U
1,2,4-Trimethylbenzene	52,000	3,600	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,2-Dibromo-3-chloropropane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,2-Dichlorobenzene	100,000	1,100	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,2-Dichloroethane	3,100	20	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,2-Dichloropropane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,3,5-Trimethylbenzene	52,000	8,400	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,3-Dichlorobenzene	49,000	2,400	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,3-Dichloropropane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,4-Dichlorobenzene	13,000	1,800	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
4-Methyl-2-pentanone			< 21	U	< 17	U	< 18	U	< 19	U	< 19	U	< 21	U	< 17	U	< 19	U
Acetone	100,000	50	16	JS	8.8	JS	9.5	JS	7.3	JS	8.4	JS	< 21	U	6.4	JS	15	JS
Benzene	4,800	60	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Carbon Disulfide			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	1.8	J
Carbon tetrachloride	2,400	760	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Chlorobenzene	100,000	1,100	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Chloroethane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Chloroform	49,000	370	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	2.3	J	< 3.5	U	< 3.7	U
Chloromethane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
cis-1,2-Dichloroethene	100,000	250	< 4.1	U	19		< 3.7	U	< 3.8	U	0.74	J	0.8	J	**910**		< 3.7	U
Ethylbenzene	41,000	1,000	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
m&p-Xylene			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Methyl Ethyl Ketone	100,000	120	< 25	U	< 20	U	< 22	U	< 23	U	< 23	U	< 25	U	< 21	U	< 22	U
Methyl t-butyl ether (MTBE)	100,000	930	< 8.2	U	< 6.7	U	< 7.3	U	< 7.5	U	< 7.5	U	< 8.2	U	< 6.9	U	< 7.4	U
Methylene chloride	100,000	50	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Naphthalene			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
n-Butylbenzene	100,000	12,000	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
n-Propylbenzene	100,000	3,900	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
o-Xylene			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
sec-Butylbenzene	100,000	11,000	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
tert-Butylbenzene	100,000	5,900	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Tetrachloroethene	19,000	1,300	3.5	J	52		< 3.7	U	< 3.8	U	4.9		8.3		30		1.2	J
Tetrahydrofuran (THF)			< 8.2	U	< 6.7	U	< 7.3	U	< 7.5	U	< 7.5	U	< 8.2	U	< 6.9	U	< 7.4	U
Toluene	100,000	700	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
trans-1,2-Dichloroethene	100,000	190	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	5.8		< 3.7	U
Trichloroethene	21,000	470	1.2	J	6.8		0.58	J	< 3.8	U	0.73	J	2.1	J	14		0.88	J
Trichlorofluoromethane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Trichlorotrifluoroethane			< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
Vinyl chloride	900	20	< 4.1	U	< 3.4	U	< 3.7	U	< 3.8	U	< 3.8	U	< 4.1	U	< 3.5	U	< 3.7	U
1,1,1,2-Tetrachloroethane			< 16	U	< 13	U	< 15	U	< 15	U	< 15	U	< 16	U	< 14	U	< 15	U
1,4-dioxane By SW8260C																		
1,4-dioxane	13,000	100	< 62	U	< 50	U	< 55	U	< 56	U	< 56	U	< 62	U	< 52	U	< 56	U

Notes:
100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligra
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Laborato
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	TSP6		TRIP BLANK HIGH		TRIP BLANK LOW		SOIL DUPLICATE		TSP4		SB1618	
Lab Sample Number			BV68044		BV68045		BV68046		BV68047		BV68048		BV79816	
Sampling Date			10/26/2016		10/26/2016		10/26/2016		10/26/2016		10/26/2016		11/8/2016	
Sampling Depth			10'-12'								14'-16'		2'-4'	
Units			ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C														
1,1,1-Trichloroethane	100,000	680	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	13		< 300	U
1,1,2,2-Tetrachloroethane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,1,2-Trichloroethane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,1-Dichloroethane	26,000	270	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	11		< 270	U
1,1-Dichloroethene	100,000	330	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,2,4-Trimethylbenzene	52,000	3,600	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	0.79	J	< 300	U
1,2-Dibromo-3-chloropropane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,2-Dichlorobenzene	100,000	1,100	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,2-Dichloroethane	3,100	20	< 4.3	U	< 25	U	< 5.0	U	< 3.4	U	< 4.0	U	< 30	U
1,2-Dichloropropane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,3,5-Trimethylbenzene	52,000	8,400	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,3-Dichlorobenzene	49,000	2,400	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,3-Dichloropropane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
1,4-Dichlorobenzene	13,000	1,800	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
4-Methyl-2-pentanone			< 21	U	< 1300	U	< 25	U	< 17	U	< 20	U	< 1500	U
Acetone	100,000	50	6.7	JS	< 250	U	10	JS	9.9	JS	24	S	< 300	U
Benzene	4,800	60	< 4.3	U	< 60	U	< 5.0	U	< 3.4	U	< 4.0	U	< 60	U
Carbon Disulfide			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	15		< 300	U
Carbon tetrachloride	2,400	760	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Chlorobenzene	100,000	1,100	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Chloroethane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Chloroform	49,000	370	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Chloromethane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
cis-1,2-Dichloroethene	100,000	250	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	250		**1,800**	
Ethylbenzene	41,000	1,000	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	3.4	J	< 300	U
m&p-Xylene			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	14		< 300	U
Methyl Ethyl Ketone	100,000	120	< 26	U	< 250	U	< 30	U	< 20	U	6.1	J	< 300	U
Methyl t-butyl ether (MTBE)	100,000	930	< 8.5	U	< 500	U	< 10	U	< 6.7	U	< 7.9	U	< 600	U
Methylene chloride	100,000	50	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Naphthalene			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
n-Butylbenzene	100,000	12,000	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
n-Propylbenzene	100,000	3,900	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
o-Xylene			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	5.4		< 300	U
sec-Butylbenzene	100,000	11,000	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
tert-Butylbenzene	100,000	5,900	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Tetrachloroethene	19,000	1,300	< 4.3	U	< 250	U	< 5.0	U	3.1	J	< 4.0	U	**28,000**	
Tetrahydrofuran (THF)			< 8.5	U	< 500	U	< 10	U	< 6.7	U	< 7.9	U	< 600	U
Toluene	100,000	700	< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	5.1		< 300	U
trans-1,2-Dichloroethene	100,000	190	< 4.3	U	< 190	U	< 5.0	U	< 3.4	U	< 4.0	U	< 190	U
Trichloroethene	21,000	470	0.5	J	< 250	U	< 5.0	U	0.6	J	< 4.0	U	**2,900**	
Trichlorofluoromethane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Trichlorotrifluoroethane			< 4.3	U	< 250	U	< 5.0	U	< 3.4	U	< 4.0	U	< 300	U
Vinyl chloride	900	20	< 4.3	U	< 25	U	< 5.0	U	< 3.4	U	0.69	J	< 30	U
1,1,1,2-Tetrachloroethane			< 17	U	< 1000	U	< 20	U	< 13	U	< 16	U	< 1200	U
1,4-dioxane By SW8260C														
1,4-dioxane	13,000	100	< 64	U	< 2000	U	< 75	U	< 50	U	< 59	U	< 2400	U

Notes:
100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
mg/kg - Milligram
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Laborator
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2C - Supplemental Soil Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	SB1618 BV79817 11/8/2016 7'-9' ug/kg		SB1628 BV79818 11/8/2016 2.5'-5' ug/kg		SB1629 BV79819 11/8/2016 2'-4' ug/kg		SB1629 BV79820 11/8/2016 10'-12' ug/kg		SOIL DUPLICATE BV79821 11/8/2016 ug/kg		TRIP BLANK HL BV79822 11/8/2016 ug/kg		TRIP BLANK LL BV79823 11/8/2016 ug/kg	
			Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles By SW8260C																
1,1,1-Trichloroethane	100,000	680	< 3.6	U	1.7	J	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,1,2,2-Tetrachloroethane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,1,2-Trichloroethane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,1-Dichloroethane	26,000	270	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 270	U	< 250	U	< 5.0	U
1,1-Dichloroethene	100,000	330	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,2,4-Trimethylbenzene	52,000	3,600	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,2-Dibromo-3-chloropropane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,2-Dichlorobenzene	100,000	1,100	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,2-Dichloroethane	3,100	20	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 31	U	< 25	U	< 5.0	U
1,2-Dichloropropane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,3,5-Trimethylbenzene	52,000	8,400	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,3-Dichlorobenzene	49,000	2,400	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,3-Dichloropropane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
1,4-Dichlorobenzene	13,000	1,800	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
4-Methyl-2-pentanone			< 18	U	< 24	U	< 23	U	< 20	U	< 1500	U	< 1300	U	< 25	U
Acetone	100,000	50	< 18	U	< 24	U	< 23	U	7.2	JS	< 310	U	< 250	U	6.2	JS
Benzene	4,800	60	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 60	U	< 60	U	< 5.0	U
Carbon Disulfide			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Carbon tetrachloride	2,400	760	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Chlorobenzene	100,000	1,100	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Chloroethane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Chloroform	49,000	370	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Chloromethane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
cis-1,2-Dichloroethene	100,000	250	1.6	J	< 4.9	U	< 4.6	U	< 4.0	U	**1,900**		< 250	U	< 5.0	U
Ethylbenzene	41,000	1,000	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
m&p-Xylene			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Methyl Ethyl Ketone	100,000	120	< 21	U	< 29	U	< 27	U	< 24	U	< 310	U	< 250	U	< 30	U
Methyl t-butyl ether (MTBE)	100,000	930	< 7.1	U	< 9.7	U	< 9.1	U	< 7.9	U	< 610	U	< 500	U	< 10	U
Methylene chloride	100,000	50	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Naphthalene			0.97	J	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
n-Butylbenzene	100,000	12,000	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
n-Propylbenzene	100,000	3,900	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
o-Xylene			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
sec-Butylbenzene	100,000	11,000	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
tert-Butylbenzene	100,000	5,900	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Tetrachloroethene	19,000	1,300	14		710		1.6	J	< 4.0	U	**25,000**		< 250	U	< 5.0	U
Tetrahydrofuran (THF)			< 7.1	U	< 9.7	U	< 9.1	U	< 7.9	U	< 610	U	< 500	U	< 10	U
Toluene	100,000	700	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
trans-1,2-Dichloroethene	100,000	190	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	35	J	< 190	U	< 5.0	U
Trichloroethene	21,000	470	2	J	0.51	J	16		2	J	**2,900**		< 250	U	< 5.0	U
Trichlorofluoromethane			< 3.6	U	< 4.9	U	3.2	J	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Trichlorotrifluoroethane			< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 310	U	< 250	U	< 5.0	U
Vinyl chloride	900	20	< 3.6	U	< 4.9	U	< 4.6	U	< 4.0	U	< 31	U	< 25	U	< 5.0	U
1,1,1,2-Tetrachloroethane			< 14	U	< 19	U	< 18	U	< 16	U	< 1200	U	< 1000	U	< 20	U
1,4-dioxane By SW8260C																
1,4-dioxane	13,000	100	< 53	U	< 73	U	< 68	U	< 59	U	< 2400	U	< 2000	U	< 75	U

Notes:
100 This value exceeds NYS Unrestricted Use Soil Cleanup Objectives
200 This value exceeds NYS Restricted Residential Use Soil Cleanup Objectives
ng/kg - Millig
For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
Qual - Labor
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
NS - No Standard

Table 2D - Supplemental Soil Sample Exceedances (2017)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID Lab Sample Number Sampling Date Sampling Depth Units	NYS Part 375 Restricted-Residential SCOs	NYS Part 375 Unrestricted Use SCOs	MWC-2 (3-4) L1706008-01 2/22/2017 3'-4' mg/kg Results	Qual	MWC-2 (11-12) L1706008-02 2/22/2017 11'-12' mg/kg Results	Qual	MWC-2 (18-19) L1706008-03 2/22/2017 18'-19' mg/kg Results	Qual	MWC-1 (20-21) L1706008-04 2/27/2017 mg/kg Results	Qual
General Chemistry										
Solids, Total			-	-	-	-	-	-	97.6	
Total Metals										
Aluminum, Total			-	-	-	-	-	-	4400	
Antimony, Total			-	-	-	-	-	-	4	U
Arsenic, Total	16	13	-	-	-	-	-	-	1	
Barium, Total	400	350	-	-	-	-	-	-	31	
Beryllium, Total	72	7.2	-	-	-	-	-	-	0.26	J
Cadmium, Total	4.3	2.5	-	-	-	-	-	-	0.8	U
Calcium, Total			-	-	-	-	-	-	830	
Chromium, Total			-	-	-	-	-	-	10	
Cobalt, Total			-	-	-	-	-	-	3.5	
Copper, Total	270	50	-	-	-	-	-	-	12	
Iron, Total			-	-	-	-	-	-	**51**	
Lead, Total	400	63	-	-	-	-	-	-	7.3	
Magnesium, Total			-	-	-	-	-	-	1500	
Manganese, Total	2000	1600	-	-	-	-	-	-	190	
Mercury, Total	0.81	0.18	-	-	-	-	-	-	0.03	J
Nickel, Total	310	30	-	-	-	-	-	-	8.6	
Potassium, Total			-	-	-	-	-	-	1000	
Selenium, Total	180	3.9	-	-	-	-	-	-	1.6	U
Silver, Total	180	2	-	-	-	-	-	-	0.8	U
Sodium, Total			-	-	-	-	-	-	150	J
Thallium, Total			-	-	-	-	-	-	1.6	U
Vanadium, Total			-	-	-	-	-	-	13	
Zinc, Total	10000	109	-	-	-	-	-	-	22	
Volatile Organics by 8260/5035										
Methylene chloride	100	0.05	52	U	66	U	53	U	-	-
1,1-Dichloroethane	26	0.27	7.8	U	9.9	U	8	U	-	-
Chloroform	49	0.37	7.8	U	9.9	U	8	U	-	-
Carbon tetrachloride	2.4	0.76	5.2	U	6.6	U	5.3	U	-	-
1,1,2-Trichloroethane			7.8	U	9.9	U	8	U	-	-
Tetrachloroethene	19	1.3	**400**		**900**		**370**		-	-
Chlorobenzene	100	1.1	5.2	U	6.6	U	5.3	U	-	-
1,2-Dichloroethane	3.1	0.02	5.2	U	6.6	U	5.3	U	-	-
1,1,1-Trichloroethane	100	0.68	4.2	J	9.7		4.2	J	-	-
1,1,2,2-Tetrachloroethane			5.2	U	6.6	U	5.3	U	-	-
Benzene	4.8	0.06	5.2	U	6.6	U	5.3	U	-	-
Toluene	100	0.7	7.8	U	9.9	U	8	U	-	-
Ethylbenzene	41	1	5.2	U	6.6	U	5.3	U	-	-
Vinyl chloride	0.9	0.02	10	U	13	U	11	U	-	-
Chloroethane			10	U	13	U	11	U	-	-
1,1-Dichloroethene	100	0.33	5.2	U	6.6	U	5.3	U	-	-
trans-1,2-Dichloroethene	100	0.19	7.8	U	9.9	U	8	U	-	-
Trichloroethene	21	0.47	20		**51**		17		-	-
1,2-Dichlorobenzene	100	1.1	26	U	33	U	26	U	-	-
1,3-Dichlorobenzene	49	2.4	26	U	33	U	26	U	-	-
1,4-Dichlorobenzene	13	1.8	26	U	33	U	26	U	-	-
Methyl tert butyl ether	100	0.93	10	U	13	U	11	U	-	-
p/m-Xylene			10	U	13	U	11	U	-	-
o-Xylene			10	U	13	U	11	U	-	-
Xylenes, Total	100	0.26	10	U	13	U	11	U	-	-
cis-1,2-Dichloroethene	100	0.25	5.2	U	6.6	U	5.3	U	-	-
1,2-Dichloroethene, Total			5.2	U	6.6	U	5.3	U	-	-
Dichlorodifluoromethane			52	U	66	U	53	U	-	-
Acetone	100	0.05	18	J	24	J	17	J	-	-
Carbon disulfide			52	U	66	U	53	U	-	-
2-Butanone	100	0.12	52	U	66	U	53	U	-	-
1,1,1,2-Tetrachloroethane			5.2	U	6.6	U	5.3	U	-	-
tert-Butylbenzene	100	5.9	26	U	33	U	26	U	-	-
Naphthalene	100	12	4.4	J	33	U	4.4	J	-	-
Acrylonitrile			52	U	66	U	53	U	-	-
n-Propylbenzene	100	3.9	5.2	U	6.6	U	5.3	U	-	-
1,2,3-Trichlorobenzene			26	U	33	U	26	U	-	-
1,2,4-Trichlorobenzene			26	U	33	U	26	U	-	-
1,3,5-Trimethylbenzene	52	8.4	26	U	33	U	26	U	-	-
1,2,4-Trimethylbenzene	52	3.6	26	U	33	U	26	U	-	-
1,4-Dioxane	13	0.1	210	U	260	U	210	U	-	-

Notes:

100 This value exceeds NYS Unrestricted Use Soil Cleanup
200 This value exceeds NYS Restricted Residential Use Soil Cleanup
mg/kg - Milligrams per kilogram.
For dual column analysis, the lowest quantitated
Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is
NS - No Standard

Table 3A - Groundwater Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID	NYSDEC AWQS	MW1601		MW1602		MW1603		MW1604		MW1605		MW1606		MW1607		MW1608		GW DUPLICATE		TRIP BLANK	
Lab Sample Number		BN34850		BN34851		BN34852		BN34853		BN34854		BN34855		BN34856		BN34857		BN34858		BN34859	
Sampling Date		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016	
Units		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l	
		Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs (µg/L)																					
1,1,1-Trichloroethane	5	1.1	J	1.1	J	100		2.9	J	15		0.26	J	79	J	10	J	80		< 5.0	U
1,1-Dichloroethane	5	0.94	J	0.46	J	5.6		< 5.0	U	0.86	J	< 5.0	U	3.7	J	2.3	J	3.7	J	< 5.0	U
1,1-Dichloroethene	5	0.88	J	0.75	J	17		0.38	J	5.9		< 1.0	U	14		1.3		14		< 1.0	U
cis-1,2-Dichloroethene	5	53		12		140		2.7		9.7		7.1		59		43		60		< 1.0	U
Tetrachloroethene	5	29		80		2900		140		590		36		2600		81		2700		< 1.0	U
Trichloroethene	5	38		14		99		13		45		26		99		26		100		< 1.0	U
Vinyl chloride	2	4.3		< 1.0	U	24		< 1.0	U	< 1.0	U	< 1.0	U	7.1		< 1.0	U	7		< 1.0	U
SVOCs(µg/L)																					
Benz(a)anthracene	0.002	0.14		0.31		< 0.02	U	< 0.02	U	0.13		< 0.02	U	< 0.02	U	< 0.02	U	< 0.02	U		
Benzo(a)pyrene		0.11		0.23		< 0.02	U	< 0.02	U	0.07		< 0.02	U	< 0.02	U	< 0.02	U	< 0.02	U		
Benzo(b)fluoranthene	0.002	0.11		0.28		< 0.02	U	< 0.02	U	0.09		< 0.02	U	< 0.02	U	< 0.02	U	< 0.02	U		
Benzo(ghi)perylene		0.07		0.16		< 0.02	U	< 0.02	U	0.03		< 0.02	U	< 0.02	U	< 0.02	U	< 0.02	U		
Benzo(k)fluoranthene	0.002	0.1		0.27		< 0.02	U	< 0.02	U	0.08		< 0.02	U	< 0.02	U	< 0.02	U	< 0.02	U		
Bis(2-ethylhexyl)phthalate	5	< 1.0	U	< 1.0	U	< 1.0	U	< 1.0	U	< 1.0	U	< 1.0	U	< 1.0	U	< 1.0	U	< 1.0	U		
Chrysene	0.002	0.15		0.34		< 0.02	U	< 0.02	U	0.13		< 0.02	U	< 0.02	U	< 0.02	U	< 0.02	U		
Indeno(1,2,3-cd)pyrene	0.002	0.06		0.13		< 0.02	U	< 0.02	U	0.03		< 0.02	U	< 0.02	U	< 0.02	U	< 0.02	U		
Total Metals (mg/L)																					
Aluminum	0.1	5.41		40.8		3.31		2.84		31.4		1.26		0.305		0.695		0.309			
Chromium	0.05	0.013		0.093		0.005		0.006		0.062		0.002		0.002		0.004		< 0.001	U		
Iron	0.3	8.92		90		5.34		3.46		49.2		1.7		0.97		1.01		0.59			
Lead	0.025	0.025		0.201		0.003		0.001	B	0.027		< 0.002	U	0.003		< 0.002	U	< 0.002	U		
Manganese	0.3	4.07		5.01		9.95		1.44		2.62		0.459		2.78		0.155		3.06			
Nickel	0.1	0.01		0.106		0.009		0.009		0.1		0.005		0.007		0.002	B	0.007			
Sodium	20	14.3		131		120		113		150		99.4		100		63.1		106			
Dissolved Metals (mg/L)																					
Aluminum	0.1	0.042		< 0.011	U	0.39		1.04		< 0.011	U	0.132		0.5		0.071		< 0.011	U		
Iron,	0.3	0.02		0.02		0.43		0.01		0.01		< 0.01	U	0.02		< 0.01	U	< 0.01	U		
Manganese,	0.3	3.4		2.99		10.4		1.19		0.93		0.364		2.99		0.114		3.14			
Sodium	20	14.2		133		109		104		149		104		99.3		63.4		97			

Notes:

0.418 This value exceeds NYDEC Ambient Ground Water Standards.
µg/l - micrograms per liter
NYSDEC AWQS - New York State Department of Environmental Conservation Ambient Water Quality Standards

Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
D - The reported concentration is the result of a diluted analysis.

Sample ID		**MW 1609**		**MW 1610**		**TSP 1**		**TRIP BLANK**	
Lab Sample Number	**NYSDEC AWQS**	**BN36052**		**BN36053**		**BN36054**		**BN36055**	
Sampling Date		**5/18/2016**		**5/18/2016**		**5/18/2016**		**5/18/2016**	
Units		**µg/l**		**µg/l**		**µg/l**		**µg/l**	
		Result	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
VOCs (µg/L)									
1,1,1-Trichloroethane	5	3.5	J	35	D	1.4	J	< 5.0	U
cis-1,2-Dichloroethene	5	12		61	D	110	D	< 1.0	U
Tetrachloroethene	5	57	D	300	D	70	D	< 1.0	U
Trichloroethene	5	28		28		9		< 1.0	U
Vinyl chloride	2	< 1.0	U	4.9		4.1		< 1.0	U

Notes:

5 This value exceeds NYDEC Ambient Ground Water Standards.

µg/l - micrograms per liter

NYSDEC AWQS - New York State Department of Environmental Conservation Ambient Water Quality Standards

Qual - Laboratory data qualifier.

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

D - The reported concentration is the result of a diluted analysis.

NS - No Standard

Table 3A - Groundwater Sample Exceedances (2016) (Continued)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID		TSP2 GW		TSP3 GW		TSP4 GW		TSP5 GW		TRIP BLANK		GW DUPLICATE		TSP6-GW		TSP7-GW		TSP8-GW		TSP9-GW		GW DUPLICATE		TRIP BLANK	
Lab Sample Number	NYSDEC AWQS	BV68049		BV68050		BV68051		BV68052		BV68053		BV68054		BV79810		BV79811		BV79812		BV79813		BV79814		BV79815	
Sampling Date		10/26/2016		10/26/2016		10/26/2016		10/26/2016		10/26/2016		10/26/2016		11/8/2016		11/8/2016		11/8/2016		11/8/2016		11/8/2016		11/8/2016	
Units		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l	
		Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs (µg/L)																									
1,1,1-Trichloroethane	5	6		1.4	J	850		17		< 5.0	U	8		0.75	J	86,000	D	< 5.0	U	< 5.0	U	< 5.0	U	< 5.0	U
1,1-Dichloroethane	5	1.5	J	0.34	J	1,600		57		< 5.0	U	1.8	J	< 5.0	U	2,300		< 5.0	U	< 5.0	U	< 5.0	U	< 5.0	U
1,1-Dichloroethene	5	< 1.0	U	< 1.0	U	120		12		< 1.0	U	< 1.0	U	< 1.0	U	4,200		< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
1,2,4-Trimethylbenzene	5	< 1.0	U	< 1.0	U	130		7		< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
1,2-Dichlorobenzene		< 1.0	U	< 1.0	U	190		4.1	J	< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
1,2-Dichloroethane	0.6	< 0.60	U	< 0.60	U	8		< 5.0	U	< 0.60	U	< 0.60	U	< 0.60	U	< 200	U	< 0.60	U	< 1.0	U	< 1.0	U	< 0.60	U
1,3,5-Trimethylbenzene	5	< 1.0	U	< 1.0	U	34		< 5.0	U	< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
1,4-Dichlorobenzene		< 1.0	U	< 1.0	U	32		< 5.0	U	< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
Benzene	1	< 0.70	U	< 0.70	U	3		< 2.5	U	< 0.70	U	< 0.70	U	< 0.70	U	< 100	U	< 0.70	U	< 0.70	U	< 0.70	U	< 0.70	U
Carbon Disulfide		< 1.0	U	< 1.0	U	< 10	U	< 10	U	< 1.0	U	< 1.0	U	< 1.0	U	110		< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
Chloroethane	5	< 5.0	U	< 5.0	U	13		< 5.0	U	< 5.0	U	< 5.0	U	< 5.0	U	< 100	U	< 5.0	U	< 5.0	U	< 5.0	U	< 5.0	U
Chloroform	7	1.6	J	25		< 7.0	U	< 7.0	U	< 5.0	U	1.9	J	0.56	J	< 100	U	0.26	J	< 7.0	U	< 7.0	U	< 5.0	U
cis-1,2-Dichloroethene	5	18		20		22,000		2,600		< 1.0	U	22		2.2		11,000		2.6		3.5		2.6		< 1.0	U
Ethylbenzene	5	< 1.0	U	< 1.0	U	580		61		< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
Hexachlorobutadiene	0.5	< 0.50	U	< 0.50	U	< 2.0	U	< 2.0	U	< 0.50	U	< 0.50	U	< 0.50	U	< 80	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U
Isopropylbenzene	5	< 1.0	U	< 1.0	U	15		6		< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
Naphthalene	10	< 1.0	U	< 1.0	U	13		< 10	U	< 1.0	U	< 1.0	U	< 1.0	U	< 400	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
n-Propylbenzene	5	< 1.0	U	< 1.0	U	25		3.2	J	< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
o-Xylene	5	< 1.0	U	< 1.0	U	540		9		< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
Tetrachloroethene	5	130		220		11		13		< 1.0	U	140		11		120,000	D	62	D	12		72	D	< 1.0	U
Toluene	5	< 1.0	U	< 1.0	U	930		8		< 1.0	U	< 1.0	U	< 1.0	U	< 100	U	< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U
trans-1,2-Dichloroethene	5	< 5.0	U	< 5.0	U	110		3.2	J	< 5.0	U	0.62	J	< 5.0	U	110		< 5.0	U	< 5.0	U	< 5.0	U	< 5.0	U
Trichloroethene	5	60		41		5		57		< 1.0	U	61		20		38,000	D	4.5		4.8		4.1		< 1.0	U
Vinyl chloride	2	< 1.0	U	0.38	J	7,800		860		< 1.0	U	< 1.0	U	< 1.0	U	120		< 1.0	U	< 2.0	U	< 2.0	U	< 1.0	U

Notes:

5 This value exceeds NYDEC Ambient Ground Water Standards.

µg/l - micrograms per liter

NYSDEC AWQS - New York State Department of Environmental Conservation Ambient Water Quality Standards

Qual - Laboratory data qualifier.

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

D The reported concentration is the result of a diluted analysis.

NS - No Standard

Table 3B - Groundwater Sample Exceedances (2017)
Site No. C224204
11 Spencer Street
Brooklyn, New York

LOCATION	NY-AWQS	MWC-2S		MWC-2D		MWC-2D		MWC-2DD		MWC-3D		MWC-3DD		MW-1603		MW-1605		MW-1607		MW-1603DUP		MW-1603DUP	
Lab Sample Number		L1710156-03		L1710156-01		L1710156-01 R1		L1710156-06		L1710156-05		L1710156-09		L1710156-02		L1710156-04		L1710156-08		L1710156-07		L1710156-07 R1	
Sampling Date		4/3/2017		4/3/2017		4/3/2017		4/3/2017		4/3/2017		4/3/2017		4/3/2017		4/3/2017		4/3/2017		4/3/2017		4/3/2017	
Units		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Results	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**	**Results**	**Qual**
Dissolved Gases by GC																							
Methane		3.57		46.5		-	-	9.47		4.72		11.8		24.9		2.21		13.4		34.2		-	-
Ethene		1.75		31.2		-	-	2.05		0.908		1.7		0.5	U	0.5	U	0.5	U	0.5	U	-	-
Ethane		4.36		43.4		-	-	3.87		1.5		4.21		0.5	U	0.5	U	0.5	U	0.5	U	-	-
Dissolved Metals																							
Iron, Dissolved	300	904		114		-	-	38.7	J	25.3	J	50	U	701		50	U	50	U	703		-	-
Manganese, Dissolved	300	1,032		1,977		-	-	1,888		388.2		2,119		7,770		32.89		3,313		7,287		-	-
General Chemistry																							
Alkalinity, Total (mg CaCO3/L)		86.7		279		-	-	228		147		230		170		195		156		172		-	-
Chloride	250000	220000		140000		-	-	110000		66000		110000		170000		270,000		170000		170000		-	-
Nitrogen, Nitrite	1000	47	J	13	J	-	-	95		49	J	82		102		50	U	25	J	88		-	-
Nitrogen, Nitrate	10000	191		26	J	-	-	2780		1320		2150		13,900		40,600		14,800		13,600		-	-
Sulfate	250000	190000		100000		-	-	77000		48000		66000		120000		62000		110000		120000		-	-
Total Organic Carbon		12000		7600		-	-	1600		1800		1500		2800		1700		2000		2400		-	-
Volatile Organics by GC/MS																							
Methylene chloride	5	15	J	9.7		-	-	<5	U	<6.2	U	<2.5	U	<500	U	<25	U	<620	U	<6.2	U	-	-
1,1-Dichloroethane	5	<25	U	3	J	-	-	<5	U	<6.2	U	<2.5	U	<500	U	<25	U	<620	U	1.9	J	-	-
Chloroform	7	<25	U	<5	U	-	-	<5	U	15		<2.5	U	<500	U	<25	U	<620	U	6.2	U	-	-
Tetrachloroethene	**5**	240		1,300	E	1,200		220		260		16		18,000		1,500		23,000		13,000	E	12,000	
1,1,1-Trichloroethane	**5**	<25	U	5.8		-	-	<5	U	3.3	J	<2.5	U	330	J	48		370	J	280		-	-
Bromodichloromethane	50	<5	U	<1	U	-	-	<1	U	2		<0.5	U	<100	U	5	U	<120	U	<1.2	U	-	-
Benzene	1	<5	U	0.56	J	-	-	<1	U	<1.2	U	<0.5	U	<100	U	<5	U	<120	U	<1.2	U	-	-
Toluene	5	260		2.6	J	-	-	<5	U	8.1		<2.5	U	<500	U	<25	U	<620	U	<6.2	U	-	-
Vinyl chloride	2	<10	U	<2	U	-	-	<2	U	<2.5	U	<1	U	<200	U	<10	U	<250	U	6		-	-
1,1-Dichloroethene	5	<5	U	1.5		-	-	<1	U	0.42	J	<0.5	U	<100	U	6.7		<120	U	29		-	-
Trichloroethene	**5**	32		67		-	-	28		120		25		92	J	80		150		89		-	-
Methyl tert butyl ether	10	<25	U	<5	U	-	-	5	U	6.2	U	1.1	J	<500	U	<25	U	<620	U	6.2	U	-	-
o-Xylene	5	10	J	<5	U	-	-	<5	U	<6.2	U	<2.5	U	<500	U	<25	U	<620	U	2.5	J	-	-
Xylenes, Total		10	J	<5	U	-	-	<5	U	6.2	U	<2.5	U	<500	U	<25	U	620	U	2.5	J	-	-
cis-1,2-Dichloroethene	**5**	<25	U	2.6	J	-	-	2.8	J	13		3.4		<500	U	41		<620	U	53		-	-
1,2-Dichloroethene, Total		<25	U	2.6	J	-	-	2.8	J	13		3.4		500	U	41		<620	U	53		-	-
Acetone	50	<50	U	<10	U	-	-	<10	U	<12	U	<5	U	<1000	U	<50	U	<1200	U	6.8	J	-	-
4-Methyl-2-pentanone		<50	U	5.9	J	-	-	<10	U	<12	U	<5	U	1000	U	<50	U	1200	U	12	U	-	-
1,4-Dioxane		5200		960		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organics by GC/MS-SIM																							
1,4-Dioxane		-	-	-	-	-	-	53		<7.5	U	<3	U	550	J	60		440	J	540		-	-

Notes:

320 This value exceeds NYDEC Ambient Ground Water Standards.

μg/l - micrograms

NYSDEC AWQS - New York State Department of Environmental Conservation Ambient Water Quality Standards

Qual - Laboratory data qualifier.

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

Table 3B - Groundwater Sample Exceedances (2017) (Continued)
Site No. C224204
11 Spencer Street
Brooklyn, New York

LOCATION	NY-AWQS	MW-1601		MW-1602		MWC-1S		MWC-1D		MWC-1D		MWC-1DD		MWC-3S	
Lab Sample Number		L1710367-01		L1710367-02		L1710367-05		L1710367-03		L1710367-03 R1		L1710367-04		L1710367-06	
Sampling Date		4/4/2017		4/4/2017		4/4/2017		4/4/2017		4/4/2017		4/4/2017		4/4/2017	
Units		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Dissolved Gases by GC															
Methane		4.22		2.32	J	404		334		-	-	246		57.4	
Ethene		0.5	U	0.5	U	26.6		26.3		-	-	25		14	
Ethane		0.5	U	0.5	U	21.4		54		-	-	74.3		35.2	
Dissolved Metals															
Iron, Dissolved	300	50.5		24	J	1,450		342		-	-	292		22.5	J
Manganese, Dissolved	300	14.3		2,790		4,714		3,332		-	-	2,223		5,156	
General Chemistry															
Alkalinity, Total (mg CaCO3/L)		212		180		287		249		-	-	248		235	
Chloride	250000	3300		170000		140000		120000		-	-	120000		150000	
Nitrogen, Nitrite	1000	50	U	27	J	43	J	50	U	-	-	30	J	50	U
Nitrogen, Nitrate	10000	2540		19800		1170		66	J	-	-	756		2010	
Sulfate	250000	17000		78000		99000		65000		-	-	63000		97000	
Total Organic Carbon		1300		2000		3000		3200		-	-	2200		1900	
Volatile Organics by GC/MS															
1,1-Dichloroethane	5	<2.5	U	<12	U	4.8	J	3.2	J	-	-	<5	U	<2.5	U
1,1,2-Trichloroethane	1	<1.5	U	<7.5	U	23		<3	U	-	-	9.1		<1.5	U
Tetrachloroethene	5	130		320		31		7.2		-	-	4.5		31	
1,1,1-Trichloroethane	5	5.1		7.3	J	<12	U	<5	U	-	-	<5	U	<2.5	U
Benzene	1	<0.5	U	<2.5	U	1.2	J	2.4		-	-	3		0.21	J
Toluene	5	<2.5	U	<12	U	320		1,700	E	1,500		220		<2.5	U
Ethylbenzene	5	<2.5	U	<12	U	11	J	7.2		-	-	2	J	<2.5	U
Vinyl chloride	2	<1	U	<5	U	0.49	J	<2	U	-	-	<2	U	0.39	J
Trichloroethene	5	48		34		8.9		2.1		-	-	4.9		11	
p/m-Xylene	5	<2.5	U	<12	U	25		11		-	-	1.8	J	<2.5	U
o-Xylene	5	<2.5	U	<12	U	4.8	J	3.1	J	-	-	1.9	J	<2.5	U
Xylenes, Total		<2.5	U	12	U	30	J	14	J	-	-	3.7	J	<2.5	U
cis-1,2-Dichloroethene	5	1.8	J	14		15		2.8	J	-	-	1.4	J	8.9	
1,2-Dichloroethene, Total		1.8	J	14		15		2.8	J	-	-	1.4	J	8.9	
Naphthalene	10	<2.5	U	<12	U	4	J	2.5	J	-	-	1.5	J	<2.5	U
1,3,5-Trimethylbenzene	5	<2.5	U	<12	U	5.6	J	2.9	J	-	-	<5	U	<2.5	U
1,2,4-Trimethylbenzene	5	<2.5	U	<12	U	16		8.4		-	-	2.3	J	<2.5	U
p-Ethyltoluene		<2	U	<10	U	12		5.6		-	-	1.8	J	<2	U
1,2,4,5-Tetramethylbenzene	5	<2	U	<10	U	<10	U	3	J	-	-	2.9	J	<2	U
Volatile Organics by GC/MS-SIM															
1,4-Dioxane		<3	U	22		<15	U	<6	U	-	-	<6	U	<3	U

Notes:

320 This value exceeds NYDEC Ambient Ground Water Standards.
μg/l - micrograms per liter
NYSDEC AWQS - New York State Department of Environmental Conservation Ambient Water Quality Standards
Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

Table 4A - Soil Slab and Soil Vapor Sample Exceedances (2014)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample Designation	SS1	IA-1	SS2	IA-2	SS3	IA-3	SS4	IA-4	SG5	IA-5	OA-1
Sample Location	**Below Slab 11 Spencer Street**	**Indoor Air 11 Spencer Street**	**Below Slab 11 Spencer Street**	**Indoor Air 11 Spencer Street**	**Below Slab 15 Spencer Street**	**Indoor Air 15 Spencer Street**	**Below Slab 23 Spencer Street**	**Below Slab 23 Spencer Street**	**Below Slab 735 bedford Avenue**	**Indoor Air 735 bedford Avenue**	**Outside 17 Spencer Street**
Sampling Type	**Sub-Slab**	**Indoor Air**	**Sub-Slab**	**Indoor Air**	**Sub-Slab**	**Indoor Air**	**Sub-Slab**	**Indoor Air**	**Sub-Slab**	**Indoor Air**	**Outdoor Air**
Unit	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**	**ug/m3**
Tetrachloroethene	**1,200,000**	**22**	**2520**	**9150**	**125**	**112**	12.1	15.5	27	2.65	5.56
Trichlorotrifluoroethane	**88,700**	**4.73**	**543**	**943**	**716**	**9.62**	2.26	1.45	0.53	0.21	0.48
1,1,1-Trichloroethane	<5.46	<1.09	**522**	**1650**	**2060**	**18.3**	5.95	<1.09	4.53	<1.09	<1.09
Carbon Tetrachloride	155	0.63	1.57	2.83	51.5	0.57	<0.19	0.5	<0.19	0.5	5

Notes:

(green)	No further action
(gray)	Take reasonable and practical actions to identify source(s) and reduce exposures
(blue)	Monitor or Monitor/Mitigate
(red)	Mitigate
	All the above action is determined according to the Final Guidance for Evaluating Soil Vapor Instrusion in the State of New York State
ug/m3	micrograms per cubic meter

Table 4B - Soil Slab and Soil Vapor Sample Exceedances (2016)
Site No. C224204
11 Spencer Street
Brooklyn, New York

Sample ID	Soil Vapor Instrusion in the State of New York State Matrix	SS1		SS2		SS3		SS4		SS5		SS6		SS7		SG1		SG2		SG3	
Lab Sample Number		BN34840		BN34841		BN34842		BN34843		BN34844		BN34849		BN34845		BN34846		BN34847		BN34848	
Sampling Date		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016		5/17/2016	
Depth																8' bgs		8' bgs		8' bgs	
Units		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3	
		Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Volatiles (TO15) By TO15																					
1,1,1-Trichloroethane	100	8,890		67.1		949		146		10,300		8,560		752		< 1.00	U	206		85.1	
1,1,2-Trichloroethane		< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	10.9		53.6		24.4		< 1.00	U	< 1.00	U	< 1.00	U
1,1-Dichloroethane		371		1.69		23.3		11.7		465		914		102		287		< 1.00	U	< 1.00	U
1,1-Dichloroethene		1,260		6.54		< 1.00	U	< 1.00	U	543		< 300	U	25.8		81.6		< 1.00	U	< 1.00	U
1,2,4-Trimethylbenzene		7.62		3.2		6.68		6.39		8.4		10		11.8		15.7		9.04		10.8	
1,3,5-Trimethylbenzene		2.3		1.31		2.12		2.17		2.67		3.05		3.48		4.9		3.01		3.59	
2-Hexanone(MBK)		6.96		2.57		6.26		16.7		14.1		13.2		12.4		< 1.00	U	< 1.00	U	8.43	
4-Ethyltoluene		2.25		< 1.00	U	1.57		1.67		2.39		2.25		2.18		3.64		2.48		2.49	
Acetone		< 1.00	U	13.6		25.9		19.4		14.2		49.1		11.9		91.6		215	S	45.3	
Benzene		39		1.19		1.8		2.16		7.41		25.8		14.7		29.9		3.58		1.06	
Bromomethane		< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	3.03		< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U
Carbon Disulfide		1.22		< 1.00	U	< 1.00	U	1.85		< 1.00	U	< 1.00	U	< 1.00	U	33.9		9.09		2.1	
Carbon Tetrachloride	5	39.9		0.67		81.7		1.08		433		1,440		69.8		3.26		< 0.25	U	< 0.25	U
Chlorobenzene		< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U
Chloroethane		< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	1.16		< 1.00	U	3.27		< 1.00	U	< 1.00	U
Chloroform		265		2.3		139		72.2		204		326		167		117		< 1.00	U	10.1	
Chloromethane		< 1.00	U	1.14		< 1.00	U	< 1.00	U	< 1.00	U	1.58		< 1.00	U	< 1.00	U	1.09		< 1.00	U
Cis-1,2-Dichloroethene		349		1.38		30.7		151		7,290		15,000		939		1,810		< 1.00	U	< 1.00	U
Cyclohexane		7.05		< 1.00	U	< 1.00	U	1.82		2.94		< 1.00	U	1.46		44.7		< 1.00	U	< 1.00	U
Dichlorodifluoromethane		11.5		2.47		2.5		2.46		2.81		2.59		177		6.18		1.79		2.4	
Ethanol		29.9		36.9		26.4		38.6		30.9		26		36.2		26.4		34.3		19.8	
Ethylbenzene		5.42		1.99		4.2		6.94		6.68		7.64		6.94		19.1		11.8		5.29	
Heptane		< 1.00	U	1.2		< 1.00	U	1.74		1.45		< 1.00	U	1.87		82.3		167		1.05	
Hexachlorobutadiene		1.68		< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U
Hexane		1.67	S	1.75	S	1.17	S	1.86	S	1.79	S	2.73	S	2.66	S	52.8		398		1.74	S
Isopropylalcohol		4.08	S	4.96	S	4.72	S	4.37	S	5.04	S	6.29	S	4.32	S	5.4	S	< 1.00	U	2.51	S
Isopropylbenzene		< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	< 1.00	U	1.87		< 1.00	U	< 1.00	U
m,p-Xylene		22		6.55		17.1		26.9		27.1		29.7		28.8		62.1		40.9		22.5	
Methyl Ethyl Ketone		14.9		16.5		26.6		81.3		46.3		45.4		66.6		< 150	U	248		90.5	
Methylene Chloride		10.2		1.69	S	2.2	S	1.28	S	4.79	S	3.75	S	1.22	S	3.41	S	< 1.00	U	< 1.00	U
o-Xylene		7.42		2.4		5.9		8.55		8.72		10.3		9.59		21.8		13.2		8.33	
Propylene		< 1.00	U	2.73		2.13		3.68		9.72		14.5		3.63		34.1		198		7.65	
Styrene		1.84		< 1.00	U	1.51		1.68		1.69		1.31		1.56		1.68		1.33		1.38	
Tetrachloroethene	100	198,000		270		1,080		1,440		31,000		247,000		17,600		15,300		2,600		4,790	
Toluene		8.62		5.76		6.44		12.1		9.68		9.68		8.62		606		29.2		11.7	
Trans-1,2-Dichloroethene		28.5		< 1.00	U	< 1.00	U	3.96		120		121		140		31.3		< 1.00	U	< 1.00	U
Trichloroethene	5	26,200		62		3,520		1,330		34,000		155,000		43,500		4,350		166		301	
Trichlorofluoromethane		3,480		7.97		9.21		6.51		30		386		< 1.00	U	69.1		4.36		2.93	
Trichlorotrifluoroethane		11.4		< 1.00	U	218		7.15		2,470		85.8		7.09		3.9		35.5		1.89	
Vinyl Chloride		< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	1.51		12.4		< 0.25	U	1.65		< 0.25	U	< 0.25	U

Notes:

100 This value exceeds NYSDOH Air Guidance Value

ug/m3 micrograms per cubic meter

Qual - Laboratory data qualifier.
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
S- This compound is a solvent that is used in the laboratory. Laboratory contamination is suspected if concentration is less than five times the reporting level.

Table 5- Monitoring Well Construction Information
Site No. C224204
11 Spencer Street
Brooklyn, New York

Cluster	Well ID	Installation Date	Well Diameter (inches)	Total Depth, BTOC (feet)[1]	Well Screen Interval (feet)[3]	Depth to Water[2] (feet)	Estimated Water Injection in Each Cluster Location (Gallon)[4]	Estimated Water Purged (Gallon)
Cluster1	MWC1-S	2/23/2017	2	23.7	17 to 22	13.21	50	47
	MWC1-D	2/23/2017	2	34.1	28 to 33	13.21		
	MWC1-DD	2/23/2017	2	38.9	33 to 38	13.21		
Cluster 2	MWC2-S	2/28/2017	2	25.59	19 to 24	11.2	400	52.75
	MWC2-D	2/28/2017	2	35.5	29 to 34	13.5		
	MWC2-DD	2/28/2017	2	49.5	43 to 48	13.65		
Cluster 3	MWC3-S	3/1/2017	2	22.75	16 to 21	12.75	60	60.75
	MWC3-D	3/2/2017	2	35	29 to 34	14		
	MWC3-DD	3/1/2017	2	43.35	37 to 42	14		

Notes

[1] - Below Top of Casing (BTOC), Top of Casing (TOC)
[2] - Groundwater measurements collected on March 2, 2017
[3] - One foot of sump on the bottom of each well.
[4] - Mud rotary drilling was applied for Cluster 2 installation

Appendix A Previous Reports – Digital File

Appendix B Quality Assurance Project Plan

Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

QUALITY ASSURANCE PROJECT PLAN (QAPP)
11 SPENCER STREET
BROOKLYN, NEW YORK

GZA GeoEnvironmental of NY
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F: 212.279.8180
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PREPARED FOR:
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PREPARED BY:
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File No. 12.0076527.00
May 2017

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1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) presents the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with the Remedial Investigation Work Plan at 11 Spencer Street in the Williamsburg section of Brooklyn, New York.The Site is bounded by Flushing Avenue and a 5-story commercial building to the north, a 1-story manufacturing building to the south, a 1-story auto repair facility and a 1-story manufacturing building to the east, and Spencer Street and a 1-story manufacturing building to the west (Block 1716 and Lot 21). **Figure 1** presents a Site location map.

The Plan describes specific protocols for field sampling, sample handling and storage, chain-of-custody, laboratory analysis, and data handling and management. Preparation of the Plan was based on EPA Quality Assurance Project Plan guidance documents, including:

- *EPA Requirements for Quality Assurance Project Plans* (EPA QA/R-5, March 2001); and
- *Guidance for Quality Assurance Project Plans* (EPA QA/G-5, December 2002).

The data generated from the analysis of samples will be used to determine the extent of contamination, identify impacted targets, and to compare the results of the remedial actions to site-specific cleanup goals. Potential parameters to be analyzed, including their respective quantitation limits (QLs), and data quality levels (DQLs), are provided in **Tables 1A through 1C**.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITY

A qualified person will coordinate and manage the Site sampling and analysis program, data reduction, QA/QC, data validation, analysis, and reporting. A qualified environmental professional (QEP), as defined by the New York State Department of Environmental Conservation (NYSDEC), will direct the sampling activities and coordinate laboratory and drilling activities.

A qualified person will insure that the QA/QC plan is implemented and will oversee data validation. A qualified person will provide oversight and technical support for the sampling and analytical procedures followed in this project. This individual has the broad authority to approve or disapprove project plans, specific analyses, and final reports. The QEP is independent from the data generation activities. In general, the QA officer will be responsible for reviewing and advising on all QA/QC aspects of this program. Qualifications of the QA officer are provided in **Attachment A.**

Laboratories used will be New York State Department of Health Environmental (NYSDOH) Laboratory Approval Program (ELAP) certified laboratories. The laboratories will communicate directly with the sampler regarding the analytical results and reporting and will be responsible for providing all labels, sample containers, field blank water, trip blanks, shipping coolers, and laboratory documentation.

3.0 QA OBJECTIVES FOR DATA MANAGEMENT

The analytical data will be provided by the laboratory using the NYSDEC Category B deliverable format. Analytical data collected for disposal characteristics that may be requested by off-site soil or wastewater disposal facilities will be provided in the format that the facility requests.

All analytical measurements will be made so that the results are representative of the media sampled and the conditions measured. Data will be reported in consistent dry weight units for solid samples [i.e., micrograms per killigram (µg/kg) and/or milligram per kilogram (mg/kg), micrograms per liter (µg/L) or milligrams per liter (mg/L) for aqueous samples and in micrograms per cubic meter (µg/m^3) for soil vapor and air samples. **Table 2** presents the proposed samples, sampling and analytical parameters, analytical methods, sample preservation requirements and containers.

Quantitation Limits (QLs) are laboratory-specific and reflect those values achievable by the laboratory performing the analyses. Data Quality Levels (DQLs) are those reporting limits required to meet the objectives of the program (i.e., program action levels, cleanup standards, etc.). Data Quality Objectives (DQOs) define the quality of data and documentation required to support decisions made in the various phases of the data collection activities. The DQOs are dependent on the end uses of the data to be collected and are also expressed in terms of objectives for precision, accuracy, representativeness, completeness, and comparability.

The analytical methods to be used at this Site provide the highest level of data quality and can be used for purposes of risk assessment, evaluation of remedial alternatives and verification that cleanup standards have been met. However, in order to ensure that the analytical methodologies are capable of achieving the DQOs, measurement performance criteria have been set for the analytical measurements in terms of accuracy, precision, and completeness.

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet DQOs. Specific procedures for sampling, chain of custody, laboratory instrument calibration, laboratory analysis, reporting of data, internal quality control, and corrective action are described in other sections of this Plan.

Tables 3, **4**, and **5** present the precision and accuracy requirements for each parameter to be analyzed. For quantitation limits for parameters associated with soil, sediment, and solid waste samples, the laboratory will be required to attempt to meet or surpass the parameter-specific limits listed in 6 NYCRR Part 375.

For quantitation limits for parameters associated with groundwater samples, the laboratory will be required to attempt to meet or surpass the parameter-specific limits for groundwater from the Division of Water Technical and Operational Guidance Series (TOGS 1.1.1) Ambient Water Quality Standards and Guidance Values. In certain instances, if the TOGS criteria are not achievable due to analytical limitations, the laboratory will report the lowest possible quantitation limit.

For quantitation limits for parameters associated with soil gas samples, the laboratory will be required to meet the parameter-specific limits from EPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), Table 3c-SG: Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (α=2H10^{-3}), November 2002. In certain instances, if these criteria are not achievable due to analytical limitations, the laboratory will report the lowest possible quantitation limits (see **Tables 1A through 1C** for affected analytes).

The QA objectives are defined as follows:

- ***Accuracy*** is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.

  Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, and through the collection of equipment blanks prior to the collection of samples for each type of equipment being used (e.g., split spoons, groundwater sampling pumps).

  The laboratory will assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards," materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of blank results, the percent recovery (%R) of surrogate compounds in organic analyses, or %R of spiked compounds in matrix spikes (MSs), matrix spike duplicates (MSDs) and/or laboratory control samples (LCSs). This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. **Tables 3**, **4**, and **5** summarize the laboratory accuracy requirements.

- ***Precision*** is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation.

  Precision in the field is assessed through the collection and measurement of field duplicates (one extra sample in addition to the original field sample). Field duplicates will be collected at a frequency of one per twenty investigative samples per matrix per analytical parameter, with the exception of the Toxicity Characteristic Leaching Procedure (TCLP) parameters and parameters associated with wastewater samples. Precision will be measured through the calculation of relative percent differences (RPDs). The resulting information will be used to assess sampling and analytical variability. Field duplicate RPDs must be $\leq$ 50 for soil samples and $\leq$ 30 for aqueous samples. These criteria apply only if the sample and/or duplicate results are >5x the quantitation limit; if both results are $\leq$ 5x the quantitation limit, the criterion will be doubled. Due to the uncertainty of available representative soil gas volume, field duplicates will not be collected for this matrix.

Precision in the laboratory is assessed through the calculation of RPD for duplicate samples. For organic soil, sediment and water analyses, laboratory precision will be assessed through the analysis of MS/MSD samples and field duplicates. For the inorganic analyses, laboratory precision will be assessed through the analysis of matrix duplicates and field duplicates. For soil gas analyses, laboratory precision will be assessed through the analysis of matrix duplicates. MS/MSD samples or matrix duplicates will be performed at a frequency of one per twenty investigative samples per matrix per parameter. **Tables 3**, **4**, and **5** summarize the laboratory precision requirements.

- ***Completeness*** is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. "Normal conditions" are defined as the conditions expected if the sampling plan was implemented as planned.

  Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

  Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

- ***Representativeness*** is a qualitative parameter that expresses the degree to which data accurately and precisely represent either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data. In addition, field duplicate samples will provide an additional measure of representativeness at a given location.

  Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plans and QAPP are followed and that proper sampling, sample handling, and sample preservation techniques are used.

  Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample holding times.

- ***Comparability*** expresses the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plans and QAPP are followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

  Comparability is dependent on the use of recognized EPA or equivalent analytical methods and the reporting of data in standardized units. Laboratory procedures are consistent with those used for previous sampling efforts.

4.0 SAMPLING PLAN

Environmental sampling may include soil, groundwater, soil vapor, and sediment sampling. Additionally, wastes generated during remediation or development will be sampled and tested for characterization for disposal. Direct push drilling (GeoProbe®), hollow-stem auger drilling, and/or test pit excavations will be the preferred methods for obtaining subsurface soil samples; however, other drilling methods including mud rotary and drive and wash may also be used if warranted by site conditions. Hand auger and/or hand-held sampling equipment will be the preferred method for collecting surficial and/or shallow soil samples. Groundwater samples will be collected using peristaltic, bladder or submersible pumps. Soil vapor samples will be collected in SUMMA® canisters. Performing grab or composite sampling using appropriate hand-held sampling equipment will be the preferred method for waste characterization sampling.

4.1 Grab/Composite Sampling

Grab soil/solid samples will be collected from the material or interval in question by retrieving a volume for analysis using a clean stainless steel, aluminum, or mild steel/ disposable scoop, trowel, spoon, or bucket auger and placing the soil in a cleaned stainless steel pan for homogenization before inserting into the sample container. Samples collected for analysis for volatile organic compounds and total organic halides will not be homogenized. Samples for volatile organics analysis and total organic halides will be placed directly into the sample container.

Composite samples will be collected in the same manner described above, except that the discrete sample volumes will be placed in a clean stainless steel pan and mixed to form the composite. Composite sampling will be performed for the following objectives:

- Waste characterization;
- Determination of the suitability of the soil for on-site re-use; and
- Evaluation of health and safety requirements for workers that will disturb the soil during subsequent construction work.

4.2 Soil Sampling (Direct Push Drilling)

Sampling will be performed using four or five-foot-long acetate sleeves that will be advanced continuously to the desired depth below the surface. Soil samples from each sleeve will be screened using a photoionization detector (PID), to detect possible organic vapors. Organic vapor screening will be performed by slicing open the acetate sleeve, making a small slice in the soil column with a clean knife or sampling tool, inserting the PID probe and pushing the slice closed, and monitoring the soil for approximately 5 to 10 seconds. This procedure will be repeated at intervals along the soil column at the field geologist's discretion.

The samples will be examined for staining, discoloration, odors, and debris indicative of contamination (ash, coal fragments, wood chips, cinders, petroleum staining, etc.) Samples for laboratory analysis will be collected from the six-inch interval most likely to be contaminated, based on PID readings, discoloration, staining, and the field geologist's judgment (field conditions may require a section longer than six inches to make sufficient sample; however this decision will be field-based).

The samples will be collected by cutting the soil in two places with a decontaminated steel, stainless steel, or aluminum trowel, spoon, or knife and homogenized in a decontaminated stainless steel pan before being placed in the sample bottles. Samples collected for analysis for VOCs and total organic halides will be placed directly into the sample containers without homogenization (as per EPA sampling method 5035A). Samplers will wear phthalate-free gloves such as nitrile (no latex will be used) and will avoid contact of the gloves with the sample. Clean metal/disposable instruments will be used to transfer samples. If there is insufficient soil volume in the spoon, then this will be made up by attempting a second direct push sleeve at the same depth, or by using the next immediate sample interval above or below this depth, if appropriate. If there is no recovery, then the sample depth will be skipped, and drilling will progress to the next depth interval.

Soil samples will be collected in laboratory provided containers and transported to a NYSDOH ELAP certified laboratory, under proper chain of custody procedures for analysis. Once the sample containers are filled, they will be immediately placed in the cooler with ice (in Ziploc plastic bags to prevent leaking) or synthetic ice packs to maintain the samples at below 4^{o}C.

4.3 Soil Sampling (Hollow-Stem Auger)

Soil samples will be collected utilizing 2-inch-diameter by 2-foot-long split spoon samplers driven ahead of a hollow stem auger. Three-inch-diameter split spoon samplers may also be used. Augers with a minimum inside diameter of 4¼ inches will be used for drilling where wells are proposed. If soil sampling below the groundwater table is required, augers will be equipped with center plugs and/or inert "knock out" plates to control sub-water table sediments from rising inside the auger flights and hampering collection of representative soil samples.

Each split spoon sample will be screened using a PID to detect possible organic vapors. Organic vapor screening will be performed by opening the split spoon, making a small slice in the soil column with a clean knife or sampling tool, inserting the PID probe and pushing the slice closed, and monitoring the soil for approximately 5 to 10 seconds. This procedure will be repeated at intervals along the split spoon soil column at the field geologist's discretion.

The split spoons will be examined for staining, discoloration, odors, and debris indicative of contamination (ash, coal fragments, wood chips, cinders, petroleum staining, etc.). One sample will be collected from the designated six-inch interval as per the accompanying workplan. Note that due to sample recovery or field conditions, sample intervals other than six inches may be necessary to collect sufficient sample. Additionally, sample intervals other than those designated in the accompanying workplan may be selected based on field conditions.

The samples will be collected by cutting the soil in two places with a decontaminated steel, stainless steel, or aluminum trowel, spoon, or knife and homogenizing in a decontaminated stainless steel pan before being placed in the sample bottles (refer to **Table 2**). Samples collected for analysis for VOCs and total organic halides samples will be placed directly into the sample containers without homogenization. Samplers will wear phthalate-free gloves such as nitrile (no latex will be used) and will avoid contact of the gloves with the sample. Only clean metal instruments will be allowed to touch the sample. If there is no recovery, then the sample depth will be skipped, and drilling will progress to the next sampling interval.

4.4 Soil Sampling (Test Pits)

Soil samples will be collected utilizing a backhoe or excavator and dedicated sampling equipment. At most locations, test pits will be excavated to the groundwater table. A tape will be lowered into the excavated test pit to establish a depth profile prior to sample collection. At the direction of the field geologist, the excavator will collect soil from the test pit and bring the soil to a location where the field geologist will evaluate the soil quality. Each sample will be field screened following the procedures described for soil borings (see **Section 4.3**). The samples will be containerized for laboratory analysis in accordance with the procedures established for the soil borings.

4.5 Drive and Wash/Mud Rotary

Borings will be advanced vertically by driving a 4-inch-diameter steel casing with a 300-pound hammer falling freely for 24 inches. The casing will be cleaned with water using a tri-cone roller bit and/or chopping bit. A 2-inch-diameter by 2-foot-long split spoon sampler will be driven ahead of the tri-cone roller bit and samples will be collected as described in **Section 4.3**. Any drilling fluids used to advance the drill bit will be contained within a steel trough and re-circulated into the drill hole. Uncontaminated drilling fluids containing drilling mud will be mixed with cement to form a grout that will be used to backfill the borehole where required; otherwise the mud will be pumped into 55-gallon drums for on-site storage and subsequent off-site disposal. In drive and wash drilling where only potable water will be used as the drilling fluid, the water will be allowed to diffuse into the borehole. Samples will be collected in the same manner as with hollow-stem auger drilling. Where drilling mud is necessary, bentonite and/or Revert® will be used. Every effort will be made to collect samples for soil analysis before the addition of drilling mud. Only bentonite mixed with cement will be used to prepare grout for sealing the borehole.

4.6 Groundwater Sampling (Permanent Well)

Groundwater sampling of permanent monitoring wells is described according to the following distinct phases of this work: well installation/construction, well development, well purging, and well sampling.

4.6.1 Well Installation/Construction

To collect representative groundwater samples, previously installed soil borings will be converted into permanent two-inch or four-inch diameter monitoring wells. Groundwater monitoring wells will be constructed of threaded two-inch or four-inch-diameter PVC well casing and 10-slot well screen. Clean silica sand, Morie No. 1 or equivalent, will be placed in the annular space around the well to a minimum of one foot above the top of the well screen, two feet being optimal. Solid PVC riser, attached to the well screen, will extend to grade or above if the well is a stick-up. For a two-inch diameter well, the annular space for the filter pack should be between 2 to 4 inches thick. (The 4 ¼ inside diameter hollow stem augers will have to be retracted as the filter pack is installed to yield the required annular space.) A two-foot thick bentonite seal will then be placed above the sand pack and moistened with potable water for a minimum of 15 minutes before backfilling the remaining space with a cement-bentonite grout. If warranted by depth, filling will be completed using a tremie pipe placed below the surface of the grout. A stick-up or flush-mount protective casing with a locking well cap will then be installed and a measuring point marked on each PVC well riser. Well construction diagrams will be prepared for each well.

4.6.2 Well Development

Following installation, the groundwater monitoring wells will be developed using a two-inch diameter submersible pump(s) (or equivalent) until the water is reasonably free of turbidity and field readings (pH, conductivity, temperature, and dissolved oxygen) sufficiently stabilize. Fifty nephelometric turbidity units (NTUs) or less will be the turbidity goal but not an absolute value. The wells will be developed aggressively to remove fines from the formation and sand pack. The wells will be allowed to equilibrate for seven days prior to sampling. The volume of water removed, the well development time, and field instrument readings will be recorded in the logbook.

4.6.3 Well Purging

The objective is to purge monitoring wells until turbidity stabilizes to a level as low as possible and this parameter will be given the greatest weight in determining when groundwater sampling may begin. With this objective in mind, a low-flow pump will be used to avoid entrainment of particulates within the well or from the formation. Groundwater from each well will be purged until parameters have stabilized. A turbidity level of fifty NTUs or less is the well purging goal, but not an absolute value before sampling. Other field parameters including temperature, conductivity, pH, and dissolved oxygen (DO) will also be monitored. As practical, all field measurements will be taken from the flow cell and will be recorded during and after purging, and before sampling. Field parameters should generally be within ±10 percent for three consecutive readings, one minute apart, prior to sampling.

Upon opening each monitoring well and point, the concentration of VOCs in the headspace will be measured using a PID and water level measurements will be recorded using an electronic interface probe. The depth to product (if present), depth to water, and the total depth will be measured from the top of the marked PVC casings. Water level and free product measurements will first be made and the volume of water in the well determined. The volume of water in the well will be calculated so that the number of well volumes purged and an estimate of the time required to purge the well can be made. Before sampling, the wells will be purged utilizing a low-flow submersible stainless steel pump using dedicated Teflon® or Teflon®-lined polyethylene tubing connected to a flow cell. Very low purging rates are proposed, on the order of 100 ml/minute to 500 ml/minute, to minimize suspension of particulate matter in the well.

Purging will be done with the pump intake placed at the midpoint of the well screen or the midpoint of the water column (to be determined based on the depth and length of the screen interval) to insure that all stagnant water in the well is removed, while not stirring up sediment that may have accumulated on the bottom of the well. Equipment will be lowered into the well very carefully to prevent suspension of bottom sediment and subsequent entrainment onto sampling equipment. Surging will be avoided. Tubing will be replaced between each well. Pumps must be carefully cleaned between wells according to the procedures specified in **Section 4.13** below. It is anticipated that no more than three well volumes will be purged in order for turbidity to reach a minimum and the other parameters to stabilize. Ideally, pumping rates will be at a rate so that no drawdown of the groundwater level occurs (i.e., pumping rate is less than recharge rate). During purging, the sampler will actively monitor and track the volume of water purged and the field parameter readings. Data will be recorded in the field logbook. For example, the sampler will record the running total volume purged from each well and note the readings for the corresponding field parameters.

4.6.4 Well Sampling

Once groundwater conditions have stabilized and groundwater levels have recovered, samples will be collected from the flow cell outlet (connected to the low-flow submersible pump). All non-disposable/non-dedicated (re-usable) sampling equipment will be cleaned according to the procedures specified in **Section 4.13**.

Sampling will be performed with the pump intake at the same location used for purging. Pumping rates for withdrawing the samples will be similar to those followed for well purging.

The samples will be collected in sample bottles (pre-preserved, if appropriate), placed in iced coolers and removed from light immediately after collection. In addition, all sample bottles must be filled to the top so that no aeration of the samples occurs during transport. All bottles will be filled to avoid cascading and aeration of the samples, the goal being to minimize any precipitation of colloidal matter. Samples for dissolved metals will be collected in unpreserved containers and will be filtered and preserved at the laboratory within 24 hours of sampling.

4.7 Sediment Sampling

Sediment samples shall be collected from a boat-mounted, vibracore sampler, geoprobe and/or other auger rig. The sediment samples will be collected in clean, dedicated soft (polycarbonate) liner inside the core tubes and the sample tubes will have a top valve and stainless steel core catcher to maximize the completeness of core retrieval. At the direction of the field geologist, the vibracore sampler will collect sediment at the sampling location to a depth below the sediment/water interface as specified by the geologist.

Organic vapor screening will be performed by slicing open the liner, making a small slice in the sediment column with a clean knife or sampling tool, inserting the PID probe and pushing the slice closed, and monitoring the sediment for approximately 5 to 10 seconds. This procedure will be repeated at intervals along the sediment column at the field geologist’s discretion.

The samples will be examined for staining, discoloration, odors, and debris indicative of contamination (ash, coal fragments, wood chips, cinders, petroleum staining, etc.) Samples for laboratory analysis will be collected from the six-inch interval most likely to be contaminated, based on PID readings, discoloration, staining, and the field geologist’s judgment (field conditions may require a section longer than six inches to make sufficient sample; however this decision will be field-based). The samples will be collected by cutting the sediment in two places with a decontaminated steel, stainless steel, or aluminum trowel, spoon, or knife and homogenized in a decontaminated stainless steel pan before being placed in the sample bottles. Samples collected for analysis for VOCs will be placed directly into the sample containers without homogenization. Samplers will wear phthalate-free gloves such as nitrile (no latex will be used) and will avoid contact of the gloves with the sample. Only clean metal instruments will be allowed to touch the sample. If there is insufficient sediment volume in the liner, then this will be made up by attempting a second vibracore sample at the same depth, or by using the next immediate sample interval above or below this depth, if appropriate. If there is no recovery, then the sample depth will be skipped, and vibracore sampling will progress to the next depth interval.

Each sample selected for laboratory analysis will be homogenized separately by thoroughly mixing in a clean stainless steel pan using a clean stainless steel, aluminum or Teflon® sampling tool. The exception to this will be the portion of each sample that will be submitted for analysis for VOCs which will not be homogenized. If gross contamination is encountered, petroleum hydrocarbon fingerprint analysis may be conducted.

4.8 Soil Reuse and Worker Health & Safety Sampling

Soil reuse sampling may be performed to determine whether the soil can be reused elsewhere on the Site, or to determine whether contaminant levels in the soil would warrant OSHA 40-hour HAZWOPER training for workers disturbing the soil during post-remediation construction activities. This sampling would consist of compositing discrete soil samples from borings advanced by direct push (see **Section 4.2**) or hollow-stem auger drilling (see **Section 4.3**). The compositing of the discrete soil samples will follow the procedures outlined in **Section 4.1**.

4.9 Waste Characterization Sampling

Waste classification sampling may be conducted to characterize soil, liquids and/or groundwater for the purpose of proper off-site waste disposal. Specific methods for sampling liquid and solid wastes are briefly discussed below.

4.9.1 Solid Waste

Solid sampling methods include utilizing dedicated stainless steel or Teflon® scoops/shovels, triers, and thiefs. Scoops and shovels are the preferred method for sampling solids from piles or containers. Stainless steel triers are similar to a scoop and are used for the collection of a core sample of a solid material. Thiefs are long hollow tubes, with an inner tube, and are used for sampling of dry free running solids (e.g., pile of fine sand). To sample solid material at varying depths, a hollow stem auger or a core sampler in conjunction with an auger can be utilized (see Soil Sampling Section).

4.9.2 Liquid Waste

Liquid sampling methods include utilizing dedicated dippers, glass tube samplers, pump and tubing, kemmerer bottles, and Bacon Bomb samplers. Dippers are used to collect samples from the surface of the liquid, and are appropriate for wastes that are homogeneous. Glass tube samplers consist of glass tubes of varying length and diameter used to collect a full-depth liquid sample from a drum or similar container. Pump and tubing (e.g., bladder pump or peristaltic pump) are used to collect liquid samples from a depth (up to approximately 20 feet below grade), and are typically relied upon for sampling subsurface structures, such as underground storage tanks. To minimize the loss of volatile organic components in the liquid, the lowest achievable flow rate is utilized for collecting the sample by this method. Kemmerer bottles and Bacon Bomb samplers are discrete-depth samplers. These samplers are lowered into the liquid and opened to collect a sample at a desired depth.

4.9.3 Grab versus Composite Sampling

Waste characterization of a liquid or a solid can involve grab or composite sampling depending upon the homogeneity and the volume of the waste. Grab sampling consists of collecting a discrete sample or samples of a material, and submitting each sample for separate analysis. Grab sampling is appropriate for characterizing small quantities of waste as well as waste streams of varying content (e.g., drums of different contents). Composite sampling consists of taking discrete grab samples of a material and combining them into a smaller number of samples for analysis. Composite sampling generally is appropriate for large volumes of a homogenous waste material, such as a pile of soil or construction debris. The specific number of composite and grab samples largely will depend upon the size and nature of the waste pile (i.e., cubic yards) as well as the analysis required for characterization of the waste.

4.10 Soil Gas Sampling

A direct-drive rig will be utilized to drive rods with a decontaminated stainless steel probe to the desired sample depth, which will be approximately 3 to 5 feet bgs. The soil gas probe will then be purged at a flow rate not greater than 0.2 liters/minute to evacuate one to three volumes using a photoionization detector (PID) with an integrated vacuum pump (PhotoVac 2020 or appropriate alternate). No PID readings will be taken prior to sample collection. Following the stabilization period, each probe will be connected to an evacuated laboratory-supplied SUMMA® canister. SUMMA® canisters are passivated stainless steel vessels that have been cleaned and certified contaminant-free by the contract laborator. After connecting the SUMMA® canister to the soil gas probe, a regulator valve on the canister will be opened and the vacuum will slowly draw the sample into the canister over a period of 20 minutes. The samples will not be drawn at greater than 0.2 liters per minute. Quantitation limits for all analytes range between 1.6 ppbV and 4.0 ppbV, depending on the compound. After collecting the soil gas sample, the valve will be closed and disconnected from the soil gas probe. The soil-gas samples will be transported to a NYSDOH ELAP certified laboratory for TO-15 analysis.

A tracer gas (e.g., helium, butane, or sulfur hexafluoride) will be utilized prior to sample collection to evaluate the potential for infiltration of outdoor air into the sample. Subsequent rounds of soil gas sampling would include the use of tracer gas only if the initial round of sampling indicates that outdoor air has the potential to influence soil gas sample results.

When soil vapor samples are collected, the following conditions that may influence the interpretation of results will be documented:

- Identification of any nearby commercial or industrial buildings that likely uses volatile organic compounds;
- A sketch of the Site, showing streets, neighboring commercial or industrial facilities (with estimated distances to the Site, and soil-gas sampling locations);

- Weather conditions (e.g., precipitation, outdoor temperature, barometric pressure, wind speed and direction); and
- Any pertinent observations, such as odors or readings from field instrumentation.

4.11 QC Sample Collection

QC samples will include equipment blanks, trip blanks, field duplicates and MS/MSDs.

Equipment blanks will consist of distilled water and will be used to check for potential contamination of the equipment that may cause sample contamination. Equipment blanks will be collected by routing the distilled water through the sampling equipment prior to sample collection. Equipment blanks will be submitted to the laboratory at a frequency of one per day per matrix per type of equipment being used per parameter. Equipment blanks will not be collected with samples for analysis for TCLP parameters, parameters associated with wastewater samples, samples collected for disposal purposes, soil gas samples, and samples collected for grain size analyses.

Trip blanks will consist of distilled water (supplied by the laboratory) and will be used to assess the potential for volatile organic compound contamination of groundwater samples due to contaminant migration during sample shipment and storage. Trip blanks will be transported to the site unopened, stored with the investigative samples, and kept closed until analyzed by the laboratory. Trip blanks will be submitted to the laboratory at a frequency of one per cooler that contains groundwater samples for analysis for VOCs.

Field duplicates are an additional aliquot of the same sample submitted for the same parameters as the original sample. Field duplicates will be used to assess the sampling and analytical reproducibility. Field duplicates will be collected by alternately filling sample bottles from the source being sampled. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters with the exception of TCLP parameters, parameters associated with wastewater samples, samples collected for waste characterization purposes, soil gas samples and samples collected for grain size analyses. It should be noted that due to the uncertainty of acceptable representative soil gas volume, field duplicates are not planned for this matrix.

MSs and MSDs are two additional aliquots of the same sample submitted for the same parameters as the original sample. However, the additional aliquots are spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on the measurement methodology. MS/MSDs will be submitted at a frequency of one per 20 investigative samples per matrix for organic parameters for soil, sediment, and groundwater. MSs will be submitted at a frequency of one per 20 investigative samples per matrix for inorganic parameters.

4.12 Sample Preservation and Containerization

The analytical laboratory will supply the sample containers for the chemical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest U.S. EPA's *Specifications and Guidance for Contaminant-Free Sample Containers*. Certificates of analysis are provided with each bottle lot and maintained on file to document conformance to EPA specifications. The containers will be pre-preserved, where appropriate (see **Table 2**).

Table 6 presents a summary of QC sample preservation and container requirements.

4.13 Equipment Decontamination

Re-usable Teflon®, stainless steel, and aluminum sampling equipment shall be cleaned between each use in the following manner:

- Wash/scrub with a biodegradable degreaser ("Simple Green") if there is oily residue on equipment surface
- Tap water rinse
- Wash and scrub with Alconox and water mixture
- Tap water rinse
- Distilled/deionized water rinse
- Air dry

Cleaned equipment shall be wrapped in aluminum foil if not used immediately after air-drying.

Groundwater sampling pumps will be cleaned by washing and scrubbing with an Alconox/water mixture, rinsing with tap water and irrigating with distilled/deionized water.

5.0 DOCUMENTATION AND CHAIN-OF-CUSTODY

5.1 Sample Collection Documentation

5.1.1 Field Notes

Field team members will keep a field logbook to document all field activities. Field logbooks will provide the means of recording the chronology of data collection activities performed during the remediation. As such, entries will be described in as much detail as possible so that a particular situation could be reconstructed without reliance on memory.

The logbook will be a bound notebook with water-resistant pages. Logbook entries will be dated, legible, and contain accurate and inclusive documentation of the activity. The title page of each logbook should contain the following:

- Person to whom the logbook is assigned
- The logbook number
- Project name and number
- Site name and location
- Project start date
- End date

Entries into the logbook will contain a variety of information. At the beginning of each entry, the date, start time, weather, and names of sampling team members present will be entered. Each page of the logbook will be signed and dated by the person making the entry. All entries will be made in permanent ink, signed, and dated and no erasures or obliterations will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark that is signed and dated by the sampler. The correction shall be written adjacent to the error.

Field activities will be fully documented. Information included in the logbook should include, but may not be limited to, the following:

- Chronology of activities, including entry and exit times
- Names of all people involved in sampling activities
- Level of personal protection used
- Any changes made to planned protocol
- Names of visitors to the site during sampling and reason for their visit
- Sample location and identification
- Changes in weather conditions
- Dates (month/day/year) and times (military) of sample collection
- Measurement equipment identification (model/manufacturer) and calibration information
- Sample collection methods and equipment
- Sample depths
- Whether grab or composite sample collected
- How sample composited, if applicable
- Sample description (color, odor, texture, etc.)
- Sample identification code
- Tests or analyses to be performed
- Sample preservation and storage conditions
- Equipment decontamination procedures
- QC sample collection

- Unusual observations
- Record of photographs
- Sketches or diagrams
- Signature of person recording the information

Field logbooks will be reviewed on a daily basis by the Field Team Leader. Logbooks will be supported by standardized forms.

5.1.2 Chain-of-Custody Records

Sample custody is discussed in detail in **Section 5.2** of this Plan. Chain-of-custody records are initiated by the samplers in the field. The field portion of the custody documentation should include: (1) the project name; (2) signatures of samplers; (3) the sample number, date and time of collection, and whether the sample is grab or composite; (4) signatures of individuals involved in sampling; and (5) if applicable, air bill or other shipping number. Sample receipt and log-in procedures at the laboratory are described in **Section 5.2.2** of this Plan.

On a regular basis (daily or on such a basis that all holding times will be met), samples will be transferred to the custody of the respective laboratories, via third-party commercial carriers or via laboratory courier service. Sample packaging and shipping procedures, and field chain-of-custody procedures are described in **Section 5.2.1** of this Plan.

5.1.3 Sample Labeling

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

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

<u>Example</u>:

Sample P-9(5-5.5') indicates the sample was taken at boring location P-9, from the 6-inch interval in the spoon beginning at 5.0 feet below grade and ending at 5.5 feet below grade.

Duplicate samples will be labeled as blind duplicates by giving them sample numbers indistinguishable from a normal sample.

Blanks should be spelled out and identify the associated matrix, e.g. Equipment Blank, Soil

MS/MSDs will be noted in the Comments column of the COC.

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

Example: SVOC

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

Example: 03-22-12

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

Example: 14:30

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

F. Other information relevant to the sample.

Example: Equipment Blank

An example sample label is presented below:

Job No:	XXXXXXXXX
Client:	Name
Sample No:	B22(5-5.5')
Matrix:	Soil
Date Taken:	3/22/12
Time Taken:	14:30
Sampler:	B. Smith
Analysis:	SVOC

Job No. ____

Client: ____

Sample Number ____

Date ____________________ Sample Time ____________________

Sample Matrix ____

Grab or Composite (explain) ____

Preservatives ____

Analyses ____

Sampler Signature____

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

5.2 Sample Custody

Custody is one of several factors that are necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final evidence files.

A sample or evidence file is considered to be under a person's custody if

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

5.2.1 Field Custody Procedures

Samples will be collected following the sampling procedures documented in **Section 4.0** of this Plan. Documentation of sample collection is described in **Section 5.1** of this Plan. Sample chain-of-custody and packaging procedures are summarized below. These procedures are intended to ensure that the samples will arrive at the laboratory with the chain-of-custody intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.

- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of collection, and type of analysis. The sample numbering system is presented in **Section 5.1.3** of this Plan.

- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain that a pencil was used to fill out the sample label because the pen would not function in wet weather.

- Samples will be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, to the permanent laboratory, or to/from a secure storage location.

- All shipments will be accompanied by the chain-of-custody record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.

- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. If third party commercial carriers are used for transfer to the laboratory, shipping containers will be secured with strapping tape and custody seals prior to shipment. The custody seals will be attached to the front right and back left of the cooler and covered with clear plastic tape after being signed by field personnel. The cooler will be strapped shut with strapping tape in at least two locations.

- If the samples are sent by third party commercial carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.

- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory courier or sample custodian, and signature of the laboratory courier or sample custodian on chain-of-custody document as receiving the samples and signature of sampler as relinquishing samples.

5.2.2 Laboratory Custody Procedures

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

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

- Examine all sample containers for damage,

- Determine if the temperature required for the requested testing program has been maintained during shipment and document the temperature on the chain-of-custody records,

- Compare samples received against those listed on the chain-of-custody,

- Verify that sample holding times have not been exceeded,

- Examine all shipping records for accuracy and completeness,
- Determine sample pH (if applicable) and record on chain-of-custody forms,
- Sign and date the chain-of-custody immediately (if shipment is accepted) and attach the air bill,
- Note any problems associated with the coolers and/or samples on the cooler receipt form and notify the Laboratory Project Manager, who will be responsible for contacting the QEP,
- Attach laboratory sample container labels with unique laboratory identification and test, and
- Place the samples in the proper laboratory storage.

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

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

6.0 CALIBRATION PROCEDURES

6.1 Field Instruments

Field instruments will be calibrated according to the manufacturer's specifications. Calibration procedures performed will be documented in the field logbook and will include the date/time of calibration, name of person performing the calibration, reference standard used, temperature at which the readings were taken, and the readings.

6.2 Laboratory Instruments

Calibration procedures for a specific laboratory instrument will consist of initial calibrations, initial calibration verifications, and/or continuing calibration verification. Detailed descriptions of the calibration procedures for a specific laboratory instrument are included in the laboratory's standard operating procedures (SOPs), which describe the calibration procedures, their frequency, acceptance criteria, and the conditions that will require recalibration. These procedures are as required in the respective analytical methodologies (summarized in **Table 2** of this Plan). The initial calibration associated with all analyses must contain a low-level calibration standard which is less than or equal to the quantitation limit.

7.0 SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

No field analyses are anticipated for this program. If site conditions were to warrant field analysis, the responsible contractor will prepare an addendum establishing the field analytical procedures. Analyses of all samples will be performed by NYSDOH ELAP certified laboratories. **Table 2** summarizes the analytical methods to be used during the remediation.

8.0 DATA REDUCTION, VALIDATION, AND REPORTING

Appropriate QC measures will be used to ensure the generation of reliable data from sampling and analysis activities. Proper collection and organization of accurate information followed by clear and concise reporting of the data is a primary goal in this project. Complete data packages suitable for data validation will be provided by the analytical laboratory.

For all analyses, the laboratory will report results that are below the laboratory's reporting limit; these results will be qualified as estimated (J) by the laboratory. The laboratory may be required to report tentatively identified compounds (TICs) for the VOC and SVOC analyses; this will be requested by the sampler on an as-needed basis. A Data Usability Summary Report (DUSR) will be prepared and will be included in the Remedial Investigation Report (RIR). Qualifications of the DUSR preparer can be found in **Attachment A.**

8.1 Data Evaluation/Validation

8.1.1 Field Data Evaluation

Measurements and sample collection information will be transcribed directly into the field logbook or onto standardized forms. If errors are made, results will be legibly crossed out, initialed and dated by the person recording the data, and corrected in a space adjacent to the original (erroneous) entry. Daily reviews of the field records by the Field Team Leader will ensure that:

- Logbooks and standardized forms have been filled out completely and that the information recorded accurately reflects the activities that were performed.

- Records are legible and in accordance with good record keeping procedures, i.e., entries are signed and dated, data are not obliterated, changes are initialed, dated, and explained.

- Sample collection, handling, preservation, and storage procedures were conducted in accordance with the protocols described in the Plan, and that any deviations were documented and approved by the appropriate personnel.

8.1.2 Data Usability

A Data Usability Summary Report (DUSR) will be prepared in accordance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

The data usability evaluation will include reviewing the quality assurance/quality control (QA/QC) information including: (1) chain-of-custody; (2) the summary QA/QC information provided by the laboratory; and (3) the project narrative.

For each data package the following questions will be evaluated:

- Is the data package complete as defined under the requirements for the NYSDEC ASP Category B, USEPA CLP deliverables or other standards/guidance?
- Have all holding times and preservation requirements been met?
- Do the quality control (QC) data fall within the laboratory and project established limits and specifications?

8.2 Identification and Treatment of Outliers

Any data point which deviates markedly from others in its set of measurements will be investigated; however, the suspected outlier will be recorded and retained in the data set. One or both of the following tests will be used to identify outliers.

Dixon's test for extreme observations is an easily computed procedure for determining whether a single very large or very small value is consistent with the remaining data. The one-tailed t-test for difference may also be used in this case. It should be noted that these tests are designed for testing a single value. If more than one outlier is suspected in the same data set, other statistical sources may be consulted and the most appropriate test of hypothesis will be used and documented, if warranted.

Since an outlier may result from unique circumstances at the time of sample analysis or data collection, those persons involved in the analysis and data reduction will be consulted. This may provide an experimental reason for the outlier. Further statistical analysis may be performed with and without the outlier to determine its effect on the conclusions. In many cases, two data sets may be reported, one including, and one excluding the outlier.

In summary, every effort will be made to include the outlying values in the reported data. If the value is rejected, it will be identified as an outlier, reported with its data set and its omission noted.

9.0 INTERNAL QUALITY CONTROL

The subcontracting laboratories' Quality Assurance Project Plans will identify the supplemental internal analytical quality control procedures to be used. At a minimum, this will include:

- Matrix spike and/or matrix spike duplicate samples
- Matrix duplicate analyses
- Laboratory control samples
- Instrument calibrations
- Instrument tunes for SW-846 8260B and 8270C and EPA Method TO-15 analyses
- Method and/or instrument blanks
- Surrogate spikes for organic analyses
- Internal standard spikes for SW-846 8260B and 8270C and EPA Method TO-15 analyses
- Quantitation limit determination and confirmation by analysis of low-level calibration standard

Field quality control samples will include:

- Equipment blanks as outlined in **Table 5**
- Field duplicate samples as outlined in **Table 5**
- Trip blanks as outlined in **Table 5**
- MS/MSDs described in **Section 4.11**

10.0 CORRECTIVE ACTION

The entire sampling program will be under the direction of the QEP. The emphasis in this program is on preventing problems by identifying potential errors, discrepancies, and gaps in the data-collection-laboratory-analysis-interpretation process. Any problems identified will be promptly resolved. Likewise, follow-up corrective action is always an option in the event that preventative corrective actions are not totally effective.

The acceptance limits for the sampling and analyses to be conducted in this program will be those stated in the method or defined by other means in the Plan. Corrective actions are likely to be immediate in nature and most often will be implemented by the contracted laboratory analyst or the Program Manager. The corrective action will usually involve recalculation, reanalysis, or resampling.

10.1 Immediate Corrective Action

Corrective action in the field may be needed when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the Plan), or when sampling procedures and/or field analytical procedures require modification, etc. due to unexpected conditions. The field team may identify the need for corrective action. The Field Team Leader will approve the corrective action and notify the Program Manager. The Program Manager will approve the corrective measure. The Field Team Leader will ensure that the corrective measure is implemented by the field team.

Corrective actions will be implemented and documented in the field logbook. Documentation will include:

- A description of the circumstances that initiated the corrective action,
- The action taken in response,
- The final resolution, and
- Any necessary approvals

No staff member will initiate corrective action without prior communication of findings through the proper channels.

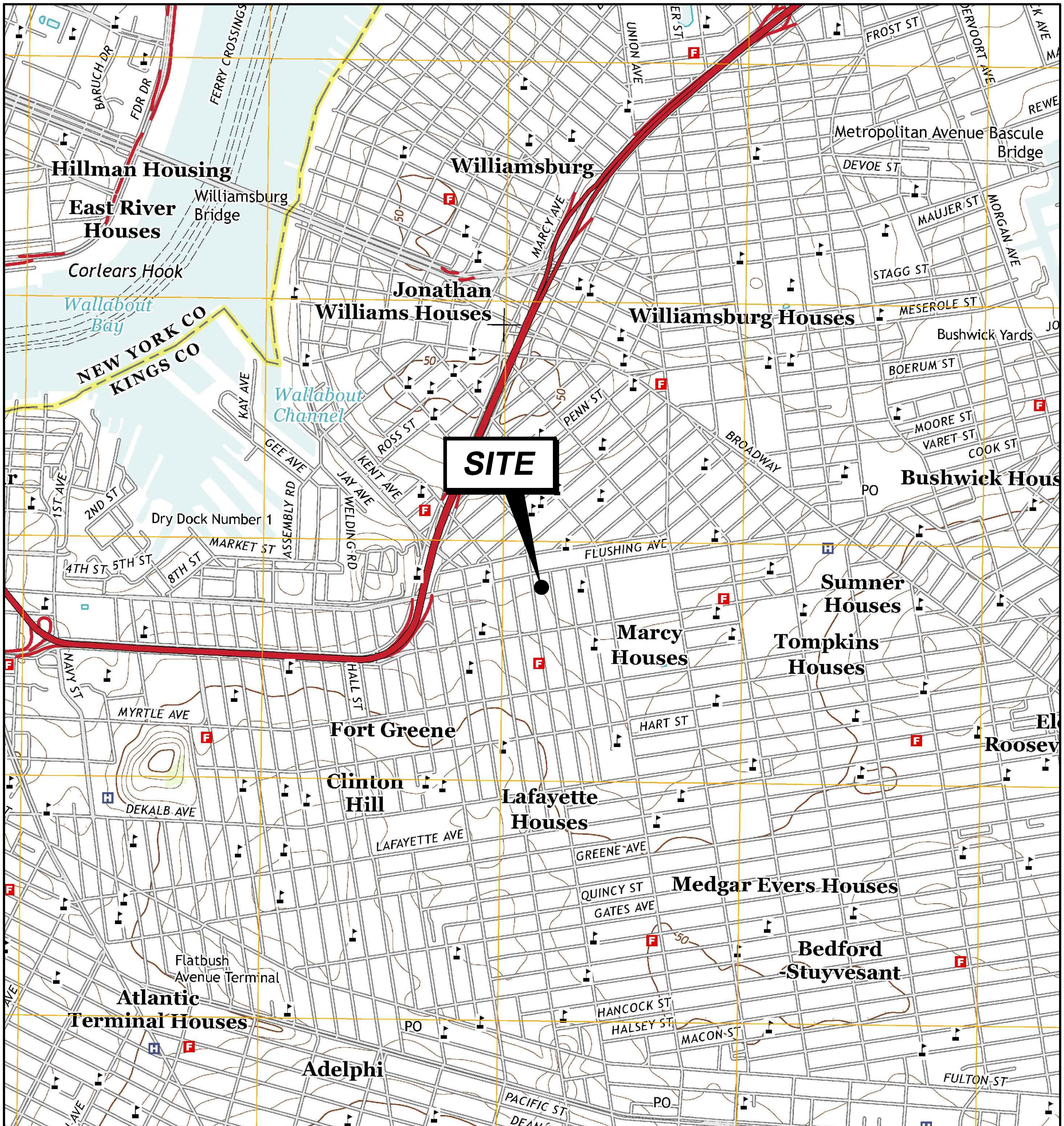
Corrective action in the laboratory may occur prior to, during, and after initial analyses. A number of conditions such as broken sample containers, omissions or discrepancies with chain-of-custody documentation, low/high pH readings, and potentially high concentration samples may be identified during sample log-in or just prior to analysis. Following consultation with laboratory analysts and Laboratory Section Leaders, it may be necessary for the Laboratory QA Manager to approve the implementation of corrective action. The laboratory SOPs specify some conditions during or after analysis that may automatically trigger corrective action or optional procedures. These conditions may include dilution of samples, additional sample extract cleanup, automatic reinjection/reanalysis when certain QC criteria are not met, loss of sample through breakage or spillage, etc.

The analyst may identify the need for corrective action. The Laboratory Section Leader, in consultation with the staff, will approve the required corrective action to be implemented by the laboratory staff. The Laboratory QA Manager will ensure implementation and documentation of the corrective action. If the nonconformance causes project objectives not to be achieved, the QEP will be notified. The QEP will notify the Program Manager, who in turn will contact all levels of project management for concurrence with the proposed corrective action.

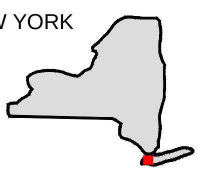
These corrective actions are performed prior to release of the data from the laboratory. The corrective action will be documented in both the laboratory's corrective action files, and the narrative data report sent from the laboratory to the Program Manager. If the corrective action does not rectify the situation, the laboratory will contact the Program Manager, who will determine the action to be taken and inform the appropriate personnel.

If potential problems are not solved as an immediate corrective action, the contractor will apply formalized long-term corrective action, if necessary.

FIGURES



NEW YORK



QUADRANGLE LOCATION

SOURCE:
USGS TOPOGRAPHIC MAP: BROOKLYN, NY (2013).
CONTOUR INTERVAL 10 FT., NAVD-1988, ORIGINAL
SCALE 1:24,000 (1" = 2,000 FT.).

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11 SPENCER STREET BROOKLYN, NEW YORK	PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR:	
SITE LOCATION PLAN	PROJ MGR: JB	REVIEWED BY: JB	CHECKED BY: DW	FIGURE
	DESIGNED BY: ZS	DRAWN BY: MT	SCALE: 1" = 2,000'	1
	DATE: APRIL 2017	PROJECT NO. 12.0076527.00	REVISION NO.	SHEET NO.

TABLES

Table 1 A
Soil Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

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

Table 1 A
Soil Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

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

Notes:
[a] The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm.
[b] The SCOs for commercial use were capped at a maximum value of 500 ppm.
[c] The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm.
[d] The SCOs for metals were capped at a maximum value of 10,000 ppm.
[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.
[f] For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.
[g] This SCO is derived from data on mixed isomers of BHC.

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

Table 1B
Groundwater Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Contaminant	Aqueous Water Quality Standards[1], ug/L
Metals	
Antimony	3
Arsenic	---
Arsenic	25
Barium	1,000
Beryllium	3
Cadmium	5
Chromium, hexavalent	---
Chromium, trivalent	50
Copper	200
Cyanide	---
Iron	300
Lead	25
Magnesium	35,000
Manganese	300
Mercury	0.7
Nickel	100
Selenium	10
Silver	50
Sodium	20,000
Thallium	0.5
Zinc	2000
PCBs/Pesticides	
alpha-BHC	0.01
2,4,5-TP Acid (Silvex)	---
4,4'-DDD	0.3
4,4'-DDE	0.2
4,4'-DDT	0.2
Aldrin	---
beta-BHC	0.04
Chlordane (alpha)	---
Dibenzofuran	---
Dieldrin	0.004
Endosulfan I	0.12
Endosulfan II	0.12
Endosulfan sulfate	0.12
Endrin	---
Endrin aldehyde	5
Endrin ketone	5
gamma-BHC (Lindane)	0.05

Table 1B
Groundwater Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Contaminant	Aqueous Water Quality Standards[1], ug/L
PCBs/Pesticides, Con't.	
gamma-Chlordane	0.12
Heptachlor	0.04
Heptachlor epoxide	0.03
Lindane	---
Methoxychlor	35
Polychlorinated biphenyls	---
Toxaphene	0.06
Semivolatiles	
1,1’-Biphenyl	5
2,2’-oxybis(1-Chloropropane)	5
2,4,5-Trichlorophenol	1
2,4-Dichlorophenol	1
2,4-Dimethylphenol	50
2,4-Dinitrophenol	10
2,4-Dinitrotoluene	5
2,6-Dinitrotoluene	5
2-Chloronaphthalene	10
2-Chlorophenol	1
2-Methylnaphthalene	502
2-Methylphenol	1
2-Nitroaniline	5
2-Nitrophenol	1
3,3’-Dichlorobenzidine	5
3-Nitroaniline	5
4-Chloro-3-methylphenol	1
4-Chloroaniline	5
4-Methylphenol	1
4-Nitroaniline	5
4-Nitrophenol	1
Acenaphthene	20
Acenapthylene	202
Anthracene	50
Atrazine	7.5
Benz(a)anthracene	0.002
Benzo(a)pyrene	---
Benzo(b)fluoranthene	0.002
Benzo(g,h,i)perylene	52
Benzo(k)fluoranthene	0.002
bis(2-Chloroethoxy)methane	5

Table 1B
Groundwater Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Contaminant	Aqueous Water Quality Standards[1], ug/L
Semivolatiles, Con't.	
Bis(2-Chloroethyl)ether	1
bis(2-Ethylhexyl)phthalate	5
Butylbenzylphthalate	50
Chrysene	0.002
Dibenz(a,h)anthracene	502
Dibenzofuran	52
Diethylphthalate	50
Dimethylphthalate	50
Di-n-butylphthalate	50
Di-n-octylphthalate	50
Fluoranthene	50
Fluorene	50
Hexachlorobenzene	0.04
Hexachlorobutadiene	0.5
Hexachlorocyclopentadiene	5
Hexachloroethane	5
Indeno(1,2,3-cd)pyrene	0.002
Isophorone	50
m-Cresol	---
Naphthalene	10
Nitrobenzene	0.4
N-Nitrosodiphenylamine	50
o-Cresol	---
p-Cresol	---
Pentachlorophenol	1
Phenanthrene	50
Phenol	1
Pyrene	50
Volatiles	
1,1,1-Trichloroethane	5
1,1,2,2-Tetrachloroethane	5
1,1,2-Trichloro-1,2,2-trifluoroethane	5
1,1,2-Trichloroethane	1
1,1-Dichloroethane	5
1,1-Dichloroethene	5
1,1-Dichloroethylene	---
1,2,4-Trichlorobenzene	---

Table 1B
Groundwater Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Contaminant	Aqueous Water Quality Standards[1], ug/L
Volatiles, Con't.	
1,2,4-Trimethylbenzene	5
1,2-Dibromo-3-chloropropane	0.04
1,2-Dibromoethane	0.0006
1,2-Dichlorobenzene	3
1,2-Dichloroethane	0.6
1,2-Dichloropropane	1
1,3,5- Trimethylbenzene	---
1,3-Butadiene	---
1,3-Dichlorobenzene	3
1,3-Dichlorobenzene	---
1,4-Dichlorobenzene	3
1,4-Dichlorobenzene	---
1,4-Dioxane	---
2-Butanone	50
2-Hexanone	50
4-Methyl-2-pentanone	502
Acetone	50
Benzene	1
Bromodichloromethane	50
Bromoform	50
Bromomethane	5
Butylbenzene	---
Carbon Disulfide	60
Carbon tetrachloride	5
Chlorobenzene	5
Chloroethane	5
Chloroform	7
Chloromethane	5
Cis- 1,3-Dichloropropene	0.4
cis-1,2-Dichloroethene	5
cis-1,2-Dichloroethylene	---
Cyclohexane	---
Dibromochloromethane	50
Dichlorodifluoromethane	5
Ethyl Acetate	---
Ethylbenzene	5
Freon 113	---
Hexachlorobenzene	---

Table 1B
Groundwater Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Contaminant	Aqueous Water Quality Standards[1], ug/L
Volatiles, Con't.	
Hexachlorobutadiene	---
Hexane	---
Isopropylbenzene	5
m,p-Xylene	---
m-Dichlorobenzene	---
Methyl Acetate	NS
Methyl ethyl ketone	---
Methyl Isobutyl Ketone	---
Methyl tert-butyl ether	10
Methylcyclohexane	---
Methylene chloride	5
n-Propylbenzene	---
o-Dichlorobenzene	---
o-Xylene	---
p-Dichlorobenzene	---
sec-Butylbenzene	---
Volatiles, Con't.	
Styrene	5
tert-Butylbenzene	---
Tertiary Butyl Alcohol	---
Tetrachloroethene	5
Toluene	5
trans-1,2-Dichloroethene	5
trans-l,3-Dichloropropene	0.4
Trichloroethene	5
Trichlorofluoromethane	5
Vinyl Acetate	---
Vinyl Chloride	2
Xylene (mixed)	5

Notes:
[1] - Division of Water Technical and Operational Guidance Vaslues (TOGS) Ambient Water Quality Standards and Guidance Values (AWQS), ug/L
ug/L - micro gram per liter

Table 1C
Soil Vapor Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Volatile Organics in Air	CAS No.	NYSDOH Soil Vapor Intrusion Guidance Criteria				Toxicity	Decision Matrix
		1	2	3	4		I or II
1,1,1-Trichloroethane	71556	2.5	20.6	-	-	L	II
1,1,2,2-Tetrachloroethane	79345	0.4	-	-	-	M	TD
1,1,2-Trichloroethane	79005	0.4	<1.5	-	-	M	TD
1,1-Dichloroethane	75343	0.4	<0.7	-	-	NA	TD
1,1-Dichloroethene	75354	0.4	<1.4	-	-	M	II
1,2,4-Trichlorobenzene	120821	0.5	<6.8	-	-	H	TD
1,2,4-Trimethylbenzene	95636	9.8	9.5	-	-	NA	TD
1,2-Dibromoethane	106934	0.4	<1.5	-	-	NA	TD
1,2-Dichlorobenzene	95501	0.5	<1.2	-	-	NA	TD
1,2-Dichloroethane	107062	0.4	<0.9	-	-	NA	TD
1,2-Dichloropropane	78875	0.4	<1.6	-	-	M	TD
1,3,5-Trimethybenzene	108678	3.9	3.7	-	-	M	TD
1,3-Butadiene	106990	-	<3.0	-	-	H	TD
1,3-Dichlorobenzene	541731	0.5	<2.4	-	-	NA	TD
1,4-Dichlorobenzene	106467	1.2	5.5	344	-	NA	TD
1,4-Dioxane	123911	-	-	-	-	M	TD
2,2,4-Trimethylpentane	540841	5	-	-	-	M	TD
2-Butanone	78933	16	12	-	-	M	TD
2-Hexanone	591786	-	-	-	-	NA	TD
3-Chloropropene	107051	-	-	-	-	M	TD
4-Ethyltoluene	622968	-	3.6	-	-	NA	TD
4-Methyl-2-pentanone	108101	1.9	6	-	-	M	TD
Acetone	67641	115	98.9	45.8	-	L	TD
Benzene	71432	13	9.4	10	-	H	TD
Benzyl chloride	100447	-	<6.8	-	-	H	TD
Bromodichloromethane	75274	-	-	-	-	M	TD
Bromoform	75252	-	-	-	-	M	TD
Bromomethane	74839	0.5	<1.7	-	-	M	TD
Carbon disulfide	75150	-	4.2	-	-	M	TD
Carbon tetrachloride	56235	1.3	<1.3	1.1	-	H	I
Chlorobenzene	108907	0.4	<0.9	-	-	M	TD
Chloroethane	75003	0.4	<1.1	-	-	L	TD
Chloroform	67663	1.2	1.1	6.34	-	M	TD
Chloromethane	74873	4.2	3.7	-	-	M	TD
cis-1,2-Dichloroethene	156592	0.4	<1.9	-	-	NA	II
cis-1,3-Dichloropropene	10061015	0.4	<2.3	-	-	NA	TD
Cyclohexane	110827	6.3	-	-	-	L	TD
Dibromochloromethane	124481	-	-	-	-	NA	TD

Table 1C
Soil Vapor Criteria Table
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Volatile Organics in Air	**CAS No.**	NYSDOH Soil Vapor Intrusion Guidance Criteria				**Toxicity**	Decision Matrix
		1	**2**	**3**	**4**		**I or II**
Dichlorodifluoromethane	75718	10	16.5	-	-	NA	TD
Ethanol	64175	1300	210	-	-	L	TD
Ethyl Acetate	141786	-	5.4	-	-	M	TD
Ethylbenzene	100414	6.4	5.7	7.62	-	M	TD
Freon-113	76131	2.5	3.5	-	-	L	TD
Freon-114	76142	0.4	<6.8	-	-	NA	TD
Heptane	142825	18	-	-	-	M	TD
Hexachlorobutadiene	87683	0.5	<6.8	-	-	M	TD
Isopropanol	67630	-	-	-	-	M	TD
Methyl tert butyl ether	1634044	14	11.5	36	-	M	TD
Methylene chloride	75092	16	10	7.5	60	NA	TD
n-Hexane	110543	14	10.2	-	-	M	TD
o-Xylene	95476	7.1	7.9	7.24	-	M	TD
p/m-Xylene	1.8E+08	11	22.2	22.2	-	M	TD
Styrene	100-42-5	1.4	1.9	5.13	-	M	TD
Tertiary butyl Alcohol	75-65-0	-	-	-	-	NA	TD
Tetrachloroethene (PCE)	127184	2.5	15.9	6.01	30	M	II
Tetrahydrofuran	109999	0.8	-	-	-	M	TD
Toluene	108883	57	43	39.8	-	L	TD
trans-1,2-Dichloroethene	156605	-	-	-	-	NA	TD
trans-1,3-Dichloropropene	10061026	NC	<1.3	-	-	NA	TD
Trichloroethene	79016	0.5	4.2	1.36	5	M	I
Trichlorofluoromethane	75694	12	18.1	-	-	L	TD
Vinyl bromide	593602	-	-	-	-	H	TD
Vinyl chloride	75014	0.4	<1.9	-	-	H	I

Notes
Decision Criteria used:
Martix I: Sub-Slab >5, Indoor Air >5 — ND - Non-detect
Martix II: Sub-Slab >100, Indoor Air >30 — NA - Not applicable
Toxicities from DAR-1 Appendix C/SCG/ACG — NFA - No further action
(H) HIGH Toxicity Contaminant. — TD - To be determined based on the NYSDOH VI Decision
(M) MODERATE Toxicity Contaminant.
(L) LOW Toxicity Contaminant. — easonable - Take reasonable/practical actions to identify source/reduce exposure

NYSDOH Soil Vapor Intrusion Guidance Criteria
1 - Table C-1 2003 Upper Fence Study of Volatile Organic Chemicals in air of Fuel Oil Heated Homes for Indoor Air
2 - Table C-2 2001 USEPA BASE 90th Percentile for Indoor Air
3 -Table C-5 2005 Health Effects Institute 95th Percentile for Indoor Air
4 -NYSDOH Air Guidance Value
NYSDOH Specific Compounds for Matrix Eval

Table 2

Analytical Parameters, Methods, Preservation, Holding Time and Container Requirements

11 Spencer Street, Brooklyn New York

QA/QC Project Plan

Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container[4,5]
Soil/Sediment	VOCs (STARS or TCL)	Grab	TBD	SW-846 Method 8260B	Cool to 4^0 C; no headspace	14 days to analysis	(2) 2-oz. glass jars
Soil/Sediment	PCBs	Grab	TBD	SW-846 Method 8082A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil/Sediment	Pesticides (TCL)	Grab	TBD	SW-846 Method 8081A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil/Sediment	PAHs or SVOCs (STARS or TCL)	Grab	TBD	SW-846 Method 8270C	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Sediment	Grain Size	Grab	TBD	ASTM Method D422 (with hydrometer)	None	None	(1) 500 mL polyethylene jar or 16 oz. Ziploc bag
Soil/Sediment	Metals (TAL)	Grab	TBD	SW-846 Method 6010B/7000 Series	Cool to 4^0 C	28 days to analysis for Hg; 6 months to analysis for other metals	(1) 300 mL amber glass jar
Soil	Cyanide	Grab	TBD	SW-846 Method 9012A	Cool to 4^0 C	14 days to analysis	(1) 300 mL amber glass jar
Soil	Herbicides	Grab	TBD	SW-846 Method 8151A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil	Organophosphorous Pesticides	Grab	TBD	SW-846 Method 8141A[6]	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar

Table 2

Analytical Parameters, Methods, Preservation, Holding Time and Container Requirements
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container[4,5]
Soil/Sediment	VOCs (STARS or TCL)	Grab	TBD	SW-846 Method 8260B	Cool to 4^0 C; no headspace	14 days to analysis	(2) 2-oz. glass jars
Soil/Sediment	PCBs	Grab	TBD	SW-846 Method 8082A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil/Sediment	Pesticides (TCL)	Grab	TBD	SW-846 Method 8081A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil/Sediment	PAHs or SVOCs (STARS or TCL)	Grab	TBD	SW-846 Method 8270C	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Sediment	Grain Size	Grab	TBD	ASTM Method D422 (with hydrometer)	None	None	(1) 500 mL polyethylene jar or 16 oz. Ziploc bag
Soil/Sediment	Metals (TAL)	Grab	TBD	SW-846 Method 6010B/7000 Series	Cool to 4^0 C	28 days to analysis for Hg; 6 months to analysis for other metals	(1) 300 mL amber glass jar
Soil	Cyanide	Grab	TBD	SW-846 Method 9012A	Cool to 4^0 C	14 days to analysis	(1) 300 mL amber glass jar
Soil	Herbicides	Grab	TBD	SW-846 Method 8151A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil	Organophosphorous Pesticides	Grab	TBD	SW-846 Method 8141A[6]	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar

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Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container[4,5]
Sediment	Total Organic Carbon	Grab	TBD	Lloyd Kahn Method, EPA Region 2	Cool to 4^0 C	14 days to analysis	(1) 300 mL amber glass jar
Soil/Solid Waste/Liquid Waste	TCLP VOC (RCRA)	Grab	TBD	SW 846 Methods 1311/8260B	Cool to 4^0 C; no headspace	14 days to TCLP extraction; 14 days from TCLP extraction to analysis	(1) 60 ml VOC vial
Soil/Solid Waste	TCLP SVOC (RCRA)	Grab	TBD	SW 846 Methods 1311/ 8270C	Cool to 4^0 C	14 days to TCLP extraction; 7 days from TCLP extraction to SVOC extraction; 40 days from SVOC extraction to analysis	(1) 950 mL amber glass jar
Liquid Waste	TCLP SVOC (RCRA)	Grab	TBD	SW 846 Methods 1311/ 8270C	Cool to 4^0 C	7 days to TCLP extraction; 7 days from TCLP extraction to SVOC extraction; 40 days from SVOC extraction to analysis	(1) 950 mL amber glass jar
Solid Waste	TCLP Pesticides (RCRA)	Grab	TBD	SW-846 Methods 1311/8081A	Cool to 4ºC	14 days to TCLP extraction; 7 days from TCLP extraction to pesticide extraction; 40 days from pesticide extraction to analysis	(1) 950 mL amber glass jar
Liquid Waste	TCLP Pesticides (RCRA)	Grab	TBD	SW-846 Methods 1311/8081A	Cool to 4ºC	7 days to TCLP extraction; 7 days from TCLP extraction to pesticide extraction; 40 days from pesticide extraction to analysis	(1) 950 mL amber glass jar
Solid Waste	TCLP Herbicides (RCRA)	Grab	TBD	SW-846 Methods 1311/8151A	Cool to 4ºC	14 days to TCLP extraction; 7 days from TCLP extraction to herbicide extraction; 40 days from herbicide extraction to analysis	(1) 950 mL amber glass jar

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Analytical Parameters, Methods, Preservation, Holding Time and Container Requirements
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Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container[4,5]
Liquid Waste	TCLP Herbicides (RCRA)	Grab	TBD	SW-846 Methods 1311/8151A	Cool to 4ºC	7 days to TCLP extraction; 7 days from TCLP extraction to herbicide extraction; 40 days from herbicide extraction to analysis	(1) 950 mL amber glass jar
Solid Waste/Liquid Waste	TCLP Metals (RCRA)	Grab	TBD	SW 846 Methods 1311/ 6010B/7000 Series	Cool to 4^0 C	Hg: 28 days to TCLP extraction; 28 days from TCLP extraction to analysis Other Metals: 6 months to TCLP extraction; 6 months from TCLP extraction to analysis	(1) 500 mL amber glass jar
Solid Waste/Liquid Waste	Ignitability	Grab	TBD	SW-846 Method 1010/1030	Cool to 4^0 C	None specified	(1) 500 mL amber glass jar
Solid Waste/Liquid Waste	Corrosivity	Grab	TBD	SW-846 Method 9045C	Cool to 4^0 C	As soon as possible (within 3 days of collection)	(1) 500 mL amber glass jar
Solid Waste/Liquid Waste	Reactive cyanide	Grab	TBD	SW-846 Chapter 7, Section 7.3.3	Cool to 4^0 C; no headspace	As soon as possible (within 3 days of collection)	(1) 500 mL amber glass jar
Solid Waste/Sediment	TPH-DRO	Grab	TBD	SW-846 Method 8015B	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Solid Waste	Total Organic Halides	Grab	TBD	SW-846 Method 9023	Cool to 4^0 C; no headspace	28 days to analysis	(1) 2-oz. glass jar
Solid Waste/Liquid Waste	Reactive sulfide	Grab	TBD	SW-846 Chapter 7, Section 7.3.4	Cool to 4^0 C; no headspace	As soon as possible (within 3 days of collection)	(1) 500 mL amber glass jar

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Analytical Parameters, Methods, Preservation, Holding Time and Container Requirements
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Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container[4,5]
Groundwater	VOCs (STARS or TCL)	Grab	TBD	SW-846 Method 8260B	pH<2 with HCl; Cool to 4^0 C; no headspace	14 days to analysis	(2) 40 mL VOA vials
Groundwater	SVOCs (STARS or TCL)	Grab	TBD	SW-846 Method 8270C	Cool to 4^0 C	7 days to extraction; 40 days from extraction to analysis	(2) 950 mL amber glass jar
Groundwater/Wastewater	Metals- total (TAL)	Grab	TBD	SW-846 Method 6010B/7000 Series	pH<2 with HNO_3; Cool to 4^0 C	28 days to analysis for Hg; 6 months to analysis for other metals	(1) 1 L polyethylene container
Groundwater	Metals-dissolved (TAL)	Grab	TBD	SW-846 Method 6010B/7000 Series	Cool to 4^0 C	24 hours to filtering and preservation (pH<2 with HNO_3); 28 days to analysis for Hg; 6 months to analysis for other metals	(1) 1 L polyethylene container
Groundwater	Ammonia	Grab	TBD	EPA Method 350.1 (350.2 for distillation)	pH<2 with H_2SO_4; Cool to 4^0 C	28 days to analysis	(1) 250 mL polyethylene container
Groundwater	Nitrate	Grab	TBD	EPA Method 353.2/SM 4500-NO_2B (18th edition)	pH<2 with H_2SO_4; Cool to 4^0 C	28 days to analysis	(1) 100 mL polyethylene container
Groundwater	Nitrite	Grab	TBD	SM 4500-NO_2B (18th edition)	Cool to 4^0 C	48 hours to analysis	(1) 100 mL polyethylene container
Groundwater	Pesticides (TCL)	Grab	TBD	SW-846 Method 8081A	Cool to 4^0 C	7 days to extraction; 40 days from extraction to analysis	(2) 950 mL amber glass jar

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Analytical Parameters, Methods, Preservation, Holding Time and Container Requirements
11 Spencer Street, Brooklyn New York
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Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container[4,5]
Groundwater	Sulfate	Grab	TBD	SW-846 9056	Cool to 4^0 C	As soon as possible (within 3 days of collection)	(1) 100 mL polyethylene container
Groundwater	Carbonate	Grab	TBD	SM 4500-CO_2D (18th edition)	Cool to 4^0 C	14 days to analysis	(1) 250 mL polyethylene container
Groundwater	Bicarbonate	Grab	TBD	SM 4500-CO_2D (18th edition)	Cool to 4^0 C	14 days to analysis	(1) 250 mL polyethylene container
Groundwater	Total Cyanide	Grab	TBD	EPA Method 335.4	pH>12 with NaOH; Cool to 4ºC	14 days to analysis	(1) 250 mL polyethylene container
Groundwater	Total Dissolved Solids	Grab	TBD	EPA Method 160.1	Cool to 4ºC	7 days to analysis	(1) 100 mL polyethylene container
Groundwater	Chloride	Grab	TBD	SM 2540C (18th edition)	Cool to 4ºC	28 days to analysis	(1) 100 mL polyethylene container
Wastewater	Total Petroleum Hydrocarbons	Grab	TBD	EPA Method 418.1	pH<2 with HCl; Cool to 4^0 C	28 days to analysis	(2) 950 mL amber glass jar
Wastewater	pH	Grab	TBD	EPA Method 150.1	Cool to 4ºC	As soon as possible (24 hours to analysis)	(1) 100 mL polyethylene container
Wastewater	Amenable cyanide	Grab	TBD	EPA Method 335.1	pH>12 with NaOH; Cool to 4ºC	14 days to analysis	(1) 300 mL polyethylene container
Wastewater	Flashpoint	Grab	TBD	SW-846 Method 1010	Cool to 4ºC	None	(1) 100 mL polyethylene container

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Analytical Parameters, Methods, Preservation, Holding Time and Container Requirements

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Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container[4,5]
Wastewater	Hexavalent chromium	Grab	TBD	SW-846 Method 7196A	Cool to 4ºC	24 hours to analysis	(1) 500 mL polyethylene container
Soil Gas	VOCs	Grab	TBD	EPA Method TO-15	None	14 days to analysis	(1) Evacuated 6-Liter SUMMA® canister

Notes:

[1] For soil samples, a six-inch sampling interval is the preferred sample size; however, sample volume recovery, analytical method requirements, and field

conditions can affect the actual sample interval size. For these reasons, the actual sampling interval may change in order to obtain adequate volume.

[2] Actual number of samples may vary depending on field conditions, sample material availability, and field observations. See Remedial Work Plan for estimates.

[3] Holding times listed are method holding time calculated from time of collection and not NYSDEC ASP holding times.

[4] I-Chem Series 300 bottles

[5] MS/MSDs require duplicate volume for all parameters for solid matrices; MS/MSDs require triplicate volume for organic parameters for aqueous matrices and duplicate volume for inorganic parameters for aqueous matrices

[6] Accutest utilizes SW-846 Method 8270C for organophosphorous pesticides and Lancaster utilizes SW-846 Method 8141A.

TBD = To Be Determined

Table 3
Typical Laboratory Data Quality Objectives
Soil, Sediment, and Solid Waste Samples
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
VOCs	SW-846	Soil	Surrogates % Rec.	Surrogates:	Field Duplicates	Field Duplicates:
(TCL or STARS)	Method		1,2-Dichloroethane-d4 61-133	All samples, standards,		One per 20 per soils
	8260B		4-Bromofluorobenzene 65-142	QC samples	RPD <50	
			Dibromofluoromethane 70-120			
			Toluene-d8 75-123			
			Matrix Spikes	Matrix Spikes:	MS/MSDs (RPD)	MS/MSDs:
			1,1-Dichloroethene 47-136	One per 20 per matrix	1,1-Dichloroethene 20	One per 20 per matrix type
			Trichloroethene 42-145	type	Trichloroethene 19	
			Benzene 49-134		Benzene 17	
			Toluene 41-143		Toluene 19	
			Chlorobenzene 42-142		Chlorobenzene 20	
PCBs	SW-846	Soil	Surrogates % Rec.	Surrogates:	Field Duplicates	Field Duplicates:
			Decachlorobiphenyl 40-151	All samples, standards,		One per 20 per soils
			Tetrachloro-m-xylene 37-140	QC samples	RPD <50	
			Matrix Spikes	Matrix Spikes:	MS/MSDs (RPD)	MS/MSDs:
			Aroclor 1016 43-161	One per 20 per matrix	Aroclor 1016 19	One per 20 per matrix type
			Aroclor 1020 37-164	type	Aroclor 1020 24	
PAHs	SW-846	Soil	Surrogates % Rec.	Surrogates:	Field Duplicates	Field Duplicates:
(CP-51)	Method		Nitrobenzene-d5 26-113	All samples, standards,		One per 20
	8270C		2-Fluorobiphenyl 40-106	QC samples	RPD <50	
			Terphenyl-d14 35-142			
			Matrix Spikes	Matrix Spikes:	MS/MSDs (RPD)	MS/MSDs:
			Naphthalene 24-115	One per 20 per matrix	Naphthalene 25	One per 20 per matrix type
			2-Methylnaphthalene 25-120	type	2-Methylnaphthalene 23	
			Acenaphthylene 31-105		Acenaphthylene 22	
			Acenaphthene 31-118		Acenaphthene 25	
			Fluorene 35-123		Fluorene 25	
			Fluoranthene 28-130		Fluoranthene 39	
			Pyrene 18-149		Pyrene 42	
			Phenanthrene 31-128		Phenanthrene 39	
			Anthracene 31-129		Anthracene 32	
			Benzo(a)anthracene 31-129		Benzo(a)anthracene 33	
			Chrysene 27-134		Chrysene 32	
			Benzo(b)fluoranthene 21-151		Benzo(b)fluoranthene 33	
			Benzo(k)fluoranthene 29-142		Benzo(k)fluoranthene 37	
			Benzo(a)pyrene 26-133		Benzo(a)pyrene 33	
			Indeno(1,2,3-cd)pyrene 12-134		Indeno(1,2,3-cd)pyrene 34	
			Dibenzo(a,h)anthracene 18-125		Dibenzo(a,h)anthracene 31	
			Benzo(g,h,i)perylene 0-132		Benzo(g,h,i)perylene 35	
SVOCs	SW-846	Soil	Surrogates % Rec.	Surrogates:	Field Duplicates	Field Duplicates:
(TCLP or CP-51)	Method		Phenol-d5 34-110	All samples, standards,		One per 20 per soils
and	8270C		2-Fluorophenol 33-105	QC samples	RPD <50	
Organophosphorous			2,4,6-Tribromophenol 33-124			
Pesticides			Nitrobenzene-d5 26-113			
			2-Fluorobiphenyl 40-106			
			Terphenyl-d14 35-142			
			Matrix Spikes	Matrix Spikes:	MS/MSDs (RPD)	MS/MSDs:
			Phenol 40-109	One per 20 per matrix	Phenol 18	One per 20 per matrix type
			2-Chlorophenol 43-107	type	2-Chlorophenol 16	
			4-Chloro-3-methylphenol 42-104		4-Chloro-3-methylphenol 19	
			Acenaphthene 31-118		Acenaphthene 25	
			4-Nitrophenol 14-138		4-Nitrophenol 34	
			Pentachlorophenol 22-125		Pentachlorophenol 21	
			Pyrene 18-149		Pyrene 42	

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Typical Laboratory Data Quality Objectives
Soil, Sediment, and Solid Waste Samples
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Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
Pesticides (TCL)	SW-846 Method 8081A	Soil	Surrogates % Rec. Decachlorobiphenyl 28-148 Tetrachloro-m-xylene 31-136 Matrix Spikes Gamma-BHC 35-148 Heptachlor 51-136 Aldrin 49-137 Dieldrin 51-151 Endrin 27-168 4,4'-DDT 20-193	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix	Field Duplicates RPD <50 MS/MSDs (RPD) Gamma-BHC 29 Heptachlor 32 Aldrin 29 Dieldrin 28 Endrin 30 4,4'-DDT 42	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Total Petroleum Hydrocarbons	SW-846 Method 8015B	Soil	Surrogates % Rec. o-Terphenyl 27-153 Tetracosane-d50 28-148 5α-androstane 27-148 TPH-DRO 10-149	Surrogates: All samples, standards, QC samples One per 20 per matrix type	Field Duplicates RPD <50 TPH-DRO 44	Field Duplicates: One per 20 per soils One per 20 per matrix type
Herbicides	SW-846 Method 8151A	Soil	Surrogates % Rec. 2,4-DCAA 10-147 Matrix Spikes 2,4-D 10-130 2,4,5-TP 19-108 2,4,5-T 10-121	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD V50 MS/MSDs (RPD) 2,4-D 53 2,4,5-TP 59 2,4,5-T 62	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Metals (TAL)	SW-846 Methods 6010B/7000 Series	Soil	Surrogates % Rec. Matrix Spikes 75-125% recovery	Surrogates: Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD) RPD <20	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Cyanide	SW-846 Method 9012A	Soil	Surrogates % Rec. Matrix Spikes 85-120% recovery	Surrogates: Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD) RPD <10	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Total Organic Halides	SW-846 Method 9023	Soil	Surrogates % Rec. Matrix Spikes 69-132% recovery	Surrogates: Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD) RPD <16	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type

Parameter	Method	Matrix	Accuracy Control Limits		Accuracy Frequency Requirements	Precision (RPD) Control Limits		Precision Frequency Requirements
Organophosphorous	SW-846 Method 8141A	Soil	Surrogates	% Rec.	Surrogates:	Field Duplicates		Field Duplicates:
Pesticides			2-Nitro-m-xylene	67-134	All samples, standards, QC samples	RPD <50		One per 20 per soils
			Matrix Spikes		Matrix Spikes:	MS/MSDs	(RPD)	MS/MSDs:
			Parathion	63-147	One per 20 per matrix type	RPD <35		One per 20 per matrix type
TCLP VOCs (RCRA)	SW-846 Methods 1311/8260B	Solid Waste/Liquid Waste	Surrogates	% Rec.	Surrogates:	Field Duplicates		Field Duplicates:
			1,2-Dichloroethane-d4	65-133	All samples, standards, QC samples			
			4-Bromofluorobenzene	79-124				
			Dibromofluoromethane	77-121				
			Toluene-d8	80-117				
			Matrix Spikes		Matrix Spikes:	MS/MSDs	(RPD)	MS/MSDs:
			1,1-Dichloroethene	63-135	One per 20 per matrix type	1,1-Dichloroethene	15	One per 20 per matrix type
			1,2-Dichloroethane	62-150		1,2-Dichloroethane	15	
			2-Butanone	45-146		2-Butanone	19	
			Chloroform	73-133		Chloroform	14	
			Carbon Tetrachloride	65-152		Carbon Tetrachloride	17	
			Benzene	50-141		Benzene	13	
			Trichloroethene	64-139		Trichloroethene	13	
			Tetrachloroethene	60-138		Tetrachloroethene	14	
			Chlorobenzene	73-124		Chlorobenzene	12	
			Vinyl chloride	56-146		Vinyl chloride	18	
			1,4-Dichlorobenzene	71-122		1,4-Dichlorobenzene	13	
TCLP SVOCs (RCRA)	SW-846 Methods 1311/8270C	Solid Waste/Liquid Waste	Surrogates	% Rec.	Surrogates:	Field Duplicates		Field Duplicates:
			Phenol-d5	10-59	All samples, standards, QC samples			
			2-Fluorophenol	12-76				
			2,4,6-Tribromophenol	42-128				
			Nitrobenzene-d5	30-122				
			2-Fluorobiphenyl	34-113				
			Terphenyl-d14	42-125				
			Matrix Spikes		Matrix Spikes:	MS/MSDs	(RPD)	MS/MSDs:
			Hexachloroethane	24-118	One per 20 per matrix type	Hexachloroethane	33	One per 20 per matrix type
			Nitrobenzene	37-117		Nitrobenzene	28	
			Hexachlorobutadiene	29-119		Hexachlorobutadiene	30	
			2,4,6-Trichlorophenol	46-122		2,4,6-Trichlorophenol	26	
			2,4,5-Trichlorophenol	50-120		2,4,5-Trichlorophenol	25	
			2,4-Dinitrotoluene	45-129		2,4-Dinitrotoluene	25	
			Hexachlorobenzene	52-119		Hexachlorobenzene	22	
			Pentachlorophenol	38-134		Pentachlorophenol	20	
			Pyridine	10-91		Pyridine	41	
			2-Methylphenol	29-108		2-Methylphenol	27	
			3&4-Methylphenol	25-105		3&4-Methylphenol	26	
TCLP Pesticides (RCRA)	SW-846 Methods 1311/8081A	Solid Waste/Liquid Waste	Surrogates	% Rec.	Surrogates:	Field Duplicates		Field Duplicates:
			Decachlorobiphenyl	19-153	All samples, standards, QC samples			
			Tetrachloro-m-xylene	35-138				
			Matrix Spikes		Matrix Spikes:	MS/MSDs	RPD	MS/MSDs:
			Gamma-BHC	51-145	One per 20 per matrix type	Gamma-BHC	39	One per 20 per matrix type
			Heptachlor	46-149		Heptachlor	38	
			Heptachlor epoxide	49-154		Heptachlor epoxide	41	
			Endrin	56-151		Endrin	35	
			Methoxychlor	44-160		Methoxychlor	38	
			Technical Chlordane	50-150		Technical Chlordane	20	
			Toxaphene	50-150		Toxaphene	20	

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
TCLP Herbicides	SW-846 Methods 1311/8151A	Solid Waste/Liquid Waste	Surrogates % Rec. 2,4-DCAA 54-141 Matrix Spikes 2,4-D 37-146 2,4,5-TP 21-144	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates MS/MSDs RPD 2,4-D 40 2,4,5-TP 39	Field Duplicates: MS/MSDs: One per 20 per matrix type
TCLP Metals	SW-846 Methods 1311/ 6010B/7000	Solid Waste/Liquid Waste	Matrix Spikes 75-125% recovery	Matrix Spikes: One per 20 per matrix type	Matrix Duplicates RPD <20	Matrix Duplicates: One per 20 per matrix type
Ignitability	SW-846 Method 1010	Solid Waste/Liquid Waste	Not Applicable	Not Applicable	Matrix Duplicates RPD <46	Matrix Duplicates: One per 20 per matrix type
Corrosivity	SW-846 Method 9045C	Solid Waste/Liquid Waste	Not Applicable	Not Applicable	Matrix Duplicates RPD <5	Matrix Duplicates: One per 20 per matrix type
Reactive cyanide	SW-846 Chapter 7, Section 7.3.3	Solid Waste/Liquid Waste	Matrix Spikes 0-5% recovery	Not Applicable	Matrix Duplicates RPD <10	Matrix Duplicates: One per 20 per matrix type
Reactive sulfide	SW-846 Chapter 7, Section 7.3.4	Solid Waste/Liquid Waste	Matrix Spikes 1-80% recovery	Not Applicable	Matrix Duplicates RPD £10	Matrix Duplicates: One per 20 per matrix type
TPH-DRO	SW846 Method 8015B	Solid Waste	Surrogates % Rec. o-terphenyl 45-129 Matrix Spikes 21-136% recovery	Matrix Spikes: One per 20 per matrix	Matrix Duplicates RPD <20	Matrix Duplicates: One per 20 per matrix type

Recovery criteria for laboratory control samples must be at least as stringent as MS/MSD criteria.
Laboratory control limits are periodically updated. The latest control limits will be utilized at the time of sample analysis.

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
VOCs (CP-51 or TCL)	SW-846 Method 8260B	Groundwater	Surrogates % Rec. 1,2-Dichloroethane-d4 65-133 4-Bromofluorobenzene 79-124 Dibromofluoromethane 77-121 Toluene-d8 80-117 Matrix Spikes 1,1-Dichloroethene 63-135 Trichloroethene 64-139 Benzene 51-138 Toluene 49-147 Chlorobenzene 76-120	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <30 MS/MSDs RPD 1,1-Dichloroethene 15 Trichloroethene 13 Benzene 13 Toluene 13 Chlorobenzene 12	Field Duplicates: One per 20 MS/MSDs: One per 20
SVOCs (CP-51 or TCL)	SW-846 Method 8270C	Groundwater	Surrogates % Rec. Phenol-d5 10-59 2-Fluorophenol 12-76 2,4,6-Tribromophenol 42-128 Nitrobenzene-d5 30-122 2-Fluorobiphenyl 34-113 Terphenyl-d14 42-125 Matrix Spikes Phenol 10-86 2-Chlorophenol 37-112 4-Chloro-3-methylphenol 43-128 Acenaphthene 43-109 4-Nitrophenol 10-109 Pentachlorophenol 38-134 Pyrene 48-121	Surrogates: All samples, standards, QC Matrix Spikes: One per 20	Field Duplicates RPD <30 MS/MSDs RPD Phenol 30 2-Chlorophenol 26 4-Chloro-3-methylphenol 24 Acenaphthene 28 4-Nitrophenol 40 Pentachlorophenol 20 Pyrene 22	Field Duplicates: One per 20 MS/MSDs: One per 20
Metals (TAL)	SW-846 Methods 6010B/7000 Series	Groundwater/Waste water	Matrix Spikes 75-125% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <20	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Ammonia	EPA Method 350.1 (350.2 for distillation)	Groundwater	Matrix Spikes 63-131% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <24	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Nitrate	EPA Method 353.2/SM 4500-NO_2B (18th edition)	Groundwater	Matrix Spikes 80-120% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <20	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Nitrite	SM 4500-NO_2B (18th edition)	Groundwater	Matrix Spikes 71-120% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <10	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Pesticides (TCL)	SW-846 Method 8081A	Groundwater	Surrogates % Rec. Decachlorobiphenyl 15-142 Tetrachloro-m-xylene 36-126 Matrix Spikes Gamma-BHC 64-140 Heptachlor 52-145 Aldrin 52-137 Dieldrin 65-153 Endrin 61-156 4,4'-DDT 55-162	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <30 MS/MSDs RPD Gamma-BHC 23 Heptachlor 24 Aldrin 30 Dieldrin 22 Endrin 21 4,4'-DDT 25	Field Duplicates: One per 20 MS/MSDs: One per 20

Table 4
Typical Laboratory Data Quality Objectives
Aqueous Samples
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
Sulfate	SW-846 9056	Groundwater	Matrix Spikes 80-120% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <20	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Carbonate	SM 4500-CO_2D (18^{th} edition)	Groundwater	Not Applicable	Not Applicable	Field Duplicates RPD <30 Matrix Duplicates RPD <10	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Bicarbonate	SM 4500-CO_2D (18^{th} edition)	Groundwater	Not Applicable	Not Applicable	Field Duplicates RPD <30 Matrix Duplicates RPD <10	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Cyanide	EPA Method 335.3	Groundwater	Matrix Spikes 75-125% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <23	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Total Dissolved Solids	EPA Method 160.1	Groundwater	Not Applicable	Not Applicable	Field Duplicates RPD <30 Matrix Duplicates RPD <16	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Chloride	EPA Method 300.0	Groundwater	Matrix Spikes 80-120% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <20	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Total Petroleum Hydrocarbons	EPA Method 418.1	Wastewater	Matrix Spikes 55-132% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <24	Field Duplicates: One per 20 Matrix Duplicates: One per 20
pH	EPA Method 150.1	Wastewater	Not Applicable	Not Applicable	Field Duplicates RPD <30 Matrix Duplicates RPD <10	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Amenable Cyanide	EPA Method 335.2	Wastewater	Not Applicable	Not Applicable	Field Duplicates RPD <30 Matrix Duplicates RPD <16	Field Duplicates: One per 20 Matrix Duplicates: One per 20
Hexavalent Chromium	SW-846 Method 7196A	Wastewater	Matrix Spikes 85-115% recovery	Matrix Spikes: One per 20	Field Duplicates RPD <30 Matrix Duplicates RPD <20	Field Duplicates: One per 20 Matrix Duplicates: One per 20

Recovery criteria for laboratory control samples must be at least as stringent as MS/MSD criteria.

Laboratory control limits are periodically updated. The latest control limits will be utilized at the time of sample analysis.

Table 5
Typical Laboratory Data Quality Objectives
Soil Gas Samples
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
VOCs	EPA Method TO-15	Soil Gas	Surrogates % Rec.	Surrogates:	Matrix Duplicates	Matrix Duplicates
			4-Bromofluorobenzene 78-124	All samples, standards, QC samples	RPD ≤30	One per 20

Table 6
QC Sample Preservation and Container Requirements
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Sample Matrix	Analytical Parameter	Sample Type	No. of Samples	EPA Analytical Method	Sample Preservation	Holding Time[1]	Sample Container[2]
Soil/Sediment	VOCs (CP-51 or TCL)	Field Duplicate	TBD	SW-846 Method 8260B	Cool to 4^0 C; no headspace	14 days to analysis	(2) 2-oz. glass jars
Soil/Sediment	PCBs	Field Duplicate	TBD	SW-846 Method 8082A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil/Sediment	Pesticides (TCL)	Field Duplicate	TBD	SW-846 Method 8081A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil	Herbicides	Field Duplicate	TBD	SW-846 Method 8151A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil/Sediment	PAHs or SVOCs (CP-51 or TCL)	Field Duplicate	TBD	SW-846 Method 8270C	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil	Cyanide	Field Duplicate	TBD	SW-846 Method 9012A	Cool to 4^0 C	14 days to analysis	(1) 300 mL amber glass jar
Soil/Sediment	Metals (TAL)	Field Duplicate	TBD	SW-846 Method 6010B/7000 Series	Cool to 4^0 C	28 days to analysis for Hg; 6 months to analysis for other metals	(1) 300 mL amber glass jar
Groundwater	VOCs (CP-51S or TCL)	Field Duplicate	TBD	SW-846 Method 8260B	pH<2 with HCl; Cool to 4^0 C; no headspace	14 days to analysis	(2) 40 mL VOA vials
Soil	Organophosphorous Pesticides	Field Duplicate	TBD	SW-846 Method 8270C or 8141A	Cool to 4^0 C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Groundwater	SVOCs (CP-51 or TCL)	Field Duplicate	TBD	SW-846 Method 8270C	Cool to 4^0 C	7 days to extraction; 40 days from	(2) 950 mL amber glass jars
Groundwater	Pesticides (TCL)	Field Duplicate	TBD	SW-846 Method 8081A	Cool to 4^0 C	7 days to extraction; 40 days from extraction to analysis	(2) 950 mL amber glass jars

Table 6
QC Sample Preservation and Container Requirements
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Sample Matrix	Analytical Parameter	Sample Type	No. of Samples	EPA Analytical Method	Sample Preservation	Holding Time[1]	Sample Container[2]
Groundwater	Metals- total (TAL)	Field Duplicate	TBD	SW-846 Method 6010B/7000 Series	pH<2 with HNO_3; Cool to 4^0 C	28 days to analysis for Hg; 6 months to analysis for other metals	(1) 1 L polyethylene container
Groundwater	Metals-dissolved (TAL)	Field Duplicate	TBD	SW-846 Method 6010B/7000 Series	Cool to 4^0 C	24 hours to filtering and preservation (pH<2 with HNO_3); 28 days to analysis for Hg; 6 months to analysis for other metals	(1) 1 L polyethylene container
Groundwater	Ammonia	Field Duplicate	TBD	EPA Method 350.1 (350.2 for distillation)	pH<2 with H_2SO_4; Cool to 4^0 C	28 days to analysis	(1) 250 mL polyethylene container
Groundwater	Nitrate	Field Duplicate	TBD	EPA Method 353.2/SM 4500-NO_2B (18th edition)	pH<2 with H_2SO_4; Cool to 4^0 C	28 days to analysis	(1) 100 mL polyethylene container
Groundwater	Nitrite	Field Duplicate	TBD	SM 4500-NO_2B (18th edition)	Cool to 4^0 C	48 hours to analysis	(1) 100 mL polyethylene container
Groundwater	Sulfate	Field Duplicate	TBD	SW-846 9056	Cool to 4^0 C	As soon as possible (within 3 days of collection)	(1) 100 mL polyethylene container
Groundwater	Carbonate	Field Duplicate	TBD	SM 4500-CO_2D (18th edition)	Cool to 4^0 C	14 days to analysis	(1) 250 mL polyethylene container
Groundwater	Bicarbonate	Field Duplicate	TBD	SM 4500-CO_2D (18th edition)	Cool to 4^0 C	14 days to analysis	(1) 250 mL polyethylene container
Groundwater	Cyanide	Field Duplicate	TBD	EPA Method 335.3	pH>12 with NaOH; Cool to 4ºC	14 days to analysis	(1) 250 mL polyethylene container
Groundwater	Chloride	Field Duplicate	TBD	EPA Method 300.0	Cool to 4ºC	28 days to analysis	(1) 100 mL polyethylene container
Groundwater	Total Dissolved Solids	Field Duplicate	TBD	EPA Method 160.1	Cool to 4ºC	7 days to analysis	(1) 100 mL polyethylene container
Aqueous	Ammonia	Equipment Blank	TBD	EPA Method 350.1 (350.2 for distillation)	pH<2 with H_2SO_4; Cool to 4^0 C	28 days to analysis	(1) 250 mL polyethylene container

Table 6
QC Sample Preservation and Container Requirements
11 Spencer Street, Brooklyn New York
QA/QC Project Plan

Sample Matrix	Analytical Parameter	Sample Type	No. of Samples	EPA Analytical Method	Sample Preservation	Holding Time[1]	Sample Container[2]
Aqueous	Nitrate	Equipment Blank	TBD	EPA Method 353.2/SM 4500-NO_2B (18th edition)	pH<2 with H_2SO_4; Cool to 4^0 C	28 days to analysis	(1) 100 mL polyethylene container
Aqueous	Nitrite	Equipment Blank	TBD	SM 4500-NO_2B (18th edition)	Cool to 4^0 C	48 hours to analysis	(1) 100 mL polyethylene container
Aqueous	Sulfate	Equipment Blank	TBD	SW-846 9056	Cool to 4^0 C	As soon as possible (within 3 days of collection)	(1) 100 mL polyethylene container
Aqueous	Carbonate	Equipment Blank	TBD	SM 4500-CO_2D (18th edition)	Cool to 4^0 C	14 days to analysis	(1) 250 mL polyethylene container
Aqueous	Bicarbonate	Equipment Blank	TBD	SM 4500-CO_2D (18th edition)	Cool to 4^0 C	14 days to analysis	(1) 250 mL polyethylene container
Aqueous	Cyanide	Equipment Blank	TBD	SW-846 Method 9010B	pH>12 with NaOH; Cool to 4ºC	14 days to analysis	(1) 250 mL polyethylene container
Aqueous	Chloride	Equipment Blank	TBD	SW-846 Method 9250	Cool to 4ºC	28 days to analysis	(1) 100 mL polyethylene container
Aqueous	Total Dissolved Solids	Equipment Blank	TBD	EPA Method 160.1	Cool to 4ºC	7 days to analysis	(1) 100 mL polyethylene container
Aqueous	VOCs (CP-51 or TCL)	Equipment Blank	TBD	SW-846 Method 8260B	pH<2 with HCl Cool to 4^0 C; no headspace	14 days to analysis	(2) 40 mL VOA vials
Aqueous	Pesticides (TCL)	Equipment Blank	TBD	SW-846 Method 8081A	Cool to 4^0 C	7 days to extraction; 40	(2) 950 mL amber glass jars
Aqueous	PCBs	Equipment Blank	TBD	SW-846 Method 8082A	Cool to 4^0 C	7 days to extraction; 40 days from extraction to analysis	(2) 950 mL amber glass jars
Aqueous	SVOCs (CP-51 or TCL)	Equipment Blank	TBD	SW-846 Method 8270C	Cool to 4^0 C	7 days to extraction; 40 days from	(2) 950 mL amber glass jars
Aqueous	PAHs (CP-51)	Equipment Blank	TBD	SW-846 Method 8270C	Cool to 4^0 C	7 days to extraction; 40	(2) 950 mL amber glass jars
Aqueous	Herbicides	Equipment Blank	TBD	SW-846 Method 8151A	Cool to 4^0 C	7 days to extraction; 40 days from extraction to analysis	(2) 950 mL amber glass jars

Table 6

QC Sample Preservation and Container Requirements

11 Spencer Street, Brooklyn New York

QA/QC Project Plan

Sample Matrix	Analytical Parameter	Sample Type	No. of Samples	EPA Analytical Method	Sample Preservation	Holding Time[1]	Sample Container[2]
Aqueous	Metals-total (TAL)	Equipment Blank	TBD	SW-846 Method 6010B/7000 Series	pH<2 with HNO_3; Cool to 4^0 C	28 days to analysis for Hg; 6 months to analysis for other metals	(1) 1 L polyethylene container
Aqueous	Metals-dissolved (TAL)	Equipment Blank	TBD	SW-846 Method 6010B/7000 Series	Cool to 4^0 C	24 hours to filtering and preservation (pH<2 with HNO_3); 28 days to analysis for Hg; 6 months to analysis for other metals	(1) 1 L polyethylene container
Aqueous	VOCs (CP-51 or TCL)	Trip Blank	TBD	SW-846 Method 8260B	pH<2 with HCl Cool to 4^0 C; no headspace	14 days to analysis	(2) 40 mL VOA vials

Notes:

[1] Holding times listed are method holding time calculated from time of collection and not NYSDEC ASP holding times.

[2] I-Chem Series 300 bottles

TBD = To Be Determined

ATTACHMENT A

RESUME

Chunhua Liu

Senior Technical Specialist

Education

B.E., 1992, Environmental Engineering, Tsinghua University, Beijing, China
M.E., 1995, Environmental Engineering, Tsinghua University, Beijing, China
M.S., 1998, Environmental Health, Harvard School of Public Health
D.S., 2000, Environmental Chemistry, Harvard School of Public Health

Affiliations

- Member, LSP Association
- Member, Society for Risk Analysis
- Certified EIT in Massachusetts

Areas of Specialization

- Human Health Risk Assessment
- Ecological Risk Assessment
- Data Usability Evaluation
- Project Quality Control and Assurance
- Fate and Transport Modeling

Summary of Experience

Dr. Liu is a senior chemist with more than 10 years of experience in analytical chemistry, data validation and management, and quality control and quality assurance for remedial investigations and remedial actions. Her experience includes laboratory chemical analysis, EPA Region I and Region II data validation and data usability evaluation, data usability evaluation for Massachusetts Contingency Plan (MCP), sampling and analysis plan development in accordance with the NYSDEC Analytical Service Protocol and Massachusetts Compendium of Quality Assurance and Quality Control Requirements (QA/QC) and Performance Standards for Selected Analytical Methods, and quality control and quality assurance for Superfund and MCP projects.

Dr. Liu majored in environmental chemistry and during her doctoral study at Harvard School of Public Health, she researched analytical methods for sediment and evaluated metal fate and transport in sediment. Dr. Liu worked at Parsons for over seven years and at Gradient for one year before joining GZA. At Parsons, Dr. Liu led the quality control and assurance and data management efforts from developing Quality Assurance Project Plan (QAPP) to assuring implementation of QA/QC requirements and from field sampling preparation and arrangement to chemical data management. Dr. Liu was responsible for the QA/QC and data validation and data usability evaluation for a 10,000-acre BRAC and Superfund NPL site in New York and assisted in the successful transfer of over 8,000 acres of land. Dr. Liu performed data usability evaluation for various Massachusetts Contingency Plan sites at Gradient and GZA.

Relevant Project Experience

Senior Technical Specialist - Leads GZA human health risk assessment efforts for federal and state level superfund and MCP projects. Dr. Liu is also responsible for data usability evaluation for various projects.

Technical Director - Directed preparation and submittal of the Site-Wide Sampling and Analysis Plan (SAP) and the Site-Wide Quality Assurance Project Plan (QAPP) for a 10,000-acre Superfund site in New York in accordance with the Department of Defense (DOD), NYSDEC ASP, EPA Region II and EPA guidance. Directed project field sampling and data management. Supervised data validation in accordance with EPA Region II SOPs and NYSDEC ASP based on the NYSDEC ASP Category B deliverables. Identified laboratories qualified for project chemical analyses and interfaced with various analytical laboratories to address analytical deficiencies. Submitted data summary report to EPA Region II on a quarterly basis.

Lead Chemist and Risk Assessor- Led data usability evaluation and supported the successful closure of a 125-acre Hingham Annex Guaranteed Fixed Price Remediation Project. Dr. Liu also led the risk assessment effort and the effort of evaluating pesticide fate and transport at the site and successfully demonstrated that the pesticide conditions at the site were related to the past normal use of pesticides and therefore were not associated with the release at the Site.

Technical Director - Directed preparation and submittal of the SAP and the QAPP for various Formerly Used Defense (FUD) Sites. Supervised field sampling and data validation in accordance with guidance from various EPA regions. Reviewed data validation and data usability report.

Chunhua Liu

Senior Technical Specialist

Technical Director – Directed data validation for various Superfund sites in EPA Region I and Region II in accordance with the EPA regional and state SOPs and the EPA Functional Guidelines. Led data validation for numerous MCP sites for various analytical analyses including metal, VOC, SVOC, pesticide, PCB, EPH, VPH, and TPH analyses.

Project Chemist – Evaluated different analytical methods for hexavalent chromium analysis. Compared analytical methods developed by NJDEP and EPA and identified the appropriate method for a CERCLA site in New Jersey.

Project Chemist – Evaluated quantitatively potential impacts to metal data usability by interference caused by common metals in environmental samples for a CERCLA site in New York.

Project Chemist – Performed data validation for indoor air samples for various CERCLA and MCP Sites to assist evaluation of potential vapor intrusion pathway.

Project Chemist – Performed Level IV data validation for a Superfund site in New York for various analytical analyses including metal, VOC, SVOC, pesticide, and PCB analyses. Reviewed TIC identification and quantitation and assessed chromatograms and mass spectrums for VOCs and SVOCs.

Project Chemist – Provided technical support, prepared QAPPs, established proper data quality objectives (DQOs) for various projects, maintained project quality control, trained junior scientists, coordinated project field sampling and laboratory analyses, addressed non-conformance issues associated with the data produced by the laboratory, conducted statistical analysis, and prepared data validation reports on numerous RCRA/CERCLA and MCP projects.

Publications

Liu, C., J. Jay, T. Ford. Evaluation of Environmental Effects on Metal Transport from Capped Contaminated Sediment under Conditions of Submarine Groundwater Discharge. Env. Sci. Tech. 2001 35: 4549-4555.

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Chunhua Liu, Jennifer Jay, Ravi Ika, Shine James, Timothy Ford. Capping Efficiency for Metal-Contaminated Marine Sediment under Conditions of Submarine Groundwater Discharge. Poster presentation at Conference on Dredged Material Management: Options and Environmental Considerations. December 3-6, 2000

Chunhua Liu, Jennifer Jay, Timothy Ford. Evaluation of Environmental Effects on Metal Transport from Capped Contaminated Sediment Under Conditions of Submarine Groundwater Discharge. Poster presentation at Conference on Dredged Material Management: Options and Environmental Considerations. December 3-6, 2000

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Chunhua Liu, Ravi Ika, Tim Ford. 1998. Metal flux in near shore capping sites under conditions of submarine groundwater discharge. In: Fourth Marine & Estuarine Shallow Water Science & Management Conference. March 15-19, 1998

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Wei Lin, Chunhua Liu, Guowei Fu. 1995. Environmental conflict analysis and its application in environmental planning and management: siting of public facilities. Chin. J. Environ. Sci. 1995 16(6): 36-39

Chunhua Liu, Yongfeng Nie, Wei Lin. 1995. Application prospects of landfill gas utilization technique in China. Pollution Control Technology 1995 8(3): 143-145

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Wei Lin, Chunhua Liu. 1994. Rudimentary study on countermeasure to comprehensively control air pollution caused by motor vehicles in China. Pollution Control Technology 1994 7(4): 1-3

Xiurong Zhang, Chunhua Liu, Yanru Yang, Qingzhong Bai. 1993. Environmental impact report of wastewater treatment plant project

Chunhua Liu

Senior Technical Specialist

in Xuanhua City, China.

Chunhua Liu, Yongfeng Nie. 1993. Water balance evaluation in Hongmei hazardous waste landfill. In: Environmental Impact Assessment of Hongmei Hazardous Waste Landfill: 25-33

Chunhua Liu. 1992. Modeling landfill leachate production and migration. Bachelor Thesis. Tsinghua University, Beijing, P.R.China

Chunhua Liu. 1991. A discussion with the author of "clean water extraction from ocean water". Technology of Water Purification 1991(1): 39-41

Appendix C Health and Safety Plan

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

1. CLIENT/SITE/PROJECT INFORMATION		
Client: The W Group of Brooklyn, LLC		
Site Address: 11 Spencer Street, Brooklyn, NY		
Site Description: Brownfield Cleanup Program (BCP) Site The Site is situated on an approximately 0.0315-acre area bounded by Flushing Avenue and a 5-story commercial building to the north, a 1-story manufacturing building to the south, a 1-story auto repair facility and a 1-story manufacturing building to the east, and Spencer Street and a 1-story manufacturing building to the west. The Site has 40 ft of street frontage on Spencer Street and 50 feet of street frontage on Flushing Avenue. There are no identified daycare centers in the immediate area of the Site, however there are two schools including one located 2 blocks to the east on Warsaw Place and one located 700 feet northwest of the Site on Wallabout Street. The site is completely occupied by a T-shaped vacant one-story former manufacturing building with no basement. The Site was previously used by a metal fabrication shop and a former degreasing pit is located centrally within the building.		
Work Environment: Former Manufacturing Building		
Job/Project #: 12.0076527.00	Estimated Start Date: 4/3/17	Estimated Finish Date: 4/4/17
Site is Covered by the Following Regulations:	OSHA HAZWOPER Standard ☒	Mine Safety and Health Administration ☐
	OSHA Construction Regulations ☒	

2. EMERGENCY INFORMATION		
Hospital Name: NYC Health + Hospitals/Woodhull		Hospital Phone: 718-963-8000
Hospital Address: 760 Broadway, Brooklyn, NY 11206		Directions and Street Map Attached: ☒ Yes
Local Fire #: 911 or	Local Ambulance #: 911	Local Police #: 911 or
WorkCare Incident Intervention Services:	**For non-emergencies, if an employee becomes hurt or sick call 888-449-7787**	
Other Emergency Contact(s): James Bellew	Phone #'s: 347-640-2759	
Site-Specific Emergency Preparedness/Response Procedures/Concerns: Small door entrance along the Flushing Ave. Exits along the Flushing Ave and Spencer Street		
• All EHS Events (incidents, first aid, near misses, unsafe acts/conditions, fires, chemical spills, property damage, and extraordinary safe behaviors) must be reported immediately to the Project Manager, and within 24hours to the EHS Event Reporting Portal at www.kelleronline.com/portal. Username gempl1 Password 4Incidents! • In the event of a chemical release greater than 5 gallons, site personnel will evacuate the affected area and relocate to an upwind location. The GZA Field Safety Officer and client site representative shall be contacted immediately. • Site work shall not be conducted during severe weather, including high winds and lightning. In the event of severe weather, stop work, lower any equipment (drill rigs), and evacuate the affected area.		

3. SCOPE OF WORK	
General project description, and phase(s) or work to which this H&S Plan applies[1].	Monitoring Well Installation, Phase II Supplemental Remedial Investigation
Specific Tasks Performed by GZA:	Oversight, Soil & Groundwater Sampling, Monitoring well gauging.
Concurrent Tasks to be Performed by GZA-hired Subcontractors (List Subcontractors by Name):	Geoprobe and Monitoring Well Installation – As needed and to be determined
Concurrent Tasks to be Performed by Others:	None

[1] Copy from or reference proposal or applicable design plan as appropriate.

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

Any OSHA PERMIT-REQUIRED CONFINED SPACE entry? ☐ YES ☒ NO IF YES, ADD CONFINED SPACE ENTRY PERMIT FOR THAT PORTION OF THE WORK	Any INDOOR fieldwork? ☒ YES ☐ NO IF YES, EXPLAIN: Groundwater monitoring well installation

4. SUB-SURFACE WORK, UNDERGROUND UTILITY LOCATION	
Will subsurface explorations be conducted as part of this work (drilling or excavation)? Will GZA personnel be required to use a hand-auger as part of this work?	☐ Yes ☒ No ☐ Yes ☒ No
Site property ownership where underground explorations will be conducted on: 11 Spencer Street Brooklyn, NY – and corresponding buildings	Public Access Property ☐ Yes ☒ No Private Property ☒ Yes ☐ No
Have Necessary Underground Utility Notifications for Subsurface Work Been Made?	☐ Yes ☒ Yet to be conducted
Specify Clearance Date & Time, Dig Safe Clearance I.D. #, And Other Relevant Information: All call-outs will be made once work is authorized by the Owner.	
IMPORTANT! For subsurface work, prior to the initiation of ground penetrating activities, GZA personnel to assess whether the underground utility clearance (UUC) process has been completed in an manner that appears acceptable, based on participation/ confirmation by other responsible parties (utility companies, subcontractor, client, owner, etc.), for the following:	

Electric:	☐ Yes	☐ No	☐ NA	☐ Other________________
Fuel (gas, petroleum, steam):	☐ Yes	☐ No	☐ NA	☐ Other________________
Communication:	☐ Yes	☐ No	☐ NA	☐ Other________________
Water:	☐ Yes	☐ No	☐ NA	☐ Other________________
Sewer:	☐ Yes	☐ No	☐ NA	☐ Other________________
Other:________________	☐ Yes	☐ No	☐ NA	☐ Other________________

Comments: All will be performed prior to engaging in subsurface work.

5. HAZARD ASSESSMENT (CHECK ALL THAT APPLY AND ADDRESS EACH HAZARD IN SECTION 6)

A. General Fieldwork Hazards

- [ ] Confined Space Entry (Add Confined Space Entry Permit)
- [x] Abandoned or vacant building/Enclosed Spaces
- [x] Significant Slip/Trip/Fall Hazards
- [ ] Unsanitary/Infectious Hazards
- [ ] Poisonous Plants
- [ ] Biting/Stinging Insects
- [x] Feral Animal Hazards
- [ ] Water/Wetlands Hazards
- [ ] Remote Locations/Navigation/Orientation hazards
- [x] Heavy Traffic or Work Alongside a Roadway
- [x] Weather-Related Hazards
- [ ] Motor vehicle operation Hazards
- [x] Heavy Equipment Hazards
- [x] Structural Hazards (i.e. unsafe floors/stairways/roof)
- [ ] Demolition/Renovation
- [x] Presence of Pedestrians or the General Public
- [x] Overhead Hazards (i.e. falling objects, overhead power lines)
- [x] Portable Hand Tools or Power Tools
- [ ] Significant Lifting or Ergonomic Hazards
- [x] Electrical Hazards (i.e. Equipment 120 Volts or Greater, Work Inside Electrical Panels, or Maintenance of Electrical Equipment)
- [ ] Other Stored energy Hazards (i.e. Equipment with High Pressure or Stored Chemicals)
- [ ] Fire and/or Explosion Hazard
- [x] Elevated Noise Levels
- [ ] Excavations/Test Pits
- [ ] Explosives or Unexploded Ordinance/MEC
- [ ] Long Distance or Overnight Travel
- [ ] Personal Security or High Crime Area Hazards
- [x] Working Alone
- [ ] Ionizing Radiation or Non-Ionizing Radiation
- [x] Chemical/Exposure Hazards (See Part B for Details)
- [ ] Other:

B. Chemical/Exposure Hazards (Contaminants are Contained in Soil and Groundwater)

- [ ] No chemical hazards anticipated
- [ ] Hydrogen Sulfide (H2S)
- [ ] Cyanides, Hydrogen Cyanide (HCN)
- [ ] Carbon Monoxide
- [ ] Herbicides, Pesticide, Fungicide, Animal Poisons
- [x] Metals, Metal Compounds: Lead
- [ ] Corrosives, Acids, Caustics, Strong Irritants
- [ ] Polychlorinated Biphenyls (PCBs)
- [x] Polycyclic Aromatic Hydrocarbons (PAHs)
- [ ] Compressed Gases
- [ ] Flammable/Combustible Liquids
- [ ] Radiation Hazards (i.e. radioactive sealed/open source, x-rays, ultra violet, infrared, radio-frequency, etc.)
- [ ] Methane
- [x] Chemicals Subject to OSHA Hazard Communication (attach Safety Data Sheet for each chemical GZA brings to the site)
- [ ] Containerized Waste, Chemicals in Piping & Process Equipment
- [ ] Emissions from Gasoline-, Diesel-, Propane-fired Engine, Heater, Similar Equipment
- [x] General Work Site Airborne Dust Hazards
- [x] Volatile Organic Compounds (VOCs), BTEX
- [x] Chlorinated Organic Compounds
- [ ] Fuel Oil, Gasoline, Petroleum Products, Waste Oil
- [ ] Asbestos
- [ ] Oxygen Deficiency, Asphyxiation Hazards
- [ ] Other:

6. SITE-SPECIFIC OVERVIEW OF H&S HAZARDS/MITIGATIONS (Note: Based on Hazard Assessment, Section 5)

Describe the major hazards expected to be present at the jobsite, and describe the safety measures to be implemented for worker protection (refer to items checked in Section 5 above). Use brief abstract statements or more detailed narrative as may be appropriate.

ON-SITE HAZARDS:	HAZARD MITIGATIONS:
Task Hazard Analyses	04.01 Drilling and Observation/Monitoring Well Installation, 04.02 Groundwater Sampling, 18.01 remediation systems, 20.11 field sampling

Slips, trips, and falls	Be cognizant of slips, trips and falls and overhead hazards of bumps, falling objects. Maintain clean and sanitary work area free of tripping/slipping hazards.
Feral Animal Hazards	Do NOT handle feral animals unless properly trained to do so. Retreat from work area upon notice of a feral animal and secure animal control contractor. Be aware of domestic animals that may also pose a threat such as dogs off leash.
Heavy Traffic or Work Alongside a Roadway	Wear high visibility vests. Make sure that the driver can see you and is aware of your location at all times. Be alert at all times; never step outside traffic cones.
Weather-Related Hazards	Assess weather conditions prior to on-site work and examine forecast for anticipated period of work. Dress appropriately for weather conditions (e.g., precipitation, temperature ranges over anticipated duration of field work). Include clothing and the presence / absence of shade when calculating a heat index. Keep hydrated. Upon hearing thunder, stop work and see shelter for at least 30 minutes after the last clap of thunder.
Heavy Equipment Hazards/Overhead hazards	Workers will stay out of swing radius of excavators; communicate verbally with equipment operator about scope of work prior to starting work. Prepare and maintain an exclusion zone. Use the proper tools/equipment to move large, bulky, or heavy items. Lower boom when moving drilling rig. Maintain a distance for at least 10 feet from active overhead lines.
Presence of Pedestrians or the General Public	Keep work area sectioned off from general public; use safety cones and caution tape as a deterrent for curious people passing by the work area; keep fence closed when possible.
Portable Hand Tools or Power Tools	Be familiar with tool's operating instructions and specific hazards before beginning work; wear leather gloves when appropriate.
Electrical Hazards (i.e. Equipment 120 Volts or Greater, Work Inside Electrical Panels, or Maintenance of Electrical Equipment)	Do not use electrical tools with damaged cords or other electrical components. Use GFCI with all cords. Observe proper electrical safety practices.
Elevated Noise Levels	Wear ear plugs during high-noise activities.
Chemical/Exposure Hazards	Be alert for hazardous site contaminants (as indicated by odor, visual characteristics, location, and site history). Wear gloves and other PPE like Tyvek, as necessary, when in contact with contaminants. Become familiar with hazards associated with hazardous commercial products used in drilling (fuels, silica sand, grout, cement, bentonite, etc.) and construction (fuels, cement, epoxy, paint, sealant etc.). Review Safety Data Sheets (SDSs) for such products.
Abandoned Buildings/Structural Hazards	Be aware for unsafe flooring and stairs and openings in floors. Stop work and exit building if debris falls from ceilings during work, indicating structural concerns. Retreat from buildings if observe squatters or unauthorized persons. Have flashlights. Do not enter abandoned buildings alone.
Working Alone	Check in with Project Manager at the end of day when leaving Site.

7. AIR MONITORING ACTION LEVELS – Make sure air monitoring instruments are in working order, calibrated before use, and 'bump-checked' periodically throughout the day and/or over multiple days of use

Is air monitoring to be performed for this project? Yes ☐ No ☒

ACTION LEVELS FOR OXYGEN DEFICIENCY AND EXPLOSIVE ATMOSPHERIC HAZARDS (Action levels apply to occupied work space in general work area)

☐ Applicable, See Below. ☒ Not Applicable

Parameter	Response Actions for Elevated Airborne Hazards
Oxygen	At 19.5% or below – Exit area, provide adequate ventilation, or proceed to Level B, or discontinue activities Verify presence of adequate oxygen (approx. 12% or more) before taking readings with LEL meter. Note: If oxygen levels are below 12%, LEL meter readings are not valid.

LEL	Less than 10% LEL – Continue working, continue to monitor LEL levels Greater than or Equal to 10% LEL – Discontinue work operations and immediately withdraw from area. Resume work activities ONLY after LEL readings have been reduced to less than 10% through passive dissipation, or through active vapor control measures.

ACTION LEVELS FOR INHALATION OF TOXIC/HAZARDOUS SUBSTANCES (Action levels are for sustained breathing zone concentrations)

☐ Applicable, See Below. ☒ Not Applicable

Air Quality Parameters (Check all that apply)	Remain in Level D or Modified D	Response Actions for Elevated Airborne Hazards
☒ VOCs	0 to 5 ppm	From 5 ppm to 25 ppm: Proceed to Level C, or Ventilate, or Discontinue Activities If greater than 25 ppm: Discontinue Activities and consult EHS Team
☐ Carbon Monoxide	0 to 35 ppm	At greater than 35 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities.
☐ Hydrogen Sulfide	0 to 10 ppm	At greater than 10 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities
☐ Dust (Site-wide)	0 to 15 mg/m^3	If dust suppression techniques are unable to sustain readings below 15 mg/m^3 operations will be suspended until appropriate corrective actions can be employed.

SPECIAL INSTRUCTIONS/COMMENTS REGARDING AIR MONITORING (IF APPLICABLE)

8. HEALTH AND SAFETY EQUIPMENT AND CONTROLS

AIR MONITORING INSTRUMENTS

☒ PID Type: Rae 3000 Lamp Energy: 10.6 eV
☐ FID Type:
☒ Carbon Monoxide Meter
☐ Hydrogen Sulfide Meter
☐ O_2/LEL Meter
☒ Particulate (Dust) Meter
☐ Calibration Gas Type
☐ Others:

OTHER H&S EQUIPMENT & GEAR

☐ Fire Extinguisher
☒ Caution Tape
☒ Traffic Cones or Stanchions
☐ Warning Signs or Placards
☐ Decon Buckets, Brushes, etc.
☒ Portable Ground Fault Interrupter (GFI)
☐ Lockout/Tagout Equipment
☒ Ventilation Equipment
☐ Others:

PERSONAL PROTECTIVE EQUIPMENT

☐ Respirator – Type Half Face
☐ Respirator - Cartridge Type: P200
☒ Hardhat
☒ Outer Gloves Type: Nitrile when handling contaminated materials; leather work gloves when handling tools, etc.
☐ Inner Gloves Type:
☒ Steel-toed boots/shoes
☐ Coveralls – Type
☐ Outer Boots – Type
☒ Eye Protection with side shields
☐ Face Shield
☒ Traffic Vest
☐ Personal Flotation Device (PFD)
☐ Fire Retardant Clothing
☐ EH (Electrical Hazard) Rated Boots, Gloves, etc.
☒ Noise/Hearing Protection
☐ Others:

Discuss/Clarify, as Appropriate:

9. H&S TRAINING/QUALIFICATIONS FOR FIELD PERSONNEL

☒ Project-Specific H&S Orientation (Required for All Projects/Staff)	☐ Lockout/Tagout Training
☒ OSHA 40-Hour HAZWOPER/8 Hour Refreshers	☐ Electrical Safety Training
☒ Hazard Communication (for project-specific chemical products)	☐ Bloodborne Pathogen Training
☒ First Aid/CPR (required for HAZWOPER for at least one individual on site)	☐
☒ Current Medical Clearance Letter (required for HAZWOPER)	☐
☒ OSHA 10-hour Construction Safety Training	☐
☐ Fall Protection Training	☐
☐ Trenching & Excavation	☐

Discuss/Clarify, as needed:

10. PERSONNEL AND EQUIPMENT DECONTAMINATION (SECTION ONLY REQUIRED FOR HAZWOPER SITES)

Describe personnel decontamination procedures for the project site, including “dry decon” (simple removal of PPE)	Removal of PPE and disposal with trash generated at the Site,

11. PROJECT PERSONNEL - ROLES AND RESPONSIBILITIES

GZA ON-SITE PERSONNEL:

Name(s)	Project Title/Assigned Role	Telephone Numbers
Zhan Shu	Site Engineer	Work: 973-774-3321 Cell: 201-213-6178
Zhan Shu	Field Safety Officer	Work: 973-774-3321 Cell: 201-213-6178
Zhan Shu	First Aid Personnel	Work: 973-774-3321 Cell: 201-213-6178
James Bellew	GZA Project Team Members	Work: 973-774-3317 Cell: 347-640-2759

Site Supervisors and Project Managers (SS/PM): Responsibility for compliance with GZA Health and Safety programs, policies, procedures and applicable laws and regulations is shared by all GZA management and supervisory personnel. This includes the need for effective oversight and supervision of project staff necessary to control the Health and Safety aspects of GZA on-site activities.

Field Safety Officer (FSO): The FSO is responsible for implementation of the Site Specific Health and Safety Plan.

First Aid Personnel: At least one individual designated by GZA who has current training and certification in basic first aid and cardiopulmonary resuscitation (CPR) must be present during on-site activities involving multiple GZA personnel at HAZWOPER sites.

GZA Project Team: Follow instructions relayed by the HASP and GZA manager on-site.

OTHER PROJECT PERSONNEL:

Name	Project Title/Assigned Role	Telephone Numbers
David Winslow	Principal-in-Charge	Work: 973-774-3307 Cell: 347-242-7107
James Bellew	Project Manager	Work: 973-774-3317 Cell: 347-640-2759
Lauren Koch-Schoenemann	Health and Safety Coordinator (HSC)	Work: 973-774-3308 Cell: 201-274-4622
Richard Ecord	GZA EHS Director	Work: 781-278-3809

	Cell: 404-234-2834

Principal-in-Charge: Responsible of overall project oversight, including responsibility for Health and Safety.

Project Manager: Responsible for day-to-day project management, including Health and Safety.

Health and Safety Coordinator: General Health and Safety guidance and assistance.

GZA EHS Director: H &S technical and regulatory guidance, assistance regarding GZA H&S policies and procedures.

12. PLAN ACKNOWLEDGEMENT AND APPROVALS

GZA Project Site Worker Plan Acknowledgement

I have read, understood, and agree to abide by the information set forth in this Safety and Accident Prevention Plan. I will follow guidance in this plan and in the GZA Health and Safety Program Manual. I understand the training and medical monitoring requirements covered by the work outlined in this plan and have met those requirements.

GZA Employee Name	GZA Employee Signature	Date
David Winslow	[signature]	**2/21/2017**
James Bellew	James M. Bellew	**2/21/2017**
Zhan Shu	Zhan Shu	**2/21/2017**

Subcontractor Site Worker Plan Acknowledgement

GZA has prepared this plan solely for the purpose of protecting the health and safety of GZA employees. Subcontractors, visitors, and others at the site must refer to their organization's health and safety program or site-specific HASP for their protection. Subcontractor employees may use this plan for general informational purposes only. Subcontractor firms are obligated to comply with safety regulations applicable to their work, and understand this plan covers GZA activities only.

Subcontractor Employee Name	Subcontractor Employee Signatures	Date

GZA HASP Approval Signatures

The following individuals indicate their acknowledgement and/or approval of the contents of this Site Specific H&S Plan based on their understanding of project work activities, associated hazards and the appropriateness of health and safety measures to be implemented. A signed copy of this document must be present at the project site at all times work is being performed.

GZA Author/Reviewer Role	Signature	Date
HASP Preparer	Zhan Shu	**2/21/2017**
EHS Reviewer	[signature]	**2/21/2017**
Principal in Charge	[signature]	**2/21/2017**

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 14, 2012**	**Date: June 14, 2012**	**Date: June 26, 2012**

Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Review Related THA's – 21.1 – General Outdoor Field Work		
Observation of Deploying of Traffic Protection Equipment by Drilling Contractor (e.g., cones, signs, etc.)	Personal injury due to vehicle traffic, Collisions, injuries	Wear high visibility vest at all times when out of vehicle.
		Park in designated parking locations or select off-road areas that are firm and free of hazards. Directly inspect parking location on foot if necessary.
		Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions when parking personal or GZA vehicle and/or equipment.
		If parking outside of a designated parking area, demarcate vehicle with traffic cones or equivalent.
		Use emergency flashers or other appropriate vehicle warning system when placing equipment.
		Observe if police detail or other required traffic control system (if necessary) is in place.
		Stay within the confines of the work area and do not venture outside of the demarcated work area into traffic.
		If you observe that contractor may back into structures, vehicles, fences, etc., notify contractor immediately with pre-determined signals. Do not cross the path of the heavy equipment.
		Stand clear of moving Drill Rig.
Observation of Mobilizing Drill Rig To Job Site and positioning at borehole by Drilling Contractor	Struck by drill rig	Before drilling begins, confirm that drill rig has been parked properly and securely by the drilling contractor.
		Wear high visibility vests. Make sure that the driver can see you and is aware of your location at all times.
		Inform the driller if it is observed that the rig is being moved with the mast raised and/or tools and other equipment on the rig are not secured and can fall over and potentially hurt personnel.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 14, 2012**	**Date: June 14, 2012**	**Date: June 26, 2012**

Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
	Overhead utility	Look overhead to assess if any utilities are present and confirm with driller that they are aware of the overhead utility location and to take appropriate actions to prevent contact with the overhead utilities and to minimize any arc flash hazards. Review GZA's Electrical Safe Work Practices Program 03-3003.
Observation of drilling operations and monitoring well installations	Underground utilities	Confirm that underground utility clearance procedures have been completed in accordance with GZA Policy # 04-0301 *Responsibility for Utility Clearance of Exploration Locations* for clearing utility locations prior
	Moving machinery, rotating parts, cables, ropes, etc.	Do not wear loose fitting clothing.
		All GZA personnel working in proximity to a drill rig will be familiarized with the location and operation of emergency kill switches prior to equipment start-up. Maintain safe distance from rotating auger, drill casing, rods and cathead at all times. Observe operations from a safe distance. Persons shall not pass under or over a moving stem or auger Check that "kill" switches are present and working. Confirm with driller that daily inspection of rig has been performed prior to commencing work and no conditions were noted with the rig that would affect its proper operation.
		Do not touch or operate or assist with any rig operations and maintenance work.
		Make eye contact with operator before approaching equipment.
		Be alert and take proper precautions regarding slippery ground surfaces and similar hazards near rotating auger.
		Do not engage the driller or helper when drill is in operation. Work out prearranged signals to get their attention before approaching them.
		Confirm prior to drilling operations that driller and helper communicate and coordinate their actions and movements.
		GZA personnel are not allowed to be on the drill rig or operate a rig.

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
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Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Wear steel toed boots, hardhat and side-shielding safety glasses/goggles.
	Falling objects, debris	Stand clear of stacked drill rods. If stack appears unstable inform driller.
	Noise	Wear appropriate hearing protection.
	Roadway/traffic hazards	Be alert at all times; never step outside traffic cones.
		Wear high visibility vests at all times.
		Be familiar with escape routes at each location.
		Follow project Traffic Control Plan. Be alert at all times and never step outside the traffic cones. Use a Police detail when necessary.
	Slips, trips and falls	Maintain clean and sanitary work area free of tripping/slipping hazards.
		All borings, excavations, or partially completed groundwater monitoring wells will be adequately covered and/or barricaded if left unattended for any period of time to prevent injury.
		Store any hand tools used for sampling in their proper storage location when not in use.
		Provide adequate space for each employee to work safely with sound footing.
		Do not perform work if adequate lighting is not available.
		Maintain an exit pathway away from the rig at all times.
	Cuts, bruises, shocks, lacerations, sprains and strains during tool use	When working with a driller, do not assist the drilling crew with their work.
		Use properly maintained tools; do not use damaged tools.
		Wear the proper Personal Protective Equipment based on the task being performed.
		Store and carry tools correctly.
		Use the correct tool for the job.
		Do not use electrical tools with damaged cords or other electrical components.
		Observe proper electrical safety practices. Do not use electrical tools in wet areas.

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 14, 2012**	**Date: June 14, 2012**	**Date: June 26, 2012**

Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Coordinate activities with driller. Allow driller to open sampling equipment (i.e., split spoons, Geoprobe sleeves, etc.)
	Fire hazards	Be familiar with emergency procedures and where fire extinguishers are present on site.
		Inform GZA subcontractor if you observe improper storage of used rags and unsafe storage of flammable/combustible liquids brought on site.
		GZA and its subcontractors, suppliers and vendors shall not smoke in the work area in GZA project sites. Smoking can only be in designated smoking areas away from work areas and potential fire hazard locations.
		Confirm with driller that a fire extinguisher present with rig and will be available at all times and that inspection tag is not expired.
		If driller is welding or cutting on site confirm there are no flammables or combustible materials near the vicinity of welding machines or torches (such as debris, fuels, grass/weeds, etc.). Review Site requirements for obtaining “Hot Work Permit”.
		Stand well clear of welding/cutting/burning areas.
		When drilling activities encounter the presence of gas or electric, the drill crew shall immediately curtail drilling activity, shut down the drill rig and contact the Project Manager.
	Exposure to Hazardous Substances/Chemicals	Become familiar with hazards associated with hazardous commercial products used in drilling (fuels, silica sand, grout, cement, bentonite, etc.). Review Safety Data Sheets (SDSs) for such products and participate in daily safety tailgate meetings.
		Do not handle drilling chemicals.
		Wear appropriate personal protective equipment.
		Review hazards of chemicals that may have been used or currently are being used on site.
		Refer to the site specific HASP for chemical hazards and the necessary precautions required for sampling.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 14, 2012**	**Date: June 14, 2012**	**Date: June 26, 2012**

Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Be alert for hazardous site contaminants (as indicated by odor, visual characteristics, location, and site history). Assess whether procedures and contingencies are in place for characterizing hazards and protecting workers by use of appropriate air monitoring, personal protective clothing and respiratory protection, as needed. If contamination is identified at the Site only personnel trained and medically qualified to work on hazardous sites will be permitted to proceed with the work.
Sampling Soil	Exposure to chemicals	Refer to the site specific HASP for chemical hazards and the necessary precautions required for sampling.
		Understand potential hazards associated with handling sample collection preservatives.
		Review and have SDS available for chemicals being brought on site, including that of sample preservatives.
		Wear appropriate PPE identified in the HASP
		Wash hands before eating and drinking. Eating and drinking are prohibited in areas of soil contamination/work area.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Groundwater Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 15, 2012**	**Date: June 15, 2012**	**Date: June 26, 2012**

Task 4.2
GROUNDWATER SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Review Related THA's – 21.1 – General Outdoor Field Work		
Deploying Traffic Protection Equipment	Personal injury due to vehicle traffic; Collisions, injuries	GZA drivers shall be properly licensed and abide by driving safety procedures. Inspect vehicle to determine if it is in safe operating condition.
		Park in designated parking locations, or select off-road areas that are firm and without hazards. Directly observe parking location on foot if necessary.
		Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions.
		Utilize police detail (when necessary) to direct traffic while entering traffic safety zone, if applicable.
Handling Flammable Liquids	Fire Hazards	Use only approved fuel containers for fuel, heavy duty metal cans with stable base and self closing nozzle is recommended.
		Store flammable liquids in an appropriate area when not in use.
		Provide working fire extinguisher with current inspection certificate with the sampling equipment.
		Observe GZA's "no smoking" policy at all work sites.
Mobilizing Equipment	Collision; struck by	Perform a pre-operation check of the vehicle, ensuring service brakes, parking brake, steering, lights, tires, horn, wipers mirrors, and glass are in good condition. Do not drive a vehicle that is not roadworthy.
		All vehicle occupants shall wear seat belts.
		Secure loose materials in the cab or bed of the vehicle.
		Keep the windows and lights clean.
		Do not operate the vehicle if it is in an unsafe condition.
		Abide by driving safety procedures and laws.
Positioning vehicle at monitoring well	Unstable, uneven terrain and ground obstacles	Locate the vehicle on stable ground.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Groundwater Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 15, 2012**	**Date: June 15, 2012**	**Date: June 26, 2012**

Task 4.2
GROUNDWATER SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
	Backing Collisions	Avoid wet areas/mud when possible.
		Assess the need for blocking/chocking wheels..
		If possible, avoid backing by taking a route that allows you to pull straight through.
		If you must back, do a complete walk around the vehicle to look for objects that could be struck or run over by the vehicle.
		Use a spotter when available to help guide the backing safely.
		Look over shoulders and glance back to make sure fenders are clearing objects. Back out slowly.
Well Sampling	Hazardous material contact	Identify wells with hazardous concentrations of contaminants.
		Sample wells in order from least to most impacted.
		Wear proper gloves specified in the project HASP when handling jars, preservatives could leak during shipment from the laboratory.
	Cuts and bruises from Sample jar	Do not over-tighten glass jars (especially VOAs); they can break, causing a laceration.
	Exposure to Hazardous Substances	Become familiar with the hazards associated with hazardous commercial products used while groundwater sampling (laboratory preservatives, decontamination solutions, etc.). Review Safety Data Sheets (SDS) for such products.
		Wear proper personal protective equipment (PPE) as specified in the Health and Safety Plan (HASP) to avoid direct contact with Site contaminants, calibration solutions, decontamination supplies, and laboratory preservatives.
		Respiratory protection as specified by the HASP must be available and used when necessary.
		Decontamination procedures as specified in the HASP must be followed.
Sampling Equipment Operation	Splashes, electrical shocks, fires, caught by	Perform an equipment observation before use; pumps, flow meters, and water quality meters must be calibrated and in good working condition.
		Use GFCI with all electrical cords.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Groundwater Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 15, 2012**	**Date: June 15, 2012**	**Date: June 26, 2012**

Task 4.2
GROUNDWATER SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		All equipment (especially generators) must be properly grounded.
		Completely shut down all equipment prior to conducting maintenance activities, fueling, servicing or repairs. Follow lock-out/tag-out procedures as needed.
	Manual lifting, equipment handling	Use proper lifting techniques when lifting equipment (generators, pumps, air compressors, tubing, etc.) Seek assistance with heavy loads.
		Use work gloves where appropriate to prevent hand injuries.
		Wear steel toed boots.
		When containerizing water, do not try to carry more than you can safely carry. It is better to make multiple trips.
	Noise	Wear appropriate hearing protection during activities that produce noise (running generators, pumps, air compressors, etc.)
	Slips, trips and falls	Maintain a clean and sanitary work area free of tripping/slipping hazards.
		Store hand tools in their proper storage location when not in use.
		Provide adequate space for each employee to work safely with sound footing.
		Provide adequate lighting.
	Tool-related hazards	Do not use electrical tools with damaged cords or other electrical components.
		Observe proper electrical safety practices.
		Properly maintain tools; do not use damaged tools.
		Wear eye protection.
		Store and carry tools correctly.
		Use the correct tool for the job.
		Protect from gouges, hammer blows, cutting tools, etc. Position your hands to prevent injury in case the tool slips while in use.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Construction Oversight		
Analysis By: Brett Engard	**Reviewed By: Benjamin Sallemi, Ph.D.**	**Approved By: Jayanti Chatterjee , CIH**
Date: September 19, 2011 **Revised: July 3, 2012**	**Date: July 3, 2012**	**Date: July 11, 2012**

Task 17.1
Construction Oversight

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Review Related THA's – 4.4A Excavation and Trenching (Heavy Equipment) 21.1 General Outdoor Field Work		
General Construction Oversight	Slips, trips and falls	Maintain clean and sanitary work area free of tripping/slipping hazards.
		Assess for adequate space to work safely with sound footing.
		Assess for adequate lighting.
		Assess that walkways and footpaths are free of obstructions.
	Physical Hazards	Become familiar with construction-related hazards prior to going onsite. Be cognizant of slips, trips and falls and overhead hazards of bumps, falling objects. Review related THAs noted above.
	Electrical shocks	Use GFCIs with all electrical power tools.
		Review GZA's Electrical Safe Work Practices program 03-3003.
	Cuts, scrapes, lacerations from hand tools	Know how to properly use hand tools and follow proper guarding procedures.
	Struck by, caught by, run over by equipment	Do not stand near or where equipment operators cannot see you. Always be in line of sight.
		Do not make sudden moves and always let the operator know of your intentions.
		Wear appropriate safety equipment as required by the Site Specific Health and Safety Plan when near heavy equipment and in general work area (hard hat, steel toe boots, work clothes, high visibility vest, eye and hearing protection, etc.).
		Understand the daily Scope of Work by participating in daily safety tailgate meetings and review the appropriate Job Hazard Analysis.
	Exposure to Hazardous Substances	Review the Site Specific HASP, attend and Site Specific orientation and/or training as required prior to performing work.
		Become familiar with hazards associated with hazardous commercial products used in construction (fuels, cement, epoxy, paint, sealant etc.). Review the SDSs for such products are available, and wear appropriate personal protective equipment.
		Conduct air monitoring as required by the HASP and use appropriate PPE as specified in the HASP.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Construction Oversight		
Analysis By: Brett Engard	**Reviewed By: Benjamin Sallemi, Ph.D.**	**Approved By: Jayanti Chatterjee , CIH**
Date: September 19, 2011 **Revised: July 3, 2012**	**Date: July 3, 2012**	**Date: July 11, 2012**

Task 17.1
Construction Oversight

HAZARD CONTROLS		
GZA Job Tasks	**Potential Hazards**	**Controls**
		Be alert for hazardous site contaminants (as indicated by odor, visual characteristics, location, and site history). Become familiar with procedures and contingencies for characterizing hazards and the use of appropriate personal protective clothing and respiratory protection, as needed.
Energized or Gas Powered Equipment	Personal Injury	Perform equipment safety inspection daily; assess if pressure relief devices, wire ropes, hoisting equipment, hydraulic hoses, and emergency shut-off switches are in good working condition.
		If power equipment is being used, become trained in the use of the equipment buy a qualified operator. Become familiar with the manufacture's operating manual and warnings.
		Do not disable the manufacture's built-in safety guards or do not operate if the safety mechanisms, controls or switches are disabled or are not functioning properly. Inspect the equipment for damaged or missing parts, and de-energize the equipment if it is not in use.
		Prior to refueling, turn off the equipment and allow the equipment to cool down.
		Move any loose clothing or equipment that can come in contact with moving or high temperature parts.
		Keep on hand a properly-sized and inspected fire extinguisher appropriate for the work.
		Inspect equipment for structural integrity, proper footing, tie backs, support, locked wheels, etc.
Observations from elevated surfaces, man lifts, scaffolds, etc.	Fall from elevated work areas/surfaces	Cordon off around the work area.
		Inspect manlifts and scaffolds being used by GZA personnel equipment for structural integrity, proper footing, tie-backs, support, locked wheels, etc.
		Use three point of contact while climbing ladders or scaffolding.
		Check for safety nets, railings, guardrails, etc. and their condition or for damage Use the proper fall protection system for the work being conducted (i.e. fall arrest or fall restraint). For fall arrest systems verify that swing falls and fall clearance distances are accounted for. Inspect body harness/lanyards used by GZA personnel for damage and missing parts.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Remediation Systems O&M		
Analysis By: Michael McCoy, CIH	**Reviewed By: Benjamin Sallemi, Ph.D.**	**Approved By: Jayanti Chatterjee , CIH**
Date: September 26, 2011 **Revised: June 26, 2012**	**Date: June 26, 2012**	**Date: June 28, 2012**

Task 18.0
Remediation Systems O&M

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Review related THAs: 21.1 - Outdoor Fieldworkd		
Operation and Maintenance of Remediation Systems	Hazardous Energy	Consult the O&M manual for the treatment system equipment components and know how to properly control hazardous energy before working on equipment.
		Utilize lockout/tagout procedures if project work is to occur on or around any energized equipment. See GZA policy on Control of Hazardous Energy - Lockout/Tagout and address hazards in the site-specific health and safety plan.
		Review GZA's Electrical Safe Work Practices Program 03-3003.
		Utilize only properly grounded electrical tools and equipment, and insure cords are free from wear.
		Do not run electrical cords through or around areas of water.
		When necessary and internal GZA expertise and training is not available hire a licensed electrician for appropriate electrical repairs and or maintenance.
		Review and abide by signage regarding electrical hazards at remediation sites.
	Mechanical Hazards	Evaluate equipment for possible pinch points, crush points and other potential mechanical hazards.
		Maintenance of remediation systems often requires use of hand tools. Select the correct tool and gloves as necessary for each project per the site-specific health and safety plan.
	Chemical Hazards	Evaluate and address controls for chemical hazards of each project in the site-specific health and safety plan. Chemicals may be utilized in the maintenance or cleaning of the system.
		Store water treatment chemicals and other chemicals to be used on site in their proper containers and in proper storage areas. Review and maintain Safety Data Sheets (SDSs) for chemicals being used on site. Use proper PPE when handling chemicals.
		When necessary provide for proper eyewash and safety showers for washing off caustic chemicals.

Job: Remediation Systems O&M		
Analysis By: Michael McCoy, CIH	**Reviewed By: Benjamin Sallemi, Ph.D.**	**Approved By: Jayanti Chatterjee , CIH**
Date: September 26, 2011 **Revised: June 26, 2012**	**Date: June 26, 2012**	**Date: June 28, 2012**

Task 18.0
Remediation Systems O&M

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
	Slips, Trips and Falls	Work around remediation systems, especially equipment utilized for treating groundwater and product may present slip hazards. Wear slip resistant boots on projects where water could be present on the floor.
		If ladders are to be utilized, assess if they are the appropriate type, in good repair and can hold the appropriate load.
	Working Alone	Review GZA's Working Alone Policy if project involves solo work at a remediation system project site.
		Sign out or call into the office to leave site specific information where you are working, the anticipated duration/hours of work on site. Do this for each site if multiple in one day.
		Call office or the person identified as the emergency contact in the HASP when off site.
	Site Specific Hazards	Remediation systems may be in abandoned or unoccupied facilities in a variety of environments from rural to urban. Address site specific hazards in the health and safety plan.
		A variety of environmental conditions may exist including high or low temperatures, wind and other weather conditions. Address these hazards in the site-specific health and safety plan.
		Remediation systems treat a variety of water pollutants, using various chemicals. Address chemical hazards of water pollutants and treatment chemicals in the site specific health and safety plan. Wear proper PPE.
		Insects, rodents and other vermin. Consider using appropriate repellant, and avoid contact with vermin and nest areas. Utilize wasp or bee insecticide during insect season, as appropriate.
		Confined spaces such as tanks and pits may present as part of remediation treatment systems that may need occasional cleaning and/or maintenance. Only trained personnel are allowed to work in confined spaces. All confined space work shall be in accordance with GZA's Confined Space Program.
	Fire Hazards	Refer to chemical SDS for proper handling, storage and use of chemicals.
		Store flammable combustible chemicals in proper containers and in areas away from sparks and heat generating equipment.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Remediation Systems O&M		
Analysis By: Michael McCoy, CIH	**Reviewed By: Benjamin Sallemi, Ph.D.**	**Approved By: Jayanti Chatterjee , CIH**
Date: September 26, 2011 **Revised: June 26, 2012**	**Date: June 26, 2012**	**Date: June 28, 2012**

Task 18.0
Remediation Systems O&M

HAZARD CONTROLS		
GZA Job Tasks	**Potential Hazards**	**Controls**
		Provide the appropriate fire extinguishers in the remediation treatment area and know their locations and how to use them.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Field Sampling

Analysis By: Christie Wagner	**Reviewed By: Jayanti Chatterjee, CIH**	**Approved By: Jayanti Chatterjee, CIH**
Date: November 4, 2011 **Revised: July 12, 2012**	**Date: July 12, 2012**	**Date: July 12, 2012**

Task 20.11
Field Sampling

HAZARD CONTROLS

GZA Job Tasks	**Potential Hazards**	**Controls**
Review Related THA's – 21.1 General Outdoor Field Work		
Pre work task for site visit	Adverse Weather Conditions	Assess weather conditions prior to on-site work and examine forecast for anticipated period of work.
		Dress appropriately for weather conditions (e.g., precipitation, temperature ranges over anticipated duration of field work).
		Use protective ointments such as sunscreen and chap stick, as appropriate to the field conditions.
		Be aware of the anticipated weather conditions prior to mobilization to the site. Unacceptable field work conditions are not precise, but may include site specific conditions, general location, extreme weather conditions (e.g., icing, lightening, excessive cold or wind), travel conditions, and other factors. Professional judgment is required, and personal assessment of safety must always be individually assessed.
Conduct visual inspection of site	Dangerous Terrain	Be aware of the site terrain, watch for holes and rocks that can be tripping hazards
		Learn to identify and watch for plants such as thorn bushes and poision ivy that can either scratch you or give you a rash.
Collecting sample	Muscle strain from lifting heavy objects	Use proper lifting techniques. Use appropriate mechanical assistance and tools when possible. Wear work gloves and steel toed boots.
	Exposure to unknown sample	Be sure to treat effluent samples as unknowns and wear the proper PPE.
		If there are any unusual odors/fumes coming from a sample, especially those that cause reactions in the eyes or nose, leave the area and inform a supervisor immediately.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: June 25, 2012	**Date: June 25, 2012**	**Date: July 12, 2012**

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Pre-work preparation	Overlooking of potential hazards	Become familiar with project area and job site by reviewing available on-line mapping (USGS Topographic, NWI Wetland, NRCS Soil, etc.; and aerial photographs before visiting site. Understand related hazards through review of this and other Task Hazard Analyses and participate in daily safety tailgate meetings (where applicable).
		Communicate Task Hazard Analysis and Lessons Learned information to operator(s) prior to initiating work and throughout the project as needed.
Driving to site	Vehicle accidents/collisions/injuries	Perform pre-operation check of vehicle, verifying service brakes, parking brake, steering, lights, tires, horn, wipers mirrors and glass are in good condition. verify that the rig is roadworthy.
		Wear seat belts always when driving even on site.
		Secure loose materials in cab or bed of vehicle.
		Keep windshields, windows and lights cleans.
		Abide by safe driving procedures.
	Backing collisions	If possible avoid backing by using a route that allows you to pull through.
		If backing up from a parked area do a quality 360 walker.
Working within transportation corridors or active construction sites	Collisions injuries	Wear high visibility safety vest on site when out of personal or GZA vehicle.
		Park vehicle in designated parking locations, or select off-road area that is firm, and without hazards. Directly inspect parking location on foot if necessary.
		Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions when parking vehicle.
		Use emergency flashers or other appropriate vehicle warning system when parking outside of standard parking spaces, or to stop in right-of-
		Be alert at all times; never step outside traffic cones.

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: June 25, 2012	**Date: June 25, 2012**	**Date: July 12, 2012**

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Stand clear of moving heavy equipment and away from any overhead utility lines until equipment is safely in position and parked properly and securely by the contractor.
		Do not wear headphones or earbuds, or listen to music or talk on the phone, which may distract from work hazards.
	Crossing Automobile traffic lanes	Wear high visibility safety vests at all times when out of vehicle and working within or adjacent to the roadway.
	Crossing Airport Movement Areas (e.g., Runways, taxiways, approaches)	Learn, know, and conform to project site Airport's, Airfield's, or Airbase's protocol for crossing movement areas (whether on foot or in vehicle).
		Work within airport movement areas or safety zones must be coordinated with the Air Traffic Control Tower.
		Vehicles to have blinking or flashing lights or beacons; pedestrians to wear high visibility safety vests.
		Using protocol, maintain communication with airport security and air traffic controllers.
	Crossing Railways	Work within active railroad ROWs requires railroad safety training. No work can be done within the railroad traffic envelope without the permission of a railroad flagman.
		No equipment or vehicles can cross without the permission of a railroad flagman.
		Expect any train on any track coming from either direction at any time.
Working in Natural or Remote Areas	Slips, trips, fall	Be aware of loose ground materials such as talus, unconsolidated rock, soil, sediment, ice and other media that could cause slips, trips or falls.
		Be careful when walking in heavily vegetated areas. Mind tangles of vines, thorny branches, and slippery logs and rock surfaces. Dense vegetation and especially entangled vines present trip hazards, or can mask voids, sharp objects, or other hazards beneath.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: June 25, 2012	**Date: June 25, 2012**	**Date: July 12, 2012**

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS		
GZA Job Tasks	**Potential Hazards**	**Controls**
		Be vigilant for signs of cracking, shifting, fracturing, and evidence of past movement.
		Use wood mats or other stabilizing materials for equipment if soft ground conditions are present.
		Use walking stick, auger, or ski poles to steady yourself when traversing loose material or slopes.

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: June 25, 2012	**Date: June 25, 2012**	**Date: July 12, 2012**

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Wear proper footwear for conditions.
		Store tools in their proper storage location when not in use.
		Provide adequate lighting when necessary.
	Falls into excavations/ voids	Stand away from edges of excavations and voids. Do not attempt access without proper equipment / training. Remember that some excavations or voids may constitute a confined space and may present structural stability issues.
	Cave-ins and engulfment	DO NOT enter caves, sinkholes, excavations, and other voids or concavities that are not sloped or shored properly and have not been evaluated by a competent person to be safe.
		Stand away from edges of excavations, cliffs, dug wells, and other voids.
		Watch for cracks/fissures in the ground surface in the immediate vicinity of a pit or void, which indicate imminent sidewall failure/cave-in.
		Assess if confined space entry procedures need to be implemented.
		Before entering void (if required to do so and with proper training) be aware of any hazards at the surface (boulders, equipment) which may fall into the void.
Working among hazardous biota	Plant toxins Incidental contact	Know the appearance of poison ivy and poison sumac in all seasons, and if sensitive to these toxins, carry and use special cleaning soaps/solutions when thought to be exposed. Stock first aid kit with poison ivy/sumac cleaning soaps/solutions.
	Ticks	Ticks carry risk of Lyme's and other Diseases. Tick season is basically any field day above 40 degrees F.
		Tuck pants into long socks.
		The application of DEET (or permethrin pre-treatment) to clothing in season to control exposure to ticks is recommended.
		Check clothing for ticks frequently.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: June 25, 2012	**Date: June 25, 2012**	**Date: July 12, 2012**

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Check whole body immediately upon returning from field and shower.
	Mosquitoes	Be aware of intermittent seasonal reports of mosquito borne diseases, such as West Nile disease and Eastern Equine Encephalitis (EEE), and their locations relative to your field site. Use of DEET or other mosquito repellant is recommended.
	Stinging bees and wasps	Be aware of potential cavity, suspended or ground nesting bee/wasp/hornet nests. Avoid undue disturbance or approach with appropriate safety clothing, protection and netting.
		Take appropriate precautions if allergic to bees. Carry at least two epi-pens in first aid kit as well as anti-histamines (oral and inhalers).
		Avoid areas of heavy bee activity if allergic. Avoid perfumed soaps, shampoos, deodorants, colognes, etc. that may attract bees.
	Poisonous Snakes	Be aware of terrain likelihood of harboring poisonous snakes in your work zone. Avoid reaching or stepping into hidden areas (such as into wood pile, rock pile, debris pile, stone wall, etc.) without pre-inspection.
		Coordinate with local hospitals to verify they have proper anti-venom in stock.
		Learn first aid procedures in case of poisonous snake bite.
		Devise an action plan and include in the site-specific HASP.
	Wild Animals	Do NOT handle wildlife unless properly trained to do so.
		Beware of any wild animal that shows no sign of wariness of humans.
		Do NOT attempt to feed wild animals or to help apparently injured wild animals.
		Be aware of domestic animals that may also pose a threat such as dogs off leash, bulls out to pasture, etc.

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: June 25, 2012	**Date: June 25, 2012**	**Date: July 12, 2012**

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Working in Adverse Weather Conditions	Heat / cold stress and other weather related hazards	Assess weather conditions prior to on-site work and examine forecast for anticipated period of work.
		Dress appropriately for weather conditions (e.g., precipitation, temperature ranges over anticipated duration of field work). Include clothing and the presence / absence of shade when calculating a heat index.
		Schedule work day to avoid working during hottest or coldest parts of the day, to the extent practicable.
		Keep exposed skin covered in extremely cold weather.
		Recognize signs of frostbite; use warming packs and layer clothing to maintain warmth.
		Use a wicking layer of clothing against your body to keep moisture away from skin.
		Wool clothing will continue to keep you warm after it becomes wet; cotton will not.
		Use protective ointments such as sunscreen and chap stick, as appropriate to the field conditions.
		Stay hydrated in hot weather; drink fluids regularly throughout the day, even if not thirsty.
		Recognize signs of heat stress; take frequent breaks in shade when working in direct sunlight for prolonged periods.
		Be familiar with Heat index chart - add 20 degrees to chart if fully clothed and if working in direct sunlight.
		NOTE: Unacceptable field work conditions are not precise, but may include site specific conditions, general location, extreme weather conditions (e.g., icing, lightning, excessive cold or wind), travel conditions, and other factors. Professional judgment is required, and personal assessment of safety must always be individually assessed.
	Working on Ice	Assess relative load bearing capacity of ice on lakes, ponds and other waterways. If unsure do not venture onto the ice.

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	Reviewed By: Guy Dalton	Approved By: Jayanti Chatterjee , CIH
Date: June 25, 2012	Date: June 25, 2012	Date: July 12, 2012

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Wear proper footwear modified for traction on ice.
	Electrical storms	If lightning is observed during drilling activities, work shall be suspended immediately and employees shall find suitable shelter (building or vehicle at minimum). Work will commence no sooner than 30 minutes after the last indications of lightning have been observed
		Seek shelter inside a walled building or your vehicle.
		Open picnic pavilions and under trees are not adequate shelters.
		Assess vulnerability to lightning strikes as soon as thunder is heard on the horizon. Open areas and higher elevations are more susceptible to strikes.
		Tall objects such as metal towers and flag poles may attract lightning.
		Consult internet weather radar tracking devices to learn of impending storm patterns proximal to your work area.
	High Winds	Avoid working at high elevations, elevated platforms, and other exposed areas during high wind conditions.
		Assess work area for equipment that may be blown down, over, or carried aloft by high winds.
Working in areas without sanitary facilities	Hygiene related hazards	Provide hand washing kits (e.g., baby wipes, hand sanitizers, paper towels, bottled water, etc.) to be used prior to eating and drinking.
		Have garbage bags handy to collect trash.
Working in remote areas	Emergency Conditions	Be familiar with onsite emergency procedures and route to nearest hospital.
		Have a first aid kit available; know its contents and how to use them.
		Carry a cell phone during all field work for emergency purposes, and confirm the nearest location of cell phone signal on site prior to start of worksite.
	Disorientation	Plan your route and anticipated progress prior to field work.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work		
Analysis By: Anthony Zemba, CHMM	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: June 25, 2012	**Date: June 25, 2012**	**Date: July 12, 2012**

Task 21.1
General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Have multiple navigation aids (e.g., USGS Map, compass, GPS, etc.) and know how to use them before entering field. Remember to have charged batteries and battery back-ups for electronic devices.
		Share your progress plan with office staff prior to entering the field.
		Check in with office personnel periodically to update progress.
		Review and comply with GZA's Working Alone Policy 03-1009 in advance of working alone on a project site.
	Hunting	Be familiar with the various game hunting seasons. Follow rules and guidelines for remaining visible to hunters.
		Try to plan work around active hunting seasons or daily peak hunting hours as warranted.

GZA GeoEnvironmental, Inc.
55 Lane Road
Fairfield, New Jersey 07004

Phone: 973-774-3300
Fax: 973-774-3350

DAILY SAFETY MEETING

Project Name: ______________________ Date: ______________

Project Number: ______________________ Presented By: ______________

Check the Applicable/Reviewed Information:

- ☐ safety is everyone's responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-to-Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ equipment and machinery familiarization
- ☐ portable tool safety and awareness
- ☐ update HASP/THA for new tasks or changing conditions
- ☐ first aid, safety and PPE location
- ☐ sharp objects, rebar and scrap metal hazards
- ☐ latex gloves inner/nitrite gloves outer
- ☐ open pits, excavations and trenching hazards
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at: PID (10.6 eV)>____ppm
- ☐ work stoppage at: PID (10.6 eV)>___ppm, % LEL >10%
- ☐ slips, trips and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☐ ordering site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ daily work scope reviewed
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☐ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horseplay
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac
- ☐ Flex-N-Stretch performed

Other Health and Safety Topics Discovered, Comments, Discussions or Action Items

____

____

NAME	SIGNATURE	COMPANY

- Conduct a daily safety meeting prior to beginning of each day.
- Complete this form, obtain signatures and file with the Daily Field Report.

INCIDENT/ACCIDENT REPORT and ANALYSIS

For initial report to be submitted within 24 hours of the incident, fill in as much information as available in Sections 1 through 4, and submit to your EHS Coordinator, EHS Director (J. Chatterjee), and Property and Casualty Insurance Manager (S.Domko). Incident analysis to be completed ASAP thereafter, and distributed as appropriate.

Initial Incident Report Prepared/Submitted by:

Name	**GZA Office**	**Date**

1. Classify Incident (select all that apply):

2. Description of Incident/Injury and Related Information (Attach photos, drawings, separate page if needed.)

a. Date of Incident:	b. Time of Incident:
b. Address Where Incident Occurred:	
c. If incident occurred on a project work site, provide project information (project number, project name, client info., etc.): - -	
d. GZA Supervisor/Project Manager/PIC:	
e. Work conducted out of which GZA office?	
f. EHS Coordinator in Your Office:	
g. Detailed Description of the Incident:	

3. For Work Place Injury or Illness, Fill in this Section (otherwise, skip to Section 4),

a. Person Injured/Illness:	
b. Full Name of Injured:	
c. Injured Person's Mailing Address:	
d. Injured Person's Title, Department, etc.	
e. Home or Cell Phone No.	f. Date of Birth:
g. Detailed Description of Injury (be specific):	
h. Was 1st aid administered on site? i. If yes, who administered 1st aid, and describe actions:	
j. Did injured person receive emergency medical treatment or ambulance service? k. If yes, describe:	
l. Did injured receive professional medical care and/or treatment? m. If yes, what was the nature of care? n. Date of first treatment or hospitalization: o. Identify name of clinic, hospital, doctor, specialty, (name, address, city, state, zip code, and phone): p. Describe the specific medical care or treatment (provide details, specific treatment, specific medications, over-the-counter or prescription, recommendations for follow up, etc.):	
q. Did injured person resume work on the same day of the incident?	
r. Did injured person miss any days at work after the day of the incident?	

s. If yes, first day missed: t. Total number of days of work missed: u. Was injured person assigned any days of restricted duty at work? v. If yes, first day of restricted work duty: w. Total number of days of restricted work duty:

4. Names of Other Individuals Directly Involved or Witnesses (if any)

Name	Nature of Involvement	Contact Info. (Company, Phone No.

5. Contributory Factors

a. What was the apparent immediate or direct cause(s) of the incident?
b. Was any safety equipment provided? c. If yes, was it used?
d. Was an unsafe act being performed, or was an unsafe condition present? e. If yes, describe:
f. Were any machine parts, tools, or equipment involved? g. If yes, describe: h. Was the machine part/tool/equipment in proper working order? i. If no, explain:
j. Was a non-GZA party (subcontractor, public, etc.) involved in or responsible for the incident? k. If yes, explain and provide contact information:
l. Identify possible indirect causes, root causes of the incident:
m. Other Comments:

6. Corrective Actions, Recommendations, Follow-up (Attach separate page if necessary.)

a. Describe corrective or preventative actions implemented at the time of the incident:
b. Suggest additional corrective or preventative actions that may prevent recurrence of the incident:
c. Suggest additional follow-up actions (such as corrective actions needed for similar work, safety alert, information, or guidelines to be communicated company-wide, etc.):

7. Distribution

V.P. Risk Management: Kenneth Johnston EHS Director: Jayanti Chatterjee Property and Casualty Insurance Manager: Susan Domko Regional Office Managers: William Hadge and Kim Anderson District Office Manager: Principal-in-Charge (if project-related): Project Manager (if project-related): Employee Supervisor: Other:

8. Participants in Incident Analysis/Investigation

Name	Title	Role/Involvement

9. Incident Analysis Completion

OSHA-Recordable?
Explain:

For hospitalization, have discharge papers been received?
Explain:

For police involvement, has police report been received?
Explain:

____ ________________
Susan Domko, Property & Casualty Insurance Manager Date

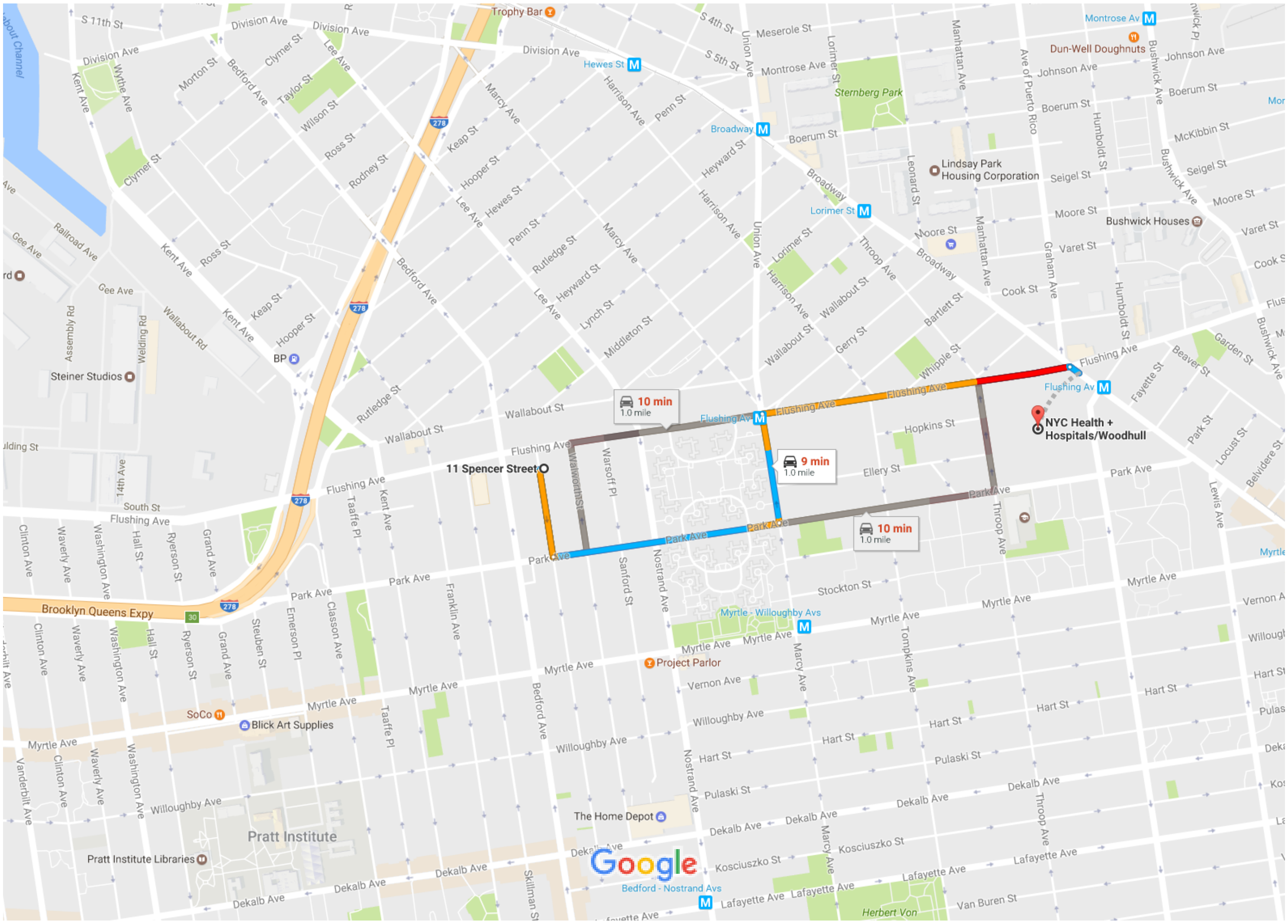
____ ________________
Jayanti Chatterjee, EHS Director Date

____ ________________
Kenneth Johnston, VP Risk Management Date

Google Maps

11 Spencer St, Brooklyn, NY 11205 to NYC Health + Hospitals/Woodhull

Drive 1.0 mile, 9 min



Map data ©2017 Google 500 ft

11 Spencer St

Brooklyn, NY 11205

1. Head south on Spencer St toward Park Ave

0.1 mi

2. Turn left at the 1st cross street onto Park Ave

0.3 mi

3. Turn left onto Marcy Ave

0.2 mi

4. Turn right onto Flushing Ave

0.4 mi

5. Turn right onto Broadway

82 ft

NYC Health + Hospitals/Woodhull

760 Broadway, Brooklyn, NY 11206

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Appendix D Community Air Monitoring Plan

GZA
Proactive by Design

Geotechnical
Environmental
Ecological
Water
Construction Management

GZA GeoEnvironmental of NY
104 West 29th Street
10th Floor
New York, NY 10001
T: 212.594.8140
F: 212.279.8180
www.gza.com

Appendix F
New York State Department of Health
Generic Community Air Monitoring Plan
Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. A periodic monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

Appendix E Raw Analytical Laboratory Data (Incl. CD)

Appendix F Photographic Log

GZA GeoEnvironmental, Inc.		PHOTOGRAPHIC LOG
Client Name: THE W GROUP OF BROOKLYN LLC	**Site Location:** 11 Spencer Street, Brooklyn, New York	**Project No.:** 12.0076527.00

Photo # 1. **Taken by:** ZS **Date:** **02-22-2017** **Description** Day 1 Soil borings logs at MWC-1 (0-25 ft intervals)		**Photo #** 2. **Taken by:** ZS **Date:** **02-22-2017** **Description** Day 1 Soil borings logs at MWC-1 (0-25 ft intervals)	
Photo # 3. **Taken by:** ZS **Date:** **02-22-2017** **Description** Day 1 Soil borings logs at MWC-1 26-47 ft intervals)		**Photo #** 4. **Taken by:** ZS **Date:** **02-22-2017** **Description** Day 1 Soil borings logs at MWC-1 26-47 ft intervals)	

GZA GeoEnvironmental, Inc.		**PHOTOGRAPHIC LOG**
Client Name: THE W GROUP OF BROOKLYN LLC	**Site Location:** 11 Spencer Street, Brooklyn, New York	**Project No.:** 12.0076527.00

Photo #
5.

Taken by:
ZS

Date:
02-22-2017

Description
Day 1 Soil borings logs at MWC-2 (0-43 ft intervals)

Photo #
6.

Taken by:
ZS

Date:
02-22-2017

Description
Day 1 Soil borings logs at MWC-2 (0-43 ft intervals)

Photo #
7.

Taken by:
ZS

Date:
02-22-2017

Description
Day 1 Soil borings logs at MWC-3 0-15 ft intervals)

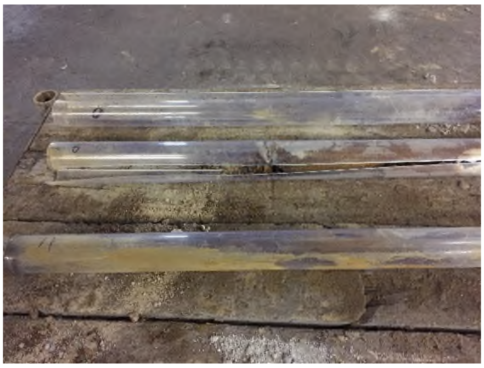


Photo #
8.

Taken by:
ZS

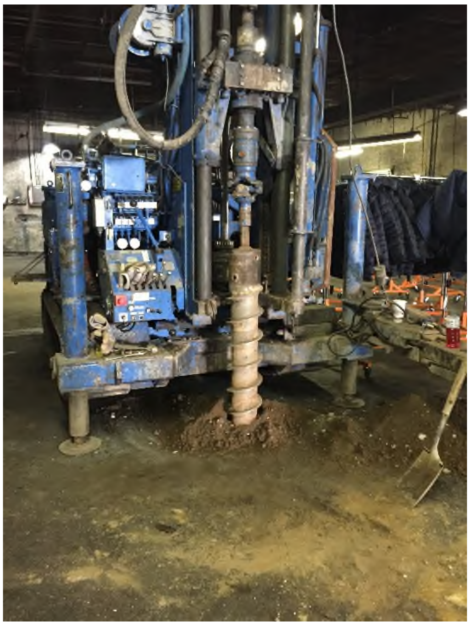
Date:
02-22-2017

Description
Day 1 Soil borings logs at MWC-3 0-15 ft intervals)

GZA GeoEnvironmental, Inc.		PHOTOGRAPHIC LOG
Client Name: THE W GROUP OF BROOKLYN LLC	**Site Location:** 11 Spencer Street, Brooklyn, New York	**Project No.:** 12.0076527.00

Photo # 9.		**Photo #** 10.	
Taken by: ZS		**Taken by:** ZS	
Date: **02-23-2017**		**Date:** **02-23-2017**	
Description Day 2 Cluster MWC-1 Installation		**Description** Day 2 Cluster MWC-1 Installation	
Photo # 11.		**Photo #** 12.	
Taken by: ZS		**Taken by:** ZS	
Date: **02-28-2017**		**Date:** **02-28-2017**	
Description Day 5 Cluster MWC-2 Installation		**Description** Day 5 Cluster MWC-2 Installation	

![GZA logo] GZA GeoEnvironmental, Inc.		PHOTOGRAPHIC LOG
Client Name: THE W GROUP OF BROOKLYN LLC	**Site Location:** 11 Spencer Street, Brooklyn, New York	**Project No.:** 12.0076527.00

Photo # 13. **Taken by:** ZS **Date:** **03-1-2017** **Description** Day 6 Cluster MWC-3 Installation		**Photo #** 14. **Taken by:** ZS **Date:** **03-1-2017** **Description** Day 6 Cluster MWC-3 Installation	
Photo # 15. **Taken by:** ZS **Date:** **03-2-2017** **Description** Day 7 Well Purging		**Photo #** 16. **Taken by:** ZS **Date:** **03-3-2017** **Description** Day 8 Well Purging	

Appendix G Borehole and Monitoring Well Logs

SOIL BORING LOG

GZA GeoEnvironmental, Inc.	Client: The W Group of Brooklyn	EXPLORATION NO.	**MWC-1**
	Project: 11 Spencer Steet	SHEET	1 of 3
	City, State: Brooklyn, New York	GZA PROJECT NO.	76527

LOGGED BY:	ZS	RIG TYPE:	Geoprobe	BORING COORDINATES	N		E
DRILLING CO:	ADT	MODEL:	7720	GROUND SURFACE EL.(FT)		DATUM (S)	
FOREMAN:		METHOD:	SA / MR / MRC / CO	FINAL BORING DEPTH (FT)	47.0	DATE START/FINISH	2/22-2017

HAMMER TYPE:	AUTOMATIC / DONUT / SAFETY SLIDING		
HAMMER WEIGHT:		TYPE SAMPLER:	Macro Core
HAMMER FALL:		SAMPLER O.D.:	
AUGER OR CASING O.D./I.D.:		SAMPLER LENGTH:	
CASING SIZE:			

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME

DEPTH feet	NO	DEPTH (feet)	PEN / REC (inch / inch)	RECOVERY (%)	BLOWS per 6" RQD (%)	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER	PID READING	REMARK	PROFILE STRATUM
0-1				60%		top soil, GRAVELS with fill material, no odor, dry	0.5		
1-3				60%		Brown fine SAND with some gravels, no odor,dry	1.2		
5-10				80%		Brown fine to medium SAND, no odor dry	0.2		
10-15				90%		same as above	0.2		
								1	
15-20				70%		Brown and gray SAND with some white minerals wet	4.3	2	
20-25				95%		Brown fine to medium SAND, no odor wet	21		
25-30				95%		Brown medium to course SAND, no odor wet	0.7		
30-35				70%		Brown medium to course SAND with some midium size cobbles,	5.2		
						no odor, wet			
35-40				40%		same as above	0.9		
40-45				90%		same as above	0.9		
45-50						same as above	18.7		
						ends at 47 ft			

GRANULAR SOILS BLOWS/FT	DENSITY	COHESIVE SOILS BLOWS/FT	CONSISTENCY
0-4	VERY LOOSE	<2	VERY SOFT
4-10	LOOSE	2-4	SOFT
10-30	MEDIUM DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	VERY DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:

1. water table is encounted at 15 ft bgs

2. Sampled at 20-21 ft bgs interval

EXPLORATIO

SOIL BORING LOG

GZA GeoEnvironmental, Inc.				
Client:	The W Group of Brooklyn		EXPLORATION NO.	**MWC-2**
Project:	11 Spencer Steet		SHEET	2 of 3
City, State:	Brooklyn, New York		GZA PROJECT NO.	76527

LOGGED BY:	ZS	RIG TYPE:	Geoprobe	BORING COORDINATES	N		E
DRILLING CO:	ADT	MODEL:	7720	GROUND SURFACE EL.(FT)		DATUM (S)	
FOREMAN:		METHOD:	SA / MR / MRC / CO	FINAL BORING DEPTH (FT)	43.0	DATE START/FINISH	2/22-2017

HAMMER TYPE:	AUTOMATIC / DONUT / SAFETY SLIDING		
HAMMER WEIGHT:		TYPE SAMPLER:	Macro Core
HAMMER FALL:		SAMPLER O.D.:	
AUGER OR CASING O.D./I.D.:		SAMPLER LENGTH:	
CASING SIZE:			

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME

DEPTH feet	SAMPLE NO	SAMPLE DEPTH (feet)	PEN / REC (inch / inch)	RECOVERY (%)	BLOWS per 6" RQD (%)	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER	PID READING	REMARK	PROFILE STRATUM
0-2				80%		top soil, GRAVELS with fill material, no odor, dry	0		
2-3						Brown fine SAND with some gravels, no odor,dry	12		
3-4						Black sand layer, sharp and sweet odor, dry	64	2	
5-5.5				80%		Black sand layer, sharp and sweet odor, dry	77		
5.5-10						Brown fine to medium SAND with some gravels, no odor	25		
10-11				100%		Black sand layer, sharp and sweet odor, dry	50	**2**	
11-15						Brown fine to medium SAND, no odor, wet	25	1	
15-17				50%		Brown fine to medium SAND, wet	0.5		
18-19						Black sand layer, sweet and bitter odor, wet	57	2	
20-25				85%		Brown medium to course SAND, wet	24		
25-30				90%		Brown medium to course SAND with some medium cobbles, wet	6.0		
30-35				70%		Brown medium to course SAND with some midium size cobbles, no odor, wet	4.0		
35-40				40%		same as above	1.0		
40-45				90%		same as above ends at 43 ft bgs	1.5		
45-50									

GRANULAR SOILS BLOWS/FT	DENSITY	COHESIVE SOILS BLOWS/FT	CONSISTENCY
0-4	VERY LOOSE	<2	VERY SOFT
4-10	LOOSE	2-4	SOFT
10-30	MEDIUM DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	VERY DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:

1. water table is encounted at 14-15 ft bgs

2. Sampled at 3-4 ft bgs, 11-12 ft bgs, 18-19 ft bgs intervals

EXPLORATIO

SOIL BORING LOG

GZA GeoEnvironmental, Inc.		
Client:	The W Group of Brooklyn	EXPLORATION NO. MWC-3
Project:	11 Spencer Steet	SHEET 3 of 3
City, State:	Brooklyn, New York	GZA PROJECT NO. 76527

LOGGED BY:	ZS	RIG TYPE:	Geoprobe	BORING COORDINATES	N		E
DRILLING CO:	ADT	MODEL:	7720	GROUND SURFACE EL.(FT)		DATUM (S)	
FOREMAN:		METHOD:	SA / MR / MRC / CO	FINAL BORING DEPTH (FT)	15.0	DATE START/FINISH	2/22-2017

HAMMER TYPE:	AUTOMATIC / DONUT / SAFETY SLIDING		
HAMMER WEIGHT:		TYPE SAMPLER:	Macro Core
HAMMER FALL:		SAMPLER O.D.:	
AUGER OR CASING O.D./I.D.:		SAMPLER LENGTH:	
CASING SIZE:			

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME

DEPTH feet	SAMPLE NO	SAMPLE DEPTH (feet)	PEN / REC (inch / inch)	RECOVERY (%)	BLOWS per 6" RQD (%)	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER	PID READING	REMARK	PROFILE STRATUM
0-1				80%		top soil with some gravels, no odor, dry	2.5		
1-3						Brown fine SAND with some gravels, no odor,dry	21		
5-10				70%		Brown fine to medium SAND with some cobbles, no odor, dry	18		
10-15				30%		same as above	2.1		
						refusal at 15 ft		1	
15-20									
20-25									
25-30									
30-35									
35-40									
40-45									
45-50									

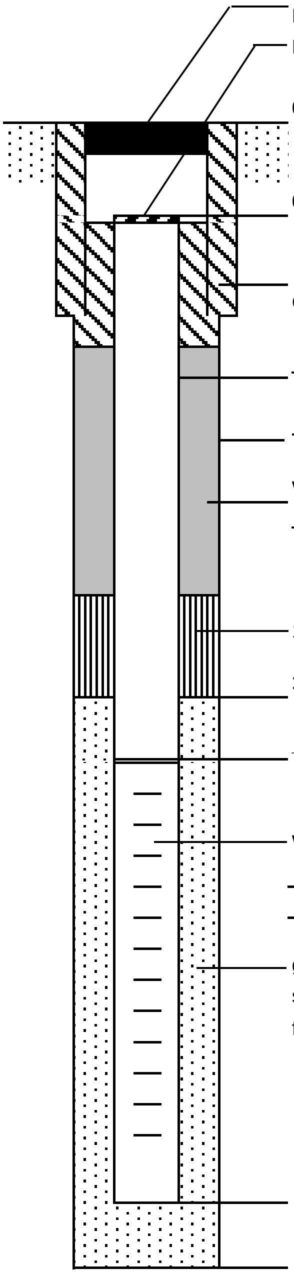
GRANULAR SOILS BLOWS/FT	DENSITY	COHESIVE SOILS BLOWS/FT	CONSISTENCY
0-4	VERY LOOSE	<2	VERY SOFT
4-10	LOOSE	2-4	SOFT
10-30	MEDIUM DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	VERY DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:

Multiple drilling was tried in the area
and the refusals were encountered at around 15 ft bg

EXPLORATIO

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Flush-mount Assembly With Seal
Locking Cap With Seal
0 ft Ground Surface
0.5 ft* Top of Well 4"-ID PVC Inner Well Casing
Cement Collar
_______"-ID PVC Inner Well Casing
_____"-ID Drill Hole
Well Casing Seal -
____cement___√ bentonite _____backfill
1 ft of Bentonite ___ slurry____ granular_____pellets
15__ft* - Top of Clean gravel Filter-pack
_17_ ft* - Top of Well Screen (Threaded Coupling)
Well screen
2 inch diameter
0.010 slot size
gravel pack
sand pack √
formation collapse_____
_23.7_ ft* Bottom of Screen with 1 ft of sump

Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather

City Brooklyn
County State NJ
Well No. MWC-1S
Well Permit No.
Installation Date(s) 2/23/2017

Drilling Method Auger Hollow Stem
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/1/2017

Fluid loss during drilling 50 gallons in total gallons
Water removed during development 47 gallons
Static depth-to-water 13.21 ft below TOC

Pumping depth-to-water 20 ft below TOC
Pumping duration Hrs/Min

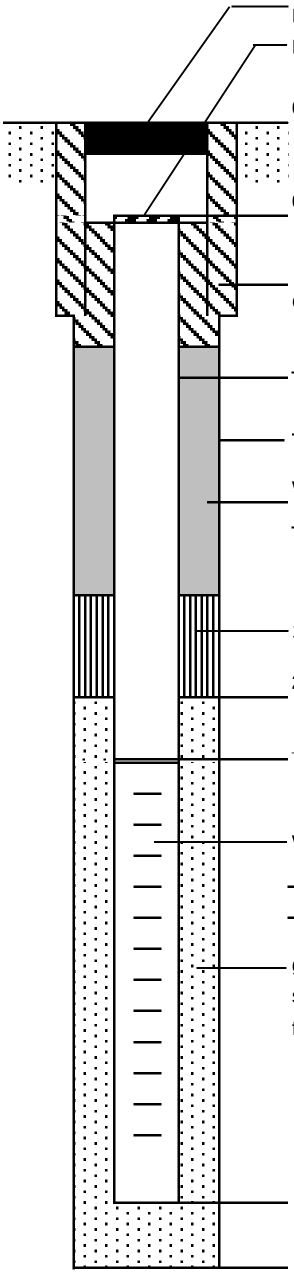
Well purpose: Monitoring

Comments 50 gallons of water was injected in the cluster, 47 gallons of water was purged 1 ft of sump was maintained on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Flush-mount Assembly With Seal
Locking Cap With Seal
0 ft Ground Surface
0.5 ft* Top of Well 4"-ID PVC Inner Well Casing
Cement Collar
_______"-ID PVC Inner Well Casing
_____"-ID Drill Hole
Well Casing Seal -
____cement___√ bentonite _____backfill
1 ft of Bentonite ___ slurry____ granular_____pellets
26__ft* - Top of Clean gravel Filter-pack
_28_ ft* - Top of Well Screen (Threaded Coupling)
Well screen
2 inch diameter
0.010 slot size
gravel pack ______
sand pack √
formation collapse_____
_34.1_ ft* Bottom of Screen with 1 ft of sump

Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather

City Brooklyn
County ______ State NJ
Well No. MWC-1D
Well Permit No.
Installation Date(s) 2/23/2017

Drilling Method Auger Hollow Stem
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/2/2017

Fluid loss during drilling 50 gallons in total gallons
Water removed during development 47 gallons
Static depth-to-water 13.21 ft below TOC

Pumping depth-to-water 30 ft below TOC
Pumping duration ______ Hrs/Min

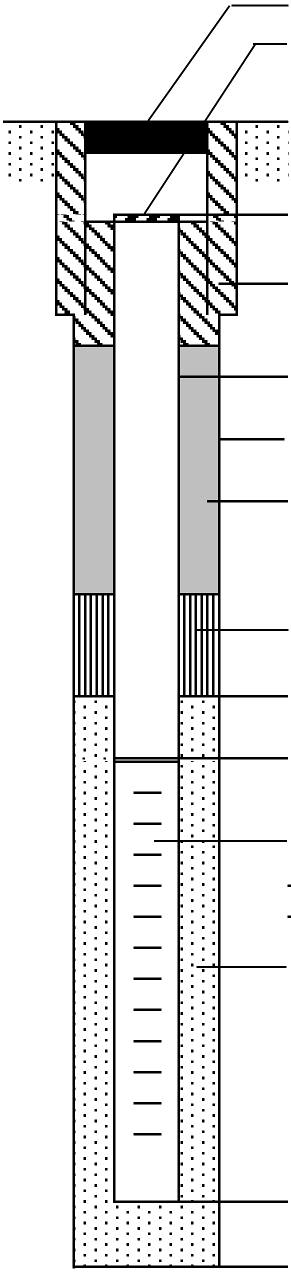
Well purpose: Monitoring

Comments 50 gallons of water was injected in the cluster, 47 gallons of water was purged
1 ft of sump was maintained
on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Flush-mount Assembly With Seal
Locking Cap With Seal
0 ft Ground Surface
0.5 ft* Top of Well 4"-ID PVC Inner Well Casing
Cement Collar
_______"-ID PVC Inner Well Casing
_____"-ID Drill Hole
Well Casing Seal -
____cement___√ bentonite _____backfill
1 ft of Bentonite ___ slurry_____ granular_____pellets
31__ft* - Top of Clean gravel Filter-pack
_33_ ft* - Top of Well Screen (Threaded Coupling)
Well screen
2 inch diameter
0.010 slot size
gravel pack ________
sand pack √
formation collapse_____
_38.9_ ft* Bottom of Screen with 1 ft of sump

Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather

City Brooklyn
County ________ State NJ
Well No. MWC-1DD
Well Permit No.
Installation Date(s) 2/23/2017

Drilling Method Auger Hollow Stem
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/2/2017

Fluid loss during drilling 50 gallons in total gallons
Water removed during development 47 gallons
Static depth-to-water 13.21 ft below TOC

Pumping depth-to-water 35 ft below TOC
Pumping duration ________ Hrs/Min

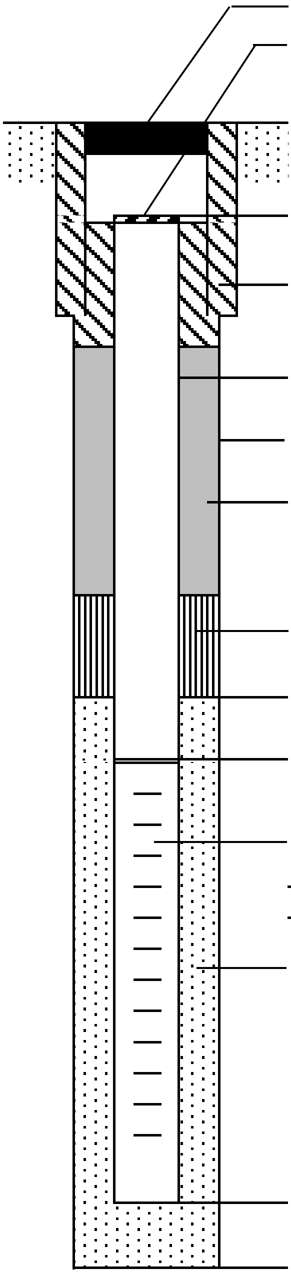
Well purpose: Monitoring

Comments 50 gallons of water was injected in the cluster, 47 gallons of water was purged
1 ft of sump was maintained
on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Flush-mount Assembly With Seal
Locking Cap With Seal

0 ft Ground Surface

0.5 ft* Top of Well 4"-ID PVC Inner Well Casing

Cement Collar

_______"-ID PVC Inner Well Casing

______"-ID Drill Hole

Well Casing Seal -
____cement___√ bentonite _____backfill

1 ft of Bentonite ___ slurry_____ granular_____pellets

17__ft* - Top of Clean gravel Filter-pack

_19_ ft* - Top of Well Screen (Threaded Coupling)

Well screen
2 inch diameter
0.010 slot size

gravel pack
sand pack √
formation collapse_____

_25.59_ ft* Bottom of Screen with 1 ft of sump

Field Personnel	Zhan Shu
Project Manager	James Bellew
Project No.	76527
Project Name	11 Spencer
Weather	
City	Brooklyn
County	State NJ
Well No.	MWC-2S
Well Permit No.	
Installation Date(s)	2/28/2017
Drilling Method	Auger Hollow Stem, Mud Rotary Drill
Drilling Contractor	ADT
Drilling Fluid	

Development technique and dates:
Pump and Surge via submersible pump
3/2/2017

Fluid loss during drilling 400 gallons in total gallons
Water removed during development 52.8 gallons
Static depth-to-water 11.2 ft below TOC

Pumping depth-to-water 22 ft below TOC
Pumping duration ________ Hrs/Min

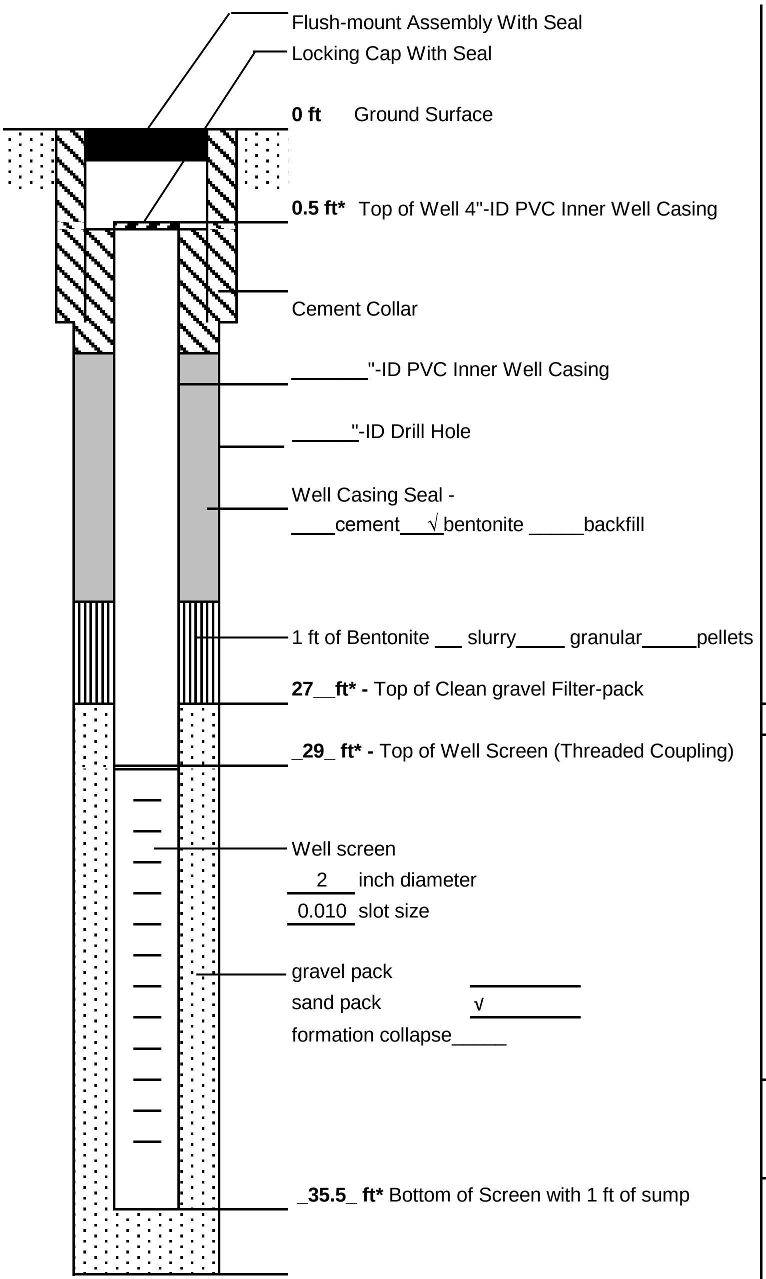
Well purpose: Monitoring

Comments 400 gallons of water was injected in the cluster, 52.75 gallons of water was purged 1 ft of sump was maintained on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather

City Brooklyn
County State NJ
Well No. MWC-2D
Well Permit No.
Installation Date(s) 2/28/2017

Drilling Method Auger Hollow Stem, Mud Rotary Drill
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/3/2017

Fluid loss during drilling 400 gallons in total gallons
Water removed during development 52.8 gallons
Static depth-to-water 13.5 ft below TOC

Pumping depth-to-water 32 ft below TOC
Pumping duration Hrs/Min

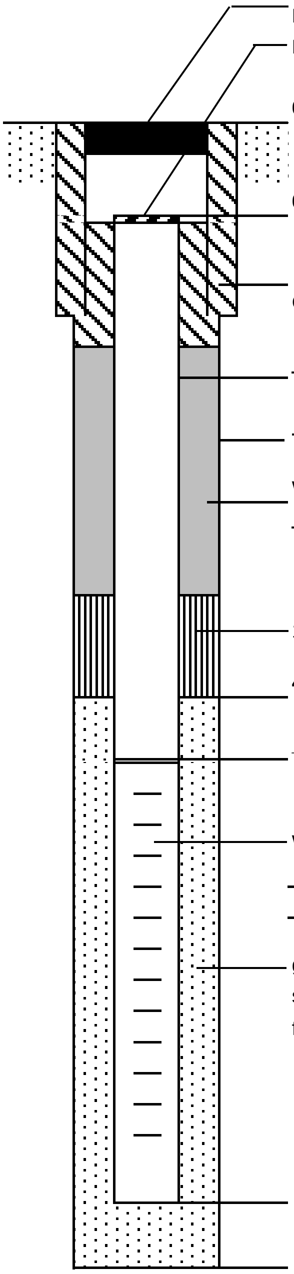
Well purpose: Monitoring

Comments 400 gallons of water was injected in the cluster, 52.75 gallons of water was purged 1 ft of sump was maintained on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Flush-mount Assembly With Seal
Locking Cap With Seal
0 ft Ground Surface
0.5 ft* Top of Well 4"-ID PVC Inner Well Casing
Cement Collar
_______"-ID PVC Inner Well Casing
_____"-ID Drill Hole
Well Casing Seal -
____cement___√ bentonite _____backfill
1 ft of Bentonite ___ slurry____ granular_____pellets
41__ft* - Top of Clean gravel Filter-pack
_43_ ft* - Top of Well Screen (Threaded Coupling)
Well screen
2 inch diameter
0.010 slot size
gravel pack
sand pack √
formation collapse_____
_49.5_ ft* Bottom of Screen with 1 ft of sump

Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather

City Brooklyn
County State NJ
Well No. MWC-2DD
Well Permit No.
Installation Date(s) 2/28/2017

Drilling Method Auger Hollow Stem, Mud Rotary Drill
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/3/2017

Fluid loss during drilling 400 gallons in total gallons
Water removed during development 52.8 gallons
Static depth-to-water 13.65 ft below TOC

Pumping depth-to-water 45 ft below TOC
Pumping duration Hrs/Min

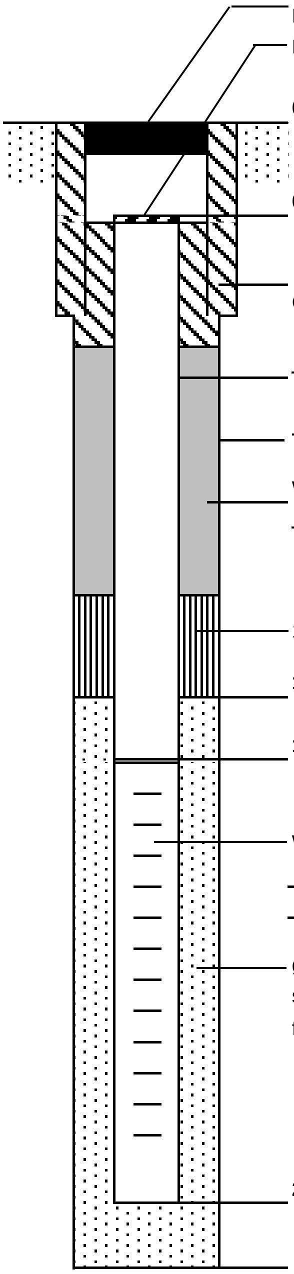
Well purpose: Monitoring

Comments 400 gallons of water was injected in the cluster, 52.75 gallons of water was purged
1 ft of sump was maintained
on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Flush-mount Assembly With Seal
Locking Cap With Seal
0 ft Ground Surface
0.5 ft* Top of Well 4"-ID PVC Inner Well Casing
Cement Collar
_______"-ID PVC Inner Well Casing
______"-ID Drill Hole
Well Casing Seal -
____cement___√ bentonite _____backfill
1 ft of Bentonite ___ slurry_____ granular_____pellets
14__ft* - Top of Clean gravel Filter-pack
16- Top of Well Screen (Threaded Coupling)
Well screen
2 inch diameter
0.010 slot size
gravel pack
sand pack √
formation collapse_____
22.75 ft* Bottom of Screen with 1 ft of sump

Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather
City Brooklyn
County State NJ
Well No. MWC-3S
Well Permit No.
Installation Date(s) 3/1/2017
Drilling Method Auger Hollow Stem, Mud Rotary Drill
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/3/2017

Fluid loss during drilling 60 gallons in total gallons
Water removed during development 60.8 gallons
Static depth-to-water 12.75 ft below TOC
Pumping depth-to-water 20 ft below TOC
Pumping duration Hrs/Min

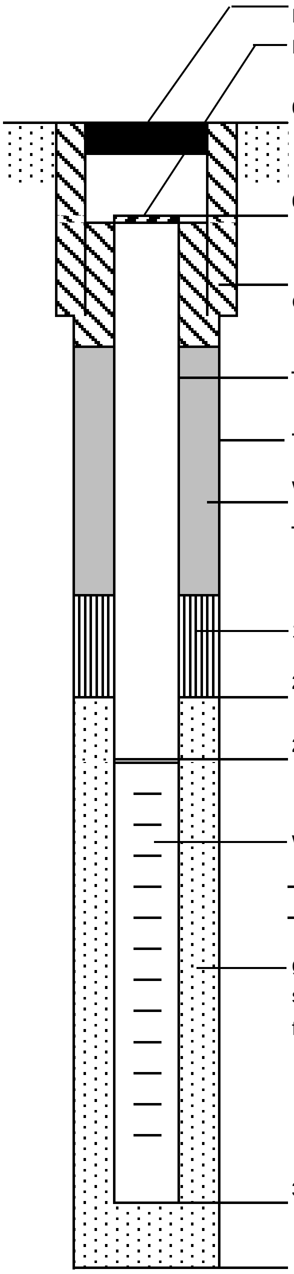
Well purpose: Monitoring

Comments 60 gallons of water was injected in the cluster, 60.75 gallons of water was purged
1 ft of sump was maintained
on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather

City Brooklyn
County State NJ
Well No. MWC-3D
Well Permit No.
Installation Date(s) 3/2/2017

Drilling Method Auger Hollow Stem, Mud Rotary Drill
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/3/2017

Fluid loss during drilling 60 gallons in total gallons
Water removed during development 60.8 gallons
Static depth-to-water 14 ft below TOC

Pumping depth-to-water 32 ft below TOC
Pumping duration Hrs/Min

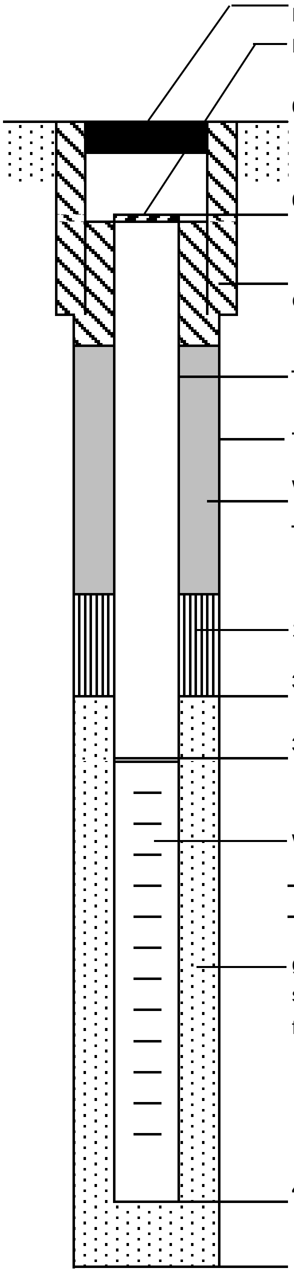
Well purpose: Monitoring

Comments 60 gallons of water was injected in the cluster, 60.75 gallons of water was purged
1 ft of sump was maintained
on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

FLUSH-MOUNT
WELL CONSTRUCTION LOG
(UNCONSOLIDATED FORMATION)



Flush-mount Assembly With Seal
Locking Cap With Seal
0 ft Ground Surface
0.5 ft* Top of Well 4"-ID PVC Inner Well Casing
Cement Collar
_______"-ID PVC Inner Well Casing
_____"-ID Drill Hole
Well Casing Seal -
____cement___√ bentonite _____backfill
1 ft of Bentonite ___ slurry_____ granular_____pellets
35__ft* - Top of Clean gravel Filter-pack
37- Top of Well Screen (Threaded Coupling)
Well screen
2 inch diameter
0.010 slot size
gravel pack
sand pack √
formation collapse_____
43.35 ft* Bottom of Screen with 1 ft of sump

Field Personnel Zhan Shu
Project Manager James Bellew
Project No. 76527
Project Name 11 Spencer
Weather

City Brooklyn
County State NJ
Well No. MWC-3DD
Well Permit No.
Installation Date(s) 3/1/2017

Drilling Method Auger Hollow Stem, Mud Rotary Drill
Drilling Contractor ADT
Drilling Fluid

Development technique and dates:
Pump and Surge via submersible pump
3/3/2017

Fluid loss during drilling 60 gallons in total gallons
Water removed during development 60.8 gallons
Static depth-to-water 14 ft below TOC

Pumping depth-to-water 40 ft below TOC
Pumping duration Hrs/Min

Well purpose: Monitoring

Comments 60 gallons of water was injected in the cluster, 60.75 gallons of water was purged 1 ft of sump was maintained on the bottom of the well

MEASURE POINT IS THE TOP OF THE WELL CASING(TOC) UNLESS OTHERWISE NOTED
*** DEPTH BELOW SURFACE GRADE**

NOT TO SCALE

Appendix H Well Purge and Sample Records

GROUNDWATER SAMPLING FORM

Well Number MW-1601
State Permit No. ______
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/4/2017
Weather Cloudy/Rain
Sampled by: J. Restaino

Well Information

Well Type: _X_ Monitor ___Other:________________
Well Construction _X__PVC ___Steel ___Other:____________
Well Diameter 1 inches
Well Screened interval ____ to ____ feet below TIC
Well Depth (ft below TIC) 19.80
Well Headspace Reading (PID/FID) 7.6
Water Level (ft below TIC) 12.89
Product Level-if present (ft below TIC) ______
Well Notes (Odor, well condition, etc.) ______

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__Low Flow ___ 3 Well Volume ___Other:_________________
Pump: ___ Submersible Pump (2-inch) _X__Peristaltic ___Other:__________________
Pump intake depth (ft below TIC): ___ **Purge water discharged to:** ___Ground __X_Drum ___Other:______________
Tubing: _X__ Polyethylene ___ Teflon-line ___Other:____________________ / _X__ New ___Dedicated

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
10:05	1352	7.04	19.01	0.286	24.7	12.48				
10:10	1384	7.15	17.6	0.294	37.2	14.62				
10:15	1401	7.19	17.28	0.295	41.9	15.86				
10:20	1403	7.21	17.08	0.295	48.8	18.34				
10:25			Well	Dry						
										Post-sampling Measurements

Total Volume Purged 1 Gal
Water Quality Meter(s) YSI 640
Temperaure Correction Factor ______

Sample Information

Groundwater Sample Field ID MW-1601
Sampling Time 10:28 **Sampling End Time** ______ **DTW before Sampling** __18.65_______
Sampling Method ___ Bailer (type:______________) ___Same as Above ___Other:_________________________
Duplicate Sample Collected? Yes ____ **No** ____
Sampling Observations ______

GROUNDWATER SAMPLING FORM

Well Number MW-1602
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/4/2017
Weather Cloudy/Rain
Sampled by: J. Restaino

Well Information

Well Type: _X_ **Monitor** ___**Other:**_________________
Well Construction _X__**PVC** ___**Steel** ___**Other:**_____________
Well Diameter 1 inches
Well Screened interval ____ **to** ____ **feet below TIC**
Well Depth (ft below TIC) 19.60
Well Headspace Reading (PID/FID) 65.3
Water Level (ft below TIC) 13.50
Product Level-if present (ft below TIC)
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart

Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__**Low Flow** ___ **3 Well Volume** ___**Other:**_________________
Pump: ___ **Submersible Pump (2-inch)** _X__**Peristaltic** ___**Other:**__________________
Pump intake depth (ft below TIC): _15.50__ **Purge water discharged to:** ___**Ground** _X__**Drum** ___**Other:**______________
Tubing: _X__ **Polyethylene** ___ **Teflon-line** ___**Other:**____________________ / _X__ **New** ___**Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
08:45	14.59	7.49	6.01	1.350	101.6	1351.00				
08:55	14.77	6.33	6.19	1.037	97.1	1363				
09:05	15.02	6.27	11.27	1.047	127.2	1354				
09:10	15.03	6.24	16.85	1.068	120.7	1354				
09:25	15.04	6.24	17.11	1.069	119.3	1355				
09:35	15.04	6.24	18.00	1.069	118.4	1356				
										Post-sampling Measurements

Total Volume Purged 3.8 Gal
Water Quality Meter(s) YSI 640
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MW-1602
Sampling Time 9:41 **Sampling End Time** ________ **DTW before Sampling** __13.56_______
Sampling Method ___ **Bailer (type:**______________**)** _X__**Same as Above** ___**Other:**________________________
Duplicate Sample Collected? Yes ____ **No** _X___
Sampling Observations

GROUNDWATER SAMPLING FORM

Well Number MW-1603
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/3/2017
Weather 60 Degrees /Sunny
Sampled by: Ben Romagnoli

Well Information

Well Type: __ **Monitor** ___**Other:**____X Temp Well_________ **Well Construction** _X__**PVC** ___**Steel** ___**Other:**_____________
Well Diameter 1 inches **Well Screened interval** ____ **to** ____ **feet below TIC**
Well Depth (ft below TIC) 19.55 **Well Headspace Reading (PID/FID)** 127
Water Level (ft below TIC) 14.00 **Product Level-if present (ft below TIC)**
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__**Low Flow** ___ **3 Well Volume** ___**Other:**__________________
Pump: ___ **Submersible Pump (2-inch)** _X__**Peristaltic** ___**Other:**__________________
Pump intake depth (ft below TIC): _16.50__ **Purge water discharged to:** ___**Ground** _X__**Drum** ___**Other:**_______________
Tubing: _X__ **Polyethylene** ___ **Teflon-line** ___**Other:**____________________ / _X__ **New** ___**Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
11:45	14:13	6.5	1.20	1.373	103.0	14.88	200 ml/mı	X		
11:55	14:56	6.60	0.15	1.299	56.6	19.57	200 ml/mm			
12:05	14:36	6.54	0.13	1.289	13.5	19.58	200 ml/mm			
12:15	14:34	6.53	0.14	1.287	6.6	19.59	200 ml/mm			
12:25	14:32	6.52	0.14	1.286	6.3	19.59	200 ml/mm			
										Post-sampling Measurements

Total Volume Purged 1.2 Gal
Water Quality Meter(s)
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MW-1603
Sampling Time 12:30 **Sampling End Time** **DTW before Sampling** ____19.57_____
Sampling Method ___ **Bailer (type:**______________**)** _X__**Same as Above** ___**Other:**________________________
Duplicate Sample Collected? Yes _X___ **No** ____
Sampling Observations DUP Sample on this well

GROUNDWATER SAMPLING FORM

Well Number MW-1605
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/3/2017
Weather 60 Degrees /Sunny
Sampled by: J. Restaino

Well Information

Well Type: __ **Monitor** ___**Other:**____X Temp Well_________
Well Construction _X__**PVC** ___**Steel** ___**Other:**_____________
Well Diameter 1 inches
Well Screened interval ____ **to** ____ **feet below TIC**
Well Depth (ft below TIC) 19.24
Well Headspace Reading (PID/FID) 39.8
Water Level (ft below TIC) 14.25
Product Level-if present (ft below TIC)
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__**Low Flow** ___ **3 Well Volume** ___**Other:**_________________
Pump: ___ **Submersible Pump (2-inch)** _X__**Peristaltic** ___**Other:**__________________
Pump intake depth (ft below TIC): _16.50__ **Purge water discharged to:** ___**Ground** _X__**Drum** ___**Other:**______________
Tubing: _X__ **Polyethylene** ___ **Teflon-line** ___**Other:**____________________ / _X__ **New** ___**Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
13:20	16:33	6.82	0.18	1.725	110.2	14.25				
13:30	19:40	6.53	9.06	1.797	102.2	14.27				
13:40	0:57	6.44	0.07	1.794	99.8	14.28				
13:50	3:07	6.39	0.07	1.791	98.6	14.79				
										Post-sampling Measurements

Total Volume Purged 1.8 Gal
Water Quality Meter(s)
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MW-1605
Sampling Time 13:55 **Sampling End Time** ________ **DTW before Sampling** ____**14.79**_____
Sampling Method ___ **Bailer (type:**______________**)** _X__**Same as Above** ___**Other:**_______________________
Duplicate Sample Collected? Yes ____ **No** __**X**__

GROUNDWATER SAMPLING FORM

Well Number MW-1607
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/3/2017
Weather 60 Degrees /Sunny
Sampled by: J. Restaino

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________
Well Construction ___PVC ___Steel ___Other:_____________
Well Diameter 1 inches
Well Screened interval ____ to ____ feet below TIC
Well Depth (ft below TIC) 19.00
Well Headspace Reading (PID/FID) 39.8
Water Level (ft below TIC) 13.85
Product Level-if present (ft below TIC)
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__Low Flow ___ 3 Well Volume ___Other:_________________
Pump: ___ Submersible Pump (2-inch) _X__Peristaltic ___Other:__________________
Pump intake depth (ft below TIC): _1'__ **Purge water discharged to:** ___Ground _X__Drum ___Other:_______________
Tubing: _X__ Polyethylene ___ Teflon-line ___Other:____________________ / _X__ New ___Dedicated

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
16:30	1437	6.48	5.03	1.115	-9.6	13.86				
16:40	1450	6.42	2.10	1.059	-50.3	14.32				
16:50	1461	6.48	1.85	1.026	-78.6	1.89				
17:00	1458	6.46	1.56	1.022	-79.5	16.84				
			Well going dry							
										Post-sampling Measurements

Total Volume Purged 2.5 Gal
Water Quality Meter(s)
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MW-1607
Sampling Time 17:06 **Sampling End Time** **DTW before Sampling** ____16.86_____
Sampling Method ___ Bailer (type:______________) _X__Same as Above ___Other:_______________________
Duplicate Sample Collected? Yes ____ **No** __X__

GROUNDWATER SAMPLING FORM

Well Number MWC-1D
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527
Sampling Date 4/4/2017
Weather Rainy/50 Degrees
Sampled by: MD

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________
Well Construction ___PVC ___Steel ___Other:_____________
Well Diameter 2 inches
Well Screened interval ____ to ____ feet below TIC
Well Depth (ft below TIC) 33.6'
Well Headspace Reading (PID/FID) 241 PPM
Water Level (ft below TIC) 12.68'
Product Level-if present (ft below TIC) N/A
Well Notes (Odor, well condition, etc.) Slight Odor

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__Low Flow ___ 3 Well Volume ___Other:_________________
Pump: ___ Submersible Pump (2-inch) ___Peristaltic _X__Other:__ Bladder________________
Pump intake depth (ft below TIC): _30'__ **Purge water discharged to: ___Ground _X__Drum ___Other:_______________**
Tubing: ___ Polyethylene ___ Teflon-line ___Other:____________________ / ___ New ___Dedicated

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
9:20	15.41	7.53	5.73	0.642	126.0	13.42	200 ml/ min			Brown,Silty
9:25	15.62	7.42	7.63	0.0636	68.9	14.05	200 ml/ min			Brown,Silty
9:30	15.47	7.36	7.82	0.640	58.8	14.07	200 ml/ min			Brown,Silty
9:35	15.46	7.29	4.66	0.641	26	14.07	200 ml/ min			Brown,Silty
9:40	15.39	7.28	5.59	0.641	27.2	14.07	200 ml/ min			Brown,Silty
9:45	15.38	7.26	7.16	0.643	26.9	14.07	200 ml/ min			
9:50	15.36	7.25	8.87	0.644	25	14.09	200 ml/ min			
9:55	15.37	7.24	10.11	0.645	24.5	14.09	200 ml/ min			
10:00	15.37	7.25	10.37	0.645	24.6	14.09	200 ml/ min			
10:05	15.39	7.25	10.99	0.645	24.6	14.09	200 ml/ min			
										Post-sampling Measurements

Total Volume Purged 2.25 Gal
Water Quality Meter(s) YSI 6920
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MWC-1D
Sampling Time 10:10 **Sampling End Time** 10:20 **DTW before Sampling ____14.091_____**
Sampling Method ___ Bailer (type:______________) _X__Same as Above ___Other:________________________
Duplicate Sample Collected? Yes ____ No __X__

GROUNDWATER SAMPLING FORM

Well Number MWC-1DD
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/4/2017
Weather Rainy/50 Degrees
Sampled by: MD

Well Information

Well Type: X__ **Monitor** ___**Other:**____ Temp Well_________ **Well Construction** ___**PVC** ___**Steel** ___**Other:**_____________
Well Diameter 2 inches
Well Screened interval ____ **to** ____ **feet below TIC**
Well Depth (ft below TIC) 38.0'
Well Headspace Reading (PID/FID) 18.4PPM
Water Level (ft below TIC) 12.45'
Product Level-if present (ft below TIC) N/A
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__**Low Flow** ___ **3 Well Volume** ___**Other:**__________________
Pump: ___ **Submersible Pump (2-inch)** ___**Peristaltic** _X__**Other:**__Bladder_________________
Pump intake depth (ft below TIC): _35'__ **Purge water discharged to:** ___**Ground** _X__**Drum** ___**Other:**_______________
Tubing: ___ **Polyethylene** ___ **Teflon-line** ___**Other:**____________________ / ___ **New** ___**Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
11:00	15.00	7.62	5.66	0.670	-67.7	13.81	500 ml/ m	94.6		Slight Brown Color
11:05	15.70	7.54	3.94	0.675	-99.4	13.96	500 ml/ m	116.9		Slight Brown Color
11:10	15.66	7.54	3.77	0.673	-83.6	13.9	500 ml/ m	135.1		Slight Brown Color
11:15	15.60	7.51	5.93	0.666	-80.1	13.74	500 ml/ m	436.5		Silty & Brown
11:20	15.67	7.5	7.33	0.661	-82.9	13.74	500 ml/ m	540.8		Silty & Brown
11:25	15.77	7.38	7.05	0.658	-84.0	13.74	500 ml/ m	1235.3		Silty & Brown
11:30	15.81	7.36	6.91	0.657	-82.6	13.74	500 ml/ m	1240.6		Silty & Brown
11:35	15.84	7.35	6.82	0.657	-82.4	13.74	500 ml/ m	1086.1		Silty & Brown
11:40	15.88	7.34	6.59	0.658	-81.7	13.81	500 ml/ m	994.5		Silty & Brown
11:45	15.89	7.33	6.59	0.657	-81.6	13.9	500 ml/ m	901		Silty & Brown
										Post-sampling Measurements

Total Volume Purged
Water Quality Meter(s) YSI 6920
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MWC-1DD
Sampling Time 11:50 **Sampling End Time** 12:00 **DTW before Sampling** ____13.9'_____
Sampling Method ___ **Bailer (type:**______________) _X__**Same as Above** ___**Other:**________________________
Duplicate Sample Collected? Yes ____ **No** __X__

GROUNDWATER SAMPLING FORM

Well Number MWC-1S
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/4/2017
Weather 60 Degrees /Cloudy
Sampled by: J. Restaino

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________
Well Construction _X__PVC ___Steel ___Other:_____________
Well Diameter 1 inches
Well Screened interval ____ to ____ feet below TIC
Well Depth (ft below TIC) 23.80
Well Headspace Reading (PID/FID) 29.1
Water Level (ft below TIC) 12.40
Product Level-if present (ft below TIC)
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__**Low Flow** ___ **3 Well Volume** ___**Other:**________________
Pump: ___ **Submersible Pump (2-inch)** _X__**Peristaltic** ___**Other:**__________________
Pump intake depth (ft below TIC): _19.50__ **Purge water discharged to:** ___**Ground** _X__**Drum** ___**Other:**______________
Tubing: _X__ **Polyethylene** ___ **Teflon-line** ___**Other:**____________________ / _X__ **New** ___**Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
12:25	14.51	7.11	9.97	0.839	-76.2	12.42	300ml/min			
12:30	14.59	7.18	2.71	0.852	-103.4	12.48	300ml/min			
12:35	14.83	7.16	1.48	0.856	-96.9	13.96	300ml/min			Good Recharge
12:40	15.12	6.92	1.02	0.916	-84.3	15.02	300ml/min			
12:45	7:40	6.9	0.96	0.924	-87.5	15.98	300ml/min			
										Post-sampling Measurements

Total Volume Purged 1.6 Gal
Water Quality Meter(s)
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MWC-15
Sampling Time 12:58 **Sampling End Time** **DTW before Sampling ____15.98_____**
Sampling Method ___ Bailer (type:______________) _X__**Same as Above** ___**Other:**_______________________
Duplicate Sample Collected? Yes ____ No __X__

GROUNDWATER SAMPLING FORM

Well Number MWC-2D
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527
Sampling Date 4/3/2017
Weather Sunny/60
Sampled by: Ben Romagnoli

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________ **Well Construction _X__PVC ___Steel ___Other:_____________**
Well Diameter 2 inches **Well Screened interval ____ to ____ feet below TIC**
Well Depth (ft below TIC) 35.00 **Well Headspace Reading (PID/FID)** 39.6
Water Level (ft below TIC) 13.29 **Product Level-if present (ft below TIC)**
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart

Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__Low Flow ___ 3 Well Volume ___Other:__________________
Pump: _X__ Submersible Pump (2-inch) __Peristaltic ___Other:__________________
Pump intake depth (ft below TIC): _20.50_ **Purge water discharged to: ___Ground _X__Drum ___Other:_______________**
Tubing: _X__ Polyethylene ___ Teflon-line ___Other:____________________ / _X__ New ___Dedicated

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
13:30	14.25	7.07	10.78	0.988	-137.6	13.30	1200			
13:40	15.66	7.98	8.59	0.988	-262.1	23.30	200			
13:50	15.58	8.01	7.77	0.990	-264.1	28.5	150			Turned throttle down
13:55	15.38	8.01	8.40	0.989	-240.6	29.4	1150			
14:00	15.22	8.01	8.01	0.988	-220.7	30.4	100			Turned throttle down
										Well going dry- to collect sample
										Post-sampling Measurements

Total Volume Purged 3 Gal **Water Quality Meter(s)**
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MWC-D
Sampling Time 14:04 & 1 **Sampling End Time** **DTW before Sampling ____30.5____**
Sampling Method __ Bailer (type:_____________) _X_Same as Above ___Other:_______________________
Duplicate Sample Collected? Yes ____ No __X__

GROUNDWATER SAMPLING FORM

Well Number MWC-2DD
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/3/2017
Weather Sunny/60
Sampled by: Ben Romagnoli

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________
Well Construction _X__**PVC** ___**Steel** ___**Other:**_____________
Well Diameter 2 inches
Well Screened interval ____ **to** ____ **feet below TIC**
Well Depth (ft below TIC) 49'
Well Headspace Reading (PID/FID) 10.3
Water Level (ft below TIC) 13.35
Product Level-if present (ft below TIC)
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__**Low Flow** ___ **3 Well Volume** ___**Other:**_________________
Pump: _X__ **Submersible Pump (2-inch)** __**Peristaltic** ___**Other:**__________________
Pump intake depth (ft below TIC): _30.50_ **Purge water discharged to:** ___**Ground** _X__**Drum** ___**Other:**______________
Tubing: _X__ **Polyethylene** ___ **Teflon-line** ___**Other:**____________________ / _X__ **New** ___**Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
14:15	15.01	7.99	1.68	0.998	-201.0	13.36				
14:25	15.20	7.86	1.84	0.986	-189	13.37				
14:35	15.40	7.53	2.96	0.910	-60.1	13.38				
14:50	15.50	7.34	3.78	0.865	-43.2	13.38				
15:00	15.46	7.3	3.96	0.840	-32.6	13.38				
15:10	15.48	7.29	4.09	0.839	-31.4	13.38				
15:20	15.45	7.28	4.04	0.82	-30.2	13.38				
										Post-sampling Measurements

Total Volume Purged 2.7 Gal
Water Quality Meter(s)
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MWC-2DD
Sampling Time 15:25 **Sampling End Time** **DTW before Sampling** ____**13.38**____
Sampling Method __ **Bailer (type:**_____________**)** _X_**Same as Above** ___**Other:**_______________________
Duplicate Sample Collected? Yes ____ **No** __**X**__

GROUNDWATER SAMPLING FORM

Well Number MWC-2S
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/3/2017
Weather Sunny/60
Sampled by: Ben Romagnoli

Well Information

Well Type: X__ **Monitor** ___**Other:**____ Temp Well_________
Well Construction _X__**PVC** ___**Steel** ___**Other:**_____________
Well Diameter 2 inches
Well Screened interval ____ **to** ____ **feet below TIC**
Well Depth (ft below TIC) 23.70
Well Headspace Reading (PID/FID) 6.2
Water Level (ft below TIC) 14.16
Product Level-if present (ft below TIC)
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__**Low Flow** ___ **3 Well Volume** ___**Other:**__________________
Pump: ___ **Submersible Pump (2-inch)** X__**Peristaltic** ___**Other:**___________________
Pump intake depth (ft below TIC): _20.50_ **Purge water discharged to:** ___**Ground** _X__**Drum** ___**Other:**_______________
Tubing: _X__ **Polyethylene** ___ **Teflon-line** ___**Other:**____________________ / _X__ **New** ___**Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
09:30	9.57	9.54	9.00	1.578	-120.1	14.17	200 ml/M			
09:40	15.23	8.10	6.10	1.333	-395.4	14.29	200 ml/M			
09:50	15.05	8.02	6.02	1.333	-210.3	14.32	200 ml/M			
10:00	14.65	8.01	5.97	1.334	-168.7	14.22	200 ml/M			
10:10	14.68	8.02	6.00	1.335	-167.6	14.86	200 ml/M			
			Well Dry							Well Dried Up
										Post-sampling Measurements

Total Volume Purged 2.1 Gal
Water Quality Meter(s)
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MWC-2S
Sampling Time 10:15 **Sampling End Time** **DTW before Sampling** ____**13.25**____
Sampling Method __ **Bailer (type:**______________**)** _X_**Same as Above** ___**Other:**________________________
Duplicate Sample Collected? Yes ____ **No** __**X**__
Good recharge

GROUNDWATER SAMPLING FORM

Well Number MWC-3D
State Permit No. ____
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/3/2017
Weather Sunny
Sampled by: James Restaino

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________
Well Construction _X__PVC ___Steel ___Other:_____________
Well Diameter 2 inches
Well Screened interval ____ to ____ feet below TIC
Well Depth (ft below TIC) 27.20
Well Headspace Reading (PID/FID) 13.6
Water Level (ft below TIC) 34.20
Product Level-if present (ft below TIC) ____
Well Notes (Odor, well condition, etc.) ____

Purge Volume

Depth to Bottom
- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__Low Flow ___ 3 Well Volume ___Other:_________________
Pump: ___ Submersible Pump (2-inch) _X__Peristaltic ___Other:__ Whale________________
Pump intake depth (ft below TIC): __ Purge water discharged to: ___Ground _X__Drum ___Other:______________
Tubing: _X__ Polyethylene ___ Teflon-line ___Other:____________________ / **_X__ New ___Dedicated**

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
10:30	15.99	8.13	3.74	0.0335	9.5	27.30				
10:40	16.20	7.17	3.73	0.039	84.6	27.40				Good Recharge
10:50	15.65	7.28	3.86	0.038	12.4	27.5				
11:00	15.05	7.33	3.79	0.037	11.6	27.5				
11:10	14.95	7.34	3.78	0.036	11.4	27.5				
										Post-sampling Measurements

Total Volume Purged ____
Water Quality Meter(s) YSI 650 MDS
Temperaure Correction Factor ____

Sample Information

Groundwater Sample Field ID MWC-3D
Sampling Time 11:20 **Sampling End Time** 12:00 **DTW before Sampling ____27.4_____**
Sampling Method _X__ Bailer (type:______________) __Same as Above ___Other:________________________
Duplicate Sample Collected? Yes ____ No __X__

GROUNDWATER SAMPLING FORM

Well Number MWC-3DD
State Permit No. ____
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/3/2017
Weather Sunny/60's
Sampled by: Ben Romagnoli

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________
Well Construction _X__PVC ___Steel ___Other:_____________
Well Diameter 2 inches
Well Screened interval ____ to ____ feet below TIC
Well Depth (ft below TIC) 43.00
Well Headspace Reading (PID/FID) 6.5
Water Level (ft below TIC) 13.35
Product Level-if present (ft below TIC) ____
Well Notes (Odor, well condition, etc.) ____

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart

Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__Low Flow ___ 3 Well Volume ___Other:__________________
Pump: _X__ Submersible Pump (2-inch) ___Peristaltic ___Other:__ Whale_________________
Pump intake depth (ft below TIC): __ **Purge water discharged to: ___Ground _X__Drum ___Other:_______________**
Tubing: _X__ Polyethylene ___ Teflon-line ___Other:____________________ / _X__ New ___Dedicated

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
16:30	15.24	7.85	6.85	0.800	140.0	13.35	200			Restart
16:35	15.53	7.58	6.05	0.817	144.6	13.40	200			
16:40	15.35	7.46	5.45	0.818	145.7	13.35	200			
16:45	15.33	7.44	5.76	0.818	145.7	13.25	200			
16:50	15.34	7.44	5.89	0.819	146.7	13.25	200			Well recharging well
										Post-sampling Measurements

Total Volume Purged About 8 gal
Water Quality Meter(s) YSI 650 MDS
Temperaure Correction Factor ____

Sample Information

Groundwater Sample Field ID MWC-3DD
Sampling Time 16:50 **Sampling End Time** 17:10 **DTW before Sampling ____13.25____**
Sampling Method __ Bailer (type:______________) _X_Same as Above ___Other:________________________
Duplicate Sample Collected? Yes ____ No __X__
Good recharge

GROUNDWATER SAMPLING FORM

Well Number MWC-3S
State Permit No.
Project Name 11 Spencer Street Brooklyn
Project Number 76527

Sampling Date 4/4/2017
Weather Cloudy/ Rain 60 Degrees
Sampled by: James Restaino

Well Information

Well Type: X__ Monitor ___Other:____ Temp Well_________
Well Construction _X__PVC ___Steel ___Other:_____________
Well Diameter 2 inches
Well Screened interval ____ to ____ feet below TIC
Well Depth (ft below TIC) 22.50
Well Headspace Reading (PID/FID) 12.2
Water Level (ft below TIC) 13.30
Product Level-if present (ft below TIC)
Well Notes (Odor, well condition, etc.)

Purge Volume

Depth to Bottom
\- Water Level
Water Column Height

Water Column Height
X Conversion Factor
Purge Volume

Purge Volume Conversion Chart		
Well Diameter	CF (gal/ft)	CF (gal/ft x 3)
1	0.0408	0.12
2	0.1632	0.49
4	0.6528	1.96

Purging Information

Purge Method: _X__Low Flow ___ 3 Well Volume ___Other:_________________
Pump: ___ Submersible Pump (2-inch) _X__Peristaltic ___Other:__ Bladder________________
Pump intake depth (ft below TIC): _15.50_ **Purge water discharged to: ___Ground _X__Drum ___Other:_______________**
Tubing: _X__ Polyethylene ___ Teflon-line ___Other:____________________ / _X__ New ___Dedicated

Time (HH:MM)	Temp (°C) +/- 3%	pH (pH units) +/- 0.1	D.O. (mg/L) +/- 10%	Cond. (mS/cm) +/- 3%	ORP (mV) +/- 10mV	DTW (feet) +/- 0.3	Rate (mL/min)	Turbidity (NTU)	Volume (Gal)	Notes
11:20	13.89	6.79	21.06	1.058	-7.8	13.32	500 ml/M			
11:25	14.59	7.27	8.64	0.983	-79.4	13.33	500 ml/M			Good Recharge
11:30	14.90	7.2	6.06	0.956	-60	14.03	500 ml/M			
11:35	14.91	7.13	4.11	0.945	-55.9	14.03	500 ml/M			
11:40	14.80	7.13	3.42	0.948	-54.6	14.03	500 ml/M			
11:45	14.81	7.08	2.86	0.046	-52.2	14.03	500 ml/M			
										Post-sampling Measurements

Total Volume Purged 3.3 Gals
Water Quality Meter(s)
Temperaure Correction Factor

Sample Information

Groundwater Sample Field ID MWC-3S
Sampling Time 12:00 **Sampling End Time** 12:00 **DTW before Sampling ____14.03_____**
Sampling Method ___ Bailer (type:______________) _X__Same as Above ___Other:_______________________
Duplicate Sample Collected? Yes ____ No __X__