

**3985-3989 WHITE PLAINS ROAD
BRONX, NEW YORK**

Remedial Action Work Plan

**NYC VCP Number: 14CVCP209X
E-Designation Site Number 14EHAN038X**

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REMEDIAL ACTION WORK PLAN

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C/D	Construction/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
BCA	Brownfield Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC BCP	New York City Brownfield Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PE	Professional Engineer

PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, Andrew Levenbaum, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 3985-3989 White Plains Road, Bronx, New York Site NYC VCP: 14CVCP209X and OER project #14EHAN038X.

I, Paul Stewart am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 3985-3989 White Plains Road, Bronx, New York Site

I certify that this Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Name

NYS PE License Number

Signature

Date

PE Stamp

QEP Name

QEP Signature

Date

EXECUTIVE SUMMARY

Riverdale Equities Ltd. has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 5,980-ft² Site located at 3985-3989 White Plains Road in the northern section in the Bronx, New York. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Site Location and Current Usage

The Site is located at 3985-3989 White Plains Road in the northern section in the Bronx, New York and is identified as Block 4827 and Lot 3 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 5,980-square feet and is bounded by East 226th Street, with one-story commercial buildings to the north, East 225th Street, with one and two-story commercial buildings to the south, White Plains Road, followed by multiple one-story commercial buildings to the east, and Carpenter Avenue, with mainly multi-story residential buildings to the west. Currently, the Site is vacant. There was a fire at the site, which destroyed the one-story, four unit, commercial building with a full basement. The debris was removed from the site and the lot was backfilled with clean fill to grade. There is a steep slope to the west of the property.

Summary of Proposed Redevelopment Plan

The current zoning designation is R5 and C1-2 indicating a residential and commercial district. The original plan for the property was to combine lots 1 and 3 and put one building that would merge the two lots. After the initial remedial investigation was implemented it was determined that lots 1 and 3 would be developed independently of one another.

The revised architectural plans for lot 3 indicate a one-story commercial building covering the entire property with two retail units and a cellar set to a depth of 9' below grade surface. Layout of the proposed site development

Summary of the Remedy

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Establishment of Track 1 Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Excavation removal of soil/fill exceeding Track 1 SCOs. Entire footprint of property will be excavated to 10 feet below grade for development. Approximately 3,300 tons of soil will be excavated and removed from this property.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
7. Removal of underground storage tanks (if encountered) and closure of petroleum spills (if evidence of a spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations.
8. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities.

9. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
10. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
11. As part of development, installation of a vapor barrier system below the concrete slab underneath the building, as well as behind foundation walls of the proposed building. The vapor barrier will consist of Herculine^{Sigma} Smooth 20 mil vapor barrier and will be laid down in sheets that will be overlapped and joined by single-sided tape.
12. As part of development, construction and maintenance of an engineered composite cover consisting of an 8" thick concrete slab across the footprint of the new building..
13. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
14. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP, and describes all Engineering and Institutional Controls to be implemented at the Site.
16. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.
17. If Track 1 is not achieved, the property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without

treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

COMMUNITY PROTECTION STATEMENT

The Office of Environmental Remediation created the New York City Voluntary Cleanup Program (NYC VCP) to provide governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan (“cleanup plan”) describes the findings of prior environmental studies that show the location of contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

Remedial Investigation and Cleanup Plan. Under the NYC VCP, a thorough cleanup study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

Identification of Sensitive Land Uses. Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

Qualitative Human Health Exposure Assessment. An important part of the cleanup planning for the Site is the performance of a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

Health and Safety Plan. This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of this plan are in compliance with safety requirements of the United States Occupational Safety and Health Administration (OSHA). This plan includes many protective elements including those discussed below.

Site Safety Coordinator. This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is Jeffrey Diamond and can be reached at 1-516-521-5627.

Worker Training. Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

Community Air Monitoring Plan. Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community Air Monitoring Plan or CAMP. Results will be regularly reported to the NYC Office of Environmental Remediation. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a ‘Contingency Plan’).

Odor, Dust and Noise Control. This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager Joseph Okelarin (516-933-0655).or NYC Office of Environmental Remediation Project Manager Alysha Alfieri (212) 676-0459.

Quality Assurance. This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be

summarized in the final report, called the Remedial Action Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

Storm-Water Management. To limit the potential for soil erosion and discharge, this cleanup plan has provisions for storm-water management. The main elements of the storm water management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

Hours of Operation. The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation are 7 am to 4pm on weekdays.

Signage. While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYC Brownfield Cleanup Program, provides project contact names and numbers, and locations of project documents can be viewed.

Complaint Management. The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager Joseph Okelarin (516-933-0655), the NYC Office of Environmental Remediation Project Manager Alysha Alfieri (212-676-0459), or call 311 and mention the Site is in the NYC Brownfield Cleanup Program.

Utility Mark-outs. To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

Soil and Liquid Disposal. All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations and required permits will be obtained.

Soil Chemical Testing and Screening. All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held

instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management. Soil stockpiles will be kept covered with tarps to prevent dust, odors and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed to protect storm water catch basins and other discharge points.

Trucks and Covers. Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with all laws and regulations.

Imported Material. All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on-Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

Equipment Decontamination. All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

Housekeeping. Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

Truck Routing. Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report. The results of all cleanup work will be fully documented in a final report (called a Remedial Action Report) that will be available for you to review in the public document repositories located at New York Public Library – Wakefield Library.

Long-Term Site Management. To provide long-term protection after the cleanup is complete, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are defined in the Site Management Plan. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 SITE BACKGROUND

Riverdale Equities Ltd. has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 3985-3989 White Plains Road in the White Plains section of Bronx, New York (the Site). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 SITE LOCATION AND CURRENT USAGE

The Site is located at 3985 White Plains Road in the northern section of the Bronx, New York and is identified as Block 4827 and Lot 3 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 5,980-square feet and is bounded by East 226th Street, with one-story commercial buildings to the north, East 225th Street, with one and two-story commercial buildings to the south, White Plains Road, followed by multiple one-story commercial buildings to the east, and Carpenter Avenue, with mainly multi-story residential buildings to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is vacant. There was a fire at the site, which destroyed the one-story, four unit, commercial building with a full basement. The debris was removed from the site and the lot was backfilled with clean fill to grade. There is a steep slope to the west of the property.

1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of a new one story commercial building with two retail units. Layout of the proposed site development is presented in Figure 3. The current

zoning designation is R5 and C1-2 indicating a residential and commercial district. The proposed use is consistent with existing zoning for the property.

The original plan for the property was to combine lots 1 and 3 and put one building that would merge the two lots. After the initial remedial investigation was implemented it was determined that lots 1 and 3 would be developed independently of one another. The revised architectural plans for lot 3 indicate a one-story commercial building covering the entire property with two retail units and a cellar set to a depth of 9' below grade surface. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The site is located at 3985-3989 White Plains Road and is in the northern section of the Bronx. It is predominantly multi-use buildings with commercial store fronts and residential housing. The site is zoned in an R5/C1-2 commercial and residential district. In addition the site was issued an "E" designation E-279 for air quality, exhaust stack location limitations and hazardous materials.

There are currently two sensitive receptors within 500 ft of the subject property. The closest receptor is P.S. 021 Philip H. Sheridan at 715 East 225th Street, which is located 323 feet southeast of the Site. In addition a day care facility, North Bronx N.C.N.W. Cdc at 4035 White Plains Road is located 466 feet northeast of the Site.

1.4 REMEDIAL INVESTIGATION

A remedial investigation was performed and the results are documented in a companion document called "*Remedial Investigation Report "3985-3989 White Plains Road, Bronx, New York"*", dated November 2013 (RIR).

Summary of Past Uses of Site and Areas of Concern

EBI Consulting (EBI) completed a Phase I Environmental Site Assessment in November 2012. The Phase I identifies the previous usage of the property from 1897 to 2012. The most recent uses of the subject property were as a Laundromat, two hair salons and a cell phone store.

According to the Phase I the subject property contained dwellings from 1897 through approximately 1927 when the property was change to be used for commercial purposes.

The AOCs identified for this site include:

Area where there may be potential impacts from an inactive AST that has not been properly removed from the Site.

Summary of Environmental Findings

1. Elevation of the property is approximately 144 feet above sea level.
2. Ground water can be encountered in the unconsolidated glacial deposits and fractures within the underlying bedrock. Groundwater is expected to be found in excess of 40 feet below ground surface.
3. Bedrock was not encountered during this investigation. However, based on the Site's location in the Bronx it is likely that there are shallow outcroppings of bedrock.
4. The stratigraphy of the site, from the surface down, consists of unconsolidated glacial deposits from ground surface to shallow depth where gray schist and dolomite marble are located. Regional ground water in the vicinity of the subject property is expected to flow to the west following the surface topography. The topography of the area has a gentle western slope. The ground surface in the vicinity of the property is covered with asphalt and concrete pavement and mixed-use and commercial buildings.
5. Soil/fill samples collected during the RI showed low level concentrations of VOCs, SVOCs, metals and pesticides in both shallow and deep samples. No PCBs were detected in any soil sample. Acetone and 2-Butanone were the only two VOCs detected in the soil samples. The concentrations of VOCs were below their respective Restricted Residential soil clean up objectives (RRSCO). No SVOCs were detected in any soil samples above their respective Unrestricted Use soil clean up objectives (UUSCO). Metals including lead, chromium and zinc were detected in soils above their UUSCOs. All metals were below their Restricted Residential SCOs. 4,4'-DDT and 4,4'-DDE were the only pesticides detected above their UUSCOs. No compounds detected in any of the soil

samples exceeded the corresponding Restricted Residential or Restricted Commercial SCOs.

6. Groundwater samples were not collected due to refusal at shallow depths across the site.
7. Soil vapor samples collected during the RI showed low concentrations of petroleum constituents and chlorinated VOCs at moderate concentrations. Most compounds were detected at concentrations less than 100 ug/m^3 , except for acetone ($1,050 \text{ ug/m}^3$), ethanol ($1,180 \text{ ug/m}^3$), toluene at (528 ug/m^3) and xylenes (maximum concentration of 350 ug/m^3). Chlorinated VOCs were identified in one of three soil vapor samples and included tetrachloroethylene or PCE (85.5 ug/m^3), 111-Trichloroethane (2.02 ug/m^3) and carbon tetrachloride (2.14 ug/m^3). Trichloroethene or TCE was not detected in soil vapor. The PCE, TCE and carbon tetrachloride concentrations are below the monitoring level ranges established within the New York State DOH soil vapor guidance matrix.

2.0 REMEDIAL ACTION OBJECTIVES

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

Groundwater

- Groundwater was not investigated during this investigation. Refusal was encountered at eleven (11) locations across the Site ranging from 1.5' bgs to 6.5' bgs.

Soil

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment, taking into consideration the current, intended and reasonable anticipated future use of the property. The remedy selection process begins by establishing RAPs for media in which chemical constituents were found in exceedance of applicable standards, criteria and guidance values (SCGs). A remedy is then developed based on the following ten 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;
- Land use; and
- Sustainability.

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

Alternative 1 involves:

- Establishment of Unrestricted Use (Track1) Soil Cleanup Objectives (SCOs);
- Removal of all soil/fill exceeding Track 1 Unrestricted Use SCOs and confirmation that Track 1 has been achieved with post-excavation endpoint sampling. Based on the results of the remedial investigation, it is expected that this alternative would require excavation to an approximate depth of 5' bgs across the entire property. However, if soil/fill containing chemical constituents at concentrations above Track 1 Unrestricted Use SCOs are still present at the base of the excavation after the

removal of all soil required for new construction, additional excavation would be performed to ensure complete removal of soil that does not meet Track 1 Unrestricted Use SCOs;

- No Engineering or Institutional Controls are required for a Track 1 cleanup, but a vapor barrier would be installed beneath the basement foundation and behind foundation sidewalls of the new building as a part of development to prevent any potential future exposures from off-Site soil vapor.

Alternative 2 involves:

- Establishment of Site-Specific (Track 4) SCOs;
- Excavation and removal of all soil/fill exceeding Site-specific SCOs and confirmation that Track 4 has been achieved with post-excavation end-point sampling. Based on the results of the remedial investigation, it is expected that this alternative would require excavation to a depth of 5' bgs across the property. Entire footprint of property will be excavated to depths of 10 to 11 feet for development purposes;
- Construction of a engineered composite cover system over the entire Site, consisting of the concrete building slab to prevent exposure to remaining soil/fill;
- Installation of a vapor barrier system beneath the entire new building floor slab and behind sub-grade foundation sidewalls to prevent exposure to soil vapor contaminants;
- Establishment of use restrictions including prohibitions on the use of groundwater from the Site and prohibitions on sensitive site uses, such as farming or vegetable gardening, to eliminate future exposure pathways;
- Establishment of an approved Site Management Plan to ensure long-term management of these Engineering and Institutional Controls including the performance of periodic inspections and certification that the Controls are performing as they were intended; and

- Continued registration as an E-designated property to memorialize the remedial action and the Engineering and Institutional Controls required by this RAWP.

3.1 THRESHOLD CRITERIA

Protection of Public Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and the environment by removing soil/fill exceeding Track 1 Unrestricted Use SCOs, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete.

Alternative 2 would achieve comparable protections of human health and environment by excavating the historic fill at the Site and by ensuring that remaining soil/fill on-Site meets Track 4 Site Specific SCOs as well as by placement of Institutional and Engineering Controls, including installation of a composite cover system to prevent direct contact with any remaining on-Site soil/fill. Installation of a vapor barrier system beneath the entire new building floor slab and behind foundation sidewalls as part of construction would prevent exposures from potential soil vapor intrusion. Implementing Institutional Controls and a Site Management Plan would ensure that the composite cover system and vapor barrier remain intact and protective.

For both remedial Alternatives, potential exposure to contaminated soils during construction would be minimized by implementing a Construction Health and Safety Plan, an approved Soils/Materials Management Plan and a Community Air Monitoring Plan (CAMP). Potential contact with groundwater would be prevented as its use is prohibited by city laws and regulations. Potential future migration of off-Site soil vapors into the new building would be prevented by installing a vapor barrier below the new building's basement and at-grade slabs and continuing the vapor barrier around sub-grade foundation wells.

3.2. BALANCING CRITERIA

Compliance with Standards, Criteria and Guidance (SCGs)

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

Alternative 1 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to meet Track 1 Unrestricted Use SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier system below the new building's basement and at-grade slabs and continuing the vapor barrier around sub-grade foundation walls.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through the removal of soil to meet Track 4 Site Specific SCOs. Compliance with SCGs for soil vapor would also be achieved by installation of a vapor barrier system beneath the entire floor slab and behind foundation sidewalls as part of construction. A Site Management Plan would ensure that these controls remained protective for the long term.

Health and safety measures contained in the CHASP and Community Air Monitoring Plan (CAMP) that comply with the applicable SCGs would be implemented during Site redevelopment under this RAWP. For both Alternatives, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs. These measures will protect on-site workers and the surrounding community from exposure to Site-related contaminants.

Short-term effectiveness and impacts

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both Alternatives 1 and 2 have similar short-term effectiveness during their respective implementations, as each requires excavation of soil/fill material under the building footprint. Alternative 1 would eliminate and Alternative 2 would reduce exposure to contaminant sources. Alternatives 1 and 2 would both employ appropriate measures to prevent short-term impacts, including a Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-Site soil disturbance activities and would effectively prevent the release of significant contaminants into the environment. Short-term impacts could potentially be higher for Alternative 1 if excavation of greater amounts of historical fill material is encountered below the excavation depth in the rear parking areas.

An additional short-term adverse impact and risks to the community associated with both remedial alternatives is increased truck traffic. Approximately 22, 25-ton capacity truck trips would be necessary to transport fill and soil excavated during Site development. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flaggers will be used to protect pedestrians at Site entrances and exits.

Both alternatives would employ appropriate measures to prevent short-term impacts, including a Construction Health and Safety Plan, a Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-Site soil disturbance activities and would minimize the release of contaminants into the environment. Both alternatives provide short-term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under appropriate management procedures and a Construction Health and Safety Plan (CHASP) will be protected from on-Site contaminants (personal protective equipment would be worn consistent with the documented risks within the respective work zones).

Long-term effectiveness and permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site and assessment of

containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of Engineering Controls.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill and enabling unrestricted usage of the property. Potential sources of soil vapor contamination would also be eliminated as part of the Track 1 remedy.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 4 Site-Specific SCOs, establishing a composite cover system across the site, maintaining use restrictions and establishing a Site Management Plan (SMP) to ensure long-term management of Engineering Controls (ECs) and Institutional Controls (ICs). Establishment of a Site Management Plan would ensure that this protection remains effective for the long-term. The SMP will ensure long-term effectiveness of all Engineering and Institutional Controls by requiring periodic inspection and certification that these controls and use restrictions continue to be in place and are functioning as they were intended assuring that protections designed into the remedy will provide continued high level of protection in perpetuity.

Both alternatives would result in removal of soil contamination exceeding the SCOs providing the highest level, most effective and permanent remedy over the long-term with respect to a remedy for contaminated soil, which will eliminate any migration to groundwater. A vapor barrier as part of the remedy would also eliminate potential sources of soil vapor and groundwater contamination. If on-site sources are removed, soil vapor impacts would be expected to dissipate.

Reduction of toxicity, mobility, or volume of contaminated material

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce

the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

Alternative 1 would permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of Track 1 - Unrestricted Use SCOs.

Alternative 2 would remove most of the historic fill at the Site, and any remaining on-Site soil beneath the new building will meet Track 4 – Site-Specific SCOs. Alternative 1 would eliminate a greater total mass of contaminants on Site.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials and equipment to implement Alternatives 1 and 2 are readily available and have been proven effective in remediating the contaminants associated with the Site. They use standard materials and services that are well-established technology. The reliability of each remedy is also high. There are no special difficulties associated with any of the activities proposed.

Cost effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

The capital costs associated with the Alternative 1 are similar to the Alternative 2 in that soils will be excavated and transported to appropriate facilities. In both cases, appropriate public health and environmental protections are achieved. Costs associated with Alternative 1 could potentially be higher than Alternative 2 if soil with analytes above Unrestricted Use SCOs is

encountered below the excavation depth required for development. Additional costs would include installation of additional shoring/underpinning, disposal of additional soil, and import of clean soil for backfill. However, long-term costs for Alternative 2 are marginally higher than alternative 1 based on implementation of a Site Management Plan as part of Alternative 2.

The remedial plan creates an approach that combines the remedial action with the redevelopment of the Site, including the construction of the building foundation and sub-grade structures. The remedial plan is also cost effective in that it will take into consideration the selection of the closest and most appropriate disposal facilities to reduce transportation and disposal costs during the excavation of historic fill and other soils during the redevelopment of the Site.

Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

Based on the overall goals of the remedial program and the intended Site use, it is anticipated that both Alternatives 1 and 2 for the Site would be acceptable to the community. Both remedial actions provide protection of public health and the environment and minimize potential contaminant exposures. This RAWP will be subject to and undergo public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedial action. This public comment will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Attachment B.

Land use

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas (BOA) pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns

and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the site.

The proposed redevelopment of the Site is compatible with its current zoning and it's consistent with recent development patterns. Following remediation, the Site will meet either Track 1 Unrestricted Use or Track 4 Site Specific SCOs, both of which are appropriate for its planned commercial and residential uses. Improvements in the current environmental condition of the property achieved by both alternatives are also consistent with the City's goals for cleanup of contaminated land and bringing such properties into productive reuse. Both alternatives are equally protective of natural resources and cultural resources.

Sustainability of the Remedial Action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in *PlaNYC: A Greener, Greater New York*. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

While the Alternative 2 would potentially result in lower energy usage based on reducing the volume of material transported off-Site, both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. A complete list of green remedial activities considered as part of the NYC VCP is included in the Sustainability Statement included as Appendix D.

4.0 REMEDIAL ACTION

4.1 SUMMARY OF PREFERRED REMEDIAL ACTION

The preferred remedial action alternative is Alternative 2, the Track 4 remedy. The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Establishment of Track 4 Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Excavation removal of soil/fill exceeding Track 4 SCOs. Entire footprint of property will be excavated to 10 feet below grade for development. Approximately 3,300 tons of soil will be excavated and removed from this property.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
7. Removal of underground storage tanks (if encountered) and closure of petroleum spills (if evidence of a spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations.

8. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities.
9. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
10. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
11. As part of development, installation of a vapor barrier system below the concrete slab underneath the building, as well as behind foundation walls of the proposed building. The vapor barrier will consist of Herculine^{Sigma} Smooth 20 mil vapor barrier and will be laid down in sheets that will be overlapped and joined by single-sided tape.
12. As part of development, construction and maintenance of an engineered composite cover consisting of an 8" thick concrete slab across the footprint of the new building..
13. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
14. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP, and describes all Engineering and Institutional Controls to be implemented at the Site.
16. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.

17. If Track 1 is not achieved, the property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

4.2 SOIL CLEANUP OBJECTIVES AND SOIL/FILL MANAGEMENT

Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs) are proposed for this project. If Track 1 is not achieved, the following Track 4 Site-Specific SCOs will be used:

<u>Contaminant</u>	<u>Track 4 SCOs</u>
Total SVOCs	100 ppm
Lead	800 ppm
Mercury	1.5 ppm

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix 3.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. This information will be provided in the Remedial Action Report.

Estimated Soil/Fill Removal Quantities

The total quantity of soil/fill expected to be excavated and disposed off-Site is 3,300 tons.

Disposal facilities will be reported to OER when they are identified and prior to the start of remedial action.

End-Point Sampling

Removal actions under this plan will be performed in conjunction with remedial end-point sampling. Hot-spot removal actions, whether established under this RAWP or identified during the remedial program, will be performed in conjunction with post remedial end-point samples to ensure that hot spots are fully removed. Analytes for end-point sampling will be those parameters that are driving the hot-spot removal action and will be approved by OER. End-point sampling frequency will consist of the following:

1. For excavations less than 20 feet in total perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.
2. For excavations 20 to 300 feet in perimeter:
 - For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
 - For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
3. For sampling of volatile organics, bottom samples should be taken within 24 hours of excavation, and should be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours should be taken at six to twelve inches.
4. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1-3 above.

Post-remediation sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

New York State ELAP certified labs will be used for all end-point sample analyses. Labs for end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all end-point sample results and will include all data including non-detects and applicable standards and/or guidance values. End-point samples will be analyzed for trigger analytes (those for which SCO exceedence is identified) utilizing the following methodology:

Soil analytical methods will include:

- Volatile organic compounds by EPA Method 8260;

- Semi-volatile organic compounds by EPA Method 8270;
- Target Analyte List metals; and
- Pesticides/PCBs by EPA Method 8081/8082.

If either LNAPL and/or DNAPL are detected, appropriate samples will be collected for characterization and “finger print analysis” and required regulatory reporting (i.e. spills hotline) will be performed.

Quality Assurance/Quality Control

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-paks” to maintain a temperature of 4°C.

Dedicated disposable sampling materials will be used for the collection endpoint 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. Decontamination of non-dedicated sampling equipment will consist of the following:

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

Prepare field blanks by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will be used whenever samples are transported to the laboratory for analysis of VOCs. Trip blanks will not be used for samples to be analyzed for metals, SVOCs or pesticides. One blind duplicate sample will be prepared and submitted for analysis every 20 samples.

Import and Reuse of Soils

Import of soils onto the property and reuse of soils already onsite will be performed in conformance with the Soil/Materials Management Plan in Appendix 3.

4.3 ENGINEERING CONTROLS

The excavation required for the proposed Site development will achieve Track 1 Unrestricted Use SCOs. No Engineering Controls are required to address residual contamination at the Site. However, the following elements will be incorporated into the foundation design as part of the development: composite cover system and soil vapor barrier. If Track 1 is not achieved, these two elements will constitute Engineering Controls that will be employed in the remedial action to address residual contamination remaining at the Site.

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system will be comprised of an 8-inch thick concrete-building slab beneath the entire footprint of the proposed building.

If Track 1 SCO's are not achieved at the Site, the composite cover system will be a permanent engineering control for the Site. The system will be inspected and reported at specified intervals as required by this RAWP and the SMP. A Soil Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual soil/fill is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the RAR.

Vapor Barrier

Migration of soil vapor will be mitigated with a combination of building slab and vapor barrier. A pre-applied integrally bonded sheet with a High Density Polyethylene (HDPE) film will be installed as an impermeable vapor barrier underneath the entire foundation of the proposed building and the sidewalls of the cellar level. Herculine^{Sigma} Smooth 20 mil vapor barrier will be laid down in sheets that will be overlapped and joined by single-sided tape. Photo documentation of the vapor barrier installation will be submitted as part of the Remedial Action Report. Vapor barrier specifications are provided in Figure 5.

The project's Professional Engineer licensed by the State of New York will have primary direct responsibility for overseeing the implementation of the vapor barrier. The Remedial Action Report will include photographs (maximum of two photos per page) of the installation process, PE/RA certified letter (on company letterhead) from primary contractor responsible for installation oversight and field inspections, and a copy of the manufacturer's certificate of warranty.

4.4 Institutional Controls

Institutional Controls are not required on sites that achieve Track 1 Remedial Action. If Track 1 SCOs are not achieved, Institutional Controls (IC) will be utilized in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. Institutional Controls are listed below. Long-term employment of EC/ICs will be established in in this RAWP and will be implemented under a site-specific Site Management Plan (SMP) that will be included in the RAR.

Institutional Controls for this remedial action are:

- Continued registration of the E-Designation for the property. This RAWP includes a description of all EC's and IC's and summarizes the requirements of the Site Management Plan which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;
- Submittal of a Site Management Plan in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and

certification of ECs. SMP will require that the property owner and property owner's successors and assigns will submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted for a frequency to be determined by OER in the SMP and will comply with RCNY §43-1407(1)(3).

- Vegetable gardens and farming on the Site are prohibited;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;
- The Site will be used for residential and commercial use and will not be used for a higher level of use without prior approval by OER.

4.5 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation and begins with the approval of the Remedial Action Report and issuance of the Notice of Completion (NOC) for the Remedial Action. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAWP. The Site Management Plan is submitted as part of the RAR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by OER. The property owner is responsible to ensure that all Site Management responsibilities defined in the DCR and the Site Management Plan are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the Brownfield Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's

and ICs; (2) implementation of monitoring programs; (3) operation and maintenance of EC's; (4) inspection and certification of EC's; and (5) reporting.

Site management activities, reporting, and EC/IC certification will be scheduled on an periodic basis to be established in the SMP and will be subject to review and modification by OER. The Site Management Plan will be based on a calendar year and certification reports will be due for submission to OER by March 31 of the year following the reporting period.

4.6 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure 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.

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). As part of the VCP process, a QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Known and Potential Sources

Soil:

- Acetone and 2-Butanone were detected, but did not exceed Unrestricted Use SCOs;
- Metals including lead and mercury were identified, but none exceeded Restricted Residential SCOs; and
- Several SVOCs were detected in soil samples, but none exceeded their respective unrestricted use soil clean up objectives.

Soil Vapor:

- Trace concentrations of petroleum related VOCs were identified; and
- Chlorinated VOCs, including Tetrachloroethene (PCE), were detected below the monitoring thresholds established by NYS DOH.

Groundwater:

- Groundwater was not investigated during this investigation.

Nature, Extent, Fate and Transport of Contaminants

Soil samples collected during the Remedial Investigation showed that no VOCs or SVOCs were detected above regulatory guidance values. Two metals including lead and mercury were detected exceeding Soil Cleanup Objectives in both the shallow and deep samples. One of the soil vapor samples identified PCE at elevated levels but below guidance values. The chlorinated VOCs detected in soil vapor were not found in any of the on-Site soil samples collected. Groundwater samples have not been obtained to date, limiting the information that would determine the transportation potential of contaminants.

Potential Routes of Exposure

The five elements of an exposure pathway are (1) a contaminant source, (2) contaminant release and transport mechanisms, (3) a point of exposure, (4) a route of exposure, and (5) a receptor population. An exposure pathway is considered complete when all five elements of an exposure pathway are documented. A potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway cannot be documented. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future. Three potential primary routes exist by which chemicals can enter the body:

- Ingestion of water, fill, or soil;
- Inhalation of vapors and particulates; and
- Dermal contact with water, fill, soil, or building materials.

Existence of Human Health Exposure

Current Conditions: The Site is occupied by a vacant two-story building. Exposure to fill is unlikely because the Site is capped with metal plates and a building slab. Groundwater is not accessible at the Site, and because the Site is served by the public water supply and groundwater use for potable supply is prohibited, groundwater is not used at the Site. As the site is currently capped, accumulation of soil vapor can pose an exposure threat.

Construction/ Remediation Activities: The potential exposure pathways to onsite contamination are by ingestion, dermal, or inhalation exposure by onsite workers during the remedial action. Similarly, off-Site receptors could be exposed to dust from onsite activities. Groundwater is not expected to be encountered during construction/ remediation, and there will be no structures on Site where soil vapor could accumulate. During the remedial action, on-site exposure pathways will be eliminated by preventing access to the site, through implementation of soil/ materials management, storm water pollution prevention, and dust controls, employment of a community air monitoring plan, and implementation of a Construction Health and Safety Plan.

Proposed Future Conditions: Under future remediated conditions, the site will be fully capped, limiting potential direct exposure to soil and groundwater remaining in place, and engineering controls will prevent potential for inhalation via soil vapor intrusion. Any on-Site exposures to vapors from off-site sources will be prevented by installation of a soil vapor membrane. Long- term assurance of these protections will be achieved by Site inspections and periodic certifications under an approved Site Management Plan. The site is served by the public water supply; groundwater is not used at the site. There are no plausible off-site pathways for oral, inhalation, or dermal exposure to contaminants derived from the site.

Receptor Populations

On-Site Receptors – The Site is currently developed with one building: a vacant 2-story commercial/residential building. Current potential on-Site receptors are Site representatives and trespassers and visitors granted access to the property. During redevelopment of the Site, the on-Site potential receptors will include construction workers, site representatives, and visitors. Once

the Site is redeveloped, the on-Site potential sensitive receptors will include adult and child building residents and visitors.

Off-Site Receptors - Potential off-Site receptors within a 0.25-mile radius of the Site include: adult and child residents, and commercial and construction workers, pedestrians, trespassers, and cyclists, based on the following:

1. Commercial Businesses (up to 0.25 mile) – existing and future
2. Residential Buildings (up to 0.25 mile) – existing and future
3. Building Construction/Renovation (up to 0.25 mile) – existing and future
4. Pedestrians, Trespassers, Cyclists (up to .25 mile) – existing and future
5. Schools (up to .25 mile) – existing and future

Overall Human Health Exposure Assessment

There are potential complete exposure pathways for the current site condition. There is a potential complete exposure pathway that requires mitigation during implementation of the remedy. There is no complete exposure pathway under future conditions after the site is developed. This assessment takes into consideration the reasonably anticipated use of the site, which includes a residential structure, site-wide surface cover cap, and a subsurface vapor barrier system and an SSD system for the building. Potential post-construction use of groundwater is not considered an option because groundwater is more than 40 feet deep, and groundwater in this area of New York City is not used as a potable water source. There are no surface waters in close proximity to the Site that could be impacted or threatened.

During remedial construction, on-Site and off-Site exposures to contaminated dust from historic fill material will be addressed through dust controls, and through the implementation of the Community Air Monitoring Program, the Soil/Materials Management Plan, and a Construction Health and Safety Plan. After the remedial action is complete, there will be no remaining exposure pathways to on-Site soil/fill or groundwater, as all soil above Site-Specific SCOs will have been removed and a vapor barrier system and an active SSD system will have been installed as part of development.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION AND OVERSIGHT

The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are Andrew Levenbaum and Paul P. Stewart (Advanced Cleanup Technologies, Inc.) respectively.

5.2 SITE SECURITY

Site access will be controlled by a steel construction fence and a gated entrance

5.3 WORK HOURS

The hours for operation of remedial construction will be from 7am to 6pm. These hours conform to the New York City Department of Buildings construction code requirements.

5.4 CONSTRUCTION HEALTH AND SAFETY PLAN

The Health and Safety Plan is included in Appendix 4. The Site Safety Coordinator will be Jeffery Diamond. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, including 40-hour hazardous waste operator training and annual 8-hour refresher training. 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. Site-specific training will be provided to field

personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the HASP. That document will define the specific project contacts for use in case of emergency.

5.5 COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Exceedences of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included in the Daily Report.

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 during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will 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 will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will 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 will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

All 15-minute readings must be recorded and be available for OER personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate

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

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ 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 $150 \text{ mcg}/\text{m}^3$ above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for OER personnel to review.

5.6 AGENCY APPROVALS

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

5.7 SITE PREPARATION

Pre-Construction Meeting

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed in compliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Dewatering

Dewatering is not anticipated on the site. Groundwater wells were not installed due to issues relating to refusal at the Site. Groundwater is expected to be present only within competent bedrock in excess of 40 feet bgs.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include use of cleaned asphalt or concrete roads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the NYC BCP Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary.

5.8 TRAFFIC CONTROL

Drivers of trucks leaving the NYC BCP Site with soil/fill will be instructed to proceed without stopping in the vicinity of the site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site is to head south on Riverdale Ave toward 261st St. Take the 3rd left onto W259th St. Take the third right onto Fieldston Rd. Turn left onto W 253rd St. Take the first right onto Lakeview Pl. Turn right onto Broadway. Turn left onto Van Cortlandt Park S. Finally turn right onto Interstate 87 S/Major Deegan Expwy.

5.9 DEMOBILIZATION

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (e.g., soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

5.10 REPORTING AND RECORD KEEPING

Daily Reports

Daily reports providing a general summary of activities for each day of *active remedial work* will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of

communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

Record Keeping and Photo-Documentation

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

5.11 COMPLAINT MANAGEMENT

All complaints from citizens will be promptly reported to OER. Complaints will be addressed and outcomes will also be reported to OER in daily reports. Notices to OER will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

5.12 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and
- Determination that the remedial action with the deviation(s) is protective of public health and the environment.

6.0 REMEDIAL ACTION REPORT

A Remedial Action Report (RAR) will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- Site Management Plan;
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all end point sampling results and all material characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action and DUSR;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;
- Account of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material.
- Account of the origin and required chemical quality testing for material imported onto the Site.
- Reports and supporting material will be submitted in digital form.

Remedial Action Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

I Andrew Levenbaum, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 3985 White plains Road NYC VCP:14EHAN038X

I, Paul P. Stewart, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 3985 White plains Road, Site.

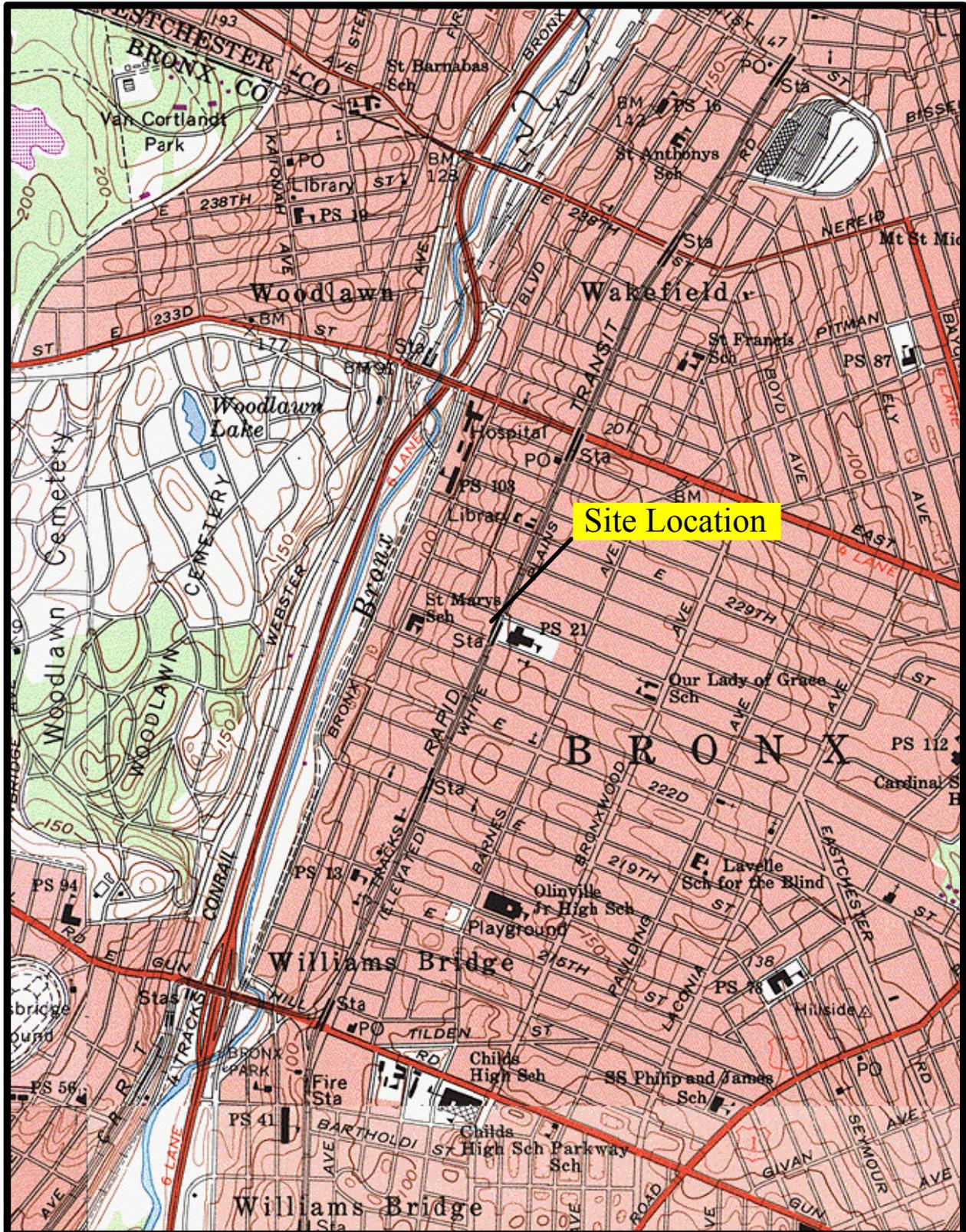
*I certify that the OER-approved Remedial Action Work Plan dated **month day year** and Stipulations in a letter dated **month day, year**; if any were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.*

7.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 4 month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	4	1
Remedial Excavation	5	8
Demobilization	13	1
Submit Remedial Action Report	16	4

FIGURE 1



From USGS 7.5 Minute Topographic Map Of Mount Vernon, NY Quadrangle



Locational Diagram

Advanced Cleanup Technologies, Inc.
 ENVIRONMENTAL CONSULTANTS

960 S Broadway, Suite 108, Hicksville, New York 11801
 Tel: 516-933-0655 Fax: 516-933-0659

Project No.: 7383-BXNY	Figure No.: 1
Date: 10/15/2013	Scale: 1 inch = 2000 feet

FIGURE 2

EAST 226TH STREET

WHITE PLAINS ROAD

3991 White Plains Road
Block 4827 Lot 1
No Longer Included

Former Building Perimeter

3985 White Plains Road
Block 4827 Lot 3

Former Building Perimeter



Site Diagram



960 S. Broadway, Suite 100, Hicksville, New York 11801
Tel: 516-933-0655 Fax: 516-933-0659

Project No.: 7383-BXNY Figure No.: 2

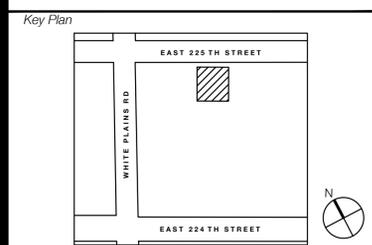
Date: 10/15/13 Scale: Not To Scale

FIGURE 3

Owner
3958 White Plains Road
Bronx, NY 10466

Architect
SBLM Architects
545 West 45th Street
New York, New York 10036
Telephone 212 995 5600
Fax 212 675 4228
www.sblm.com

Revisions / Issues
11.14.13 Progress Set



Seal

Project Information
BUILDING
3958 WHITE PLAINS RD
BRONX, NY 10466

Job Number **003958**

Drawing

CONSTRUCTION PLAN

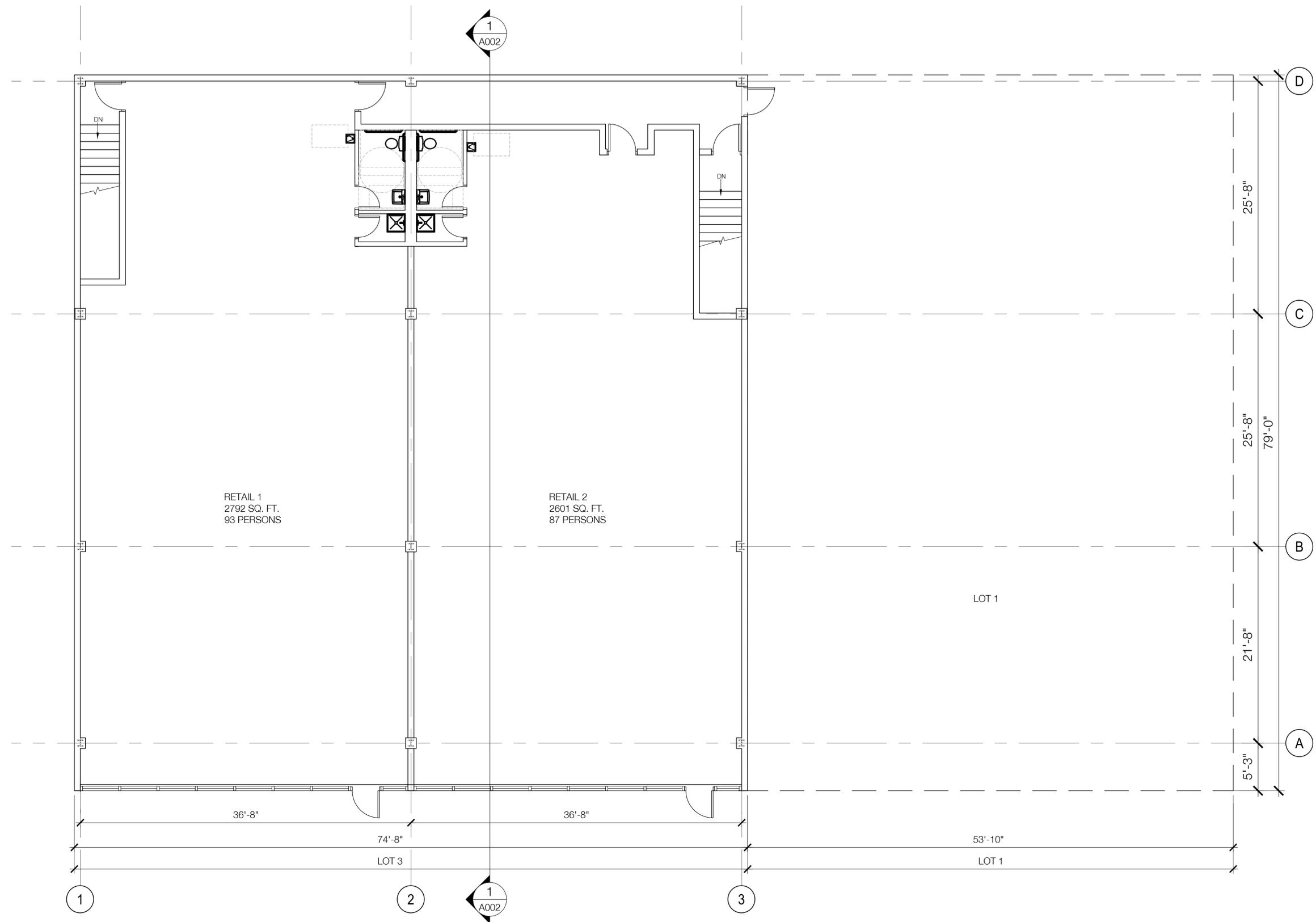
Scale **AS INDICATED**

Drawing Date **11/14/2013**

Drawing No.

A002.00

Sheet Of 24



Owner

3958 White Plains Road
Bronx, NY 10466

Architect

SBLM Architects
545 West 45th Street
New York, New York 10036
Telephone 212 995 5600
Fax 212 675 4228
www.sblm.com

Revisions / Issues

11.14.13 Progress Set

Key Plan



Seal

Project Information

BUILDING
3958 WHITE PLAINS RD
BRONX, NY 10466

Job Number 003958

Drawing

SECTION

Scale AS INDICATED

Drawing Date 11/14/2013

Drawing No.

A003.00

Sheet Of 24

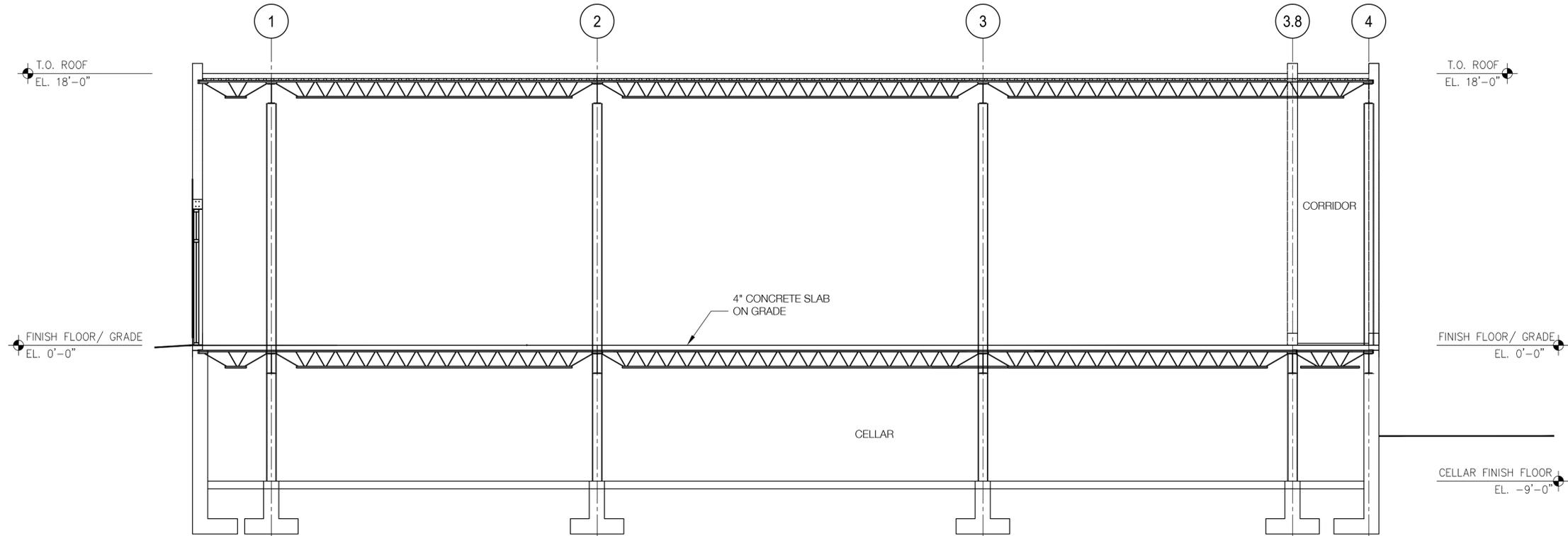


FIGURE 4

EAST 226TH STREET

WHITE PLAINS ROAD

Former Building Perimeter

Former Building Perimeter

3991 White Plains Road
Block 4827 Lot 1
No Longer Included

3985 White Plains Road
Block 4827 Lot 3

SB-1/TW-1

SV-4

SB-4

SB-5

SV-1

SB-2 (0-2')
Lead
4,4'-DDT
SB-2 (4-6')
Chromium

SB-2

SB-6 (0-2')
Acetone
Lead
4,4'-DDT
SB-6 (4-6')
Acetone
Chromium

SB-6

SV-3

SB-3 (4-6')
Acetone

SB-3

SB-7 (0-2')
Lead
Zinc
4,4'-DDE
4,4'-DDT
SB-7 (4-6')
Acetone
4,4'-DDT

SB-7

SV-2



SB-1 Soil Boring Location



SV-1 Soil Vapor Point



SB-1/TW-1 Proposed Sampling Point From Work Plan, Not Included Due to New Drawings

Sampling Exceedance Diagram



960 S. Broadway, Suite 100, Hicksville, New York 11801
Tel: 516-933-0655 Fax: 516-933-0659

Project No.: 7383-BXNY Figure No.: 5

Date: 10/15/13 Scale: Not To Scale

FIGURE 5

Herculine^{Sigma} Smooth HDPE Product Specifications

Properties	Test Method	Minimum Average Values				
		12 mil	20 mil	30 mil	40 mil	60 mil
Thickness*, mil		12	20	30	40	60
Lowest individual reading	ASTM D 5199	10	18	27	36	54
Density, g/cm ³	ASTM D 1505	.940	.940	.940	.940	.940
Tensile Properties (Each Direction)	ASTM D 6693, Type IV					
Strength at Break, lb/in width (N/mm)		42 (7)	76 (13)	114 (20)	152 (27)	228 (40)
Strength at Yield, lb/in width (N/mm)		23 (4)	42 (7)	63 (11)	84 (15)	126 (22)
Elongation at Break, %		700	700	700	700	700
Elongation at Yield, %		12	12	12	12	12
Tear Resistance, lb. (N)	ASTM D 1004	7 (33)	13 (59)	21 (93)	28 (125)	42 (187)
Puncture Resistance, lb. (N)	ASTM D 4833	19 (86)	34 (152)	54 (240)	72 (320)	108 (480)
Carbon Black Content, % (minimum)	ASTM D 1603	2.0	2.0	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	Note ⁽¹⁾	Note ⁽¹⁾	Note ⁽¹⁾	Note ⁽¹⁾	Note ⁽¹⁾

⁽¹⁾ 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.

*Custom material thicknesses also available.

This data is provided for informational purposes only. In-Line Plastics, LC makes no warranties as to the suitability or the fitness for a specific use or merchantability of products referred to, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability from resulting loss or damage. This information is subject to change without notice, please check with In-Line Plastics for current updates.

TABLE 1

Table 1
Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
3985-3993 White Plains Road
Bronx, NY
ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-2 (0-2') 9/27/13	SB-2 (4-6') 9/27/13	SB-3 (0-2') 9/18/13	SB-3 (4-6') 9/18/13
1,1,1-Trichloroethane	680	100,000	500,000	<12	<21	<12	<11
1,1,2,2-Tetrachloroethane	NS	NS	NS	<12	<21	<12	<11
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<12	<21	<12	<11
1,1,2-Trichloroethane	NS	NS	NS	<12	<21	<12	<11
1,1-Dichloroethane	270	26,000	240,000	<12	<21	<12	<11
1,1-Dichloroethene	330	100,000	500,000	<12	<21	<12	<11
1,2,4-Trichlorobenzene	NS	NS	NS	<12	<21	<12	<11
1,2-Dibromo-3-chloropropane	NS	NS	NS	<12	<21	<12	<11
1,2-Dibromoethane	NS	NS	NS	<12	<21	<12	<11
1,2-Dichlorobenzene	1,100	100,000	500,000	<12	<21	<12	<11
1,2-Dichloroethane	20	3,100	30,000	<12	<21	<12	<11
1,2-Dichloropropane	NS	NS	NS	<12	<21	<12	<11
1,3-Dichlorobenzene	2,400	49,000	280,000	<12	<21	<12	<11
1,4-Dichlorobenzene	1,800	13,000	130,000	<12	<21	<12	<11
2-Butanone	120	100,000	500,000	<12	<21	<12	12
2-Hexanone	NS	NS	NS	<12	<21	<12	<11
4-Methyl-2-pentanone	NS	NS	NS	<12	<21	<12	<11
Acetone	50	100,000	500,000	<12	<21	32	51
Benzene	60	4,800	44,000	<12	<21	<12	<11
Bromodichloromethane	NS	NS	NS	<12	<21	<12	<11
Bromoform	NS	NS	NS	<12	<21	<12	<11
Bromomethane	NS	NS	NS	<12	<21	<12	<11
Carbon disulfide	NS	NS	NS	<12	<21	<12	<11
Carbon tetrachloride	760	2,400	22,000	<12	<21	<12	<11
Chlorobenzene	1,100	100,000	500,000	<12	<21	<12	<11
Chloroethane	NS	NS	NS	<12	<21	<12	<11
Chloroform	370	49,000	350,000	<12	<21	<12	<11
Chloromethane	NS	NS	NS	<12	<21	<12	<11
cis-1,2-Dichloroethene	250	100,000	500,000	<12	<21	<12	<11
cis-1,3-Dichloropropene	NS	NS	NS	<12	<21	<12	<11
Cyclohexane	NS	NS	NS	<12	<21	<12	<11
Dibromochloromethane	NS	NS	NS	<12	<21	<12	<11
Dichlorodifluoromethane	NS	NS	NS	<12	<21	<12	<11
Ethylbenzene	1,000	41,000	390,000	<12	<21	<12	<11
Isopropylbenzene	NS	NS	NS	<12	<21	<12	<11
Methyl Acetate	NS	NS	NS	<12	<21	<12	<11
Methyl tert-butyl ether	930	100,000	500,000	<12	<21	<12	<11
Methylcyclohexane	NS	NS	NS	<12	<21	<12	<11
Methylene chloride	50	100,000	500,000	<12	<21	<12	<11
Styrene	NS	NS	NS	<12	<21	<12	<11
Tetrachloroethene	1,300	19,000	150,000	<12	<21	<12	<11
Toluene	700	100,000	500,000	<12	<21	<12	<11
trans-1,2-Dichloroethene	NS	NS	NS	<12	<21	<12	<11
trans-1,3-Dichloropropene	NS	NS	NS	<12	<21	<12	<11
Trichloroethene	470	21,000	200,000	<12	<21	<12	<11
Trichlorofluoromethane	NS	NS	NS	<12	<21	<12	<11
Vinyl chloride	20	900	13,000	<12	<21	<12	<11
Xylenes (Total)	260	100,000	500,000	<12	<21	<12	<11

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
 Bolded values signify detection above method detection limit
 NA = Not Analyzed
 NS = No Standard

Table 1 (continued)

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
3985-3993 White Plains Road
Bronx, NY

ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-6 (0-2') 9/18/13	SB-6 (4-6') 9/18/13	SB-7 (0-2') 9/18/13	SB-7 (4-6') 9/18/13
1,1,1-Trichloroethane	680	100,000	500,000	<14	<13	<17	<15
1,1,2,2-Tetrachloroethane	NS	NS	NS	<14	<13	<17	<15
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<14	<13	<17	<15
1,1,2-Trichloroethane	NS	NS	NS	<14	<13	<17	<15
1,1-Dichloroethane	270	26,000	240,000	<14	<13	<17	<15
1,1-Dichloroethene	330	100,000	500,000	<14	<13	<17	<15
1,2,4-Trichlorobenzene	NS	NS	NS	<14	<13	<17	<15
1,2-Dibromo-3-chloropropane	NS	NS	NS	<14	<13	<17	<15
1,2-Dibromoethane	NS	NS	NS	<14	<13	<17	<15
1,2-Dichlorobenzene	1,100	100,000	500,000	<14	<13	<17	<15
1,2-Dichloroethane	20	3,100	30,000	<14	<13	<17	<15
1,2-Dichloropropane	NS	NS	NS	<14	<13	<17	<15
1,3-Dichlorobenzene	2,400	49,000	280,000	<14	<13	<17	<15
1,4-Dichlorobenzene	1,800	13,000	130,000	<14	<13	<17	<15
2-Butanone	120	100,000	500,000	<14	<13	<17	<15
2-Hexanone	NS	NS	NS	<14	<13	<17	<15
4-Methyl-2-pentanone	NS	NS	NS	<14	<13	<17	<15
Acetone	50	100,000	500,000	220	300	<17	290
Benzene	60	4,800	44,000	<14	<13	<17	<15
Bromodichloromethane	NS	NS	NS	<14	<13	<17	<15
Bromoform	NS	NS	NS	<14	<13	<17	<15
Bromomethane	NS	NS	NS	<14	<13	<17	<15
Carbon disulfide	NS	NS	NS	<14	<13	<17	<15
Carbon tetrachloride	760	2,400	22,000	<14	<13	<17	<15
Chlorobenzene	1,100	100,000	500,000	<14	<13	<17	<15
Chloroethane	NS	NS	NS	<14	<13	<17	<15
Chloroform	370	49,000	350,000	<14	<13	<17	<15
Chloromethane	NS	NS	NS	<14	<13	<17	<15
cis-1,2-Dichloroethene	250	100,000	500,000	<14	<13	<17	<15
cis-1,3-Dichloropropene	NS	NS	NS	<14	<13	<17	<15
Cyclohexane	NS	NS	NS	<14	<13	<17	<15
Dibromochloromethane	NS	NS	NS	<14	<13	<17	<15
Dichlorodifluoromethane	NS	NS	NS	<14	<13	<17	<15
Ethylbenzene	1,000	41,000	390,000	<14	<13	<17	<15
Isopropylbenzene	NS	NS	NS	<14	<13	<17	<15
Methyl Acetate	NS	NS	NS	<14	<13	<17	<15
Methyl tert-butyl ether	930	100,000	500,000	<14	<13	<17	<15
Methylcyclohexane	NS	NS	NS	<14	<13	<17	<15
Methylene chloride	50	100,000	500,000	<14	<13	<17	<15
Styrene	NS	NS	NS	<14	<13	<17	<15
Tetrachloroethene	1,300	19,000	150,000	<14	<13	<17	<15
Toluene	700	100,000	500,000	<14	<13	<17	<15
trans-1,2-Dichloroethene	NS	NS	NS	<14	<13	<17	<15
trans-1,3-Dichloropropene	NS	NS	NS	<14	<13	<17	<15
Trichloroethene	470	21,000	200,000	<14	<13	<17	<15
Trichlorofluoromethane	NS	NS	NS	<14	<13	<17	<15
Vinyl chloride	20	900	13,000	<14	<13	<17	<15
Xylenes (Total)	260	100,000	500,000	<14	<13	<17	<15

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006

Bolded values signify detection above method detection limit

NA = Not Analyzed

NS = No Standard

Table 2
Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
3985-3993 White Plains Road
Bronx, NY
ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-2 (0-2') 9/27/13	SB-2 (4-6') 9/27/13	SB-3 (0-2') 9/19/13	SB-3 (4-6') 9/19/13
1,1'-Biphenyl	NS	NS	NS	<360	<420	<370	<400
2,2'-oxybis(1-chloropropane)	NS	NS	NS	<360	<420	<370	<400
2,4,5-Trichlorophenol	NS	NS	NS	<900	<1,100	<940	<1,000
2,4,6-Trichlorophenol	NS	NS	NS	<360	<420	<370	<400
2,4-Dichlorophenol	NS	NS	NS	<360	<420	<370	<400
2,4-Dimethylphenol	NS	NS	NS	<360	<420	<370	<400
2,4-Dinitrophenol	NS	NS	NS	<900	<1,100	<940	<1,000
2,4-Dinitrotoluene	NS	NS	NS	<360	<420	<370	<400
2,6-Dinitrotoluene	NS	NS	NS	<360	<420	<370	<400
2-Chloronaphthalene	NS	NS	NS	<360	<420	<370	<400
2-Chlorophenol	NS	NS	NS	<360	<420	<370	<400
2-Methylnaphthalene	NS	NS	NS	<360	<420	<370	<400
2-Methylphenol	330	100,000	500,000	<360	<420	<370	<400
2-Nitroaniline	NS	NS	NS	<900	<1,100	<940	<1,000
2-Nitrophenol	NS	NS	NS	<360	<420	<370	<400
3,3'-Dichlorobenzidine	NS	NS	NS	<360	<420	<370	<400
3-Nitroaniline	NS	NS	NS	<900	<1,100	<940	<1,000
4,6-Dinitro-2-methylphenol	NS	NS	NS	<900	<1,100	<940	<1,000
4-Bromophenyl-phenylether	NS	NS	NS	<360	<420	<370	<400
4-Chloro-3-methylphenol	NS	NS	NS	<360	<420	<370	<400
4-Chloroaniline	NS	NS	NS	<360	<420	<370	<400
4-Chlorophenyl phenyl ether	NS	NS	NS	<360	<420	<370	<400
4-Methylphenol	NS	NS	NS	<360	<420	<370	<400
4-Nitroaniline	NS	NS	NS	<900	<1,100	<940	<1,000
4-Nitrophenol	NS	NS	NS	<900	<1,100	<940	<1,000
Acenaphthene	20,000	100,000	500,000	<360	<420	<370	<400
Acenaphthylene	100,000	100,000	500,000	<360	<420	<370	<400
Acetophenone	NS	NS	NS	<360	<420	<370	<400
Anthracene	100,000	100,000	500,000	<360	<420	<370	<400
Atrazine	NS	NS	NS	<360	<420	<370	<400
Benzaldehyde	NS	NS	NS	<360	<420	<370	<400
Benzo(a)anthracene	1,000	1,000	5,600	400	<420	<370	<400
Benzo(a)pyrene	1,000	1,000	1,000	430	<420	<370	<400
Benzo(b)fluoranthene	1,000	1,000	5,600	510	<420	<370	<400
Benzo(g,h,i)perylene	100,000	100,000	500,000	<360	<420	<370	<400
Benzo(k)fluoranthene	800	3,900	56,000	<360	<420	<370	<400
Bis(2-chloroethoxy)methane	NS	NS	NS	<360	<420	<370	<400
Bis(2-chloroethyl)ether	NS	NS	NS	<360	<420	<370	<400
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<360	<420	<370	<400
Butyl benzyl phthalate	NS	NS	NS	<360	<420	<370	<400
Caprolactam	NS	NS	NS	<360	<420	<370	<400
Carbazole	NS	NS	NS	<360	<420	<370	<400
Chrysene	1,000	3,900	56,000	460	<420	<370	<400
Dibenzo(a,h)anthracene	330	330	560	<360	<420	<370	<400
Dibenzofuran	NS	NS	NS	<360	<420	<370	<400
Diethyl phthalate	NS	NS	NS	<360	<420	<370	<400
Dimethyl phthalate	NS	NS	NS	<360	<420	<370	<400
Di-n-butyl phthalate	NS	NS	NS	<360	<420	<370	<400
Di-n-octyl phthalate	NS	NS	NS	<360	<420	<370	<400
Fluoranthene	100,000	100,000	500,000	630	<420	<370	<400
Fluorene	30,000	100,000	500,000	<360	<420	<370	<400
Hexachlorobenzene	NS	NS	NS	<360	<420	<370	<400
Hexachlorobutadiene	NS	NS	NS	<360	<420	<370	<400
Hexachlorocyclopentadiene	NS	NS	NS	<360	<420	<370	<400
Hexachloroethane	NS	NS	NS	<360	<420	<370	<400
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<360	<420	<370	<400
Isophorone	NS	NS	NS	<360	<420	<370	<400
Naphthalene	12,000	100,000	500,000	<360	<420	<370	<400
Nitrobenzene	NS	NS	NS	<360	<420	<370	<400
N-Nitrosodi-n-propylamine	NS	NS	NS	<360	<420	<370	<400
N-Nitrosodiphenylamine	NS	NS	NS	<360	<420	<370	<400
Pentachlorophenol	800	6,700	6,700	<900	<1,100	<940	<1,000
Phenanthrene	100,000	100,000	500,000	420	<420	<370	<400
Phenol	330	100,000	500,000	<360	<420	<370	<400
Pyrene	100,000	100,000	500,000	860	<420	<370	<400

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NA = Not Analyzed
NS = No Standard

Table 2 (continued)

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
3985-3993 White Plains Road
Bronx, NY

ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-6 (0-2') 9/18/13	SB-6 (4-6') 9/18/13	SB-7 (0-2') 9/18/13	SB-7 (4-6') 9/18/13
1,1'-Biphenyl	NS	NS	NS	<350	<390	<350	<370
2,2'-oxybis(1-chloropropane)	NS	NS	NS	<350	<390	<350	<370
2,4,5-Trichlorophenol	NS	NS	NS	<890	<980	<870	<940
2,4,6-Trichlorophenol	NS	NS	NS	<350	<390	<350	<370
2,4-Dichlorophenol	NS	NS	NS	<350	<390	<350	<370
2,4-Dimethylphenol	NS	NS	NS	<350	<390	<350	<370
2,4-Dinitrophenol	NS	NS	NS	<890	<980	<870	<940
2,4-Dinitrotoluene	NS	NS	NS	<350	<390	<350	<370
2,6-Dinitrotoluene	NS	NS	NS	<350	<390	<350	<370
2-Chloronaphthalene	NS	NS	NS	<350	<390	<350	<370
2-Chlorophenol	NS	NS	NS	<350	<390	<350	<370
2-Methylnaphthalene	NS	NS	NS	<350	<390	<350	<370
2-Methylphenol	330	100,000	500,000	<350	<390	<350	<370
2-Nitroaniline	NS	NS	NS	<890	<980	<870	<940
2-Nitrophenol	NS	NS	NS	<350	<390	<350	<370
3,3'-Dichlorobenzidine	NS	NS	NS	<350	<390	<350	<370
3-Nitroaniline	NS	NS	NS	<890	<980	<870	<940
4,6-Dinitro-2-methylphenol	NS	NS	NS	<890	<980	<870	<940
4-Bromophenyl-phenylether	NS	NS	NS	<350	<390	<350	<370
4-Chloro-3-methylphenol	NS	NS	NS	<350	<390	<350	<370
4-Chloroaniline	NS	NS	NS	<350	<390	<350	<370
4-Chlorophenyl phenyl ether	NS	NS	NS	<350	<390	<350	<370
4-Methylphenol	NS	NS	NS	<350	<390	<350	<370
4-Nitroaniline	NS	NS	NS	<890	<980	<870	<940
4-Nitrophenol	NS	NS	NS	<890	<980	<870	<940
Acenaphthene	20,000	100,000	500,000	<350	<390	<350	<370
Acenaphthylene	100,000	100,000	500,000	<350	<390	<350	<370
Acetophenone	NS	NS	NS	<350	<390	<350	<370
Anthracene	100,000	100,000	500,000	<350	<390	<350	<370
Atrazine	NS	NS	NS	<350	<390	<350	<370
Benzaldehyde	NS	NS	NS	<350	<390	<350	<370
Benzo(a)anthracene	1,000	1,000	5,600	680	<390	520	530
Benzo(a)pyrene	1,000	1,000	1,000	570	<390	420	440
Benzo(b)fluoranthene	1,000	1,000	5,600	820	<390	750	790
Benzo(g,h,i)perylene	100,000	100,000	500,000	<350	<390	<350	<370
Benzo(k)fluoranthene	800	3,900	56,000	410	<390	<350	<370
Bis(2-chloroethoxy)methane	NS	NS	NS	<350	<390	<350	<370
Bis(2-chloroethyl)ether	NS	NS	NS	<350	<390	<350	<370
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<350	<390	<350	<370
Butyl benzyl phthalate	NS	NS	NS	<350	<390	<350	<370
Caprolactam	NS	NS	NS	<350	<390	<350	<370
Carbazole	NS	NS	NS	<350	<390	<350	<370
Chrysene	1,000	3,900	56,000	740	<390	600	570
Dibenzo(a,h)anthracene	330	330	560	<350	<390	<350	<370
Dibenzofuran	NS	NS	NS	<350	<390	<350	<370
Diethyl phthalate	NS	NS	NS	<350	<390	<350	<370
Dimethyl phthalate	NS	NS	NS	<350	<390	<350	<370
Di-n-butyl phthalate	NS	NS	NS	<350	<390	<350	<370
Di-n-octyl phthalate	NS	NS	NS	<350	<390	<350	<370
Fluoranthene	100,000	100,000	500,000	990	<390	810	800
Fluorene	30,000	100,000	500,000	<350	<390	<350	<370
Hexachlorobenzene	NS	NS	NS	<350	<390	<350	<370
Hexachlorobutadiene	NS	NS	NS	<350	<390	<350	<370
Hexachlorocyclopentadiene	NS	NS	NS	<350	<390	<350	<370
Hexachloroethane	NS	NS	NS	<350	<390	<350	<370
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<350	<390	<350	<370
Isophorone	NS	NS	NS	<350	<390	<350	<370
Naphthalene	12,000	100,000	500,000	<350	<390	<350	<370
Nitrobenzene	NS	NS	NS	<350	<390	<350	<370
N-Nitrosodi-n-propylamine	NS	NS	NS	<350	<390	<350	<370
N-Nitrosodiphenylamine	NS	NS	NS	<350	<390	<350	<370
Pentachlorophenol	800	6,700	6,700	<890	<980	<870	<940
Phenanthrene	100,000	100,000	500,000	700	<390	530	790
Phenol	330	100,000	500,000	<350	<390	<350	<370
Pyrene	100,000	100,000	500,000	1,600	<390	1,100	1,100

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006

Bolded values signify detection above method detection limit

Highlighted values signify exceedance of regulatory guidance

NA = Not Analyzed

NS = No Standard

Table 3
Metals in Soil (mg/kg-dry)
EPA Method 6010
3985-3993 White Plains Road
Bronx, NY
ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-2 (0-2') 9/27/13	SB-2 (4-6') 9/27/13	SB-3 (0-2') 9/17/13	SB-3 (4-6') 9/17/13
Aluminum	NS	NS	NS	7,730	16,900	11,300	15,800
Antimony	NS	NS	NS	<6.52	<7.74	<6.80	<7.29
Arsenic	13	16	16	3.33	2.43	2.66	2.79
Barium	350	400	400	70.8	45.0	53.7	71.8
Beryllium	7.2	72	590	<0.54	<0.65	<0.57	<0.61
Cadmium	2.5	4.3	9.3	<0.54	<0.65	<0.57	<0.61
Calcium	NS	NS	NS	12,000	695	1,850	1,150
Chromium	30	180	1,500	19.1	31.1	29.6	28.2
Cobalt	NS	NS	NS	6.27	8.14	8.31	<6.08
Copper	50	270	270	27.6	5.07	17.8	6.26
Iron	NS	NS	NS	12,600	17,400	17,000	16,800
Lead	63	400	1,000	88.5	10.5	17.3	8.45
Magnesium	NS	NS	NS	4,670	3,360	4,030	2,660
Manganese	1,600	2,000	10,000	211	287	333	168
Mercury	0.18	0.81	2.8	<0.22	<0.26	<0.23	<0.24
Nickel	30	310	310	14.2	11.1	16	9.44
Potassium	NS	NS	NS	1,430	844	1,630	570
Selenium	3.9	180	1,500	<0.54	<0.65	<0.57	<0.61
Silver	2	180	1,500	<1.09	<1.29	<1.13	<1.22
Sodium	NS	NS	NS	286	327	139	75.1
Thallium	NS	NS	NS	<1.09	<1.29	<1.13	<1.22
Vanadium	NS	NS	NS	23.8	36.0	27.8	34.4
Zinc	109	10,000	10,000	78.6	33.9	44.8	35.1

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
 Bolded values signify detection above method detection limit
 Highlighted values signify exceedance of regulatory guidance
 NA = Not Analyzed

Table 3 (continued)
Metals in Soil (mg/kg-dry)
EPA Method 6010
3985-3993 White Plains Road
Bronx, NY
ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-6 (0-2') 9/18/13	SB-6 (4-6') 9/18/13	SB-7 (0-2') 9/18/13	SB-7 (4-6') 9/18/13
Aluminum	NS	NS	NS	7,210	11,700	7,340	6,260
Antimony	NS	NS	NS	<6.44	<7.10	<3.32	<6.88
Arsenic	13	16	16	3.75	4.78	4.24	3.25
Barium	350	400	400	79.2	73.7	78.3	51.4
Beryllium	7.2	72	590	<0.54	<0.59	<0.53	<0.57
Cadmium	2.5	4.3	9.3	<0.54	<0.59	<0.53	<0.57
Calcium	NS	NS	NS	12,700	1,310	13,100	14,600
Chromium	30	180	1,500	19.4	30.5	22.2	17.7
Cobalt	NS	NS	NS	5.96	7.89	6.91	<5.73
Copper	50	270	270	27.8	17.4	65.9	26
Iron	NS	NS	NS	13,600	14,500	14,700	12,500
Lead	63	400	1,000	92.7	7.32	97	57.6
Magnesium	NS	NS	NS	4,080	2,900	5,020	5,630
Manganese	1,600	2,000	10,000	234	100	249	185
Mercury	0.18	0.81	2.8	<0.22	<0.24	<0.21	<0.23
Nickel	30	310	310	14.4	12	17.3	14.7
Potassium	NS	NS	NS	1,270	699	1,330	1,200
Selenium	3.9	180	1,500	<0.54	<0.59	<0.53	<0.57
Silver	2	180	1,500	<1.07	<1.18	<1.05	<1.15
Sodium	NS	NS	NS	208	<23.7	204	180
Thallium	NS	NS	NS	<1.07	<1.18	<1.05	<1.15
Vanadium	NS	NS	NS	26.3	41.6	24.6	27
Zinc	109	10,000	10,000	92.5	38.7	465	71.3

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
 Bolded values signify detection above method detection limit
 Highlighted values signify exceedance of regulatory guidance
 NA = Not Analyzed

Table 4
PCBs and Pesticides in Soil (ug/kg-dry)
EPA Method 8081/8082
3985-3993 White Plains Road
Bronx, NY
ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-2 (0-2') 9/27/13	SB-2 (4-6') 9/27/13	SB-3 (0-2') 9/21/13	SB-3 (4-6') 9/21/13
4,4'-DDD	3.3	2,600	92,000	<3.6	<4.3	<3.7	<4.0
4,4'-DDE	3.3	1,800	62,000	<3.6	<4.3	<3.7	<4.0
4,4'-DDT	3.3	1,700	47,000	11	<4.3	<3.7	<4.0
Aldrin	5	19	680	<1.8	<2.2	<1.9	<2.1
alpha-BHC	20	97	3,400	<1.8	<2.2	<1.9	<2.1
alpha-Chlordane	94	4,200	24,000	9.7	<2.2	<1.9	<2.1
Aroclor 1016	100	1,000	1,000	<36	<43	<37	<40
Aroclor 1221	100	1,000	1,000	<72	<86	<76	<81
Aroclor 1232	100	1,000	1,000	<36	<43	<37	<40
Aroclor 1242	100	1,000	1,000	<36	<43	<37	<40
Aroclor 1248	100	1,000	1,000	<36	<43	<37	<40
Aroclor 1254	100	1,000	1,000	<36	<43	<37	<40
Aroclor 1260	100	1,000	1,000	<36	<43	<37	<40
beta-BHC	36	72	3,000	<1.8	<2.2	<1.9	<2.1
delta-BHC	40	100,000	500,000	<1.8	<2.2	<1.9	<2.1
Dieldrin	5	39	1,400	4.7	<4.3	<3.7	<4.0
Endosulfan I	2,400	4,800	200,000	<1.8	<2.2	<1.9	<2.1
Endosulfan II	2,400	4,800	200,000	<3.6	<4.3	<3.7	<4.0
Endosulfan sulfate	2,400	4,800	200,000	<3.6	<4.3	<3.7	<4.0
Endrin	14	2,200	89,000	<3.6	<4.3	<3.7	<4.0
Endrin aldehyde	NS	NS	NS	<3.6	<4.3	<3.7	<4.0
Endrin ketone	NS	NS	NS	4.6	<4.3	<3.7	<4.0
gamma-BHC	100	280	9,200	<1.8	<2.2	<1.9	<2.1
gamma-Chlordane	NS	NS	NS	4.8	<2.2	<1.9	<2.1
Heptachlor	42	420	15,000	<1.8	<2.2	<1.9	<2.1
Heptachlor epoxide	NS	NS	NS	<1.8	<2.2	<1.9	<2.1
Methoxychlor	NS	NS	NS	<18	<22	<19	<21
Toxaphene	NS	NS	NS	<180	<220	<190	<210

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard

Table 4 (continued)
PCBs and Pesticides in Soil (ug/kg-dry)
EPA Method 8081/8082
3985-3993 White Plains Road
Bronx, NY
ACT Project No.: 7383-BXNY

Sample ID Sample Date	UUSCO ¹	Standard RRSCO ²	CSCO ³	SB-6 (0-2') 9/18/13	SB-6 (4-6') 9/18/13	SB-7 (0-2') 9/18/13	SB-7 (4-6') 9/18/13
4,4'-DDD	3.3	2,600	92,000	<3.5	<3.9	<3.5	<3.8
4,4'-DDE	3.3	1,800	62,000	<3.5	<3.9	4	<3.8
4,4'-DDT	3.3	1,700	47,000	7.4	<3.9	5.1	5.2
Aldrin	5	19	680	<1.8	<2.0	<1.8	<1.9
alpha-BHC	20	97	3,400	<1.8	<2.0	<1.8	<1.9
alpha-Chlordane	94	4,200	24,000	7.5	<2.0	7.6	11
Aroclor 1016	100	1,000	1,000	<35	<39	<35	<38
Aroclor 1221	100	1,000	1,000	<72	<79	<70	<76
Aroclor 1232	100	1,000	1,000	<35	<39	<35	<38
Aroclor 1242	100	1,000	1,000	<35	<39	<35	<38
Aroclor 1248	100	1,000	1,000	<35	<39	<35	<38
Aroclor 1254	100	1,000	1,000	<35	<39	<35	<38
Aroclor 1260	100	1,000	1,000	<35	<39	<35	<38
beta-BHC	36	72	3,000	<1.8	<2.0	<1.8	<1.9
delta-BHC	40	100,000	500,000	<1.8	<2.0	<1.8	<1.9
Dieldrin	5	39	1,400	<3.5	<3.9	3.5	<3.8
Endosulfan I	2,400	4,800	200,000	<1.8	<2.0	<1.8	<1.9
Endosulfan II	2,400	4,800	200,000	<3.5	<3.9	<3.5	<3.8
Endosulfan sulfate	2,400	4,800	200,000	<3.5	<3.9	<3.5	<3.8
Endrin	14	2,200	89,000	<3.5	<3.9	<3.5	<3.8
Endrin aldehyde	NS	NS	NS	<3.5	<3.9	<3.5	<3.8
Endrin ketone	NS	NS	NS	<3.5	<3.9	<3.5	<3.8
gamma-BHC	100	280	9,200	<1.8	<2.0	<1.8	<1.9
gamma-Chlordane	NS	NS	NS	4	<2.0	4.2	6.4
Heptachlor	42	420	15,000	<1.8	<2.0	<1.8	<1.9
Heptachlor epoxide	NS	NS	NS	<1.8	<2.0	<1.8	<1.9
Methoxychlor	NS	NS	NS	<18	<20	<18	<19
Toxaphene	NS	NS	NS	<180	<200	<180	<190

¹ Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
² Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
³ Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard

Table 5
Volatile Organic Compounds in Soil Vapor, Indoor and Ambient Air (ug/m3)
EPA Method TO-15
3985-3993 White Plains Road
Bronx, NY
ACT Project No.: 7383-BXNY

Sample ID	NYSDOH	SV-1 (4-6)	SV-2 (4-6)	SV-3 (4-6)
Sample Date	Guideline ¹	9/26/13	9/26/13	9/23/13
1,1,1-Trichloroethane	NA	2.02	<10.9	<1.09
1,1,2,2-Tetrachloroethane	NA	<1.37	<13.7	<1.37
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	<0.77	<7.66	<0.77
1,1,2-Trichloroethane	NA	<1.09	<10.9	<1.09
1,1-Dichloroethane	NA	<0.81	<8.09	<0.81
1,1-Dichloroethene	NA	<0.79	<7.93	<0.79
1,2,4-Trichlorobenzene	NA	<1.48	<14.8	<1.48
1,2,4-Trimethylbenzene	NA	10.3	62.4	1.43
1,2-Dibromoethane	NA	<1.54	<15.4	<1.54
1,2-Dichlorobenzene	NA	<1.20	<12.0	<1.20
1,2-Dichloroethane	NA	<0.81	<8.09	<0.81
1,2-Dichloroethene (cis)	NA	<0.79	<7.93	<0.79
1,2-Dichloroethene (trans)	NA	<0.79	<7.93	<0.79
1,2-Dichloropropane	NA	<0.92	<9.24	<0.92
1,2-Dichlorotetrafluoroethane	NA	<1.40	<14.0	<1.40
1,3,5-Trimethylbenzene	NA	2.95	17.7	<0.98
1,3-Butadiene	NA	<0.44	<4.42	<0.44
1,3-Dichlorobenzene	NA	<1.20	<12.0	<1.20
1,3-Dichloropropene (cis)	NA	<0.91	<9.08	<0.91
1,3-Dichloropropene (trans)	NA	<0.91	<9.08	<0.91
1,3-Hexachlorobutadiene	NA	<2.13	<21.3	<2.13
1,4-Dichlorobenzene	NA	<1.20	<12.0	<1.20
1,4-Dioxane	NA	<0.72	<7.21	<0.72
2,2,4-Trimethylpentane	NA	14.0	100	1.8
4-Ethyltoluene	NA	3.39	25.6	<0.98
Acetone	NA	201	1,050	29.3
Benzene	NA	24.1	89.1	2.3
Bromodichloromethane	NA	<1.34	<13.4	<1.34
Bromoform	NA	<2.07	<20.7	<2.07
Bromomethane	NA	<0.78	<7.77	<0.78
Carbon disulfide	NA	7.97	10.6	<0.62
Carbon tetrachloride	NA	2.14	<12.6	<1.26
Chlorobenzene	NA	<0.92	<9.21	<0.92
Chloroethane	NA	<0.53	<5.28	<0.53
Chloroform	NA	1.32	11.7	<0.98
Chloromethane	NA	1.76	<4.13	2.19
Cyclohexane	NA	4.13	39.9	0.86
Dibromochloromethane	NA	<1.70	<17.0	<1.70
Dichlorodifluoromethane	NA	1.58	<9.89	2.0
Ethanol	NA	314	1,180	25.8
Ethyl acetate	NA	<0.72	<7.21	<0.72
Ethylbenzene	NA	10.7	85.1	2.5
Isopropanol	NA	<0.49	<4.92	1.5
Methyl butyl ketone	NA	<0.82	<8.19	<0.82
Methyl ethyl ketone	NA	9.08	615	2.7
Methyl isobutyl ketone	NA	0.82	42.2	<0.82
Methyl tert-butyl ether	NA	<0.72	<7.21	<0.72
Methylene chloride	60	<0.78	7.77	0.97
n-Heptane	NA	13.0	88.9	2.2
n-Hexane	NA	21.8	67.7	3.3
Propylene	NA	495	510	1.7
Styrene	NA	<0.85	<8.52	<0.85
tert-Butyl Alcohol	NA	416	448	71
Tetrachloroethene	100	8.27	85.5	<1.36
Tetrahydrofuran	NA	7.02	86.4	0.68
Toluene	NA	69.5	528	33.1
Trichloroethene	5	<1.07	<10.7	<1.07
Trichlorofluoromethane	NA	6.52	202	1.1
Vinyl acetate	NA	<0.70	<7.04	<0.70
Vinyl bromide	NA	<0.87	<8.74	<0.87
Vinyl chloride	NA	<0.51	<5.11	<0.51
Xylenes (m&p)	NA	36.3	261	8.5
Xylenes (o)	NA	12.0	89.0	2.7

¹ Table 3.1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York",
² Background values are derived from EPA 2001 Building Assessment and Survey Evaluation (BASE) Database, 75th Percentile of Indoor Air Results.
 Bolded values signify detection above method detection limit
 NA = Not Available

TABLE 2

Table 1

Volatile Organic Compounds in Soil Vapor, Indoor and Ambient Air (ug/m3)

EPA Method TO-15

3985-3993 White Plains Road

Bronx, NY

ACT Project No.: 7383-BXNY

Sample ID	NYSDOH	SV-1 (4-6)	SV-2 (4-6)	SV-3 (4-6)	SV-4 (10-12)
Sample Date	Guideline ¹	9/26/13	9/26/13	9/23/13	9/26/13
1,1,1-Trichloroethane	NA	2.02	<10.9	<1.09	<10.9
1,1,2,2-Tetrachloroethane	NA	<1.37	<13.7	<1.37	<13.7
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	<0.77	<7.66	<0.77	<7.66
1,1,2-Trichloroethane	NA	<1.09	<10.9	<1.09	<10.9
1,1-Dichloroethane	NA	<0.81	<8.09	<0.81	<8.09
1,1-Dichloroethene	NA	<0.79	<7.93	<0.79	<7.93
1,2,4-Trichlorobenzene	NA	<1.48	<14.8	<1.48	<14.8
1,2,4-Trimethylbenzene	NA	10.3	62.4	1.43	33.9
1,2-Dibromoethane	NA	<1.54	<15.4	<1.54	<15.4
1,2-Dichlorobenzene	NA	<1.20	<12.0	<1.20	<12.0
1,2-Dichloroethane	NA	<0.81	<8.09	<0.81	<8.09
1,2-Dichloroethene (cis)	NA	<0.79	<7.93	<0.79	<7.93
1,2-Dichloroethene (trans)	NA	<0.79	<7.93	<0.79	<7.93
1,2-Dichloropropane	NA	<0.92	<9.24	<0.92	<9.24
1,2-Dichlorotetrafluoroethane	NA	<1.40	<14.0	<1.40	<14.0
1,3,5-Trimethylbenzene	NA	2.95	17.7	<0.98	9.83
1,3-Butadiene	NA	<0.44	<4.42	<0.44	<4.42
1,3-Dichlorobenzene	NA	<1.20	<12.0	<1.20	<12.0
1,3-Dichloropropene (cis)	NA	<0.91	<9.08	<0.91	<9.08
1,3-Dichloropropene (trans)	NA	<0.91	<9.08	<0.91	<9.08
1,3-Hexachlorobutadiene	NA	<2.13	<21.3	<2.13	<21.3
1,4-Dichlorobenzene	NA	<1.20	<12.0	<1.20	<12.0
1,4-Dioxane	NA	<0.72	<7.21	<0.72	<7.21
2,2,4-Trimethylpentane	NA	14.0	100	1.8	23.4
4-Ethyltoluene	NA	3.39	25.6	<0.98	13.3
Acetone	NA	201	1,050	29.3	<4.75
Benzene	NA	24.1	89.1	2.3	3,020
Bromodichloromethane	NA	<1.34	<13.4	<1.34	<13.4
Bromoform	NA	<2.07	<20.7	<2.07	<20.7
Bromomethane	NA	<0.78	<7.77	<0.78	<7.77
Carbon disulfide	NA	7.97	10.6	<0.62	<6.23
Carbon tetrachloride	NA	2.14	<12.6	<1.26	<12.6
Chlorobenzene	NA	<0.92	<9.21	<0.92	<9.21
Chloroethane	NA	<0.53	<5.28	<0.53	<5.28
Chloroform	NA	1.32	11.7	<0.98	185
Chloromethane	NA	1.76	<4.13	2.19	<4.13
Cyclohexane	NA	4.13	39.9	0.86	18.9
Dibromochloromethane	NA	<1.70	<17.0	<1.70	<17.0
Dichlorodifluoromethane	NA	1.58	<9.89	2.0	<9.89
Ethanol	NA	314	1,180	25.8	<3.77
Ethyl acetate	NA	<0.72	<7.21	<0.72	<7.21
Ethylbenzene	NA	10.7	85.1	2.5	41.7
Isopropanol	NA	<0.49	<4.92	1.5	<4.92
Methyl butyl ketone	NA	<0.82	<8.19	<0.82	<8.19
Methyl ethyl ketone	NA	9.08	615	2.7	113
Methyl isobutyl ketone	NA	0.82	42.2	<0.82	22.5
Methyl tert-butyl ether	NA	<0.72	<7.21	<0.72	<7.21
Methylene chloride	60	<0.78	7.77	0.97	54.0
n-Heptane	NA	13.0	88.9	2.2	93.4
n-Hexane	NA	21.8	67.7	3.3	173
Propylene	NA	495	510	1.7	3,100
Styrene	NA	<0.85	<8.52	<0.85	<8.52
tert-Butyl Alcohol	NA	416	448	71	242
Tetrachloroethene	100	8.27	85.5	<1.36	65.1
Tetrahydrofuran	NA	7.02	86.4	0.68	27.1
Toluene	NA	69.5	528	33.1	370
Trichloroethene	5	<1.07	<10.7	<1.07	72.6
Trichlorofluoromethane	NA	6.52	202	1.1	216
Vinyl acetate	NA	<0.70	<7.04	<0.70	<7.04
Vinyl bromide	NA	<0.87	<8.74	<0.87	<8.74
Vinyl chloride	NA	<0.51	<5.11	<0.51	<5.11
Xylenes (m&p)	NA	36.3	261	8.5	151
Xylenes (o)	NA	12.0	89.0	2.7	45.2

¹ Table 3.1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York", October 2006.² Background values are derived from EPA 2001 Building Assessment and Survey Evaluation (BASE) Database, 75th Percentile of Indoor Air Results.

Bolded values signify detection above method detection limit

NA = Not Available

APPENDIX 1

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Riverdale Equities Ltd. have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Brownfield Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC BCP, Riverdale Equities Ltd. will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site. Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, William Wong, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841

Project Contact List. OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories. A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. Riverdale Equities Ltd. will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

New York Public Library – Wakefield Library

4100 Lowerre Pl, Bronx, NY 10466

(718) 652-4663

Mon, Wed – 11am to 7pm

Tues, Thurs – 10am – 6pm

Fri, Sat – 10am – 5pm

Sunday Closed

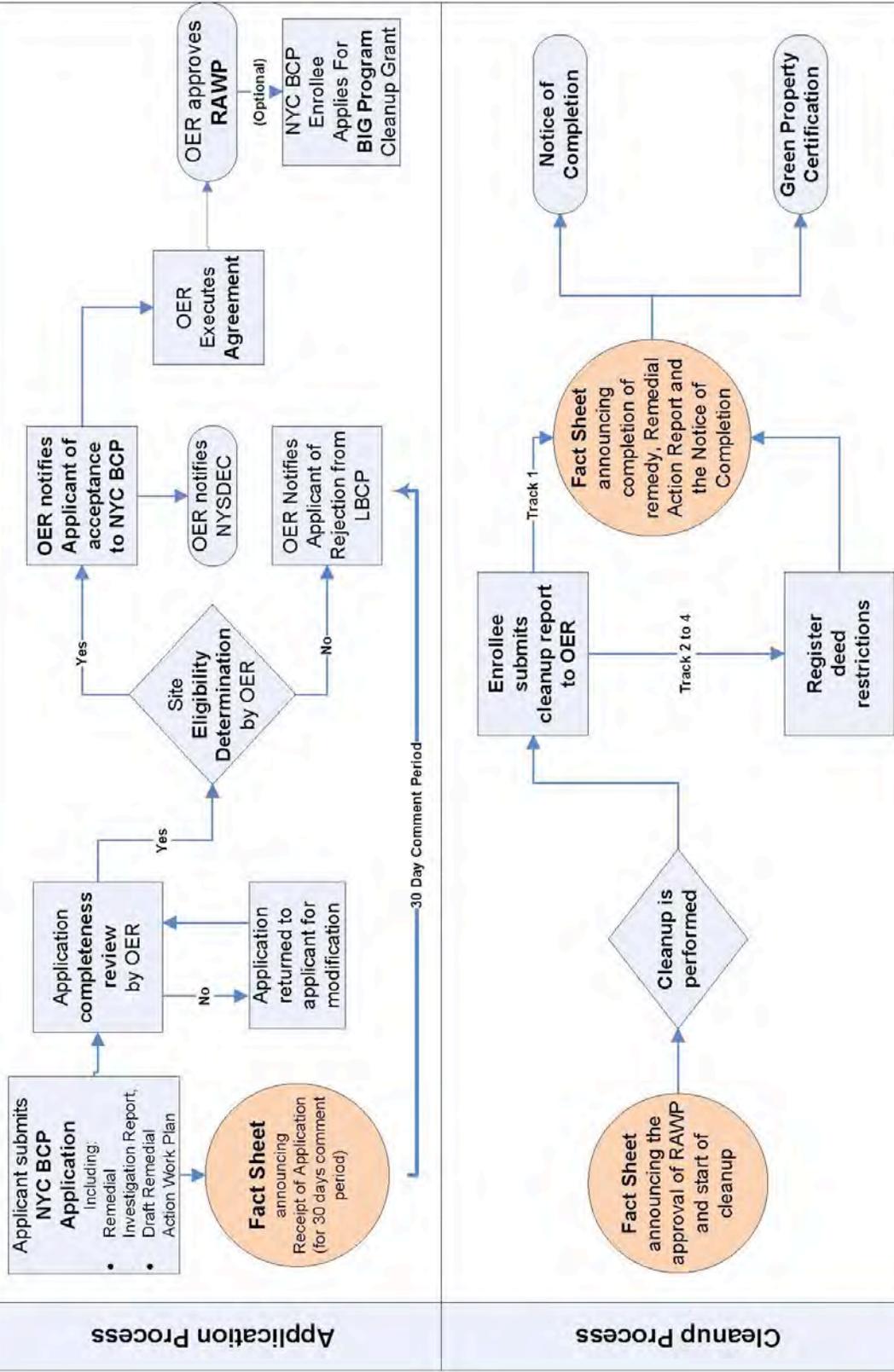
Digital Documentation. NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

Identify Issues of Public Concern.

New Empire Builder Corp. is unaware of any specific issues of concern to stakeholders proximate to the Site. A major issue of concern to the public will be potential impacts of nuisance odors and dust during the disturbance of historic fill soils at the Site. 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 Construction Health and Safety Plan and a Community Air Monitoring Plan are required components of the remedial program. Implementation of these plans will be under the direct oversight of the New York City Office of Environmental Remediation (NYCOER).

Public Notice and Public Comment. Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by Riverdale Equities Ltd., reviewed and approved by OER prior to distribution and mailed by Riverdale Equities Ltd.. Public comment is solicited in public notices for all work plans developed under the NYC Brownfield Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

Flow Chart For NYC Brownfield Cleanup Program (NYC BCP)



Citizen Participation Milestones. Public notice and public comment activities occur at several steps during a typical NYC BCP project. See flow chart on the following page, which identifies when during the NYC BCP public notices are issued: These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.

- **Public Notice announcing the approval of the RAWP and the start of remediation**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.

- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion**

PUBLIC NOTICE IN THE FORM OF A FACT SHEET IS SENT TO ALL PARTIES LISTED ON THE SITE CONTACT LIST ANNOUNCING THE COMPLETION OF REMEDIATION, PROVIDING A LIST OF ALL INSTITUTIONAL AND ENGINEERING CONTROLS IMPLEMENTED FOR TO THE SITE AND ANNOUNCING THE ISSUANCE OF THE NOTICE OF COMPLETION.

APPENDIX 2

SUSTAINABILITY STATEMENT

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

Reuse of Clean, Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction.

An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RAR.

Reduce Consumption of Virgin and Non-Renewable Resources. Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the RAR.

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the Remedial Action Report (RAR). Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

Conversion to Clean Fuels. Use of clean fuel improves NYC's air quality by reducing harmful emissions.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

Recontamination Control. Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Storm-water Retention. Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced storm-water retention capability of the redevelopment project will be included in the RAR.

Linkage with Green Building. Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use.

The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

Paperless Brownfield Cleanup Program. Riverdale Equities Ltd. is participating in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

Low-Energy Project Management Program. Riverdale Equities Ltd. is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

APPENDIX 3

SOIL/MATERIALS MANAGEMENT PLAN

1.1 SOIL SCREENING METHODS

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

1.2 STOCKPILE METHODS

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 CHARACTERIZATION OF EXCAVATED MATERIALS

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 MATERIALS EXCAVATION, LOAD-OUT AND DEPARTURE

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

1.5 OFF-SITE MATERIALS TRANSPORT

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are likely to include heading south on Riverdale Ave toward 261st St. Then taking the 3rd left onto W259th St. followed by taking the third right onto Fieldston Rd. Turning left onto W 253rd St. Taking the first right onto Lakeview Pl. Turn right onto Broadway. Turn left onto Van Cortlandt Park S and finally turning right onto Interstate 87/Major Deegan Expwy. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing 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. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 MATERIALS DISPOSAL OFF-SITE

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in Bronx, New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the RAR.

The Remedial Action Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the RAR.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations.

Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

1.7 MATERIALS REUSE ON-SITE

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan may be reused on-Site. ‘Reuse on-Site’ means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to the NYC BCP agreement subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this RAWP are followed. No material excavated from the site will be reused on-site.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 DEMARCATION

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover

soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

1.9 IMPORT OF BACKFILL SOIL FROM OFF-SITE SOURCES

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAWP. The RAR will report the source of the fill, evidence

that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RAR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.10 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department

of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

1.11 STORM-WATER POLLUTION PREVENTION

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAWP (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.12 CONTINGENCY PLAN

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings

will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.13 ODOR, DUST AND NUISANCE CONTROL

Odor Control

All necessary means will be employed to prevent on- and off-Site odor 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) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. 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. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying the Remedial Action Report.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying the Remedial Action Report.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided, during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.

APPENDIX 4
HEALTH AND SAFETY PLAN



**CONSTRUCTION
HEALTH AND SAFETY PLAN**

**3985-3933 White Plains Road
Bronx, New York 10466
Block 4827, Lot 3**

ACT Project No. 7383-BXNY

November 27th, 2013

Prepared for:

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1.0 INTRODUCTION

The construction of a 1-story retail building is being proposed at the property located at 3985-3989 White Plains Road, Bronx, New York (“the Site”). This Construction Health and Safety Plan (CHASP) has been prepared to identify site-specific health and safety procedures to be followed by on-site contractors during remedial activities at the site. All activities performed under this CHASP are targeted to comply with Occupational Safety and Health Administration (OSHA) Regulations 29 CFR Part 1910, *et seq.*

1.1 Purpose

The purpose of this CHASP is to provide the contractors’ field personnel, and other visitors with an understanding of the potential chemical and physical hazards that exist or may arise while portions of this project are being performed. The primary objective is to ensure the well being of all field personnel and the community surrounding this site. A copy of this CHASP will be available to anyone that requests it. Visiting personnel (e.g. government officials, administrators, bank inspectors, assessors, etc.) that will have limited exposure to the site native soil/fill material during construction activities will be instructed on how to reduce the probability of exposure to site contaminants, but will not be required read the CHASP.

All on-site personnel shall familiarize themselves with the contents of this CHASP and the remedial activities planned for the site. Personnel choosing not to comply with this CHASP will be removed from the worksite.

1.2 Site Description

The Site is located at 3985-3989 White Plains Road in the northern section in the Bronx, New York and is identified as Block 4827 and Lot 3 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 5,980-square feet and is bounded by East 226th Street, with one-story commercial buildings to the north, East 225th Street, with one and two-story commercial buildings to the south, White Plains Road, followed by multiple one-story commercial buildings to the east, and Carpenter Avenue, with mainly multi-story residential buildings to the west. A map of the

site boundary is shown in Figure 2. Currently, the Site is vacant. There was a fire at the site, which destroyed the one-story, four unit, commercial building with a full basement. The debris was removed from the site and the lot was backfilled with clean fill to grade. There is a steep slope to the west of the property.

1.3 Environmental Concerns

EBI Consulting (EBI) completed a Phase I Environmental Site Assessment in November 2012. The Phase I identifies the previous usage of the property from 1897 to 2012. The most recent uses of the subject property were as a Laundromat, two hair salons and a cell phone store. According to the Phase I the subject property contained dwellings from 1897 through approximately 1927 when the property was change to be used for commercial purposes.

A Remedial Investigation Report was prepared by Advanced Cleanup Technologies and was dated November 2013. Soil/fill samples collected during the RI showed low level concentrations of VOCs, SVOCs, metals and pesticides in both shallow and deep samples. No PCBs were detected in any soil sample. Acetone and 2-Butanone were the only VOCs detected in the soil samples. The concentrations of VOCs were below their respective restricted residential soil clean up objectives (RRSCO). No SVOCs were detected in any soil samples above their respective unrestricted use soil clean up objectives (UUSCO). Lead, chromium and zinc were the only metals detected in soils above their UUSCOs. All metals were below their RRSCOs. 4,4'-DDT and 4,4'-DDE were the only pesticides detected above their UUSCOs. No compounds detected in any of the soil samples exceeded the corresponding RRSCOs. Groundwater samples collected showed. Soil vapor samples collected during the RI showed low concentrations of petroleum constituents and chlorinated VOCs. Most compounds were detected at concentrations less than 30 ug/m^3 , except for ethanol ($1,180 \text{ ug/m}^3$), toluene at (528 ug/m^3) and xylenes (maximum concentration of 350 ug/m^3). Total concentrations of approximately 14-petroleum-related VOCs in soil vapor ranged from 62.4 ug/m^3 to 89.1 ug/m^3 . Chlorinated VOCs were identified in one of three soil vapor samples including tetrachloroethylene or PCE (85.5 ug/m^3), 111-Trichloroethane (2.02 ug/m^3) and carbon tetrachloride (2.14 ug/m^3). Trichloroethene or TCE was not detected in soil vapor.



2.0 SITE PERSONNEL

All on-site personnel shall have training in accordance with the regulations codified at 29 CFR 1910.20. Proof that the qualifications of the on-site personnel comply with these regulations will be maintained by the Site Supervisor prior to their being allowed to be included in the on-Site workforce.

All on-site personnel shall familiarize themselves with the contents of the CHASP, the scope of the Remedial Action Work Plan (RAWP) for the Site and attend a daily site specific health and safety briefing prior to the commencement of work activities. Personnel choosing not to comply with this CHASP will be removed from the worksite.

ACT's Site Supervisor will have oversight responsibility over the project to ensure that this CHASP is properly implemented and that ACT and its subcontractors adhere to all OSHA regulations and other established industry health and safety practices.

Each contractor will designate an on-site individual responsible for health and safety issues relating to excavation and construction activities. Each contractor will communicate to the Site Supervisor the name of this individual and what specific actions are to be taken by each contractor during that work day that will be required to comply with the CHASP.

The Site Supervisor will coordinate the activities of all other contractors on-site so as not to jeopardize the health and safety of any personnel on-site. In addition, the Site Supervisor will continually monitor and inspect personnel and equipment for compliance with established safe work practices.

A list of the pertinent personnel authorized to supervise site health and safety operations is presented below:

Title	Name	Telephone Number
Site Supervisor ACT	Jeff Diamond	516-933-0655, Ext. 15 516-521-5627 (Mobile)



Project Manager ACT	Joseph Okelarin	516-933-0655 631-245-2508 (Mobile)
Health and Safety Officer ACT	Yisong Yang	516-933-0655, Ext. 15 718-508-2970 (Mobile)

3.0 PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) is divided into the following four categories based on the degree of protection afforded:

- Level A: This PPE level will be selected when the greatest level of skin, respiratory, and eye protection is required. It includes positive pressure, full face-piece self-contained breathing apparatus (SCBA), or NIOSH-approved positive pressure supplied air respirator with escape SCBA and a totally-encapsulating chemical-protective suit.
- Level B: This PPE level will be selected when the highest level of respiratory protection is necessary but a lesser level of skin protection is needed. It includes positive pressure, full face-piece SCBA, or NIOSH-approved positive pressure supplied air respirator with escape SCBA and hooded chemical-resistant clothing such as overalls and long-sleeved jacket, coveralls, one or two-piece chemical-splash suit or disposable chemical-resistant overalls.
- Level C: This PPE level will be selected when the concentration(s) and type(s) of airborne substance(s) present in the work area is known and the criteria for using air purifying respirators are met. It includes full-face or half-mask, NIOSH-approved air purifying respirators and hooded chemical-resistant clothing such as overalls and long-sleeved jacket, coveralls, one or two-piece chemical-splash suit or disposable chemical-resistant overalls.
- Level D: This PPE level will be selected for nuisance contamination only. It includes coveralls, gloves, chemical-resistant steel toe and shank boots, safety glasses or chemical splash goggles, hard hat, escape mask and face shield.



PPE shall be selected in accordance with the site air monitoring program (Section 5.3), 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.

Before site personnel are required to use any respirator with a negative or positive pressure tight-fitting face-piece, the personnel will be fit tested with the same make, model, style, and size of respirator that will be used. The fit test shall be administered using only an OSHA-accepted fit test protocol. The OSHA-accepted fit test protocols and procedures provided for in 29 CFR 1910.120 are contained in Appendix B of this CHASP.

All Site workers will be required to participate in a comprehensive PPE program. The PPE program will consist of daily “Tailgate” Health and Safety meetings, proper inspection, donning, use, maintenance, storage and decontamination of protective clothing and equipment, use of protective equipment in temperature extremes and monitoring of co-workers and the work environment.

The Site Supervisor will determine the level of protection required for all field activities and whether the level of protection should be upgraded. It is anticipated that all on-site activities will be conducted in Level D PPE, unless otherwise upgraded by the Site Supervisor. Changes in the level of protection will be recorded in the dedicated site logbook along with the rationale for the changes.

4.0 HAZARD EVALUATION

4.1 Chemical Exposure

A list of chemicals including VOCs, SVOCs, metals, pesticides and PCBs that are present in subsurface soil at the Site is provided in Table 1. These types of contaminants at the detected concentrations represent a low to moderate potential for exposure. The standards listed in the table

represent Immediate Danger to Life and Health (IDLH), Time-Weighted Average (TWA) and Short-Term Exposure Limit (STEL).

The primary routes of exposure for these chemicals are inhalation, ingestion and absorption through the skin and mucous membranes. The health risks associated with the exposure to these substances during construction activities will be minimized through a combination of education, personal protection equipment (PPE) and dust control measures.

4.2 Temperature Hazards

4.2.1 Heat Exposure Hazards

Heat stress may occur even in moderate temperature areas and may present any or all of the following:

Heat Rash

Heat rash results from continuous exposure to heat, humid air, and chafing clothes. Heat rash is uncomfortable and decreases the ability to tolerate heat.

Heat Cramps

Cramps result from the inadequate replacement of body electrolytes lost through perspiration. Signs include severe spasms and pain in the extremities and abdomen.

Heat Exhaustion

Exhaustion results from increased stress on the vital organs of the body in the effort to meet the body's cooling demands. Signs include shallow breathing; pale, cool, moist skin; profuse sweating; and dizziness.

Heat Stroke

Heat stroke results from an overworked cooling system. Heat stroke is the most serious form of heat stress. Body surfaces must be cooled and medical help must be obtained immediately to prevent severe injury and/or death. Signs include red, hot, dry skin, absence of perspiration, nausea, dizziness and confusion, strong, rapid pulse, coma, and death.

The following procedures should be followed to prevent or control heat stroke:

- A. Replace body fluids (water and electrolytes) lost through perspiration. Solutions may include a 0.1% salt and water solution or commercial mixes such as “Gatorade”. Employees must be encouraged to drink more than the amount required in order to satisfy thirst.
- B. Use cooling devices to aid the natural body ventilation. Cooling occurs through evaporation of perspiration and limited body contact with heat-absorbing protective clothing. Utilize fans and air conditioners to assist in evaporation. Long, cotton underwear is suggested to absorb perspiration and limit any contact with heat-absorbing protective clothing (i.e., coated Tyvek suits).
- C. Provide shelter against heat and direct sunlight to protect personnel. Take breaks in shaded areas.
- D. Rotate workers utilizing protective clothing during hot weather.
- E. Establish a work regime that will provide adequate rest periods, with personnel working in shifts.

4.2.2 Cold Exposure Hazards

Work schedules will be adjusted to provide sufficient rest periods in a heated area for warming up during operations conducted in cold weather. Also, thermal protective clothing such as wind and/or moisture resistant outerwear is recommended to be worn.

If work is performed continuously in the cold at or below -7°C (20°F), including wind chill factor, heated warming shelters (company vehicles, rest rooms, etc.) shall be made available nearby and the worker should be encouraged to use these shelters at regular intervals, the frequency depending on the severity of the environmental exposure. The onset of heavy shivering, frostnip, the feeling of excessive fatigue, drowsiness, irritability, or euphoria, are indications for immediate return to the shelter. When entering the heated shelter, the outer layer of clothing shall be removed and the remainder of the clothing loosened to permit sweat evaporation.

A change of dry work clothing shall be provided as necessary to prevent workers from

returning to their work with wet clothing. Dehydration, or the loss of body fluids, occurs in the cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. Warm sweet drinks and soups should be provided at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited because of a diuretic and circulatory effect (adapted from TLV's and Biological Exposure Indices 1988-1989, ACGIH).

4.3 Fire Prevention

One portable fire extinguisher with a rating (ratio) of 20 pound A/B/C will be conspicuously and centrally located at the site. Portable extinguishers will be properly tagged with inspection dates and maintained in accordance with standard maintenance procedures for portable fire extinguishers. The following fire prevention guidelines are to be followed:

- Only approved safety cans will be used to transport and store flammable liquids.
- All gasoline and diesel-driven engines requiring refueling must be shut down and allowed to cool prior to filling.
- Smoking is not allowed during any operations within the work area in which petroleum products or solvents in free-floating, dissolved, or vapor forms, or other flammable liquids may be present.
- No open flame or spark is allowed in any area containing petroleum products or other flammable liquids.

4.4 Operation of Heavy Equipment

When operating or working around heavy equipment, the Site Supervisor will ensure that site personnel conform to this CHASP to include the wearing of proper clothing such as hard hats and safety glasses. Any specific health and safety issues relating to the equipment to be used on-site that work day will be covered in the daily health and safety briefing.

5.0 MANAGEMENT AND PLANNING

5.1 General Site Control

The Site Supervisor will establish a command post within the Site. A perimeter site fence, as required by the New York City Department of Buildings, will be erected to define the limits of the Site. All work must be performed within the site fence. Flagmen and traffic control will be provided as required at all times.

The Site will be left hazard-free at the end of each work day. In addition, all fence gates will be operable and locked in a closed position, all site fencing will be properly standing or braced and site lighting will be operational. The property owner will provide site security during off-work hours.

During site excavation, worker exposure to potential hazardous substances will be minimized through Health and Safety Communication (Section 5.2), Decontamination Procedures (Section 5.3) and Dust Control Methods (Section 5.3).

5.2 Health and Safety Communication

The relatively small size of the work area makes normal verbal communication the primary mode of communication for the project. In the event that verbal communication is impossible the following hand signals will be used.

Gripping a partners wrist = “Leave area immediately”

Hands on top of head = “ I need assistance”

Thumbs up = “OK; I’m alright; I understand”

Thumbs down = “No; Negative”

Daily Health and Safety Meetings will address a list of tasks to be performed that day, the equipment and machinery involved, and any hazards identified with this type of activity. Workers will be given the opportunity to list out additional perceived hazards, and discuss safe work practices while in these operations. The daily safety meeting will also be an opportunity to review the work

performed the previous day, any hazards encountered, mitigating actions taken, and suggestions for future improvement.

5.3 Air Monitoring

This section of the CHASP discusses air monitoring that will be performed to address community and site personnel concerns of possible exposures due to airborne migration of suspected contaminants that may be encountered during on-site field activities.

Periodic air monitoring will be performed for VOCs at the perimeter of the work area once every two hours during field activities. Continuous air monitoring will be performed for VOCs during all ground intrusive activities such as soil excavation, loading and offsite transport. All ambient air readings will be recorded and provided as an appendix in the P.E.-certified Remedial Closure Report.

5.3.1 Community Air Monitoring

Periodic air monitoring for VOCs at the perimeter of the work area will be accomplished as follows:

- VOCs will be monitored at the upwind perimeter of the work area at the start of each work day and periodically thereafter to establish background conditions. The monitoring will be performed utilizing a Photovac 2020 portable Photoionization Detector (PID) equipped with a 10.6 eV lamp capable of detecting the types of contaminants known or suspected to be present.
- VOCs will be monitored at the downwind perimeter of the work area daily at 2 hour intervals. If ambient air concentrations of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background, work activities will be halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities

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

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

5.3.2 Activity-Specific Air Monitoring

Continuous air monitoring will be conducted inside the work area for VOC levels during all ground-intrusive activities, such as soil excavation, loading and offsite transport in accordance with 29 CFR 1910.120(h). Continuous air monitoring will also be performed utilizing a Photovac 2020 PID. Continuous air monitoring will be performed in the following manner:

- Volatile organic compounds will be monitored inside the work area of construction and health and safety personnel on a continuous basis. The PID will be programmed to calculate 15-minute running average concentrations. If ambient air concentrations of total organic vapors inside the work area exceed 5 ppm above background, work activities will be halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels inside the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level inside the work area 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.

5.4 Dust Control

Each contractor shall control any dust generated on-site that may be produced during work activities. Dust control measures will be employed to ensure that there is no off-site migration of dust into the community by use of a stream of water applied through a fine spray nozzle. The NYC hydrant used for a water source will be fitted with a RPZ control device to prevent inadvertent contamination of the public water supply. In addition, a solid barrier fence will be installed around the perimeter of the property to control any fugitive migration of dust.

5.5 Spill Control and Prevention

Spills associated with site activities may be attributed to project specific heavy 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.

5.6 Decontamination Procedures

Contaminants will be removed from personnel and equipment through a decontamination regiment. Workers will be required to remove any contaminated PPE before leaving the Site. Work boots, safety glasses, hard hats and work gloves will be washed in a two percent Alconox Solution, followed by three consecutive clean water rinses. All wash and rinse water will be containerized into a DOT drum. Gross contaminants will be brushed from worker's clothing before leaving the Site. A station for hand washing will also be set up.

Decontamination of heavy equipment will also be required before leaving the Site. Excavator buckets and vehicle wheels or tracks will be brushed clean with a broom, before being moved off-site. Reusable hand tools will be washed in a two percent Alconox solution, followed by a series of clean



water rinses. All wash and rinse water will be containerized in appropriate steel drums for proper disposal.

5.7 Soil Disposal

Any contaminated soil (organic or inorganic constituents) encountered during the remedial activities will be segregated, stockpiled on-site onto polyethylene sheeting, and covered with polyethylene sheeting to prevent exposure to workers and the community until proper transportation and disposal in accordance with all NYSDEC Regulations is arranged.

6.0 EMERGENCY MEDICAL CARE AND PROCEDURES

If a personnel accident occurs on-site requiring emergency care, immediate care will be administered appropriate to the injury in accordance with established Red Cross procedures and practices. In the event of serious injury to on-site personnel, the Emergency Medical Service of the City of New York (EMS) will be summoned to remove the injured individual to the nearest medical facility for treatment as follows.

Ambulance:	911
Emergency Medical:	911
Fire Department:	911
North Central Bronx Hospital Center:	(718) 519-5000
Police Department:	911
Poison Control Center:	(516) 542-2323

The nearest emergency medical facility is the Bronx-Lebanon Hospital Center, 1276 Fulton Avenue, Bronx, New York, which is located 1.7 miles from the Site. A map of the route to this hospital is attached. The directions to this medical facility from the Site are as follows:

- **Head southwest on White Plains Road toward East 225th Street;**

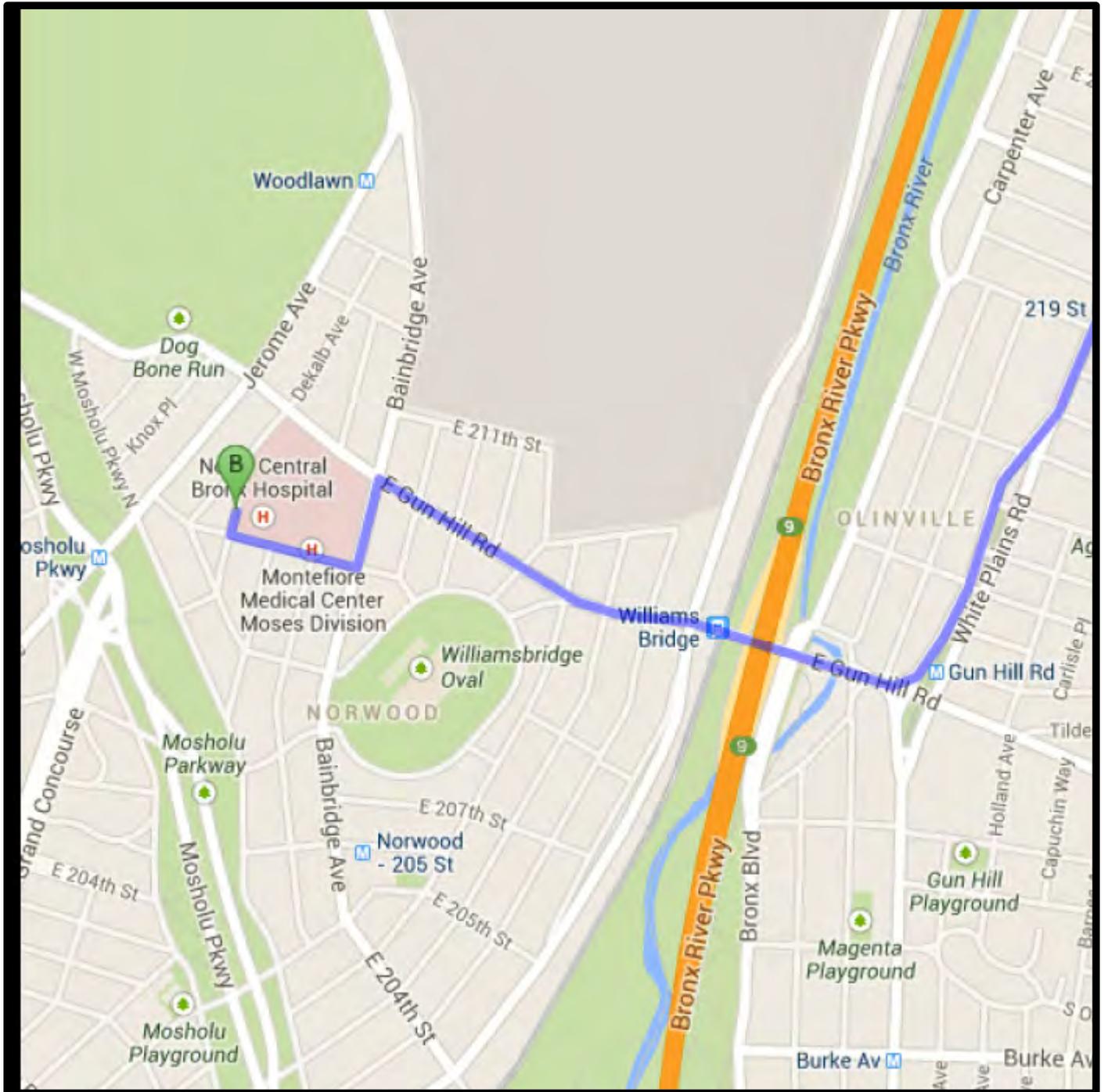


- **Continue onto Donofrio Square;**
- **Continue onto Duncomb Avenue;**
- **Turn Right onto East Gun Hill Road;**
- **Turn Left onto Bainbridge Avenue;**
- **Take the 1st right onto East 210th Street;**
- **Take the 1st right onto Kossuth Avenue;**
- **North Central Bronx Hospital Center is located on the Right.**

OSHA approved First Aid Kits will be maintained on-Site along with a First Aid blanket for treating shock, and will be readily accessible to all workers if an emergency occurs. The emergency signal for evacuation of personnel from the Site will be three (3) long blasts of a vehicle horn with the off-site rallying point designated as the corner of 35th Street and 8th Avenue. If in the event of a fire, explosion or other life-threatening incident on-site, the emergency signal above will be sounded and all personnel will evacuate the Site. The appropriate New York City emergency personnel (fire, police, etc.) will be immediately notified.

All injuries, no matter how slight, will be reported to the site safety supervisor immediately. The Site Supervisor will complete an accident report for all incidents. Some injuries, such as severe lacerations or burns, may require immediate treatment. Unless required due to immediate danger, seriously injured persons should not be moved without direction from attending medical personnel. The Site Supervisor will record occupational injuries and illnesses within 48 hours of occurrence, as required by statute.

FIGURE 1
HOSPITAL ROUTE



Hospital Route

Advanced Cleanup Technologies, Inc.
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Project No.: 7383-BXNY	Figure No.: 1
Date: 01/25/2013	Scale: 1 inch = 2000 feet