810 RIVER AVENUE SITE
BCP No. C202066

810 RIVER AVENUE
BRONX NEW YORK
Block 2483 Lot 5

REMEDIAL ACTION WORK PLAN

MARCH 2015

Prepared for:
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CERTIFICATIONS

I Ariel Czemerinski certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

076508	4/2/2015	
NYS Professional Engineer #	Date	Signature

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ATTACHMENTS

LIST OF ACRONYMS

Acronym	Definition
AMC	AMC Engineering
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CQMP	Construction Quality Management Plan
DUSR	Data Usability Statement Report
EBC	Environmental Business Consultants
FER	Final Engineering Report
HDPE	High Density Polyethylene
IRM	Interim Remedial Measure
NYC	New York City
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PS	Public School
PVC	Polyvinyl Chloride
RAO	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RSCOs	Recommended Site Cleanup Objectives
SCG	Standards, Criteria, and Guidelines
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SSDS	Sub-slab Depressurization System
SWPPP	Stormwater Pollution Prevention Plan
SVOCs	Semi-Volatile Organic Compounds
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

EXECUTIVE SUMMARY

Site Description/Physical Setting/Site History

This Remedial Action Work Plan has been prepared on behalf of 810 River Partners LLC to remediate a 0.46-acre property located at 810 River Avenue in Bronx County, New York (**Figure 1**). The Site was formally accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfields Cleanup Program (BCP) through a Brownfield Cleanup Agreement (BCA) executed in November 26, 2014. The applicant was accepted into this program as a Volunteer.

The Site is located in Bronx County, New York City, New York and is identified as Block 2483 Lot 5 on the Bronx Tax Map. The Site consists of a single parcel totaling 20,000 sf (0.46-acre) and is bounded by E. 158th Street to the north, River Avenue to the west, residential apartment buildings to the east and a community park to the south.

The building was originally constructed in 1927 and occupied by a garage / auto repair shop to 1958 when it was used for warehouse space. The Site was converted to use as a bowling alley in approximately 1960 and continued in this use till 2010. The property has been underutilized for years and vacant / derelict since 2010.

Summary of the Remedial Investigation

A Remedial Investigation was completed at the Site in February 2013 through June 2014 and documented in a Remedial Investigation Report dated December 2014. The goals of the Remedial Investigation were to define the nature and extent of contamination in soil, groundwater and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Work Plan to address the contamination.

Activities completed under the RI:

- Sampling for non-petroleum contaminants such as pesticides, PCBs and metals in soil and groundwater including the analysis of soil and groundwater samples

- Soil sampling and analysis for petroleum compounds in soil samples from soil boring locations;
- The installation of groundwater monitoring wells
- The collection and analysis of groundwater samples for petroleum compounds;
- The collection and analysis of soil gas samples for VOCs from soil gas sampling locations.

The field work portion of the RI was conducted by Roux Associates in February 2013 with supplemental work performed by Environmental Business Consultants (EBC) in June 2014.

The results of sampling performed during the RI identified a hotspot area of metals on the southwestern quadrant of the Site. Groundwater samples obtained from all four wells indicate that PCE and other chlorinated compounds are present in groundwater beneath the Site.

Based on the groundwater flow direction and distribution of CVOCs across the site, a CVOC plume appears to be migrating onto the property from the east (upgradient). Although there are no known sources in this area, leaking City sewer lines can transport CVOC contamination considerable distances from the point of discharge. CVOCs are either off-gassing from affected groundwater beneath the site, or migrating onto the site in vapor form.

Qualitative Human Health Exposure Assessment

The qualitative exposure assessment identified potential completed routes of exposure to construction workers and remediation workers through inhalation, ingestion and dermal contact during excavation activities. The Health and Safety Plan prepared for the site identifies such exposures and provides instructions for on-site workers to minimize potential exposure. Occupants in the proposed on-site residential buildings may be exposed to CVOCs originating from an off-site source through the vapor intrusion pathway if preventive measures are not incorporated into the design of the new building.

The exposure assessment also identified potential exposure to commercial workers and residents in adjacent buildings through migrating vapors off-gassing from the source in shallow soil.

Potential environmental impacts through the groundwater to surface water discharge are unlikely based on the concentration of CVOCs in groundwater and the distance to the Harlem River (approximately 1,700 feet).

Summary of the Remedy

The remedy recommended for the Site consists of the removal of a hazardous lead hotspot and all fill material with parameters above unrestricted SCOs. The remedy will include the following items:

1. Excavation of soil/fill exceeding Track 1 unrestricted use SCOs as listed in **Table 1** to depths as great as 8 feet below grade;
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs;
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
5. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material.
6. If Track 1 SCOs are not achieved, a composite cover system consisting of the concrete building slab will be constructed.
7. .If Track 1 cleanup is not achieved, implementation of a Site Management Plan (SMP) for long term maintenance of the Engineering Controls.
8. If Track 1 cleanup is not achieved, an Environmental Easement will be filed against the Site to ensure implementation of the SMP.

Although the goal of the remedy will be to remove all soil exceeding the Track 1 SCOs, if Track 1 SCOs cannot be achieved then a Track 2 remedy will result.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

810 River Partners LLC entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on November 26, 2014, to remediate a 0.46-acre property located at 810 River Avenue in Bronx County, New York. 810 River Partners LLC is a Volunteer in the Brownfield Cleanup Program. An unrestricted use is proposed for the property. When completed, the Site will be redeveloped with a new 14-Story mixed-use (residential, commercial-retail) building. Refer to the Brownfield Cleanup Program (BCP) application for additional details.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between February 2013 and June 2014. It provides an evaluation of a Track 1 cleanup and other applicable Remedial Action alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in DER-10 and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that this Site does not pose a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

A formal Remedial Design document will not be prepared.

1.1 SITE LOCATION AND DESCRIPTION

The Site is located in Bronx County, New York City, New York and is identified as Block 2483 Lot 5 on the Bronx Tax Map. A United States Geological Survey (USGS) topographical quadrangle map (**Figure 1**) shows the Site location. The Site consists of a single parcel totaling 20,000 sf (0.46-acre) and is bounded by E. 158th Street to the north, River Avenue to the west, residential apartment buildings to the east and a community park to the south (see **Figure 2**). A boundary map is attached to the BCA as required by Environmental Conservation Law (ECL)

Title 14 Section 27-1419. The 0.46-acre property is fully described in **Attachment A – Metes and Bounds.**

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The Remedial Action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for this assessment. However, the Remedial Action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan.

The site is to be redeveloped through the new construction of a single 14-story apartment building with first and second floor commercial space, and an underground parking garage requiring excavation of the entire Site to a depth of 12 ft below grade. The cellar level of the building will be utilized as a parking garage for 61 cars, but will also contain the building's water meter room, gas meter room, electric meter room, tenant storage rooms, bicycle storage room, super's office and telecommunications closet. Access to the cellar will be from the vehicle ramp from East 158th Street, two interior stairwells and/or four elevators. The first floor of the proposed building will consist of a 10,542 sf commercial space, the ramp to the underground parking garage, and the residential lobby which will consist of a security booth, package/mail room, manager's office, compactor room, and recycle room. The second floor will consist of a 15,730 sf of commercial and community facility space. The 3rd through 14th floors will consist of residential apartments.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The surrounding land use (**Figure 3**) in the immediate vicinity of the Site includes includes athletic fields and an elevated rail line (No. 4 Line) to the west, a community park to the south, residential apartment buildings to the east and a parking garage and restaurant to the north.

The area is highly urbanized and predominantly consists of multi-story apartment buildings with occasional street-level retail along Gerard and Walton Avenues. Commercial use properties front on River Avenue to the north of the Site. Macomb Dam Park is located west of the Site across

River Avenue. Two additional small parks known as the River Pocket Parks, adjoin the Site to the south. The property is zoned C6-3D residential / commercial. The proposed project is compatible with the surrounding land use, and will be in compliance with the current zoning.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The field work portion of the Remedial Investigation was conducted by Roux Associates in February 2013 and supplemented by EBC in June 2014. The investigation is summarized in the sections below. Further details are provided in the Remedial Investigation Report (EBC December 2014).

2.1 SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED

2.1.1 Borings

A total of 10 soil borings, SB1 through SB10, were advanced during the initial site mobilization in by Roux in February 2013. As reported by Roux: All soil borings were advanced by Geoprobe direct push equipment. One boring was located in the basement (advanced to a depth of seven feet below the basement floor) and the remaining nine borings were located within the building on the first floor (advanced to a depth of 20 feet below grade). Soil borings were continuously screened via photoionization detector (PID) and visual observation of lithology was used to prepare soil boring logs. Soil borings were installed to the top of the water table and then backfilled with clean sand.

Soil samples were collected continuously from grade to a final depth of 20 ft below existing grade. One soil sample was collected per soil boring from the two-foot sample depth interval exhibiting the greatest contamination via visual and olfactory observation, and field screening via PID. If no contamination was identified via field screening, a soil sample was collected from the two-foot sample interval directly above the water table. All soil samples were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, Target Analyte List (TAL) metals, TCL polychlorinated biphenyls (PCBs) and TCL pesticides. All samples were collected using dedicated sampling equipment that was disposed following collection to avoid cross contamination. The location of soil borings are shown on **Figure 4**.

2.1.2 Test Pits

EBC advanced four test pits on the Site on June 30, 2014 to collect waste characterization for the disposal of soil to be excavated for the new buildings foundation. The test pits were advanced

using a track excavator to the planned excavation depth of 12 feet at each location. Soil excavated at each test pit were segregated into three piles representing the 0-4 ft interval, the 4-8 ft interval and the 8-12 ft interval. One composite and one grab sample were then collected from each pile and placed in laboratory provided glassware. A qualified environmental profession (QEP) was on-site to supervise the test pit installation and to collect the samples.

Following sample collection the test pits were backfilled by returning the soil piles to the pits in the reverse sequence from that in which they were excavated.

Soil samples retained from the test pits were submitted to York Analytical laboratories for analysis. Test pit sampling locations are identified in **Figure 5**.

2.1.3 Monitoring Wells

As reported by Roux: Four groundwater samples were collected for chemical analysis during this RI. Roux collected a groundwater sample from soil boring locations SB3 (MW3), SB4 (MW4), SB8 (MW8) and SB10 (MW10) during the initial site mobilization in February 2013 to evaluate groundwater quality across the site. Sample locations are identified in **Figure 4**.

Monitoring wells were installed to a depth of approximately 25 to 26 feet below land surface (ft bls) with a 10 feet (ft) length of 20-slot monitoring well screen set straddling the water table. Generally, the well screen was set from 15 to 25 ft bls with the water table encountered at 19 to 20 ft bls. The annulus around the monitoring well screen was filled with #2 sand and a bentonite well seal was installed to prevent groundwater cross contamination. The two-inch diameter monitoring wells were installed via a Geoprobe drill rig. Well MW-8 in the existing bar area was completed with an eight-inch diameter flush-mount access manhole, and wells MW-3, MW-4 and MW-10 in the bowling lanes were completed with stick ups. Groundwater samples were collected by installing a one-inch diameter temporary PVC monitoring well, set approximately 5 feet below the water table interface. The monitoring well measuring point elevations were surveyed by Angle of Attack via rod and level on February 15, 2013.

A groundwater sample was then collected from each temporary well utilizing dedicated polyethylene tubing and a peristaltic pump. Prior to sampling a synoptic round of water level measurements were recorded for each well on February 15, 2013.

2.1.4 Samples Collected

A summary of the sampling performed during the RI is provided in **Table 2-2A**.

2.1.4.1 Soil Samples

A total of 10 soil samples were collected from 10 soil borings for laboratory analysis of VOCs (EPA Method 8260), SVOCs (EPA Method 8270), TAL metals and Pesticides/PCBs (EPA Method 8081/8082). In addition, a total of 12 soil samples were collected from four test pits (three intervals each) for analysis of VOCs (EPA Method 8260), SVOCs (EPA Method 8270), TAL metals, TCLP metals, Pesticides/PCBs (EPA Method 8081/8082), Herbicides (EPA Method 5151, corrosivity, reactivity, ignitability and flashpoint.

2.1.4.2 Groundwater Samples

Groundwater samples were obtained from the four temporary water table wells following installation during the February 2013 mobilization. All groundwater samples from the temporary monitoring wells were analyzed for VOCs / SVOCs by EPA method 8260 / 8270 and target analyte list (TAL) metals (total and dissolved).

2.1.4.3 Soil Gas Samples

To assess the presence of VOCs in soil gas beneath the site, five soil vapor implants were installed during the initial mobilization in February 2013. All soil gas samples were collected over a 3 hr sampling period.

Soil vapor samples were collected in accordance with the procedures as described in section 2.4 of the approved RIWP and the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH 10/06)*.

2.1.5 Chemical Analytical Work Performed

Each soil and groundwater sample was placed in pre-cleaned laboratory supplied glassware, and placed in a cooler packed with ice for transport to the laboratory. Laboratory services for soil and groundwater sample analysis were provided by Acutest Laboratories of Dayton, NJ (NY Cert No. 10983) and by York Environmental Laboratories of Stratford CT (NY Cert No. 10854) for soil samples obtained from test pits. Analysis of soil vapor samples was provided by Eurofins Lancaster Laboratory of Folsom CA.

Soil boring samples were analyzed All soil samples were analyzed for VOCs (EPA Method 8260), SVOCs (EPA Method 8270), TAL metals and Pesticides/PCBs (EPA Method 8081/8082). All test pit samples were analyzed for VOCs (EPA Method 8260), SVOCs (EPA Method 8270), TAL metals, TCLP metals, Pesticides/PCBs (EPA Method 8081/8082), Herbicides (EPA Method 5151, corrosivity, reactivity, ignitability and flashpoint. All groundwater samples from the temporary monitoring wells were analyzed for VOCs / SVOCs by EPA method 8260 / 8270 and target analyte list (TAL) metals (total, dissolved). Soil gas samples analyzed for VOCs by EPA method TO-15.

2.1.6 Documentation

Maps showing the locations of the soil borings, monitoring wells, soil gas sample collection points and test pits are provided in **Figures 4** and **5**. The results of sample soil, groundwater and soil gas samples collected during the RI are summarized in **Tables 3** through **16**. Below is a summary of RI findings.

The results of sampling performed during this RI, identified a hotspot area of metals on the southwestern quadrant of the Site. Groundwater samples obtained from all four wells indicate that PCE and other chlorinated compounds are present in groundwater beneath the Site.

Based on the groundwater flow direction (see **Figure 6**) and distribution of CVOCs across the site, a CVOC plume appears to be migrating onto the property from the east (upgradient). Although there are no known sources in this area, leaking City sewer lines can transport CVOC

contamination considerable distances from the point of discharge. CVOCs are either off-gassing from affected groundwater beneath the site, or migrating onto the site in vapor form.

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH have reviewed the RI Report and have determined that this Site does not pose a significant threat to human health and the environment. Notice of that determination will be provided during the public comment period, through fact sheet No. 2 and the Decision Document.

2.3 SITE HISTORY

2.3.1 Past Uses and Ownership

Previous owners and operators of the property are shown in the tables below. Information regarding ownership of the property was obtained from online property records maintained by the NYC Department of Finance Office of the City Register under its Automated City Register Information System (ACRIS). Information regarding past operators was obtained from lease agreements, Sanborn Fire Insurance Maps, and from a City Directory Search and internet search of the property address.

810 River Partners LLC (the Requestor) is the beneficial owner of the project. The Owner of the property, 810 River Ave. Housing Development Fund Corporation, has owned the property since June 26, 2014. The building was originally constructed in 1927 and occupied by a garage / auto repair shop to 1958 when it was used for warehouse space. The Site was converted to use as a bowling alley in approximately 1960 and continued in this use till 2010. The property has been underutilized for years and vacant / derelict since 2010.

Previous Owners

Dates	Name	Comments	Contact Info
From 1945 to 1965	Benjamin Gottfried	Title Search	No known forwarding address or phone number
From 1965 to 1988	Osna Strohmayer (Deceased)	Title Search	111 Algonquin Road Yonkers, New York 10710
From 1988 to 3/20/1992	a)Jean S. Harris b)Frances Selikowitz	Deed Tenants in Common	a) 26 Primrose Avenue White Plains, New York 10607 Telephone: (914) 946-2315

	c)Charles Strohmayer d)Alexander Stohmayer		b) 40 Morrow Avenue North Scarsdale, New York 10583 c) 69 Ardell Road Yonkers, New York 10708 d) 75 Algonquin Road Yonkers, New York 10710
From 3/20/1992 to 1/19/2012	Strohmayer Real Estate Corp.	Deed	75 Algonquin Road Yonkers, New York 10710
From 1/19/2012 to 6/26/2014	810 River Avenue LLC	Deed	225 Willow Avenue, Bronx, NY, 10454
From 6/26/2014 to present	810 River Ave. Housing Development Fund Corp.	Deed	242 West 36th Street, 3rd Floor, New York, NY 10018

Previous Operators

Dates	Name	Comments	Contact Info
From 1949 to 1956	American Garage / American Auto Service	City Directory	Unknown 810 River Avenue, Bronx, NY 10451
From 1965 to 1976	Stadium Lanes	City Directory	Unknown 810 River Avenue, Bronx, NY 10451
From 1976 to 2010	Ball Park Lanes, Inc.	City Directory	Unknown 810 River Avenue, Bronx, NY 10451
From 1985 to 2010	Ball Park Souvenirs, Inc.	City Directory	Linda & John Zale 369 Fulton Street Westbury, New York 11590 Telephone: (516) 997-4940

The following resources were employed in obtaining historical information with respect to ownership:

- NYC ACRIS Database
- Interviews with current owners
- Title Search

The following resources were employed in obtaining historical information with respect to operators:

- Interviews with Previous Operators
- Environmental Data Resources - City Directory Search
- Sanborn Fire Insurance Maps
- Certificate of Occupancy Records as Maintained by the Department of Buildings

2.3.2 Summary of Previous Reports

Environmental investigations performed at the Site include the following:

- Comprehensive Site Assessment Report - HydroTech Environmental Corp., March 28, 2011.
- Phase I Environmental Site Assessment - Roux Associates, Inc. November 30, 2012.

Phase II Comprehensive Site Assessment Report (Hydrotech)

A Comprehensive Environmental Site Assessment Report (SAR) was prepared by Hydrotech Environmental Corp of Commack, New York (Hydrotech) on March 28, 2011. The SAR provided findings of both a Phase I ESA and limited Phase II investigation performed at the Site. The Hydrotech SAR consisted of a ground penetrating radar survey (GPR) and installation of five soil borings. One of the soil borings was advanced to the water table and a ground water sample was collected for laboratory analysis. All borings were located in the southwest quadrant of the Site building; two borings were located in the basement (advanced to a depth of 4 feet below the basement floor), the remaining three borings were located within the building on the first floor (advanced to a depth of 12 feet below grade).

One soil sample from each boring was collected and submitted for laboratory analysis of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Laboratory analytical results indicate the presence of various VOCs and SVOCs in the soil; however, all concentrations were below the 6NYCRR Part 375-6.8 Track 1 unrestricted use soil cleanup objectives (SCOs).

Phase I Environmental Site Assessment Report (Roux)

A Phase I Environmental Site Assessment (ESA) was completed by Roux Associates, Inc. on November 30, 2012. Based upon reconnaissance of the subject and surrounding properties, interviews and review of historical records and regulatory agency databases, Roux identified the following recognized environmental conditions:

- Historical onsite uses: The potential impacts from historical use of the Site which includes use as an automotive service garage including two 550-gallon gasoline USTs the status of which are unknown as no documentation regarding these USTs was available for review.

- Known contamination: A Phase II Site Assessment conducted at the Site in 2011 indicated that chlorinated volatile organic compounds were detected at concentrations that exceeded applicable regulatory standards in groundwater.

- Material threat: The material threat of groundwater contamination from multiple sources of contamination located upgradient of the Site including known soil and groundwater contamination identified at the property located adjacent to the south of the Site which is undergoing active remediation.

Although not technically defined as RECs, the following is a list of potential environmental concerns at the Site that could potentially impact subsurface conditions at the Site or potentially complicate redevelopment plans:

- The Site is underlain by historic/urban fill material whose origin and environmental quality is unknown.

- The Site has been assigned an E-Designation (E-Number E-223) for hazardous materials.

2.4 GEOLOGICAL CONDITIONS

The bedrock geology at the 810 River Avenue property and immediate vicinity consists of Inwood Marble of Lower Ordovician to Lower Cambrian age with steep westerly dip of its upper surface. The depth to bedrock is anticipated at approximately 20 to 30 feet below land surface (ft-bls). Bedrock is overlain by an unconsolidated overburden of an unsorted heterogeneous mix of Pleistocene and Recent glacial material (i.e., glacial till) including clay, silt, sands, gravel, cobbles, and boulders. This overburden is overlain historic urban fill used to reclaim land from

the Hudson River west of 10th Avenue. The mapped presence of glacial till is consistent with findings during the prior investigation.

Subsurface soils at the Site consist of historic fill materials to a depth of approximately 4 to 8 feet below grade. Silty sand is present immediately below this layer to a depth of 15 feet followed by a coarse sand and gravel layer to a depth of at least 20-25 feet. According to the USGS topographic map for the area (Harlem Quadrangle), the elevation of the property is approximately 25 feet above the National Geodetic Vertical Datum (NGVD). The area topography gradually slopes to the west.

Groundwater occurs beneath the Site at a depth of approximately 18-20 feet below grade under water table conditions. Based on measurements made at the Site, groundwater flows to the west toward the Harlem River (**Figure 6**).

2.5 CONTAMINATION CONDITIONS

2.5.1 Conceptual Model of Site Contamination

The primary contaminants of concern at the Site are metals including arsenic, barium, copper, chromium, lead, mercury and zinc to a depth of 4-8 feet. The elevated metals appear to be related to the fill materials present at the site though the highest levels reported within the hot spot area appear to be just below the fill layer. In either case contaminants were not reported in any of the deeper samples collected at the Site limiting the metals to the upper 4-8 feet of soil.

Based on the groundwater flow direction and distribution of CVOCs across the site, a CVOC plume appears to be migrating onto the property from the east (upgradient). Although there are no known sources in this area, leaking City sewer lines can transport CVOC contamination considerable distances from the point of discharge. CVOCs are either off-gassing from affected groundwater beneath the site, or migrating onto the site in vapor form.

2.5.2 Description of Areas of Concern

Elevated levels of metals were reported in soil samples throughout the site to a depth of four feet. In addition a hot spot for hazardous lead, barium, hexavalent chromium and zinc is present within the southwest quadrant of the Site to a depth of 8 feet below grade.

No other source areas were identified or indicated during the RI.

2.5.3 Soil/Fill Contamination

Fill materials containing elevated levels of metals were documented throughout the site at a depth which ranged from 4 feet below the building's slab grade to 8 feet below grade within the southwest quadrant of the property.

Elevated levels (above unrestricted SCOs) of metals including one or more of the following: arsenic, copper, lead, mercury and zinc were reported in the 0-4 ft composite sample from all four test pit locations. In addition, barium, lead, zinc and hexavalent chromium were reported above unrestricted use SCOs in the 4-8 foot interval of the test pit located in the southwestern quadrant of the Site. In addition barium and lead were reported above Restricted Commercial Use SCOs. Lead at this location also failed the TCLP analysis classifying this soil as hazardous.

2.5.3.1 Summary of Soil/Fill Data

Soil sample results from the RI are summarized in **Tables 3-10**. Further information on soil sample collection, handling and analysis can be found in the RI Report (EBC 12/14).

2.5.3.2 Comparison of Soil/Fill with SCGs

Table 11 shows sample results above Track 1 Unrestricted SCOs for all overburden soil at the Site. **Figures 7-8** are spider maps which show soil boring locations and summarize sample results above Track 1 Unrestricted SCOs for all overburden soil.

2.5.4 On-Site and Off-Site Groundwater Contamination

There were no petroleum VOC or SVOC impacts to groundwater. CVOC impacts including chloroform, cis-1,2- dichloroethene (cis-1,2 DCE), tetrachloroethene (PCE), trans-1,2-dichloroethene, and trichloroethene (TCE) were reported.

The most significant results were for PCE and its degradation products, TCE and cis-1,2-DCE. The results for these three compounds were reported between 100 and 300 ug/L in monitoring wells MW-3, MW-4, and MW-10, with lower concentrations in MW-8.

CVOC impacts to groundwater were highest near the upgradient wells and appear to be migrating in a westerly direction with groundwater flow. The absence of CVOCs in soil in this area and the site wide distribution of CVOCs groundwater, suggests an off-site source.

2.5.4.1 Summary of Groundwater Data

The results of groundwater samples collected during the RI are summarized in **Tables 12-14**. Further information on groundwater sample collection, handling and analysis can be found in the RI Report (EBC 12/14).

2.5.4.2 Comparison of Groundwater with SCGs

Sample results above GA groundwater standards in monitor wells prior to the remedy are shown in **Table 15**. Spider maps which show groundwater sampling locations and summarize results above GA groundwater standards prior to the remedy are shown in **Figure 9**.

2.5.5 On-Site and Off-Site Soil Vapor Contamination

Numerous CVOCs were detected in the soil vapor samples collected during the RI. PCE was the most prominent VOC detected as it was found at elevated levels in all of the samples at concentrations ranging as high as 850 ug/m3. TCE was also identified in each sample collected and ranged as high as 29 ug/m3. These findings generally correlate with the VOCs identified in the onsite groundwater samples.

In general, both PCE and TCE concentrations were higher in perimeter soil gas samples than they were in soil gas sampling points located within the interior area of the building. **Figure 10** shows posted soil gas results from the RI.

2.5.5.1 Summary of Soil Vapor Data

A table of soil vapor data collected prior to the remedy is shown in **Table 16**. Further information on soil gas sample collection, handling and analysis can be found in the RI Report (EBC 12/14).

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

The objective of the qualitative exposure assessment under the BCP is to identify potential receptors to the contaminants of concern (COC) that are present at, or migrating from, the site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur. An exposure pathway has five elements; a contaminant source, release and transport mechanisms, point of exposure, route of exposure and a receptor population.

The potential exposure pathways identified below, represent both current and future exposure scenarios.

Contaminant Source

Elevated levels of metals are present throughout the site to a depth of four feet below grade and are also present at higher concentrations, including hazardous lead levels within a hotspot area located in the southwest quadrant of the property.

CVOCs in soil vapor and groundwater beneath the site appear to be related to an off-site source east of the Site.

Contaminant Release and Transport Mechanism

Metals present throughout the site are related to the fill materials emplaced at the sit sometime in the past.

CVOCs present in groundwater may be volatilizing to air to some degree, though CVOCs in soil vapor may also be related to off-gassing from impacted media somewhere off-site. Since the origin of both the groundwater contamination and CVOC vapors are attributed to an off-site source, then impacts to on-site groundwater and soil vapors are caused by the migration of contaminated media onto the site.

Point of Exposure, Route of Exposure and Potentially Exposed Populations

Potential On-Site Exposures: Remediation workers and construction workers engaged in the excavation of impacted and non-impacted soil at the site may be exposed to metals and CVOCs through several routes.

Workers excavating impacted soil may be exposed to heavy metals through inhalation, ingestion and dermal contact. Workers excavating non-impacted soil may also be exposed to CVOCs in soil vapor through inhalation. A site specific Health and Safety Plan has been developed to identify and minimize the potential hazards to on-site workers.

Under a future scenario, residents within the proposed buildings may be exposed to soil vapor intrusion via inhalation if remediation of the source area is not completed, and also if preventive measures are not incorporated into the new building design to protect against contaminated soil vapor intrusion. This potential route of exposure is not likely to be reduced in response to on-site remedial activity since it is related to an off-site source.

Potential Off-Site Exposures: The entire area is serviced by the New York City Water System which distributes water from the Croton Reservoir system. Since there are no public or private potable supply wells in the area, exposure from contact with tap water is not a concern. Off-site exposure is therefore limited to vapor intrusion from CVOCs migrating beneath the site.

Potential off-site exposure related to CVOC vapor intrusion is a concern. The potentially exposed population in this case would include residents and commercial workers in adjacent buildings.

2.6.2 Fish & Wildlife Remedial Impact Analysis

Since CVOCs in shallow groundwater may be leaving the Site in a west-northwest direction, the groundwater to surface water discharge pathway was evaluated. The Harlem River is located approximately 1,700 feet west-northwest (downgradient of the Site). Based on the distance and level of CVOC contaminants reported in groundwater, there are no expected impacts to surface water environments from contaminants migrating beneath the Site.

2.7 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for this Site.

2.7.1 Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Prevent the discharge of contaminants to surface water.

2.7.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of site-related contaminants that would result in groundwater or surface water contamination.

- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

2.7.3 Soil Vapor

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

3.1 EVALUATION OF REMEDIAL ALTERNATIVES

The goal of the remedy selection process under the BCP is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of NYSDEC standards, criteria and guidance values (SCGs). A remedy is then developed based on the following nine criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance; and
- Land use.

The first two criteria are threshold criteria and must be satisfied in order for an alternative to be considered for selection. The remaining seven criteria are balancing criteria which are used to compare the positive and negative aspects of each of the remedial alternatives, provided the alternative satisfies the threshold criteria.

3.2 STANDARDS, CRITERIA AND GUIDANCE (SCG)

A criterion for remedy selection is evaluation for conformance with SCGs that are applicable, relevant and appropriate. Principal SCGs that are applicable, relevant and appropriate for evaluating the alternatives for remediation of this BCP site include the following:

- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response

- 10 NYCRR Part 67 – Lead
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes (November 1998)
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998)
- 6 NYCRR Subpart 374-1 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities (November 1998)
- 6 NYCRR Part 375 - 6 NYCRR Part 375 Environmental Remediation Programs Subparts 375-1, 375-3 and 375-6 (December 2006)
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- 6 NYCRR Part 750 through 758 - Implementation of NPDES Program in NYS ("SPDES Regulations")
- 6 NYCRR Part 375-6 Soil Cleanup Objectives
- New York State Groundwater Quality Standards – 6 NYCRR Part 703;
- NYSDEC Ambient Water Quality Standards and Guidance Values – TOGS 1.1.1;
- NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation - May 2010;
- NYSDEC Draft Brownfield Cleanup Program Guide – May 2004;
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan
- NYS Waste Transporter Permits – 6 NYCRR Part 364;
- NYS Solid Waste Management Requirements – 6 NYCRR Part 360 and Part 364.
- TAGM 4059 - Making Changes To Selected Remedies (May 1998)
- STARS #1 - Petroleum-Contaminated Soil Guidance Policy
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- DER-10, Technical Guidance for Site Investigation and Remediation, May 2010
- DER-23 / Citizen Participation Handbook for Remedial Programs, January 2010

- OSWER Directive 9200.4-17 - Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (November 1997)

Additional regulations and guidance are applicable, relevant, and appropriate to the remedial alternatives and will be complied in connection with implementation of the remedial program; however, the list above is intended to represent the principal SCGs which should be considered in evaluating the remedial alternatives for the BCP site.

Conformance with the appropriate standards for remediation of contaminated soil is an important criterion in evaluating the remedial alternatives for the BCP site. Presently, in New York State 6 NYCRR Part 375 establishes the primary SCGs associated with remediation of contaminated soil at sites which are in the BCP. If proposing remediation pursuant to a Track other than Track 1 (Unrestricted Use), 6 NYCRR Part 375 requires evaluation of at least one remedial alternative pursuant to Track I (Unrestricted Use) and one other alternative developed by the applicant for the proposed use of the BCP site. The remedial alternatives presented in Section 3.3 of this work plan have been prepared in conformance with this requirement.

3.3 ALTERNATIVES ANALYSIS

The goal of the remedy selection process under the BCP is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of NYSDEC standards, criteria and guidance values (SCGs). A remedy is then developed based on the following nine criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;

- Cost effectiveness;
- Community Acceptance; and
- Land use.

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. This analysis was prepared in accordance with 6 NYCRR Part 375-1.8(f) and Part 375-3.8(f) and Section 4.3(c) of NYSDEC DER-10. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

- Alternative 1 - Track 1, remediation of all soils above bedrock to unrestricted use criteria. Excavation to a minimum depth of 4 feet across the Site with the excavation of a hot spot area to a depth of 8 feet. This alternative does not allow the use of long-term institutional /engineering controls to address impacted media or prevent exposures which may be required beneath the new building.

- Alternative 2 - Track 2, remediation of all soils to restricted residential criteria to a depth of 15 feet if soils below 15 feet do not represent a source of contamination. This alternative would require a lesser degree of excavation than Alternative 1 though the hot spot area would still require excavation to 8 feet. Alternative 2 includes the installation of a vapor barrier and sub-slab depressurization (SSD) system beneath any portion of the basement level of the new building which will not have mechanical ventilation. This alternative does not allow the use of long-term institutional /engineering controls to meet soil cleanup objectives. Long-term institutional /engineering controls are allowed to address or prevent exposures from other impacted media. This alternative is provided as a contingency in the event that Track 1 SCOs cannot be met or if long term operation of the SSDS systems is required beneath the building. Since the planned excavation depth for the new building is expected to satisfy SCOs for both Alternative 1 and Alternative 2, Alterative 2 has been added as a contingency in the event that Alternative 1 cannot be achieved.

3.4 REMEDIAL ALTERNATIVE 1

The following sections provide an evaluation of Alternative 1 based on the nine evaluation criteria as previously discussed.

3.4.1 Overall Protection of Human Health and the Environment

Alternative 1 will be protective of human health and the environment by eliminating constituents in soil related to historic fill. The potential for human and environmental exposure to these constituents on-site will be eliminated by excavation of all historic fill soils and hot spot areas with parameters in excess of unrestricted criteria, disposing of excavated materials off-site and backfilling as needed with certified clean fill, virgin mined materials or recycled concrete materials from a NYSDEC permitted recycling facility.

Potential post-remediation exposures to on-site residents from soil vapors are not expected to require the long term (>5 yrs) operation of SSD systems, though groundwater use will be restricted at the Site until groundwater quality recovers.

During remedial and construction activity workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors will be minimized through implementation of a Health and Safety Plan. Exposures to area residents from dust and/or vapors will be minimized through the use of engineering controls and through implementation of a Community Air Monitoring Plan (CAMP).

3.4.2 Compliance with Remedial Goals, SCGs and RAOs

Alternative 1 will achieve compliance with the remedial goals, SCGs and RAOs for soil through source removal to Track 1 unrestricted cleanup levels. SCGs for groundwater may not be achieved as impacted groundwater has been shown to be migrating on to the Site. Compliance with SCGs for soil vapor is expected following completion of the remedial action.

3.4.3 Long-Term Effectiveness and Permanence

Alternative 1 achieves long term effectiveness and permanence by permanently removing and/or remediating all soils affected by Site contaminants or historic fill materials. Under this

Alternative, risk from soil impacts is eliminated though risk from groundwater will remain unless the off-site source is identified and remedied. Alternative 1 will continue to meet RAOs for soil in the future, providing a permanent long-term solution for the Site.

3.4.4 Reduction in Toxicity, Mobility or Volume Through Treatment

Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-site soil by meeting unrestricted objectives.

3.4.5 Short-Term Effectiveness

The potential for short-term adverse impacts and risks to the workers, the community, and the environment during the implementation of Alternative 1 is minimal.

Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community such as construction-related noise, vibrations and traffic, will be controlled and regulated under the terms of the NYS Department of Buildings issued building permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to off-site disposal facilities, will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan has also been prepared to minimize disturbance to the local roads and community.

3.4.6 Implementability

The techniques, materials and equipment to implement Alternative 1 are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation

for the remediation of soils is both a "low tech" and reliable method which has a long and proven track record on the remediation of hazardous waste and petroleum spill sites.

3.4.7 Cost

Costs associated with Alternative 1 are estimated at approximately $1,231,621. This cost estimate includes the following elements and assumptions:

- Excavate as per the basement foundation plans for the new buildings. Over-excavate as necessary to remediate hot-spot areas and remove all historic fill at the Site.
- Disposal of approximately 100 cy of of lead-hazardous soil from the hotspot located within the southwest quadrant of the property;
- Disposal of approximately 3,500 cy of historic fill soil as non-hazardous;
- Disposal of approximately 5,350 cy of clean native soil for beneficial reuse
- Installation and temporary operation (<5 yrs) of a Sub Slab Depressurization System (SSDS) beneath any areas of the new building which do not have mechanical ventilation;
- HASP and CAMP monitoring for the duration of the remedial activities.

3.4.8 Compatibility with Land Use

The proposed redevelopment of the Site is compatible with its current C6-3D residential / commercial zoning. Following remediation, the Site will meet unrestricted use objectives which will exceed the objectives for its planned multi-tenant residential and commercial / retail use. A groundwater use restriction will be required to prevent future exposure to affected groundwater.

3.4.9 Community Acceptance

No questions regarding the Site have been raised regarding remedial options to date. This RAWP will be subject to a 45-day public comment period to determine if the community had comments on the presented remedial alternatives and selected remedy. If no comments were received regarding Alternative 1, it is considered to be acceptable to the community.

3.5 REMEDIAL ALTERNATIVE 2

The following sections provide an evaluation of Alternative 2 based on the nine evaluation criteria as previously discussed.

3.5.1 Overall Protection of Human Health and the Environment

Alternative 2 will be protective of human health and the environment by eliminating constituents related to historic fill above restricted residential criteria to a depth of 15 feet. The potential for human and environmental exposure to these constituents on-site will be eliminated by excavation of all soils with parameters in excess of restricted residential criteria to a depth of 15 feet, disposing of excavated materials off-site and backfilling as needed with certified clean fill, virgin mined materials or recycled concrete materials from a NYSDEC permitted recycling facility.

Potential post-remediation exposures to on-site residents from soil vapors would be addressed through the use of a vapor barrier and a SSDS beneath basement levels which are not required to be equipped with mechanical ventilation (parking garage). Groundwater use will be restricted at the Site until groundwater quality recovers.

During remedial and construction activity, workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors will be minimized through implementation of a HASP. Exposures to area residents from dust and or vapors will be minimized through the use of engineering controls and through implementation of a CAMP.

3.5.2 Compliance with Remedial Goals, SCGs and RAOs

Alternative 2 will achieve compliance with the remedial goals, SCGs and RAOs for soil through source removal to restricted residential cleanup levels for the top 15 feet. SCGs for groundwater may not be achieved as impacted groundwater has been shown to be migrating on to the Site. Compliance with SCGs for soil vapor is expected following completion of the remedial action.

3.5.3 Long-term Effectiveness and Permanence

Alternative 2 achieves long term effectiveness and permanence by permanently removing and/or remediating all soils affected by Site contaminants above restricted residential objectives to a

depth of 15 feet. Under this Alternative risk from soil impacts is eliminated for on-site residents. Alternative 2 will continue to meet RAOs for soil in the future, providing a permanent long-term solution for the Site.

3.5.4 Reduction in Toxicity, Mobility or Volume through Treatment

Alternative 2 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-site soil by meeting restricted residential objectives in the upper 15 feet.

3.5.5 Short-term Effectiveness

The potential for short-term adverse impacts and risks to the workers, the community, and the environment during the implementation of Alternative 2 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community such as construction-related noise, vibrations and traffic will be controlled and regulated under the terms of the NYS Department of Buildings issued building permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to off-site disposal facilities will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan will also be prepared to minimize disturbance to the local roads and community.

3.5.6 Implementability

The techniques, materials and equipment to implement Alternative 2 are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation for the remediation of soils is both a "low tech" and reliable method which has a long and proven track record on the remediation of hazardous waste and petroleum spill sites.

3.5.7 Cost

Costs associated with Alternative 2 are identical to Alternative 1 and estimated at $1,231,621. This cost estimate includes the following elements and assumptions:

- Excavate as per the basement foundation plans for the new buildings. Over-excavate as necessary to remediate hot-spot areas and remove all historic fill at the Site.
- Disposal of approximately 100 cy of of lead-hazardous soil from the hotspot located within the southwest quadrant of the property;
- Disposal of approximately 3,500 cy of historic fill soil as non-hazardous;
- Disposal of approximately 5,350 cy of clean native soil for beneficial reuse
- Installation and temporary operation (<5 yrs) of a Sub Slab Depressurization System (SSDS) beneath any areas of the new building which do not have mechanical ventilation;
- HASP and CAMP monitoring for the duration of the remedial activities.

3.5.8 Compatibility with Land Use

The proposed redevelopment of the Site is compatible with its current C6-3D residential / commercial zoning Following remediation the Site will meet restricted residential use objectives which is appropriate for its planned multi-tenant residential use. A groundwater use restriction will be required to prevent future exposure to affected groundwater.

3.5.9 Community Acceptance

No questions regarding the Site have been raised regarding remedial options to date. This RAWP will be subject to a 45-day public comment period to determine if the community had any comments on the presented remedial alternatives and selected remedy. If no comments are received, it is considered to be acceptable to the community.

3.6 SELECTION OF THE PREFERRED REMEDY

The remedy recommended for the site is a Track 1 alternative which consists of the removal of soil from the hotspot area through excavation. In addition all fill material with parameters above unrestricted SCOs will be removed from the Site and properly disposed of at an off-site facility.

Any backfill materials used at the site will either consist of clean native soil excavated from other areas of the site, virgin mined materials, recycled materials or certified fill which meets unrestricted SCOs.

3.6.1 Preferred Remedy Land Use Factor Evaluation

As required by Article 27, Title 14 of the Environmental Conservation Law 27-1415, the following land use factor evaluation examines whether the preferred alternative is acceptable based on the 14 criteria presented in the following subsections.

Zoning

The proposed redevelopment project, which includes the construction of sixteen 14-story mixed use residential / commercial-retail building is in compliance with the C6-3D residential / commercial zoning. Therefore the project will be constructed as-of-right regardless of the remedy implemented. The preferred remedy will comply with current zoning.

Applicable Comprehensive Community Master Plans or Land Use Plans

The proposed redevelopment project and selected remedy are consistent with comprehensive master and land use plans, specifically the 161st Street - River Avenue rezoning action (CEQR No. 09DCP024X). This area-wide comprehensive re-zoning was completed by the New York City Department of City Planning and adopted by the City Council in September 2009. The preferred remedy will be in full compliance with this applicable land use plan.

Surrounding Property Uses

The land use in the immediate vicinity of the Site includes underutilized, or vacant, commercial properties to the west, single family residential homes and an underutilized former garage to the south, a health clinic and retail stores to the east and a self storage building to the north. The area

surrounding the property is highly urbanized and predominantly consists of multi-story apartment buildings with occasional street-level retail along Gerard and Walton Avenues. Commercial use properties front on River Avenue to the north of the Site. Macomb Dam Park is located west of the Site across River Avenue. Two additional small parks known as the River Pocket Parks, adjoin the Site to the south.

The proposed remedy will not interfere with surrounding property uses and considers the short term affects to neighboring residences.

Citizen Participation

Citizen participation for implementation of the preferred alternative will be performed in accordance with DER 23 and NYCRR Part 375-1.10 and Part 375-3.10. A Citizen Participation Plan has been prepared and is available for public review at the identified document repositories (NYSDEC Region 2 Office, Melrose Branch of the New York Public Library).

Environmental Justice Concerns

The Site is located within a potential environmental justice area. The NYSDEC defines a potential environmental justice area as a "minority or low-income community that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies".

Environmental justice means the fair treatment and meaningful involvement of all people regardless of race, color, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Since the goal of the remedy will achieve the highest level of cleanup and will remove contaminated materials from the community, the remedy poses no environmental justice concerns.

Land use designations

The proposed remedy is consistent with land-use designations.

Population growth patterns

Population growth patterns support the proposed use for the Site. The preferred remedy will not negatively affect on population growth patterns.

Accessibility to existing infrastructure

The Site is accessible to existing infrastructure. The close proximity of the Site to the Grand Concourse and the Major Deegan Expressway (I-87) will assist soil transportation and contractor access to the Site. The Site is also accessible to mass transit and is within walking distance to the 4 line and the B and D lines which all have subway stops on E. 161st Street and River Avenue. The preferred remedy will not alter accessibility to existing infrastructure.

Proximity to cultural resources

The proposed remedy will not negatively impact cultural resources

Proximity to natural resources

The proposed remedy will improve the local environment and will not negatively impact affect natural resources.

Off-Site groundwater impacts

The proposed remedy will not improve potential off-site groundwater impacts by removing lead hazardous soil at the site. The proposed remedy will not affect natural resources other than to potentially improve the quality of groundwater on a local basis.

Proximity to floodplains

The Site is not located within a designated flood zone. The nearest moderate risk and high risk flood zones are located approximately 900 and 800 feet to the southwest.

Geography and geology of the Site

The selected remedy will excavate soil from the Site to a depth of 8 feet. Redevelopment will also remove soils to a depth of 12 feet for the basement levels of the new building. The selected alternative and development of the site have considered the geography and geology of the Site.

Current Institutional Controls

The Site was assigned an E-designation for hazardous materials as part of the rezoning action completed by the City. The compliance with the E-designation for hazardous materials will require the approval of the NYC Office of Environmental Remediation (NYCOER) of this RAWP. NYCOER must approve this RAWP in the form of a Notice to Proceed (NTP) letter before building permits will be released by the NYC Department of Buildings (DOB). Documentation in the form of a Final Engineering Report (FER) for site remediation must be approved by NYCOER in the form of a Notice of Satisfaction (NOS) before the NYCDOB will issue permanent Certificates of Occupancy for the new buildings.

3.7 SUMMARY OF SELECTED REMEDIAL ACTIONS

The remedy recommended for the site is a Track 1 alternative (Alternative 1) which consists of the removal of all on-site soils which exceed the UUSCOs. It is expected that a Track 1 alternative will require excavation to a minimum depth of 4 feet across the Site with additional hot spot excavation to 8 feet below grade. In addition all fill material with parameters above unrestricted SCOs will be removed from the Site and properly disposed of at an off-site facility. The remedy will include the following items:

1. Excavation of soil/fill exceeding Track 1 unrestricted use SCOs as listed in **Table 1** to depths as great as 8 feet below grade;
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;

3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs;
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
5. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material.
6. If Track 1 SCOs are not achieved, a composite cover system consisting of the concrete building slab will be constructed.
7. .If Track 1 cleanup is not achieved, implementation of a Site Management Plan (SMP) for long term maintenance of the Engineering Controls.
8. If Track 1 cleanup is not achieved, an Environmental Easement will be filed against the Site to ensure implementation of the SMP.

Although the goal of the remedy will be to remove all soil exceeding the Track 1 SCOs, if Track 1 SCOs cannot be achieved on one or both parcels then a Track 2 remedy may result.

All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. All deviations from the RAWP will be promptly reported to NYSDEC for approval and fully explained in the FER.

4.0 REMEDIAL ACTION PROGRAM

The objective of this section of the Remedial Action Work Plan, is to present a scope of work which will be approved by NYSDEC and when completely implemented will ready the BCP site for development under the Contemplated Use consistent with the requirements of the Brownfield Cleanup Program.

4.1 GOVERNING DOCUMENTS

Governing documents and procedures included in the Remedial Work Plan include a Site-specific Health and Safety Plan (HASP), a Community Air Monitoring Plan (CAMP), a Citizen Participation Plan, a Soil Management Plan (SoMP), a Quality Assurance Project Plan (QAPP), fluid management procedures, and contractors' site operations and quality control procedures. Highlights of these documents and procedures are provided in the following sections.

4.1.1 Health & Safety Plan (HASP)

Contractors and subcontractors will have the option of adopting this HASP or developing their own site-specific document. If a contractor or subcontractor chooses to prepare their own HASP, the Remedial Engineer will insure that it meets the minimum requirements as detailed in the site-specific HASP prepared dor the Site.

Activities performed under the HASP will comply with applicable parts of OSHA Regulations, primarily 29 CFR Parts 1910 and 1926. Modifications to the HASP may be made with the approval of the Remedial Engineer (RE), Site Safety Manager (SSM) and/or Project Manager (PM).

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The Volunteer and associated parties preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an

appropriate Health and Safety Plan and for the appropriate performance of work according to that plan and applicable laws.

The Health and Safety Plan (HASP) and requirements defined in this Remedial Action Work Plan pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

The Site Safety Coordinator will be Ms. Chawinie Miller. Her resume is provided in **Attachment F**. Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses. A copy of the Site Specific Health and Safety Plan is provided in **Attachment B.**

4.1.2 Quality Assurance Project Plan (QAPP)

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or a cold-pak(s) to maintain a temperature of 4^{o}C.

Dedicated disposable sampling materials will be used for both soil and groundwater samples (if collected), eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected.

Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil
- Rinse with tap water
- Wash with alconox® detergent solution and scrub
- Rinse with tap water
- Rinse with distilled or deionized water

Prepare field blanks by poring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory. Laboratory reports will be upgradeable to ASP category B deliverables for use in the preparation of a data usability report (DUSR). The QAPP for the Site is provided in **Attachment C**.

4.1.3 Construction Quality Assurance Plan (CQAP)

All construction work related to the remedy (i.e. soil excavation) will be monitored by EBC field personnel under the direct supervision of the Remedial Engineer. Monitoring during soil excavation will be performed to protect the health of site workers and the surrounding community. A Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) have been specifically developed for this project. These plans specify the monitoring procedures, action levels, and contingency measures that are required to protect public health.

All intrusive and soil disturbance activities will be monitored by a qualified environmental professional (QEP) under the direct supervision of the Remedial Engineer who will record observations in the site field book and complete a photographic log of the daily activities. The QEP will provide daily updates to the Project Manager and Remedial Engineer who will both make periodic visits to the site as needed to assure construction quality.

4.1.4 Soil/Materials Management Plan (SoMP)

An SoMP has been prepared for excavation, handling, storage, transport and disposal of all soils/materials that are disturbed/excavated at the Site. The SoMP includes all of the controls that will be applied to these efforts to assure effective, nuisance-free performance in compliance with all applicable Federal, State and local laws and regulations. The SoMP is presented in Section 5.4.

4.1.5 Erosion and Sediment Control Plan (ESCP)

Erosion and sediment controls will be performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. Typical measures that will be utilized at various stages of the project to limit the potential for erosion and migration of soil include the use of hay bales, temporary stabilized construction entrances/exits, placement of silt fencing and/or hay bales around soil stockpiles, and dust control measures.

4.1.6 Community Air Monitoring Plan (CAMP)

The CAMP provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities. When the excavation area is within 20 feet of potentially exposed populations or occupied structures, the perimeter monitoring points will be located to represent the nearest potentially exposed individuals and locations of ventilation system intakes for nearby structures (i.e apartment buildings) at the downwind location.

The action levels specified require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air.

The primary concerns for this site are vapors, nuisance odors and dust particulates. The CAMP prepared for implementation of the RAWP is provided in **Attachment D**.

4.1.7 Contractors Site Operations Plan (SOP)

The Remedial Engineer has reviewed all plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and confirms that they are in compliance with this RAWP. The Remedial Engineer is responsible to ensure that all later document submittals for this remedial project, including contractor and sub-contractor document submittals, are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.8 Citizen Participation Plan (CPP)

A certification of mailing will be sent by the Volunteer to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing. The approved Citizen Participation Plan for this project is provided in **Attachment E**.

Document repositories have been established at the following locations and contain all applicable project documents:

New York Public Library - Melrose Branch
910 Morris Avenue
Bronx, New York 10451
Telephone (718) 588-0110

Hours:
Mon 10:00 AM - 7:00 PM
Tue 10:00 AM - 6:00 PM

Wed 10:00 AM - 7:00 PM

Thu 10:00 AM - 6:00 PM

Fri 10:00 AM - 5:00 PM

Sat 10:00 AM - 5:00 PM

Sun closed

4.2 GENERAL REMEDIAL ACTION INFORMATION

4.2.1 Project Organization

The Project Manager for the Remedial Activity will be Mr. Kevin Brussee. Overall responsibility for the BCP project will be Mr. Charles B. Sosik, P.G., P.HG. The Remedial Engineer for this project is Mr. Ariel Czemerinski, P.E.. Resumes of key personnel involved in the Remedial Action are included in **Attachment F**.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be Mr. Ariel Czemerinski, P.E. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Site. The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will review all pre-remedial plans submitted by contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of back fill material, and management of waste transport and disposal, and will certify compliance in the Final Remediation Report. The Remedial Engineer will provide the certifications listed in Section 10.1 in the Final Engineering Report.

4.2.3 Remedial Action Schedule

The remedial action will begin with mobilization of equipment and material to the Site, which will begin approximately 2 weeks following RAWP approval and issuance of the building permit, and within 10 days of the distribution of the remedial construction Fact Sheet. A pre-construction meeting will be held among NYSDEC, the Remedial Engineer, and the selected remedial contractor prior to site mobilization. Mobilization will be followed by soil removal and disposal and confirmation sampling. The work is expected to take 8 weeks as part of the construction excavation and foundation installation.

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency. DEC will be notified by the Applicant of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

A construction fence will be erected around the entire property as required by the NYC Department of Buildings. The fence will be maintained as required and secured at the end of each work day.

4.2.6 Traffic Control

The Volunteer's construction management personnel will direct the arrival or departure of construction vehicles, and provide flag services as needed to maintain safe travel exiting and entering the Site from River Avenue. Traffic related to on-going remedial activity will require the staging of 10-wheel dump trucks along E. 153rd Street on a daily basis during soil excavation activity. The soil disposal transport route will be as follows:

- ENTERING SITE - from the Major Deegan Expressway heading south; take exit 6 heading south to E. 153rd Street. Turn right, heading southeast on E. 153rd Street to River Avenue (1 block). Turn left on River Avenue heading north to Site entrance on the right.

- EXITING SITE – Turn right onto River Avenue heading north for 2 blocks to E 161st Street. Turn left on E. 161st Street heading west to Jerome Avenue. Turn left on Jerome Avenue and continue to the on ramp (bear right) for the Major Deegan Expressway (I-87) heading north.

A map showing the truck routes is included as **Figure 11**.

4.2.7 Worker Training and Monitoring

An environmental remediation contractor with appropriate hazardous material handling experience and training is required to perform the excavation of lead hazardous soil. After the contaminated soil is removed and the remediation contractor has demobilized from the Site, an excavation contractor will remove historic fill and uncontaminated soil. The excavation contractor's on-site personnel will have a minimum of 24 hour Hazardous Waste Operations and Emergency Response Operations training.

All field personnel involved in remedial activities will participate in training, if required under 29 CFR 1910.120, including 24 and 40-hour hazardous waste operator training and annual 8-hour refresher training. The Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign an HASP acknowledgment.

All on-site personnel engaged in remedial or sampling activities must receive adequate site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and / or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.

- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.
- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

4.2.8 Agency Approvals

The Applicant has addressed all SEQRA requirements for this Site. All permits or government approvals required for remedial construction have been, obtained prior to the start of remedial construction.

The planned end use for the Site is in conformance with the current zoning for the property as determined by New York City Department of Planning. A Certificate of Completion will not be issued for the project unless conformance with zoning designation is demonstrated.

A complete list of all local, regional and national governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work is attached in **Table 17**. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency. This list will be updated in the Final Remediation Report.

4.2.9 NYSDEC BCP Signage

A project sign will be erected at the main entrance to the Site prior to the start of any remedial activities. The sign will indicate that the project is being performed under the New York State Brownfield Cleanup Program. The sign will meet the detailed specifications provided by the NYSDEC Project Manager and contained in **Attachment G**.

4.2.10 Pre-Construction Meeting with NYSDEC

A pre-construction meeting with the Project Manager, Remedial Engineer, Construction Manager, Owner's Representative and the NYSDEC will take place prior to the start of major construction activities.

4.2.11 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in **Table 18**. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.12 Remedial Action Costs

The total estimated cost of the Remedial Action is $ 4,591,432. An itemized and detailed summary of estimated costs for all remedial activity is attached as **Attachment H**. This will be revised based on actual costs and submitted as an Appendix to the Final Remediation Report.

4.3 SITE PREPARATION

4.3.1 Mobilization

Mobilization will include the delivery of construction equipment and materials to the site. All construction personnel will receive site orientation and training in accordance with the site specific HASP, CAMP and established policies and procedures to be followed during the implementation of the RAWP. The remediation contractor, construction manager and all associated subcontractors will each receive a copy of the RAWP and the site specific HASP and will be briefed on their contents.

4.3.2 Erosion and Sedimentation Controls

Soil erosion and sediment control measures for management of storm water will be installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control. Haybales and/or silt fence will be placed by the remedial contractor at locations surrounding excavation areas and within the perimeter fencing as needed, to control stormwater runoff and surface water

from exiting the excavation. These control measures will be installed prior to initiating the soil excavation.

4.3.3 Stabilized Construction Entrance(s)

Stabilized construction entrances will be installed at all points of vehicle ingress and egress to the Site. The stabilized entrances will be constructed of a 4 to 6-inch bed of crushed stone or crushed concrete which will be sloped back toward the interior of the Site. The stabilized entrances will be inspected on a daily basis during soil loading activities and reinforced as needed with additional stone/concrete material to prevent the accumulation of ruts, mud or soil.

4.3.4 Utility Marker and Easements Layout

The Applicant and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The Applicant and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Applicant and its contractors must obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this Remedial Action Work Plan is posed by utilities or easements on the Site.

4.3.5 Sheeting and Shoring

Appropriate management of structural stability of on-Site or off-Site structures during on-Site activities including excavation is the sole responsibility of the Applicant and its contractors. The Applicant and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The Applicant and its contractors must obtain any local, State or Federal permits or approvals that may be required to perform work under this Plan. Further, the Applicant and its contractors are solely responsible for the implementation of all required,

appropriate, or necessary health and safety measures during performance of work under the approved Plan.

4.3.6 Equipment and Material Staging

All equipment and work materials will be staged on-Site in areas as designated by the General Contractor, and / or Construction Site Superintendant.

4.3.7 Decontamination Area

A temporary truck decontamination pad will be constructed to decontaminate trucks and other vehicles/equipment leaving the Site. The pad will be constructed by placing a stone aggregate such as crushed rock or RCA. The pad will be bermed at the sides and sloped back to the interior of the Site. The truck pad will be sized to accommodate the largest construction vehicle used and located in line with the stabilized construction entrance.

4.3.8 Site Fencing

An 8-foot high temporary construction fence will be installed around the perimeter of the Site with entrance gates located on River Avenue. This fence will be properly secured at the end of the day and supplemented, as needed, by installing orange safety fencing around open excavations to ensure on-site worker safety.

4.3.9 Demobilization

Demobilization will consist of the restoration of material staging areas and the disposal of materials and/or general refuse in accordance with acceptable rules and regulations. Materials used in remedial activities will be removed and disposed properly. All equipment will be decontaminated prior to leaving the Site.

4.4 REPORTING

All daily and monthly Reports will be included in the Final Engineering Report.

4.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by the end of each day in which remedial activity takes place. Daily reports will include:

- An update of progress made during the reporting day;
- Quantities of oxidant material applied at specific injection locations of the Site;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- An explanation of notable Site conditions.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within one week following the end of the month of the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,

- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the Final Engineering Report.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on-Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

Complaints from the public regarding nuisance or other Site conditions including noise, odor, truck traffic etc., will be recorded in the Site field book and reported to the NYSDEC via email on the same day as the complaint is received.

4.4.5 Deviations from the Remedial Action Work Plan

Minor deviations from the RAWP will be identified in the daily update report and will be noted in the Final Engineering Report. When deviations are reported a brief discussion will be provided which will state the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy.

Major changes to the scope of work must be discussed with the NYSDEC and the NYSDOH prior to implementation. If the changes are considered to be significant enough, an addendum to the RAWP Work Plan will be prepared and submitted to NYSDEC / NYSDOH for review.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

Excavation work includes the following; the removal and off-Site disposal of the top 8 feet of soil from the 350 ft^2 lead hazardous Hot-Spot area located in the southwest corner of the Site (150 cubic yards) as shown on **Figure 12**, removal and off-Site disposal of the top 4 feet of the remainder of the Site as historic fill material (3,500 cubic yards), removal and off-Site disposal of clean native soil from 4 to approximately 12 feet below grade for construction of the proposed building's cellar (5,350 cubic yards). Soil excavation will be performed using conventional equipment such as track-mounted excavators, backhoes and loaders.

All excavation work will be performed in accordance with the Site-specific HASP and CAMP. Removal of the hazardous lead soil will be performed by a qualified remedial contractor and fully trained personnel (40HR OSHA HAZWOPER). If an underground storage tank (UST) is discovered during excavation the NYSDEC Project Manager will be immediately notified and the UST removed and closed in accordance with DER-10, NYSDEC PBS regulations and NYC Fire Department regulations. It is anticipated that the excavation of historic fill materials and native soils will be performed by the excavation contractor for the construction project.

Historic fill materials will be excavated to a depth of approximately 4 feet throughout the Site or as needed to achieve SCOs. Excavation for the basement level parking area of the new building will continue to a depth of approximately 12 feet. An excavation plan showing the excavation depths to achieve the Track 1 remedy is provided in **Figure 12**.

Dewatering is not anticipated for the excavation of contaminated areas or for foundation construction.

5.1 CONTINGENCY - UST REMOVAL METHODS

USTs, if encountered during excavation activities at the Site, will be removed in accordance with the procedures described under the NYSDEC Memorandum for the Permanent Abandonment of Petroleum Storage Tanks and Section 5.5 of Draft DER-10 as follows:

- Remove all product to its lowest draw-off point
- Drain and flush piping into the tank
- Vacuum out the tank bottom consisting of water product and sludge
- Dig down to the top of the tank and expose the upper half of the tank
- Remove the fill tube and disconnect the fill, gauge, product and vent lines and pumps. Cap and plug open ends of lines
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tank
- Clean tank or remove to a storage yard for cleaning
- If the tank is to be moved it must be transported by licensed waste transported. Plug and cap all holes prior to transport leaving a 1/8 inch vent hole located at the top of the tank during transport
- After cleaning the tank must be made acceptable for disposal at a scrap yard cleaning the tank interior with a high pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.)
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.)
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation with a calibrated photoionization detector (PID).

5.2 SOIL CLEANUP OBJECTIVES

The Soil Cleanup Objectives for this Site are listed in **Table 1**. **Table 11** summarizes all soil samples that exceed the SCOs proposed for this Remedial Action. Spider maps showing all soil samples that exceed the SCOs proposed for this Remedial Action are shown in **Figures 7-8**.

5.3 REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION END-POINT SAMPLING)

Post excavation (endpoint) soil samples will be collected from across the Site to verify that remedial goals have been achieved. Endpoint soil samples will be collected from the Site as follows:

(1) Following excavation of the hazardous lead Hot-Spot area located in the southwest corner of the Site, 5 endpoint soil samples will be collected to verify that remedial goals have been achieved (**Figure 13**). The endpoint soil samples collected from the lead Hot-Spot will be analyzed for total lead and TCLP lead.

(2) Site-wide endpoint soil samples will be collected following removal of all soil needed for construction of the buildings cellar level to verify that remedial goals have been achieved (**Figure 13**). The Site-wide endpoint soil samples will be analyzed for VOCs, SVOCs, pesticides, PCBs and metals. The collection of sidewall endpoint soil samples will be not be performed because historic fill will be removed from across the entire Site resulting in only off-Site areas to collect the soil samples.

5.3.1 End-Point Sampling Frequency

Endpoint sampling frequency will be in accordance with DER-10 section 5.4 which recommends the collection of one bottom sample per 900 sf of bottom area and one sidewall sample per 30 liner feet. Sidewall samples will not be collected where sheeting or shoring is present.

5.3.2 Methodology

Collected samples be placed in glass jars supplied by the analytical laboratory and stored in a cooler with ice to maintain a temperature of 4 degrees C. Samples will either be picked up at the Site by a laboratory dispatched courier at the end of the day or transported back to the EBC office where they will be picked up the following day by the laboratory courier. All samples will be analyzed by a NYSDOH ELAP certified environmental laboratory

All post excavation (endpoint) soil samples will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA method 8270BN, pesticides/PCBs by EPA method 8081/8082 and TAL metals.

5.3.3 Reporting of Results

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format.

5.3.4 QA/QC

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or cold-pak(s) to maintain a temperature of 4^{o}C.

Dedicated disposable sampling materials will be used for soil samples, eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected. Field blanks will be prepared by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers.

Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory.

5.3.5 DUSR

The DUSR provides a thorough evaluation of analytical data without third party data validation. The primary objective of a DUSR is to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use. Verification and/or performance monitoring samples collected under this RAWP will be reviewed and evaluated in accordance with the Guidance for the Development of Data Usability Summary Reports as presented in Appendix 2B of DER-10. The completed DUSR for verification/performance samples collected during implementation of this RAWP will be included in the final Engineering Report.

5.3.6 Reporting of End-Point Data in FER

All endpoint data collected as part of this remedial action will be summarized and presented in the Final Engineering Report. The summary tables will include comparison of results to unrestricted SCOs to verify attainment of Track 1. Laboratory reports and the DUSR will be included as an appendix in the FER.

5.4 ESTIMATED MATERIAL REMOVAL QUANTITIES

It is expected that 100 cubic yards (150 tons) of Lead hazardous impacted soil will be generated by excavating the top 8 feet of soil from the Hot-Spot shown on **Figure 13**. Historic fill material was documented throughout the Site to depths as great as 4 feet below grade. Therefore, an estimated 3,500 cubic yards (5,250 tons) of historic fill material will be generated by excavating the remainder of the Site to a depth of 4 feet outside of the Hot-Spot area. An additional 5,350 cubic yards (8,025 tons) of clean native soil (4 to 12 feet below grade) will be excavated from the Site for construction of the proposed building's cellar The clean native soil will require off-Site disposal at a beneficial reuse facility.

5.5 SOIL/MATERIALS MANAGEMENT PLAN

5.5.1 Excavation of Lead Hazardous Soils (Southwest Corner)

Lead hazardous soil, has been documented within a 350 sf area in the southwest corner of the property. The vertical extent is limited to 8 feet below existing slab grade. The impacted soil in this area will be removed prior to the excavation for the building foundation.

Excavated soil will be secured and temporarily stored on-site until arrangements can be made for off-site disposal. As an alternative, pre-characterization samples may be collected to allow the soil to be loaded directly on to trucks for transport to the disposal facility. Soils excavated from lead hazardous hotspot, will be classified as hazardous.

The final determination on classification will be based on the results of waste characterization analysis and the NYSDEC.

Soil excavation will be performed in accordance with the procedures described under Section 5.5 of DER-10 as follows:

- A description and photographic documentation of the excavation.
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation with a calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined by the Remedial Engineer or his designee, and will depend on the horizontal and vertical extent of contaminated soils as identified through physical examination (PID response, odor, staining, etc.). Expansion of the excavation beyond the planned hotspot area is anticipated and can easily be accommodated.

The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the HASP;

- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated;

- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile or dispose of separate from the impacted soil;

- If USTs are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued removal of overburden to access the top of the structure or continued trenching around the perimeter to minimize its disturbance;

- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc), an attempt will be made to remove it to the extent not limited by the site boundaries. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separate dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present;

- Excavated soils which are temporarily stockpiled on-site will be covered with 6-mil polyethylene sheeting while disposal options are determined. Sheeting will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property;

- Once the Remedial Engineer is satisfied with the removal effort, verification or confirmatory samples will be collected from the excavation as described in **Section 6.2** of this document.

The excavation of hot-spot areas will be performed by a qualified remedial contractor and fully trained personnel (40HR OSHA HAZWOPER).

5.5.2 Excavation Historic Fill Materials

Historic fill material has been identified across the Site to depths as great as 4 feet below grade. The historic fill material contains several metals above unrestricted Use SCOs. Historic fill material will be segregated from non-contaminated native soils and disposed of off-Site at a permitted disposal facility. Excavated historic fill materials will be secured and temporarily stored on-Site until arrangements can be made for off-Site disposal. As an alternative, pre-characterization samples may be collected to allow the soil to be loaded directly on to trucks for transport to the disposal facility. The historic fill material has been classified as a non-hazardous material. It is anticipated that the excavation of historic fill material will be performed by the excavation contractor for the construction project.

5.5.3 Excavation of Native Soils

Native soils are present directly below the fill materials and will require excavation for basement areas and foundation components during construction of the new buildings. Since excavation of the basement areas will begin following removal of lead impacted soil and historic fill, it is expected that native soils will not be contaminated. However, if evidence of contamination is discovered beneath the existing building's foundation following demolition, or during the excavation of basement areas, the contamination will be removed to the extent possible and segregated from clean native soils for proper disposal. Clean native soils will be stockpiled on-site and characterized for reuse on-site in areas over excavated to remove historic fill. Any excess soil will be disposed of off-site as a beneficial re-use material upon approval by the NYSDEC Region 2's Division of Materials Management. Clean native soils utilized on-site will be subject to a testing program to verify that they meet unrestricted SCOs prior to use.

It is anticipated that the excavation of native soil materials will be performed by the excavation contractor for the construction project.

5.5.4 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (Residual Contamination Zone). Soil screening will be

performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the COC.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the Final Engineering Report.

Screening will be performed by qualified environmental professionals. Resumes will be provided for all personnel responsible for field screening (i.e. those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

5.5.5 Stockpile Methods

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Water will be available on-site at suitable supply and pressure for use in dust control.

5.5.6 Materials Excavation and Load Out

The Remedial Engineer or a QEP under his/her supervision will oversee all invasive work and the excavation and load-out of all excavated material. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

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

Where effective, the equipment will be "dry" decontaminated using a broom and/or brushes. If significant amounts of soil or other contaminants remain after the dry decontamination, the equipment will also be pressure washed before leaving the Site. The QEP will be responsible for ensuring that all outbound trucks are dry-brushed or washed on the truck wash/equipment pad before leaving the Site until the remedial construction is complete. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking. The QEP will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site derived materials.

The Volunteer and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The Remedial Engineer will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this Remedial Action Work Plan.

Each hotspot and structure to be remediated will be removed and end-point remedial performance sampling completed before excavations related to Site development commence proximal to the hotspot or structure.

Development-related grading cuts and fills will not be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

Mechanical processing of historical fill material and contaminated soil on-Site is prohibited. All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be located and shown on maps to be reported in the Final Engineering Report.

5.5.7 Materials Transport Off-Site

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

Truck transport routes are as follows:

- ENTERING SITE - from the Major Deegan Expressway heading south; take exit 6 heading south to E. 153rd Street. Turn right, heading southeast on E. 153rd Street to River Avenue (1 block). Turn left on River Avenue heading north to Site entrance on the right.
- EXITING SITE – Turn right onto River Avenue heading north for 2 blocks to E 161st Street. Turn left on E. 161st Street heading west to Jerome Avenue. Turn left on Jerome Avenue and continue to the on ramp (bear right) for the Major Deegan Expressway (I-87) heading north.

These routes are shown in **Figure 11**.

These are the most appropriate routes to and from the Site and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off- Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development. Material transported by trucks exiting the Site will be secured with tight-fitting covers. If loads contain wet material capable of producing

free liquid, truck liners will be used. All trucks will be inspected, dry-brushed and / or, as needed, before leaving the site.

5.5.8 Materials Disposal Off-Site

Multiple disposal facility designations may be employed for the materials removed from the Site. Once final arrangements have been made, the disposal location(s) will be reported to the NYSDEC Project Manager.

The total quantity of material expected to be disposed off-Site is 8,950 cubic yards, including 100 cubic yards of lead hazardous soil, 3,500 cubic yards of historic fill material, and 5,350 cubic yards of clean native soil.

Non-hazardous historic fill material and contaminated soil taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Historical fill material and contaminated soils from the Site are prohibited from being disposed at Part 360-16 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the Division of Materials Management (DMM) in NYSDEC to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DSHM. This material is prohibited from being sent or redirected to a Part 360-16 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-Site or off-Site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported.

Soil classified as non-hazardous fill will be transported under a non-hazardous waste manifest obtained from the selected disposal facility. The multi-part manifest will be filled out for each

load of soil shipped off of the Site. At a minimum, the following information will be recorded on each manifest:

1) Generator's Name, Address, and Phone Number
2) Destination Facility Name, Address and Phone Number
3) Transporter Name, Address, Phone Number, License Plate Number, Driver Name, and SW Haulers Permit #
4) Signatures – Generator or an authorized agent for the generator shall print, sign, and date each non-hazardous material manifest after each truck is loaded. The transporter shall then sign and date noting time material was picked up at the site. Both the transporter and a representative of the disposal facility will sign the non-hazardous material manifest when the material has been delivered to disposal facility.

A copy of the manifest will be retained by AMC on-Site personnel for each shipment. Final signed manifests will be forwarded by the disposal facility to the generator. Copies of the final manifests will be presented in the FER.

Scale Tickets

All trucks to be utilized for transport of hazardous or non-hazardous contaminated soil shall be weighed before and after unloading at the disposal facility. Disposal facilities must provide truck scales capable of generating load tickets measured in tons. The tonnage transported and disposed will be determined by the disposal facility and reported on a certified scale ticket which will be attached to each returned manifest. Weights will be reported on the certified scale ticket as Tare and Gross weights.

Clean Soil Disposal

Clean native soil removed from the Site for development purposes (i.e. basement levels) will be handled as unregulated or beneficial use disposal. This soil will undergo a testing program to confirm that it meets Unrestricted Use SCOs or Residential / Groundwater Protection SCOs prior to unregulated disposal or meets Unrestricted Use SCOs prior to reuse on-Site. Confirmation testing of clean soils will be in accordance with DER-10 Section 5.4(e)(10) as follows:

Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	Each composite sample for analysis is created from 3-5 discrete samples from representative locations in the fill.
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

Uncontaminated native soil confirmed by the above testing program and removed from the site, will be disposed of as unregulated C&D material or sent to a beneficial re-use facility. The final destination of soils whether classified as contaminated or uncontaminated must be approved by the NYSDEC.

Concrete demolition material generated on the Site from building slabs, parking areas and other structures will be segregated, sized and shipped to a concrete recycling facility upon approval by the NYSDEC's Division of Materials Management for Region 2.. Concrete crushing or processing on-Site is prohibited. Asphalt removed from the parking areas will be sent to a separate recycling facility.

Additionally, it is common to encounter scrap metals and large boulders (greater than one foot in diameter) during excavation which may not be accepted by either the licensed disposal facility or the C&D facility. These materials will be segregated and subsequently recycled at local facilities. Uncontaminated metal objects will be taken to a local scrap metal facility.

Bricks and other C&D material are also not accepted by most soil disposal facilities if present at greater then 5% by volume. This material, if encountered, will be sent to a C&D landfill or other C&D processing facility if approved by the DEC. C&D material of this type is most often encountered on sites in which former basement structures have been filled in with material from

demolishing a former building. There was no evidence of former basement areas identified during previous investigations performed at the Site.

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer or BCP Applicant to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Bill of Lading system or equivalent will be used for off-Site movement of non-hazardous wastes and contaminated soils. This information will be reported in the Final Engineering Report. Documentation for materials disposed of at recycling facilities (such as metal, concrete, asphalt) and as non-regulated C&D will include transport tickets for each load stating the origin of the material, the destination of the material and the quantity transported.

The Final Engineering Report will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

5.5.9 Materials Reuse On-Site

Re-use of on-Site clean native soil will only be allowed if the material is found to meet Unrestricted Use SCOs (for Track 1) or Restricted Residential Use SCOs (for Track 2) through the verification testing program detailed above. The Remedial Engineer will ensure that

procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-Site.

Acceptable demolition material proposed for reuse on-Site, if any, will be sampled for asbestos. Concrete crushing or processing on-Site is prohibited. Contaminated on-Site material, including historic fill material and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

5.5.10 Fluids Management

As the depth to groundwater at the site is approximately 10 feet below the planned excavation depth, dewatering operations will not be employed during construction. However, if dewatering from the accumulation of precipitation or surface runoff becomes necessary, dewatering fluids will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by NYCDEP.

Dewatered fluids will not be recharged back to the land surface or subsurface of the Site. Dewatering fluids will be managed off-Site. Discharge of water generated during remedial construction to surface waters (i.e. a local pond, stream or river) is prohibited without a SPDES permit.

5.5.11 Backfill from Off-Site Sources

Off-site fill material may be needed to stabilize the entrance - exit areas of the Site, for temporary driveways for loading trucks and as an underlayment to structural components of the new buildings including slabs and footings. Recycled Concrete Aggregate (RCA) derived from recognizable and uncontaminated concrete and supplied by facilities permitted by, and in full compliance with Part 360-16 and DSNY regulations, is an acceptable form of backfill material. The Remedial Engineer is responsible for ensuring that the facility is compliant with the registration and permitting requirements of 6 NYCRR Part 360 and DSNY regulations at the time the RCA is acquired. RCA imported from compliant facilities does not require additional

testing unless required by NYS DEC and DSNY under its terms of operations for the facility. Documentation of part 360-16 and DSNY compliance must be provided to the Remedial Engineer before the RCA is transported to the Site.

Fill material may also consist of virgin mined sand, gravel or stone products. Materials from a virgin mined source may be imported to the Site without testing provided that that the material meets the specifications of the geotechnical engineer, Remedial Engineer, and Redevelopment Construction Documents and that the source of the material is approved by the Remediation Engineer and the NYSDEC Project Manager.

The source approval process will require a review of the following information:

- The origin of the material;
- The address of the facility which mines/processes the material;
- A letter from the facility stating that the material to be delivered to the site is a virgin mined material and that it has not been co-mingled with other materials during processing or stockpiling.

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site. Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan".

Under no circumstances will fill materials be imported to the site without prior approval from the NYSDEC Project Manager. If sufficient documentation is not obtained, fill materials will be tested at a frequency consistent with that as specified in Table 4 of NYSDEC CP-51 Soil

Cleanup Guidance Policy. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

5.5.12 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering. Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

5.5.13 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs). These analyses will not be limited to STARS parameters where tanks are identified without prior approval by NYSDEC. Analyses will not be otherwise limited without NYSDEC approval.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will be also included in daily and periodic electronic media reports.

5.5.14 Community Air Monitoring Plan

The Community Air Monitoring Plan (CAMP) provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities at construction sites.

The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air. The primary concerns for this site are odors associated with groundwater purging and sampling.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report. The complete CAMP developed for this site is included in **Attachment F** or this Work Plan.

5.5.15 Odor, Dust and Nuisance Control Plan

The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

5.5.15.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-Site and on-Site. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Applicant's Remediation Engineer, who is responsible for certifying the Final Engineering Report.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

5.5.15.2 Dust Control Plan

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

- Dust suppression will be achieved though spraying water directly onto off-road areas including excavations and stockpiles.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water application.

5.5.15.3 Nuisance Control Plan

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work. A plan has been developed and utilized by the contractor for all remedial work and conforms, to NYCDEP noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

Since contaminated groundwater is expected to remain after the remedy is complete, an Institutional Control (IC) is required to protect human health and the environment. The IC is described hereafter. Long-term management of the IC will be executed under a deed restriction recorded with the NYC Department of Finance, Office of the City Register.

If a Track 1 cleanup is achieved, all on-Site soil remaining after completion of remediation will meet Track 1 Unrestricted Use SCOs.

However, if a Track 1 cleanup is not achieved, the Track 2 alternative will be implemented as a contingency.

The Track 2 alternative will allow restricted residential use of the property. If Track 1 is not achieved, long-term management of ICs and of residual contamination will be executed under a site-specific Site Management Plan (SMP) that will be developed and included in the FER, if needed.

ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. If Track 1 or Track 2 is not achieved the Controlled Property (the Site) will have the following EC systems:

- **Site Cover** will be required to allow for residential use of the Site. The cover will consist of the new building foundation, concrete capped rear parking area, and a demarcation barrier and 2 feet of certified clean soil/top soil in landscaped areas.

The FER will report residual contamination on the Site in tabular and map form.

7.0 ENGINEERING CONTROLS

The intent of this project is to achieve Track 1 Cleanup criteria, however, if a Track 1 Cleanup is not achieved, an Engineering Control in the form of a engineered cap will be required for this remedy.

If Track 1 is not achieved, the Site will be restricted to restricted residential, commercial and industrial uses and a site cover will be required to allow for the intended use of the Site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or two feet of soil meeting the SCOs as set forth in 6 NYCRR Part 375-6.7(d) and Table 375-6.8(b). The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

8.0 INSTITUTIONAL CONTROLS

Since the intent of this project is to achieve Track 1 cleanup criteria, institutional controls are not expected to be part of the final remedy for the Site.

If Track 1 cleanup is not achieved, Institutional Controls (ICs) will be incorporated into the remedy to render the overall Site remedy protective of public health and the environmental. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan (SMP).

If required, a Site-Specific Environmental Easement will be recorded with the City of New York to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on the Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs.

The SMP describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

8.1 ENVIRONMENTAL EASEMENT

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. If the Site will have residual contamination after completion of all Remedial Actions than an Environmental Easement is required. If an Environmental Easement is needed following completion of the remedy an Environmental Easement approved by NYSDEC will be filed and recorded with the City of New York. The Environmental Easement (if needed) will be submitted as part of the Final Remediation Report.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement must be recorded with the City of New York before the Certificate of Completion can be issued by NYSDEC. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan (SMP), which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls which will be needed to support Engineering Controls are:

- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;
- Compliance with the Environmental Easement by the Grantee and the Grantee's successor's is required;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the Controls;
- NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable;

8.2 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial

Action. The Site Management Plan is submitted as part of the FER but will be written in a manner that allows its removal and use as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the Site Management Plan are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated [month, year], and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Site Management Plan will be based on a calendar year and will be due for submission to NYSDEC by March 1 of the year following the reporting period.

No exclusions for handling of residual contaminated soils (if present) will be provided in the Site Management Plan (SMP). All handling of residual contaminated material will be subject to provisions contained in the SMP.

9.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) and Certificate Of Completion (COC) will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the Final Engineering Report review.

The Final Engineering Report will include written and photographic documentation of all remedial work performed under this remedy. The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that

shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The Final Engineering Report will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

9.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The certification will be signed by the Remedial Engineer [name] who is a Professional Engineer registered in New York State This certification will be appropriately signed and stamped. The certification will include the following statements:

I _____certify that I am currently a NYS registered professional engineer and that this Final Engineering Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

NYS Professional Engineer # _____ Date _____ Signature

10.0 SCHEDULE

The remedial action will begin with mobilization of equipment and material to the Site which will begin approximately 1 week following RAWP approval and within 10 days of the distribution of the Construction Fact Sheet. Mobilization will be followed by removal and disposal of the lead hazardous impacted soil and historic fill material followed by confirmation sampling. The work is expected to take approximately 2 months as part of the construction excavation and foundation installation. The schedule of tasks completed under this RAWP is as follows:

Conduct pre-construction meeting with NYSDEC	Within 1 week of RAWP approval
Conduct pre-construction meeting with NYSDEC	Within 1 week of RAWP approval
Mobilize equipment to the site and construct truck pad and other designated areas	Within 1 week following the pre-construction meeting and issuance of Pre-Construction Fact Sheet
Begin excavation of Lead Hot-Spot	Immediately following mobilization Duration - 2 Days
Collect endpoint soil samples from the lead Hot-Spot	Immediately following excavation of lead-Hot-Spot Duration - 1 Week
Mobilize Excavation Contractor and equipment to the Site	Immediately excavation of lead Hot-Spot Duration - 1 week
Complete excavation and disposal of historic fill material and clean native soil.	Within 2 months of mobilization
Perform endpoint verification of entire site	Performed in sequence as final depth of each excavated area is complete.
Submit SMP (as a contingency) if Track 1 Cleanup is not achieved	Approximately 90 days after completion of site work

TABLES

TABLE 1
SOIL CLEANUP OBJECTIVES
SOIL IMPORT CRITERIA

Contaminant	CAS Number	Unrestricted Use
Metals		
Arsenic	7440-38-2	13 [c]
Barium	7440-39-3	350 [c]
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5 [c]
Chromium, hexavalent [e]	18540-29-9	1 [b]
Chromium, trivalent [e]	16065-83-1	30 [c]
Copper	7440-50-8	50
Total Cyanide [e, f]		27
Lead	7439-92-1	63 [c]
Manganese	7439-96-5	1600 [c]
Total Mercury		0.18 [c]
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9[c]
Silver	7440-22-4	2
Zinc	7440-66-6	109 [c]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex) [f]	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033 [b]
4,4'-DDT	50-29-3	0.0033 [b]
4,4'-DDD	72-54-8	0.0033 [b]
Aldrin	309-00-2	0.005 [c]
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
delta-BHC [g]	319-86-8	0.04
Dibenzofuran [f]	132-64-9	7
Dieldrin	60-57-1	0.005 [c]
Endosulfan I [d, f]	959-98-8	2.4
Endosulfan II [d, f]	33213-65-9	2.4
Endosulfan sulfate [d, f]	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1
Semivolatile organic compounds		
Acenaphthene	83-32-9	20
Acenapthylene [f]	208-96-8	100 [a]
Anthracene [f]	120-12-7	100 [a]
Benz(a)anthracene [f]	56-55-3	1 [c]
Benzo(a)pyrene	50-32-8	1 [c]
Benzo(b)fluoranthene [f]	205-99-2	1 [c]
Benzo(g,h,i)perylene [f]	191-24-2	100
Benzo(k)fluoranthene [f]	207-08-9	0.8 [c]
Chrysene [f]	218-01-9	1 [c]
Dibenz(a,h)anthracene [f]	53-70-3	0.33 [b]
Fluoranthene [f]	206-44-0	100 [a]
Fluorene	86-73-7	30
Indeno(1,2,3-cd)pyrene [f]	193-39-5	0.5 [c]
m-Cresol [f]	108-39-4	0.33 [b]
Naphthalene [f]	91-20-3	12
o-Cresol [f]	95-48-7	0.33 [b]

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
p-Cresol [f]	106-44-5	0.33 [b]
Pentachlorophenol	87-86-5	0.8 [b]
Phenanthrene [f]	85-01-8	100
Phenol	108-95-2	0.33 [b]
Pyrene [f]	129-00-0	100
Volatile organic compounds		
1,1,1-Trichloroethane [f]	71-55-6	0.68
1,1-Dichloroethane [f]	75-34-3	0.27
1,1-Dichloroethene [f]	75-35-4	0.33
1,2-Dichlorobenzene [f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02 [c]
cis -1,2-Dichloroethene [f]	156-59-2	0.25
trans-1,2-Dichloroethene [f]	156-60-5	0.19
1,3-Dichlorobenzene [f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 [b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene [f]	104-51-8	12
Carbon tetrachloride [f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene [f]	100-41-4	1
Hexachlorobenzene [f]	118-74-1	0.33[b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether [f]	1634-04-4	0.93
Methylene chloride	75-09-2	0.05

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
n - Propylbenzene [f]	103-65-1	3.9
sec-Butylbenzene [f]	135-98-8	11
tert-Butylbenzene [f]	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene [f]	95-63-6	3.6
1,3,5-Trimethylbenzene[f]	108-67-8	8.4
Vinyl chloride[f]	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

All soil cleanup objectives (SCOs) are in parts per million (ppm).

Footnotes

[a] The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See Technical Support Document (TSD), section 9.3.

[b] 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.

[c] 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.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] 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.

[f] 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 2 Sample Summary Table, 810 River Avenue, Bronx, New York

Identification Number	Depth Interval	Media	TCL VOCs	TCL SVOCs	TAL Metals		PCBs	Pesticides	TO-15 VOCs
SB-1/5-7	5'-7'	Soil	X	X	X		X	X	
SB-2/17-19	17'-19'	Soil	X	X	X		X	X	
SB-5/18-20	18'-20'	Soil	X	X	X		X	X	
SB-6/18-20	18'-20'	Soil	X	X	X		X	X	
SB-7/18-20	18'-20'	Soil	X	X	X		X	X	
SB-9/18-20	18'-20'	Soil	X	X	X		X	X	
MW-3/17-19	17'-19'	Soil	X	X	X		X	X	
MW-4/18-20	18'-20'	Soil	X	X	X		X	X	
MW-8/18-20	18'-20'	Soil	X	X	X		X	X	
MW-10/18-20	18'-20'	Soil	X	X	X		X	X	
					Total	Dissolved			
MW-3	--	Groundwater	X	X	X	X			
MW-4	--	Groundwater	X	X	X	X			
MW-8	--	Groundwater	X	X	X	X			
MW-10	--	Groundwater	X	X	X	X			
MW-10/MS	--	Groundwater	X	X	X	X			
MW-10/MSD	--	Groundwater	X	X	X	X			
SW-1	--	Groundwater	X	X	X	X			
DUP (MW-10)	--	Groundwater	X	X	X	X			
Field Blank	--	Water	X	X	X				
Trip Blank	--	Water	X						
SV-1	--	Soil Gas							X
SV-2	--	Soil Gas							X
SV-3	--	Soil Gas							X
SV-4	--	Soil Gas							X
SV-5	--	Soil Gas							X

Table 3 Summary of Volatile Organic Compounds in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	Sample Designation:	MW-3	MW-4	MW-8	MW-8 DUP	MW-10	SB-1	SB-2	SB-5	SB-6
		Sample Date:	2/13/2013	2/14/2013	2/13/2013	2/13/2013	2/14/2013	2/15/2013	2/12/2013	2/12/2013	2/12/2013
		Sample Depth (ft bls):	17-19	18-20	18-20	18-20	18-20	5-7	17-19	18-20	18-20
1,1,1-Trichloroethane	680		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
1,1-Dichloroethane	270		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
1,1-Dichloroethene	330		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
1,2,4-Trimethylbenzene	3600		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	0.64 J	6.2 U	5.2 U	5.8 U
1,2-Dichlorobenzene	1100		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
1,2-Dichloroethane	20		1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1 U	1.2 U
1,3,5-Trimethylbenzene	8400		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
1,3-Dichlorobenzene	2400		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
1,4-Dichlorobenzene	1800		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
1,4-Dioxane	100		140 U	140 U	140 U	140 U	150 U	160 U	160 U	130 U	140 U
2-Butanone (MEK)	120		11 U	11 U	11 U	12 U	12 U	13 U	12 U	10 U	12 U
Acetone	50		11 U	11 U	13.3	10.8 J	12 U	13 U	12.7	8.4 J	14.2
Benzene	60		1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1 U	1.2 U
Carbon tetrachloride	760		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
Chlorobenzene	1100		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
Chloroform	370		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
cis-1,2-Dichloroethene	250		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
Ethylbenzene	1000		1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1 U	1.2 U
m+p-Xylene	--		1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	0.79 J	1.2 U	1 U	1.2 U
Methylene chloride	50		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
MTBE	930		1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1 U	1.2 U
n-Butylbenzene	12000		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
n-Propylbenzene	3900		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
o-Xylene	--		1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1 U	1.2 U
sec-Butylbenzene	11000		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
tert-Butylbenzene	5900		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
Tetrachloroethene	1300		5.6 U	5.4 U	5.7 U	5.8 U	1.2 J	0.57 J	6.2 U	5.2 U	5.8 U
Toluene	700		0.48 J	0.43 J	0.6 J	0.48 J	0.6 J	1.3 U	0.54 J	0.46 J	0.42 J
trans-1,2-Dichloroethene	190		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
Trichloroethene	470		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
Vinyl chloride	20		5.6 U	5.4 U	5.7 U	5.8 U	6.1 U	6.6 U	6.2 U	5.2 U	5.8 U
Xylenes (total)	260		1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	0.79 J	1.2 U	1 U	1.2 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Detection limit for 1-4 Dioxane exceeds unrestircted SCO due to interferences.

Table 3 Summary of Volatile Organic Compounds in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	SB-7	SB-9
		Sample Date:	2/13/2013	2/12/2013
		Sample Depth (ft bls):	18-20	18-20
1,1,1-Trichloroethane	680		5.6 U	6.1 U
1,1-Dichloroethane	270		5.6 U	6.1 U
1,1-Dichloroethene	330		5.6 U	6.1 U
1,2,4-Trimethylbenzene	3600		5.6 U	6.1 U
1,2-Dichlorobenzene	1100		5.6 U	6.1 U
1,2-Dichloroethane	20		1.1 U	1.2 U
1,3,5-Trimethylbenzene	8400		5.6 U	6.1 U
1,3-Dichlorobenzene	2400		5.6 U	6.1 U
1,4-Dichlorobenzene	1800		5.6 U	6.1 U
1,4-Dioxane	100		140 U	150 U
2-Butanone (MEK)	120		11 U	12 U
Acetone	50		8.9 J	11.4 J
Benzene	60		1.1 U	1.2 U
Carbon tetrachloride	760		5.6 U	6.1 U
Chlorobenzene	1100		5.6 U	6.1 U
Chloroform	370		5.6 U	6.1 U
cis-1,2-Dichloroethene	250		5.6 U	6.1 U
Ethylbenzene	1000		1.1 U	1.2 U
m+p-Xylene	--		1.1 U	1.2 U
Methylene chloride	50		5.6 U	6.1 U
MTBE	930		1.1 U	1.2 U
n-Butylbenzene	12000		5.6 U	6.1 U
n-Propylbenzene	3900		5.6 U	6.1 U
o-Xylene	--		1.1 U	1.2 U
sec-Butylbenzene	11000		5.6 U	6.1 U
tert-Butylbenzene	5900		5.6 U	6.1 U
Tetrachloroethene	1300		5.6 U	6.1 U
Toluene	700		1.1 U	0.44 J
trans-1,2-Dichloroethene	190		5.6 U	6.1 U
Trichloroethene	470		5.6 U	6.1 U
Vinyl chloride	20		5.6 U	6.1 U
Xylenes (total)	260		1.1 U	1.2 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Detection limit for 1-4 Dioxane exceeds unrestircted SCO due to interferences.

Table 4 Summary of Semivolatile Organic Compounds in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	Sample Designation:	MW-3	MW-4	MW-8	MW-8 DUP	MW-10	SB-1	SB-2	SB-5
		Sample Date:	2/13/2013	2/14/2013	2/13/2013	2/13/2013	2/14/2013	2/15/2013	2/12/2013	2/12/2013
		Sample Depth (ft bls):	17-19	18-20	18-20	18-20	18-20	5-7	17-19	18-20
2-Methylphenol	330		68 U	59 U	70 U	64 U	67 U	67 U	73 U	66 U
3&4-Methylphenol	--		68 U	59 U	70 U	64 U	67 U	67 U	73 U	66 U
Acenaphthene	20000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Acenaphthylene	100000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Anthracene	100000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Benzo[a]anthracene	1000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Benzo[a]pyrene	1000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Benzo[b]fluoranthene	1000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Benzo[g,h,i]perylene	100000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Benzo[k]fluoranthene	800		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Chrysene	1000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Dibenzo[a,h]anthracene	330		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Dibenzofuran	7000		68 U	59 U	70 U	64 U	67 U	67 U	73 U	66 U
Fluoranthene	100000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Fluorene	30000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Hexachlorobenzene	330		68 U	59 U	70 U	64 U	67 U	67 U	73 U	66 U
Indeno[1,2,3-cd]pyrene	500		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Naphthalene	12000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Pentachlorophenol	800		340 U	290 U	350 U	320 U	330 U	340 U	360 U	330 U
Phenanthrene	100000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U
Phenol	330		68 U	59 U	70 U	64 U	67 U	67 U	73 U	66 U
Pyrene	100000		34 U	29 U	35 U	32 U	33 U	34 U	36 U	33 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Table 4 Summary of Semivolatile Organic Compounds in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	SB-6	SB-7	SB-9
		Sample Date:	2/12/2013	2/13/2013	2/12/2013
		Sample Depth (ft bls):	18-20	18-20	18-20
2-Methylphenol	330		70 U	70 U	70 U
3&4-Methylphenol	--		70 U	70 U	70 U
Acenaphthene	20000		35 U	35 U	35 U
Acenaphthylene	100000		35 U	35 U	35 U
Anthracene	100000		35 U	35 U	35 U
Benzo[a]anthracene	1000		35 U	35 U	35 U
Benzo[a]pyrene	1000		35 U	35 U	35 U
Benzo[b]fluoranthene	1000		35 U	35 U	35 U
Benzo[g,h,i]perylene	100000		35 U	35 U	35 U
Benzo[k]fluoranthene	800		35 U	35 U	35 U
Chrysene	1000		35 U	35 U	35 U
Dibenzo[a,h]anthracene	330		35 U	35 U	35 U
Dibenzofuran	7000		70 U	70 U	70 U
Fluoranthene	100000		35 U	35 U	35 U
Fluorene	30000		35 U	35 U	35 U
Hexachlorobenzene	330		70 U	70 U	70 U
Indeno[1,2,3-cd]pyrene	500		35 U	35 U	35 U
Naphthalene	12000		35 U	35 U	35 U
Pentachlorophenol	800		350 U	350 U	350 U
Phenanthrene	100000		35 U	35 U	35 U
Phenol	330		70 U	70 U	70 U
Pyrene	100000		35 U	35 U	35 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Table 5 Summary of Pesticides in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	MW-10	MW-3	MW-4	MW-8	MW-8 DUP	SB-1	SB-2	SB-5
		Sample Date:	2/14/2013	2/13/2013	2/14/2013	2/13/2013	2/13/2013	2/15/2013	2/12/2013	2/12/2013
		Sample Depth (ft bls):	18-20	17-19	18-20	18-20	18-20	5-7	17-19	18-20
4,4'-DDD	3.3		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
4,4'-DDE	3.3		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
4,4'-DDT	3.3		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
Aldrin	5		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
alpha-BHC	20		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
alpha-Chlordane	94		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
beta-BHC	36		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
delta-BHC	40		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
Dieldrin	5		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
Endosulfan I	2400		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
Endosulfan II	2400		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
Endosulfan sulfate	2400		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
Endrin	14		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
gamma-BHC (Lindane)	100		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U
Heptachlor	42		0.74 U	0.68 U	0.65 U	0.7 U	0.7 U	0.78 U	0.72 U	0.68 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Table 5 Summary of Pesticides in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	SB-6	SB-7	SB-9
		Sample Date:	2/12/2013	2/13/2013	2/12/2013
		Sample Depth (ft bls):	18-20	18-20	18-20
4,4'-DDD	3.3		0.68 U	0.71 U	0.71 U
4,4'-DDE	3.3		0.68 U	0.71 U	0.71 U
4,4'-DDT	3.3		0.68 U	0.71 U	0.71 U
Aldrin	5		0.68 U	0.71 U	0.71 U
alpha-BHC	20		0.68 U	0.71 U	0.71 U
alpha-Chlordane	94		0.68 U	0.71 U	0.71 U
beta-BHC	36		0.68 U	0.71 U	0.71 U
delta-BHC	40		0.68 U	0.71 U	0.71 U
Dieldrin	5		0.68 U	0.71 U	0.71 U
Endosulfan I	2400		0.68 U	0.71 U	0.71 U
Endosulfan II	2400		0.68 U	0.71 U	0.71 U
Endosulfan sulfate	2400		0.68 U	0.71 U	0.71 U
Endrin	14		0.68 U	0.71 U	0.71 U
gamma-BHC (Lindane)	100		0.68 U	0.71 U	0.71 U
Heptachlor	42		0.68 U	0.71 U	0.71 U

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Table 6 Summary of Polychlorinated Biphenyls in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	MW-3	MW-4	MW-8	MW-8 DUP	MW-10	SB-1	SB-2	SB-5
		Sample Date:	2/13/2013	2/14/2013	2/13/2013	2/13/2013	2/14/2013	2/15/2013	2/12/2013	2/12/2013
		Sample Depth (ft bls):	17-19	18-20	18-20	18-20	18-20	5-7	17-19	18-20
Aroclor-1016	--		34 U	33 U	35 U	34 U	37 U	39 U	36 U	34 U
Aroclor-1221	--		34 U	33 U	35 U	34 U	37 U	39 U	36 U	34 U
Aroclor-1232	--		34 U	33 U	35 U	34 U	37 U	39 U	36 U	34 U
Aroclor-1242	--		34 U	33 U	35 U	34 U	37 U	39 U	36 U	34 U
Aroclor-1248	--		34 U	33 U	35 U	34 U	37 U	39 U	36 U	34 U
Aroclor-1254	--		34 U	33 U	35 U	34 U	37 U	39 U	36 U	34 U
Aroclor-1260	--		34 U	33 U	35 U	34 U	37 U	39 U	36 U	34 U
Total PCBs	100		0	0	0	0	0	0	0	0

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards
PCBs - Polychlorinated Biphenyls

Table 6 Summary of Polychlorinated Biphenyls in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	SB-6	SB-7	SB-9
		Sample Date:	2/12/2013	2/13/2013	2/12/2013
		Sample Depth (ft bls):	18-20	18-20	18-20
Aroclor-1016	--		34 U	35 U	35 U
Aroclor-1221	--		34 U	35 U	35 U
Aroclor-1232	--		34 U	35 U	35 U
Aroclor-1242	--		34 U	35 U	35 U
Aroclor-1248	--		34 U	35 U	35 U
Aroclor-1254	--		34 U	35 U	35 U
Aroclor-1260	--		34 U	35 U	35 U
Total PCBs	100		0	0	0

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards
PCBs - Polychlorinated Biphenyls

Table 7. Summary of Metals in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	MW-10	MW-3	MW-4	MW-8	MW-8 DUP	SB-1	SB-2	SB-5
		Sample Date:	2/14/2013	2/13/2013	2/14/2013	2/13/2013	2/13/2013	2/15/2013	2/12/2013	2/12/2013
		Sample Depth (ft bls):	18-20	17-19	18-20	18-20	18-20	5-7	17-19	18-20
Arsenic	13		2.2 U	2.2 U	2.2 U	2.3 U	2 U	3.4	2.4	2 U
Barium	350		25.9	79.2	34.4	43.2	49.8	31.6	55.1	21.1
Beryllium	7.2		0.57	0.82	0.44	0.91	0.37	1	1.2	0.42
Cadmium	2.5		0.56 U	0.54 U	0.54 U	0.57 U	0.49 U	0.59 U	0.54 U	0.51 U
Chromium, Hexavalent	1		0.45 U	0.43 U	0.42 U	0.44 U	0.44 U	0.69	0.45 U	0.44
Chromium, Trivalent	30		16.3	**58.6**	9	19.4	19.2	16.4	22.6	9.4
Chromium	--		16.3	58.8	9	19.4	19.2	17.1	23	9.8
Copper	50		13.9	12.9	13.3	15.2	15.4	13.6	14.6	9.8
Cyanide, Free	27		0.27 U	0.24 U	0.24 U	0.27 U	0.21	0.26 U	0.26 U	0.44 U
Lead	63		3.5	2.7	2.8	5.9	5.3	8	7.4	2.8
Manganese	1600		253	242	209	281	323	407	447	164
Mercury	0.18		0.032 U	0.033 U	0.03 U	0.037 U	0.033 U	0.036 U	0.033 U	0.032 U
Nickel	30		11.3	24.7	8.2	17.3	16.6	14.7	17.8	9
Selenium	3.9		2.2 U	2.2 U	2.2 U	2.3 U	2 U	2.3 U	2.2 U	2 U
Silver	2		0.56 U	0.7	0.54 U	0.57	0.49 U	0.59 U	0.54 U	0.51 U
Zinc	109		22.8	54.6	17.7	74.4	53.8	39.7	37.3	17.6

J - Estimated value

U - Indicates that the compound was analyzed for but not detected

DUP - Duplicate sample

µg/kg - Micrograms per kilogram

ft bls - Feet below land surface

NYSDEC - New York State Department of Environmental Conservation

-- No Standards available

Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

Table 7. Summary of Metals in Soil, 810 River Avenue, Bronx, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Unrestricted Use	**Sample Designation:**	SB-6	SB-7	SB-9
		Sample Date:	2/12/2013	2/13/2013	2/12/2013
		Sample Depth (ft bls):	18-20	18-20	18-20
Arsenic	13		2.2 U	2.1 U	2.1 U
Barium	350		34.2	42.1	45.5
Beryllium	7.2		0.74	0.93	1.1
Cadmium	2.5		0.56 U	0.53 U	0.53 U
Chromium, Hexavalent	1		0.43 U	0.43 U	0.44 U
Chromium, Trivalent	30		20.1	**33**	17.4
Chromium	--		20.3	33.3	17.7
Copper	50		12.9	16.4	12.5
Cyanide, Free	27		0.27 U	0.24 U	0.27 U
Lead	63		4.2	6	6.5
Manganese	1600		289	343	379
Mercury	0.18		0.034 U	0.033 U	0.036 U
Nickel	30		13.5	20.5	13.8
Selenium	3.9		2.2 U	2.1 U	2.1 U
Silver	2		0.56 U	0.57	0.53 U
Zinc	109		30.9	53.9	41.5

J - Estimated value
U - Indicates that the compound was analyzed for but not detected
DUP - Duplicate sample
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
-- No Standards available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use Standards

TABLE 8
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (0-4 ft)

Sample ID		NYSDEC Part 375	A (0-4) Comp		A (0-4) Grab		B (0-4) Comp		B(0-4) Grab		C(0-4) Comp		C(0-4) Grab		D(0-4) Comp		D(0-4) Grab	
York ID		Unrestricted Use Soil	14G0041-01		14G0041-02		14G0041-03		14G0041-04		14G0041-05		14G0041-06		14G0041-07		14G0041-08	
Sampling Date		Cleanup Objectives	6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM	
Client Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Petroleum Hydrocarbons-GRO (C5-C10)			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			100				100				100				100			
Total Petroleum Hydrocarbons-GRO		~	53.20	U	NT		53.50	U	NT		55.30	U	NT		55.30	U	NT	
Volatile Organics, NJDEP/TCL/Part 375 List		mg/Kg			mg/kg				mg/kg				mg/kg				mg/kg	
Dilution Factor					1				1				1				1	
1,1,1,2-Tetrachloroethane	630-20-6	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,1,1-Trichloroethane	71-55-6	0.68	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,1,2,2-Tetrachloroethane	79-34-5	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,1,2-Trichloroethane	79-00-5	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,1-Dichloroethane	75-34-3	0.27	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,1-Dichloroethylene	75-35-4	0.33	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,2,4-Trichlorobenzene	120-82-1	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,2,4-Trimethylbenzene	95-63-6	3.6	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,2-Dibromo-3-chloropropane	96-12-8	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,2-Dibromoethane	106-93-4	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,2-Dichlorobenzene	95-50-1	1.1	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,2-Dichloroethane	107-06-2	0.02	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,2-Dichloropropane	78-87-5	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,3,5-Trimethylbenzene	108-67-8	8.4	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,3-Dichlorobenzene	541-73-1	2.4	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,4-Dichlorobenzene	106-46-7	1.8	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
1,4-Dioxane	123-91-1	0.1	NT		0.070	U	NT		0.059	U	NT		0.056	U	NT		0.058	U
2-Butanone	78-93-3	0.12	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
2-Hexanone	591-78-6	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
4-Methyl-2-pentanone	108-10-1	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Acetone	67-64-1	0.05	NT		0.010	J	NT		0.0029	U	NT		0.0084	J	NT		0.0029	U
Acrolein	107-02-8	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Acrylonitrile	107-13-1	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Benzene	71-43-2	0.06	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Bromodichloromethane	75-27-4	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Bromoform	75-25-2	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Bromomethane	74-83-9	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Carbon disulfide	75-15-0	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Carbon tetrachloride	56-23-5	0.76	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Chlorobenzene	108-90-7	1.1	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Chloroethane	75-00-3	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Chloroform	67-66-3	0.37	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Chloromethane	74-87-3	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
cis-1,2-Dichloroethylene	156-59-2	0.25	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
cis-1,3-Dichloropropylene	10061-01-5	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Dibromochloromethane	124-48-1	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Dibromomethane	74-95-3	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Dichlorodifluoromethane	75-71-8	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Ethyl Benzene	100-41-4	1	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Hexachlorobutadiene	87-68-3	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Isopropylbenzene	98-82-8	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Methyl acetate	79-20-9	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Methyl tert-butyl ether (MTBE)	1634-04-4	0.93	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Methylene chloride	75-09-2	0.05	NT		0.0089	J	NT		0.0092	J	NT		0.0080	J	NT		0.0091	J
n-Butylbenzene	104-51-8	12	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
n-Propylbenzene	103-65-1	3.9	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
o-Xylene	95-47-6	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
p- & m- Xylenes	179601-23-1	~	NT		0.0070	U	NT		0.0059	U	NT		0.0056	U	NT		0.0058	U
p-Isopropyltoluene	99-87-6	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
sec-Butylbenzene	135-98-8	11	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Styrene	100-42-5	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
tert-Butyl alcohol (TBA)	75-65-0	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
tert-Butylbenzene	98-06-6	5.9	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Tetrachloroethylene	127-18-4	1.3	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Toluene	108-88-3	0.7	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
trans-1,2-Dichloroethylene	156-60-5	0.19	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
trans-1,3-Dichloropropylene	10061-02-6	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Trichloroethylene	79-01-6	0.47	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Trichlorofluoromethane	75-69-4	~	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Vinyl Chloride	75-01-4	0.02	NT		0.0035	U	NT		0.0029	U	NT		0.0028	U	NT		0.0029	U
Xylenes, Total	1330-20-7	0.26	NT		0.010	U	NT		0.0088	U	NT		0.0084	U	NT		0.0087	U

TABLE 8
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (0-4 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (0-4) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (0-4) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (0-4) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B(0-4) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C(0-4) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C(0-4) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D(0-4) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D(0-4) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	CAS Number		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatiles, NJDEP/TCL/Part 375 List		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				2			
1,1'-Biphenyl	92-52-4	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
1,2,4-Trichlorobenzene	120-82-1	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
1,2-Dichlorobenzene	95-50-1	1.1	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
1,2-Diphenylhydrazine (as Azobenzene)	122-66-7	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
1,3-Dichlorobenzene	541-73-1	2.4	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
1,4-Dichlorobenzene	106-46-7	1.8	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2,4,5-Trichlorophenol	95-95-4	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2,4,6-Trichlorophenol	88-06-2	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2,4-Dichlorophenol	120-83-2	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
2,4-Dimethylphenol	105-67-9	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2,4-Dinitrophenol	51-28-5	~	0.18	U	NT		0.18	U	NT		0.19	U	NT		0.37	U	NT	
2,4-Dinitrotoluene	121-14-2	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
2,6-Dinitrotoluene	606-20-2	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2-Chloronaphthalene	91-58-7	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2-Chlorophenol	95-57-8	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2-Methylnaphthalene	91-57-6	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2-Methylphenol	95-48-7	0.33	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
2-Nitroaniline	88-74-4	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
2-Nitrophenol	88-75-5	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
3- & 4-Methylphenols	65794-96-9	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
3,3'-Dichlorobenzidine	91-94-1	~	0.18	U	NT		0.18	U	NT		0.19	U	NT		0.37	U	NT	
3-Nitroaniline	99-09-2	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
4,6-Dinitro-2-methylphenol	534-52-1	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
4-Bromophenyl phenyl ether	101-55-3	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
4-Chloroaniline	106-47-8	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
4-Chlorophenyl phenyl ether	7005-72-3	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
4-Nitroaniline	100-01-6	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
4-Nitrophenol	100-02-7	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
Acenaphthene	83-32-9	20	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Acenaphthylene	208-96-8	100	0.050	J	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Acetophenone	98-86-2	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Anthracene	120-12-7	100	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.15	JD	NT	
Atrazine	1912-24-9	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Benzaldehyde	100-52-7	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Benzidine	92-87-5	~	0.18	U	NT		0.18	U	NT		0.19	U	NT		0.37	U	NT	
Benzo(a)anthracene	56-55-3	1	0.16	J	NT		0.11	J	NT		0.20		NT		0.69	D	NT	
Benzo(a)pyrene	50-32-8	1	0.14	J	NT		0.087	J	NT		0.17	J	NT		0.53	D	NT	
Benzo(b)fluoranthene	205-99-2	1	0.13	J	NT		0.090	J	NT		0.15	J	NT		0.53	D	NT	
Benzo(g,h,i)perylene	191-24-2	100	0.10	J	NT		0.090	U	NT		0.093	U	NT		0.22	JD	NT	
Benzo(k)fluoranthene	207-08-9	0.8	0.13	J	NT		0.081	J	NT		0.14	J	NT		0.46	D	NT	
Benzoic acid	65-85-0	~	0.12	U	NT		0.12	U	NT		0.13	U	NT		0.25	U	NT	
Benzyl butyl phthalate	85-68-7	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Bis(2-chloroethoxy)methane	111-91-1	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Bis(2-chloroethyl)ether	111-44-4	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Bis(2-chloroisopropyl)ether	108-60-1	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Bis(2-ethylhexyl)phthalate	117-81-7	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Caprolactam	105-60-2	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Carbazole	86-74-8	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Chrysene	218-01-9	1	0.16	J	NT		0.12	J	NT		0.21		NT		0.65	D	NT	
Dibenzo(a,h)anthracene	53-70-3	0.33	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Dibenzofuran	132-64-9	7	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Diethyl phthalate	84-66-2	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Dimethyl phthalate	131-11-3	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Di-n-butyl phthalate	84-74-2	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Di-n-octyl phthalate	117-84-0	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Fluoranthene	206-44-0	100	0.24		NT		0.16	J	NT		0.25		NT		1.15	D	NT	
Fluorene	86-73-7	30	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Hexachlorobenzene	118-74-1	0.33	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Hexachlorobutadiene	87-68-3	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Hexachlorocyclopentadiene	77-47-4	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
Hexachloroethane	67-72-1	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.089	J	NT		0.045	U	NT		0.065	J	NT		0.21	JD	NT	
Isophorone	78-59-1	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Naphthalene	91-20-3	12	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Nitrobenzene	98-95-3	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
N-Nitrosodimethylamine	62-75-9	~	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
N-nitroso-di-n-propylamine	621-64-7	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
N-Nitrosodiphenylamine	86-30-6	~	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	
Pentachlorophenol	87-86-5	0.8	0.089	U	NT		0.090	U	NT		0.093	U	NT		0.19	U	NT	
Phenanthrene	85-01-8	100	0.14	J	NT		0.075	J	NT		0.086	J	NT		0.61	D	NT	
Phenol	108-95-2	0.33	0.045	U	NT		0.045	U	NT		0.047	U	NT		0.093	U	NT	

TABLE 8
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (0-4 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (0-4) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (0-4) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (0-4) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B(0-4) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C(0-4) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C(0-4) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D(0-4) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D(0-4) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Pyrene	129-00-0	100	0.26		NT		0.18	J	NT		0.28		NT		1.35	D	NT	
Total Petroleum Hydrocarbons-DRO (C10-C28)			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Total Petroleum Hydrocarbons-DRO		~	21.90		NT		21.60		NT		102		NT		11.10	U	NT	
Herbicides, NJDEP/TCL/Part 375 List		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
2,4,5-T	93-76-5	~	0.021	U	NT		0.021	U	NT		0.022	U	NT		0.022	U	NT	
2,4,5-TP (Silvex)	93-72-1	3.8	0.021	U	NT		0.021	U	NT		0.022	U	NT		0.022	U	NT	
2,4-D	94-75-7	~	0.021	U	NT		0.021	U	NT		0.022	U	NT		0.022	U	NT	
Pesticides, NJDEP/TCL/Part 375 List		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			5				5				5				5			
4,4'-DDD	72-54-8	0.0033	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
4,4'-DDE	72-55-9	0.0033	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
4,4'-DDT	50-29-3	0.0033	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Aldrin	309-00-2	0.005	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
alpha-BHC	319-84-6	0.02	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
alpha-Chlordane	5103-71-9	0.094	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
beta-BHC	319-85-7	0.036	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Chlordane, total	57-74-9	~	0.0070	U	NT		0.0071	U	NT		0.0073	U	NT		0.0073	U	NT	
delta-BHC	319-86-8	0.04	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Dieldrin	60-57-1	0.005	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Endosulfan I	959-98-8	2.4	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Endosulfan II	33213-65-9	2.4	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Endosulfan sulfate	1031-07-8	2.4	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Endrin	72-20-8	0.014	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Endrin aldehyde	7421-93-4	~	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Endrin ketone	53494-70-5	~	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
gamma-BHC (Lindane)	58-89-9	0.1	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
gamma-Chlordane	5103-74-2	~	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Heptachlor	76-44-8	0.042	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Heptachlor epoxide	1024-57-3	~	0.0018	U	NT		0.0018	U	NT		0.0018	U	NT		0.0018	U	NT	
Methoxychlor	72-43-5	~	0.0088	U	NT		0.0088	U	NT		0.0091	U	NT		0.0091	U	NT	
Toxaphene	8001-35-2	~	0.089	U	NT		0.089	U	NT		0.092	U	NT		0.092	U	NT	
Polychlorinated Biphenyls (PCB)		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Aroclor 1016	12674-11-2	~	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Aroclor 1221	11104-28-2	~	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Aroclor 1232	11141-16-5	~	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Aroclor 1242	53469-21-9	~	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Aroclor 1248	12672-29-6	~	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Aroclor 1254	11097-69-1	~	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Aroclor 1260	11096-82-5	~	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Total PCBs	1336-36-3	0.1	0.018	U	NT		0.018	U	NT		0.019	U	NT		0.019	U	NT	
Metals, Target Analyte		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Aluminum	7429-90-5	~	6,960		NT		8,700		NT		9,020		NT		9,480		NT	
Antimony	7440-36-0	~	0.85		NT		0.54	U	NT		0.55	U	NT		0.55	U	NT	
Arsenic	7440-38-2	13	15.40		NT		6.20		NT		4.54		NT		4.34		NT	
Barium	7440-39-3	350	123		NT		180		NT		98.60		NT		86		NT	
Beryllium	7440-41-7	7.2	0.11	U	NT		0.11	U	NT		0.11	U	NT		0.11	U	NT	
Cadmium	7440-43-9	2.5	0.32	U	NT		0.32	U	NT		0.33	U	NT		0.33	U	NT	
Calcium	7440-70-2	~	23,100		NT		12,300		NT		4,690		NT		12,800		NT	
Chromium	7440-47-3	~	14.80		NT		14.10		NT		13		NT		12.30		NT	
Cobalt	7440-48-4	~	7.79		NT		6.44		NT		6.28		NT		5.45		NT	
Copper	7440-50-8	50	92.10		NT		19.20		NT		24.60		NT		56.30		NT	
Iron	7439-89-6	~	13,500		NT		14,500		NT		14,500		NT		13,800		NT	
Lead	7439-92-1	63	397		NT		191		NT		106		NT		73.10		NT	
Magnesium	7439-95-4	~	7,930		NT		5,870		NT		2,740		NT		3,250		NT	
Manganese	7439-96-5	1600	242		NT		302		NT		391		NT		434		NT	
Nickel	7440-02-0	30	19		NT		15.70		NT		15.40		NT		14		NT	
Potassium	7440-09-7	~	1,270		NT		1,260		NT		900		NT		988		NT	
Selenium	7782-49-2	3.9	3.49		NT		1.87		NT		2.26		NT		2.17		NT	
Silver	7440-22-4	2	0.53	U	NT		0.54	U	NT		0.55	U	NT		0.55	U	NT	
Sodium	7440-23-5	~	425		NT		261		NT		173		NT		147		NT	
Thallium	7440-28-0	~	1.06	U	NT		1.07	U	NT		1.11	U	NT		1.11	U	NT	
Vanadium	7440-62-2	~	20.20		NT		17		NT		15.90		NT		14.50		NT	
Zinc	7440-66-6	109	123		NT		131		NT		86.20		NT		89.30		NT	
Metals, TCLP RCRA		mg/Kg	mg/L				mg/L				mg/L				mg/L			
Dilution Factor			1				1				1				1			
Arsenic	7440-38-2	13	0.0040	U	NT		0.0040	U	NT		0.0040	U	NT		0.0040	U	NT	
Barium	7440-39-3	350	0.34		NT		0.68		NT		0.27		NT		0.41		NT	
Cadmium	7440-43-9	2.5	0.0030	U	NT		0.0030	U	NT		0.0030	U	NT		0.0030	U	NT	
Chromium	7440-47-3	~	0.024		NT		0.0050	U	NT		0.0050	U	NT		0.0050	U	NT	

TABLE 8
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (0-4 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (0-4) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (0-4) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (0-4) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B(0-4) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C(0-4) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C(0-4) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D(0-4) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D(0-4) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Lead	7439-92-1	63	0.23		NT		0.34		NT		0.028		NT		0.0070		NT	
Selenium	7782-49-2	3.9	0.010	U	NT		0.010	U	NT		0.010	U	NT		0.010	U	NT	
Silver	7440-22-4	2	0.0050	U	NT		0.0050	U	NT		0.0050	U	NT		0.0050	U	NT	
Mercury by 7473		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Mercury	7439-97-6	0.18	0.21		NT		0.40		NT		0.23		NT		0.46		NT	
Mercury, TCLP		mg/Kg	mg/L				mg/L				mg/L				mg/L			
Dilution Factor			1				1				1				1			
Mercury	7439-97-6	0.18	0.0002	U	NT		0.0002	U	NT		0.0002	U	NT		0.0002	U	NT	
Corrosivity			pH units				pH units				pH units				pH units			
Dilution Factor			1				1				1				1			
pH		~	8.94		NT		8.26		NT		8.04		NT		8.77		NT	
Ignitability			-				-				-				-			
Dilution Factor			1				1				1				1			
Ignitability		~	Non-Ignit.		NT		Non-Ignit.		NT		Non-Ignit.		NT		Non-Ignit.		NT	
Paint Filter Test			-				-				-				-			
Dilution Factor			1				1				1				1			
Paint Filter Test		~	No Free Liquid		NT		No Free Liquid		NT		No Free Liquid		NT		No Free Liquid		NT	
Reactivity-Cyanide			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Reactivity - Cyanide		~	0.25	U	NT		0.25	U	NT		0.25	U	NT		0.25	U	NT	
Reactivity-Sulfide			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Reactivity - Sulfide		~	15	U	NT		15	U	NT		15	U	NT		15	U	NT	
TCLP Extraction for METALS EPA 1311			N/A				N/A				N/A				N/A			
Dilution Factor			1				1				1				1			
TCLP Extraction		~	Completed		NT		Completed		NT		Completed		NT		Completed		NT	
Total Solids			%				%				%				%			
Dilution Factor			1				1				1				1			
% Solids	solids	~	94		NT		93.40		NT		90.40		NT		90.40		NT	

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte

DISCLAIMER:
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TABLE 9
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (4-8 ft)

Sample ID		NYSDEC Part 375	A (4-8) Comp		A (4-8) Grab		B (4-8) Comp		B (4-8) Grab		C (4-8) Comp		C (4-8) Grab		D (4-8) Comp		D (4-8) Grab	
York ID		Unrestricted Use Soil	14G0041-01		14G0041-02		14G0041-03		14G0041-04		14G0041-05		14G0041-06		14G0041-07		14G0041-08	
Sampling Date		Cleanup Objectives	6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM		6/30/2014 3:00:00 PM	
Client Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Compound	CAS Number		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Petroleum Hydrocarbons-GRO (C5-C10)			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			100				100				100				100			
Total Petroleum Hydrocarbons-GRO		~	53.20	U	NT		53.50	U	NT		55.30	U	NT		55.30	U	NT	
Volatile Organics, NJDEP/TCL/Part 375 List		mg/Kg			mg/kg				mg/kg				mg/kg				mg/kg	
Dilution Factor					1				1				1				1	
1,1,1,2-Tetrachloroethane	630-20-6	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,1,1-Trichloroethane	71-55-6	0.68	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,1,2,2-Tetrachloroethane	79-34-5	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,1,2-Trichloroethane	79-00-5	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,1-Dichloroethane	75-34-3	0.27	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,1-Dichloroethylene	75-35-4	0.33	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,2,4-Trichlorobenzene	120-82-1	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,2,4-Trimethylbenzene	95-63-6	3.6	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,2-Dibromo-3-chloropropane	96-12-8	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,2-Dibromoethane	106-93-4	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,2-Dichlorobenzene	95-50-1	1.1	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,2-Dichloroethane	107-06-2	0.02	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,2-Dichloropropane	78-87-5	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,3,5-Trimethylbenzene	108-67-8	8.4	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,3-Dichlorobenzene	541-73-1	2.4	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,4-Dichlorobenzene	106-46-7	1.8	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
1,4-Dioxane	123-91-1	0.1	NT		0.056	U	NT		0.062	U	NT		0.055	U	NT		0.052	U
2-Butanone	78-93-3	0.12	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
2-Hexanone	591-78-6	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
4-Methyl-2-pentanone	108-10-1	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Acetone	67-64-1	0.05	NT		0.0028	U	NT		0.0086	JB	NT		0.0072	JB	NT		0.0069	JB
Acrolein	107-02-8	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Acrylonitrile	107-13-1	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Benzene	71-43-2	0.06	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Bromodichloromethane	75-27-4	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Bromoform	75-25-2	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Bromomethane	74-83-9	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Carbon disulfide	75-15-0	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Carbon tetrachloride	56-23-5	0.76	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Chlorobenzene	108-90-7	1.1	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Chloroethane	75-00-3	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Chloroform	67-66-3	0.37	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Chloromethane	74-87-3	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
cis-1,2-Dichloroethylene	156-59-2	0.25	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
cis-1,3-Dichloropropylene	10061-01-5	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Dibromochloromethane	124-48-1	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Dibromomethane	74-95-3	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Dichlorodifluoromethane	75-71-8	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Ethyl Benzene	100-41-4	1	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Hexachlorobutadiene	87-68-3	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Isopropylbenzene	98-82-8	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Methyl acetate	79-20-9	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Methyl tert-butyl ether (MTBE)	1634-04-4	0.93	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Methylene chloride	75-09-2	0.05	NT		0.051		NT		0.054		NT		0.039		NT		0.037	
n-Butylbenzene	104-51-8	12	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
n-Propylbenzene	103-65-1	3.9	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
o-Xylene	95-47-6	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
p- & m- Xylenes	179601-23-1	~	NT		0.0056	U	NT		0.0062	U	NT		0.0055	U	NT		0.0052	U
p-Isopropyltoluene	99-87-6	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
sec-Butylbenzene	135-98-8	11	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Styrene	100-42-5	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
tert-Butyl alcohol (TBA)	75-65-0	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
tert-Butylbenzene	98-06-6	5.9	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Tetrachloroethylene	127-18-4	1.3	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Toluene	108-88-3	0.7	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
trans-1,2-Dichloroethylene	156-60-5	0.19	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
trans-1,3-Dichloropropylene	10061-02-6	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Trichloroethylene	79-01-6	0.47	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Trichlorofluoromethane	75-69-4	~	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Vinyl Chloride	75-01-4	0.02	NT		0.0028	U	NT		0.0031	U	NT		0.0028	U	NT		0.0026	U
Xylenes, Total	1330-20-7	0.26	NT		0.0084	U	NT		0.0093	U	NT		0.0083	U	NT		0.0078	U

TABLE 9
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (4-8 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (4-8) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (4-8) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (4-8) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B (4-8) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C (4-8) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C (4-8) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D (4-8) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D (4-8) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	CAS Number		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatiles, NJDEP/TCL/Part 375 List		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
1,1'-Biphenyl	92-52-4	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
1,2,4-Trichlorobenzene	120-82-1	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
1,2-Dichlorobenzene	95-50-1	1.1	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
1,2-Diphenylhydrazine (as Azobenzene)	122-66-7	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
1,3-Dichlorobenzene	541-73-1	2.4	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
1,4-Dichlorobenzene	106-46-7	1.8	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2,4,5-Trichlorophenol	95-95-4	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2,4,6-Trichlorophenol	88-06-2	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2,4-Dichlorophenol	120-83-2	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
2,4-Dimethylphenol	105-67-9	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2,4-Dinitrophenol	51-28-5	~	0.18	U	NT		0.17	U	NT		0.18	U	NT		0.19	U	NT	
2,4-Dinitrotoluene	121-14-2	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
2,6-Dinitrotoluene	606-20-2	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2-Chloronaphthalene	91-58-7	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2-Chlorophenol	95-57-8	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2-Methylnaphthalene	91-57-6	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2-Methylphenol	95-48-7	0.33	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
2-Nitroaniline	88-74-4	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
2-Nitrophenol	88-75-5	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
3- & 4-Methylphenols	65794-96-9	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
3,3'-Dichlorobenzidine	91-94-1	~	0.18	U	NT		0.17	U	NT		0.18	U	NT		0.19	U	NT	
3-Nitroaniline	99-09-2	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
4,6-Dinitro-2-methylphenol	534-52-1	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
4-Bromophenyl phenyl ether	101-55-3	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
4-Chloroaniline	106-47-8	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
4-Chlorophenyl phenyl ether	7005-72-3	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
4-Nitroaniline	100-01-6	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
4-Nitrophenol	100-02-7	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
Acenaphthene	83-32-9	20	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Acenaphthylene	208-96-8	100	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Acetophenone	98-86-2	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Anthracene	120-12-7	100	0.084	J	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Atrazine	1912-24-9	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Benzaldehyde	100-52-7	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Benzidine	92-87-5	~	0.18	U	NT		0.17	U	NT		0.18	U	NT		0.19	U	NT	
Benzo(a)anthracene	56-55-3	1	0.24		NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Benzo(a)pyrene	50-32-8	1	0.12	J	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Benzo(b)fluoranthene	205-99-2	1	0.099	J	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Benzo(g,h,i)perylene	191-24-2	100	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
Benzo(k)fluoranthene	207-08-9	0.8	0.11	J	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Benzoic acid	65-85-0	~	0.12	U	NT		0.12	U	NT		0.12	U	NT		0.13	U	NT	
Benzyl butyl phthalate	85-68-7	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Bis(2-chloroethoxy)methane	111-91-1	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Bis(2-chloroethyl)ether	111-44-4	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Bis(2-chloroisopropyl)ether	108-60-1	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Bis(2-ethylhexyl)phthalate	117-81-7	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Caprolactam	105-60-2	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Carbazole	86-74-8	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Chrysene	218-01-9	1	0.26		NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Dibenzo(a,h)anthracene	53-70-3	0.33	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Dibenzofuran	132-64-9	7	0.049	J	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Diethyl phthalate	84-66-2	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Dimethyl phthalate	131-11-3	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Di-n-butyl phthalate	84-74-2	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Di-n-octyl phthalate	117-84-0	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Fluoranthene	206-44-0	100	0.41		NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Fluorene	86-73-7	30	0.053	J	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Hexachlorobenzene	118-74-1	0.33	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Hexachlorobutadiene	87-68-3	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Hexachlorocyclopentadiene	77-47-4	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
Hexachloroethane	67-72-1	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Isophorone	78-59-1	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Naphthalene	91-20-3	12	0.092	J	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Nitrobenzene	98-95-3	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
N-Nitrosodimethylamine	62-75-9	~	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
N-nitroso-di-n-propylamine	621-64-7	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
N-Nitrosodiphenylamine	86-30-6	~	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Pentachlorophenol	87-86-5	0.8	0.091	U	NT		0.087	U	NT		0.089	U	NT		0.093	U	NT	
Phenanthrene	85-01-8	100	0.71		NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Phenol	108-95-2	0.33	0.046	U	NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	

TABLE 9
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (4-8 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (4-8) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (4-8) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (4-8) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B (4-8) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C (4-8) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C (4-8) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D (4-8) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D (4-8) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	CAS Number		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Pyrene	129-00-0	100	0.48		NT		0.043	U	NT		0.044	U	NT		0.046	U	NT	
Pesticides, NJDEP/TCL/Part 375 List		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			5				5				5				5			
4,4'-DDD	72-54-8	0.0033	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
4,4'-DDE	72-55-9	0.0033	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
4,4'-DDT	50-29-3	0.0033	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Aldrin	309-00-2	0.005	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
alpha-BHC	319-84-6	0.02	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
alpha-Chlordane	5103-71-9	0.094	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
beta-BHC	319-85-7	0.036	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Chlordane, total	57-74-9	~	0.0072	U	NT		0.0068	U	NT		0.0070	U	NT		0.0073	U	NT	
delta-BHC	319-86-8	0.04	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Dieldrin	60-57-1	0.005	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endosulfan I	959-98-8	2.4	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endosulfan II	33213-65-9	2.4	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endosulfan sulfate	1031-07-8	2.4	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endrin	72-20-8	0.014	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endrin aldehyde	7421-93-4	~	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endrin ketone	53494-70-5	~	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
gamma-BHC (Lindane)	58-89-9	0.1	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
gamma-Chlordane	5103-74-2	~	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Heptachlor	76-44-8	0.042	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Heptachlor epoxide	1024-57-3	~	0.0018	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Methoxychlor	72-43-5	~	0.0090	U	NT		0.0085	U	NT		0.0087	U	NT		0.0091	U	NT	
Toxaphene	8001-35-2	~	0.091	U	NT		0.086	U	NT		0.088	U	NT		0.092	U	NT	
Polychlorinated Biphenyls (PCB)		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Aroclor 1016	12674-11-2	~	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
Aroclor 1221	11104-28-2	~	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
Aroclor 1232	11141-16-5	~	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
Aroclor 1242	53469-21-9	~	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
Aroclor 1248	12672-29-6	~	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
Aroclor 1254	11097-69-1	~	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
Aroclor 1260	11096-82-5	~	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
Total PCBs	1336-36-3	0.1	0.019	U	NT		0.018	U	NT		0.018	U	NT		0.019	U	NT	
NJDEP EPH (Cat. 2 Non-Fractionated)			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Total EPH		~	14.10		NT		12.30		NT		13.70		NT		14.60		NT	
Metals, Target Analyte		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Aluminum	7429-90-5	~	8,080		NT		9,730		NT		8,510		NT		8,880		NT	
Antimony	7440-36-0	~	0.54	U	NT		0.52	U	NT		0.53	U	NT		0.55	U	NT	
Arsenic	7440-38-2	13	4.67		NT		2.78		NT		2.55		NT		3.92		NT	
Barium	7440-39-3	350	450		NT		32.30		NT		101		NT		27.90		NT	
Beryllium	7440-41-7	7.2	0.11	U	NT		0.10	U	NT		0.11	U	NT		0.11	U	NT	
Cadmium	7440-43-9	2.5	0.33	U	NT		0.31	U	NT		0.32	U	NT		0.33	U	NT	
Calcium	7440-70-2	~	3,690		NT		667		NT		960		NT		532		NT	
Chromium	7440-47-3	~	29.80		NT		12.40		NT		11.20		NT		10.70		NT	
Cobalt	7440-48-4	~	8.55		NT		6.64		NT		5.96		NT		8.15		NT	
Copper	7440-50-8	50	23.40		NT		11.10		NT		10.60		NT		17.90		NT	
Iron	7439-89-6	~	15,200		NT		17,200		NT		15,800		NT		18,100		NT	
Lead	7439-92-1	63	3,830		NT		7.71		NT		12.90		NT		8.08		NT	
Magnesium	7439-95-4	~	3,340		NT		2,710		NT		2,520		NT		3,310		NT	
Manganese	7439-96-5	1600	419		NT		255		NT		254		NT		439		NT	
Nickel	7440-02-0	30	17.60		NT		16.40		NT		14.50		NT		17.50		NT	
Potassium	7440-09-7	~	710		NT		639		NT		684		NT		476		NT	
Selenium	7782-49-2	3.9	1.83		NT		1.45		NT		2.15		NT		1.71		NT	
Silver	7440-22-4	2	0.54	U	NT		0.52	U	NT		0.53	U	NT		0.55	U	NT	
Sodium	7440-23-5	~	178		NT		125		NT		81.30		NT		87.40		NT	
Thallium	7440-28-0	~	1.09	U	NT		1.03	U	NT		1.06	U	NT		1.11	U	NT	
Vanadium	7440-62-2	~	15.40		NT		15.70		NT		14.50		NT		12.90		NT	
Zinc	7440-66-6	109	218		NT		32.10		NT		34.60		NT		38.50		NT	
Metals, TCLP RCRA		mg/Kg	mg/L				mg/L				mg/L				mg/L			
Dilution Factor			1				1				1				1			
Arsenic	7440-38-2	13	0.0040	U	NT		0.0040	U	NT		0.0040	U	NT		0.0040	U	NT	
Barium	7440-39-3	350	0.39		NT		0.34		NT		0.24		NT		0.24		NT	
Cadmium	7440-43-9	2.5	0.0050		NT		0.0030	U	NT		0.0030	U	NT		0.0030	U	NT	
Chromium	7440-47-3	~	0.0050	U	NT		0.0050	U	NT		0.0050	U	NT		0.0050	U	NT	
Lead	7439-92-1	63	10.40		NT		0.060		NT		0.027		NT		0.015		NT	
Selenium	7782-49-2	3.9	0.010	U	NT		0.010	U	NT		0.010	U	NT		0.010	U	NT	
Silver	7440-22-4	2	0.0050	U	NT		0.0050	U	NT		0.0050	U	NT		0.0050	U	NT	
Mercury by 7473		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			

TABLE 9
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (4-8 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (4-8) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (4-8) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (4-8) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B (4-8) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C (4-8) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C (4-8) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D (4-8) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D (4-8) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Dilution Factor			1				1				1				1			
Mercury	7439-97-6	0.18	0.11		NT		0.031	U	NT		0.044		NT		0.033	U	NT	
Mercury, TCLP		mg/Kg	mg/L				mg/L				mg/L				mg/L			
Dilution Factor			1				1				1				1			
Mercury	7439-97-6	0.18	0.0002	U	NT		0.0002	U	NT		0.0002	U	NT		0.0002	U	NT	
Chromium, Hexavalent		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Chromium, Hexavalent	18540-29-9	1	2.39		NT		0.52	U	NT		0.53	U	NT		0.55	U	NT	
Corrosivity			pH units				pH units				pH units				pH units			
Dilution Factor			1				1				1				1			
pH		~	7.68		NT		6.62		NT		7.27		NT		6.86		NT	
Cyanide, Total		mg/Kg	mg/L				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Cyanide, total	57-12-5	27	0.010	U	NT		0.52	U	NT		0.53	U	NT		0.55	U	NT	
Ignitability			-				-				-				-			
Dilution Factor			1				1				1				1			
Ignitability		~	Non-Ignit.		NT		Non-Ignit.		NT		Non-Ignit.		NT		Non-Ignit.		NT	
Reactivity-Cyanide			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Reactivity - Cyanide		~	0.25	U	NT		0.25	U	NT		0.25	U	NT		0.25	U	NT	
Reactivity-Sulfide			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Reactivity - Sulfide		~	15	U	NT		15	U	NT		15	U	NT		15	U	NT	
TCLP Extraction for METALS EPA 1311			N/A				N/A				N/A				N/A			
Dilution Factor			1				1				1				1			
TCLP Extraction		~	Completed		NT		Completed		NT		Completed		NT		Completed		NT	
Total Solids			%				%				%				%			
Dilution Factor			1				1				1				1			
% Solids	solids	~	92.10		NT		97.10		NT		94.80		NT		90.40		NT	

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte

TABLE 10
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (8-12 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (8-12) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (8-12) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (8-12) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B (8-12) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C (8-12) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C (8-12) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D (8-12) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D (8-12) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Petroleum Hydrocarbons-GRO (C5-C10)			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			100				100				100				100			
Total Petroleum Hydrocarbons-GRO		~	53.20	U	NT		53.50	U	NT		55.30	U	NT		55.30	U	NT	
Volatile Organics, NJDEP/TCL/Part 375 List		mg/Kg			mg/kg				mg/kg				mg/kg				mg/kg	
Dilution Factor					1				1				1				1	
1,1,1,2-Tetrachloroethane	630-20-6	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,1,1-Trichloroethane	71-55-6	0.68	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,1,2,2-Tetrachloroethane	79-34-5	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,1,2-Trichloroethane	79-00-5	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,1-Dichloroethane	75-34-3	0.27	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,1-Dichloroethylene	75-35-4	0.33	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,2,4-Trichlorobenzene	120-82-1	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,2,4-Trimethylbenzene	95-63-6	3.6	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,2-Dibromo-3-chloropropane	96-12-8	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,2-Dibromoethane	106-93-4	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,2-Dichlorobenzene	95-50-1	1.1	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,2-Dichloroethane	107-06-2	0.02	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,2-Dichloropropane	78-87-5	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,3,5-Trimethylbenzene	108-67-8	8.4	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,3-Dichlorobenzene	541-73-1	2.4	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,4-Dichlorobenzene	106-46-7	1.8	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
1,4-Dioxane	123-91-1	0.1	NT		0.059	U	NT		0.056	U	NT		0.060	U	NT		0.054	U
2-Butanone	78-93-3	0.12	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
2-Hexanone	591-78-6	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
4-Methyl-2-pentanone	108-10-1	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Acetone	67-64-1	0.05	NT		0.0029	U	NT		0.0049	JB	NT		0.0050	JB	NT		0.0056	JB
Acrolein	107-02-8	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Acrylonitrile	107-13-1	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Benzene	71-43-2	0.06	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Bromodichloromethane	75-27-4	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Bromoform	75-25-2	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Bromomethane	74-83-9	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Carbon disulfide	75-15-0	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Carbon tetrachloride	56-23-5	0.76	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Chlorobenzene	108-90-7	1.1	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Chloroethane	75-00-3	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Chloroform	67-66-3	0.37	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Chloromethane	74-87-3	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
cis-1,2-Dichloroethylene	156-59-2	0.25	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
cis-1,3-Dichloropropylene	10061-01-5	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Dibromochloromethane	124-48-1	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Dibromomethane	74-95-3	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Dichlorodifluoromethane	75-71-8	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Ethyl Benzene	100-41-4	1	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Hexachlorobutadiene	87-68-3	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Isopropylbenzene	98-82-8	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Methyl acetate	79-20-9	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Methyl tert-butyl ether (MTBE)	1634-04-4	0.93	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Methylene chloride	75-09-2	0.05	NT		0.074		NT		0.068		NT		0.062		NT		0.062	
n-Butylbenzene	104-51-8	12	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
n-Propylbenzene	103-65-1	3.9	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
o-Xylene	95-47-6	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
p- & m- Xylenes	179601-23-1	~	NT		0.0059	U	NT		0.0056	U	NT		0.0060	U	NT		0.0054	U
p-Isopropyltoluene	99-87-6	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
sec-Butylbenzene	135-98-8	11	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Styrene	100-42-5	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
tert-Butyl alcohol (TBA)	75-65-0	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
tert-Butylbenzene	98-06-6	5.9	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Tetrachloroethylene	127-18-4	1.3	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Toluene	108-88-3	0.7	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
trans-1,2-Dichloroethylene	156-60-5	0.19	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
trans-1,3-Dichloropropylene	10061-02-6	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Trichloroethylene	79-01-6	0.47	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Trichlorofluoromethane	75-69-4	~	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Vinyl Chloride	75-01-4	0.02	NT		0.0029	U	NT		0.0028	U	NT		0.0030	U	NT		0.0027	U
Xylenes, Total	1330-20-7	0.26	NT		0.0088	U	NT		0.0084	U	NT		0.0090	U	NT		0.0081	U

TABLE 10
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (8-12 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (8-12) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (8-12) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (8-12) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B (8-12) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C (8-12) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C (8-12) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D (8-12) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D (8-12) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	CAS Number		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatiles, NJDEP/TCL/Part 375 List		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
1,1'-Biphenyl	92-52-4	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
1,2,4-Trichlorobenzene	120-82-1	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
1,2-Dichlorobenzene	95-50-1	1.1	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
1,2-Diphenylhydrazine (as Azobenzene)	122-66-7	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
1,3-Dichlorobenzene	541-73-1	2.4	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
1,4-Dichlorobenzene	106-46-7	1.8	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2,4,5-Trichlorophenol	95-95-4	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2,4,6-Trichlorophenol	88-06-2	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2,4-Dichlorophenol	120-83-2	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
2,4-Dimethylphenol	105-67-9	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2,4-Dinitrophenol	51-28-5	~	0.17	U	NT		0.17	U	NT		0.17	U	NT		0.18	U	NT	
2,4-Dinitrotoluene	121-14-2	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
2,6-Dinitrotoluene	606-20-2	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2-Chloronaphthalene	91-58-7	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2-Chlorophenol	95-57-8	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2-Methylnaphthalene	91-57-6	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2-Methylphenol	95-48-7	0.33	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
2-Nitroaniline	88-74-4	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
2-Nitrophenol	88-75-5	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
3- & 4-Methylphenols	65794-96-9	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
3,3'-Dichlorobenzidine	91-94-1	~	0.17	U	NT		0.17	U	NT		0.17	U	NT		0.18	U	NT	
3-Nitroaniline	99-09-2	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
4,6-Dinitro-2-methylphenol	534-52-1	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
4-Bromophenyl phenyl ether	101-55-3	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
4-Chloroaniline	106-47-8	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
4-Chlorophenyl phenyl ether	7005-72-3	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
4-Nitroaniline	100-01-6	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
4-Nitrophenol	100-02-7	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
Acenaphthene	83-32-9	20	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Acenaphthylene	208-96-8	100	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Acetophenone	98-86-2	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Anthracene	120-12-7	100	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Atrazine	1912-24-9	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Benzaldehyde	100-52-7	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Benzidine	92-87-5	~	0.17	U	NT		0.17	U	NT		0.17	U	NT		0.18	U	NT	
Benzo(a)anthracene	56-55-3	1	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Benzo(a)pyrene	50-32-8	1	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Benzo(b)fluoranthene	205-99-2	1	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Benzo(g,h,i)perylene	191-24-2	100	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
Benzo(k)fluoranthene	207-08-9	0.8	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Benzoic acid	65-85-0	~	0.12	U	NT		0.12	U	NT		0.12	U	NT		0.12	U	NT	
Benzyl butyl phthalate	85-68-7	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Bis(2-chloroethoxy)methane	111-91-1	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Bis(2-chloroethyl)ether	111-44-4	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Bis(2-chloroisopropyl)ether	108-60-1	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Bis(2-ethylhexyl)phthalate	117-81-7	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Caprolactam	105-60-2	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Carbazole	86-74-8	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Chrysene	218-01-9	1	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Dibenzo(a,h)anthracene	53-70-3	0.33	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Dibenzofuran	132-64-9	7	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Diethyl phthalate	84-66-2	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Dimethyl phthalate	131-11-3	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Di-n-butyl phthalate	84-74-2	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Di-n-octyl phthalate	117-84-0	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Fluoranthene	206-44-0	100	0.058	J	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Fluorene	86-73-7	30	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Hexachlorobenzene	118-74-1	0.33	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Hexachlorobutadiene	87-68-3	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Hexachlorocyclopentadiene	77-47-4	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
Hexachloroethane	67-72-1	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Isophorone	78-59-1	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Naphthalene	91-20-3	12	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Nitrobenzene	98-95-3	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
N-Nitrosodimethylamine	62-75-9	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
N-nitroso-di-n-propylamine	621-64-7	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
N-Nitrosodiphenylamine	86-30-6	~	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Pentachlorophenol	87-86-5	0.8	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.091	U	NT	
Phenanthrene	85-01-8	100	0.067	J	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Phenol	108-95-2	0.33	0.044	U	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	

TABLE 10
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (8-12 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (8-12) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (8-12) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (8-12) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B (8-12) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C (8-12) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C (8-12) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D (8-12) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D (8-12) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Pyrene	129-00-0	100	0.060	J	NT		0.044	U	NT		0.043	U	NT		0.045	U	NT	
Pesticides, NJDEP/TCL/Part 375 List		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			5				5				5				5			
4,4'-DDD	72-54-8	0.0033	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
4,4'-DDE	72-55-9	0.0033	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
4,4'-DDT	50-29-3	0.0033	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Aldrin	309-00-2	0.005	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
alpha-BHC	319-84-6	0.02	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
alpha-Chlordane	5103-71-9	0.094	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
beta-BHC	319-85-7	0.036	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Chlordane, total	57-74-9	~	0.0068	U	NT		0.0069	U	NT		0.0067	U	NT		0.0071	U	NT	
delta-BHC	319-86-8	0.04	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Dieldrin	60-57-1	0.005	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endosulfan I	959-98-8	2.4	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endosulfan II	33213-65-9	2.4	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endosulfan sulfate	1031-07-8	2.4	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endrin	72-20-8	0.014	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endrin aldehyde	7421-93-4	~	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Endrin ketone	53494-70-5	~	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
gamma-BHC (Lindane)	58-89-9	0.1	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
gamma-Chlordane	5103-74-2	~	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Heptachlor	76-44-8	0.042	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Heptachlor epoxide	1024-57-3	~	0.0017	U	NT		0.0017	U	NT		0.0017	U	NT		0.0018	U	NT	
Methoxychlor	72-43-5	~	0.0085	U	NT		0.0086	U	NT		0.0084	U	NT		0.0089	U	NT	
Toxaphene	8001-35-2	~	0.087	U	NT		0.087	U	NT		0.085	U	NT		0.090	U	NT	
Polychlorinated Biphenyls (PCB)		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Aroclor 1016	12674-11-2	~	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
Aroclor 1221	11104-28-2	~	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
Aroclor 1232	11141-16-5	~	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
Aroclor 1242	53469-21-9	~	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
Aroclor 1248	12672-29-6	~	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
Aroclor 1254	11097-69-1	~	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
Aroclor 1260	11096-82-5	~	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
Total PCBs	1336-36-3	0.1	0.018	U	NT		0.018	U	NT		0.017	U	NT		0.018	U	NT	
NJDEP EPH (Cat. 2 Non-Fractionated)			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Total EPH		~	10.40	U	NT		10.40	U	NT		84.60		NT		17.70		NT	
Metals, Target Analyte		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Aluminum	7429-90-5	~	7,450		NT		8,150		NT		6,910		NT		6,580		NT	
Antimony	7440-36-0	~	0.52	U	NT		0.52	U	NT		0.51	U	NT		0.54	U	NT	
Arsenic	7440-38-2	13	3.09		NT		3.44		NT		2.22		NT		2.66		NT	
Barium	7440-39-3	350	57		NT		20.60		NT		21.90		NT		23.20		NT	
Beryllium	7440-41-7	7.2	0.10	U	NT		0.10	U	NT		0.10	U	NT		0.11	U	NT	
Cadmium	7440-43-9	2.5	0.31	U	NT		0.31	U	NT		0.30	U	NT		0.32	U	NT	
Calcium	7440-70-2	~	4,960		NT		377		NT		545		NT		246		NT	
Chromium	7440-47-3	~	11		NT		9.32		NT		7.79		NT		8.53		NT	
Cobalt	7440-48-4	~	6.50		NT		7.66		NT		5.74		NT		6.59		NT	
Copper	7440-50-8	50	22.60		NT		16.90		NT		11.40		NT		12.30		NT	
Iron	7439-89-6	~	13,000		NT		16,400		NT		13,700		NT		14,100		NT	
Lead	7439-92-1	63	92		NT		7.08		NT		5.66		NT		5.31		NT	
Magnesium	7439-95-4	~	4,360		NT		3,160		NT		2,780		NT		2,600		NT	
Manganese	7439-96-5	1600	321		NT		383		NT		337		NT		348		NT	
Nickel	7440-02-0	30	14.40		NT		15.80		NT		13.80		NT		13.70		NT	
Potassium	7440-09-7	~	987		NT		595		NT		607		NT		389		NT	
Selenium	7782-49-2	3.9	1.96		NT		1.99		NT		1.43		NT		2.15		NT	
Silver	7440-22-4	2	0.52	U	NT		0.52	U	NT		0.51	U	NT		0.54	U	NT	
Sodium	7440-23-5	~	140		NT		78.70		NT		62.40		NT		87.40		NT	
Thallium	7440-28-0	~	1.04	U	NT		1.04	U	NT		1.01	U	NT		1.08	U	NT	
Vanadium	7440-62-2	~	15.30		NT		11		NT		10.20		NT		10.40		NT	
Zinc	7440-66-6	109	76.40		NT		36.50		NT		33.10		NT		28.30		NT	
Metals, TCLP RCRA		mg/Kg	mg/L				mg/L				mg/L				mg/L			
Dilution Factor			1				1				1				1			
Arsenic	7440-38-2	13	0.0040	U	NT		0.0040	U	NT		0.0040	U	NT		0.0040	U	NT	
Barium	7440-39-3	350	0.38		NT		0.23		NT		0.24		NT		0.31		NT	
Cadmium	7440-43-9	2.5	0.0030	U	NT		0.0030	U	NT		0.0030	U	NT		0.0030	U	NT	
Chromium	7440-47-3	~	0.0050	U	NT		0.0050	U	NT		0.0050	U	NT		0.0050	U	NT	
Lead	7439-92-1	63	0.027		NT		0.0080		NT		0.0070		NT		0.0070		NT	
Selenium	7782-49-2	3.9	0.010	U	NT		0.010	U	NT		0.010	U	NT		0.010	U	NT	
Silver	7440-22-4	2	0.0050	U	NT		0.0050	U	NT		0.0050	U	NT		0.0050	U	NT	
Mercury by 7473		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			

TABLE 10
810 River Avenue
Bronx, NY
Waste Characterization Results, TPA-TPD (8-12 ft)

Sample ID York ID Sampling Date Client Matrix		NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	A (8-12) Comp 14G0041-01 6/30/2014 3:00:00 PM Soil		A (8-12) Grab 14G0041-02 6/30/2014 3:00:00 PM Soil		B (8-12) Comp 14G0041-03 6/30/2014 3:00:00 PM Soil		B (8-12) Grab 14G0041-04 6/30/2014 3:00:00 PM Soil		C (8-12) Comp 14G0041-05 6/30/2014 3:00:00 PM Soil		C (8-12) Grab 14G0041-06 6/30/2014 3:00:00 PM Soil		D (8-12) Comp 14G0041-07 6/30/2014 3:00:00 PM Soil		D (8-12) Grab 14G0041-08 6/30/2014 3:00:00 PM Soil	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Dilution Factor			1				1				1				1			
Mercury	7439-97-6	0.18	0.063		NT		0.031	U	NT		0.033		NT		0.032	U	NT	
Mercury, TCLP		mg/Kg	mg/L				mg/L				mg/L				mg/L			
Dilution Factor			1				1				1				1			
Mercury	7439-97-6	0.18	0.0002	U	NT		0.0002	U	NT		0.0002	U	NT		0.0002	U	NT	
Chromium, Hexavalent		mg/Kg	mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Chromium, Hexavalent	18540-29-9	1	0.52	U	NT		0.52	U	NT		0.51	U	NT		0.54	U	NT	
Corrosivity			pH units				pH units				pH units				pH units			
Dilution Factor			1				1				1				1			
pH		~	8.83		NT		7.65		NT		7.73		NT		6.44		NT	
Cyanide, Total		mg/Kg	mg/L				mg/L				mg/L				mg/L			
Dilution Factor			1				1				1				1			
Cyanide, total	57-12-5	27	0.010	U	NT		0.010	U	NT		0.010	U	NT		0.010	U	NT	
Ignitability			-				-				-				-			
Dilution Factor			1				1				1				1			
Ignitability		~	Non-Ignit.		NT		Non-Ignit.		NT		Non-Ignit.		NT		Non-Ignit.		NT	
Reactivity-Cyanide			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Reactivity - Cyanide		~	0.25	U	NT		0.25	U	NT		0.25	U	NT		0.25	U	NT	
Reactivity-Sulfide			mg/kg				mg/kg				mg/kg				mg/kg			
Dilution Factor			1				1				1				1			
Reactivity - Sulfide		~	15	U	NT		15	U	NT		15	U	NT		15	U	NT	
TCLP Extraction for METALS EPA 1311			N/A				N/A				N/A				N/A			
Dilution Factor			1				1				1				1			
TCLP Extraction		~	Completed		NT		Completed		NT		Completed		NT		Completed		NT	
Total Solids			%				%				%				%			
Dilution Factor			1				1				1				1			
% Solids	solids	~	96.60		NT		96.30		NT		98.70		NT		92.50		NT	

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte

TABLE 11
810 River Avenue
Bronx, NY
Parameters Detected Above Track 1 Soil Cleanup Objectives

COMPOUND	Range in Exceedances	Frequency of Detection	Test Pit A 6/30/2014			Test Pit B 6/30/2014			Test Pit C 6/30/2014			Test Pit D 6/30/2014			MW3 2/13/2014	SB7 2/13/2013
			(0-4')	(4-8')	(8-12')	(0-4')	(4-8')	(8-12')	(0-4')	(4-8')	(8-12')	(0-4')	(4-8')	(8-12')	(17-19')	(18-20')
Sample Results in mg/kg																
Methylene Chloride	0.051-0.074	6	-	**0.051**	**0.074**	-	**0.054**	**0.068**	-	-	**0.062**	-	-	**0.062**		
Sample Results in mg/kg																
Arsenic	15.4	1	**15.4**	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	450	1	-	**450**	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium, Hexavalent	2.39	1	-	**2.39**	-	-	-	-	-	-	-	-	-	-	-	-
Chromium, Trivalent	33-58	2	-	-	-	-	-	-	-	-	-	-	-	-	58	**33**
Cobalt			-	-	-	-	-	-	-	-	-		-	-	-	-
Copper	56.3-92.1	2	**92.1**	-	-	-	-	-	-	-	-	**56.3**	-	-	-	-
Iron			-	-	-	-	-	-	-	-	-		-	-	-	-
Lead	73.1-3,830	6	**397**	**3,830**	**92.0**	**191**	-	-	**106**	-	-	**73.1**	-	-	-	-
TCLP Lead *	10	1														
Magnesium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	0.21-0.46	4	**0.21**	-	-	**0.40**	-	-	**0.23**	-	-	**0.46**	-	-	-	-
Nickel			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	123-218	3	**123**	**218**	-	**131**	-	-	-	-	-	-	-	-	-	-

* Results in ug/L

Table 12 Summary of Volatile Organic Compounds in Groundwater, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	Sample Designation: / Sample Date:	MW-3 2/22/2013	MW-4 2/22/2013	MW-8 2/22/2013	MW-10 2/22/2013	MW-10 DUP 2/22/2013	SW-1 2/22/2013	TRIP BLANK 2/22/2013	FB022213 2/22/2013
1,1,1-Trichloroethane	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	5		2 U	2 U	2 U	2 U	2 U	2.9	2 U	2 U
1,2-Dichlorobenzene	3		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.6		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	5		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	3		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	3		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dioxane	--		130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2-Butanone (MEK)	50		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	50		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	1		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	7		**10.5**	**10.9**	6.6	2.9	3	1 U	1 U	1 U
cis-1,2-Dichloroethene	5		**265**	**161**	**77.3**	**179**	**173**	2.2	1 U	1 U
Ethylbenzene	5		1 U	1 U	1 U	1 U	1 U	0.32 J	1 U	1 U
m+p-Xylene	5		1 U	1 U	1 U	1 U	1 U	0.55 J	1 U	1 U
Methylene chloride	5		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
MTBE	10		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
n-Butylbenzene	5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
n-Propylbenzene	5		5 U	5 U	5 U	5 U	5 U	0.53 J	5 U	5 U
o-Xylene	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
sec-Butylbenzene	5		5 U	5 U	5 U	5 U	5 U	0.88 J	5 U	5 U
tert-Butylbenzene	5		5 U	5 U	5 U	5 U	5 U	0.71 J	5 U	5 U
Tetrachloroethene	5		**198**	**223**	**135**	**292**	**269**	1.6	1 U	1 U
Toluene	5		1 U	1 U	0.51 J	1 U	1 U	0.32 J	1 U	1 U
trans-1,2-Dichloroethene	5		**13.7**	4.7	2.3	4.8	**5.1**	1 U	1 U	1 U
Trichloroethene	5		**135**	**135**	**51**	**125**	**118**	2.2	1 U	1 U
Vinyl chloride	2		1 U	1 U	1 U	1 U	1 U	0.46 J	1 U	1 U
Xylenes (total)	5		1 U	1 U	1 U	1 U	1 U	0.55 J	1 U	1 U

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
J - Estimated Value
U - Compound was analyzed for but not detected
DUP - Duplicate
- - No NYSDEC AWQSGV available
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 13 Summary of Semivolatile Organic Compounds in Groundwater, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:**	MW-3	MW-4	MW-8	MW-10	MW-10 DUP	SW-1	FB022213
		Sample Date:	2/22/2013	2/22/2013	2/22/2013	2/22/2013	2/22/2013	2/22/2013	2/22/2013
2-Methylphenol	--		2.2 U	2.1 U	2.2 U	2.1 U	2.2 U	2 U	2.1 U
3&4-Methylphenol	--		2.2 U	2.1 U	2.2 U	2.1 U	2.2 U	2 U	2.1 U
Acenaphthene	20		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Acenaphthylene	20		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Anthracene	50		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Benzo[a]anthracene	0.002		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Benzo[a]pyrene	0		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Benzo[b]fluoranthene	0.002		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Benzo[g,h,i]perylene	--		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Benzo[k]fluoranthene	0.002		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Chrysene	0.002		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Dibenzo[a,h]anthracene	--		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Dibenzofuran	--		5.4 U	5.3 U	5.4 U	5.2 U	5.4 U	5 U	5.2 U
Fluoranthene	50		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Fluorene	50		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Hexachlorobenzene	0.04		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Indeno[1,2,3-cd]pyrene	0.002		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Naphthalene	10		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Pentachlorophenol	1		11 U	11 U	11 U	10 U	11 U	10 U	10 U
Phenanthrene	50		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U
Phenol	1		2.2 U	2.1 U	2.2 U	2.1 U	2.2 U	2 U	2.1 U
Pyrene	50		1.1 U	1.1 U	1.1 U	1 U	1.1 U	1 U	1 U

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
J - Estimated Value
U - Compound was analyzed for but not detected
DUP - Duplicate
- - No NYSDEC AWQSGV available
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 14 Summary of Metals in Groundwater, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:**	MW-3	MW-3	MW-4	MW-4	MW-8	MW-8	MW-10	MW-10
		Sample Date:	2/22/2013	2/22/2013 Filtered	2/22/2013	2/22/2013 Filtered	2/22/2013	2/22/2013 Filtered	2/22/2013	2/22/2013 Filtered
Arsenic	25		3 U	3 U	3 U	3 U	6.2	3 U	3 U	3 U
Barium	1000		200 U	200 U	200 U	200 U	515	200 U	200 U	200 U
Beryllium	3		1 U	1 U	1 U	1 U	**3.2**	1 U	1 U	1 U
Cadmium	5		3 U	3 U	3 U	3 U	6 U	3 U	3 U	3 U
Chromium	50		12.9	10 U	10 U	10 U	**109**	10 U	10 U	10 U
Copper	200		11.3	10 U	10 U	10 U	112	10 U	10 U	10 U
Lead	25		3.1	3 U	3 U	3 U	25	3 U	3 U	3 U
Manganese	300		**366**	168	166	248	**1310**	166	30.4	27.1
Mercury	0.7		0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U
Nickel	100		10 U	10 U	10 U	10 U	87	10 U	10 U	10 U
Selenium	10		10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
Silver	50		10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U
Zinc	2000		20 U	20 U	20 U	20 U	285	20 U	20 U	20 U

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
J - Estimated Value
U - Compound was analyzed for but not detected
DUP - Duplicate
- - No NYSDEC AWQSGV available
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

Table 14 Summary of Metals in Groundwater, 810 River Avenue, Bronx, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:**	MW-10 DUP 2/22/2013	MW-10 DUP 2/22/2013 Filtered	SW-1 2/22/2013	SW-1 2/22/2013 Filtered	FB022213 2/22/2013
Arsenic	25		3 U	3 U	3 U	3 U	3 U
Barium	1000		200 U	200 U	200 U	200 U	200 U
Beryllium	3		1 U	1 U	1 U	1 U	1 U
Cadmium	5		3 U	3 U	3 U	3 U	3 U
Chromium	50		10 U	10 U	10 U	10 U	10 U
Copper	200		10 U	10 U	10 U	10 U	10 U
Lead	25		3 U	3 U	3 U	3 U	3 U
Manganese	300		30	20.3	**1600**	**1580**	15 U
Mercury	0.7		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	100		10 U	10 U	10 U	10 U	10 U
Selenium	10		10 U	10 U	10 U	10 U	10 U
Silver	50		10 U	10 U	10 U	10 U	10 U
Zinc	2000		20 U	20 U	20 U	20 U	20 U

NYSDEC - New York State Department of Environmental Conservation
AWQSGVs - Ambient Water-Quality Standards and Guidance Values
µg/L -Micrograms per liter
J - Estimated Value
U - Compound was analyzed for but not detected
DUP - Duplicate
- - No NYSDEC AWQSGV available
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs

TABLE 15
810 River Avenue
Bronx, NY
Parameters Detected Above Ambient Water Quality Standards

VOCs

COMPOUND	Range in Detections	SW1 2/22/2013	MW3 2/13/2013	MW3 2/22/2013	MW4 2/23/2013	MW8 2/24/2013	MW10 2/25/2013	MW10 Duplicate 2/26/2013
Sample Results in (µg/L)								
Chloroform	**6.6-179**	**-**	**-**	**10.5**	**10.9**	**6.6**	**179**	**173**
cis-1,2-Dicholorethene	**77.3-292**	**-**	**-**	**265**	**161**	**77.3**	**292**	**269**
Tetrachloroethene	**5.1-223**	**-**	**-**	**13.7**	**223**	**135**		**5.1**
Trichloroethene	**51-135**	**-**	**-**	**135**	**135**	**51**	**125**	**118**

Metals (dissolved)

COMPOUND	Range in Detections	SW1 2/22/2013	MW3 2/13/2013	MW3 2/22/2013	MW4 2/23/2013	MW8 2/24/2013	MW10 2/25/2013	MW10 Duplicate 2/26/2013
Sample Results in (µg/L)								
Manganese	**1,580**	**1,580**	**-**	**-**	**-**	**-**	**-**	**-**

Metals (total)

COMPOUND	Range in Detections	SW1 2/22/2013	MW3 2/13/2013	MW3 2/22/2013	MW4 2/23/2013	MW8 2/24/2013	MW10 2/25/2013	MW10 Duplicate 2/26/2013
Sample Results in (µg/L)								
Beryllium	**3.2**	**-**	**-**	**-**	**-**	**3.2**	**-**	**-**
Chromium , Trivalent	**58.6**	**-**	**58.6**	**-**	**-**	**-**	**-**	**-**
Chromium	**109**	**-**	**-**	**-**	**-**	**109**	**-**	**-**
Manganese	**336-1,600**	**1,600**	**-**	**336**	**-**	**1,310**	**-**	**-**

Table 16 Summary of Volatile Organic Compounds in Soil Vapor, 810 River Avenue, Bronx, New York

Parameter (Concentrations in ug/m^3)	Sample Designation: / Sample Date:	SV-1 2/26/2013	SV-2 2/26/2013	SV-3 2/26/2013	SV-4 2/26/2013	SV-5 2/26/2013	Lab Blank 3/4/2013
1,1,1-Trichloroethane		**1.8**	**2.8**	**5.1**	**2.2**	**7.9**	0.54 U
1,1,2,2-Tetrachloroethane		0.96 U	1 U	2.9 U	1 U	4.2 U	0.69 U
1,1,2-Trichloroethane		0.76 U	0.81 U	2.3 U	0.79 U	3.3 U	0.54 U
1,1-Dichloroethane		0.57 U	0.6 U	1.7 U	0.59 U	2.5 U	0.4 U
1,1-Dichloroethene		0.56 U	0.59 U	1.7 U	0.57 U	2.4 U	0.4 U
1,2,4-Trichlorobenzene		5.2 U	5.5 U	16 U	5.4 U	23 U	3.7 U
1,2,4-Trimethylbenzene		0.69 U	**2**	**3.3**	**1.1**	**30**	0.49 U
1,2-Dibromoethane		1.1 U	1.1 U	3.3 U	1.1 U	4.7 U	0.77 U
1,2-Dichlorobenzene		0.84 U	0.9 U	2.6 U	0.87 U	3.7 U	0.6 U
1,2-Dichloroethane		0.57 U	0.6 U	1.7 U	0.59 U	2.5 U	0.4 U
1,2-Dichloropropane		0.65 U	0.69 U	2 U	0.67 U	2.8 U	0.46 U
1,3,5-Trimethylbenzene		0.69 U	0.73 U	2.1 U	0.71 U	**14**	0.49 U
1,3-Butadiene		0.31 U	0.33 U	0.95 U	0.32 U	1.4 U	0.22 U
1,3-Dichlorobenzene		0.84 U	0.9 U	2.6 U	0.87 U	3.7 U	0.6 U
1,4-Dichlorobenzene		0.84 U	0.9 U	2.6 U	0.87 U	3.7 U	0.6 U
1,4-Dioxane		0.5 U	0.54 U	1.5 U	0.52 U	2.2 U	0.36 U
2-Butanone (MEK)		2.1 U	2.2 U	6.3 U	2.1 U	9 U	1.5 U
2-Hexanone		2.9 U	3 U	8.8 U	3 U	12 U	2 U
2-Propanol		1.7 U	1.8 U	5.2 U	1.8 U	7.5 U	1.2 U
3-Chloropropene		2.2 U	2.3 U	6.7 U	2.3 U	9.6 U	1.6 U
4-Ethyltoluene		0.69 U	**2.2**	**3.7**	**0.76**	**45**	0.49 U
4-Methyl-2-pentanone (MIBK)		0.57 U	0.61 U	1.8 U	0.59 U	2.5 U	0.41 U
Acetone		**8.5**	**5.9**	**8.4**	**2.1**	7.3 U	1.2 U
Benzene		0.45 U	**0.63**	1.4 U	0.46 U	**46**	0.32 U
Benzyl chloride		0.72 U	0.77 U	2.2 U	0.75 U	3.2 U	0.52 U
Bromodichloromethane		0.94 U	1 U	2.9 U	0.97 U	4.1 U	0.67 U
Bromoform		1.4 U	1.5 U	4.4 U	1.5 U	6.3 U	1 U
Bromomethane		2.7 U	2.9 U	8.3 U	2.8 U	12 U	1.9 U
Carbon disulfide		2.2 U	2.3 U	6.7 U	2.2 U	**31 J**	1.6 U
Carbon tetrachloride		0.88 UJ	0.94 UJ	2.7 UJ	0.91 UJ	3.8 UJ	0.63 UJ
Chlorobenzene		0.64 U	0.68 U	2 U	0.67 U	2.8 U	0.46 U
Chloroethane		1.8 U	2 U	5.6 U	1.9 U	8.1 U	1.3 U
Chloroform		0.68 U	**8.3**	**26**	**1.8**	**50**	0.49 U
Chloromethane		**0.39**	0.31 U	0.88 U	0.3 U	1.3 U	0.21 U
cis-1,2-Dichloroethene		0.56 U	**3.4**	1.7 U	**1.3**	2.4 U	0.4 U

Table 16 Summary of Volatile Organic Compounds in Soil Vapor, 810 River Avenue, Bronx, New York

Parameter (Concentrations in ug/m^3)	Sample Designation: / Sample Date:	SV-1 2/26/2013	SV-2 2/26/2013	SV-3 2/26/2013	SV-4 2/26/2013	SV-5 2/26/2013	Lab Blank 3/4/2013
cis-1,3-Dichloropropene		0.64 U	0.68 U	1.9 U	0.66 U	2.8 U	0.45 U
Cyclohexane		0.48 U	**1.1**	**2.4**	**0.55**	**34**	0.34 U
Dibromochloromethane		1.2 U	1.3 U	3.6 U	1.2 U	5.2 U	0.85 U
Dichlorodifluoromethane		**3.4**	**3.8**	**7.8**	**3.1**	**11**	0.49 U
Ethanol		**8.6**	**4.7**	**9.2**	2.7 U	12 U	1.9 U
Ethylbenzene		0.61 U	**1.9**	**2.4**	**0.78**	**78**	0.43 U
Freon 113		1.1 U	1.1 U	3.3 U	1.1 U	4.7 U	0.77 U
Freon 114		0.98 U	1 U	3 U	1 U	4.3 U	0.7 U
Heptane		0.57 U	0.61 U	1.8 U	0.59 U	**43**	0.41 U
Hexachlorobutadiene		7.5 U	7.9 U	23 U	7.7 U	33 U	5.3 U
Hexane		**0.57**	**0.62**	**1.6**	0.51 U	**39**	0.35 U
Isooctane		3.3 U	3.5 U	10 U	3.4 U	**230**	2.3 U
Isopropylbenzene		0.69 U	0.73 U	2.1 U	0.71 U	**5.4**	0.49 U
m+p-Xylene		0.61 U	**6.5**	**7.2**	**3.9**	**290**	0.43 U
Methylene chloride		**1.5**	1 U	3 U	**0.99 J**	**6.4**	0.69 U
MTBE		0.5 U	0.54 U	1.5 U	0.52 U	2.2 U	0.36 U
n-Propylbenzene		0.69 U	0.73 U	2.1 U	0.71 U	**10**	0.49 U
o-Xylene		0.61 U	**3.1**	**2.7**	**1.6**	**88**	0.43 U
Styrene		0.6 U	**0.67**	1.8 U	0.62 U	2.6 U	0.42 U
Tetrachloroethene		**10**	**370**	**750**	**260**	**850**	0.68 U
Tetrahydrofuran		2.1 U	2.2 U	6.3 U	2.1 U	9 U	1.5 U
Toluene		0.53 U	**3.8**	**4.3**	**1.8**	**360**	0.38 U
trans-1,2-Dichloroethene		0.56 U	0.59 U	1.7 U	0.57 U	2.4 U	0.4 U
trans-1,3-Dichloropropene		0.64 U	0.68 U	1.9 U	0.66 U	2.8 U	0.45 U
Trichloroethene		**6.3**	**29**	**17**	**15**	**8.3**	0.54 U
Trichlorofluoromethane		**1.7**	**1.8**	**3.2**	**1.8**	3.4 U	0.56 U
Vinyl chloride		0.36 U	0.38 U	1.1 U	0.37 U	1.6 U	0.26 U

J - Estimated value
E - Indicates value exceeded calibration range
U - Indicates that the compound was analyzed for but not detected
ug/m^3 - Micrograms per cubic meter
Bold data indicates that parameter was detected

TABLE 17

Project Permit Listing

To Be Updated as Project Progresses

Permit	*Permit Number*	*Originating Agency*	*Pursuant to*	*Issued*	*Expires*	*Contact Phone*
DM-DEMO	220358137-01-DM	NYCDOB	Building demolition	6/10/2014	10/27/2014	866-707-0004
DM-DEMO	220358137-01-EQ-FN	NYCDOB	Building demolition - Construction Fence	6/10/2014	6/10/2015	866-707-0004
A3-Alt 3	220392732-01-EQ-SH	NYCDOB	Sidewalk Shed	7/3/2014	7/3/2014	718-529-0508
A2-Alt 2	240051055-01-EW-SD	NYCDOB	Temp Air press. Alarm system for dry standpipe	10/14/2014	10/14/2015	718-994-1454

Table 18
Emergency Contact List

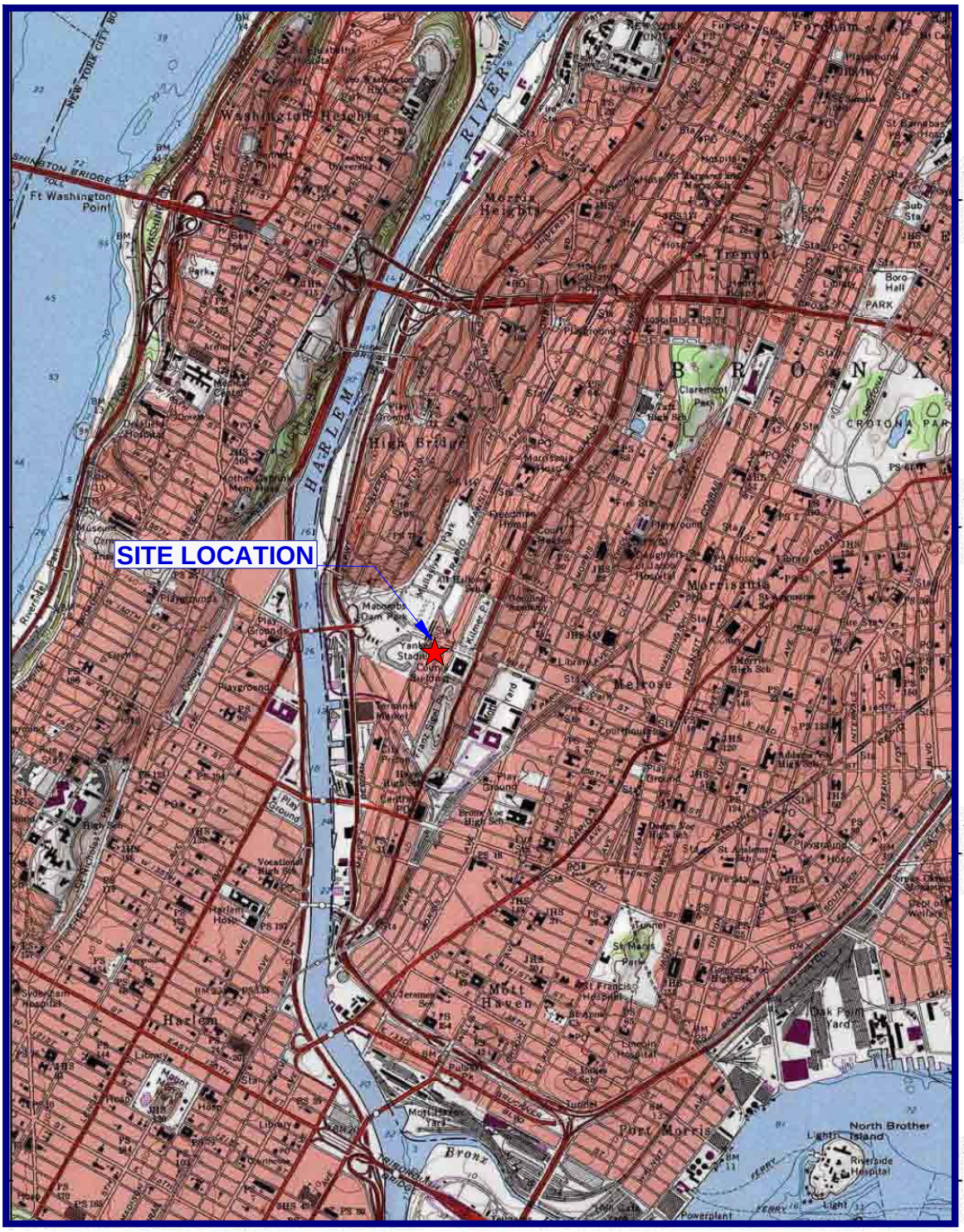
General Contacts

General Emergencies	911
NYC Police	911
NYC Fire Department	911
NYC Department of Health	212-676-2400
Lincoln Medical Center	718-579-6010
Poison Control	800-222-1222
National Response Center	800-424-8802
NYSDEC Spills Hotline	800-457-7362

Project Contacts

NYSDEC Project Manager	Michael MacCabe	518-402-9687
NYSDOH Project Manager	Krista Anders	518-402-7860
EBC Project Manager	Kevin Brussee	631-504-6000
EBC BCP Program Manager	Charles Sosik	631-504-6000
EBC Site Safety Officer	Chawinie Miller	631-504-6000
Remedial Engineer	Ariel Czemerinski	516-987-1662
Construction Manager	Adam Melnick	718-292-6400

FIGURES

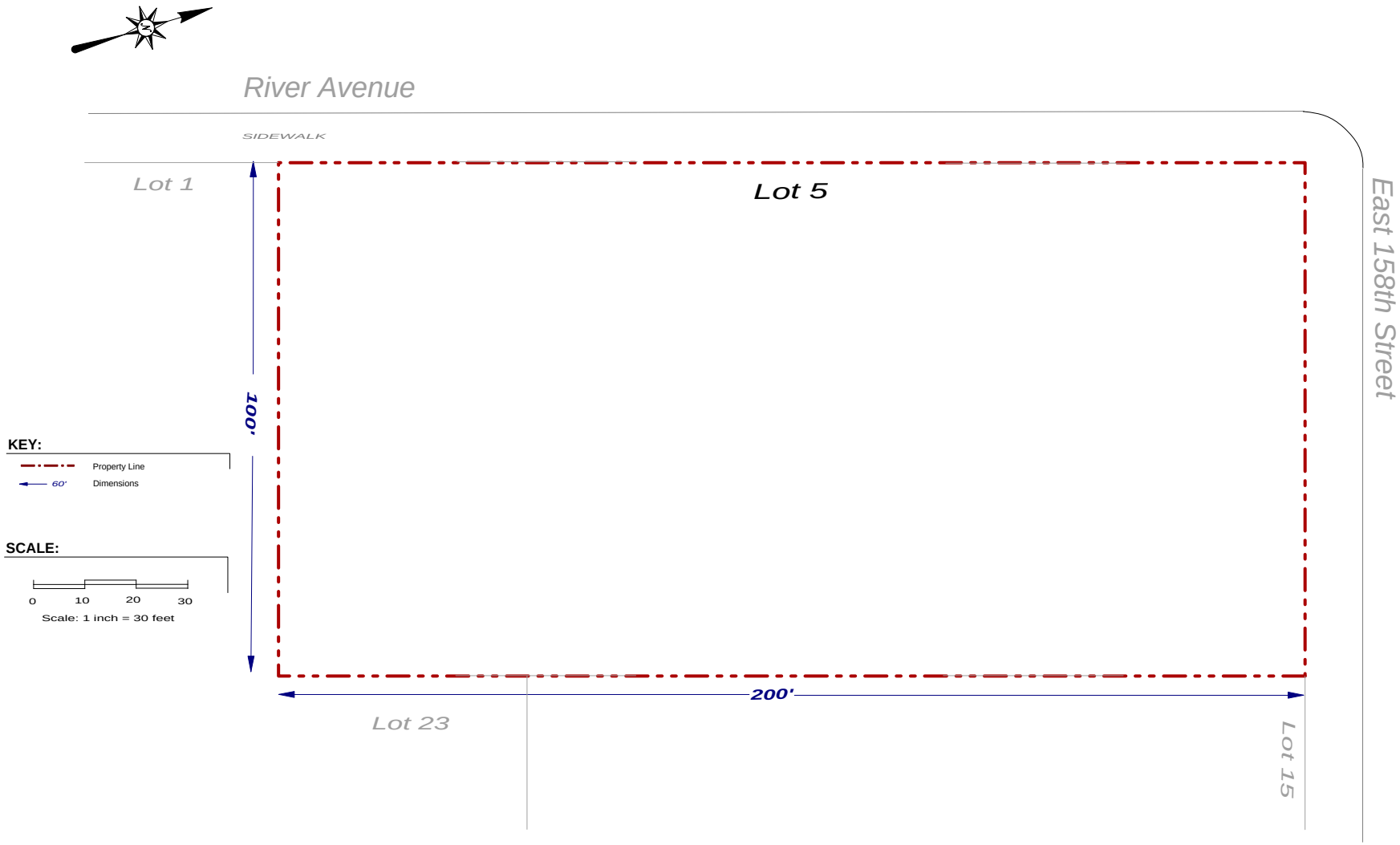


USGS Central Park Quadrangle 1995, Contour Interval = 10 feet

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
Phone 631.504.6000
Fax 631. 924 .2870

810 River Avenue, Bronx NY

FIGURE 1 SITE LOCATION MAP



EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631. 924 .2870

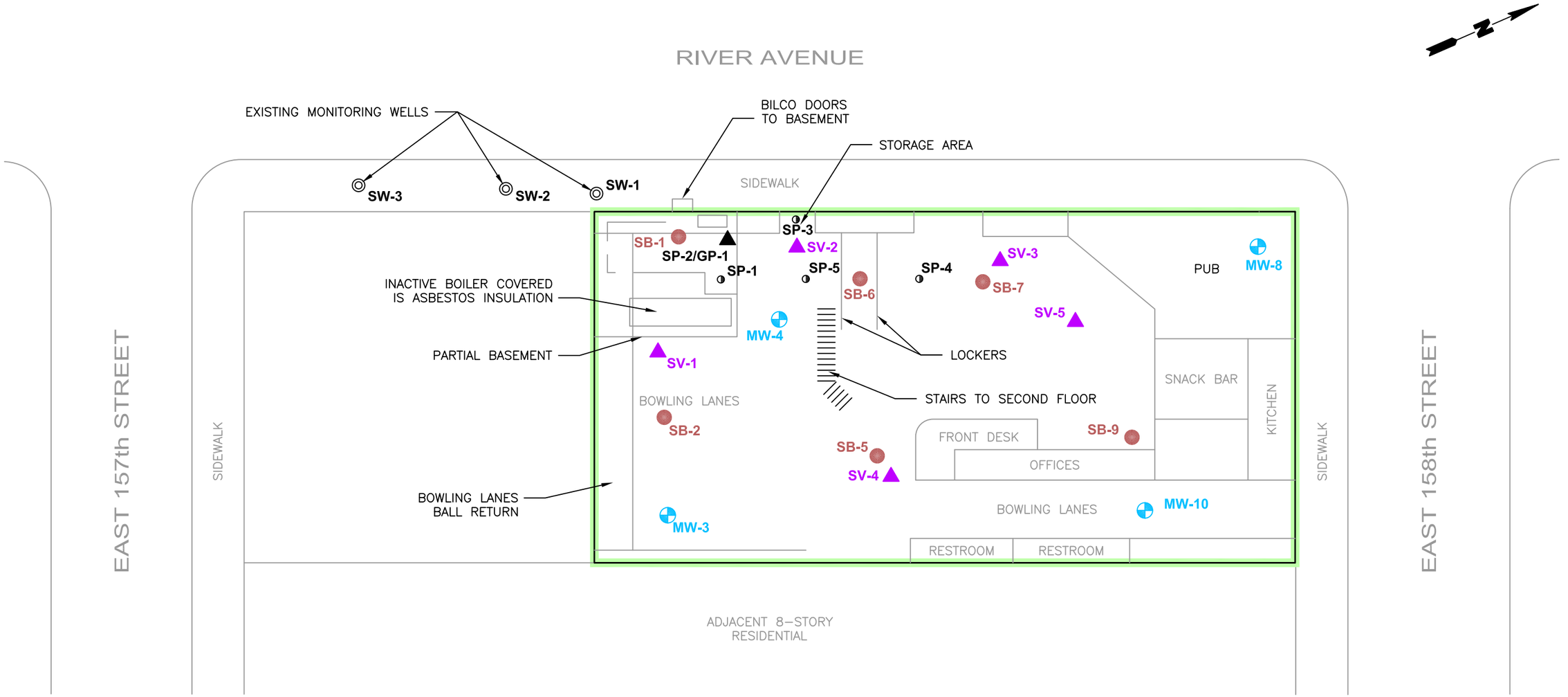
Figure No. 2

Site Name: Redevelopment Project
Site Address: 810 River Avenue, Bronx, NY
Drawing Title: Site Boundary Map

EBC
Environmental Business Consultants
1808 Middle Country Road. Ridge. NY 11961
Phone: 631.504.6000
Fax: 631.924.2780

810 RIVER
810 River Avenue, Bronx, NY

FIGURE 3 Project Site and Adjacent Properties



LEGEND

◑	FORMER SOIL PROBE LOCATION (SP)
▲	FORMER SOIL PROBE CONVERTED TO GROUNDWATER PROBE
SW-1 ◎	MONITORING WELL LOCATION IN ADJACENT PROPERTY
AST	ABOVE GROUND STORAGE TANK

PROPOSED PHASE II SCOPE OF WORK

2 ●	SOIL BORING (SOIL SAMPLE ONLY)
3 ⊕	2" MONITORING WELL (SOIL AND GROUNDWATER SAMPLE)
SV-1 ▲	SOIL VAPOR SAMPLE

30' 0 30'

Title:

Soil Boring, Groundwater and Soil Vapor Locations

810 RIVER AVENUE
BRONX, NEW YORK

Prepared For:

810 RIVER AVENUE, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.L.	Date: 26MAR13
Prepared by: J.A.D.	Scale: AS SHOWN
Project Mgr: J.L.	Project: 2174.001Y000
File: 2174.0001Y107.02.DWG	

FIGURE 4

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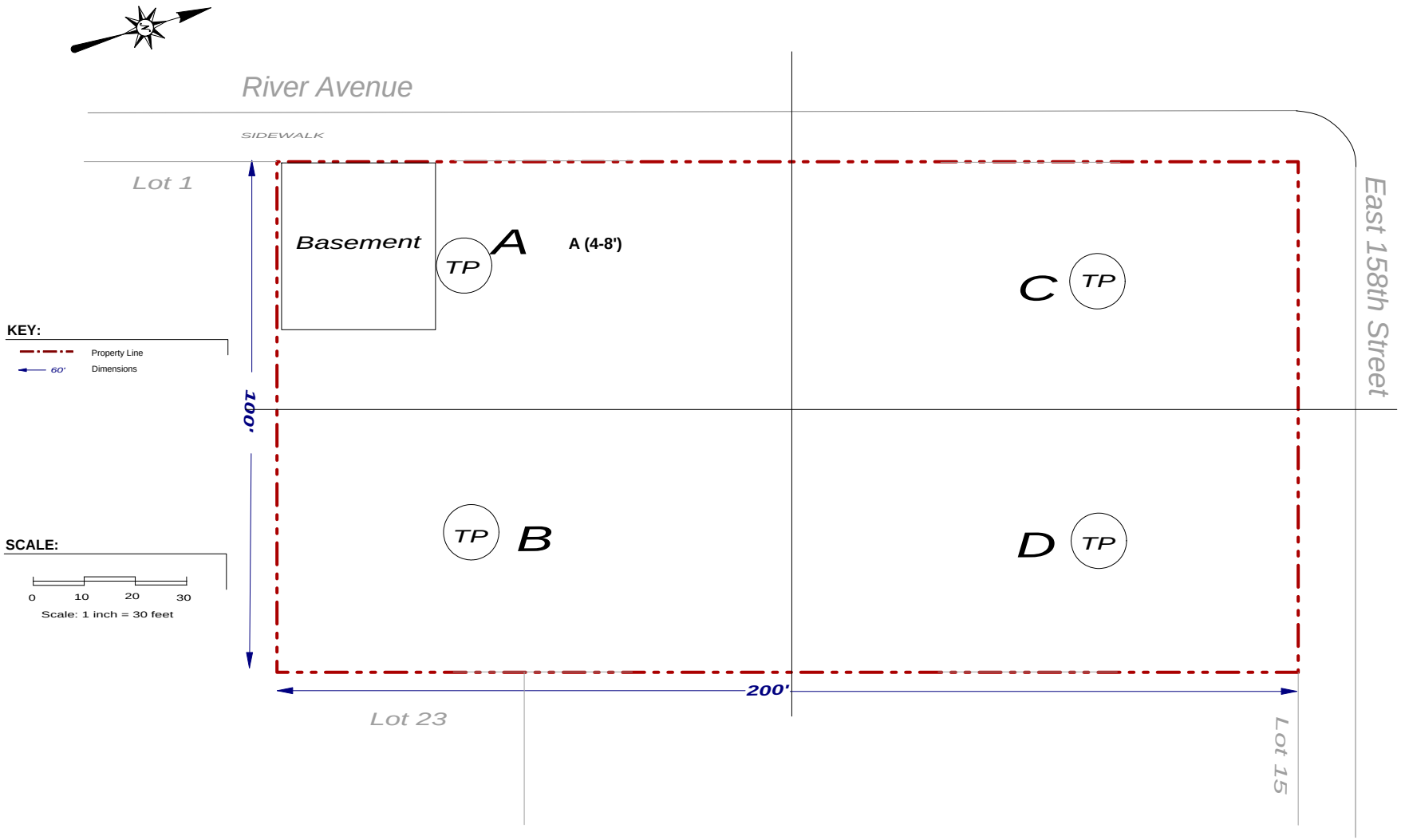
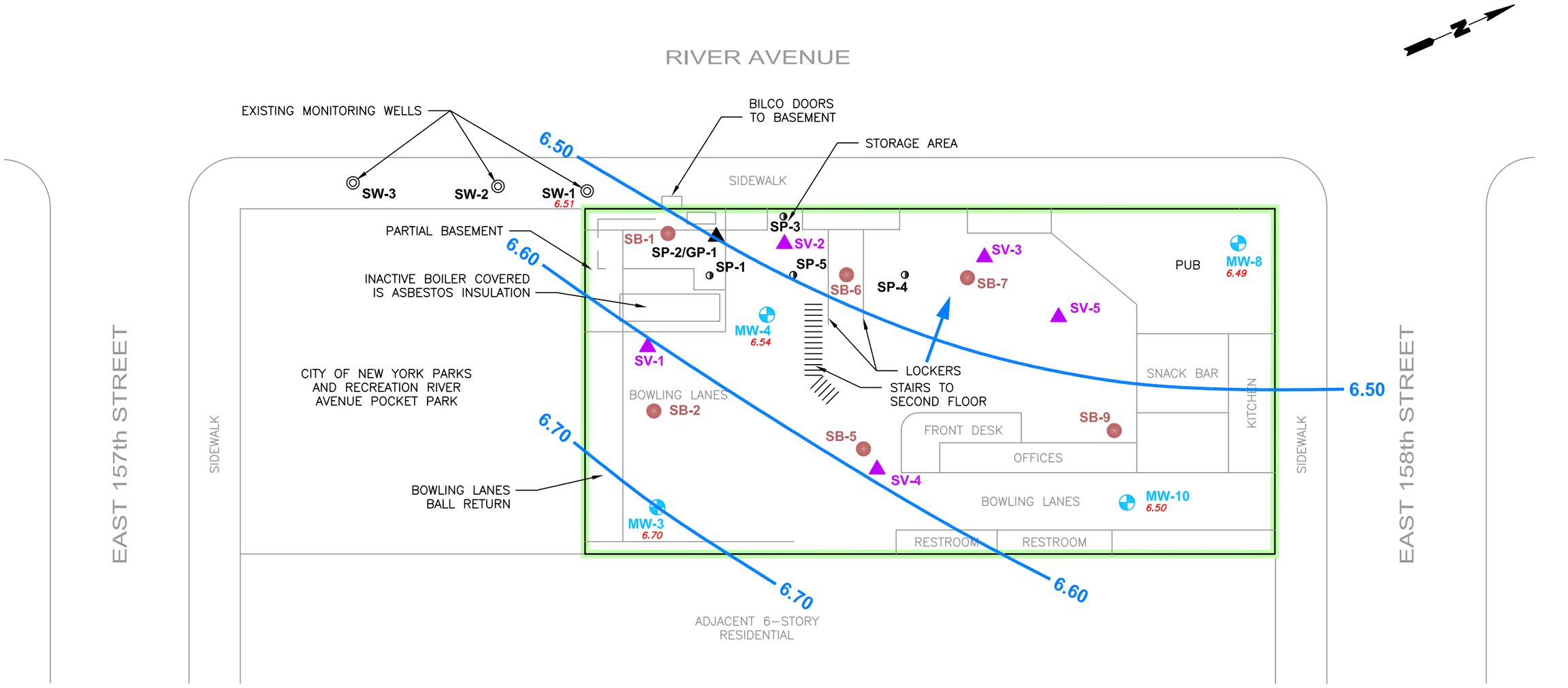


EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 5

Site Name: Redevelopment Project
Site Address: 810 River Avenue, Bronx, NY
Drawing Title: Test Pit Locations



LEGEND

◑	FORMER SOIL PROBE LOCATION (SP)
▲	FORMER SOIL PROBE CONVERTED TO GROUNDWATER PROBE
SW-1 ◎	MONITORING WELL LOCATION IN ADJACENT PROPERTY
2 ●	SOIL BORING (SOIL SAMPLE ONLY)
3 ⊕	2" MONITORING WELL (SOIL AND GROUNDWATER SAMPLE)
SV-1 ▲	SOIL VAPOR SAMPLE
AST	ABOVE GROUND STORAGE TANK
6.50	GROUNDWATER ELEVATION IN FEET RELATIVE TO MEAN SEA–LEVEL
6.54	LINE OF EQUAL GROUNDWATER ELEVATION
←	APPROXIMATE DIRECTION OF GROUNDWATER FLOW

30' 0 30'

Title:
GROUNDWATER FLOW MAP
FEBRUARY 22, 2013

810 RIVER AVENUE
BRONX, NEW YORK

Prepared For:
810 RIVER AVENUE, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.L.	Date: 09APR13	FIGURE 6
Prepared by: J.A.D.	Scale: AS SHOWN	
Project Mgr: J.L.	Project: 2174.001Y000	
File: 2174.0001Y107.03.DWG		

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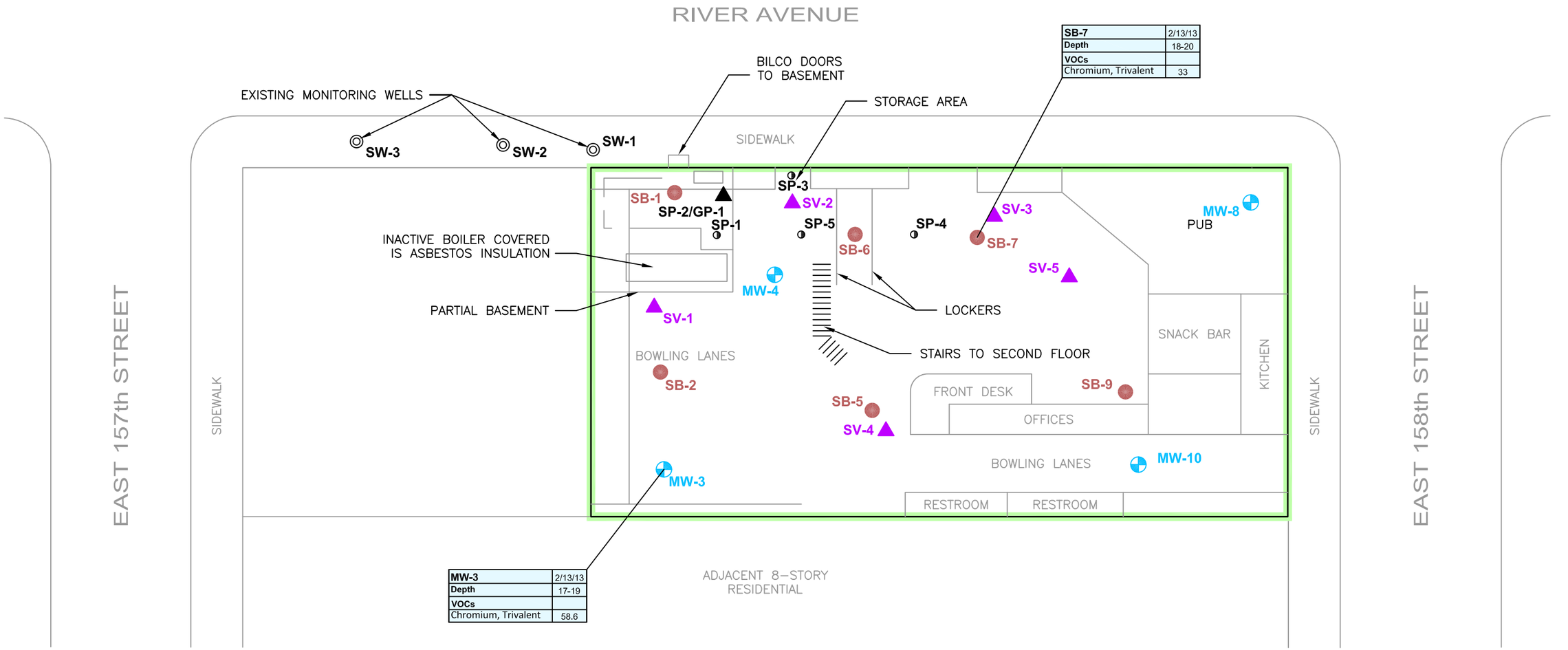

LEGEND

- ◑ FORMER SOIL PROBE LOCATION (SP)
- ▲ FORMER SOIL PROBE CONVERTED TO GROUNDWATER PROBE
- SW-1 ◎ MONITORING WELL LOCATION IN ADJACENT PROPERTY
- *AST* ABOVE GROUND STORAGE TANK

PROPOSED PHASE II SCOPE OF WORK

- 2 ● SOIL BORING (SOIL SAMPLE ONLY)
- 3 ⊕ 2" MONITORING WELL (SOIL AND GROUNDWATER SAMPLE)
- SV-1 ▲ SOIL VAPOR SAMPLE

NOTES

CONCENTRATIONS IN mg/kg

mg/kg – MICROGRAMS PER KILOGRAM

*NYSDEC PART 375 UNRESTRICTED USE SOIL STANDARDS

NYSDEC – NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

– – NOT DETECTED ABOVE NYSDEC PART 375 UNRESTRICTED USE SOIL STANDARDS

ND – NO DETECTION

Parameter (Concentrations in mg/kg)	Standards* (mg/kg)
METALs	
Chromium, Trivalent	30
Chromium	30

30' 0 30'

Title: SOIL DETECTIONS IN EXCESS OF PART 375 UUSCOs

810 RIVER AVENUE
BRONX, NEW YORK

Prepared For: 810 RIVER AVENUE, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.L.	Date: 09APR13	FIGURE 7
Prepared by: J.A.D.	Scale: AS SHOWN	
Project Mgr: J.L.	Project: 2174.001Y000	
File: 2174.0001Y107.04.DWG		

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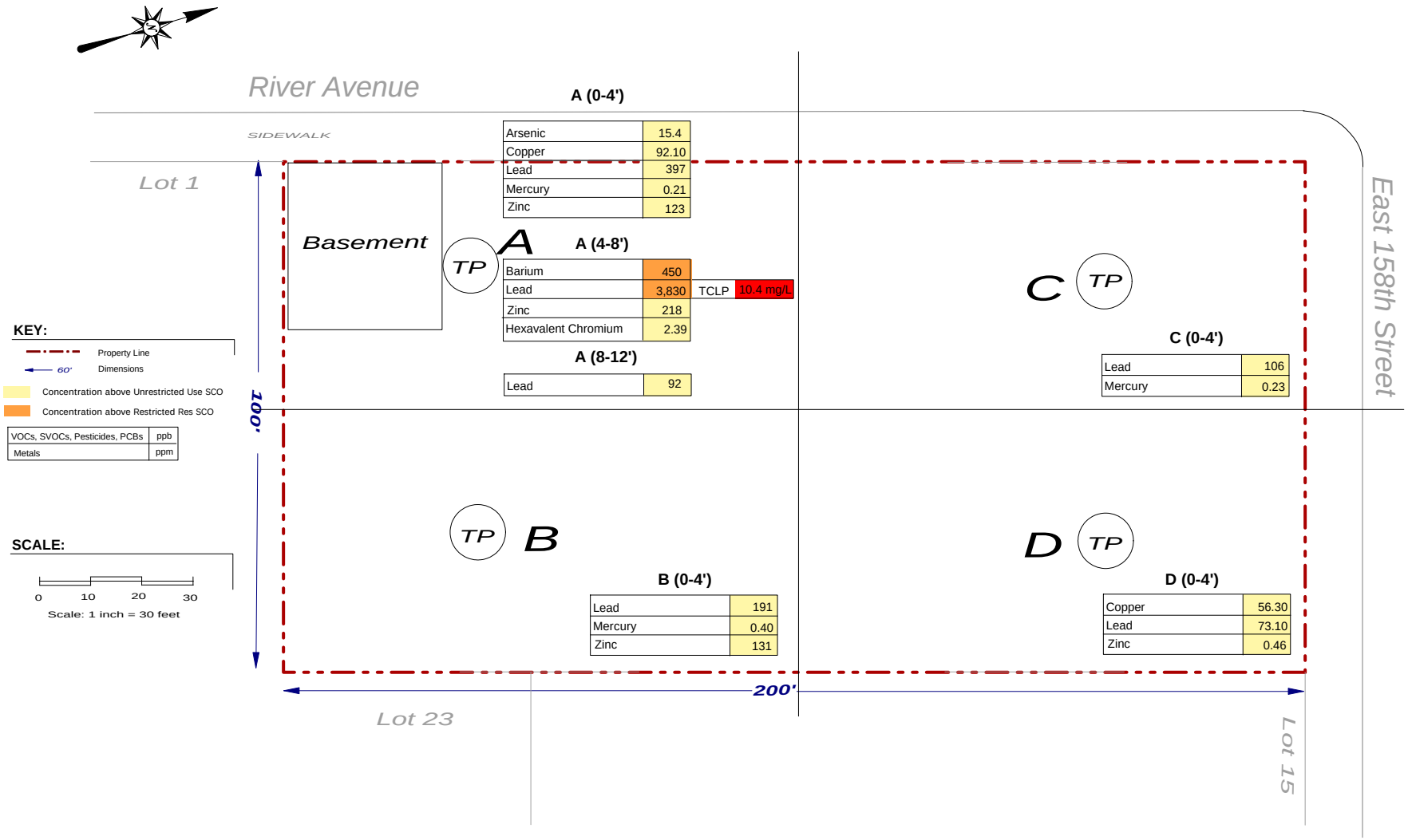

EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 8

Site Name: Redevelopment Project
Site Address: 810 River Avenue, Bronx, NY
Drawing Title: Test Pit Results Above Unrestricted SCOs

SW-1	2/22/13
Analyte	
VOCs	NE
METALs, Total	
Manganese	1600
METALs, Filtered	
Manganese	1580

MW-4	2/22/13
Analyte	
VOCs	
Chloroform	10.9
cis-1,2-Dichloroethene	161
Tetrachloroethene	223
Trichloroethene	135

MW-8	2/22/13
Analyte	
VOCs	
Chloroform	6.6
cis-1,2-Dichloroethene	77.3
Tetrachloroethene	135
Trichloroethene	51
METALs, Total	
Beryllium	3.2
Chromium	109
Manganese	1310
METALs, Filtered	NE

RIVER AVENUE

EXISTING MONITORING WELLS

SW-1 SW-2 SW-3

BILCO DOORS TO BASEMENT

STORAGE AREA

SIDEWALK

SP-1 SP-2/GP-1 SP-3 SP-4 SP-5

SV-1 SV-2 SV-3 SV-4 SV-5

SB-1 SB-2 SB-5 SB-6 SB-7 SB-9

MW-3 MW-4 MW-8 MW-10

INACTIVE BOILER COVERED IS ASBESTOS INSULATION

PARTIAL BASEMENT

LOCKERS

STAIRS TO SECOND FLOOR

PUB

BOWLING LANES

SNACK BAR

KITCHEN

FRONT DESK

OFFICES

BOWLING LANES

RESTROOM RESTROOM

EAST 157th STREET

EAST 158th STREET

SIDEWALK

SIDEWALK

ADJACENT 8–STORY RESIDENTIAL

MW-3	2/22/13
Analyte	
VOCs	
Chloroform	10.5
cis-1,2-Dichloroethene	265
Tetrachloroethene	198
trans-1,2-Dichloroethene	13.7
Trichloroethene	135
METALs, Total	
Manganese	366
METALs, Filtered	NE

MW-10	2/22/13	2/22/13
Analyte		DUP
VOCs		
cis-1,2-Dichloroethene	179	173
Tetrachloroethene	292	269
trans-1,2-Dichloroethene	NE	5.1
Trichloroethene	125	118

LEGEND

- FORMER SOIL PROBE LOCATION (SP)
- FORMER SOIL PROBE CONVERTED TO GROUNDWATER PROBE
- SW-1 ◎ MONITORING WELL LOCATION IN ADJACENT PROPERTY
- *AST* ABOVE GROUND STORAGE TANK

PROPOSED PHASE II SCOPE OF WORK

- 2 SOIL BORING (SOIL SAMPLE ONLY)
- 3 2" MONITORING WELL (SOIL AND GROUNDWATER SAMPLE)
- SV-1 SOIL VAPOR SAMPLE

NOTES

CONCENTRATIONS IN µg/L

µg/L – MICROGRAMS PER LITER

*NYSDEC AWQSGVs

NYSDEC – NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AWQSGVs – AMBIENT WATER–QUALITY STANDARDS AND GUIDANCE VALUES

– – NOT DETECTED ABOVE NYSDEC AWQSGV

DUP – DUPLICATE SAMPLE

VOCs – VOLATILE ORGANIC COMPOUNDS

NE – NO EXCEEDANCES

Parameter (Concentrations in µg/L)	Standards* (µg/L)
VOCs	
Chloroform	7
cis-1,2-Dichloroethene	5
Tetrachloroethene	5
trans-1,2-Dichloroethene	5
Trichloroethene	5
METALs	
Beryllium	3
Chromium	50
Manganese	300

30' 0 30'

Title:

GROUNDWATER DETECTIONS IN EXCESS OF AWQSGVs

810 RIVER AVENUE
BRONX, NEW YORK

Prepared For:

810 RIVER AVENUE, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.L.	Date: 05APR13	FIGURE
Prepared by: J.A.D.	Scale: AS SHOWN	9
Project Mgr: J.L.	Project: 2174.001Y000	
File: 2174.0001Y107.04.DWG		

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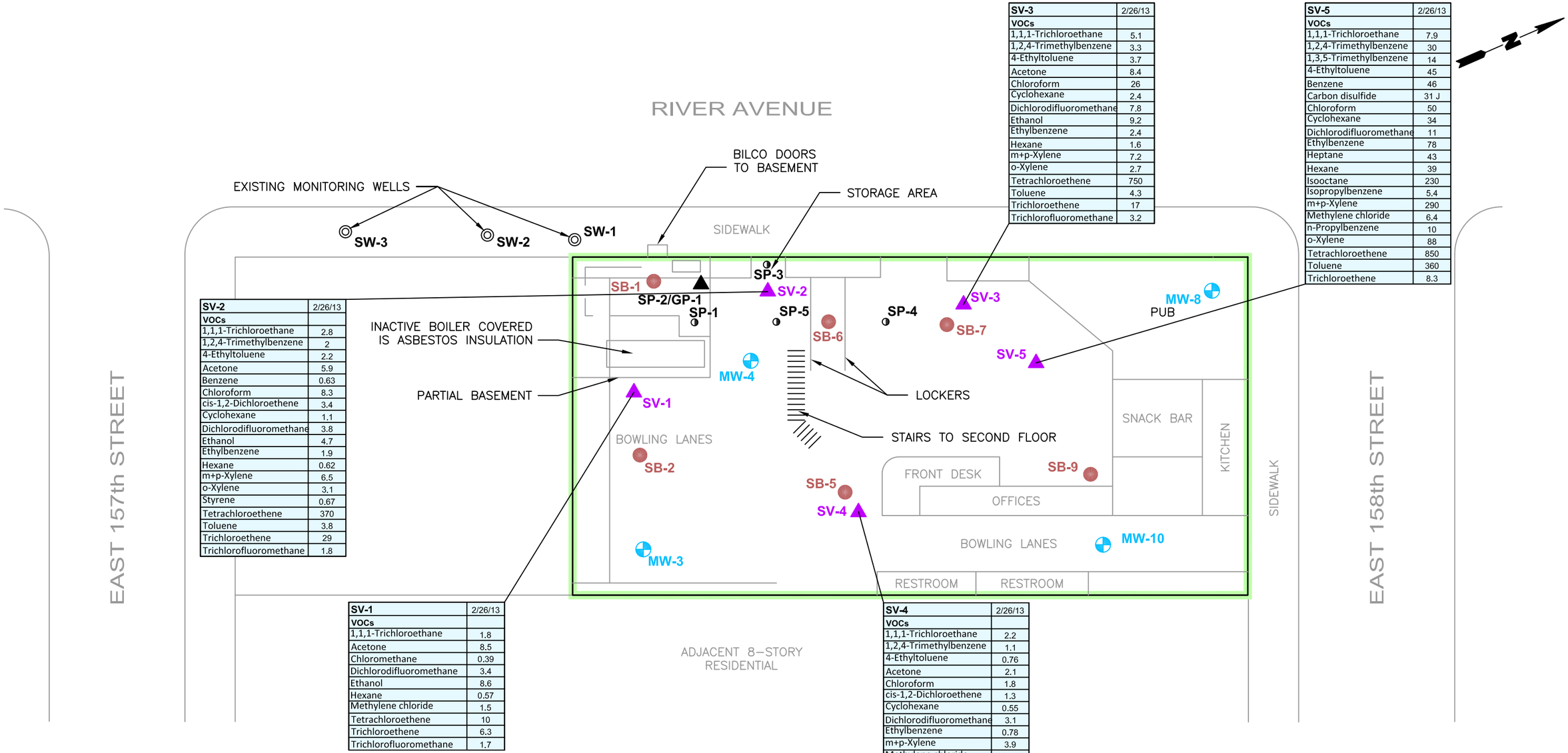

SV-2	2/26/13
VOCs	
1,1,1-Trichloroethane	2.8
1,2,4-Trimethylbenzene	2
4-Ethyltoluene	2.2
Acetone	5.9
Benzene	0.63
Chloroform	8.3
cis-1,2-Dichloroethene	3.4
Cyclohexane	1.1
Dichlorodifluoromethane	3.8
Ethanol	4.7
Ethylbenzene	1.9
Hexane	0.62
m+p-Xylene	6.5
o-Xylene	3.1
Styrene	0.67
Tetrachloroethene	370
Toluene	3.8
Trichloroethene	29
Trichlorofluoromethane	1.8

SV-3	2/26/13
VOCs	
1,1,1-Trichloroethane	5.1
1,2,4-Trimethylbenzene	3.3
4-Ethyltoluene	3.7
Acetone	8.4
Chloroform	26
Cyclohexane	2.4
Dichlorodifluoromethane	7.8
Ethanol	9.2
Ethylbenzene	2.4
Hexane	1.6
m+p-Xylene	7.2
o-Xylene	2.7
Tetrachloroethene	750
Toluene	4.3
Trichloroethene	17
Trichlorofluoromethane	3.2

SV-5	2/26/13
VOCs	
1,1,1-Trichloroethane	7.9
1,2,4-Trimethylbenzene	30
1,3,5-Trimethylbenzene	14
4-Ethyltoluene	45
Benzene	46
Carbon disulfide	31 J
Chloroform	50
Cyclohexane	34
Dichlorodifluoromethane	11
Ethylbenzene	78
Heptane	43
Hexane	39
Isooctane	230
Isopropylbenzene	5.4
m+p-Xylene	290
Methylene chloride	6.4
n-Propylbenzene	10
o-Xylene	88
Tetrachloroethene	850
Toluene	360
Trichloroethene	8.3

SV-1	2/26/13
VOCs	
1,1,1-Trichloroethane	1.8
Acetone	8.5
Chloromethane	0.39
Dichlorodifluoromethane	3.4
Ethanol	8.6
Hexane	0.57
Methylene chloride	1.5
Tetrachloroethene	10
Trichloroethene	6.3
Trichlorofluoromethane	1.7

SV-4	2/26/13
VOCs	
1,1,1-Trichloroethane	2.2
1,2,4-Trimethylbenzene	1.1
4-Ethyltoluene	0.76
Acetone	2.1
Chloroform	1.8
cis-1,2-Dichloroethene	1.3
Cyclohexane	0.55
Dichlorodifluoromethane	3.1
Ethylbenzene	0.78
m+p-Xylene	3.9
Methylene chloride	0.99 J
o-Xylene	1.6
Tetrachloroethene	260
Toluene	1.8
Trichloroethene	15
Trichlorofluoromethane	1.8

LEGEND

- FORMER SOIL PROBE LOCATION (SP)
- FORMER SOIL PROBE CONVERTED TO GROUNDWATER PROBE
- SW-1 MONITORING WELL LOCATION IN ADJACENT PROPERTY
- AST ABOVE GROUND STORAGE TANK

PROPOSED PHASE II SCOPE OF WORK

- 2 SOIL BORING (SOIL SAMPLE ONLY)
- 3 2" MONITORING WELL (SOIL AND GROUNDWATER SAMPLE)
- SV-1 SOIL VAPOR SAMPLE

NOTES

CONCENTRATIONS IN µg/m³

µg/m³ - MICROGRAMS PER CUBIC METER

J – ESTIMATED VALUE

Title:

SOIL VAPOR DETECTIONS

810 RIVER AVENUE
BRONX, NEW YORK

Prepared For:

810 RIVER AVENUE, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.L.	Date: 09APR13	FIGURE 10
Prepared by: J.A.D.	Scale: AS SHOWN	
Project Mgr: J.L.	Project: 2174.001Y000	
File: 2174.0001Y107.04.DWG		

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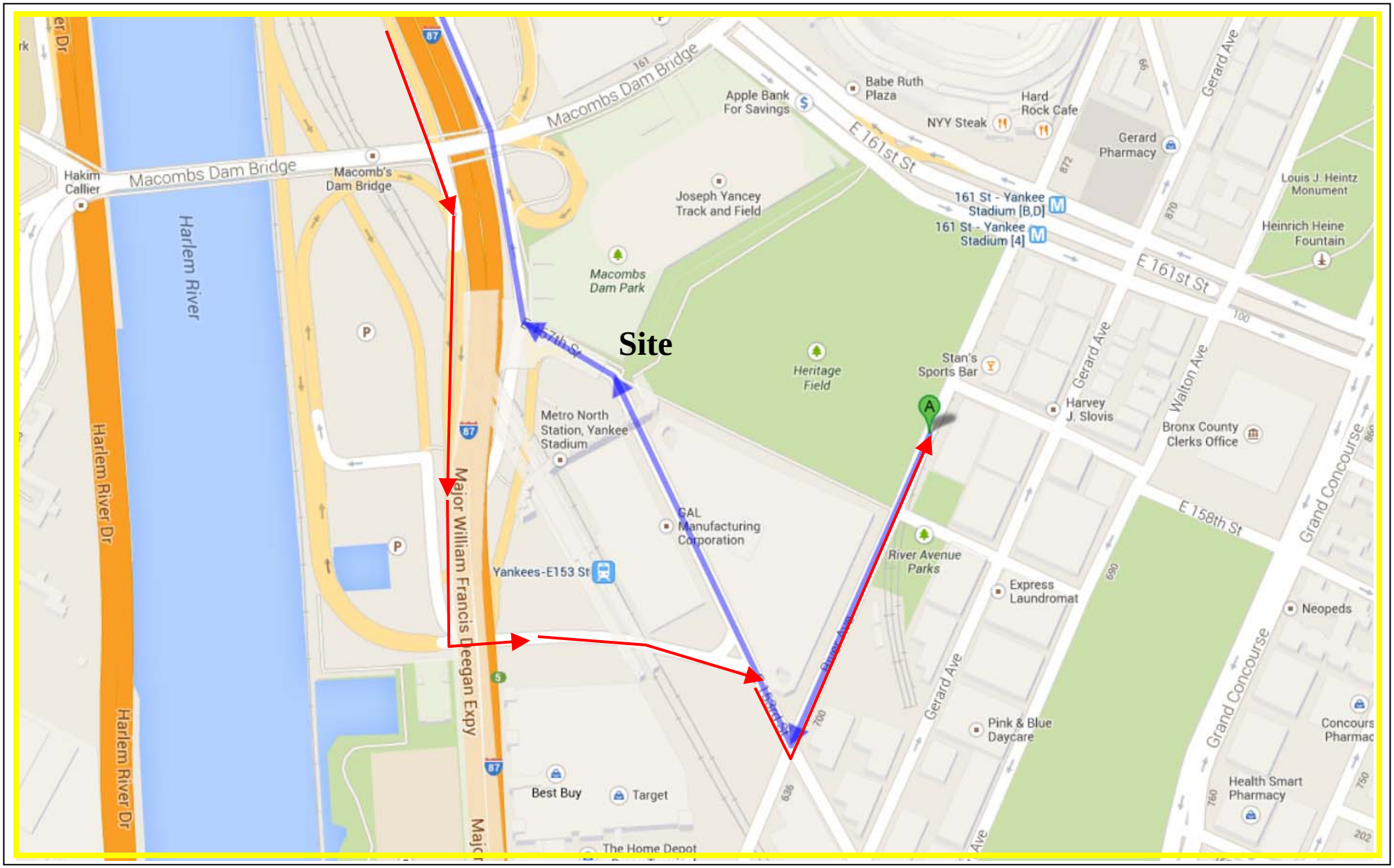

FIGURE 11
TRUCK ROUTE MAP

810 RIVER AVENUE, BRONX, NY

REMEDIAL ACTION WORK PLAN

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD, RIDGE, NEW YORK 11961
PHONE: (631) 504-6000 FAX: (631) 924-2870

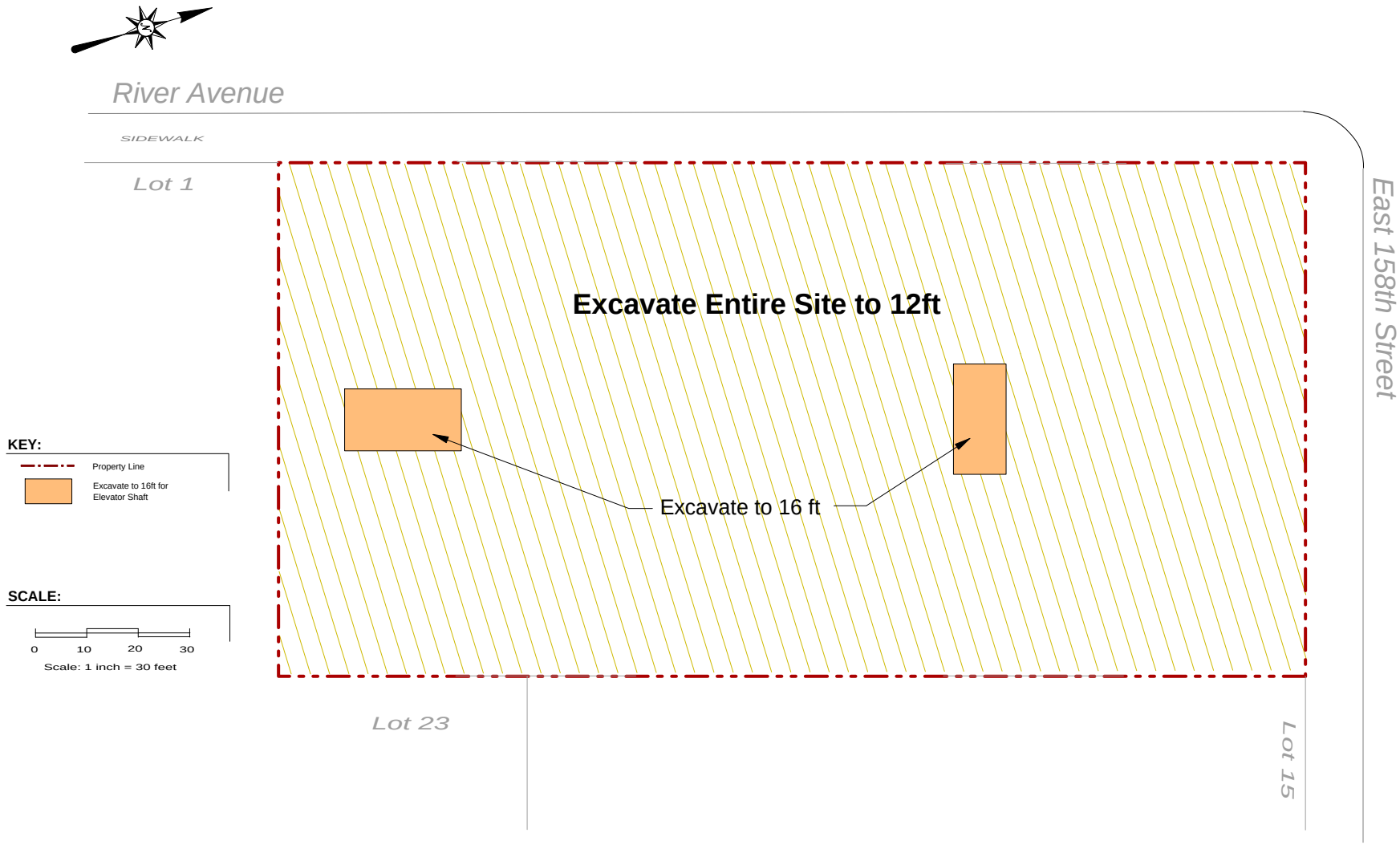

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Figure No. 12

Site Name: Redevelopment Project
Site Address: 810 River Avenue, Bronx, NY
Drawing Title: Excavation Plan

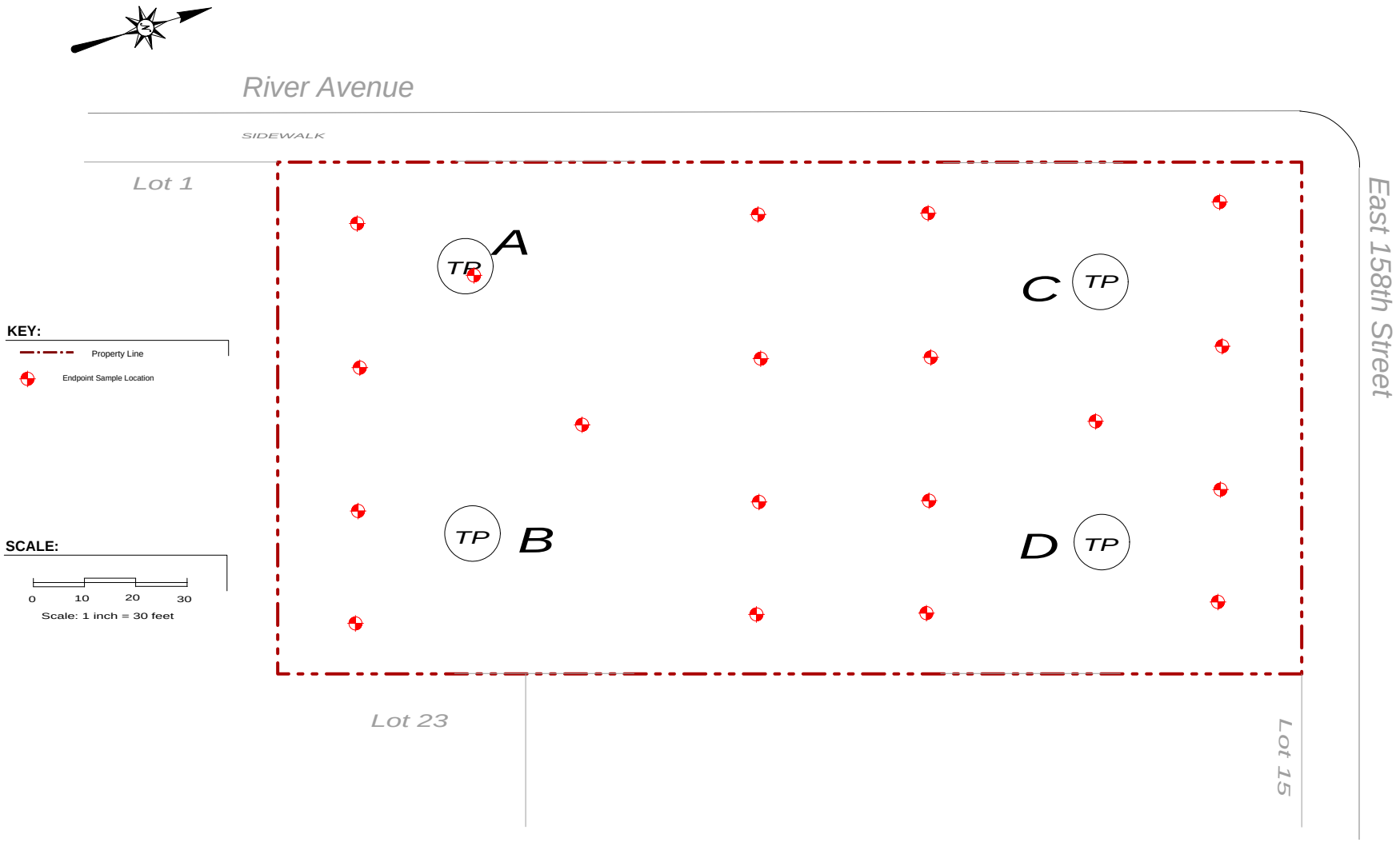

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Figure No. 13

Site Name: REDEVELOPMENT PROJECT
Site Address: 810 RIVER AVENUE, BRONX, NY
Drawing Title: ENDPOINT SAMPLING LOCATIONS

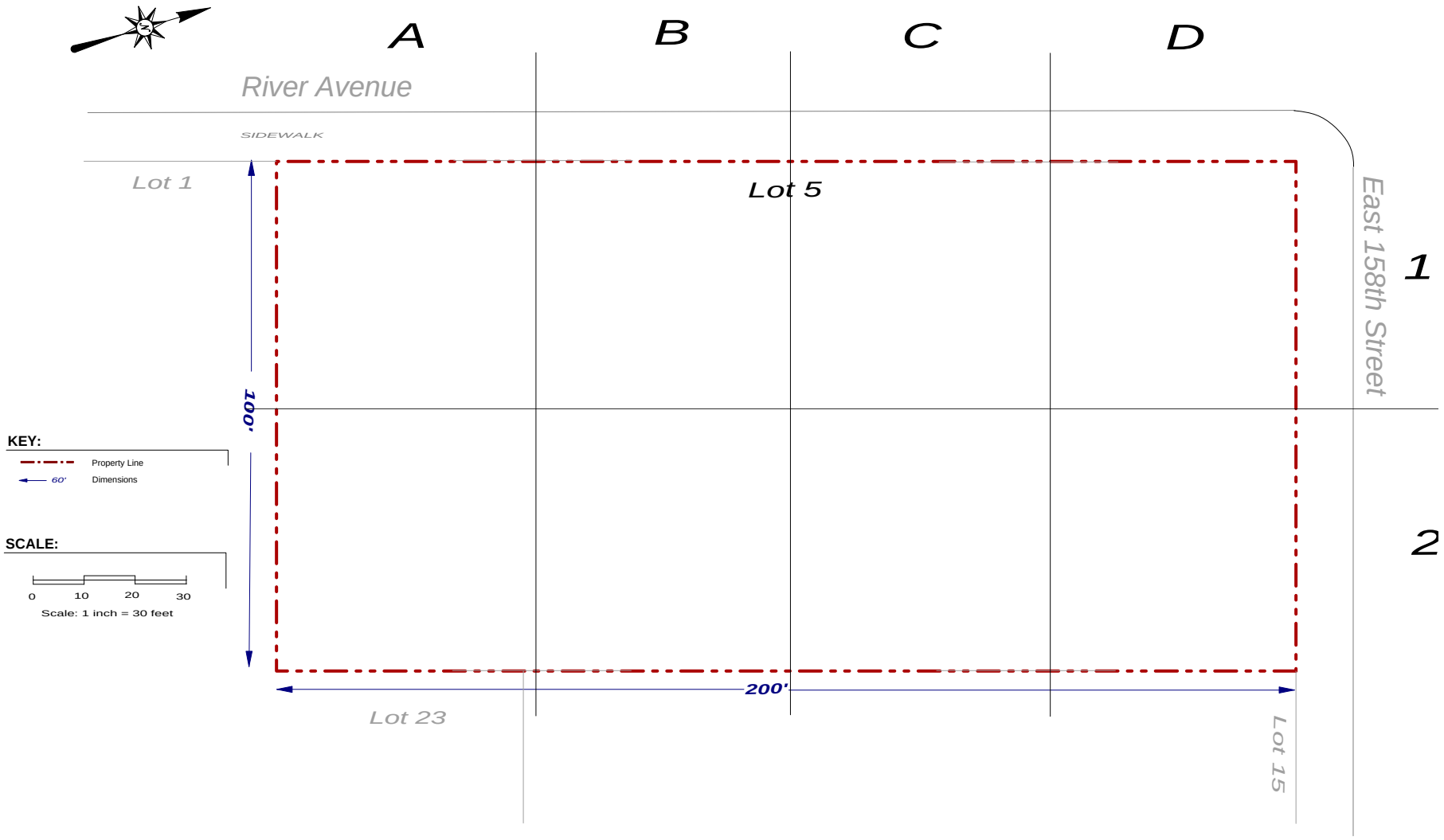

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Figure No. 14

Site Name: Redevelopment Project
Site Address: 810 River Avenue, Bronx, NY
Drawing Title: Alpha-Numeric Grid Map

ATTACHMENT A
Metes and Bounds Description of Property

ALL that certain plot, piece or parcel of land, situate, lying and being in the Borough and County of the BRONX, City and State of NEW YORK, bounded and described as follows:

BEGINNING at the corner formed by the intersection of the southerly side of 158TH STREET with the easterly side of RIVER AVENUE:

RUNNING THENCE easterly along the southerly side of 158TH STREET, 100 feet;

THENCE southerly parallel with said easterly side of RIVER AVENUE, 200 feet;

RUNNING THENCE westerly and parallel with the southerly side of 158TH STREET 100 feet to the easterly side of RIVER AVENUE;

THENCE northerly, along said easterly side of RIVER AVENUE, 200 feet to the point or place of BEGINNING.

ATTACHMENT B
Health and Safety Plan

810 RIVER AVENUE

BRONX, NEW YORK
Block 2483, Lot 5

CONSTRUCTION HEALTH AND SAFETY PLAN

MARCH 2014

Prepared By:

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS

1808 Middle Country Road
Ridge, NY 11961

HEALTH AND SAFETY PLAN

Site:	**Redevelopment Project**
Location:	**810 River Avenue, Bronx, NY**
Prepared By:	**ENVIRONMENTAL BUSINESS CONSULTANTS**
Date Prepared:	**March - 2014**
Version:	**1**
Revision:	**0**
Project Description:	
Waste types:	Solid
Characteristics:	Metals in historic fill (From grade to depths as great as 4 feet)
Overall Hazard:	Low

ENVIRONMENTAL BUSINESS CONSULTANTS (EBC) AND EBC'S SUBCONTRACTORS DO NOT GUARANTEE THE HEALTH OR SAFETY OF ANY PERSON ENTERING THIS SITE. DUE TO THE NATURE OF THIS SITE AND THE ACTIVITY OCCURRING THEREON, IT IS NOT POSSIBLE TO DISCOVER, EVALUATE, AND PROVIDE PROTECTION FOR ALL POSSIBLE HAZARDS WHICH MAY BE ENCOUNTERED. STRICT ADHERENCE TO THE HEALTH AND SAFETY GUIDELINES SET FORTH HEREIN WILL REDUCE, BUT NOT ELIMINATE, THE POTENTIAL FOR INJURY AT THIS SITE. THE HEALTH AND SAFETY GUIDELINES IN THIS PLAN WERE PREPARED SPECIFICALLY FOR THIS SITE AND SHOULD NOT BE USED ON ANY OTHER SITE WITHOUT PRIOR RESEARCH AND EVALUATION.

CONSTRUCTION HEALTH AND SAFETY PLAN
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STATEMENT OF COMMITMENT

This Health and Safety Plan (HASP) has been prepared to ensure that workers are not exposed to risks from hazardous materials during the Remedial Activities planned for 810 River Avenue, Bronx, New York.

This HASP, which applies to persons present at the site actually or potentially exposed to hazardous materials, describes emergency response procedures for actual and potential chemical hazards. This HASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. The General Contractor and their subcontractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees. The General contractor has the option of adopting this HASP or providing its own for the planned scope of work under the Remedial Action Plan.

1.0 INTRODUCTION

This document describes the health and safety guidelines developed by Environmental Business Consultants (EBC) for implementation of a Remedial Action Plan at a Redevelopment Project located at 810 River Avenue, Bronx, New York, to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes during the removal of underground storage tanks and the excavation and loading of contaminated soil. In accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response Final rule, this CHASP, including the attachments, addresses safety and health hazards related to subsurface sample collection activities and is based on the best information available. The CHASP may be revised by EBC at the request of 810 River Avenue LLC, ("the developer") and/or the New York State Department of Environmental Conservation (DEC) upon receipt of new information regarding site conditions. Changes will be documented by written amendments signed by EBC's Project Manager, site safety officer and/or the EBC Health and Safety Consultant.

1.1 Scope

This CHASP addresses the potential hazards related to the site Remedial Action Plan (RAP). The RAP activities are as described below:

1) Site mobilization of General Contractor (GC) and Subcontractors to install the buildings' foundations.
    a) Excavate historic fill required for construction of the new proposed building.

1.2 Application

The HASP applies to all personnel involved in the above tasks who wish to gain access to active work areas, including but not limited to:

- General Contractor
- EBC employees and subcontractors;
- Client representatives; and
- Federal, state or local representatives.

1.3 Site Safety Plan Acceptance, Acknowledgment and Amendments

The project superintendent and the site safety officer are responsible for informing personnel (EBC employees and/or owner or owners representatives) entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgement Form is included in **Appendix A**.

Site conditions may warrant an amendment to the HASP. Amendments to the HASP are acknowledged by completing forms included in **Appendix B**.

1.4 Key Personnel - Roles and Responsibilities

Personnel responsible for implementing this Construction Health and Safety Plan are:

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Name	Title	Address	Contact Numbers
Mr. Robert Bennett	EBC Project Manager	1808 Middle Country Road Ridge, NY 11961	(631) 504-6000
Mr. Kevin Waters	EBC Site Safety Officer	1808 Middle Country Road Ridge, NY 11961	(631) 504-6000

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this CHASP. The site safety officer will conduct daily (tail gate or tool box) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

The site safety officer is also responsible for coordinating health and safety activities related to hazardous material exposure on-site. The site safety officer is responsible for the following:

1. Educating personnel about information in this CHASP and other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and first aid.

2. Coordinating site safety decisions with the project manager.

3. Designating exclusion, decontamination and support zones on a daily basis.

4. Monitoring the condition and status of known on-site hazards and maintaining and implementing the air quality monitoring program specified in this CHASP.

5. Maintaining the work zone entry/exit log and site entry/exit log.

6. Maintaining records of safety problems, corrective measures and documentation of chemical exposures or physical injuries (the site safety officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

The person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/concerns to the site safety officer or appropriate key personnel.

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2.0 SITE BACKGROUND AND SCOPE OF WORK

The Site is located at 810 River Avenue in the West Concourse section in the Bronx, New York and is identified as Block 2483 and Lot 5 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 20,000-square feet and is bounded by East 158th Street to the north, City of New York Parks and Recreation River Avenue Pocket Park to the south, a six story apartment building to the east, and River Avenue and an elevated subway line to the west. Currently, the Site is used for a vacant bowling alley with a sports bar and grill and contains kitchen equipment and a sports bar on the first floor and bowling lanes on both the first and second floor. The area surrounding the Site is urban and is predominantly commercial properties (i.e., retail stores and offices).

2.1 Prior Investigations

The following environmental reports were developed for the Site:

- Comprehensive Environmental Site Assessment Report - Hydrotech Environmental Corp., March 28, 2011.
- Remedial Investigation Report - Roux Associates, July 2013.

2.1.1 Comprehensive Environmental Site Assessment Report

A Comprehensive Environmental Site Assessment Report (CESAR) dated March 28, 2011, was prepared by Hydrotech Environmental Corp summarizes the findings of a Phase I ESA and a limited Phase II subsurface investigation. The CESAR consisted of a GPR survey and the installation of five soil borings and the collection of one groundwater sample.. All borings were located in the southwest quadrant of the Site building; two borings were located in the basement (advanced to a depth of 4 feet below the basement floor), the remaining three borings were located within the building on the first floor (advanced to a depth of 12 feet below grade).

Hydrotech retained one soil sample from each boring for laboratory analysis of VOCs and SVOCs. No VOCs or SVOCs were detected above 6NYCRR Part 375-6.8 Track 1 Unrestricted Use SCOs. Several chlorinated VOCs (CVOCs) were detected at concentrations above NYSDEC GQS. The results of the GPR survey were not included in the CESAR. Hydrotech noted two 550-gallon underground storage tanks (USTs) on a 1951 Sanborn fire insurance map, and recommended an additional investigation.

2.1.2 Remedial Investigation Report

Roux Associates performed a subsurface investigation at the Site consisting of the following;

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

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Soil Sampling Results
Soil/fill samples collected during the RI showed no VOCs, SVOCs, PCBs or pesticides that exceeded Track 1 SCOs in any of the 10 samples and two soil samples exceeded Track 1 SCOs for trivalent chromium.

Groundwater Sampling Results
Groundwater samples collected during the RI showed detections in excess of the AWQSGVs in four out of the five monitoring wells sampled for the following VOCs: chloroform, cis-1,2-dichloroethene (cis-1,2 DCE), tetrachloroethene (PCE), trans-1,2- dichloroethene, and trichloroethene (TCE).

Sub-Slab Soil Gas Results
Soil vapor samples collected during the RI showed detections of several VOCs. PCE was the most prominent VOC detected as it was found at elevated levels in all of the samples at concentrations ranging as high as 850 µg/m^3. TCE was also identified in each sample collected and ranged as high as 29 µg/m^3. These findings generally correlate with the VOCs identified in the onsite groundwater samples.

2.2 Redevelopment Plans

The site is to be redeveloped through the new construction of a single 14-story apartment building with first and second floor commercial space, and an underground parking garage requiring excavation of the entire Site to a depth of 12 ft below grade. The cellar level of the building will be utilized as a parking garage for 61 cars, but will also contain the building's water meter room, gas meter room, electric meter room, tenant storage rooms, bicycle storage room, super's office and telecommunications closet. Access to the cellar will be from the vehicle ramp from East 158th Street, two interior stairwells and/or four elevators. The first floor of the proposed building will consist of a 10,542 sf commercial space, the ramp to the underground parking garage, and the residential lobby which will consist of a security booth, package/mail room, manager's office, compactor room, and recycle room. The second floor will consist of a 15,730 sf of commercial and community facility space. The 3rd through 14th floors will consist of residential apartments.

2.3 Description of Remedial Action Plan

Site activities included within the Remedial Action Plan that are included within the scope of this CHASP include the following:

The proposed remedial action will consist of:

1. Excavation of soil/fill exceeding Track 1 unrestricted use SCOs as listed in **Table 1** to depths as great as 8 feet below grade;
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs;

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4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
5. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material.
6. If Track 1 SCOs are not achieved, a composite cover system consisting of the concrete building slab will be constructed.
7. .If Track 1 cleanup is not achieved, implementation of a Site Management Plan (SMP) for long term maintenance of the Engineering Controls.
8. If Track 1 cleanup is not achieved, an Environmental Easement will be filed against the Site to ensure implementation of the SMP.

Although the goal of the remedy will be to remove all soil exceeding the Track 1 SCOs, if Track 1 SCOs cannot be achieved then a Track 2 remedy will result.

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3.0 HAZARD ASSESSMENT

This section identifies the hazards associated with the proposed scope of work, general physical hazards that can be expected at most sites; and presents a summary of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate these hazards. Those that cannot be eliminated must be guarded against using engineering controls and/or personal protective equipment.

3.1 Physical Hazards

3.1.1 Tripping Hazards

An area of risk associated with on-site activities are presented by uneven ground, concrete, curbstones or equipment which may be present at the site thereby creating a potential tripping hazard. During intrusive work, care should be taken to mark or remove any obstacles within the exclusion zone.

3.1.2 Climbing Hazards

During site activities, workers may have to work on excavating equipment by climbing. The excavating contractor will conform with any applicable NIOSH and OSHA requirements or climbing activities.

3.1.3 Cuts and Lacerations

Field activities that involve excavating activities usually involve contact with various types of machinery. A first aid kit approved by the American Red Cross will be available during all intrusive activities.

3.1.4 Lifting Hazards

Improper lifting by workers is one of the leading causes of industrial injuries. Field workers in the excavation program may be required to lift heavy objects. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

3.1.5 Utility Hazards

Before conducting any excavation, the excavation contractor will be responsible for locating and verifying all existing utilities at each excavation.

3.1.6 Traffic Hazards

All traffic, vehicular and pedestrian, shall be maintained and protected at all times consistent with local, state and federal agency regulations regarding such traffic and in accordance with NYCDOT guidelines. The excavation contractor shall carry on his operations without undue interference or delays to traffic. The excavation contractor shall furnish all labor, materials, guards, barricades, signs, lights, and anything else necessary to maintain traffic and to protect his work and the public, during operations.

3.2 Work in Extreme Temperatures

Work under extremely hot or cold weather conditions requires special protocols to minimize the chance that employees will be affected by heat or cold stress.

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3.2.1 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel, which limits the dissipation of body heat and moisture, can cause heat stress.

The following prevention, recognition and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress and to apply the appropriate treatment.

1. Prevention
    a. Provide plenty of fluids. Available in the support zone will be a 50% solution of fruit punch and water or plain water.
    b. Work in Pairs. Individuals should avoid undertaking any activity alone.
    c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing and/or act as a quick-drench shower in case of an exposure incident.
    d. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment
    a Heat Rash (or prickly heat):
        Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.
        Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.
        Treatment: Remove source or irritation and cool skin with water or wet cloths.

    b. Heat Cramps (or heat prostration)
        Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.
        Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.
        Treatment: Perform the following while making arrangement for transport to a medical facility. Remove the worker to a contamination reduction zone. Remove protective clothing. Lie worker down on back in a cool place and raise feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of salt-water solution, using one teaspoon of salt in 12 ounces of water. Transport to a medical facility.
    c. Heat Stroke
        Cause: Same as heat exhaustion. This is also an extremely serious condition.
        Symptoms: Dry hot skin, dry mouth, dizziness, nausea, headache, rapid pulse.
        Treatment: Cool worker immediately by immersing or spraying with cool water or sponge bare skin after removing protective clothing. Transport to hospital.

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3.2.2 Cold Exposure

Exposure to cold weather, wet conditions and extreme wind-chill factors may result in excessive loss of body heat (hypothermia) and /or frostbite. To guard against cold exposure and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be readily available, rest periods should be adjusted as needed, and the physical conditions of on-site field personnel should be closely monitored. Personnel and supervisors working on-site will be made aware of the signs and symptoms of frost bite and hypothermia such as shivering, reduced blood pressure, reduced coordination, drowsiness, impaired judgment, fatigue, pupils dilated but reactive to light and numbing of the toes and fingers.

3.3 Chemical Hazards

Soil collected from the site as part of several subsurface investigations performed at the site have revealed metals above unrestricted SCOs in soil at the Site. In addition, lead was reported in one location was reported above the hazardous classification based on leachability testing

Metals reported to be present at elevated concentrations in soil at the Site include the following:

Arsenic	Barium	Chromium 3	Chromium 6	Copper	Mercury	Zinc

VOCs reported to be present at elevated concentrations in groundwater at the Site include the following:

Chloroform	Cis-1,2-DCE	PCE	TCE

The primary routes of exposure to identified contaminants in soil to on-site construction workers are through inhalation, ingestion and absorption.

Appendix C includes information sheets for all detected chemicals that may be encountered at the site.

3.3.1 Respirable Dust

Dust may be generated from vehicular traffic and/or excavation activities. If visible observation detects elevated levels of dust, a program of wetting will be employed by the site safety officer. If elevated dust levels persist, the site safety office will employ dust monitoring using a particulate monitor (Miniram or equivalent). If monitoring detects concentrations greater than 150 µg/m3 over daily background, the site safety officer will take corrective actions as defined herein, including the use of water for dust suppression and if this is not effective, requiring workers to wear APRs with efficiency particulate air (HEPA) cartridges.

Absorption pathways for dust and direct contact with soils or groundwater will be mitigated with the implementation of latex gloves, hand washing and decontamination exercises when necessary.

3.3.2 Dust Control and Monitoring During Earthwork

Dust generated during excavation activities or other earthwork may contain contaminants identified in soils at the site. Dust will be controlled by wetting the working surface with water. Calcium chloride may be used if the problem cannot be controlled with water. Air monitoring and dust control techniques are specified in a site specific Dust Control Plan (if applicable). Site workers will not be required to wear APR's unless dust concentrations are consistently over 150

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$\mu g/m^3$ over site-specific background in the breathing zone as measured by a dust monitor unless the site safety officer directs workers to wear APRs. The site safety officer will use visible dust as an indicator to implement the dust control plan.

3.3.3 Organic Vapors

Although no VOCs were detected within any of the soil samples collected at the Site, the site safety officer will periodically monitor organic vapors with a Photo-ionization Detector (PID) during excavation activities to determine whether organic vapor concentrations exceed action levels shown in Section 5 and/or the Community Air Monitoring Plan.

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4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120(c), (g), and 1910.132. Protective equipment shall be NIOSH approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D thru B is the addition of the type of respiratory protection. **It is anticipated that work will be performed in Level D PPE.**

4.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work clothes, coveralls, or tyvek, as needed;
- steel toe and steel shank work boots;
- hard hat;
- gloves, as needed;
- safety glasses;
- hearing protection;
- equipment replacements are available as needed.

4.2 Level C

Level C PPE shall be donned when sustained concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable OVA, or equivalent), by more than 5 ppm. The specifications on the APR filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated tyvek coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves (surgical gloves);
- disposable outer gloves;
- full face APR fitted with organic vapor/dust and mist filters or filters appropriate for the identified or expected contaminants;
- hard hat;
- splash shield, as needed; and,
- ankles/wrists taped with duct tape.

The site safety officer will verify if Level C is appropriate by checking organic vapor concentrations using compound and/or class-specific detector tubes.

The exact PPE ensemble is decided on a site-by-site basis by the Site Safety Officer with the intent to provide the most protective and efficient worker PPE.

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4.3 Activity-Specific Levels of Personal Protection

The required level of PPE is activity-specific and is based on air monitoring results (Section 4.0) and properties of identified or expected contaminants. **It is expected that site work will be performed in Level D.** If air monitoring results indicate the necessity to upgrade the level of protection, engineering controls (i.e. Facing equipment away from the wind and placing site personnel upwind of excavations, active venting, etc.) will be implemented before requiring the use of respiratory protection.

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5.0 AIR MONITORING AND ACTION LEVELS

29 CFR 1910.120(h) specifies that monitoring shall be performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

5.1 Air Monitoring Requirements

If excavation work is performed, air will be monitored for VOCs with a portable ION Science 3000EX photoionization detector, or the equivalent. If necessary, Lower Explosive Limit (LEL) and oxygen will be monitored with a Combustible Gas Indicator (CGI). If appropriate, fugitive dust will be monitored using a MiniRam Model PDM-3 aerosol monitor. Air will be monitored when any of the following conditions apply:

- initial site entry;
- during any work where a potential IDLH condition or flammable atmosphere could develop;
- excavation work begins on another portion of the site;
- contaminants, other than those previously identified, have been discovered;
- each time a different task or activity is initiated;
- during trenching and/or excavation work.

The designated site safety officer will record air monitoring data and ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. Instruments will be zeroed daily and checked for accuracy. Monitoring results will be recorded in a field notebook and will be transferred to instrument reading logs.

5.2 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage are exceeded:

1 The SSO will be consulted immediately
2 All personnel (except as necessary for continued monitoring and contaminant migration, if applicable) will be cleared from the work area (eg from the exclusion zone).
3 Monitoring will be continued until intrusive work resumes.

5.3 Action Levels During Excavation Activities

Instrument readings will be taken in the breathing zone above the excavation pit unless otherwise noted. Each action level is independent of all other action levels in determining responses.

Organic Vapors (PID)	LEL %	Responses
0-1 ppm above background	0%	• Continue excavating • Level D protection • Continue monitoring every 10 minutes
1-5 ppm Above Background, Sustained Reading	1-10%	• Continue excavating • Go to Level C protection or employ

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		engineering controls • Continue monitoring every 10 minutes
5-25 ppm Above Background, Sustained Reading	10-20%	• Discontinue excavating, unless PID is only action level exceeded. • Level C protection or employ engineering controls • Continue monitoring for organic vapors 200 ft downwind • Continuous monitoring for LEL at excavation pit
>25 ppm Above Background, Sustained Reading	>20%	• Discontinue excavating • Withdraw from area, shut off all engine ignition sources. • Allow pit to vent • Continuous monitoring for organic vapors 200 ft downwind.

Notes: Air monitoring will occur in the breathing zone 30 inches above the excavation pit. Readings may also be taken in the excavation pit but will not be used for action levels.

If action levels for any one of the monitoring parameters are exceeded, the appropriate responses listed in the right hand column should be taken. If instrument readings do not return to acceptable levels after the excavation pit has been vented for a period of greater than one-half hour, a decision will then be made whether or not to seal the pit with suppressant foam.

If, during excavation activities, downwind monitoring PID readings are greater than 5 ppm above background for more than one-half hour, excavation will stop until sustained levels are less then 5 ppm (see Community Air Monitoring Plan).

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6.0 SITE CONTROL

6.1 Work Zones

The primary purpose of site controls is to establish the perimeter of a hazardous area, to reduce the migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. When operations are to take place involving hazardous materials, the site safety officer will establish an exclusion zone, a decontamination zone, and a support zone. These zones "float" (move around the site) depending on the tasks being performed on any given day. The site safety officer will outline these locations before work begins and when zones change. The site safety officer records this information in the site log book.

Due to the dimensions of the Site and the work area, it is expected that an exclusion zone will include the entire fenced area with the exception of the construction entrance area, which will serve as the decontamination zone. A support zone if needed will be located outside of the fenced area. All onsite workers who will come into contact with hazardous materials must provide evidence of OSHA 24 or 40-hour Hazardous Waste Operations and Emergency Response Operations training to conduct work within the exclusion zone established by the site safety officer. The exclusion zone is defined by the site safety officer but will typically be a 50-foot area around work activities. Gross decontamination (as determined by the site Health and Safety Officer) is conducted in the exclusion zone; all other decontamination is performed in the decontamination zone or trailer, if provided.

Protective equipment is removed in the decontamination zone. Disposable protective equipment is stored in receptacles staged in the decontamination zone, and non-disposable equipment is decontaminated. All personnel and equipment exit the exclusion zone through the decontamination zone. If a decontamination trailer is provided the first aid equipment, an eye wash unit, and drinking water are kept in the decontamination trailer.

The support zone is used for vehicle parking, daily safety meetings, and supply storage. Eating, drinking, and smoking are permitted only in the support zone. When a decontamination trailer is not provided, the eye wash unit, first aid equipment, and drinking water are kept at a central location designated by the site safety officer.

EBC
Environmental Business Consultants
1808 Middle Country Road
Ridge, NY 11961
Phone 631.504.6000
Fax 631.924.2870

7.0 CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

7.1 Emergency Equipment On-site

Private telephones:	Site personnel.
Two-way radios:	Site personnel where necessary.
Emergency Alarms:	On-site vehicle horns*.
First aid kits:	On-site, in vehicles or office.
Fire extinguisher:	On-site, in office or on equipment.

* Horns: Air horns will be supplied to personnel at the discretion of the project superintendent or site safety officer.

7.2 Emergency Telephone Numbers

General Emergencies	911
Suffolk County Police	911
NYC Fire Department	911
Lincoln Medical Center Emergency	(718) 579-6010
NYSDEC Spills Hotline	1-800-457-7362
NYSDEC Project Manager	(518) 402-9767
NYC Department of Health	(212) 676-2400
National Response Center	1-800-424-8802
Poison Control	1-800-222-1222
Project Manager	1-631-504-6000
Site Safety Officer	1-631-504-6000

7.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the project manager's on-site designee and perform the following tasks:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, evacuate and secure the site, or upgrade/downgrade the level of protective clothing and respiratory protection;

- Ensure that appropriate federal, state, and local agencies are informed and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;

- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;

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- Determine the cause of incidents and make recommendations to prevent recurrence; and,

- Ensure that all required reports have been prepared.

The following key personnel are planned for this project:

- Project Manager — Mr. Robert Bennett (631) 504-6000
- Site Safety Officer — Mr. Kevin Waters (631) 504-6000

7.4 Medical Emergencies

A person who becomes ill or injured in the exclusion zone will be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination will be completed and first aid administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (**Appendix D**) must be filled out for any injury.

A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital (**Appendix D**).and information on the chemical(s) to which they may have been exposed (**Appendix C**).

7.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

- use fire fighting equipment available on site; or,
- remove or isolate flammable or other hazardous materials that may contribute to the fire.

7.6 Evacuation Routes

Evacuation routes established by work area locations for each site will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly, and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel will follow these instructions:

- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.
- The site safety officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone entry/exit log.

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Fax 631.924.2870

- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

7.7 Spill Control Procedures

Spills associated with site activities may be attributed to project equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to site personnel to facilitate the immediate recovery of the spilled material. Daily inspections of site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure equipment soundness. In the event of a spill, site personnel will immediately notify the NYSDEC (1-800-457-7362), and a spill number will be generated.

7.8 Vapor Release Plan

If work zone organic vapor (excluding methane) exceeds 5 ppm, then a downwind reading will be made either 200 feet from the work zone or at the property line, whichever is closer. If readings at this location exceed 5 ppm over background, the work will be stopped.

If 5 ppm of VOCs are recorded over background on a PID at the property line, then an off-site reading will be taken within 20 feet of the nearest residential or commercial property, whichever is closer. If efforts to mitigate the emission source are unsuccessful for 30 minutes, then the designated site safety officer will:

- contact the local police;
- continue to monitor air every 30 minutes, 20 feet from the closest off-site property. If two successive readings are below 5 ppm (non-methane), off-site air monitoring will be halted.
- All property line and off site air monitoring locations and results associated with vapor releases will be recorded in the site safety log book.

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Fax 631.924.2870

APPENDIX A

SITE SAFETY ACKNOWLEDGEMENT FORM

DAILY BREIFING SIGN-IN SHEET

Date:_____ Person Conducting Briefing:_____

Project Name and Location:_____

1. AWARENESS (topics discussed, special safety concerns, recent incidents, etc…):

_____

_____

_____

_____

2. OTHER ISSUES (HASP changes, attendee comments, etc…):

_____

_____

_____

3. ATTENDEES (Print Name):

1.	11.
2.	12.
3.	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

APPENDIX B

SITE SAFETY PLAN AMENDMENTS

SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #: _____

Site Name: _____

Reason for Amendment: _____

_____

_____

_____

Alternative Procedures: _____

_____

_____

_____

Required Changes in PPE: _____

_____

_____

_____

_____ _____

Project Superintendent (signature) **Date**

_____ _____

Health and Safety Consultant (signature) **Date**

_____ _____

Site Safety Officer (signature) **Date**

APPENDIX C

CHEMICAL HAZARDS

CHEMICAL HAZARDS

The attached International Chemical Safety Cards are provided for contaminants of concern that have been identified in soils and/or groundwater at the site.

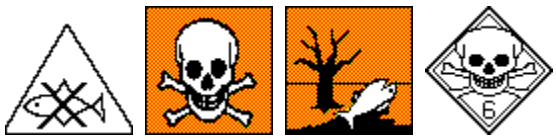
International Chemical Safety Cards

ARSENIC

ICSC: 0013

Grey arsenic
As
Atomic mass: 74.9

ICSC # 0013
CAS # 7440-38-2
RTECS # CG0525000
UN # 1558
EC # 033-001-00-X
October 18, 1999 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames. NO contact with strong oxidizers. NO contact with hot surfaces.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Risk of fire and explosion is slight when exposed to hot surfaces or flames in the form of fine powder or dust.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT! AVOID EXPOSURE OF (PREGNANT) WOMEN!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Cough. Sore throat. Shortness of breath. Weakness. See Ingestion.	Closed system and ventilation.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Face shield or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Nausea. Vomiting. Burning sensation in the throat and chest. Shock or collapse. Unconsciousness.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Sweep spilled substance into sealable containers. Carefully collect remainder, then remove to safe place. Chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment.	Separated from strong oxidants, acids, halogens, food and feedstuffs. Well closed.	Do not transport with food and feedstuffs. Marine pollutant. T symbol N symbol R: 23/25-50/53 S: 1/2-20/21-28-45-60-61 UN Hazard Class: 6.1 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0013

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

ARSENIC

ICSC: 0013

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
ODOURLESS, BRITTLE, GREY, METALLIC-LOOKING CRYSTALS.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. Reacts violently with strong oxidants and halogens, causing fire and explosion hazard. Reacts with acids to produce

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.01 mg/m³ as TWA A1 (confirmed human carcinogen); BEI issued (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3A; (DFG 2004).
OSHA PEL: 1910.1018 TWA 0.010 mg/m^3
NIOSH REL: Ca C 0.002 mg/m^3 15-minute See Appendix A
NIOSH IDLH: Ca 5 mg/m^3 (as As) See: 7440382

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly, when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract. The substance may cause effects on the gastrointestinal tract cardiovascular system central nervous system kidneys , resulting in severe gastroenteritis, loss of fluid, and electrolytes, cardiac disorders shock convulsions and kidney impairment Exposure above the OEL may result in death. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the mucous membranes, skin, peripheral nervous system liver bone marrow , resulting in pigmentation disorders, hyperkeratosis, perforation of nasal septum, neuropathy, liver impairment anaemia This substance is carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Sublimation point: 613°C
Density: 5.7 g/cm³

Solubility in water:
none

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. It is strongly advised that this substance does not enter the environment.

N O T E S

The substance is combustible but no flash point is available in literature. Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home. Refer also to cards for specific arsenic compounds, e.g., Arsenic pentoxide (ICSC 0377), Arsenic trichloride (ICSC 0221), Arsenic trioxide (ICSC 0378), Arsine (ICSC 0222).

Transport Emergency Card: TEC (R)-61GT5-II

ADDITIONAL INFORMATION

IMPORTANT LEGAL NOTICE:

International Chemical Safety Cards

BARIUM SULFATE

ICSC: 0827

Barium sulphate
Blanc fixe
Artificial barite
$BaSO_4$
Molecular mass: 233.43

ICSC # 0827
CAS # 7727-43-7
RTECS # CR0600000
October 20, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Personal protection: P1 filter respirator for inert particles.		R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0827

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

BARIUM SULFATE

ICSC: 0827

IMPORTANT DATA	**PHYSICAL STATE; APPEARANCE:** ODOURLESS TASTELESS, WHITE OR YELLOWISH CRYSTALS OR POWDER. **PHYSICAL DANGERS:** **CHEMICAL DANGERS:** Reacts violently with aluminium powder. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 10 mg/m³ as TWA; (ACGIH 2004). MAK: (Inhalable fraction) 4 mg/m³; (Respirable fraction) 1.5 mg/m³; (DFG 2004). OSHA PEL†: TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp) NIOSH REL: TWA 10 mg/m^3 (total) TWA 5 mg/m^3 (resp) NIOSH IDLH: N.D. See: IDLH INDEX **ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol. **INHALATION RISK:** Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Lungs may be affected by repeated or prolonged exposure to dust particles , resulting in baritosis (a form of benign pneumoconiosis).
PHYSICAL PROPERTIES	Melting point (decomposes): 1600°C Density: 4.5 g/cm³ Solubility in water: none
ENVIRONMENTAL DATA	

NOTES

Occurs in nature as the mineral barite; also as barytes, heavy spar. Card has been partly updated in October 2005. See section Occupational Exposure Limits.

ADDITIONAL INFORMATION

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

CHROMIUM

ICSC: 0029

Chrome
Cr
Atomic mass: 52.0
(powder)

ICSC # 0029
CAS # 7440-47-3
RTECS # GB4200000
October 27, 2004 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions.	No open flames if in powder form.	In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION		Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST!	
•**INHALATION**	Cough.	Local exhaust or breathing protection.	Fresh air, rest.
•**SKIN**		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•**EYES**	Redness.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•**INGESTION**		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Personal protection: P2 filter respirator for harmful particles.		R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0029

International Chemical Safety Cards

CHROMIUM

ICSC: 0029

I

M

P

PHYSICAL STATE; APPEARANCE:
GREY POWDER

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

ROUTES OF EXPOSURE:

INHALATION RISK:
A harmful concentration of airborne particles can be reached quickly when dispersed.

O R T A N T D A T A	**CHEMICAL DANGERS:** Chromium is a catalytic substance and may cause reaction in contact with many organic and inorganic substances , causing fire and explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: (as Cr metal, Cr(III) compounds) 0.5 mg/m³ as TWA A4 (ACGIH 2004). MAK not established. OSHA PEL*: TWA 1 mg/m^3 See Appendix C *Note: The PEL also applies to insoluble chromium salts. NIOSH REL: TWA 0.5 mg/m^3 See Appendix C NIOSH IDLH: 250 mg/m^3 (as Cr) See: 7440473 **EFFECTS OF SHORT-TERM EXPOSURE:** May cause mechanical irritation tothe eyesandthe respiratory tract. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:**
PHYSICAL PROPERTIES	Boiling point: 2642°C Melting point: 1900°C Density: 7.15 g/cm³ Solubility in water: none
ENVIRONMENTAL DATA	

N O T E S

The surface of the chromium particles is oxidized to chromium(III)oxide in air. See ICSC 1531 Chromium(III) oxide.

ADDITIONAL INFORMATION

ICSC: 0029 **CHROMIUM**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

COPPER

ICSC: 0240

Cu
(powder)

ICSC # 0240
CAS # 7440-50-8
RTECS # GL5325000
September 24, 1993 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Special powder, dry sand, NO other agents.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Cough. Headache. Shortness of breath. Sore throat.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers. Carefully collect remainder. Then remove to safe place. (Extra personal protection: P2 filter respirator for harmful particles).	Separated from - See Chemical Dangers.	R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0240

International Chemical Safety Cards

COPPER

ICSC: 0240

I

M

P

PHYSICAL STATE; APPEARANCE:
RED POWDER, TURNS GREEN ON EXPOSURE TO MOIST AIR.

PHYSICAL DANGERS:

CHEMICAL DANGERS:

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

O **R** **T** **A** **N** **T** **D** **A** **T** **A**	Shock-sensitive compounds are formed with acetylenic compounds, ethylene oxides and azides. Reacts with strong oxidants like chlorates, bromates and iodates, causing explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 0.2 mg/m³ fume (ACGIH 1992-1993). TLV (as Cu, dusts & mists): 1 mg/m³ (ACGIH 1992-1993). Intended change 0.1 mg/m³ Inhal., A4 (not classifiable as a human carcinogen); MAK: 0.1 mg/m³ (Inhalable fraction) Peak limitation category: II(2) Pregnancy risk group: D (DFG 2005). OSHA PEL*: TWA 1 mg/m^3 *Note: The PEL also applies to other copper compounds (as Cu) except copper fume. NIOSH REL*: TWA 1 mg/m^3 *Note: The REL also applies to other copper compounds (as Cu) except Copper fume. NIOSH IDLH: 100 mg/m^3 (as Cu) See: 7440508	**EFFECTS OF SHORT-TERM EXPOSURE:** Inhalation of fumes may cause metal fume fever. See Notes. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact may cause skin sensitization.

PHYSICAL PROPERTIES	Boiling point: 2595°C Melting point: 1083°C Relative density (water = 1): 8.9	Solubility in water: none
ENVIRONMENTAL DATA		

N O T E S

The symptoms of metal fume fever do not become manifest until several hours.

ADDITIONAL INFORMATION

ICSC: 0240 **COPPER**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

LEAD

ICSC: 0052

Lead metal
Plumbum
Pb
Atomic mass: 207.2
(powder)

ICSC # 0052
CAS # 7439-92-1
RTECS # OF7525000
October 08, 2002 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	PREVENT DISPERSION OF DUST! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give plenty of water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment. Personal protection: P3 filter respirator for toxic particles.	Separated from food and feedstuffs incompatible materials See Chemical Dangers.	R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0052

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

LEAD

ICSC: 0052

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
BLUISH-WHITE OR SILVERY-GREY SOLID IN VARIOUS FORMS. TURNS TARNISHED ON EXPOSURE TO AIR.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
On heating, toxic fumes are formed. Reacts with oxidants. Reacts with hot concentrated nitric acid, boiling concentrated hydrochloric acid and sulfuric acid. Attacked by pure water and by weak organic acids in the presence of oxygen.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.05 mg/m³ A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued (ACGIH 2004).
MAK:
Carcinogen category: 3B; Germ cell mutagen group: 3A; (DFG 2004).
EU OEL: as TWA 0.15 mg/m³ (EU 2002).
OSHA PEL*: 1910.1025 TWA 0.050 mg/m^3 See Appendix C *Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.
NIOSH REL*: TWA 0.050 mg/m^3 See Appendix C *Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.
NIOSH IDLH: 100 mg/m^3 (as Pb) See: 7439921

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the blood bone marrow central nervous system peripheral nervous system kidneys , resulting in anaemia, encephalopathy (e.g., convulsions), peripheral nerve disease, abdominal cramps and kidney impairment. Causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES		
	Boiling point: 1740°C	Density: 11.34 g/cm3
	Melting point: 327.5°C	Solubility in water: none

ENVIRONMENTAL DATA	
	Bioaccumulation of this chemical may occur in plants and in mammals. It is strongly advised that this substance does not enter the environment. 

N O T E S

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home.

Transport Emergency Card: TEC (R)-51S1872

ADDITIONAL INFORMATION

ICSC: 0052 **LEAD**

International Chemical Safety Cards

MERCURY

ICSC: 0056

Quicksilver
Liquid silver
Hg
Atomic mass: 200.6

ICSC # 0056
CAS # 7439-97-6
RTECS # OV4550000
UN # 2809
EC # 080-001-00-0
April 22, 2004 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Risk of fire and explosion.		In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Abdominal pain. Cough. Diarrhoea. Shortness of breath. Vomiting. Fever or elevated body temperature.	Local exhaust or breathing protection.	Fresh air, rest. Artificial respiration if indicated. Refer for medical attention.
•SKIN	MAY BE ABSORBED! Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
•EYES		Face shield, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area in case of a large spill! Consult an expert! Ventilation. Collect leaking and spilled liquid in sealable non-metallic containers as far as possible. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Chemical protection suit including self-contained breathing apparatus.	Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs Well closed.	Special material. Do not transport with food and feedstuffs. T symbol N symbol R: 23-33-50/53 S: 1/2-7-45-60-61 UN Hazard Class: 8 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

MERCURY

ICSC: 0056

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
ODOURLESS, HEAVY AND MOBILE SILVERY LIQUID METAL.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. Reacts violently with ammonia and halogens causing fire and explosion hazard. Attacks aluminium and many other metals forming amalgams.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.025 mg/m³ as TWA (skin) A4 BEI issued (ACGIH 2004).
MAK: 0.1 mg/m³ Sh
Peak limitation category: II(8) Carcinogen category: 3B (DFG 2003).
OSHA PEL†: C 0.1 mg/m^3
NIOSH REL: Hg Vapor: TWA 0.05 mg/m^3 skin
Other: C 0.1 mg/m^3 skin
NIOSH IDLH: 10 mg/m^3 (as Hg) See: 7439976

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its vapour and through the skin , also as a vapour!

INHALATION RISK:
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the skin. Inhalation of the vapours may cause pneumonitis. The substance may cause effects on the central nervous systemandkidneys. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the central nervous system kidneys , resulting in irritability, emotional instability, tremor, mental and memory disturbances, speech disorders. Danger of cumulative effects. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

PHYSICAL PROPERTIES

Boiling point: 357°C
Melting point: -39°C
Relative density (water = 1): 13.5
Solubility in water:
none

Vapour pressure, Pa at 20°C: 0.26
Relative vapour density (air = 1): 6.93
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.009

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. In the food chain important to humans, bioaccumulation takes place, specifically in fish.

N O T E S

Depending on the degree of exposure, periodic medical examination is indicated. No odour warning if toxic concentrations are present. Do NOT take working clothes home.

Transport Emergency Card: TEC (R)-80GC9-II+III

ADDITIONAL INFORMATION

ICSC: 0056 **MERCURY**

International Chemical Safety Cards

ZINC POWDER

ICSC: 1205

Blue powder
Merrillite
Zn
Atomic mass: 65.4
(powder)

ICSC # 1205
CAS # 7440-66-6
RTECS # ZG8600000
UN # 1436 (zinc powder or dust)
EC # 030-001-00-1
October 24, 1994 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking. NO contact with acid(s), base (s) and incompatible substances (see Chemical Dangers).	Special powder, dry sand, NO other agents. NO water.
EXPLOSION	Risk of fire and explosion on contact with acid(s), base(s), water and incompatible substances.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Prevent deposition of dust.	In case of fire: cool drums, etc., by spraying with water but avoid contact of the substance with water.
EXPOSURE		PREVENT DISPERSION OF DUST! STRICT HYGIENE!	
•**INHALATION**	Metallic taste and metal fume fever. Symptoms may be delayed (see Notes).	Local exhaust.	Fresh air, rest. Refer for medical attention.
•**SKIN**	Dry skin.	Protective gloves.	Rinse and then wash skin with water and soap.
•**EYES**		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•**INGESTION**	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Extinguish or remove all ignition sources. Do NOT wash away into sewer. Sweep spilled substance into containers. then remove to safe place. Personal protection: self-contained breathing apparatus.	Fireproof. Separated from acids, bases oxidants Dry.	Airtight. F symbol N symbol R: 15-17-50/53 S: 2-7/8-43-46-60-61 UN Hazard Class: 4.3 UN Subsidiary Risks: 4.2

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

ZINC POWDER

ICSC: 1205

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
ODOURLESS GREY TO BLUE POWDER.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. The substance is a strong reducing agent and reacts violently with oxidants. Reacts with water and reacts violently with acids and bases forming flammable/explosive gas (hydrogen - see ICSC0001) Reacts violently with sulfur, halogenated hydrocarbons and many other substances causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV not established.

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:
Inhalation of fumes may cause metal fume fever. The effects may be delayed.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis.

PHYSICAL PROPERTIES

Boiling point: 907°C
Melting point: 419°C
Relative density (water = 1): 7.14
Solubility in water: reaction
Vapour pressure, kPa at 487°C: 0.1
Auto-ignition temperature: 460°C

ENVIRONMENTAL DATA

N O T E S

Zinc may contain trace amounts of arsenic, when forming hydrogen, may also form toxic gas arsine (see ICSC 0001 and ICSC 0222). Reacts violently with fire extinguishing agents such as water, halons, foam and carbon dioxide. The symptoms of metal fume fever do not become manifest until several hours later. Rinse contaminated clothes (fire hazard) with plenty of water.

Transport Emergency Card: TEC (R)-43GWS-II+III
NFPA Code: H0; F1; R1;

ADDITIONAL INFORMATION

ICSC: 1205 **ZINC POWDER**

International Chemical Safety Cards

CHLOROFORM

ICSC: 0027

Trichloromethane
Methane trichloride
Formyl trichloride
$CHCl_3$
Molecular mass: 119.4

ICSC # 0027
CAS # 67-66-3
RTECS # FS9100000
UN # 1888
EC # 602-006-00-4
November 04, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. See Notes. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!	
•INHALATION	Cough. Dizziness. Drowsiness. Headache. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Redness. Pain. Dry skin.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
•EYES	Redness. Pain.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Give plenty of water to drink. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: complete protective clothing including self-contained breathing apparatus.	Separated from food and feedstuffs and incompatible materials ,(see Chemical Dangers). Ventilation along the floor.	Unbreakable packaging; put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs. Xn symbol R: 22-38-40-48/20/22 S: 2-36/37 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the

ICSC: 0027

International Chemical Safety Cards

CHLOROFORM

ICSC: 0027

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
VOLATILE COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride ICSC0163,phosgene ICSC0007 andchlorine fumes ICSC0126). Reacts violently withstrong bases,strong oxidants, some metals, such as aluminium, magnesium and zinc, causing fire and explosion hazard. Attacks plastic, rubber and coatings.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 10 ppm as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans); (ACGIH 2004).
MAK: 0.5 ppm, 2.5 mg/m³;
Peak limitation category: II(2);
skin absorption (H);
Carcinogen category: 4; Pregnancy risk group: C;
(DFG 2004).
OSHA PEL†: C 50 ppm (240 mg/m^3)
NIOSH REL: Ca ST 2 ppm (9.78 mg/m^3) 60-minute See Appendix A
NIOSH IDLH: Ca 500 ppm See: 67663

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes . The substance may cause effects on the central nervous system , liver and kidneys . The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the liver and kidneys . This substance is possibly carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 62°C
Melting point: -64°C
Relative density (water = 1): 1.48
Solubility in water, g/100 ml at 20°C: 0.8

Vapour pressure, kPa at 20°C: 21.2
Relative vapour density (air = 1): 4.12
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.7
Octanol/water partition coefficient as log Pow: 1.97

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms.

N O T E S

Turns combustible on addition of small amounts of a flammable substance or an increase in the oxygen content of the air. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is indicated. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-61S1888

NFPA Code: H 2; F 0; R 0;

ADDITIONAL INFORMATION

ICSC: 0027 **CHLOROFORM**

Material Safety Data Sheet

cis-1,2-Dichloroethylene, 97%

ACC# 97773

Section 1 - Chemical Product and Company Identification

MSDS Name: cis-1,2-Dichloroethylene, 97%
Catalog Numbers: AC113380000, AC113380025, AC113380100
Synonyms: cis-Acetylene dichloride.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
156-59-2	cis-1,2-Dichloroethylene	97	205-859-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Clear liquid. Flash Point: 6 deg C.
Warning! Flammable liquid and vapor. Harmful if inhaled. Unstabilized substance may polymerize. Causes eye and skin irritation. May be harmful if swallowed. May cause respiratory tract irritation.
Target Organs: Central nervous system, respiratory system, eyes, skin.

Potential Health Effects
Eye: Causes moderate eye irritation.
Skin: Causes moderate skin irritation. May cause dermatitis.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed. May cause central nervous system depression.
Inhalation: May cause respiratory tract irritation. May cause narcotic effects in high concentration. Eye irritation, vertigo, and nausea were reported in humans exposed at 2200 ppm.
Chronic: Not available. Some German investigators reported fatty degeneration of the liver upon repeated narcotic doses in rats and

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.
Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Fire or excessive heat may result in violent rupture of the container due to bulk polymerization. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Hazardous polymerization may occur under fire conditions.
Extinguishing Media: Use water fog, dry chemical, carbon dioxide, or regular foam.
Flash Point: 6 deg C (42.80 deg F)
Autoignition Temperature: 440 deg C (824.00 deg F)
Explosion Limits, Lower:9.70 vol %
Upper: 12.80 vol %
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 2

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Pure vapor will be uninhibited and may polymerize in vents or other confined spaces.
Storage: Keep away from sources of ignition. Store in a tightly closed container. Flammables-area. Store protected from light and air.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
cis-1,2-Dichloroethylene	200 ppm TWA	none listed	none listed

OSHA Vacated PELs: cis-1,2-Dichloroethylene: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: Clear
Odor: Pleasant odor
pH: Not available.
Vapor Pressure: 201 mm Hg @ 25 deg C
Vapor Density: 3.34 (air=1)
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 60 deg C @ 760 mm Hg
Freezing/Melting Point:-80 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble.
Specific Gravity/Density:1.2800
Molecular Formula:C2H2Cl2
Molecular Weight:96.94

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. This material is a monomer and may polymerize under certain conditions if the stabilizer is lost.
Conditions to Avoid: Light, ignition sources, exposure to air, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents, strong bases, copper.
Hazardous Decomposition Products: Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 156-59-2: KV9420000
LD50/LC50:
CAS# 156-59-2:
Inhalation, rat: LC50 = 13700 ppm;
.

Carcinogenicity:
CAS# 156-59-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: No data available.
Mutagenicity: No data available.
Neurotoxicity: No data available.
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	DOT regulated - small quantity provisions apply (see 49CFR173.4)	1,2-DICHLOROETHYLENE
Hazard Class:		3
UN Number:		UN1150
Packing Group:		II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 156-59-2 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 156-59-2 can be found on the following state right to know lists: Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European / International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:
XN F
Risk Phrases:

R 11 Highly flammable.
R 20 Harmful by inhalation.
R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 29 Do not empty into drains.
S 7 Keep container tightly closed.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 156-59-2: No information available.

Canada - DSL/NDSL

CAS# 156-59-2 is listed on Canada's NDSL List.

Canada - WHMIS

WHMIS: Not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 2/09/1998
Revision #5 Date: 3/16/2007

International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076

1,1,2,2-Tetrachloroethylene
Perchloroethylene
Tetrachloroethene
C_2Cl_4 / $Cl_2C=CCl_2$
Molecular mass: 165.8

ICSC # 0076
CAS # 127-18-4
RTECS # KX3850000
UN # 1897
EC # 602-028-00-4
April 13, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		STRICT HYGIENE! PREVENT GENERATION OF MISTS!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea. Weakness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles , face shield .	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Separated from metals ,(see Chemical Dangers), food and feedstuffs . Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 40-51/53 S: (2-)23-36/37-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0076

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride, phosgene, chlorine). The substance decomposes slowly on contact with moisture producing trichloroacetic acid and hydrochloric acid. Reacts with metals such as aluminium, lithium, barium, beryllium.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 25 ppm as TWA, 100 ppm as STEL; A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued; (ACGIH 2004).
MAK: skin absorption (H);
Carcinogen category: 3B;
(DFG 2004).
OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours)
NIOSH REL: Ca Minimize workplace exposure concentrations. See Appendix A
NIOSH IDLH: Ca 150 ppm See: 127184

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes , the skin and the respiratory tract . If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure at high levels may result in unconsciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver and kidneys. This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 121°C
Melting point: -22°C
Relative density (water = 1): 1.6
Solubility in water, g/100 ml at 20°C: 0.015

Vapour pressure, kPa at 20°C: 1.9
Relative vapour density (air = 1): 5.8
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.09
Octanol/water partition coefficient as log Pow: 2.9

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

N O T E S

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-61S1897

NFPA Code: H2; F0; R0;

ADDITIONAL INFORMATION

IMPORTANT LEGAL NOTICE:

	modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081

1,1,2-Trichloroethylene
Trichloroethene
Ethylene trichloride
Acetylene trichloride
C_2HCl_3 / $ClCH=CCl_2$
Molecular mass: 131.4

ICSC # 0081
CAS # 79-01-6
RTECS # KX4550000
UN # 1710
EC # 602-027-00-9
April 10, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions. See Notes.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION		Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS! STRICT HYGIENE!	
•INHALATION	Dizziness. Drowsiness. Headache. Weakness. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment.	Separated from metals (see Chemical Dangers), strong bases, food and feedstuffs . Dry. Keep in the dark. Ventilation along the floor. Store in an area without drain or sewer access.	Do not transport with food and feedstuffs. Marine pollutant. T symbol R: 45-36/38-52/53-67 S: 53-45-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0081 OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (phosgene , hydrogen chloride). The substance decomposes on contact with strong alkali producing dichloroacetylene , which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium, and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 50 ppm as TWA; 100 ppm as STEL; A5; BEI issued; (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3B; (DFG 2007).
OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)
NIOSH REL: Ca See Appendix A See Appendix C
NIOSH IDLH: Ca 1000 ppm See: 79016

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin . Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in respiratory failure . Exposure could cause lowering of consciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system , resulting in loss of memory. The substance may have effects on the liver and kidneys (see Notes). This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 87°C
Melting point: -73°C
Relative density (water = 1): 1.5
Solubility in water, g/100 ml at 20°C: 0.1
Vapour pressure, kPa at 20°C: 7.8
Relative vapour density (air = 1): 4.5
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.3
Auto-ignition temperature: 410°C
Explosive limits, vol% in air: 8-10.5
Octanol/water partition coefficient as log Pow: 2.42
Electrical conductivity: 800pS/m

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

N O T E S

Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.

Transport Emergency Card: TEC (R)-61S1710

NFPA Code: H2; F1; R0;
Card has been partially updated in October 2004: see Occupational Exposure Limits, EU Classification, Emergency Response.
Card has been partially updated in April 2010: see Occupational Exposure Limits, Ingestion First Aid, Storage.

ADDITIONAL INFORMATION

ICSC: 0081 **TRICHLOROETHYLENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

APPENDIX D

HOSPITAL INFORMATION AND MAP

FIELD ACCIDENT REPORT

FIELD ACCIDENT REPORT

This report is to be filled out by the designated Site Safety Officer after EVERY accident.

PROJECT NAME _____ PROJECT. NO._____

Date of Accident _____ Time _____ Report By _____

Type of Accident (Check One):

( ) Vehicular ( ) Personal ( ) Property

Name of Injured _____ DOB or Age _____

How Long Employed _____

Names of Witnesses _____

_____

Description of Accident _____

_____

_____

Action Taken _____

_____

_____

Did the Injured Lose Any Time? _____ How Much (Days/Hrs.)? _____

Was Safety Equipment in Use at the Time of the Accident (Hard Hat, Safety Glasses, Gloves, Safety Shoes, etc.)? _____

_____

(If not, it is the EMPLOYEE'S sole responsibility to process his/her claim through his/her Health and Welfare Fund.)

INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW

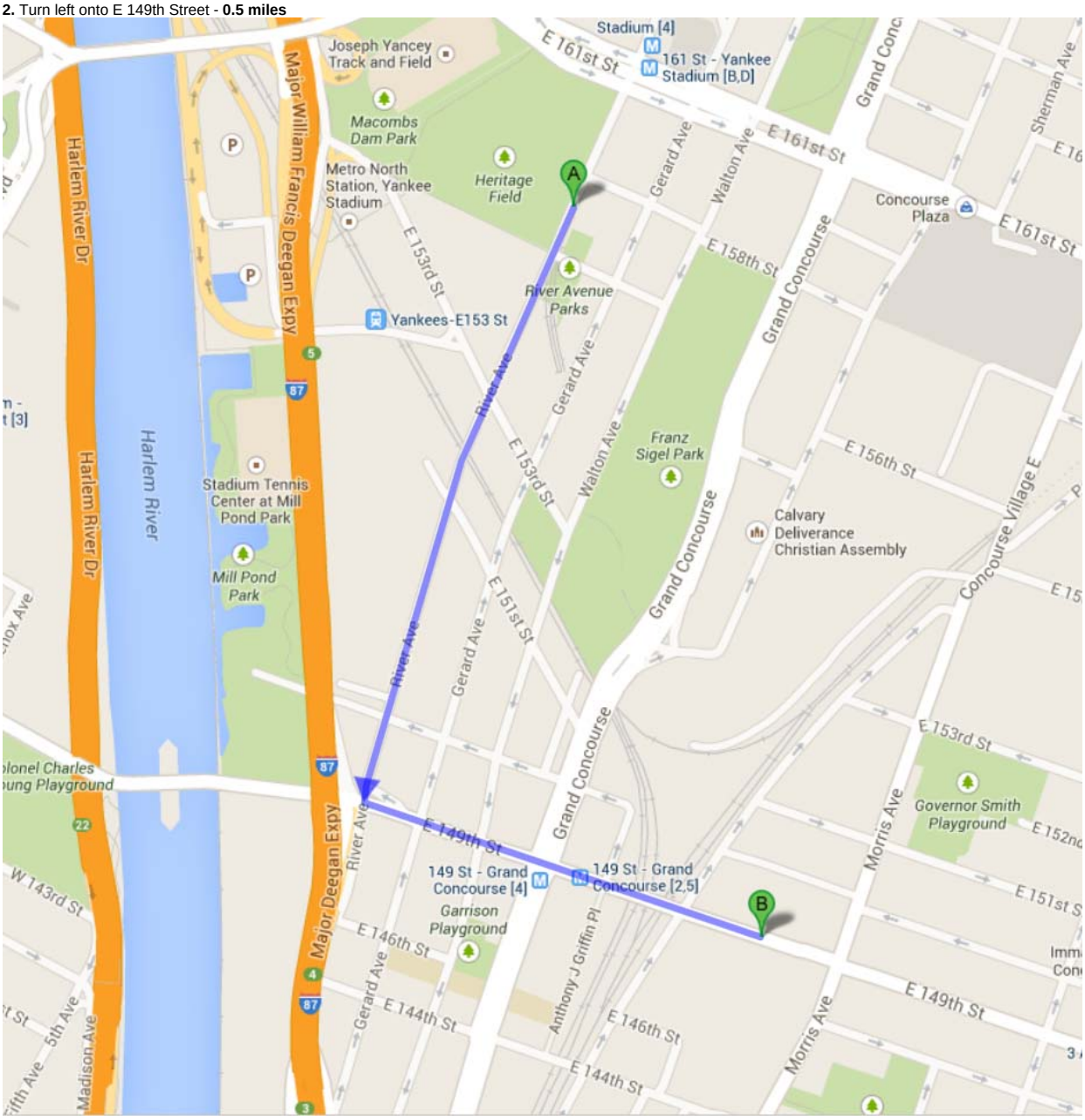
HOSPITAL INFORMATION AND MAP

The hospital nearest the site is:

Lincoln Medical Center Emergency

234 E. 149th Street, Bronx, NY 10451
(718) 579-6010
0.9 Miles – About 4 Minutes

1. Head South on River Avenue toward E 157th Street - **0.4 miles**
2. Turn left onto E 149th Street - **0.5 miles**



ATTACHMENT C
Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN
810 River Avenue Site
810 River Avenue, Bronx, NY

Prepared on behalf of:

810 River Partners LLC
225 Willow Avenue
Bronx, NY 10454

Prepared by:

EBC
Environmental Business Consultants
1808 Middle Country Road
Ridge, NY 11961

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QUALITY ASSURANCE PROJECT PLAN
810 River Avenue Site
810 River Avenue, Bronx, NY

TABLES

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared in accordance with DER-10 to detail procedures to be followed during the course of the sampling and analytical portion of the project, as required by the approved work plan.

To ensure the successful completion of the project each individual responsible for a given component of the project must be aware of the quality assurance objectives of his / her particular work and of the overall project. The EBC Project Director, Charles Sosik will be directly responsible to the client for the overall project conduct and quality assurance/quality control (QA/QC) for the project. The Project Director will be responsible for overseeing all technical and administrative aspects of the project and for directing QA/QC activities. Ms. Chawinie Miller will serve as the Quality Assurance Officer (QAO) and in this role may conduct:

- conduct periodic field and sampling audits;
- interface with the analytical laboratory to resolve problems; and
- interface with the data validator and/or the preparer of the DUSR to resolve problems.

Kevin Brussee will serve as the Project Manager and will be responsible for implementation of the Remedial Action Workplan and coordination with field sampling crews and subcontractors. Reporting directly to the Project Manager will be the Field Operations Officer, Kevin Waters; who will serve as the on-Site qualified environmental professional who will record observations, direct the drilling crew and be responsible for the collection and handling of all samples.

1.1 Organization

Project QA will be maintained under the direction of the Project Manager, in accordance with this QAPP. QC for specific tasks will be the responsibility of the individuals and organizations listed below, under the direction and coordination of the Project Manager

.

GENERAL RESPONSIBILITY	SCOPE OF WORK	RESPONSIBILITY OF QUALITY CONTROL
Field Operations	Supervision of Field Crew, sample collection and handling	K. Waters, EBC
Project Manager	Implementation of the RAWP.	Kevin Brussee, EBC
Laboratory Analysis	Analysis of soil samples by NYSDEC ASP methods Laboratory	NYSDOH-Certified Laboratory
Data review	Review for completeness and compliance	3rd party validation

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2.0 QUALITY ASSURANCE PROJECT PLAN OBJECTIVES

2.1 Overview

Overall project goals are defined through the development of Data Quality Objectives (DQOs), which are qualitative and quantitative Statements that specify the quality of the data required to support decisions; DQOs, as described in this section, are based on the end uses of the data as described in the work plan.

In this plan, Quality Assurance and Quality Control are defined as follows:

- Quality Assurance - The overall integrated program for assuring reliability of monitoring and measurement data.

- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

2.2 QA / QC Requirements for Analytical Laboratory

Samples will be analyzed by a New York State Department of Health (NYSDOH) certified laboratory, certified in the appropriate categories. Data generated from the laboratory will be used to evaluate contaminants such as metals and semi-volatile organic compounds (SVOCs) in both historic fills and hot-spot areas, chlorinated volatile organic compounds (VOCs) in soil, soil gas and groundwater and SVOCs in groundwater. The QA requirements for all subcontracted analytical laboratory work performed on this project are described below. QA elements to be evaluated include accuracy, precision, sensitivity, representativeness, and completeness. The data generated by the analytical laboratory for this project are required to be sensitive enough to achieve detection levels low enough to meet required quantification limits as specified in NYSDEC Analytical Services Protocol (NYSDEC ASP, 07/2005). The analytical results meeting the required quantification limits will provide data sensitive enough to meet the data quality objectives of this remedial program as described in the work plan. Reporting of the data must be clear, concise, and comprehensive. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

2.2.1 Instrument Calibration

Calibration curves will be developed for each of the compounds to be analyzed. Standard concentrations and a blank will be used to produce the initial curves. The development of calibration curves and initial calibration response factors must be consistent with method requirements presented in NYSDEC ASP 07/2005.

2.2.2 Continuing Instrument Calibration

The initial calibration curve will be verified every 12 hrs by analyzing one calibration standard. The standard concentration will be the midpoint concentration of the initial calibration curve. The calibration check compound must come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration. If the RPD is greater than 25%, then corrective action must be taken as provided in the specific methodology.

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2.2.3 Method Blanks

Method blank or preparation blank is prepared from an analyte·free matrix which includes the same reagents, internal standards and surrogate standards as me related samples. II is carried through the entire sample preparation and analytical procedure. A method blank analysis will be performed once for each 12 hr period during the analysis of samples for volatiles. An acceptable method blank will contain less than two (2) times the CRQL of methylene chloride, acetone and 2-butanone. For all other target compounds, the method blank must contain less than or equal to the CRQL of any single target compound. For non-target peaks in the method blank, the peak area must be less than 10 percent of the nearest internal standard. The method blank will be used to demonstrate the level of laboratory background and reagent contamination that might result from the analytical process itself.

2.2.4 Trip Blanks.

Trip blanks consist of a single set of sample containers filled at the laboratory with deionized. laboratory-grade water. The water used will be from the same source as that used for the laboratory method blank. The containers will be carried into the field and handled and transported in the same way as the samples collected that day. Analysis of the trip blank for VOCs is used to identify contamination from the air, shipping containers, or from other items coming in contact with the sample bottles. (The bottles holding the trip blanks will be not opened during this procedure.) A complete set of trip blanks will be provided with each shipment of samples to the certified laboratory.

2.2.5 Surrogate Spike Analysis

For organic analyses, all samples and blanks will be spiked with surrogate compounds before purging or extraction in order to monitor preparation and analyses of samples. Surrogate spike recoveries shall fall within the advisory limits in accordance with the NYSDEC ASP protocols for samples falling within the quantification limits without dilution.

2.2.6 Matrix Spike / Matrix Spike Duplicate / Matrix Spike Blank (MS/MSDIMSB) Analysis

MS, MSD and MSB analyses will be performed to evaluate the matrix effect of the sample upon the analytical methodology along with the precision of the instrument by measuring recoveries. The MS / MSD / MSB samples will be analyzed for each group of samples of a similar matrix at a rate of one for every 20 field samples. The RPD will be calculated from the difference between the MS and MSD. Matrix spike blank analysis will be performed to indicate the appropriateness of the spiking solution(s) used for the MS/MSD.

2.3 Accuracy

Accuracy is defined as the nearness of a real or the mean (x) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (% REC). The MS sample is used to determine the percent recovery. The matrix spike percent recovery (% REC) is calculated by the following equation:

$$\%REC = \frac{SSR - SR}{SA} \times 100$$

Where:

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SSR = spike sample results
SR = sample results
SA = spike added from spiking mix

2.4 Precision

Precision is defined as the measurement of agreement of a set of replicate results among themselves without a Precision is defined as the measurement of agreement of a set of replicate results among themselves without assumption of any prior information as to the true result. Precision is assessed by means of duplicate/replicate sample analyses.

Analytical precision is expressed in terms of RPD. The RPD is calculated using the following formula:

$$RPD = \frac{D^1 - D^2}{(D^1 + D^2)/2} \times 100$$

Where:
RPD = relative percent difference
D^1 = first sample value
D^2 = second sample value (duplicate)

2.5 Sensitivity

The sensitivity objectives for this plan require that data generated by the analytical laboratory achieve quantification levels low enough to meet the required detection limits specified by NYSDEC ASP and to meet all site-specific standards, criteria and guidance values (SGCs) established for this project.

2.6 Representativeness

Representativeness is a measure of the relationship of an individual sample taken from a particular site to the remainder of that site and the relationship of a small aliquot of the sample (i.e., the one used in the actual analysis) to the sample remaining on site. The representativeness of samples is assured by adherence to sampling procedures described in the Remedial Investigation Work Plan.

2.7 Completeness

Completeness is a measure of the quantity of data obtained from a measurement system as compared to the amount of data expected from the measurement system. Completeness is defined as the percentage of all results that are not affected by failing QC qualifiers, and should be between 70 and 100% of all analyses performed. The objective of completeness in laboratory reporting is to provide a thorough data support package. The laboratory data package provides documentation of sample analysis and results in the form of summaries, QC data, and raw analytical data. The laboratory will be required to submit data packages that follow NYSDEC ASP reporting format which, at a minimum, will include the following components:

1. All sample chain-of-custody forms.
2. The case narrative(s) presenting a discussion of any problems and/or procedural changes required during analyses. Also presented in the case narrative are sample summary forms.
3. Documentation demonstrating the laboratory's ability to attain the contract specified detection limits for all target analytes in all required matrices.
4. Tabulated target compound results and tentatively identified compounds.
5. Surrogate spike analysis results (organics).

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6. Matrix spike/matrix spike duplicate/matrix spike blank results.
7. QC check sample and standard recovery results
8. Blank results (field, trip, and method).
9. Internal standard area and RT summary.

2.8 Laboratory Custody Procedures

The following elements are important for maintaining the field custody of samples:

- Sample identification
- Sample labels
- Custody records
- Shipping records
- Packaging procedures

Sample labels will be attached to all sampling bottles before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken. Approximate sampling locations will be marked on a map with a description of the sample location. The number, type of sample, and sample identification will be entered into the field logbook. A chain-of-custody form, initiated at the analytical laboratory will accompany the sample bottles from the laboratory into the field. Upon receipt of the bottles and cooler, the sampler will sign and date the first received blank space. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures

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3.0 ANALYTICAL PROCEDURES

3.1 Laboratory Analysis

Samples will be analyzed by the NYSDEC ASP laboratory for one or more of the following parameters: VOCs in soil by USEPA Method 8260C, SVOCs in soil by USEPA Method 8270D, Target Analyte Metals 6010C in soil, pesticides and PCBs by USEPA Method 8081B/8082A and VOCs in air by USEPA Method TO15. If any modifications or additions to the standard procedures are anticipated. and if any nonstandard sample preparation or analytical protocol is to be used, the modifications and the nonstandard protocol will be explicitly defined and documented. Prior approval by EBC's PM will be necessary for any nonstandard analytical or sample preparation protocol used by the laboratory, i.e., dilution of samples or extracts by greater than a factor of five (5).

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4.0 DATA REDUCTION, REVIEW, AND REPORTING

4.1 Overview

The process of data reduction, review, and reporting ensures the assessments or a conclusion based on the final data accurately reflects actual site conditions. This plan presents the specific procedures, methods, and format that will be employed for data reduction, review and reporting of each measurement parameter determined in the laboratory and field. Also described in this section is the process by which all data, reports, and work plans are proofed and checked for technical and numerical errors prior to final submission.

4.2 Data Reduction

Standard methods and references will be used as guidelines for data handling, reduction, validation, and reporting. All data for the project will be compiled and summarized with an independent verification at each step in the process to prevent transcription/typographical errors. Any computerized entry of data will also undergo verification review.

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Analytical results shall be presented on standard NYSDEC ASP-B forms or equivalents, and include the dates the samples were received and analyzed, and the actual methodology used. Note that waste characterization samples (if collected) will be in results only format and will not be evaluated in the DUSR.

Laboratory QA/QC information required by the method protocols will be compiled, including the application of data QA/QC qualifiers as appropriate. In addition, laboratory worksheets, laboratory notebooks, chains-of-custody, instrument logs, standards records, calibration records, and maintenance records, as applicable, will be provided in the laboratory data packages to determine the validity of data. Specifics on internal laboratory data reduction protocols are identified in the laboratory's SOPs.

Following receipt of the laboratory analytical results by EBC, the data results will be compiled and presented in an appropriate tabular form. Where appropriate, the impacts of QA/QC qualifiers resulting from laboratory or external validation reviews will be assessed in terms of data usability.

4.3 Laboratory Data Reporting

All sample data packages submitted by the analytical laboratory will be required to be reported in conformance to the NYSDEC ASP (7/2005), Category B data deliverable requirements as applicable to the method utilized. All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Note that waste characterization samples will be in results only format and will not be evaluated in the DUSR.

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5.0 CORRECTIVE ACTION

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved project plans due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the EBC PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

During the field investigation, all changes to the sampling program will be documented in field logs/sheets and the EBC PM advised.

If any problems occur with the laboratory or analyses, the laboratory must immediately notify the PM, who will consult with other project staff. All approved corrective actions shall be controlled and documented.

All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs. The PM shall be responsible for controlling, tracking, implementing and distributing identified changes.

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TABLE 1
SUMMARY OF
SAMPLING PROGRAM RATIONALE AND ANALYSIS

Matrix	Location	Approximate Number of Samples	Frequency	Rationale for Sampling	Laboratory Analysis	Duplicates	Matrix Spikes	Spike Duplicates	Trip Blanks
Soil	Excavation Bottom	16	1 per 900 square feet	Endpoint verification	VOCs / SVOCs by 8260C / 8270D, pesticides by 8081, PCBs by 8082 and TAL Metals 6010C	1 per day	1 per 20 samples	1 per 20 samples	1 per trip

TABLE 2
SAMPLE COLLECTION AND ANALYSIS PROTOCOLS

Sample Type	Matrix	Sampling Device	Parameter	Sample Container	Sample Preservation	Analytical Method#	CRQL / MDLH	Holding Time
Soil	Soil	Scoop Direct into Jar	VOCs	(1) 2 oz Jar	Cool to 4^{o} C	EPA Method 8260C	Compound specific (1-5 ug/kg)	14 days*
			SVOCs	(1) 8 oz jar	Cool to 4^{o} C	EPA Method 8270D	Compound specific (1-5 ug/kg)	14 day ext/40 days*
			Pest/PCBs	from 8oz jar above	Cool to 4^{o} C	EPA Method 8081B/8082A	Compound specific (1-5 ug/kg)	14 day ext/40 days*
			Metals	from above	Cool to 4^{o} C	TAL Metals 6010C	Compound specific (01-1 mg/kg)	6 months*

Notes:
All holding times listed are from Verified Time of Sample Receipt (VTSR) unless noted otherwise. * Holding time listed is from time of sample collection.
The number in parentheses in the "Sample Container" column denotes the number of containers needed.
Triple volume required when collected MS/MSD samples
The number of trip blanks are estimated.
CRQL / MDL = Contract Required Quantitation Limit / Method Detection Limit.
MCAWW = Methods for Chemical Analysis of Water and Wastes.
NA = Not available or not applicable.
* = all collection and holding times will be as be the ASP

ATTACHMENT D
Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

810 RIVER AVENUE SITE
810 RIVER AVENUE
BRONX, NY

MARCH - 2015

COMMUNITY AIR MONITORING PLAN
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APPENDICES

1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared for the excavation and building activities to be performed under a Remedial Action Work Plan (RAWP) at the 810 River Avenue Site. The CAMP provides measures for protection for the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the investigation activities) from potential airborne contaminant releases resulting from investigative activities at the site.

Compliance with this CAMP is required during all activities associated with soil excavation that have the potential to generate airborne particulate matter and volatile organic compounds (VOCs). These activities include excavation of soils, stockpiling, loading, and backfilling. This CAMP has been prepared to ensure that soil disturbance activities do not adversely affect passersby, residents, or workers in the area immediately surrounding the Site and to preclude or minimize airborne migration of construction-related contaminants to offsite areas.

1.1 Regulatory Requirements

This CAMP was established in accordance with the following requirements:

- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan as presented in DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC May 3, 2010). This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air;

- New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Memorandum (TAGM) #4031 - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites: This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2.0 AIR MONITORING

VOCs are the constituents of concern at the Site. The appropriate method to monitor air for these constituents during soil disturbance activities is through real-time VOC and air particulate (dust) monitoring.

2.1 Meteorological Data

At a minimum, wind direction will be evaluated at the start of each workday, noon of each workday, and the end of each workday. These readings will be utilized to position the monitoring equipment in appropriate upwind and downwind locations.

2.2 Community Air Monitoring Requirements

To establish ambient air background concentrations, air will be monitored at several locations around the site perimeter before activities begin. These points will be monitored periodically in series during the site work. When the excavation area is within 20 feet of potentially exposed populations or occupied structures, the perimeter monitoring points will be located to represent the nearest potentially exposed individuals at the downwind location.

Fugitive respirable dust will be monitored using a MiniRam Model PDM-3 aerosol monitor (or equivalent). Air will be monitored for VOCs with a portable Ionscience 3000 photoionization detector (PID), minirae 2000, or equivalent. All air monitoring data will be documented in a site log book by the designated site safety officer. The site safety officer or delegate must ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. All instruments will be zeroed daily and checked for accuracy. A daily log will be kept. If additional monitoring is required, the protocols will be developed and appended to this plan

3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

Volatile organic compounds (VOCs) will 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. 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.

- 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.

- 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.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

All readings will be recorded and made available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report, as shown in Appendix A, will be completed.

3.1 Potential Corrective Measures and VOC Suppression Techniques

If the 15-minute integrated VOC level at the downwind location persists at a concentration that exceeds the upwind level by more than 5 ppm but less than 25 ppm during remedial activities, then vapor suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive organic vapors:

- limiting the excavation size;
- backfilling the excavation;
- spraying water onto the excavation faces and equipment;
- covering soil stockpiles with 6-mil plastic sheeting;
- hauling waste materials in properly tarped containers; and/or
- applying vapor suppressant foam (BioSolve Pinkwater or similar).

4.0 PARTICULATE MONITORING

Air monitoring for particulates (i.e., dust) will be performed continuously during excavation and loading activities using both air monitoring equipment and visual observation at upwind and downwind locations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM_{10}) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at upwind (i.e., background) and downwind locations, at heights approximately four to five feet above land surface (i.e., the breathing zone). Monitoring equipment will be MIE Data Ram monitors, or equivalent. The audible alarm on the particulate monitoring device will be set at 90 micrograms per cubic meter ($\mu g/m_3$). This setting will allow proactive evaluation of worksite conditions prior to reaching the action level of 100 $\mu g/m^3$ above background. The monitors will be calibrated at least once per day prior to work activities and recalibrated as needed thereafter. In addition, fugitive dust migration will be visually assessed during all intrusive work activities.

The following summarizes particulate action levels and the appropriate responses:

- If the downwind PM-10 particulate level is 150 $\mu g/m^3$ 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 100 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 100 $\mu g/m^3$ above the upwind level, work must be stopped and an evaluation of activities initiated. Work can resume provided that dust suppression measures (as described in Section 2.3.1 below) and other controls are successful in reducing the downwind PM-10 particulate concentration to within 100 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report as shown in **Appendix A** will be completed.

4.1 Potential Particulate Suppression Techniques

If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 $\mu g/m^3$ at any time during remediation activities, then dust suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive dusts:

- limiting the excavation size;
- backfilling the excavation;
- spraying water onto the excavation faces and equipment;
- covering soil stockpiles with 8-mil plastic sheeting;
- hauling waste materials in properly tarped containers; and/or
- limiting vehicle speeds onsite.

Work may continue with dust suppression techniques provided that downwind PM_{10} levels are not more than 150 $\mu g/m^3$ greater than the upwind levels.

There may also be situations where the dust is generated by remediation activities and migrates to downwind locations, but is not detected by the monitoring equipment at or above the action level. Therefore, if dust is observed leaving the working area, dust suppression techniques such as those listed above will be employed.

If dust suppression techniques do not lower particulates to below 150 $\mu g/m^3$, or visible dust persists, work will be suspended until appropriate corrective measures are identified and implemented to remedy the situation.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review.

5.0 DATA QUALITY ASSURANCE

5.1 Calibration

Instrument calibration shall be documented on instrument calibration and maintenance sheets or in the designated field logbook. All instruments shall be calibrated as required by the manufacturer. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

5.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the SSO for reference.

5.3 Data Review

The SSO will interpret all monitoring data based the established criteria and his/her professional judgment. The SSO shall review the data with the PM to evaluate the potential for worker exposure, upgrades/downgrades in level of protection, comparison to direct reading instrumentation and changes in the integrated monitoring strategy.

Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the PM.

6.0 RECORDS AND REPORTING

All air readings must be recorded on daily air monitoring log sheets and made available for review by personnel from NYSDEC and NYSDOH. A summary of weekly CAMP data will be send to the NYSDEC and NYSDOH project managers for review. The NYSDEC and NYSDEOH project managers will also be notified in a timely manner of any CAMP exceedances and corrective actions taken.

APPENDIX A
ACTION LIMIT REPORT

CAMP
ACTION LIMIT REPORT

Project Location: _____

Date: _____ Time: _____

Name: _____

Contaminant: _____ PM-10: _____ VOC: _____

Wind Speed: _____ Wind Direction: _____

Temperature: _____ Barometric Pressure: _____

DOWNWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

UPWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

BACKGROUND CORRECTED LEVELS

Monitor ID #: Location: _____ Level Reported: Level Reported: _____

ACTIONS TAKEN

_____
_____
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_____

ATTACHMENT E
Citizen Participation Plan

New York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan

for

810 RIVER AVENUE SITE

810 River Partners LLC
225 Willow Avenue
Bronx, NY 10454

December 2014

Contents

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Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **810 River Partners LLC**
Site Name: 810 River Avenue **("Site")**
Site Address: **810 River Avenue**
Site County: **Bronx**
Site Number: **C203066**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: http://www.dec.ny.gov/chemical/8450.html.

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment;

- Improving public access to, and understanding of, issues and information related to a particular site and that Site's investigation and cleanup process;

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process;

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community; and

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the Site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the Site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the Site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC website. If this occurs, NYSDEC will inform the public in fact sheets distributed about the Site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the Site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.
The site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the Site is located;
- Residents, owners, and occupants of the Site and properties adjacent to the Site;
- The public water supplier which services the area in which the Site is located;
- Any person who has requested to be placed on the site contact list;

- The administrator of any school or day care facility located on or near the Site for purposes of posting and/or dissemination of information at the facility; and
- Location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the Site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

- **Document repositories** allow the public to access and review project documents including investigation and cleanup work plans and final reports.

The public is encouraged to contact project staff at any time during the Site's investigation and cleanup process with questions, comments, or requests for information. This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the Site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the Site, as described in Section 5.

If the Site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret

and understand existing environmental information about the nature and extent of contamination related to the Site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the Site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the Site.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html.

Note: The table identifying the citizen participation activities related to the Site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repositories	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement:	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report • Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the Site. Additional major issues of public concern may be identified during the course of the Site's investigation and cleanup process.

The major issues of concern to the public will be potential impacts of nuisance odors and dust during the removal of affected soil at the Site. Another example of a major issue of public concern would be the impact of increased truck traffic on the surrounding neighborhood. Construction safety issues will also be addressed.

This work will be performed in accordance with procedures which will be specified under a detailed Remedial Program which considers and takes preventive measures for exposures to future residents of the property and those on adjacent properties during construction. Detailed plans to monitor the potential for exposure including a Health and Safety Plan (HASP) and a Community Air Monitoring Plan (CAMP) are required components of the remedial program. Implementation of these plans will be under the direct oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

These plans will specify the following worker and community health and safety activities during remedial activity at the Site:

- On-site air monitoring for worker protection;
- Perimeter air monitoring for community protection;
- The use of odor, vapor, and dust controls, such as water or foam sprays, as needed;
- Monitoring and control of soil, sediments, and water generated during remediation; and
- Truck routes which avoid residential streets.

The HASP and the CAMP will be prepared as part of the Remedial Action Work Plan (RAWP) and will be available for public review at the document repository as identified in Appendix A (page 11).

Furthermore, the Applicant has prepared a Scoping Sheet for Major Issues of Public Concern which will assist them in identifying any concerns. Experience from similar projects, 311 complaints and other construction projects in the area will help in identifying such issues.

4. Site Information

Appendix C contains a map identifying the location of the Site.

Site Description

The Site to be remediated and redeveloped is located in the South Bronx (Bronx County) and is comprised of a single tax parcel covering 20,000 square feet (0.46 acres). The subject property is located in the City of New York and Borough of the Bronx (Bronx County). The lot is located on the east side of River Avenue East 157th and East 158th Streets and is identified as Block 2483 Lot 5 on

the NY City tax map. Lot 5 consists of 200 feet of street frontage on River Avenue and is approximately 100 feet deep. The lot was developed with a two-story commercial building which occupies the entire lot. This building is currently undergoing demolition. According to the NYC Department of Buildings, the building was constructed in 1927.

The property has an elevation of approximately 27 feet above the National Geodetic Vertical Datum (NGVD). Based upon regional groundwater contour maps, and measurements made at the Site, the depth to groundwater beneath the site is approximately 20 feet below existing grade and flows northwest toward the Harlem River.

The land use in the immediate vicinity of the Site includes underutilized, or vacant, commercial properties to the west, single family residential homes and an underutilized former garage to the south, a health clinic and retail stores to the east and a self storage building to the north.

The area surrounding the property is highly urbanized and predominantly consists of multi-story apartment buildings with occasional street-level retail along Gerard and Walton Avenues. Commercial use properties front on River Avenue to the north of the Site. Macomb Dam Park is located west of the Site across River Avenue. Two additional small parks known as the River Pocket Parks, adjoin the Site to the south.

History of Site Use, Investigation, and Cleanup
The property is currently owned by 810 River Partners LLC. The existing building is currently vacant.

The Site was first developed sometime before 1909, at which time it consisted of a small ancillary structure along River Avenue. The Site building was reportedly built in 1927and utilized as a garage as early as 1949. A 1951 Sanborn fire insurance map depicts the Site as a garage with two 550-gallon buried gasoline tanks. The City Directory also indicates that the Site was utilized as an automotive service center in 1956. One of the four certificates of occupancy for the Site notes it was utilized as a warehouse in 1958. The Site was converted to use as a bowling alley in approximately 1960 and continued in this use till 2010. The Site has been vacant since 2010 and the building is currently being demolished.

A soil investigation performed at the Site in July 2014 identified elevated levels of heavy metals including one or more of the following: arsenic, copper, lead, mercury and zinc were reported in the 0-4 ft composite sample from all four test pit locations. In addition, barium, lead, zinc and hexavalent chromium were reported above unrestricted use objectives in the 4-8 foot interval in the southwestern quadrant of the Site. Barium and lead were reported above restricted residential use objectives in this location. Lead was also found at leachable levels classifying this soil as hazardous.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program (BCP) as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the Site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination on-site, and must conduct a qualitative exposure assessment, (a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the Site and to contamination that has migrated from the Site).

The Applicant proposes that the Site will be used for the construction of a new 17-story apartment building with first and second floor commercial space which will cover the entire Site. The cellar level of the building will be utilized as a parking garage for 61 cars, but will also contain the building's water meter room, gas meter room, electric meter room, tenant storage rooms, bicycle storage room, super's office and telecommunications closet. Access to the cellar will be from the vehicle ramp from East 158th Street, two interior stairwells and/or four elevators. The first floor of the proposed building will consist of a 10,542 sf commercial space, the ramp to the underground parking garage, and the residential lobby which will consist of a security booth, package/mail room, manager's office, compactor room, and recycle room. The second floor will consist of a 15,730 sf of commercial and community facility space. The 3rd through 14th floors will consist of residential apartments.

To achieve this goal, the Applicant will conduct investigation and cleanup activities at the Site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement (BCA) executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the Site.

Investigation

The Applicant has completed a Remedial Investigation before it entered into the BCP. The Applicant will next submit a Remedial Investigation Report NYSDEC will use the information in the investigation report to determine if the Site poses a significant threat to public health or the environment. If the Site is a significant threat, it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the Site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Remedy Selection

When the investigation of the Site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the Site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary

revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a Certificate of Completion (COC) (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a Remedial Work Plan. The Remedial Work Plan describes the Applicant's proposed remedy for addressing contamination related to the Site.

When the Applicant submits a proposed Remedial Work Plan for approval, NYSDEC would announce the availability of the proposed plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the Site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the Site, it will approve the FER. NYSDEC then will issue a COC to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the Site after it receives a COC.

Site Management

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the Site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan (SMP).

An institutional control is a non-physical restriction on use of the Site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the Site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Michael MacCabe
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7016
Tel: 518-402-9767
Email: michael.maccabe@dec.ny.gov

Thomas Panzone
Regional Citizen Participation Specialist
NYSDEC Region 2
Office of Communications Services
47-40 21st Street
Long Island City, NY 11101-5407
Tel: (718) 482-4953
Email: thomas.panzone(@dec.state.ny.gov

New York State Department of Health (NYSDOH):
Krista Anders
New York State Department of Health
Bureau of Environmental Exposure Investigation
Empire State Plaza – Corning Tower Room 1787
Albany, New York 12237
Tel: (518) 402-7860
Email: BEEI@health.ny.gov

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

New York Public Library - Melrose Branch
910 Morris Avenue
Bronx, New York 10451
Telephone (718) 588-0110

Hours:
Mon 10:00 AM - 7:00 PM
Tue 10:00 AM - 6:00 PM
Wed 10:00 AM - 7:00 PM
Thu 10:00 AM - 6:00 PM
Fri 10:00 AM - 5:00 PM
Sat 10:00 AM - 5:00 PM
Sun closed

Appendix B - Site Contact List

Local Government Contacts:

City of New York
William de Blasio
Mayor of New York City
City Hall
New York, NY 10007

Ruben Diaz, Jr.
Bronx Borough President
851 Grand Concourse, Suite 301
Bronx, New York 10451
Telephone (718) 590-3500

Kathleen Saunders
Chair, Bronx Community Board 4
1650 Selwyn Avenue, Suite 11A
Bronx, New York 10457
Telephone (718) 299-0800
Fax (718) 294-7870

Jose Rodriguez
District manager, Bronx Community Board 4
1650 Selwyn Avenue, Suite 11A
Bronx, New York 10457
Telephone (718) 299-0800
Fax (718) 294-7870

Mellisa Mark - Viverito
New York City Council Speaker – District 8
105 East 116th Street
New York, NY 10029
Telephone (212) 828-9800
Fax (212) 722-6378

Carl Weisbrod
Chair of City Planning (Zoning)
22 Reade St.
Third Floor
New York, NY 10007

Carol Samol
Director, NYC Planning Commission – Bronx Office
1 Fordham Plz.
Bronx, New York 10458
Telephone (718) 220-8500
Constance Moran

New York City Department of Transportation
Bronx Borough Commissioner
55 Water Street, 9th Floor
New York, NY 10041
212-748-6680

Bronx County Clerk's Office
Luis M. Diaz, County Clerk
851 Grand Concourse, Room 118
Bronx, New York 10451
Telephone (866) 797-7214

Ms. Letitia James
Public Advocate
1 Centre Street, 15th Floor
New York, NY 10007
Email: kjfoy@pubadvocate.nyc.gov

Hon. Scott M. Stringer
Office of the Comptroller
1 Centre Street
New York, NY 10007
Email: intergov@comptroller.nyc.gov

John Wuthenow
Office of Environmental Planning & Assessment
NYC Dept. of Environmental Protection
96-05 Horace Harding Expressway
Flushing, NY 11373

Daniel Walsh
NYC Department of Environmental Remediation
100 Gold Street
New York, NY 10038

New York State
Senator José M. Serrano
Senatorial District: 29
1916 Park Avenue Suite 202,
New York, NY 10037
Telephone (212) 828-5829
Fax (212) 828-2420

Asm. Carmen E. Arroyo
84th Assembly District
384 East 149th Street, Suite 301
Bronx, New York 10455
Telephone (718) 292-2901
Federal

Hon. Charles Schumer
U.S. Senator
757 Third Avenue, Suite 17-02
New York, NY 10017

Hon. Kirsten Gillibrand
U.S. Senator
780 Third Avenue, Suite 2601
New York, NY 10017

Rep. José E. Serrano
Congressional District: 15
1231 Lafayette Avenue, 4th Floor
Bronx, New York 10474
Telephone (718) 620-0084
Fax (718) 620-0658

Adjacent Property Owner / Occupant Contacts

Contact information for the identified owners, as listed in the New York City ACRIS Database, are as follows:

North

1. Owner
   BCLSS Realty Corp
   838 River Avenue
   Bronx, New York 10451

   Occupant / Tenant 1
   Stan's Sports Bar
   836 River Avenue
   Bronx, New York 10451

   Occupant / Tenant 2
   Stan the Man's Kids & Ladies
   840 River Avenue
   Bronx, New York 10451

2. Owner
   85 East 158th Street LLC
   C/o Solil Management
   640 Fifth Avenue
   New York, New York 10019

   Occupant / Tenant

River Parking Systems Corp
Address: 85 East 158th Street
Bronx, New York 10451

3. Owner
Gerard Realty LLC
734 West Broadway
Woodmere, New York 11598

Occupant / Tenant - Multiple
Building Manager
Martin Scharf
485 W. 187th Street
New York, NY 10033

East

4. Owner
Ved Parkash
172-14 89th Avenue
Jamaica Avenue, New York 11432

Occupant / Tenant - Multiple
Building Manager
Ved Parkash
172-14 89th Avenue
Jamaica Avenue, New York 11432

5. Owner
Parkash 815 LLC
172-14 89th Avenue
Jamaica Avenue, New York 11432

Occupant / Tenant - Multiple
Building Manager
Ved Parkash
172-14 89th Avenue
Jamaica Avenue, New York 11432

South

6. Owner
City of New York Parks & Recreation
The Arsenal Central Park
830 Fifth Avenue
New York, New York 10065

West

7. Owner
City of New York Parks & Recreation
The Arsenal Central Park
830 Fifth Avenue
New York, New York 10065

Local News Media

Bronx Times
900 E. 132nd Street
Bronx, NY 10454
(718) 597-1116

New York Times
620 Eighth Ave.
New York, NY 10018

New York Daily News
450 W. 33 Street
New York, NY 10001

New York Post
1211 Avenue of the Americas
New York, NY 10036-8790

Public Water Supplier

New York City Department of Environmental Protection
Bureau of Water Supply
1250 Broadway - 8th Floor
Manhattan, NY 10001

Requested Contacts

No requests have been made at this time.

Schools and Daycare Facilities

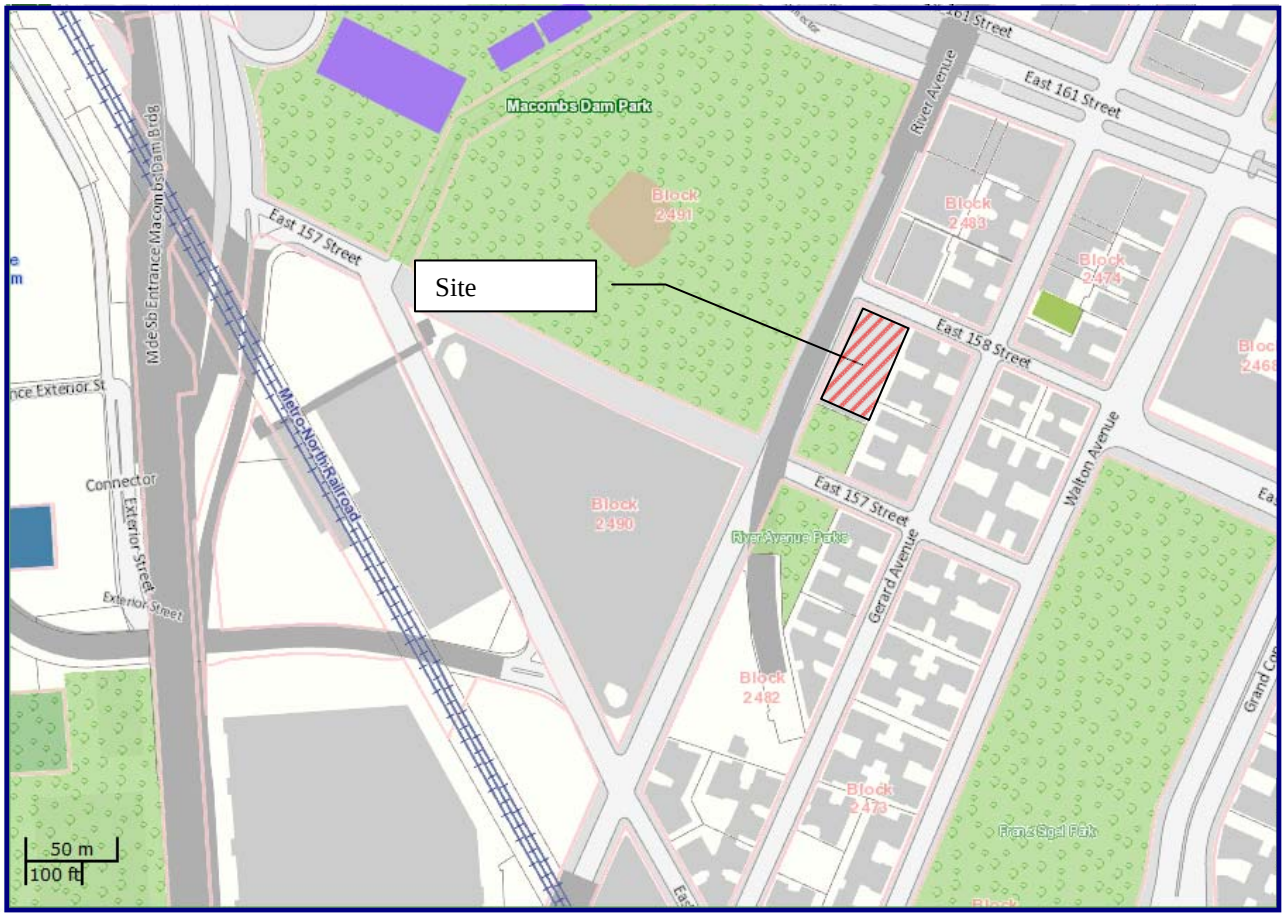
The following Schools and Daycare facilities were identified in the vicinity of the project Site:

1 1st Impression Child Care & Development Center, Inc.
881 Gerard Avenue, 2nd Floor, Suite 700
Bronx, New York 10452
Attn: M. Pompee, Executive Director
Telephone (718) 588-3800

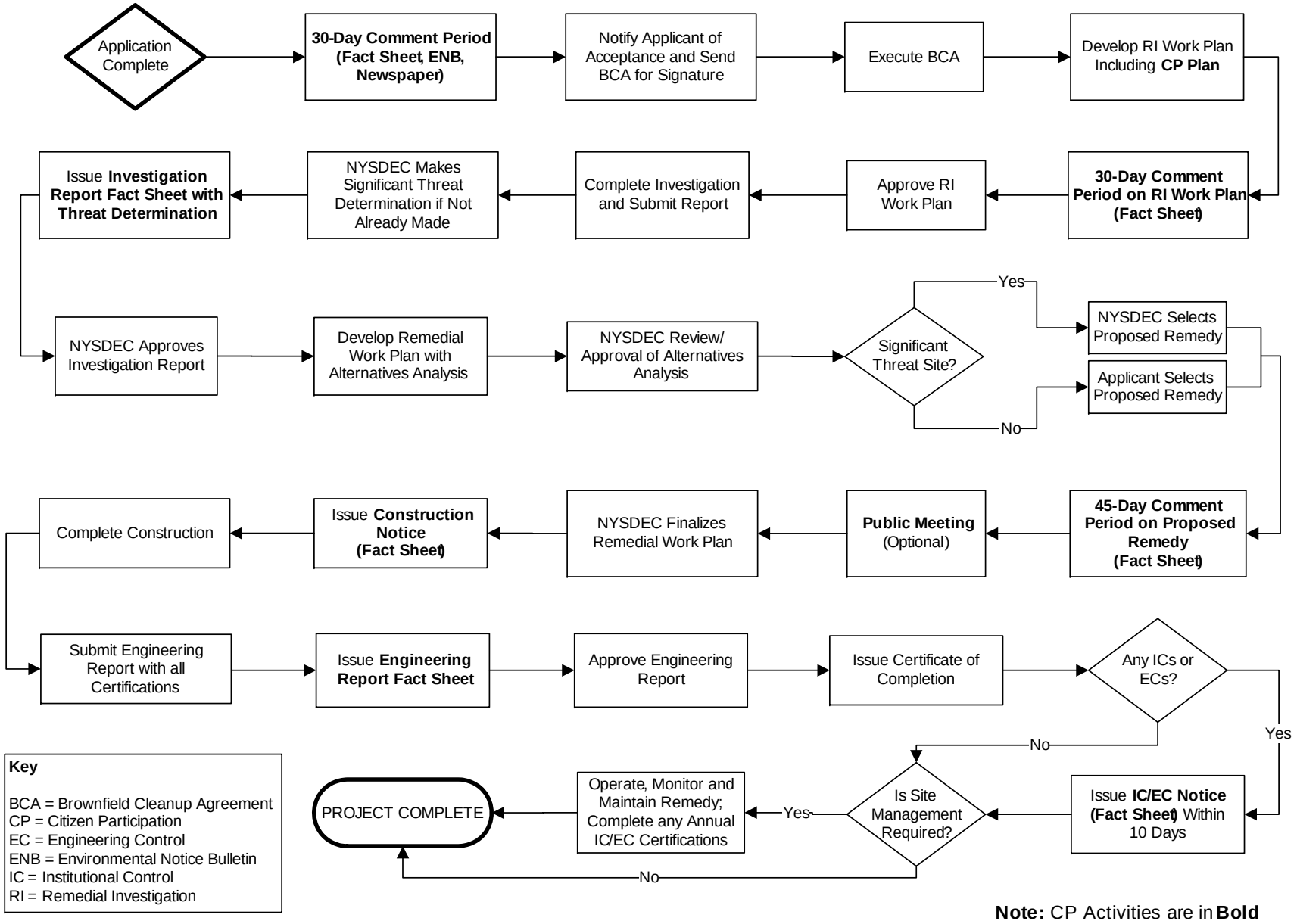
2 Highbridge Advisory Council Head Start

880 River Avenue
Bronx, New York 10452
Attn: James Nathaniel, Chief Executive Officer
Telephone (718) 992-1321

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Note: CP Activities are in **Bold**

ATTACHMENT F
Resumes

AMC Engineering
99 Jericho Turnpike, Suite 300J
Jericho, NY 11590
Phone: (516) 417-8588

ARIEL CZEMERINSKI, P.E.

Mr. Czemerinski is a New York State Professional Engineer and CEO of AMC Engineering PLLC an EBC affiliate. Mr. Czemerinski has with 20 years of experience in the chemical and environmental areas. Areas of expertise include environmental compliance, permitting, remedial system design, process and plant safety, and management of a production facility. Mr. Czemerinski is a Registered Professional Engineer in NY, IN, IL, and MI.

Professional Experience
AMC: 14
Prior: 6 years

Education
Master of Science in Chemical Engineering, Columbia University, New York, NY, Feb. 1990. Bachelor of Science in Chemical Engineering, University Of Buenos Aires, Buenos Aires, Argentina, May 1987

Areas of Expertise

- Vapor Intrusion - Barrier and Sub Slab Venting System Design
- Environmental Assessment Statements and Environmental Impact Assessments under CEQR, ULURP
- Remedial Program Design and Management
- Environmental Compliance, Clean Water Act, Clean Air Act, Hazardous Materials
- Dewatering & Treatment System Design
- NYCDEP Sewer Discharge Permitting
- Transfer Station Permitting and Compliance
- Chemical Process Design and Optimization
- Wastewater Treatment Systems and Permitting, SPEDES, Air
- Zoning Regulations and Permitting
- Safety and Environmental Training
- Waste Management Plans

Professional Certifications

- OSHA 40-hr HAZWOPER
- OSHA 8-hr HAZWOPER Supervisor

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Charles B. Sosik, PG, PHG, Principal

Professional Experience

24 years

Education

MS, Hydrogeology, Adelphi University, NY
BS, Geology, Northern Arizona University, AZ

Areas of Expertise

- Brownfields Redevelopment
- Hazardous Waste Site Investigations
- Pre-purchase Site Evaluations and Support
- Regulatory Negotiations
- Remedial Planning and "Cost to Cure" Analysis
- Strategic Planning
- Real Estate Transactions
- NYC "E" Designations

Professional Certification

- Professional Geologist, NH
- Professional Geologist, Hydrogeologist, WA
- OSHA 40-hr HAZMAT
- OSHA 8-hr. Supervisor

Professional Affiliation / Committees

- NYS Council of Professional Geologists (NYSCPG)
- Association of Groundwater Scientists & Engineers (AGSE)
- NYS RBCA Advisory Committee
- Massachusetts LSP Association
- New Hampshire Association of Professional Geologists
- Interstate Technology Regulatory Council/MTBE Team
- Environmental Business Association, Brownfields Task Force
- Part 375 Working Group

PROFILE

Mr. Sosik has 24 years of experience in environmental consulting. He specializes in advising clients on managing environmental compliance with federal, state, and municipal agencies and has successfully directed numerous investigation and remediation projects involving petroleum, pesticides, chlorinated solvents, heavy metals and radiologically activated media. His work included extensive three-dimensional investigations on MTBE, which have been used effectively to help shape public policy. He also has experience in applying models to groundwater related problems and has completed several large-scale projects to determine fate and transport of contaminants, establish spill scenarios, and closure criteria. His experience and expertise in the area of contaminant hydrogeology has resulted in requests from environmental attorneys, property owners and New York State to serve as an expert witness and technical advisor on a variety of legal disputes.

For the past 10 years Mr. Sosik has been primarily engaged in providing environmental consulting to developers responding to the extensive re-zoning of former industrial and commercial properties, which is currently taking place throughout New York City. These services include everything from pre-purchase evaluations and contract negotiations to gaining acceptance in and moving projects through the NYS Brownfields Program. Mr. Sosik has taken a pro-active role in the continued development of the NYS Brownfields Program and related policy, by attending numerous working seminars, active participation in work groups and task forces and by providing commentary to draft versions of new guidance documents. Throughout his professional career, Mr. Sosik has remained committed to developing innovative cost- efficient solutions to environmental issues, specifically tailored to the needs of his clients.

SELECTED PROJECTS

Scavenger Waste Treatment Facility (SWTF), Suffolk County, NY

Water Treatment Plant EIS - Focused EIS - In response to requests from the Suffolk County Council on Environmental Quality and the Brookhaven Conservation Advisory Council, Mr. Sosik prepared a focused EIS to evaluate the potential impacts to an important surface water resource from the proposed facility including cumulative and synergistic effects with established contaminant plumes in the area.

Advanced Residential Communities, Rockville Centre, NY

Brownfield Project – As the senior project manager on this large scale, high profile redevelopment project, Mr. Sosik was asked to develop a plan to accelerate the regulatory process in the face of general community opposition. Through numerous discussions with the BCP management team, He was able to condense the schedule and review period, through the submission of supporting documents (Investigation Report, Remedial Work Plan) with the BCP application package. Community opposition, which focused on the environmental condition of the site as a means to block the project, was used to advantage in expediting approval of the aggressive interim remedial plan. This will allow the developer to begin remedial work approximately 5 months ahead of schedule.

Former Temco Uniform site, West Haverstraw, NY

Brownfield Project – Mr. Sosik took over management of this project from another consultant following transition of this VCP site to the BCP. Mr. Sosik used the opportunity to renegotiate and revise the scope of work to allow a more cost effective and focused investigation plan without re-writing or resubmitting the RIWP. During the NYSDEC's review of the transition package, he met with and coordinated changes with the NYSDEC Project Manager to gain approval. The result saved the client a significant amount of money, but perhaps more importantly in this case, did so without loss of time.

Grovick Properties, Jackson Heights, NY

Brownfield Project – This Brownfield property is somewhat unique in that it had been investigated and partially remediated by the NYSDEC through the petroleum spill fund. The client was interested in purchasing the property and redeveloping it as office and retail space. Mr. Sosik reviewed the NYSDEC investigation and developed a

supplemental plan to meet the requirements of an RI under the BCP program. By performing this limited amount of field work "up-front" he was able to complete an RI Report and Remedial Plan and submit both with the BCP application package. The NYSDEC and NYSDOH approved the RI Report and the Remedial Plan with minor changes. This cut 120 days from the review process and allowed the client to arrange financing and move his project forward knowing what the clean-up costs would be at the outset.

Metro Management, Bronx, NY

Brownfield Project – The site of a former gas station, the developer had planned to construct a 12-story affordable housing apartment complex with first floor retail space. Since the site was located in an Environmental zone, potential tax credits of 22% for site development, remediation and tangible property could be realized under the BCP. In a pre-application meeting with the NYSDEC, Mr. Sosik realized that the department did not believe the site was eligible for the BCP, since it had been previously investigated and closed under the spills program.

Mr. Sosik assisted the developer in securing financing, and due to the demands of an aggressive construction schedule developed an Interim Remedial Measure (IRM), based on chemical oxidation treatment. Working closely with the clients environmental counsel, Mr. Sosik was able to get the IRM approved without a public comment period. Implementation of the IRM is currently underway.

The project was awarded the 2009 NYC Brownfield Award for Innovation.

Brandt Airflex, NY

Technical Consulting Services - Mr. Sosik provided senior level technical advice and strategic planning in developing an off-site RI/FS for the site, in negotiating a tax reduction for the property due to the environmental condition and in preparing a cost to cure estimate for settlement between business partners. After achieving a favorable tax consideration and settlement agreement for his client

Allied Aviation Services, Dallas, Fort Worth, Airport, Dallas, TX

Jet Fuel Investigation - Mr. Sosik developed and managed an investigative plan to quickly identify the extent and source of jet fuel which was discharging from the Airport's storm drain system to a creek a mile away. Through the use of a refined conceptual model, accelerated investigative techniques and a flexible work plan, he was able to identify the source of the fuel and the migration route within a single week. He then identifled remedial options and successfully negotiated a risk based plan with the Texas regulatory agency that had issued a notice of enforcement action against the facility.

KeySpan – Former LILCO Facilities, Various NY Locations

Pesticide Impact Evaluation - Mr. Sosik developed, negotiated and implemented a site screening procedure to evaluate impact to public health and the environment as the result of past herbicide use at 211 utility sites. Using an unsaturated zone leaching model (PRZM) on a small subset of the sites, he was able to establish mass loading schedules for the remaining sites. This was combined with public well data in a GIS environment to perform queries with respect to mass loading, time transport and proximity to vunerable public supply wells. Using this approach Mr. Sosik was able to show that there were no concerns for future impact. This effort satisfied the public health and resource concerns of the state environmental agency and county health department in a reasonable amount of time and at a fraction of the cost of a full scale investigation.

Former Computer Circuits (Superfund) Site, Hauppauge, NY

CERCLA RI/FS - As Senior Project Manager for the site, he played a major role in regaining control of the investigation activites for the PRP. This action prevented the USEPA from initiating an extensive investigation at the site using a RAC II contractor allowing the client to perform a more efficient investigation. He was involved in all negotiations with EPA and was the project lead in developing a revised site characterization plan (work plan, field sampling plan, quality assurance plan, etc.). By carefully managing all phases of the investigation and continued interaction with each of the three regulatory agencies involved, Mr. Sosik was able to keep the project focused and incrementally reinforce the clients position. The estimated cost of the revised investigation is expected to save the client 1.5 to 2 million dollars.

Sun Oil, Seaford, NY

Remediation Consuliting Services & Project Management - Under an atmosphere of regulatory distrust, political pressure and mounting public hostility toward the client, Mr. Sosik conducted an off-site 3-D investigation to define the extent of contamination and the potential impact on public health. By designing and implementing an aggressive source area remediation program and personal interaction with the public and regulatory agencies, he was able to successfully negotiate a limited off-site remediation favorable to the client. Source area remediation was completed within 6 months and the project successfully closed without damage to the client's public image or working relationship with the regulatory agencies.

Con Edison, Various Locations, NY

Hydrogeologic Consulting Services - Under a general consulting contract, Mr. Sosik conducted detailed subsurface hydrogeologic investigations at five locations to assist in the development of groundwater contingency planning. He also developed and implemented work plans to investigate and remediate existing petroleum, cable fluid, and PCB releases at many of the generating facilities and substations. An important aspect of his role was in assisting the client in strategic planning and negotiations with the regulatory agency.

Keyspan - Tuthill Substation, Aqueboque, NY

Accelerated Site Characterization - Using accelerated site characterization techniques, Mr. Sosik presented the project as a case study in establishing the transport of an herbacide and its metobolites aplied at utility sites in the 1980's The results were then used to establish a screening method for evaluating 211 similar sites controlled by the client in a reasonable and eficient manner.

NYSDEC Spill, East Moriches, NY

Spill Release Analysis - With recognized expertise in the area of gasoline plume development on Long Island, Mr. Sosik was asked by

Charles B. Sosik, PG, PHG, Principal

the State to establish the release date (and principal responsible party) of an extensive petroleum spill, which impacted a residential neighborhood. He used multiple lines of evidence, and a new EPA model (HSSM), which he has helped to refine, to reconstruct the release scenario and spill date, in support of the State Attorney General's cost recovery effort from the PRP.

Minmilt Realty, Farmingdale, NY

Fate & Transport Modeling - He completed an RI/FS at this location for a PCE plume that had been in transit for over 30 years. Mr. Sosik applied a conservative model to evaluate time/concentration impacts under a variety of transport scenarios to a municipal wellfield located 13,000 feet away. Through the use of the model and careful interpretation of an extensive data set compiled from several sources, Mr. Sosik was able to propose a plan which was both acceptable to the regulator and favorable to the client.

Sebonack Golf Course Project, Town of Southampton, NY

IPM Pesticide Study - Provided professional hydrogeologic services in support of the EIS prepared for the development of the site. The proposed development included an 18-hole golf course, clubhouse, dormitory facility, cottages, associated structures, and a 6,000 square foot research station for Southampton College. Mr. Sosik performed an extensive evaluation (using a pesticide-leaching model) on the effects of pesticide and nitrogen loading to groundwater as part of the projects commitment to an Integrated Pest Management (IPM) approach.

NYSDEC, Spills Division, Regions 1 – 4

Petroleum Spills Investigation & Remediation - As a prime contractor/consultant for the NYSDEC in Regions 1-4, Mr. Sosik has managed the investigation and remediation of numerous petroleum spills throughout the State. Many of these projects required the development of innovative investigation and remediation techniques to achieve project goals. He was also involved in many pilot projects and research studies to evaluate innovative investigation techniques such as accelerated site characterization, and alternative approaches to remediation such as monitored natural attenuation and risk based corrective action.

Sun Oil, E. Meadow, NY

Exposure Assessment - Performed to seek closure of the spill file, despite the presence of contaminants above standards, Mr. Sosik determined after the extended assessment that the level of remaining contamination would not pose a future threat to human health or the environment. He used multiple lines of evidence, and a fate and transport model to show that degradation processes would achieve standards within a reasonable time.

Sand & Gravel Mine, NY

Property Development - As part of the development of a sand and gravel mine, Mr. Sosik provided environmental consulting services to assist in obtaining a mining permit, which would result in the construction of a 150-acre lake. Specifically, Mr. Sosik investigated if the proposed lake would reduce groundwater quantity to domestic and public well fields, and/or accelerate the migration of potential surface contaminants to the lower part of the aquifer. After assuming the lead role in negotiations with the regulatory agency, Mr. Sosik was able to obtain a permit for the client by adequately addressing water quality and quantity issues, and by preparing a monitoring plan and spill response plan, acceptable to all parties.

NYSDEC, Mamaroneck, NY

Site Characterization / Source Identification - In a complex hydrogeologic setting consisting of contaminant transport through fractured metomorphic bedrock and variable overburden materials, Mr. Sosik was able to develop and implement a sub-surface investigation to differentiate and separate the impact associated with each of two sources. The results of this investigation were successful in encouraging the spiller to accept responsibility for the release.

Riverhead Municipal Water District, NY

Site Characterization / Remedial Planning - Using accelerated characterization techniques, he implemented a 3-D site investigation to identify two service stations 4,000 ft. away as the source of contamination impacting a municipal wellfield. In accordance with the strict time table imposed by the need to return the wellfield to production by early spring, he designed and implemented a multi-point (9 RW, 6 IW) recovery and injection well system using a 3-d numerical flow model, and completed the project on time. Using a contaminant transport model, Mr. Sosik developed clean-up goals which were achieved in 9 months of operation, well below the projected 3 to 5 year project duration.

Montauk Fire Department, NY

Site Assessment - Mr. Sosik performed a limited investigation and used a 2-D flow model to demonstrate that the property could not have been the source of contamination which had impacted an adjacent wellfield as per the results of a previous investigation. This small focused effort successfully reversed a $500,000, and rising, claim against the department by the water district and the NYSDEC.

PREVIOUS EXPERIENCE

P.W. Grosser Consulting, Bohemia, NY
Senior Project Manager, 1999-2006

Environmental Assessment & Remediation, Patchogue, NY
Senior Project Manager, 1994-1999

Miller Environmental Group, Calverton, NY
Project Manager, 1989-1994

DuPont Biosystems, Aston, PA
Hydrogeologist, 1988-1989

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Charles B. Sosik, PG, PHG, Principal

EXPERT WITNESS TESTIMONY AND DEPOSITIONS

Fact Witness -Testimony on relative age of petroleum spill based on nature and extent of residual and dissolved components at the Delta Service Station in Uniondale, NY Fall/1999

Expert Witness / Expert Report for defendant in cost recovery case by NYS Attorney General regarding a Class II Inactive Hazardous Waste (State Superfund) project by the NYSDEC (October 2004 – present, Report: March 2005, Deposition: April 2005)

Expert Witness / Fact Witness for plaintiff seeking compensation for partial expenses incurred during the investigation and remediation of a USEPA CERCLA site due to the release and migration of contaminants from an "upgradient" industrial property. (Deposition May 2005, case settled April 2007).

Expert Witness / Fact Witness for NYS Attorney General with respect to cost recovery for a NYSDEC petroleum spill site in Holtzville, NY (Deposition April 2005 - case settled).

Expert Witness – Statement of opinion and expert testimony at trial for plaintiff seeking damages from a major oil corporation for contamination under a prior leasing agreement in Rego Park, NY. Case decided in favor of plaintiff. Trial July 2007, in favor of Plaintiff. Qualified as Expert Witness.

Expert Witness / Fact Witness for NYS Attorney General with respect to cost recovery for a NYSDEC petroleum spill site in Lindenhurst, NY (Trial date December 2009, in favor of plaintiff. Qualified as Expert Witness.

Expert Witness / Fact Witness for defendant with respect to cost recovery and third party responsibility for a NYSDEC petroleum spill site. (Expert Statement of Fact – October 2005).

Expert Witness for plaintiff seeking damages related to a petroleum spill from the previous owner/operator of a gas station in College Point, NY. Case settled 2009.

Expert Witness for plaintiff (municipal water supply purveyor) seeking damages from major oil companies and manufacturer of MTBE at various locations in Suffolk County, NY. Expert reports July 2007, August 2007 and October 2007, Case settled August, 2008.

Expert Witness - Deposition for NYS Attorney General regarding NYSDEC cost recovery for a petroleum spill site at Sag Harbor, NY. August 2002

Expert Witness - for NYS Attorney General regarding NYSDEC cost recovery for a petroleum spill site at Riverhead, NY. Case settled July 2008.

Expert Witness for defendant responding to a claim from adjacent commercial property owner on the origin of chlorinated solvents on plaintiff's property located in Cedarhurst, NY. Expert opinion submitted to lead counsel on March 6, 2009, case settled April 2009.

Expert Report - for Attorney General on modeling performed to determine the spill release scenario at a NYSDEC petroleum spill site in East Moriches, NY. June 2000.

MODELING EXPERIENCE (PARTIAL LISTING)

PROJECT	MODEL	APPLICATION
Riverhead Water District, Riverhead, NY	MODFLOW, MODPATH	Remediation system design to intercept MTBE plume and prevent continued impact to municipal well field.
NYSDEC - Region 1, Holbrook, NY	MODFLOW, MODPATH	Simulate transport of MTBE plume to predict future impact.
NYSDEC - Region 1, East Moriches, NY	HSSM	Evaluate release scenario and start date of petroleum spill in support of cost recovery by NYS AG office.
AMOCO, Deer Park, NY	HSSM	Estimate release amount, start date and spill scenario to evaluate the potential for mass unaccounted for
Keyspan Energy, Nassau/Suffolk Counties Substations	PRZM	Estimate mass load of simazine used at 211 electric substations and screen sites according to potential for human health and ecological impacts.
Saboneck Golf Club, Southampton NY	PRZM	Estimate mass load of proposed pesticides on new golf course to evaluate acceptability under an IPM program.
Suffolk County Department of Public Works (SCDPW) Scavenger Waste Treatment Plant, Yaphank, NY	DYNFLOW, DYNTRAC	Evaluate time-transport and nitrogen impact on local river system.
SCDPW SUNY Waste Water Treatment Plant, Stony Brook, NY	DYNFLOW, DYNTRAC	Determine outfall location and time-transport of nitrogen from proposed upgrades to an existing wastewater treatment plant
Water Authority of Great Neck North Great Neck, NY	MODFLOW, MODPATH, MT3D	Review of modeling study performed by EPA to evaluate potential future impact to Well field from PCE plume. Identified serious flaws in model construction and implementation, which invalidated conclusions

PUBLICATIONS / PROFESSIONAL PAPERS

Smart Pump & Treat Strategy for MTBE Impacting a Public Water Supply (14th Annual Conference on Contaminated Soils Proceedings, 1998)

Transport & Transformation of BTEX & MTBE in a Sand Aquifer (Groundwater Monitoring & Remediation 05/1998)

Characteristics of Gasoline Releases in the Water Table Aquifer of Long Island (Petroleum Hydrocarbons Conference Proceedings, 1999)

Field Applications of the Hydrocarbon Spill Screening Model (HSSM) (USEPA Interactive Modeling Web Course www.epa.gov/athens/software/training/webcourse Authored module on model application and applied use of calculators, 02/2000)

Comparative Evaluation of MTBE Sites on Long Island, US EPA Workshop on MTBE Bioremediation (Cincinnati, 02/2000)

Comparison of Four MTBE Plumes in the Upper Glacial Aquifer of Long Island (American Geophysical Union, San Francisco, 12/1996)

Analysis and Simulation of the Gasoline Spill at East Patchogue, New York (American Geophysical Union, San Francisco, 12/1998)

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Kevin R. Brussee, Senior Project Manager

Professional Experience
EBC: January 2008
Prior: 6 years

Education
Bachelor of Science, Environmental Science, Plattsburgh State University, NY
Master of Science, Environmental Studies, University of Massachusetts, Lowell

Areas of Expertise
- Management of Site Investigations / Remedial Oversight NYC "E" Designation Sites
- Management of RI Investigations / RAWP Implementation NYS BCP Sites
- NYSDEC Spill Site Investigations
- Phase I / Phase II Property Assessments
- Waste Characterization / Soil Management

Professional Certification
- OSHA 40-hr HAZWOPER
- OSHA 8-hr HAZWOPER Supervisor

PROFILE

Mr. Brussee has 10 years experience as an environmental consultant/contractor and has worked on and managed a wide range of environmental projects. Mr. Brussee has conducted Phase I, II and III Environmental Site Assessments for commercial, industrial, and residential properties in New York, New Jersey, Maryland and Delaware.

Mr. Brussee's field experience includes tank removal and installations, spill management and closure, soil and groundwater sampling, and both the oversight and operation of soil boring and well installation equipment. In addition, Mr. Brussee has performed project research, data reduction and evaluation, and has prepared reports for both regulatory and client use.

PREVIOUS EXPERIENCE

Eastern Environmental Solutions, Inc., Manorville, NY
Project Manager, 2006-2008

EA Engineering, Science & Technology
Hydrogeologist, 2005-2006

P.W. Grosser Consulting, Bohemia, NY
Field Hydrogeologist, 2002-2003

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Kevin R. Brussee, Senior Project Manager

SELECT PROJECT EXPERIENCE

Project:	Former Dico G, Autio and Truck Repair Site - Bronx Park Apartments, redevelopment from commercial to mixed use
Location:	Bronx, NY, White Plains Road
Type:	NYS BCP Site, Former gas station, repair shop & junk yard
Contamination:	Petroleum - Gasoline
Role:	Project Manager, during Site Management Phase

Project:	Former Uniforms for Industry Site – Richmond Hill Senior Living Residences / Richmond Place
Location:	Jamaica Ave, Richmond Hill Queens, NY
Type:	NYS BCP, NYC E-Site Hazmat, Noise, Former industrial Laundry
Contamination:	Chlorinated Solvents, Historic Fill, Petroleum - Fuel oil/Mop oil
Role:	Project Manager, RAWP implementation

Project:	Former Gas Station / car wash to mixed use affordable housing / commercial
Location:	Bronx, NY, Southern Boulevard
Type:	NYS BCP, NYC E-Site Hazmat, Former gas station / gar wash
Contamination:	Petroleum - Gasoline
Role:	Project Manager, RAWP implementation

Project:	Redevelopment of former industrial property to residential
Location:	Williamsburg section of Brooklyn, NY, Bedford Ave
Type:	NYC E-Designation Site, Former dye manufacturing plant
Contamination:	Hazardous levels of heavy metals, fuel oil tanks
Role:	Project Manager, RAWP implementation

Project:	Former Domsey Fiber Corp Site
Location:	Williamsburg section of Brooklyn, NY, Kent Ave
Type:	NYC E-Designation Site, Former commercial property
Contamination:	Chlorinated solvents, fuel oil and Historic fill
Role:	Project Manager, RIWP Development and Implementation, RAWP development and implementation, waste characterization and soil management

PUBLICATIONS

Chemical Stress Induced by Copper, Examination of a Biofilm System;
(Water Science Technology, 2006; 54(9): 191-199.)

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Chawinie Miller, Project Manager / Industrial Hygienist

Professional Experience
EBC: March 2013
Prior: 7.5 years

Education
Bachelor of Science, Environmental Health and Safety, Stony Brook University, NY

Areas of Expertise
- Phase I / Property Condition Assessments
- Occupational Health and Safety Sampling
- Indoor Air Quality (IAQ) Investigations
- Mold Investigations and Remediation
- Soil and Ground Water Investigations
- Noise Studies

Professional Certification
- OSHA 40-hr HAZWOPER
- NYS Asbestos Inspector
- NYC Asbestos Investigator
- OSHA 10-hr Construction Health and Safety
- Hazard Analysis and Critical Control Point (HACCP) Certified

PROFILE

Ms. Miller has 7.5 years experience as an environmental consultant/contractor and has worked on and managed a wide range of environmental projects. Ms. Miller has conducted Phase Is and Property Condition Assessments for commercial, industrial, and residential properties in New York, New Jersey and Connecticut. In addition, Ms. Miller has conducted various IAQ, asbestos, mold and occupational health and safety sampling investigations for a variety of city, state, federal and private clients.

PREVIOUS EXPERIENCE

The Louis Berger Group, New York, New York
Industrial Hygienist, 2008-2013

AEI Consultants, Jersey City, New Jersey
Environmental Scientist, 2005-2008

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Kevin Waters, Hydrogeologist

Professional Experience
EBC: October 2010
Prior: 5 years

Education
Bachelor of Science, Geology, State University of New York, Stony Brook

Areas of Expertise
- Field Operations
- Phase II and RI Implementation, Site Characterization Studies
- Health & Safety Monitoring and Oversight
- Waste Characterization / Soil Management
- Site Logistics

Professional Certification
- OSHA 40-hr HAZWOPER
- OSHA 8-hr HAZWOPER Supervisor

PROFILE

Mr. Waters has 7 years experience as an environmental consultant and has worked on a wide range of environmental projects. Mr. Waters has conducted Phase II and III Environmental Site Assessments for commercial, industrial, and residential properties in New York.

Mr. Waters' field experience includes soil, air and groundwater sampling, operations and maintenance of groundwater remediation systems, tank removals, spill management and closure, and oversight of monitoring well installations. In addition, Mr. Waters has prepared reports for both regulatory and client use.

PREVIOUS EXPERIENCE

P.W. Grosser Consulting, Bohemia, NY
Field Hydrogeologist, 2003-2008

SELECT PROJECT EXPERIENCE

Project:	Former Gas Station / car wash to mixed use affordable housing / commercial
Location:	Bronx, NY, Southern Boulevard
Type:	NYS BCP, NYC E-Site Hazmat, Former gas station / gar wash
Contamination:	Petroleum - Gasoline
Role:	Field Operations Manager, Health and Safety Officer

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Kevin Waters, Hydrogeologist

SELECT PROJECT EXPERIENCE

Project:	Former Uniforms for Industry Site – Richmond Hill Senior Living Residences / Richmond Place
Location:	Jamaica Ave, Richmond Hill Queens, NY
Type:	NYS BCP, NYC E-Site Hazmat, Noise, Former industrial Laundry
Contamination:	Chlorinated Solvents, Historic Fill, Petroleum - Fuel oil/Mop oil
Role:	Field Operations Manager, Health and Safety Monitoring and Field Oversight

Project:	Rikers Island – West Intake Facility
Location:	NYC Department of Corrections, Rikers Island, NY
Type:	Municipal Construction Project
Contamination:	Hazardous levels of lead, heavy metals in Historic fill
Role:	Field Operations Manager, Health and Safety Monitoring and Field Oversight

Project:	Residential Redevelopment Project
Location:	Williamsburg Section of Brooklyn, Wallabout Street
Type:	NYC E-Designation Site
Contamination:	Hazardous levels of lead, heavy metals, SVOCs in Historic fill
Role:	Implement RI Work Plan, Supervise sample collection in all media

ATTACHMENT G
BCP Signage Specifications

New York State Brownfields Cleanup Program

810 RIVER AVENUE
BCP Site No. C-203066
810 River Partners LLC

Governor Andrew M. Cuomo
NYSDEC Commissioner Joe Martens
Mayor Bill de Blasio

Transform the Past. Build for the Future.

SIGNS FOR REMEDIAL PROGRAMS

Instructions

Signs are required at sites where remedial activities are being performed under one of the following remedial programs: State Superfund, Voluntary Cleanup Program (VCP), Brownfield Cleanup Program (BCP), Environmental Restoration Program (ERP), Brownfield Opportunity Area (BOA) Program (note: activities under this program would be for investigation). The cost of the sign will be borne by the parties performing the remedial activities based on the legal document the activities are being performed under (i.e. volunteers/participants would pay 100% of the cost under the BCP; municipalities would be reimbursed for 90% of the cost under the ERP).

Sign Requirements

Size: **Horizontal format - 96" wide by 48" high**

Construction Materials: **Aluminum or wood blank sign boards with vinyl sheeting.**

Inserts: **"Site Name", "Site Number", "Name of Party Performing Remedial Activities" and "Municipal Executive".**
Indicate position, size and topography for specific inserts.

Color Scheme: **Copy surrounding DEC logo - "NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION" - PMS 355**

DEC logo: **PMS 301 Blue**
PMS 355 Green

Text:

Program (choose one):	**PMS 301**
Brownfield Cleanup Program	
Voluntary Cleanup Program	
Brownfield Opportunity Areas Program	
Petroleum Remediation Program	
State Superfund Program	
1996 Clean Water/Clean Air Bond Act - Environmental Restoration Program	
Site Name, Site Number, Party Performing Remedial Activities	**PMS 355**
Names of Governor, Commissioner, Municipal Executive	**PMS 301**
Transform the Past.....Build for the Future	**PMS 355**

Type Specifications: **All type is Caslon 540, with the exception of the logotype.**
Format is: center each line of copy with small caps and initial caps.

Production Notes: **96" wide x 48" high aluminum blanks will be covered with vinyl sheeting to achieve background color. Copy and logo will be silk screened on this surface.**

See attached format

ATTACHMENT H
Estimated Remedial Costs

810 RIVER 2 SITE
810 River Avenue
Bronx, NY

Summary of Project Costs

TASK	NYS Brownfields Cleanup Program Costs by Task	
BCP Entry Documents	$	25,950.00
RI Report		Completed
Remedial Work Plan, Remedy Scoping & Coordination	$	18,750.00
Remedial Program Implementation	$	925,775.00
Final Engineering Report DEC Fees, etc.	$	100,500.00
Subtotal	$	1,070,975.00
15% Contingency	$	160,646.25
Total	**$**	**1,231,621.25**