41-18/30 24TH STREET, LONG ISLAND CITY

QUEENS, NEW YORK

Remedial Action Work Plan

OER Site Number: 14EHAZ596Q
NYC VCP Number: 15CVCP035Q

Prepared for:

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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 R. 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 41-18/30 24th Street, Long Island City Site 14EHAZ596Q.

I, Paul P. Stewart, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 41-18/30 24th Street, Long Island City Site 14EHAZ596Q.

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

SMA Real Estate has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 14,175-square foot site located at 41-18/30 24th Street in Queens, 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 41-18/30 24th Street in the Long Island City section in Queens, New York and is identified as Block 413 and Lots 32 and 37 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 14,175-square feet and is bounded by 24th Street, with a commercial warehouse to the west, a commercial warehouse to the south, a multi-story building under construction to the east, and a commercial warehouse to the north. Currently, the Site is vacant and does not contain any buildings or features. The most recent use of the property was for commercial usages including three 1-story buildings and a 2-story building. Two of the 1-story buildings were utilized for warehouse purposes and the remaining buildings were office space. A map of the current site is shown in Figure 2.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a new 12-story residential building. Layout of the proposed site development is presented in Figure 3. The current zoning designation is M1-5 and R7-3 for manufacturing and residential use. The proposed use is consistent with existing zoning for the property.

The proposed redevelopment for the new 12-story residential building will not contain any commercial usage. The property is proposed to contain a cellar to 9’8” below ground surface (bgs) with footings set to approximately 11’ bgs. The cellar will be utilized for meter rooms, maintenance rooms, storage, laundry rooms and a resident gym. The first floor will be utilized

for a resident gym, recreation rooms and a lobby. The proposed final height of the building will be 120' above ground surface; the building will have a footprint of approximately 7,390 square feet and occupy 48% of the property. The remaining property will be utilized for parking. The maximum depth of excavation will be 11' below ground surface (bgs) with an estimated 1,465 tons of soil removed. Excavation will be performed to install a cellar at the property as well as an elevator pit.

Summary of Environmental Findings

1. Elevation of the property is approximately 30 ft. above sea level.
2. Depth to groundwater ranges from 19.77 to 21.03 feet at the Site.
3. Groundwater flow is generally believed to be from east to west beneath the Site.
4. Bedrock was not encountered during this investigation.
5. The stratigraphy of the site, from the surface down, consists of fill materials followed by light to dark brown fine sands mixed with clay and silt.
6. Soil/fill samples collected during the RI were compared to NYSDEC Part 375-6 Unrestricted Use (Track 1) and Restricted Residential Use (Track 2) Soil Cleanup Objectives (SCOs). Soil sampling results showed that no VOC's were detected above soil cleanup objectives in any of the soil samples. Several SVOCs including Benzo(a)anthracene (2,110 µg/kg), Benzo(k)fluoranthene (1,380 µg/kg), Chrysene (1,480 µg/kg), Benzo(a)pyrene (1,850 µg/kg) and Indeno(1,2,3-c,d)pyrene (996 µg/kg) were detected above their corresponding Restricted Residential SCOs, with the highest concentrations occurring in shallow soils on the north side of the property (SB-5 and SB-6). Aroclor 1254 was detected above its Unrestricted Use SCO with a concentration of 125 µg/kg, 4,4'-DDT was detected with a maximum concentration of 52.3 µg/kg and 4,4'-DDE was detected with a concentration of 4.37 µg/kg. All PCBs and Pesticides were detected below their Restricted Residential Use SCOs. Eight metals including Arsenic (20.5 µg/kg), Beryllium (15.6 µg/kg), Chromium (94.1 µg/kg), Copper (738 µg/kg), Lead (865 µg/kg), Mercury (3.02 µg/kg), exceeded their respective Restricted Residential Use

SCOs. Overall, the soil chemistry is indicative of historic fill materials with the exception of the hotspots identified for SVOCs and Metals in the shallow soils of SB-5 and SB-6.

7. Groundwater samples collected were compared to NYSDEC 6NYCRR Part 703.5 Groundwater Quality Standards (GQS). Groundwater results showed that there were no exceedances of groundwater standards for SVOCs, PCBs, Pesticides and total or dissolved metals. Chloroform (7 µg/L) was the only VOC to exceed its GQS. Groundwater at the property was found to be extremely silty and therefore there was not enough recovery from TW-5 to analyze for PCBs and Pesticides.

8. Soil vapor samples collected during the RI were compared to the compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion. Soil vapor results showed low concentrations of both chlorinated and non-chlorinated compounds. Sampling points contained concentrations of trichloroethene (TCE) above method detection limits, with a maximum concentration of 38 $\mu g/m^3$, tetrachlorethene (340 $\mu g/m^3$) was detected above indoor air guidelines. 1,1,1-trichloroethane (TCA) was detected in one sample at a low concentration and carbon tetrachloride was not detected at the property. Petroleum related BTEX compounds were detected at a maximum concentration of 226.5 $\mu g/m^3$. The most prevalent VOC detected in soil vapor was 2-Butanone with a maximum concentration of 3,800 $\mu g/m^3$.

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 (CPP).
2. Performance of a Community Air Monitoring Program (CAMP) for particulates and volatile organic carbon compounds.
3. Establishment of Site Specific Track 4 Soil Cleanup Objectives (SCOs).
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency required by disposal facility. A Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to the start of the remedial action;
5. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
6. Excavation and removal of soil/fill exceeding Site Specific Track 4 SCOs. Planned development-based excavation will be to a depth of approximately 11 in the cellar area across the building footprint. Excavation for construction of the new building's cellar level would take place to a depth of approximately 11 feet for the entire proposed building footprint. The remainder of areas proposed for surface parking will be minimally excavated and graded for support structures such as footings. Approximately 1,465 tons of soil will be excavated and removed from this site. No soil from the site will be backfilled;
7. 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 onsite;
8. Removal of USTs (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;
9. Management of excavated materials including temporarily stockpiling and segregating to prevent co-mingling of contaminated material and non-contaminated materials as described in Appendix E;

10. 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. Appropriate segregation of excavated media onsite;
11. Collection and analysis of four end-point samples beneath the building footprint to determine the performance of the remedy with respect to attainment of SCOs;
12. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
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, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP;
16. Construction and maintenance of an engineered composite cover consisting of the concrete building foundation and footings and the concrete floor in the parking garage area to prevent human exposure to residual soil/fill remaining under the Site;
17. Installation of a vapor barrier system beneath the building slab and outside foundation sidewalls below grade. The vapor barrier will consist of Raven Industries' VaporBlock 20 Plus, which is a seven-layer co-extruded barrier made from polyethylene and EVOH resins.
18. Installation and operation of an active sub-slab depressurization system underneath the footprint of new building. The SSDS will consist of a network of horizontal perforated pipes installed within a minimum of 18-inch layers of crushed stone beneath the building's 10-inch foundation floor. The perforated piping will consist of 4-inch

diameter scheduled 40 PVC perforated pipe. A minimum of 4 inches of crushed stone will be placed above and below the pipes.

19. Demarcation of residual soil/fill in rear yard areas.

20. 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.

21. The property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP 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.

Construction 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 CHASP. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is Yisong Yang and can be reached at 1-718-508-2970.

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 Theresa Burkard (516-441-5800 ext.105) or NYC Office of Environmental Remediation Project Manager Horace Zhang (212-788-8484).

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 7am – 6pm, Monday through Friday.

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 Voluntary 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 Albert Shirian (516-829-5883) or the NYC Office of Environmental Remediation Project Manager Horace Zhang (212-788-8484), or call 311 and mention the Site is in the NYC Voluntary 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 the Long Island City Public Library, 3774 21st Street, Long Island City, New York.

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 established through a city environmental designation. 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

SMA Real Estate has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 41-18/30 24th Street in the Long Island City section of Queens, 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 41-18/30 24th Street in the Long Island City section in Queens, New York and is identified as Block 413 and Lots 32 and 37 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 14,175-square feet and is bounded by 24th Street, with a commercial warehouse to the west, a commercial warehouse to the south, a multi-story building under construction to the east, and a commercial warehouse to the north. Currently, the Site is vacant and does not contain any buildings or features. The most recent use of the property was for commercial usages including three 1-story buildings and a 2-story building. Two of the 1-story buildings were utilized for warehouse purposes and the remaining buildings were office space. A map of the current site is shown in Figure 2.

1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of a new 12-story residential building. Layout of the proposed site development is presented in Figure 3. The current zoning

designation is M1-5 and R7-3 for manufacturing and residential use. The proposed use is consistent with existing zoning for the property.

The proposed redevelopment for the new 12-story residential building will not contain any commercial usage. The property is proposed to contain a cellar to 9'8" below ground surface (bgs) with footings set to approximately 11' bgs. The cellar will be utilized for meter rooms, maintenance rooms, storage, laundry rooms and a resident gym. The first floor will be utilized for a resident gym, recreation rooms and a lobby. The proposed final height of the building will be 120' above ground surface; the building will have a footprint of approximately 7,390 square feet and occupy 48% of the property. The remaining property will be utilized for parking. The maximum depth of excavation will be 11' below ground surface (bgs) with an estimated 1,465 tons of soil removed. Excavation will be performed to install a cellar at the property as well as an elevator pit.

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 41-18/30 24th Street in the Long Island City section of Queens. The surrounding area consists of industrial, residential and mixed-use properties. The zoning for the area is predominantly industrial with a residential overlay. No nearby sensitive receptors were identified within 500 feet of the site. Figure 4 shows the surrounding land usage.

1.4 REMEDIAL INVESTIGATION

A remedial investigation was performed and the results are documented in a companion document called "*Remedial Investigation Report, 41-18/ 30 24th Street, Long Island City*", dated August, 2014 (RIR).

Summary of Past Uses of Site and Areas of Concern

A Phase I Environmental Site Assessment (Phase I) was completed by Merritt Environmental Consulting Corp. (Merritt) on May 1st, 2012. The Phase I identified the following Recognized Environmental Conditions (REC):

- Two (2) underground storage tanks beneath the floor slab of 41-30 24th Street.
- Historic commercial, warehouse and light industrial usage of the property since its development.

The AOCs identified for this site include:

- The portions of the property used for warehousing and light industrial purposes.

Summary of the Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a geophysical survey on all accessible areas of the lot to allow for the identification anomalies indicating buried structures;
3. Installed 9 soil borings across the entire project Site, and collected 18 soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed 3 temporary groundwater monitoring wells throughout the Site and collected 3 groundwater samples for chemical analysis to evaluate groundwater quality;
5. Installed 6 soil vapor probes around Site and collected 6 samples for chemical analysis.

Summary of Environmental Findings

1. Elevation of the property is approximately 30 ft. above sea level.
2. Depth to groundwater ranges from 19.77 to 21.03 feet at the Site.
3. Groundwater flow is generally believed to be from east to west beneath the Site.
4. Bedrock was not encountered during this investigation.
5. The stratigraphy of the site, from the surface down, consists of fill materials followed by light to dark brown fine sands mixed with clay and silt.
6. Soil/fill samples collected during the RI were compared to NYSDEC Part 375-6 Unrestricted Use (Track 1) and Restricted Residential Use (Track 2) Soil Cleanup Objectives (SCOs). Soil sampling results showed that no VOC's were detected above

soil cleanup objectives in any of the soil samples. Several SVOCs including Benzo(a)anthracene (2,110 µg/kg), Benzo(k)fluoranthene (1,380 µg/kg), Chrysene (1,480 µg/kg), Benzo(a)pyrene (1,850 µg/kg) and Indeno(1,2,3-c,d)pyrene (996 µg/kg) were detected above their corresponding Restricted Residentail SCOs with the highest concentrations occurring in shallow soils on the north side of the property (SB-5 and SB-6). Aroclor was detected above its UUSCO with a concentration of 125 µg/kg, 4,4'-DDT was detected with a maximum concentration of 52.3 µg/kg and 4,4'-DDE was detected with a concentration of 4.37 µg/kg. All PCBs and Pesticides were detected below their Restricted Residential Use SCOs. Eight metals including Arsenic (20.5 µg/kg), Beryllium (15.6 µg/kg), Chromium (94.1 µg/kg), Copper (738 µg/kg), Lead (865 µg/kg), Mercury (3.02 µg/kg), Nickel (178 µg/kg) and (6,290 µg/kg) exceeded their respective Restricted Residential Use SCOs. Overall, the soil chemistry is indicative of historic fill materials with the exception of the hotspots identified for SVOCs and Metals in the shallow soils of SB-5 and SB-6

7. Groundwater samples collected were compared to NYSDEC 6NYCRR Part 703.5 Groundwater Quality Standards (GQS). Groundwater results showed that there were no exceedances of groundwater standards for SVOCs, PCBs, Pesticides and total or dissolved metals. Chloroform (7 µg/L) was the only VOC to exceed its GQS.

8. Soil vapor samples collected during the RI were compared to the compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion. Soil vapor results showed low concentrations of both chlorinated and non-chlorinated compounds. Sampling points contained concentrations of trichloroethene (TCE) above method detection limits, with a maximum concentration of 38 $\mu g/m^3$, tetrachlorethene (340 $\mu g/m^3$) was detected above indoor air guidelines. 1,1,1-trichloroethane (TCA) was detected in one sample at a low concentration and carbon tetrachloride was not detected at the property. The most prevalent VOC detected in soil vapor was 2-Butanone with a maximum concentration of 3,800 $\mu g/m^3$.

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

2.0 REMEDIAL ACTION OBJECTIVES

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

Prevent exposure to contaminants volatilizing from contaminated groundwater.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 reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of 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 permanence;
- 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:

- Selection of NYSDEC 6NYCRR Part 375 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. 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 part of new development to prevent any potential future exposures from off-Site soil vapor; and
- As part of development, placement of a final cover over entire Site.

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. Excavation for construction of the new building's cellar level would take place to a depth of approximately 11 feet for the entire proposed building footprint. Therefore, if soil/fill containing analytes at concentrations above Track 4 Site-Specific SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building is complete, additional excavation will be performed to achieve Site Specific SCOs.
- Installation of a vapor barrier system beneath the entire new building slab and behind sub-grade foundation sidewalls to prevent exposure to soil vapor contaminants;
- Installation of an active sub-slab depressurization system (SSDS) beneath the entire new building slab;
- 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 the above 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 all soil/fill exceeding Track 1 Unrestricted Use SCOs and groundwater protection standards, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contamination leaching into groundwater.

Alternative 2 would achieve comparable protections of human health and the environment by excavating hazardous material at the Site and by ensuring that remaining soil/fill on-Site meets Track 4 Site Specific SCOs as well as by future placement of Institutional and Engineering Controls, including installation of a vapor barrier system beneath the entire new building slab and behind foundation sidewalls as part of construction would prevent exposures from potential soil vapor intrusion. Implementing Institutional Controls, a Site Management Plan would ensure that the vapor barrier remains intact and protective and that the SSDS system remains active.

For both remedial Alternatives, potential exposure to contaminated soils during construction would be minimized by implementing a Construction Health and Safety Plan (CHASP), 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 mitigation of off-Site soil vapors into the new building would be

prevented by installing a vapor barrier below the new building's basement slab and continuing the vapor barrier around foundation walls.

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 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 slab and continuing the vapor barrier around foundation walls, as part of development.

Alternative 2 would achieve compliance with 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 as well as an active sub-slab depressurization system (SSDS). A Site Management Plan would ensure that these controls remain protective for the long term.

Health and safety measures contained in the CHASP and CAMP that comply with the applicable SCGs would be implemented during the 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 would 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 remedial alternatives have similar short-term effectiveness during their respective implementations, as each requires excavation of soil/fill material. Alterative 1 would eliminate and Alternative 2 would reduce exposure to contaminant sources. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic. Short term impacts could potentially be higher for Alternative 1 if excavation of greater amounts of historic fill material is encountered below the excavation depth of the proposed building. However, focused attention to means and methods during the remedial action during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize or negate the overall impact of these activities.

An additional short-term adverse impact and risks to the community associated with both remedial alternatives is increased truck traffic. 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 Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-site soil disturbance activities and would effectively mitigate the release of significant contaminants into the environment. Construction workers operating under appropriate management procedures and a Health and Safety Plan (HASP) will be protected from on-site contaminants (personal protective equipment would be work 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 higher 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 be effective over the long-term by attaining Track 4 SCOs for soil, establishing use restrictions, establishing a Site Management Plan to ensure long-term management of Institutional and Engineering Controls, and placing a deed restriction to memorialize these controls for the long term. Groundwater use restrictions will eliminate potential exposure to groundwater and establishment of an SMP would ensure that this protection remains effective for the long-term. The SMP would ensure long-term effective of all Engineering and Institutional Controls by requiring periodic inspection and certification that these controls and use restrictions continue to be in place and 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 greatly reduce the toxicity, mobility, and volume of contaminants from on-Site soil because it would include removal of contaminants that exceed Track 4 – Restricted Residential 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.

For implementation of both Alternatives, standard construction equipment utilized for the overall earthwork would be used. OSHSA trained personnel will complete all activities that include excavation and handling of impacted soils. No special permits other than earthwork permits required for completion of the required site redevelopment scope are required for implementation of the remedy.

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 Track 1 Alternative are marginally higher than the Track 4 Alternative in that a higher volume of soil/fill might have to be excavated for off-site disposal to achieve a Track 1 status over the entire site. In both cases, appropriate public health and environmental protections are achieved. Track 4 would require long term monitoring and higher associated costs.

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 subgrade 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 development 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 initial permitting associated with the proposed site development, no adverse community opinion is anticipated for either alternative. 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 Appendix 1. Observations here will be supplemented by public comment received on the RAWP.

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.

Because of the complete soil removal, the Track 1 alternative provides protection of public health and the environment for both the proposed use of the Site and any future use. The Track 1 alternative provides a remedial action that is beneficial to the surrounding community and is consistent with the goals of the City for remediating and redeveloping brownfield sites. The Track 4 alternative also provides protection for the intended use.

Both alternatives for remedial action at the site are comparable with respect to the proposed use and to land uses in the vicinity of the Site. The proposed use is consistent with the existing zoning designation for the property and is consistent with recent development patterns. The Site is surrounded by residential properties, and both alternatives provide comprehensive protection of public health and the environment for these 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. This RAWP will undergo public review under the NYC VCP and will provide the opportunity for detailed public input on the land use factors described in this section. This public comment will be considered by OER prior to approval of this plan.

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.

Both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. The remedial plan would take into consideration the shortest trucking routes during off-Site disposal of historic fill and other soils, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. To the extent practicable, energy efficient building materials, appliances, and equipment will be utilized to complete the development. A complete list of green remedial activities considered as part of the NYC VCP is included in the Sustainability Statement, included as Appendix 2.

4.0 REMEDIAL ACTION

4.1 SUMMARY OF PREFERRED REMEDIAL ACTION

The preferred remedial action alternative is Alternative 2, the Track 4 Alternative. 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 (CPP).
2. Performance of a Community Air Monitoring Program (CAMP) for particulates and volatile organic carbon compounds.
3. Establishment of Site Specific Track 4 Soil Cleanup Objectives (SCOs).
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency required by disposal facility. A Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to the start of the remedial action;
5. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
6. Excavation and removal of soil/fill exceeding Site Specific Track 4 SCOs. Planned development-based excavation will be to a depth of approximately 11 in the cellar area across the building footprint. Excavation for construction of the new building's cellar level would take place to a depth of approximately 11 feet for the entire proposed

building footprint. The remainder of areas proposed for surface parking will be minimally excavated for structural purposes such as footings and graded. Approximately 1,465 tons of soil will be excavated and removed from this site;

7. 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 onsite;
8. Removal of USTs (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;
9. Management of excavated materials including temporarily stockpiling and segregating to prevent co-mingling of contaminated material and non-contaminated materials as described in Appendix E;
10. 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. Appropriate segregation of excavated media onsite;
11. Collection and analysis of four end-point samples beneath the building footprint to determine the performance of the remedy with respect to attainment of SCOs;
12. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
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,

and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP;

16. Construction and maintenance of an engineered composite cover consisting of the concrete building foundation and concrete parking lot across the entire property to prevent human exposure to residual soil/fill remaining under the Site;

17. Installation of a vapor barrier system beneath the building slab and outside foundation sidewalls below grade. The vapor barrier will consist of Raven Industries' VaporBlock 20 Plus, which is a seven-layer co-extruded barrier made from polyethylene and EVOH resins.

18. Installation and operation of an active sub-slab depressurization system underneath the footprint of new building. The SSDS will consist of a network of horizontal perforated pipes installed within a minimum of 18 inch layers of crushed stone beneath the building's 10-inch foundation floor. The perforated piping will consist of 4-inch diameter scheduled 40 PVC perforated pipe. A minimum of 4 inches of crushed stone will be placed above and below the pipes.

19. Demarcation of residual soil/fill in landscaped areas.

20. 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.

21. The property will continue to be registered with an E-Designation by the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP 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

The 6NYCRR Part 703.5, Table 6.8(b) Track 2 Restricted Residential Use SCOs will be used as amended by the following Site-Specific Track 4 SCOs.

Contaminant	Track 4 SCOs
Total SVOCs	200 ppm
Lead	100 ppm
Mercury	2.5 ppm

These SCOs were established during the RAWP scoping meeting.

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. The location of planned excavations and endpoint sampling is shown in Figure 9.

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 1,465 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 for development purposes under this plan will be performed in conjunction with confirmation soil sampling. Four confirmation samples will be collected from the base of the excavation at locations shown on Figure 9. For comparison to Track 4 SCOs, analytes will only include trigger compounds and elements established on the Track 4 SCO list.

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. Frequency for hot-spot end-point sample collection is as follows:

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 end-point 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 confirmation and end-point sample analyses. Labs performing confirmation and end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all confirmation and end-point sample results and will include all data including non-detects and applicable standards and/or

guidance values. End-point samples will be will be analyzed for compounds and elements as described above 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.

One blind duplicate sample for every 20 samples collected will be submitted to the approved laboratory for analysis of the same parameters. Trip blanks will be used whenever samples are transported to the laboratory for analysis of VOCs. One trip blank will be submitted to the laboratory with each shipment of soil samples. Trip blanks will not be used for samples to be analyzed for metals, SVOCs or pesticides.

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 of 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 with alconox® detergent solution and scrub
- Rinse with tap water
- Rinse with distilled or deionized water

Field blanks will be prepared by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers.

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. No soil is currently estimated to be imported into the Site for backfill and cover soil. There will be no reuse of contaminated soils on-site.

4.3 ENGINEERING CONTROLS

The excavation required for the proposed Site development will achieve Track 4 Site Specific SCOs. Engineering Controls are required to address residual contamination remaining at the site. The Site has three primary Engineering Control Systems as:

- composite cover system consisting of a concrete building slab;
- an active sub-slab depressurization system beneath the newly installed foundation slab;
- soil vapor barrier/waterproof membrane;

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 is comprised of:

- Sidewalks will be composed of 4" thick reinforced concrete slabs;
- Concrete building slabs will be composed of 5" thick reinforced concrete slab on grade.

Figure 10 shows the location of each cover type built at the Site.

The composite cover system is 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 potential soil vapor from onsite or offside sources in the future will be mitigated with a combination of building slab and vapor barrier. A 20 mil pre-applied seven-layer co-extruded barrier made from polyethylene and EVOH resins will be installed as an impermeable vapor barrier underneath the entire foundation of the proposed building and the sidewalls of the cellar level. Raven Industries VaporBlock® Plus 20 mil vapor barrier will be laid down in sheets that will be overlapped and joined by single-sided butyl 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 7.

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 manufacturers certificate of warranty.

Active Sub-Slab Depressurization System

Migration of soil vapor will be mitigated with the construction of an active sub-slab depressurization system.

Contaminated sub-slab vapor is likely to be present mainly beneath the Site as demonstrated in the soil vapor samples. An active sub-slab depressurization system will be installed beneath the future building slab. The SSDS will be designed in conjunction with the vapor barrier to create a negative pressure beneath the entire Site and prevent the migration of fugitive soil vapors into the proposed building. The SSDS will consist of a network of horizontal perforated pipes installed within a minimum of 18 inch layers of crushed stone beneath the building's 10-inch foundation floor. The perforated piping will consist of 4-inch diameter scheduled 40 PVC perforated pipe. A minimum of 4 inches of crushed stone will be placed above and below the pipes.

The horizontal depressurization piping will be connected to one or more vertical header pipes that will discharge above the second floor roof terrace. A wind-driven turbine fan will be installed on the exhaust pipe to maintain negative pressure beneath the building foundation. Following installation of the active SSDS, indoor air samples will be collected and analyzed to provide a basis for the operation of the SSDS to be operated as a passive wind-driven system. Design plans and specifications for the SSDS are provided in Figure 8.

4.4 INSTITUTIONAL CONTROLS

Institutional Controls (IC) will be incorporated 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 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 ECs and ICs and summarizes the requirements of the SMP which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;

- Submittal of a SMP in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs and ICs. The 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 at a frequency to be determine by OER in the SMP and will comply with RCNY §43-1407(l)(3).
- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- 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 use 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 SMP 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 SMP 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 by OER on a 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.

Data and information 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 under current and future conditions 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

Based on the results of the RIR, the contaminants of concern are:

Soil:

- SVOCs consisting of Polycyclic Aromatic Hydrocarbons (PAHs) including benzo(a)anthracene, benzo(k)fluoranthene, chrysene, benzo(a)pyrene, and indeno(1,2,3-c,d)pyrene, exceeded Restricted Residential Use SCOs.
- Metals including lead, mercury, arsenic, beryllium, chromium and copper exceeded Restricted Residential SCOs.

Groundwater:

- One VOC, chloroform, was detected above GQS.

Soil Vapor:

- Chlorinated VOCs Trichloroethylene (TCE) and Tetrachloroethylene (PCE) were detected at concentrations above indoor air guidance matrices established by NYSDOH.

Extent, Fate and Transport of Contaminants

Based on the sampling results described above, the majority of the SVOC and metal contamination is restricted to shallow soils across the site with the highest concentrations restricted to the north boundary of the property.

Metals and SVOCs are present throughout the property at concentrations exceeding Restricted Residential Use SCOs. Metals were not detected above groundwater standards in the samples collected from the Site. Chloroform was the only VOC detected above standards in groundwater. This is likely due to the urban location of the site and is unlikely due to historic usage of the site.

Soil vapor samples contained levels of both chlorinated and non-chlorinated compounds all below their respective guidance values with the exception of Trichloroethene (TCE) and Tetrachloroethylene (PCE). PCE and TCE were detected at elevated concentrations at locations across the site. The highest concentrations of the contaminates were detected on the northern side of the property. PCE and TCE are common components of industrial cleaners and degreasers and are likely to be found in historically industrial areas. The remaining compounds detected in sub-

slab soil vapor such as cyclohexane, ethylbenzene, and hexane are common components of petroleum and readily found in soil vapor in commercial areas

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 currently vacant and the building has been demolished. Exposure to contaminated soil is unlikely because site access is restricted through the use of construction fencing and locks. Groundwater is not exposed at the Site, and because the Site is served by the public water supply and groundwater use for potable supply is prohibited, there is no potential for exposure. As there are no buildings, the potential for soil vapor does not exist.

Construction/ Remediation Activities: Once redevelopment activities begin, construction workers will come into direct contact with surface and subsurface soils, as a result of on-Site construction and excavation activities. On-Site construction workers potentially could ingest, inhale or have dermal contact with any exposed impacted soil and fill. Similarly, off-Site receptors could be exposed to dust and vapors from on-Site activities. During construction, on-Site and off-Site exposures to contaminated dust from on-Site will be addressed through dust controls, and through the implementation of the Community Air Monitoring Plan and

Construction Health and Safety Plan. Groundwater is not anticipated to be encountered, and there will be no structures on-Site where soil vapor could accumulate.

Proposed Future Conditions: Under future remediated conditions, all soils in excess of Track 4 SCOs will be removed. The Site will be fully capped, limiting potential direct exposure to soil and groundwater remaining in place, and a vapor barrier system and sub-slab depressurization system will prevent any exposure to potential off-Site soil vapors in the future. The Site is served by a public water supply, and groundwater is not used at the Site for potable supply. There are no plausible off-Site pathways for ingestion, inhalation, or dermal exposure to contaminants derived from the Site under future conditions.

Receptor Populations

The immediate area is mixed use residential and commercial, and is anticipated to remain as such. The new building at the Site will be utilized as a residential property. Potential receptors populations are as follows:

On-Site Receptors – The Site is currently a vacant. Therefore, the only potential on-Site receptors are Site representatives, 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; commercial and construction workers; pedestrians; trespassers; and passerby 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 vapor barrier system and sub-slab depressurization system for the building. Potential post-construction use of groundwater is not considered an option because 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 the remedial action, on-Site exposure pathways will be eliminated by preventing access to the Site, through the implementation of soils/materials management, storm water pollution prevention, dust controls, employment of Community Air Monitoring Plan, and implementation of 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 that exceed Track 4 Site-Specific SCOs will have been removed and the vapor barrier, sub-slab depressurization system and concrete building slab will interrupt potential for soil vapor intrusion and vapor build-up inside the building.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION AND OVERSIGHT

Principal personnel who will participate in the remedial action include Yisong Yang (ACT) as the designated Site Safety Officer, Timothy Young (ACT) as the alternate Site Safety Officer and Theresa Burkard (ACT) as the Project Manager. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are Andrew R. Levenbaum and Paul P. Stewart, respectively.

5.2 SITE SECURITY

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

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 Yisong Yang. 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 mcg/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 mcg/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 mcg/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 incompliance 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 Mark-Out 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

Groundwater at the site was detected in excess of 18’ bgs. The depth of the building elevator pit including footings is projected at 16’8”. Groundwater is unlikely to be encountered during the course of the site development.

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 VCP 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.

Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the enrollee will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; lose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and

generators will be removed from holes, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, haybales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to OER at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYS DEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to OER. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will by collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Storm-water control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off site to adjacent properties, property owners and OER will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to OER and implemented following approval by OER and granting of site access by the property owner. Impacted offsite areas may require characterization based on site conditions, at the discretion of OER. If onsite petroleum spills are identified, a qualified environmental

professional will determine the nature and extent of the spill and report to NYS DEC's spill hotline at DEC 800-457-7362. If the source of the spill is ongoing and can be identified, it should be stopped it this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYS DEC.

Storm Response Reporting

A site inspection report will be submitted to OER at the completion of site inspection. An inspection report established by OER is available on OER's website (www.nyc.gov/oer) and will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the OER project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of onsite or offsite exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYS DEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to OER project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.8 TRAFFIC CONTROL

Drivers of trucks leaving the NYC VCP 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 24th Street, merge onto Queens Boulevard east toward the Brooklyn Queens Expressway.

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 (if Track 1 is not achieved);
- 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.
- Continue registration of the property with an E-Designation by the NYC Department of Buildings.

- 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 R. 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 41-18/30 24th Street, Long Island City, NY Site (NYC OER Project Number 14EHAZ596Q).

I, Paul Stewart, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 41-18/30 24th Street, Long Island City, NY Site (NYC OER Project Number 14EHAZ596Q).

I certify that the OER-approved Remedial Action Work Plan dated August 2014 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.

_____
Name

_____
NYS PE License Number

_____
Signature

_____
Date

PE Stamp

_____
QEP Name

_____
QEP Signature

_____
Date

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 number 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

FIGURE 2

FIGURE 3

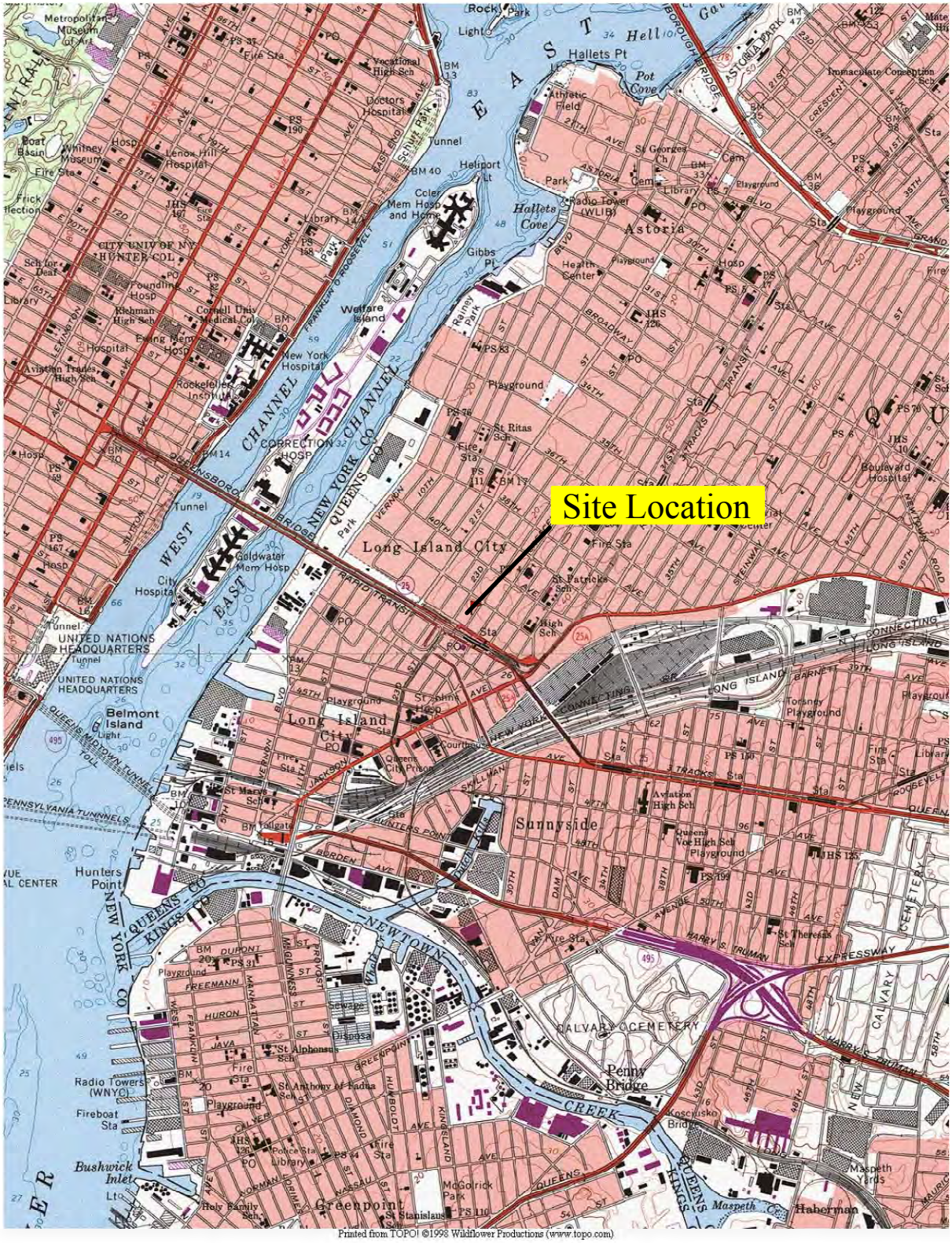
FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7

FIGURE 1



From USGS 7.5 Minute Topographic Map Of
Brooklyn, NY Quadrangle

Locational Diagram

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
110 Main Street, Suite 103, Port Washington, NY 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 1
Date: August 27, 2014	Scale: 1 inch = 2000 feet

FIGURE 2

Adjacent property under construction

N

Site Diagram

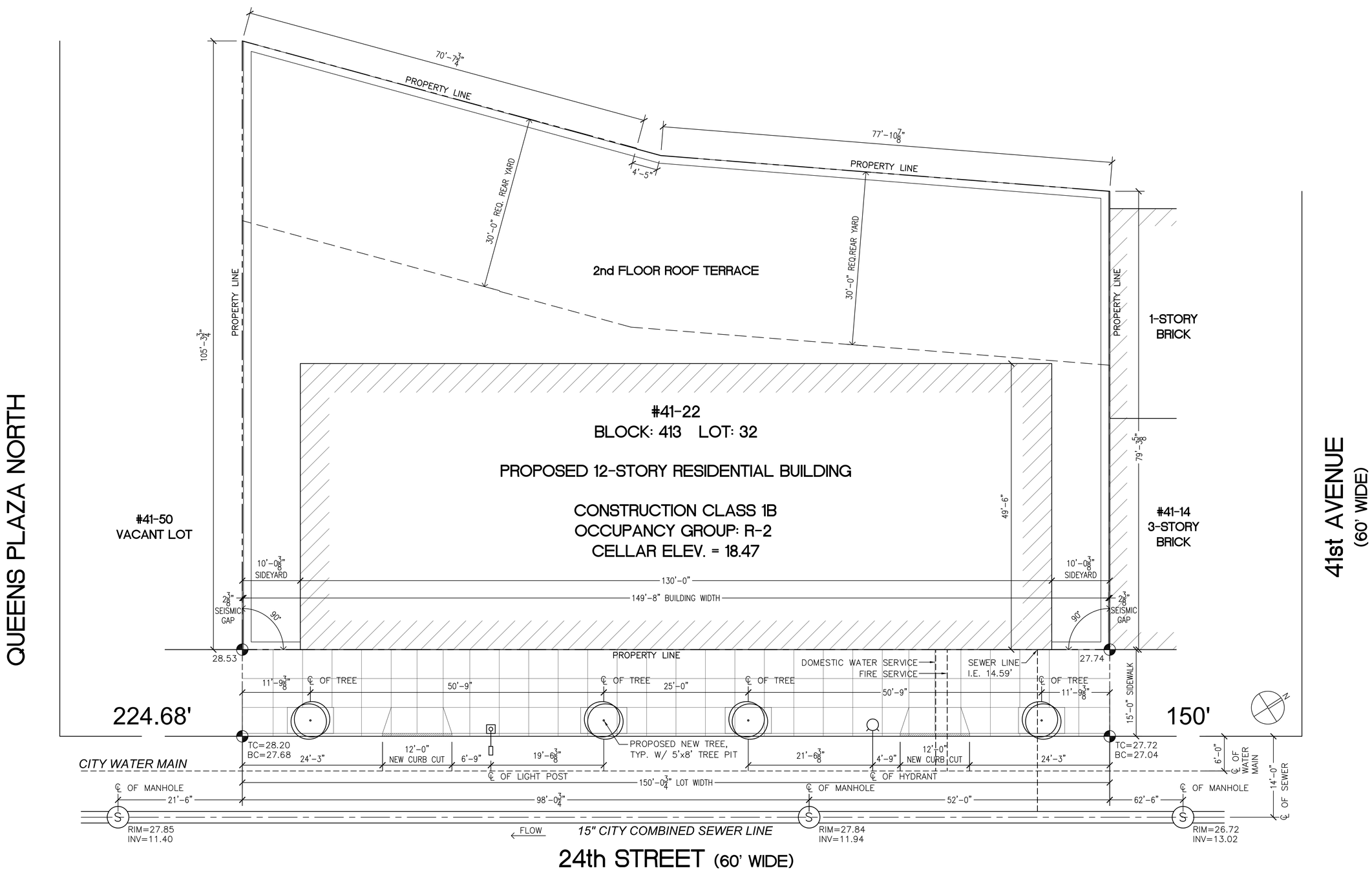
Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 2
Date: 08/25/2014	Scale: Not To Scale

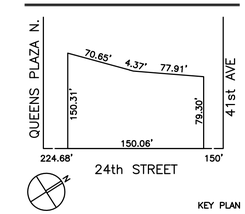
FIGURE 3

NO.	REVISION	DATE
1	ISSUE TO D.O.B.	10.02.2013



1 SITE PLAN
SCALE: 1/8" = 1'-0"

SEAL



KEY PLAN

MY ARCHITECT PC

37-09 MAIN ST. SUITE 3A
FLUSHING NY 11354

T 718.886.8628
F 718.886.8770

OWNER:
LIC 41-18 24th STREET LLC
185 GREAT NECK ROAD - SUITE 250
GREAT NECK, NY 11021

STRUCTURAL ENGINEER:
H2 CONSULTING, PC
87 WALKER STREET-3rd FLOOR
NEW YORK, NY 10013

MEP ENGINEER:
EJC ENGINEERING PLLC
136-21 ROOSEVELT AVENUE-SUITE 211
FLUSHING, NY 11365

D.O.B. JOB NUMBER

PROJECT TITLE:
24th STREET RESIDENTIAL DEVELOPMENT

41-22 24th STREET
QUEENS, NY 11101

PROJECT No: 1301

DRAWING TITLE:
SITE PLAN

SCALE: 1/8" = 1'-0"

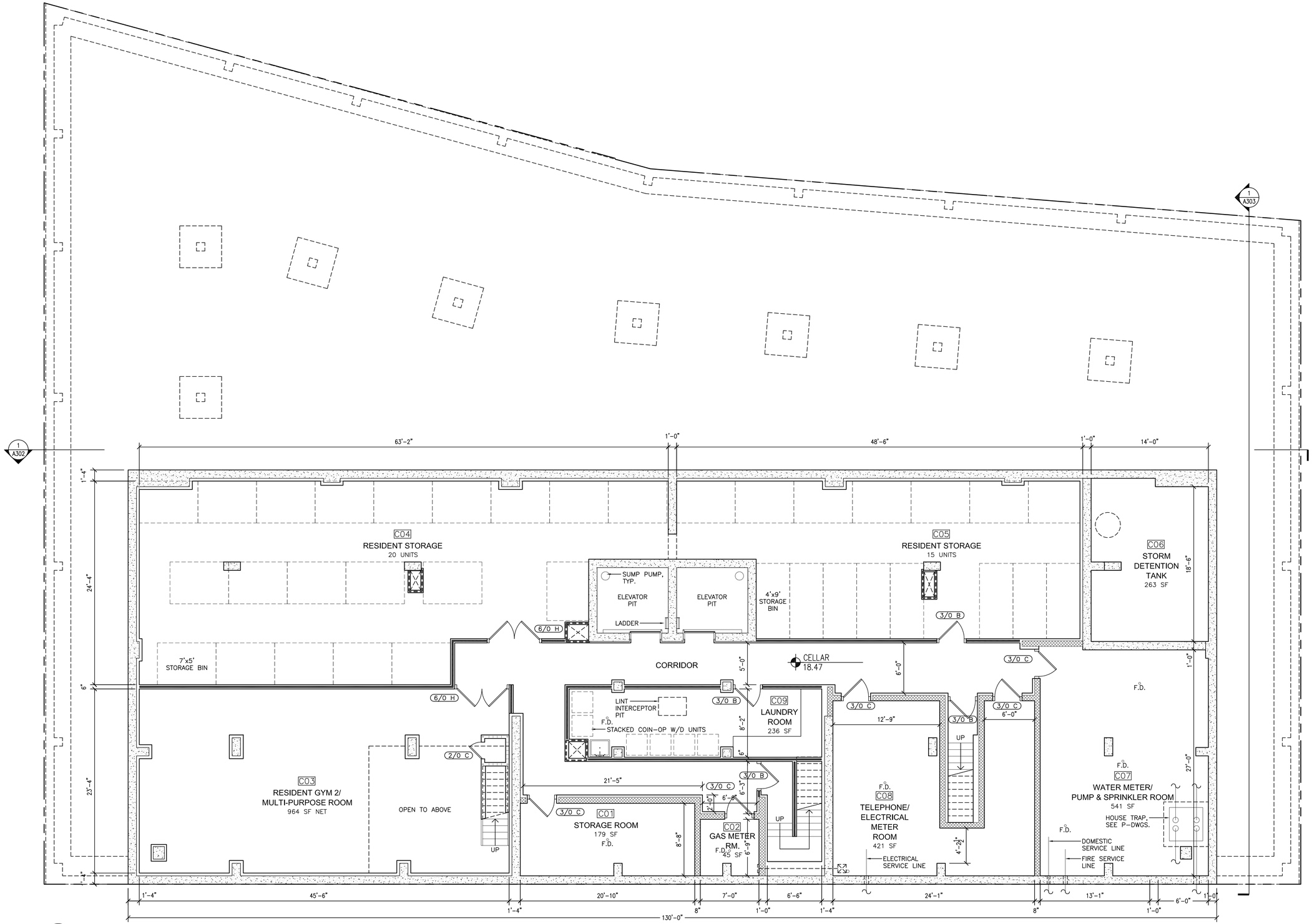
A-100.00

DATE: MAY 8, 2014

PAGE: 3 OF XX

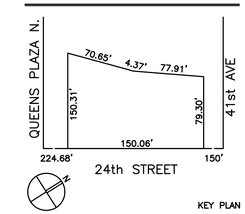
PROGRESS SET 05.08.2014 (NOT FOR CONSTRUCTION)

NO.	REVISION	DATE
1	ISSUE TO D.O.B.	10.02.2013



1 CELLAR FLOOR PLAN
SCALE: 3/16" = 1'-0"

SEAL



KEY PLAN

MY ARCHITECT PC

37-09 MAIN ST. SUITE 3A
FLUSHING NY 11354

T 718.886.8628
F 718.886.8770

OWNER:
LIC 41-18 24th STREET LLC
185 GREAT NECK ROAD – SUITE 250
GREAT NECK, NY 11021

STRUCTURAL ENGINEER:
H2 CONSULTING, PC
87 WALKER STREET-3rd FLOOR
NEW YORK, NY 10013

MEP ENGINEER:
EJC ENGINEERING PLLC
136-21 ROOSEVELT AVENUE-SUITE 211
FLUSHING, NY 11365

D.O.B. JOB NUMBER

PROGRESS SET 05.08.2014 (NOT FOR CONSTRUCTION)

PROJECT TITLE:
24th STREET RESIDENTIAL DEVELOPMENT

41-22 24th STREET
QUEENS, NY 11101

PROJECT No: 1301

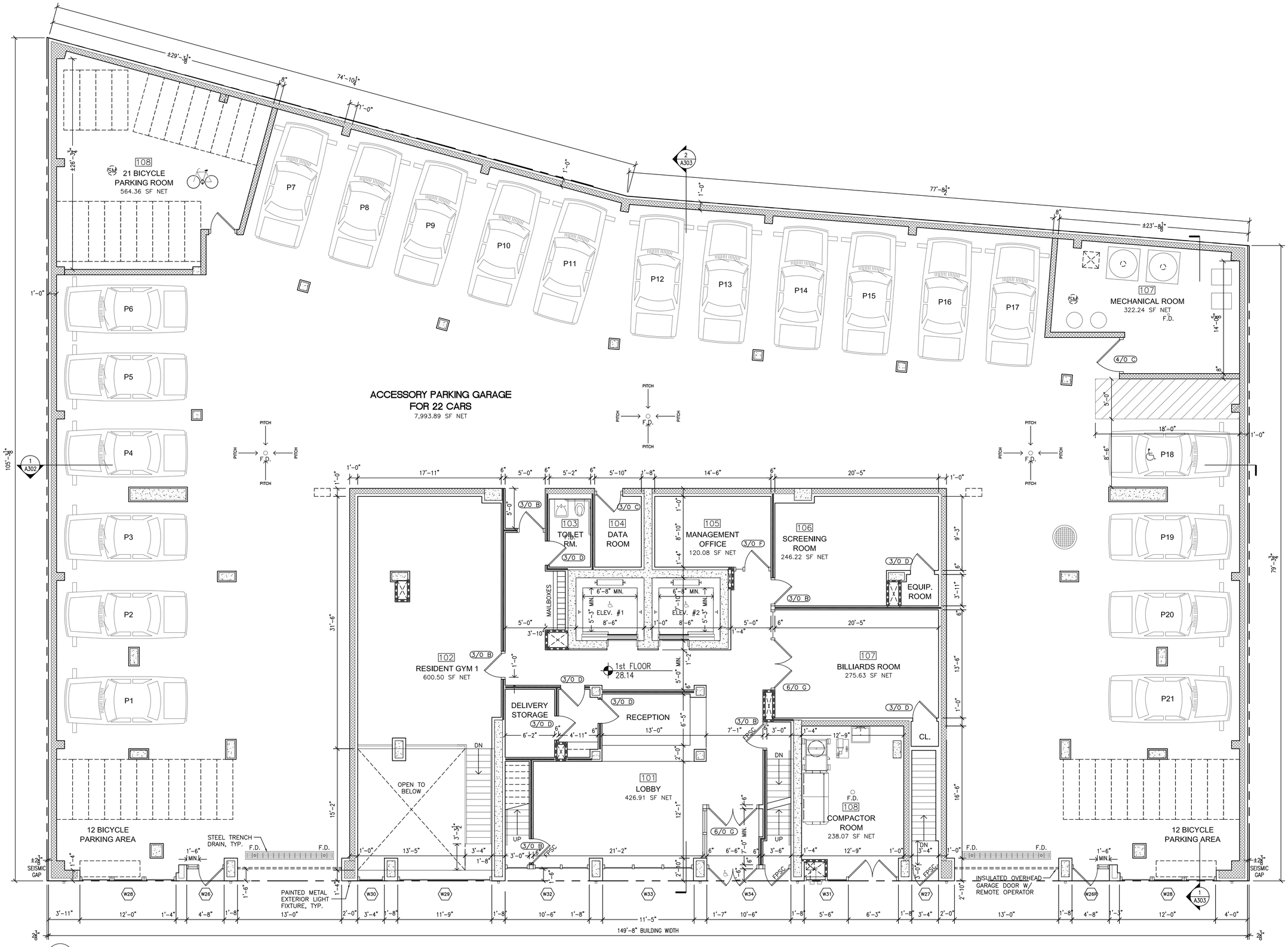
DRAWING TITLE:
CELLAR FLOOR PLAN

SCALE: 3/16" = 1'-0"

A-101.00

DATE: MAY 8, 2014

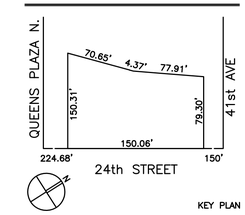
PAGE: 3 OF XX



1 1st FLOOR PLAN
SCALE: 3/16" = 1'-0"

NO.	REVISION	DATE
1	ISSUE TO D.O.B.	10.02.2013

SEAL



KEY PLAN

MY ARCHITECT PC
37-09 MAIN ST. SUITE 3A
FLUSHING NY 11354
T 718.886.8628
F 718.886.8770

OWNER:
LIC 41-18 24th STREET LLC
185 GREAT NECK ROAD – SUITE 250
GREAT NECK, NY 11021

STRUCTURAL ENGINEER:
H2 CONSULTING, PC
87 WALKER STREET–3rd FLOOR
NEW YORK, NY 10013

MEP ENGINEER:
EJC ENGINEERING PLLC
136-21 ROOSEVELT AVENUE–SUITE 211
FLUSHING, NY 11365

D.O.B. JOB NUMBER

PROJECT TITLE:
24th STREET RESIDENTIAL DEVELOPMENT
41-22 24th STREET
QUEENS, NY 11101

PROJECT No: 1301

DRAWING TITLE:
FIRST FLOOR PLAN

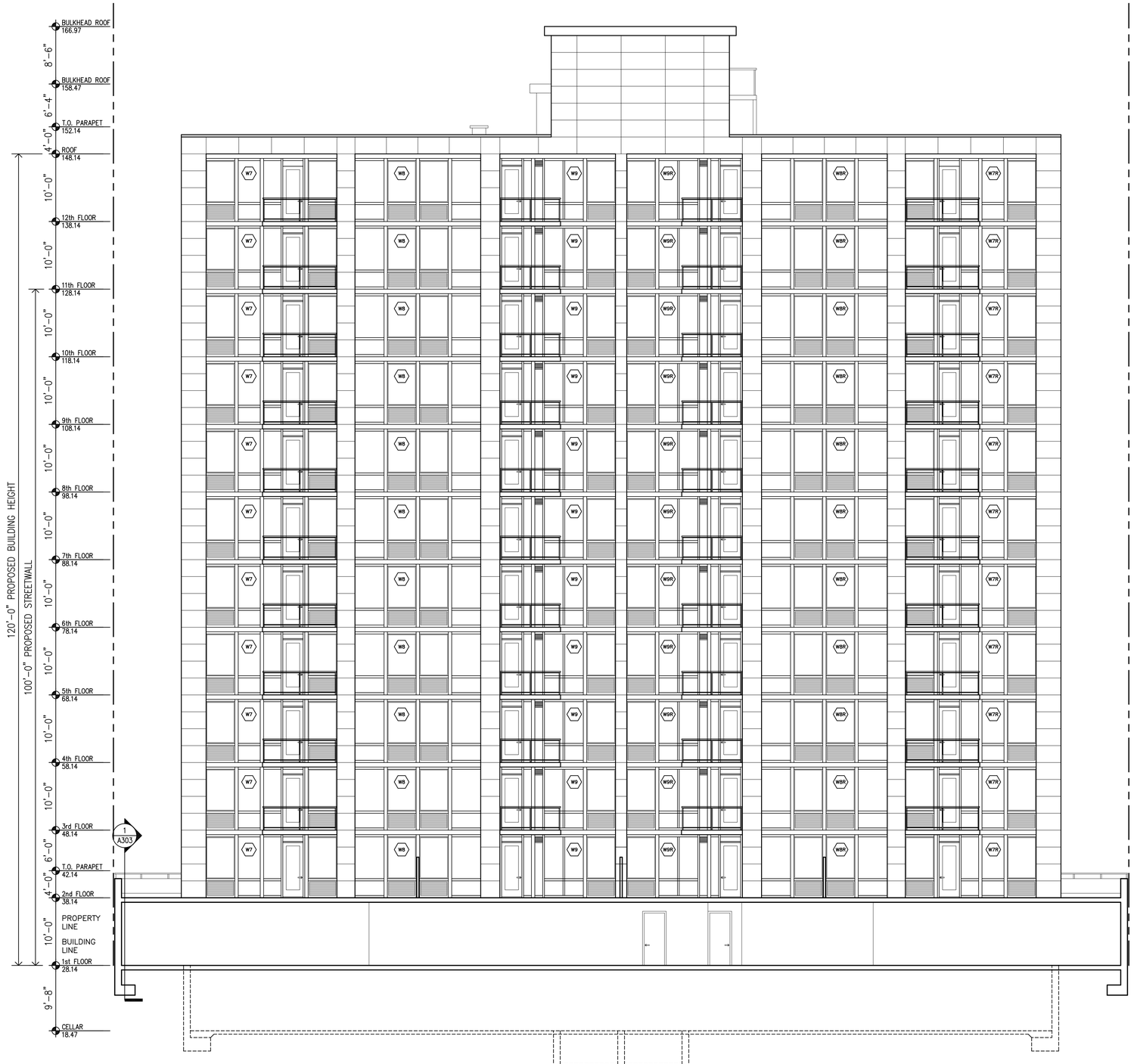
SCALE: 3/16" = 1'-0"

A-102.00

DATE: MAY 8, 2014

PAGE: 4 OF XX

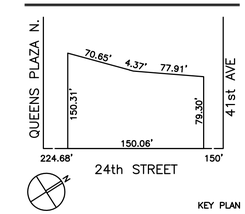
PROGRESS SET 05.08.2014 (NOT FOR CONSTRUCTION)



1 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

NO.	REVISION	DATE
1	ISSUE TO D.O.B.	10.02.2013

SEAL



KEY PLAN

MY ARCHITECT PC

37-09 MAIN ST. SUITE 3A
FLUSHING NY 11354

T 718.886.8628
F 718.886.8770

OWNER:
LIC 41-18 24th STREET LLC
185 GREAT NECK ROAD - SUITE 250
GREAT NECK, NY 11021

STRUCTURAL ENGINEER:
H2 CONSULTING, PC
87 WALKER STREET-3rd FLOOR
NEW YORK, NY 10013

MEP ENGINEER:
EJC ENGINEERING PLLC
136-21 ROOSEVELT AVENUE-SUITE 211
FLUSHING, NY 11365

D.O.B. JOB NUMBER

PROJECT TITLE:
24th STREET
RESIDENTIAL
DEVELOPMENT

41-22 24th STREET
QUEENS, NY 11101

PROJECT No: 1301

DRAWING TITLE:
BUILDING
ELEVATION:
NORTH

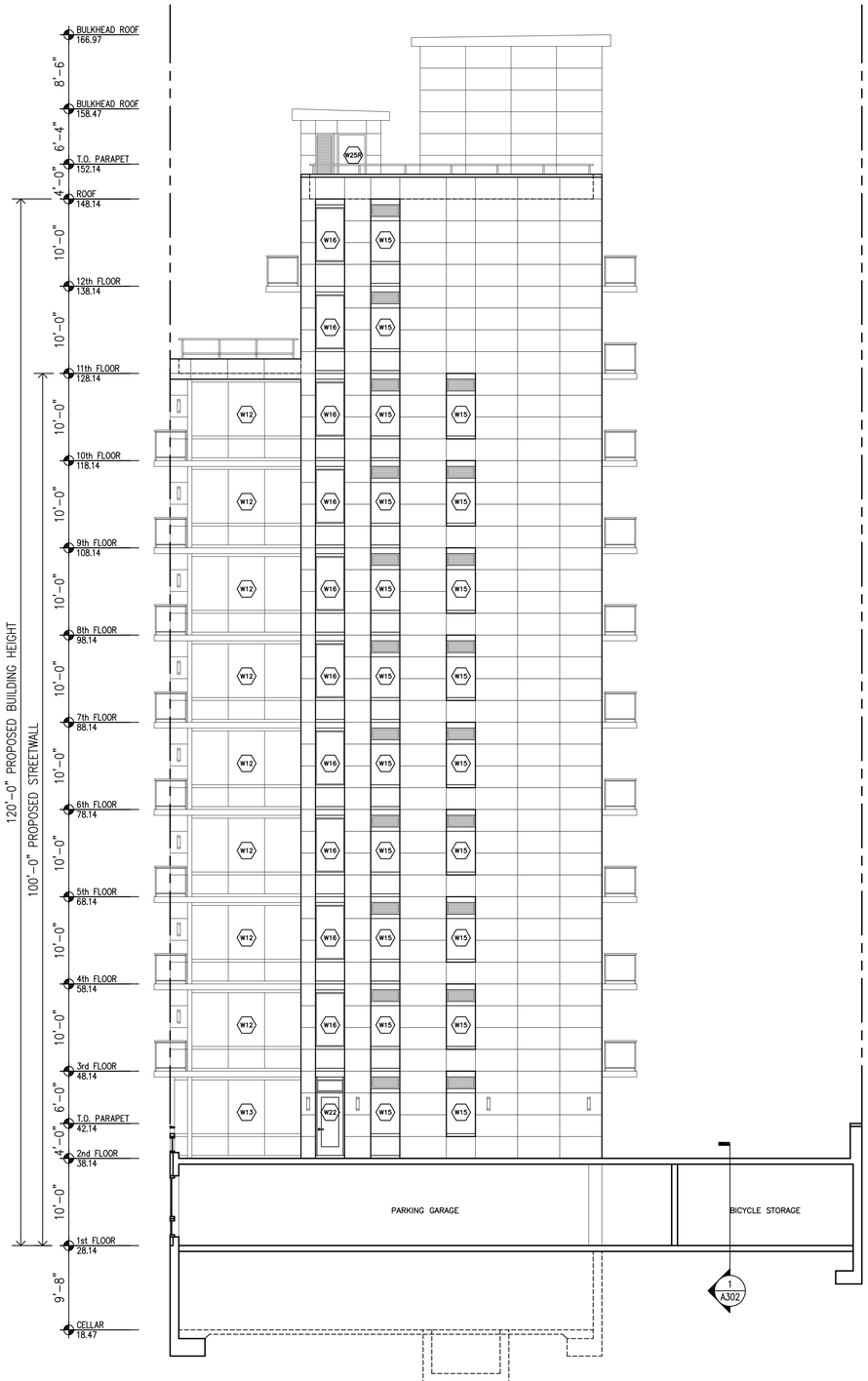
SCALE: 1/8" = 1'-0"

A-302.00

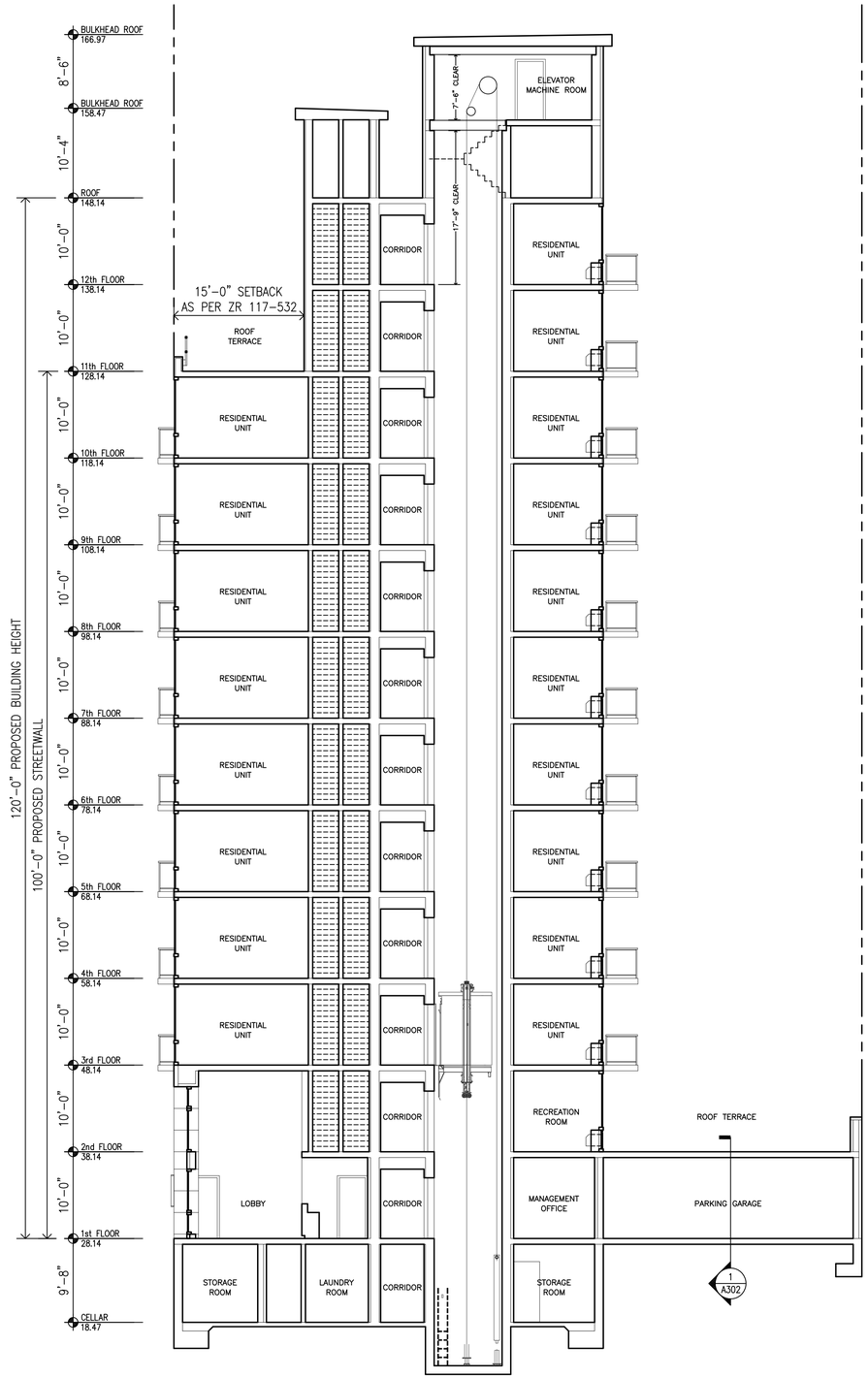
DATE: MAY 8, 2014

PAGE: X OF XX

PROGRESS SET 05.08.2014 (NOT FOR CONSTRUCTION)



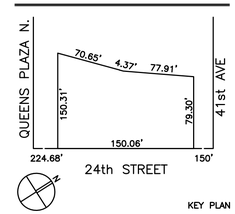
1 BUILDING ELEVATION: EAST/WEST
SCALE: 1/8" = 1'-0"



2 BUILDING SECTION
SCALE: 1/8" = 1'-0"

NO.	REVISION	DATE
1	ISSUE TO D.O.B.	10.02.2013

SEAL



KEY PLAN

MY ARCHITECT PC

37-09 MAIN ST. SUITE 3A
FLUSHING NY 11354

T 718.886.8628
F 718.886.8770

OWNER:
LIC 41-18 24th STREET LLC
185 GREAT NECK ROAD – SUITE 250
GREAT NECK, NY 11021

STRUCTURAL ENGINEER:
H2 CONSULTING, PC
87 WALKER STREET-3rd FLOOR
NEW YORK, NY 10013

MEP ENGINEER:
EJC ENGINEERING PLLC
136-21 ROOSEVELT AVENUE-SUITE 211
FLUSHING, NY 11365

D.O.B. JOB NUMBER

PROGRESS SET 05.08.2014 (NOT FOR CONSTRUCTION)

PROJECT TITLE:
24th STREET RESIDENTIAL DEVELOPMENT

41-22 24th STREET
QUEENS, NY 11101

PROJECT No: 1301

DRAWING TITLE:
BUILDING ELEVATION & SECTION

SCALE: 1/8" = 1'-0"

A-303.00

DATE: MAY 8, 2014

PAGE: X OF XX

FIGURE 4

Surrounding Land Use

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nyc oasis

Legend

Transit, Roads, Reference Features

Roads, ferries, commuter rail, neighborhood names

- Roads
- Major Roads
- Interstate Highways
- Tunnels
- Neighborhood/Town Labels
- County Boundaries
- Ferry
- Commuter Rail
- NYC subway routes and stations

Parks, Playgrounds, & Open Space

- Parks & Public Lands
- Forested Areas (NJ)
- Community Gardens
- School property with garden
- Playgrounds
- Green Spaces Along Streets
- Golf Courses
- Baseball/Soccer/Football Fields
- Tennis/Basketball/Handball Courts & Tracks
- Cemeteries

Land Use

Block/Lot Boundaries

(Building footprints in gray)

- 1 & 2 Family Residential
- Multi-family Residential
- Mixed Use
- Open space & outdoor recreation
- Commercial
- Institutions
- Industrial
- Parking
- Transportation / Utilities
- Vacant Lots

(Not all items in the legend may be visible on the map.)

N

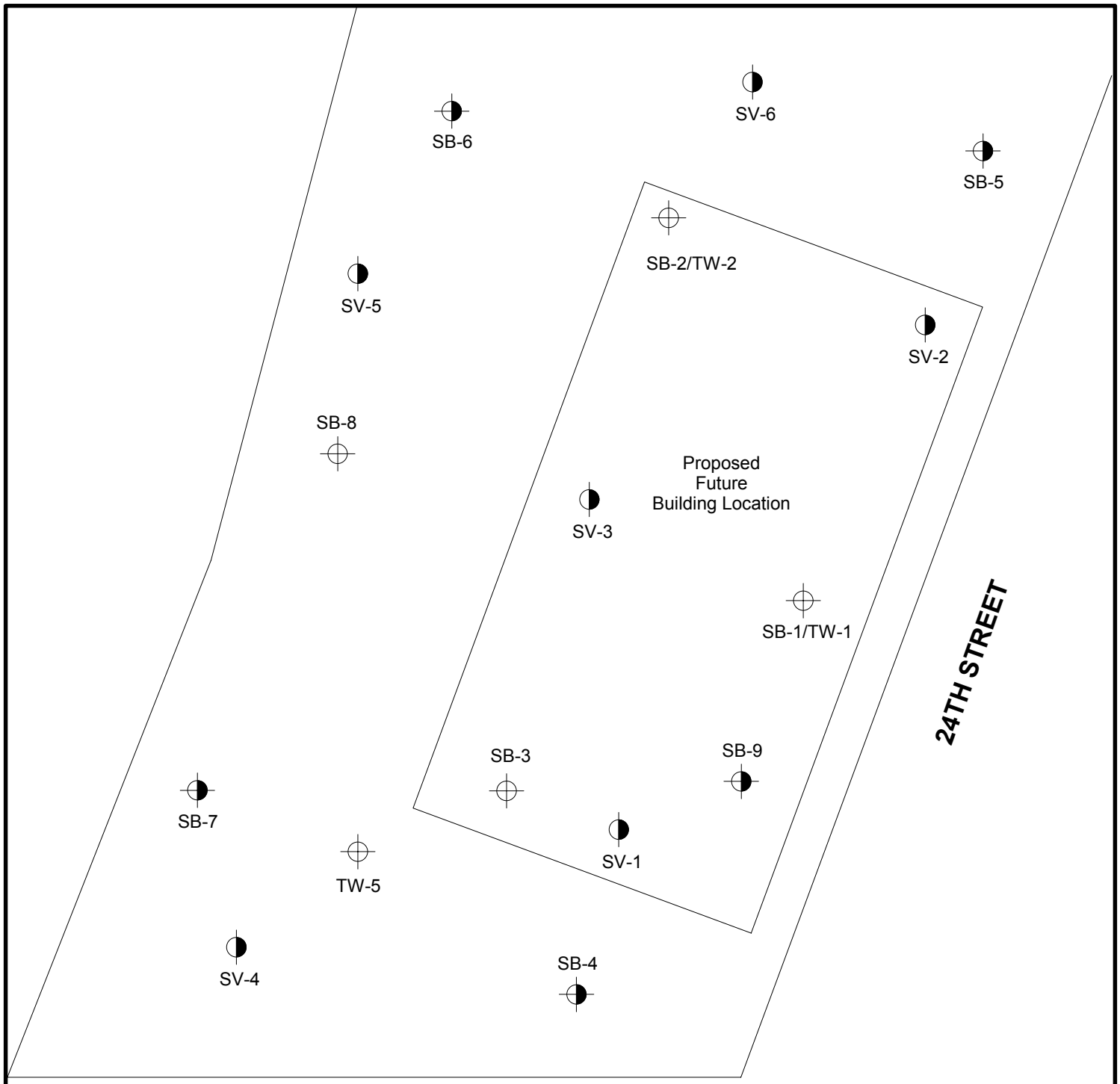
Surrounding Land Use Diagram

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 4
Date: 08/25/2014	Scale: Not To Scale

FIGURE 5



Legend

SB-1/TW-1 — Sampling/Temporary Well Location

SB-2 — Proposed Soil Boring Location

SV-1 — Soil Vapor Sampling Location

Sampling Location

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 5
Date: 08/25/2014	Scale: Not To Scale

FIGURE 6

SB-6 (0-2')
Benzo(a)anthracene - above RRSCO
Chrysene - above UUSCO
4,4´-DDT - above UUSCO
Beryllium - above UUSCO
Chromium - above UUSCO
Mercury - above UUSCO
Nickel - above UUSCO
Zinc - above UUSCO
Arsenic - above CSCO
Copper - above CSCO
Lead - above RRSCO

SB-6 (3-5')
Benzo(a)anthracene - above RRSCO
Benzo(a)pyrene - above RRSCO
Benzo(k)fluoranthene - above RRSCO
Indeno(1,2,3-c,d)pyrene - above RRSCO
4,4´-DDT - above UUSCO
4,4´-DDE - above UUSCO
Copper - above UUSCO
Zinc - above UUSCO
Lead - above RRSCO
Mercury - above CSCO

SB-6

SV-6

SB-5 (0-2')
4,4´-DDT - above UUSCO
Beryllium - above UUSCO
Chromium - above UUSCO
Mercury - above UUSCO
Nickel - above UUSCO
Zinc - above UUSCO
Copper - above CSCO
Lead - above RRSCO

SB-5

SB-5 (3-5')
Benzo(a)anthracene - above RRSCO
Benzo(k)fluoranthene - above UUSCO
Chrysene - above UUSCO
4,4´-DDT - above UUSCO
Mercury - above UUSCO
Zinc - above UUSCO
Lead - above RRSCO

SB-2/TW-2

SB-2 (0-2')
4,4´-DDT - above UUSCO
Beryllium - above UUSCO
Chromium - above UUSCO
Lead - above UUSCO
Mercury - above UUSCO
Nickel - above UUSCO
Zinc - above UUSCO
Copper - above CSCO

SV-5

SV-2

SB-8

SB-1 (0-2')
Benzo(k)fluoranthene - above UUSCO
Chrysene - above UUSCO
4,4´-DDT - above UUSCO
Lead - above UUSCO
Mercury - above CSCO
Zinc - above UUSCO

SB-8 (0-2')
Chrysene - above UUSCO
4,4´-DDT - above UUSCO
Lead - above UUSCO
Mercury - above UUSCO
Zinc - above UUSCO

SV-3

SB-8 (3-5')
4,4´-DDT - above UUSCO
Lead - above RRSCO
Mercury - above UUSCO
Zinc - above UUSCO
Copper - above UUSCO

SB-1/TW-1

SB-3 (0-2')
4,4´-DDT - above UUSCO
Copper - above UUSCO
Lead - above UUSCO
Zinc - above UUSCO

24TH STREET

SB-9

SB-7

SB-3

SB-9 (0-2')
Benzo(a)anthracene - above RRSCO
Benzo(k)fluoranthene - above UUSCO
Chrysene - above UUSCO
4,4´-DDT - above UUSCO
Copper - above UUSCO
Lead - above UUSCO
Nickel - above UUSCO
Zinc - above UUSCO

SV-1

TW-5

SB-7 (0-2')
Aroclor 1254 - above UUSCO
Copper - above UUSCO
Lead - above UUSCO
Mercury - above UUSCO
Zinc - above UUSCO

SV-4

SB-4

SB-7 (3-5')
Lead - above UUSCO
Mercury - above UUSCO
Zinc - above UUSCO

SB-4 (0-2')
4,4´-DDT - above UUSCO
Lead - above UUSCO
Zinc - above UUSCO

Adjacent property under construction

SB-4 (3-5')
4,4´-DDT - above UUSCO
Chromium - above UUSCO
Mercury - above UUSCO
Nickel - above UUSCO
Lead - above RRSCO
Copper - above CSCO
Zinc - above UUSCO

Legend

SB-1/TW-1 — Sampling/Temporary Well Location

SB-2 — Proposed Soil Boring Location

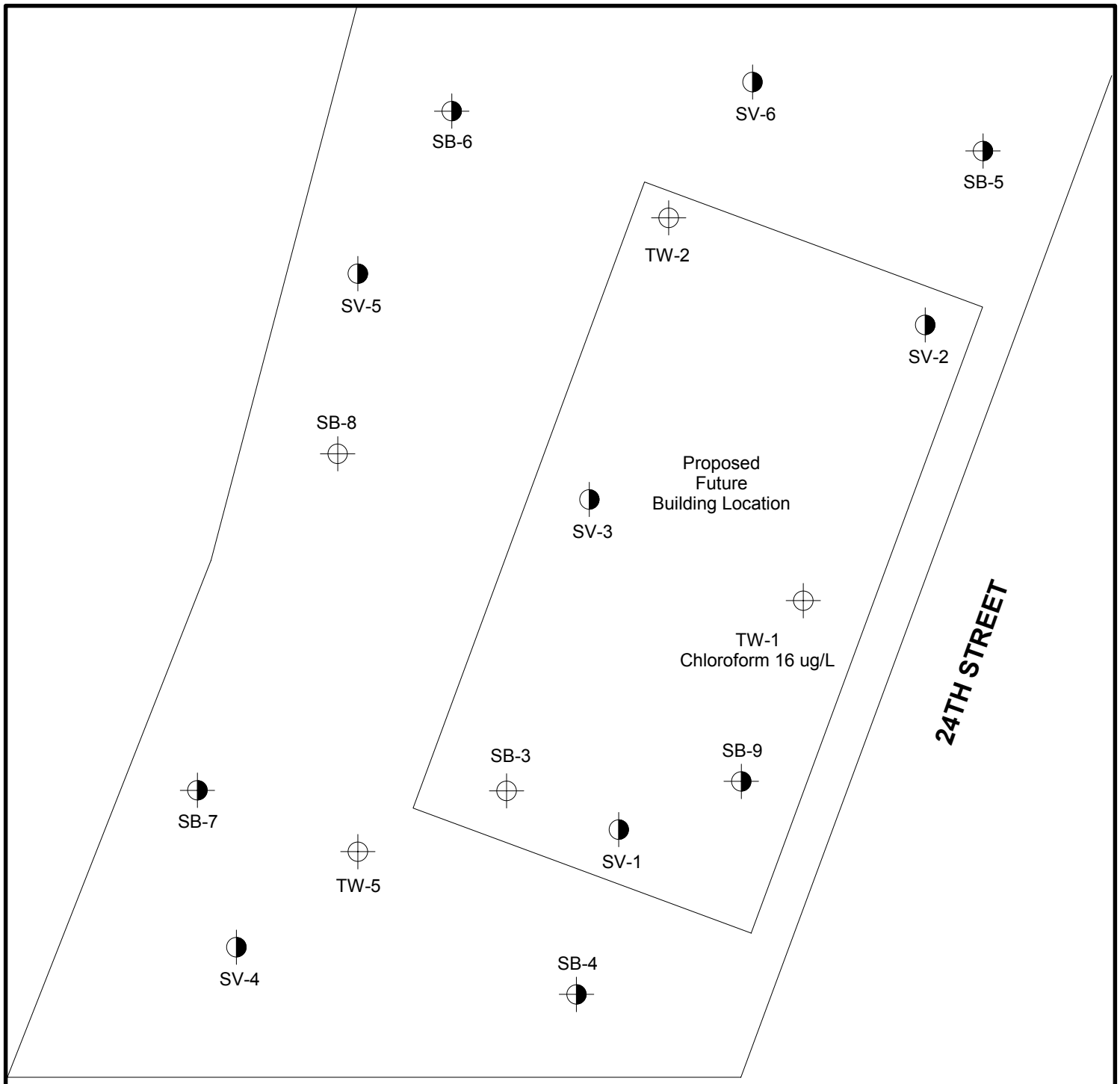
SV-1 — Soil Vapor Sampling Location

N

Soil Exceedence Diagram

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 6
Date: 08/25/2014	Scale: Not To Scale



Legend

SB-1/TW-1 — Sampling/Temporary Well Location

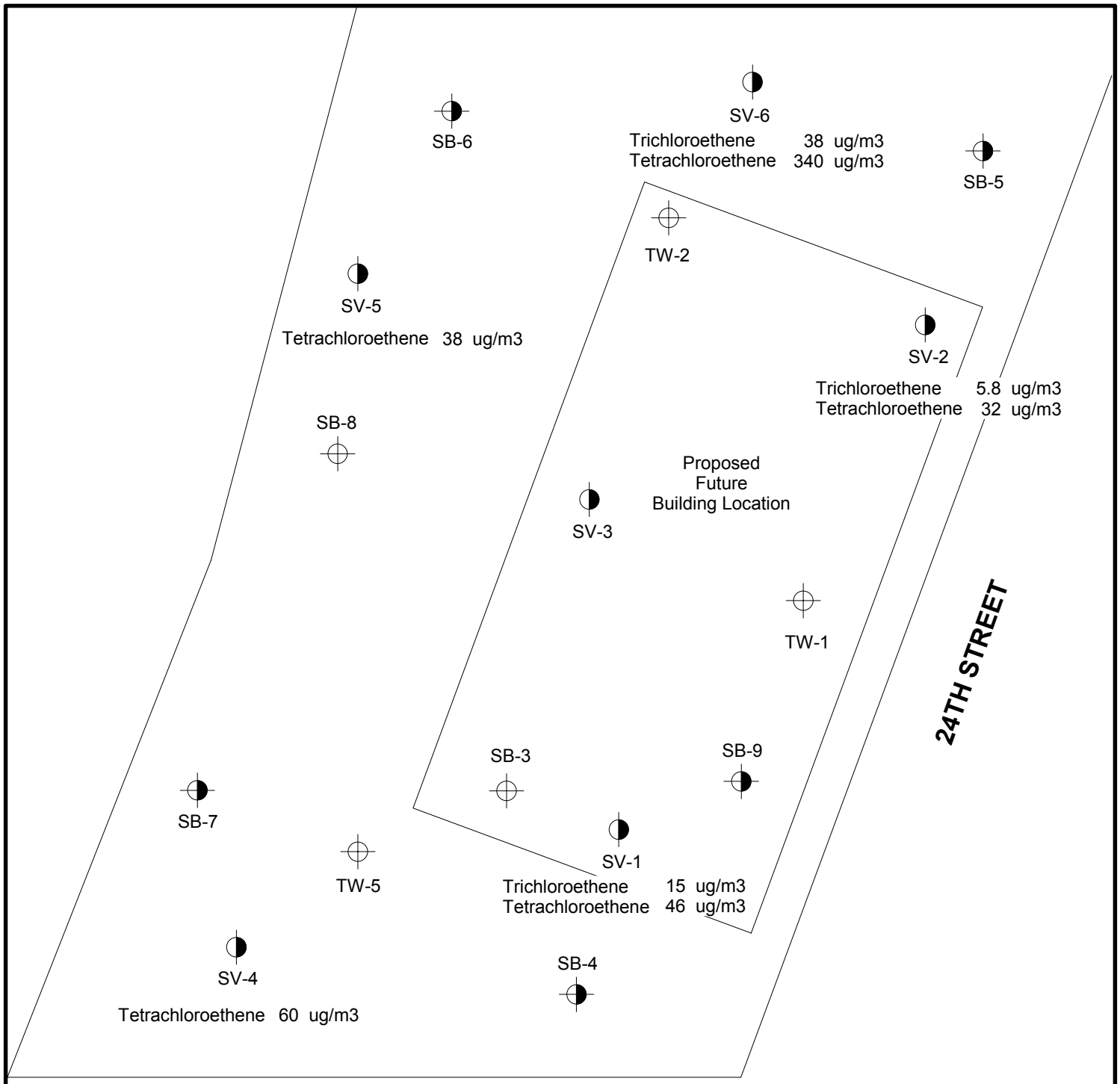
SB-2 — Proposed Soil Boring Location

SV-1 — Soil Vapor Sampling Location

Groundwater Exceedence Diagram

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 7
Date: 08/25/2014	Scale: Not To Scale



Adjacent property under construction

N

Legend

SB-1/TW-1 — Sampling/Temporary Well Location

SB-2 — Proposed Soil Boring Location

SV-1 — Soil Vapor Sampling Location

Soil Vapor Exceedence Diagram

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 8
Date: 08/25/2014	Scale: Not To Scale

FIGURE 7

VAPORBLOCK® PLUS™ VBP20

Under-Slab Vapor / Gas Barrier

RAVEN INDUSTRIES

Product Description

VaporBlock® Plus™ 20 is a seven-layer co-extruded barrier made from state-of-the-art polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission. VaporBlock® Plus™ 20 is a highly resilient underslab / vertical wall barrier designed to restrict naturally occurring gases such as radon and/or methane from migrating through the ground and concrete slab. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon and other harmful VOCs.

VaporBlock® Plus™ 20 is one of the most effective underslab gas barriers in the building industry today far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001:2008 Certified Management System.

Product Use

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building's interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

Size & Packaging

VaporBlock® Plus™ 20 is available in 10' x 150' rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.

Under-Slab Vapor/Gas Retarder

Product	Part #
VaporBlock Plus 20	VBP 20

APPLICATIONS

- Radon Barrier
- Methane Barrier
- VOC Barrier
- Under-Slab Vapor Retarder
- Foundation Wall Vapor Retarder

VaporBlock® Plus™
UNDERSLAB VAPOR RETARDER / GAS BARRIER

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VAPORBLOCK® PLUS™ VBP20

ISO 9001:2008 CERTIFIED MANAGEMENT SYSTEM

Under-Slab Vapor / Gas Barrier

		VAPORBLOCK PLUS 20	
PROPERTIES	**TEST METHOD**	**IMPERIAL**	**METRIC**
APPEARANCE		White/Gold	
THICKNESS, NOMINAL		20 mil	0.51 mm
WEIGHT		102 lbs/MSF	498 g/m²
CLASSIFICATION	ASTM E 1745	CLASS A, B & C	
TENSILE STRENGTH LBF/IN (N/CM) AVERAGE MD & TD (NEW MATERIAL)	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
IMPACT RESISTANCE	ASTM D 1709	2600 g	
MAXIMUM USE TEMPERATURE		180° F	82° C
MINIMUM USE TEMPERATURE		-70° F	-57° C
PERMEANCE (NEW MATERIAL)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0098 Perms grains/(ft²·hr·in·Hg)	0.0064 Perms g/(24hr·m²·mm Hg)
(AFTER CONDITIONING) PERMS (SAME MEASUREMENT AS ABOVE PERMEANCE)	ASTM E 154 Section 8, E96 Section 11, E96 Section 12, E96 Section 13, E96	0.0079 0.0079 0.0097 0.0113	0.0052 0.0052 0.0064 0.0074
WVTR	ASTM E 96 Procedure B	0.0040 grains/hr-ft²	0.0028 gm/hr-m²
RADON DIFFUSION COEFFIECIENT	K124/02/95	< 1.1 x 10^{-13} m²/s	
METHANE PERMEANCE	ASTM D 1434	< 1.7 x 10^{-10} m²/d• atm 0.32 GTR (Gas Transmission Rate) ml/m²•D•ATM	

VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed.
Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located on our website.
ASTM E-1643 also provides general installation information for vapor retarders.

VaporBlock® Plus™ UNDERSLAB VAPOR RETARDER / GAS BARRIER

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO 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 for resulting loss or damage. Limited Warranty available at www.RavenEFD.com

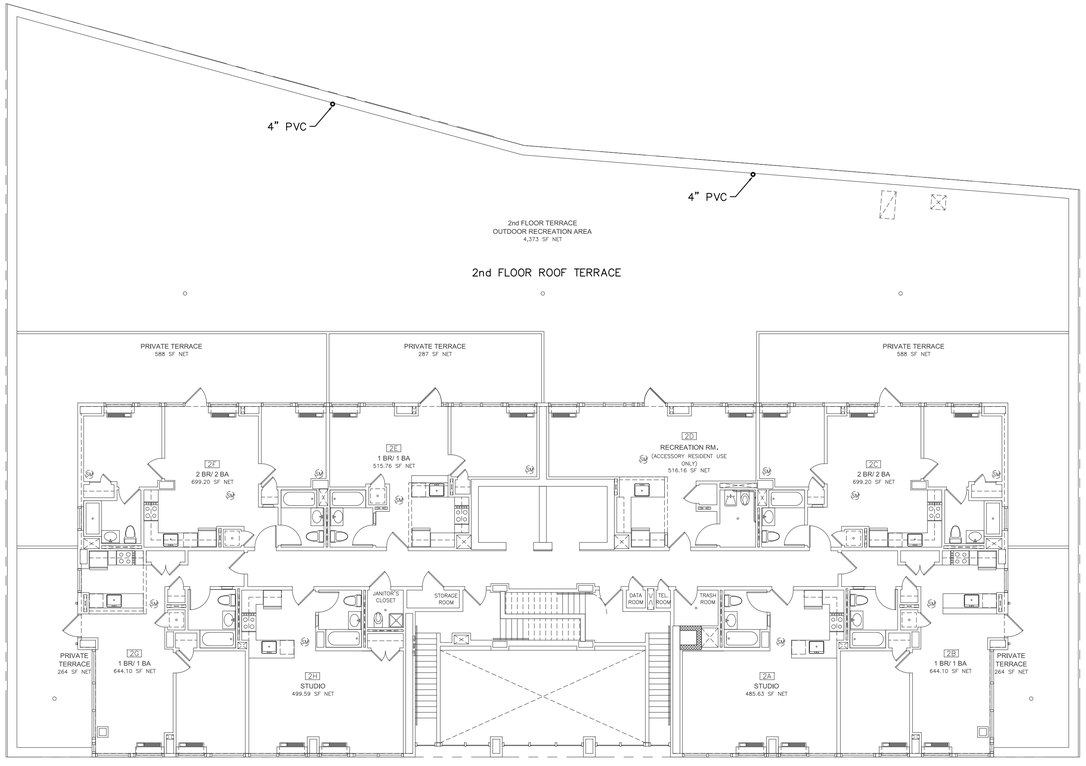
RAVEN INDUSTRIES

Engineered Films Division
P.O. Box 5107
Sioux Falls, SD 57117-5107
Ph: (605) 335-0174 • Fx: (605) 331-0333

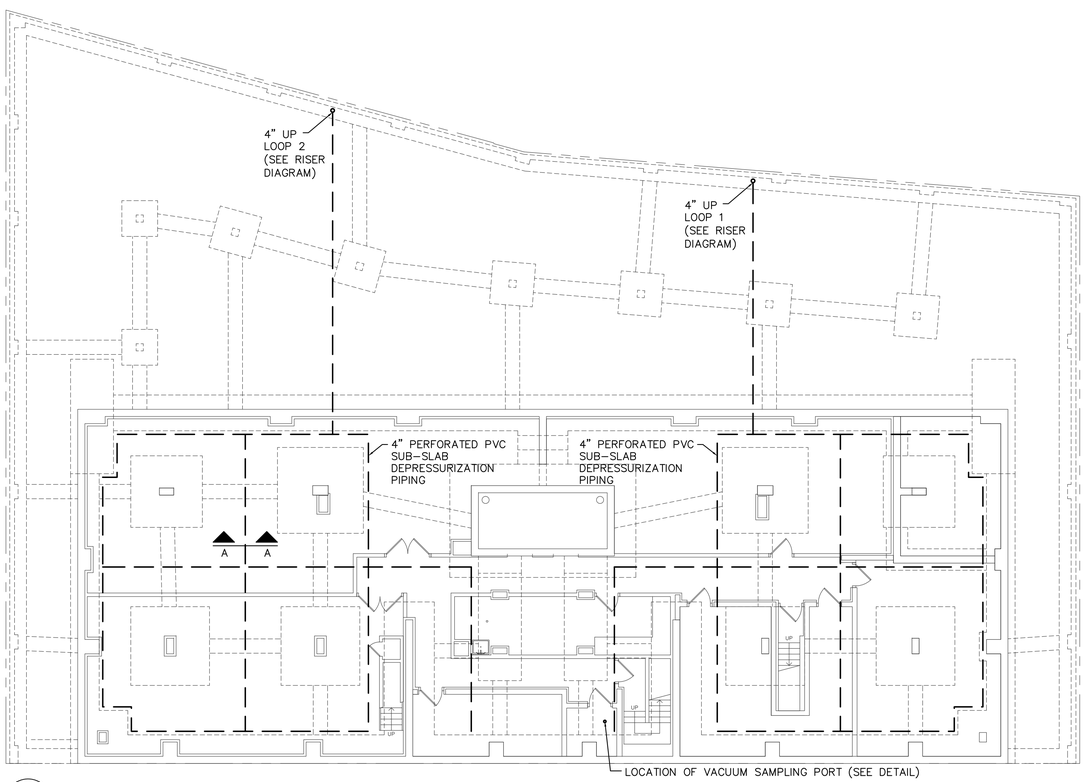
Toll Free: **800-635-3456**
Email: **efdsales@ravenind.com**
www.ravenefd.com
1/11 EFD 1125

Scan QR Code to download current technical data sheets via the Raven website.

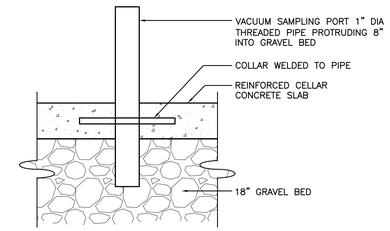
FIGURE 8



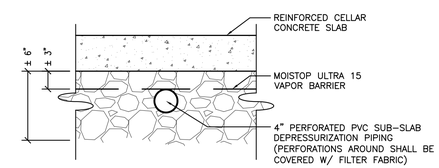
2 2nd FLOOR ROOF TERRACE: SUB-SLAB DEPRESSURIZATION SYSTEM
SCALE: 1" = 10'-0"



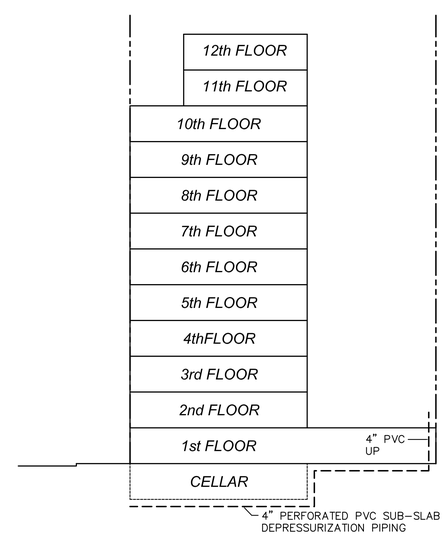
1 CELLAR PLAN: SUB-SLAB DEPRESSURIZATION SYSTEM
SCALE: 1" = 10'-0"



5 DETAIL: VACUUM SAMPLING PORT
SCALE: 1" = 1'-0"



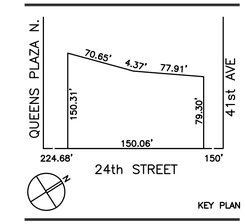
4 DETAIL: SECTION A-A
SCALE: 1" = 1'-0"



3 RISER DIAGRAM
SCALE: N/A

NO.	REVISION	DATE
1	ISSUE TO OER	XX.XX.XXX

SEAL



KEY PLAN

PROJECT TITLE:
24th STREET RESIDENTIAL DEVELOPMENT
41-22 24th STREET
QUEENS, NY 11101

PROJECT No: 1301

DRAWING TITLE:
SUB-SLAB DEPRESSURIZATION SYSTEM PLAN & DETAILS

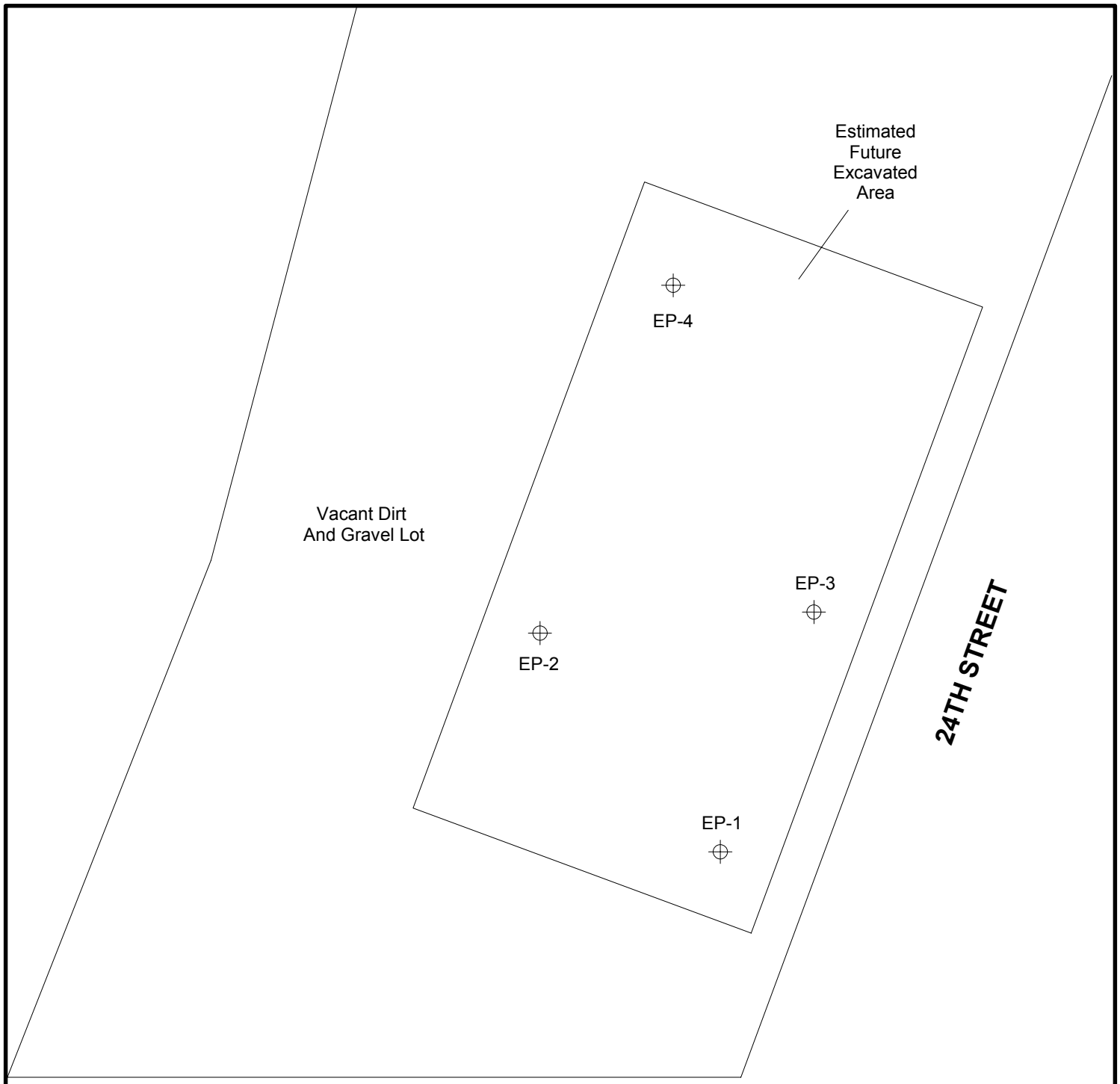
SCALE: AS NOTED

P-100.00

DATE: OCTOBER 22, 2014

PAGE: 1 OF 1

FIGURE 9



Adjacent property under construction

Legend

⊕ Proposed Endpoint Confirmation Samples

N

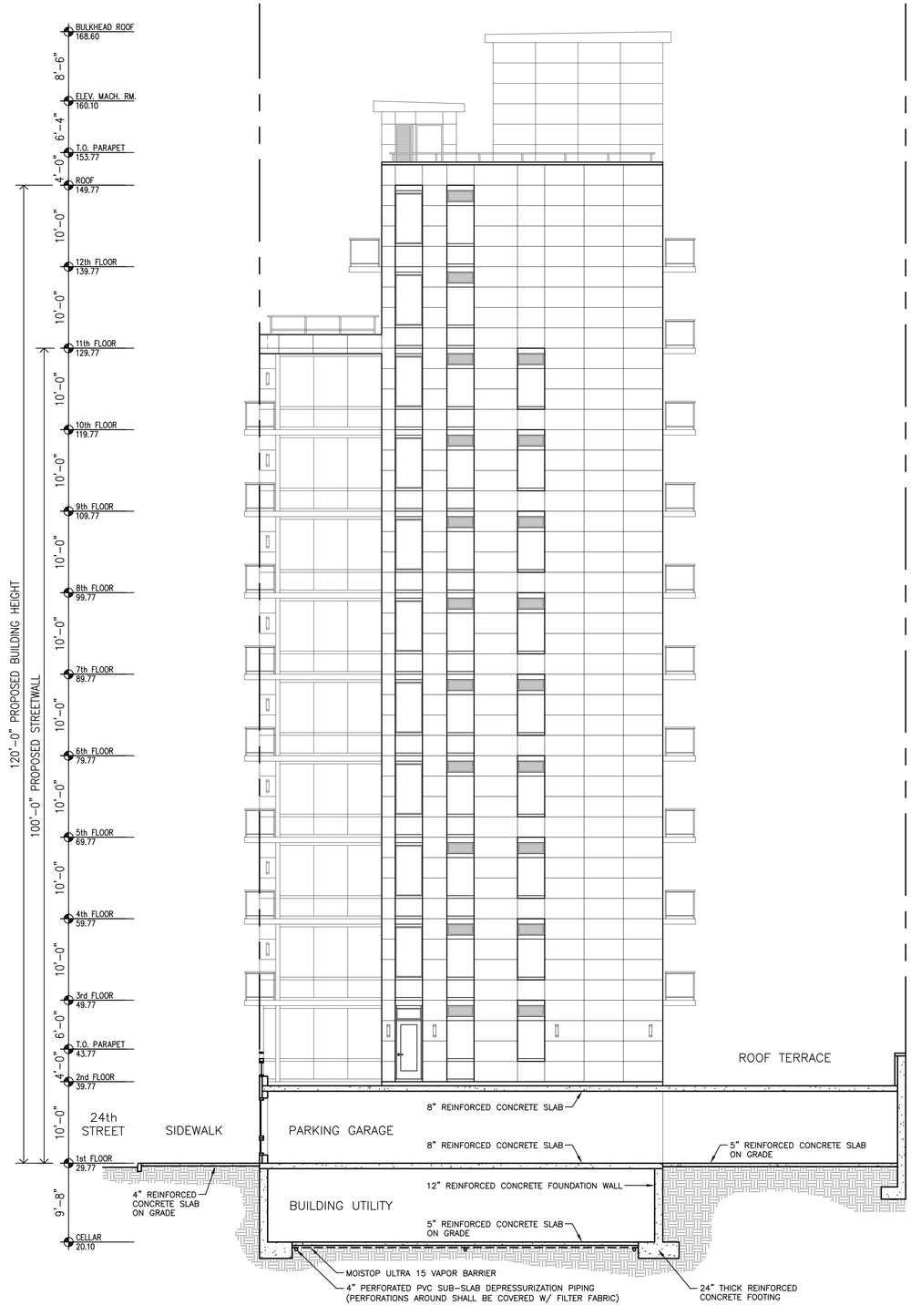
Endpoint Sampling Diagram

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.: 7794-LINY	Figure No.: 9
Date: 08/25/2014	Scale: Not To Scale

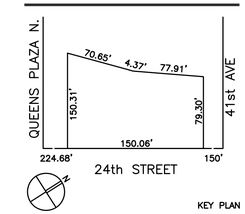
FIGURE 10



1 BUILDING SECTION: SUB-SLAB DEPRESSURIZATION SYSTEM
SCALE: 1" = 8'-0"

NO.	REVISION	DATE
1	ISSUE TO OER	XX.XX.XXX

SEAL



KEY PLAN

PROJECT TITLE:
24th STREET RESIDENTIAL DEVELOPMENT
41-22 24th STREET
QUEENS, NY 11101

PROJECT No: 1301

DRAWING TITLE:
SUB-SLAB DEPRESSURIZATION SYSTEM BUILDING SECTION

SCALE: AS NOTED

P-101.00

DATE: OCTOBER 30, 2014

PAGE: 2 OF 2

Table 1

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-1 (0-2') 8/4/14	SB-1 (12-14') 8/4/14	SB-2 (0-2') 8/4/14	SB-2 (12-14) 8/4/14	SB-3 (0-2) 8/4/14	SB-3 (12-14) 8/4/14
1,1,1,2-Tetrachloroethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,1,1-Trichloroethane	680	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,1,2,2-Tetrachloroethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,1,2-Trichloroethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,1-Dichloroethane	270	26,000	240,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,1-Dichloroethene	330	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,2,4-Trichlorobenzene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,2,4-Trimethylbenzene	4,700	5,200	19,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,2-Dibromo-3-chloropropane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,2-Dibromoethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,2-Dichlorobenzene	1,100	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,2-Dichloroethane	20	3,100	30,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,2-Dichloropropane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,3,5-Trimethylbenzene	4,700	5,200	19,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,3-Dichlorobenzene	2,400	49,000	280,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,4-Dichlorobenzene	1,800	13,000	130,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
1,4-Dioxane	980	1,300	13,000	<50	<64	<47	<56	<58	<52
2-Butanone	120	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
2-Hexanone	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
4-Methyl-2-pentanone	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Acetone	50	100,000	500,000	**37**	**20**	**5.8**	**10**	**48**	**8.8**
Acrolein	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Acrylonitrile	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Benzene	60	4,800	44,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Bromodichloromethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Bromoform	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Bromomethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Carbon disulfide	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Carbon tetrachloride	760	2,400	22,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Chlorobenzene	1,100	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Chloroethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Chloroform	370	49,000	350,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Chloromethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
cis-1,2-Dichloroethene	250	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
cis-1,3-Dichloropropene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Dibromochloromethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Dibromomethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Dichlorodifluoromethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Ethylbenzene	1,000	41,000	390,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Hexachlorobutadine	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Isopropylbenzene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Methyl acetate	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Methyl tert-butyl ether	930	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Methylene chloride	50	100,000	500,000	<2.5	**12**	<2.4	<2.8	<2.9	<2.6
n-Butylbenzene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
n-Propylbenzene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
o-Xylene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
p- & m- Xylenes	NS	NS	NS	<5.0	<6.4	<4.7	<5.6	<5.8	<5.2
p-Isopropyltoluene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
sec-Butylbenzene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Styrene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
tert-Butyl alcohol (TBA)	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
tert-Butylbenzene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Tetrachloroethene	1,300	19,000	150,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Toluene	700	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
trans-1,2-Dichloroethene	100,000	100,000	500,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
trans-1,3-Dichloropropene	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Trichloroethene	470	21,000	200,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Trichlorofluoromethane	NS	NS	NS	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Vinyl chloride	20	900	13,000	<2.5	<3.2	<2.4	<2.8	<2.9	<2.6
Xylenes (Total)	260	100,000	500,000	<7.5	<9.6	<7.1	<8.4	<8.7	<7.7

[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
NS = No Standard

Table 1 continued.

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-4 (0-2) 8/4/14	SB-4 (3-5) 8/4/14	SB-5 (0-2') 8/4/14	SB-5 (3-5) 8/4/14	SB-6 (0-2) 8/4/14	SB-6 (3-5) 8/4/14
1,1,1,2-Tetrachloroethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,1,1-Trichloroethane	680	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,1,2,2-Tetrachloroethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,1,2-Trichloroethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,1-Dichloroethane	270	26,000	240,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,1-Dichloroethene	330	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,2,4-Trichlorobenzene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,2,4-Trimethylbenzene	4,700	5,200	19,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,2-Dibromo-3-chloropropane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,2-Dibromoethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,2-Dichlorobenzene	1,100	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,2-Dichloroethane	20	3,100	30,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,2-Dichloropropane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,3,5-Trimethylbenzene	4,700	5,200	19,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,3-Dichlorobenzene	2,400	49,000	280,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,4-Dichlorobenzene	1,800	13,000	130,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
1,4-Dioxane	980	1,300	13,000	<48	<62	<56	<60	<44	<54
2-Butanone	120	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
2-Hexanone	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
4-Methyl-2-pentanone	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Acetone	50	100,000	500,000	<2.4	**11**	**8.4**	**15**	**8.6**	**34**
Acrolein	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Acrylonitrile	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Benzene	60	4,800	44,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Bromodichloromethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Bromoform	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Bromomethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Carbon disulfide	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Carbon tetrachloride	760	2,400	22,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Chlorobenzene	1,100	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Chloroethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Chloroform	370	49,000	350,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Chloromethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
cis-1,2-Dichloroethene	250	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
cis-1,3-Dichloropropene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Dibromochloromethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Dibromomethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Dichlorodifluoromethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Ethylbenzene	1,000	41,000	390,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Hexachlorobutadine	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Isopropylbenzene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Methyl acetate	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Methyl tert-butyl ether	930	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Methylene chloride	50	100,000	500,000	<2.4	<3.1	**3.5**	**3.4**	**2.3**	<2.7
n-Butylbenzene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
n-Propylbenzene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
o-Xylene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
p- & m- Xylenes	NS	NS	NS	<4.8	<6.2	<5.6	<3.0	<4.4	<5.4
p-Isopropyltoluene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
sec-Butylbenzene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Styrene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
tert-Butyl alcohol (TBA)	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
tert-Butylbenzene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Tetrachloroethene	1,300	19,000	150,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Toluene	700	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
trans-1,2-Dichloroethene	100,000	100,000	500,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
trans-1,3-Dichloropropene	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Trichloroethene	470	21,000	200,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Trichlorofluoromethane	NS	NS	NS	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Vinyl chloride	20	900	13,000	<2.4	<3.1	<2.8	<3.0	<2.2	<2.7
Xylenes (Total)	260	100,000	500,000	<7.1	<9.4	<8.4	<9.0	<6.7	<8.1

[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 standard
NS = No Standard

Table 1 continued.

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-7 (0-2) 8/4/14	SB-7 (3-5) 8/4/14	SB-8 (0-2) 8/4/14	SB-8 (3-5) 8/4/14	SB-9 (0-2) 8/4/14	SB-9 (12-14) 8/4/14
1,1,1,2-Tetrachloroethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,1,1-Trichloroethane	680	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,1,2,2-Tetrachloroethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,1,2-Trichloroethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,1-Dichloroethane	270	26,000	240,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,1-Dichloroethene	330	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,2,4-Trichlorobenzene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,2,4-Trimethylbenzene	4,700	5,200	19,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,2-Dibromo-3-chloropropane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,2-Dibromoethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,2-Dichlorobenzene	1,100	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,2-Dichloroethane	20	3,100	30,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,2-Dichloropropane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,3,5-Trimethylbenzene	4,700	5,200	19,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,3-Dichlorobenzene	2,400	49,000	280,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,4-Dichlorobenzene	1,800	13,000	130,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
1,4-Dioxane	980	1,300	13,000	<48	<44	<60	<63	<45	<57
2-Butanone	120	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
2-Hexanone	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
4-Methyl-2-pentanone	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Acetone	50	100,000	500,000	**31**	**13**	**40**	**36**	**15**	**11**
Acrolein	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Acrylonitrile	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Benzene	60	4,800	44,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Bromodichloromethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Bromoform	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Bromomethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Carbon disulfide	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Carbon tetrachloride	760	2,400	22,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Chlorobenzene	1,100	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Chloroethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Chloroform	370	49,000	350,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Chloromethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
cis-1,2-Dichloroethene	250	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
cis-1,3-Dichloropropene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Dibromochloromethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Dibromomethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Dichlorodifluoromethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Ethylbenzene	1,000	41,000	390,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Hexachlorobutadine	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Isopropylbenzene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Methyl acetate	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Methyl tert-butyl ether	930	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Methylene chloride	50	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
n-Butylbenzene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
n-Propylbenzene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
o-Xylene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
p- & m- Xylenes	NS	NS	NS	<4.8	<4.4	<6.0	<6.3	<4.5	<5.7
p-Isopropyltoluene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
sec-Butylbenzene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Styrene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
tert-Butyl alcohol (TBA)	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
tert-Butylbenzene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Tetrachloroethene	1,300	19,000	150,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Toluene	700	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	**6.1**
trans-1,2-Dichloroethene	100,000	100,000	500,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
trans-1,3-Dichloropropene	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Trichloroethene	470	21,000	200,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Trichlorofluoromethane	NS	NS	NS	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Vinyl chloride	20	900	13,000	<2.4	<2.2	<3.0	<3.2	<2.3	<2.8
Xylenes (Total)	260	100,000	500,000	<7.2	<6.6	<8.9	<9.5	<6.8	<8.5

[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
NS = No Standard

Table 2

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-1 (0-2') 8/4/14	SB-1 (12-14') 8/4/14	SB-2 (0-2') 8/4/14	SB-2 (12-14) 8/4/14	SB-3 (0-2) 8/4/14	SB-3 (12-14) 8/4/14
Acenaphthene	20,000	100,000	500,000	<227	<46.6	<227	<46.8	<229	<48.0
Acenaphthylene	100,000	100,000	500,000	<227	<46.6	<227	<46.8	<229	<48.0
Acetophenone	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Aniline	48,000	10,000	500,000	<227	<46.6	<227	<46.8	<229	<48.0
Anthracene	100,000	100,000	500,000	**357**	<46.6	<227	<46.8	<229	<48.0
Atrazine	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Benzaldehyde	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Benzidine	NS	NS	NS	<902	<185	<902	<186	<910	<191
Benzo(a)anthracene	1,000	1,000	5,600	**865**	<46.6	**313**	<46.8	<229	<48.0
Benzo(a)pyrene	1,000	1,000	1,000	**843**	<46.6	<227	<46.8	<229	<48.0
Benzo(b)fluoranthene	1,000	1,000	5,600	**674**	<46.6	<227	<46.8	<229	<48.0
Benzo(g,h,i)perylene	100,000	100,000	500,000	<454	<93.3	<454	<93.5	<458	<95.9
Benzoic acid	NS	NS	NS	<616	<127	<616	<127	<621	<130
Benzo(k)fluoranthene	800	3,900	56,000	**829**	<46.6	<227	<46.8	<229	<48.0
Benzyl alcohol	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
Benzyl butyl phthalate	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
1,1'-Biphenyl	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
4-Bromophenyl-phenylether	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Caprolactam	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Carbazole	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
4-Chloro-3-methylphenol	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
4-Chloroaniline	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
Bis(2-chloroethoxy)methane	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Bis(2-chloroethyl)ether	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Bis(2-chloroisopropyl)ether	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2-Chloronaphthalene	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2-Chlorophenol	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
4-Chlorophenyl phenyl ether	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Chrysene	1,000	3,900	56,000	**1,060**	<46.6	**447**	<46.8	<229	**<48.0**
Dibenzo(a,h)anthracene	330	330	560	<227	<46.6	<227	<46.8	<229	<48.0
Dibenzofuran	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Di-n-butyl phthalate	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
1,2-Dichlorobenzene	100,000	100,000	500,000	<227	<46.6	<227	<46.8	<229	<48.0
1,3-Dichlorobenzene	17,000	49,000	280,000	<227	<46.6	<227	<46.8	<229	<48.0
1,4-Dichlorobenzene	980	13,000	130,000	<227	<46.6	<227	<46.8	<229	<48.0
3,3´-Dichlorobenzidine	NS	NS	NS	<902	<185	<902	<186	<910	<191
2,4-Dichlorophenol	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
Diethyl phthalate	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2,4-Dimethylphenol	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Dimethyl phthalate	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
4,6-Dinitro-2-methylphenol	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
2,4-Dinitrophenol	NS	NS	NS	<902	<185	<902	<186	<910	<191
2,4-Dinitrotoluene	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
2,6-Dinitrotoluene	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Di-n-octyl phthalate	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
1,2-Diphenylhydrazine	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Bis(2-ethylhexyl)phthalate	NS	NS	NS	**270**	<46.6	**454**	<46.8	<229	<48.0
Fluoranthene	100,000	100,000	500,000	**2,090**	<46.6	**935**	<46.8	**376**	<48.0
Fluorene	30,000	100,000	500,000	<227	<46.6	<227	<46.8	<229	<48.0
Hexachlorobenzene	33	12	60	<227	<46.6	<227	<46.8	<229	<48.0
Hexachlorobutadiene	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Hexachlorocyclopentadiene	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
Hexachloroethane	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Indeno(1,2,3-c,d)pyrene	500	500	5,600	**274**	<46.6	<227	<46.8	<229	<48.0
Isophorone	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2-Methylnaphthalene	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2-Methylphenol	330	100,000	500,000	<454	<93.3	<454	<93.5	<458	<95.9
3- & 4-Methylphenols	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
Naphthalene	12,000	100,000	500,000	<227	<46.6	<227	<46.8	<229	<48.0
4-Nitroaniline	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
2-Nitroaniline	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
3-Nitroaniline	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
Nitrobenzene	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2-Nitrophenol	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
4-Nitrophenol	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
N-Nitrosodi-n-propylamine	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
N-Nitrosodiumethylamine	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
N-Nitrosodiphenylamine	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
Pentachlorophenol	800	6,700	6,700	<454	<93.3	<454	<93.5	<458	<95.9
Phenanthrene	100,000	100,000	500,000	**1,610**	<46.6	**728**	<46.8	**282**	<48.0
Phenol	330	100,000	500,000	<227	<46.6	<227	<46.8	<229	<48.0
Pyrene	100,000	100,000	500,000	**1,950**	<46.6	**751**	<46.8	**394**	<48.0
1,2,4,5-Tetrachlorobenzene	NS	NS	NS	<454	<93.3	<454	<93.5	<458	<95.9
2,3,4,6-Tetrachlorophenol	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
1,2,4-Tricholobenzene	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2,4,6-Trichlorophenol	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0
2,4,5-Trichlorophenol	NS	NS	NS	<227	<46.6	<227	<46.8	<229	<48.0

[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
NS = No Standard

Table 2 continued.

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-4 (0-2) 8/4/14	SB-4 (3-5) 8/4/14	SB-5 (0-2') 8/4/14	SB-5 (3-5) 8/4/14	SB-6 (0-2) 8/4/14	SB-6 (3-5) 8/4/14
Acenaphthene	20,000	100,000	500,000	<232	<233	<224	**244**	<225	438
Acenaphthylene	100,000	100,000	500,000	<232	<233	<224	<222	<225	425
Acetophenone	NS	NS	NS	<232	<233	<224	<222	<225	<239
Aniline	48,000	10,000	500,000	<232	<233	<224	<222	<225	<239
Anthracene	100,000	100,000	500,000	<232	**305**	<224	**551**	**559**	**901**
Atrazine	NS	NS	NS	<232	<233	<224	<222	<225	<239
Benzaldehyde	NS	NS	NS	<232	<233	<224	<222	<225	<239
Benzidine	NS	NS	NS	<921	<927	<224	<884	<895	<950
Benzo(a)anthracene	1,000	1,000	5,600	<232	**727**	**807**	**1,310**	**1,050**	**2,110**
Benzo(a)pyrene	1,000	1,000	1,000	<232	**559**	**550**	**754**	**462**	**815**
Benzo(b)fluoranthene	1,000	1,000	5,600	<232	**503**	**457**	**805**	**412**	**1,850**
Benzo(g,h,i)perylene	100,000	100,000	500,000	<463	<466	<448	<445	<450	**806**
Benzoic acid	NS	NS	NS	<629	<632	<608	<604	<611	<649
Benzo(k)fluoranthene	800	3,900	56,000	<232	**577**	**585**	**918**	**573**	**1,380**
Benzyl alcohol	NS	NS	NS	<463	<466	<448	<445	<450	<478
Benzyl butyl phthalate	NS	NS	NS	<232	<233	<224	<222	<225	<239
1,1'-Biphenyl	NS	NS	NS	<232	<233	<224	<222	<225	<239
4-Bromophenyl-phenylether	NS	NS	NS	<232	<233	<224	<222	<225	<239
Caprolactam	NS	NS	NS	<232	<233	<224	<222	<225	<239
Carbazole	NS	NS	NS	<232	<233	<224	**281**	<225	**429**
4-Chloro-3-methylphenol	NS	NS	NS	<463	<466	<448	<445	<450	<478
4-Chloroaniline	NS	NS	NS	<463	<466	<448	<445	<450	<478
Bis(2-chloroethoxy)methane	NS	NS	NS	<232	<233	<224	<222	<225	<239
Bis(2-chloroethyl)ether	NS	NS	NS	<232	<233	<224	<222	<225	<239
Bis(2-chloroisopropyl)ether	NS	NS	NS	<232	<233	<224	<222	<225	<239
2-Chloronaphthalene	NS	NS	NS	<232	<233	<224	<222	<225	<239
2-Chlorophenol	NS	NS	NS	<232	<233	<224	<222	<225	<239
4-Chlorophenyl phenyl ether	NS	NS	NS	<232	<233	<224	<222	<225	<239
Chrysene	1,000	3,900	56,000	**277**	**884**	**832**	**1,480**	**1,380**	**2,870**
Dibenzo(a,h)anthracene	330	330	560	<232	<233	<224	<222	<225	**419**
Dibenzofuran	NS	NS	NS	<232	<233	<224	<222	<225	<239
Di-n-butyl phthalate	NS	NS	NS	<232	<233	<224	<222	<225	<239
1,2-Dichlorobenzene	100,000	100,000	500,000	<232	<233	<224	<222	<225	<239
1,3-Dichlorobenzene	17,000	49,000	280,000	<232	<233	<224	<222	<225	<239
1,4-Dichlorobenzene	980	13,000	130,000	<232	<233	<224	<222	<225	<239
3,3´-Dichlorobenzidine	NS	NS	NS	<921	<927	<891	<884	<895	<950
2,4-Dichlorophenol	NS	NS	NS	<463	<466	<448	<445	<450	<478
Diethyl phthalate	NS	NS	NS	<232	<233	<224	<222	<225	<239
2,4-Dimethylphenol	NS	NS	NS	<232	<233	<224	<222	<225	<239
Dimethyl phthalate	NS	NS	NS	<232	<233	<224	<222	<225	<239
4,6-Dinitro-2-methylphenol	NS	NS	NS	<463	<466	<448	<445	<450	<478
2,4-Dinitrophenol	NS	NS	NS	<921	<927	<891	<884	<895	<950
2,4-Dinitrotoluene	NS	NS	NS	<463	<466	<448	<445	<450	<478
2,6-Dinitrotoluene	NS	NS	NS	<232	<233	<224	<222	<225	<239
Di-n-octyl phthalate	NS	NS	NS	<232	<233	<224	<222	<225	<239
1,2-Diphenylhydrazine	NS	NS	NS	<232	<233	<224	<222	<225	<239
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<232	**279**	<224	<222	**400**	<239
Fluoranthene	100,000	100,000	500,000	<232	**1,720**	**1,810**	**3,050**	**3,130**	**5,110**
Fluorene	30,000	100,000	500,000	<232	<233	<224	<222	<225	**332**
Hexachlorobenzene	33	12	60	<232	<233	<224	<222	<225	<239
Hexachlorobutadiene	NS	NS	NS	<232	<233	<224	<222	<225	<239
Hexachlorocyclopentadiene	NS	NS	NS	<463	<466	<448	<445	<450	<478
Hexachloroethane	NS	NS	NS	<232	<233	<224	<222	<225	<239
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<232	<233	<224	**328**	<225	**996**
Isophorone	NS	NS	NS	<232	<233	<224	<222	<225	<239
2-Methylnaphthalene	NS	NS	NS	<232	<233	<224	<222	<225	<239
2-Methylphenol	330	100,000	500,000	<463	<466	<448	<445	<450	<478
3- & 4-Methylphenols	NS	NS	NS	<463	<466	<448	<445	<450	<478
Naphthalene	12,000	100,000	500,000	<232	<233	<224	<222	<225	<239
4-Nitroaniline	NS	NS	NS	<463	<466	<448	<445	<450	<478
2-Nitroaniline	NS	NS	NS	<232	<233	<224	<222	<225	<239
3-Nitroaniline	NS	NS	NS	<463	<466	<448	<445	<450	<478
Nitrobenzene	NS	NS	NS	<232	<233	<224	<222	<225	<239
2-Nitrophenol	NS	NS	NS	<232	<233	<224	<222	<225	<239
4-Nitrophenol	NS	NS	NS	<463	<466	<448	<445	<450	<478
N-Nitrosodi-n-propylamine	NS	NS	NS	<232	<233	<224	<222	<225	<239
N-Nitrosodiumethylamine	NS	NS	NS	<463	<466	<448	<445	<450	<478
N-Nitrosodiphenylamine	NS	NS	NS	<232	<233	<224	<222	<225	<239
Pentachlorophenol	800	6,700	6,700	<463	<466	<448	<445	<450	<478
Phenanthrene	100,000	100,000	500,000	**340**	**1,350**	**770**	**2,320**	**2,340**	**3,330**
Phenol	330	100,000	500,000	<232	<233	<224	<222	<225	<239
Pyrene	100,000	100,000	500,000	**478**	**1,640**	**1,560**	**2,370**	**2,550**	**4,270**
1,2,4,5-Tetrachlorobenzene	NS	NS	NS	<463	<466	<448	<445	<450	<478
2,3,4,6-Tetrachlorophenol	NS	NS	NS	<232	<233	<224	<222	<225	<239
1,2,4-Tricholobenzene	NS	NS	NS	<232	<233	<224	<222	<225	<239
2,4,6-Trichlorophenol	NS	NS	NS	<232	<233	<224	<222	<225	<239
2,4,5-Trichlorophenol	NS	NS	NS	<232	<233	<224	<222	<225	<239

[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
NS = No Standard

Table 2

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-7 (0-2) 8/4/14	SB-7 (3-5) 8/4/14	SB-8 (0-2) 8/4/14	SB-8 (3-5) 8/4/14	SB-9 (0-2) 8/4/14	SB-9 (12-14) 8/4/14
Acenaphthene	20,000	100,000	500,000	<229	**96.3**	<228	<234	<232	<46.1
Acenaphthylene	100,000	100,000	500,000	<229	<48.5	<228	<234	<232	<46.1
Acetophenone	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Aniline	48,000	10,000	500,000	<229	<48.5	<228	<234	<232	<46.1
Anthracene	100,000	100,000	500,000	**305**	**208**	**432**	<234	**559**	<46.1
Atrazine	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Benzaldehyde	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Benzidine	NS	NS	NS	<910	<193	<908	<929	<922	<183
Benzo(a)anthracene	1,000	1,000	5,600	**774**	**368**	**981**	**562**	**1,130**	<46.1
Benzo(a)pyrene	1,000	1,000	1,000	**603**	**277**	**655**	**412**	**995**	<46.1
Benzo(b)fluoranthene	1,000	1,000	5,600	**509**	**253**	**577**	**376**	**809**	<46.1
Benzo(g,h,i)perylene	100,000	100,000	500,000	<458	**116**	<457	<467	<464	<92.2
Benzoic acid	NS	NS	NS	<621	<132	<620	<634	<629	<125
Benzo(k)fluoranthene	800	3,900	56,000	**730**	**289**	**776**	**458**	**1,040**	<46.1
Benzyl alcohol	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
Benzyl butyl phthalate	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
1,1'-Biphenyl	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
4-Bromophenyl-phenylether	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Caprolactam	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Carbazole	NS	NS	NS	<229	**87.8**	<228	<234	<232	<46.1
4-Chloro-3-methylphenol	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
4-Chloroaniline	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
Bis(2-chloroethoxy)methane	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Bis(2-chloroethyl)ether	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Bis(2-chloroisopropyl)ether	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2-Chloronaphthalene	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2-Chlorophenol	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
4-Chlorophenyl phenyl ether	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Chrysene	1,000	3,900	56,000	**1,000**	**376**	**1,210**	**732**	**1,350**	<46.1
Dibenzo(a,h)anthracene	330	330	560	<229	**59.7**	<228	<234	<232	<46.1
Dibenzofuran	NS	NS	NS	<229	**77.1**	<228	<234	<232	<46.1
Di-n-butyl phthalate	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
1,2-Dichlorobenzene	100,000	100,000	500,000	<229	<48.5	<228	<234	<232	<46.1
1,3-Dichlorobenzene	17,000	49,000	280,000	<229	<48.5	<228	<234	<232	<46.1
1,4-Dichlorobenzene	980	13,000	130,000	<229	<48.5	<228	<234	<232	<46.1
3,3´-Dichlorobenzidine	NS	NS	NS	<910	<193	<908	<929	<922	<183
2,4-Dichlorophenol	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
Diethyl phthalate	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2,4-Dimethylphenol	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Dimethyl phthalate	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
4,6-Dinitro-2-methylphenol	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
2,4-Dinitrophenol	NS	NS	NS	<910	<193	<908	<929	<922	<183
2,4-Dinitrotoluene	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
2,6-Dinitrotoluene	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Di-n-octyl phthalate	NS	NS	NS	<229	<48.5	<228	**588**	<232	<46.1
1,2-Diphenylhydrazine	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<229	<48.5	<228	**356**	<232	<46.1
Fluoranthene	100,000	100,000	500,000	**1,670**	<48.5	**2,420**	**1,250**	**2,940**	<46.1
Fluorene	30,000	100,000	500,000	<229	<48.5	<228	<234	<232	<46.1
Hexachlorobenzene	33	12	60	<229	<48.5	<228	<234	<232	<46.1
Hexachlorobutadiene	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Hexachlorocyclopentadiene	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
Hexachloroethane	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<229	<48.5	<228	<234	**291**	<46.1
Isophorone	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2-Methylnaphthalene	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2-Methylphenol	330	100,000	500,000	<458	<97.1	<457	<467	<464	<92.2
3- & 4-Methylphenols	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
Naphthalene	12,000	100,000	500,000	<229	<48.5	**305**	<234	**280**	<46.1
4-Nitroaniline	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
2-Nitroaniline	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
3-Nitroaniline	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
Nitrobenzene	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2-Nitrophenol	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
4-Nitrophenol	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
N-Nitrosodi-n-propylamine	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
N-Nitrosodiumethylamine	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
N-Nitrosodiphenylamine	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
Pentachlorophenol	800	6,700	6,700	<458	<97.1	<457	<467	<464	<92.2
Phenanthrene	100,000	100,000	500,000	**843**	<48.5	**1,990**	**723**	**2,760**	<46.1
Phenol	330	100,000	500,000	<229	<48.5	<228	<234	<232	<46.1
Pyrene	100,000	100,000	500,000	**1,750**	<48.5	**2,380**	**1,290**	**2,660**	<46.1
1,2,4,5-Tetrachlorobenzene	NS	NS	NS	<458	<97.1	<457	<467	<464	<92.2
2,3,4,6-Tetrachlorophenol	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
1,2,4-Tricholobenzene	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2,4,6-Trichlorophenol	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1
2,4,5-Trichlorophenol	NS	NS	NS	<229	<48.5	<228	<234	<232	<46.1

[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
NS = No Standard

Table 3

PCBs and Pesticides in Soil (ug/kg-dry)
EPA Method 8081/8082
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-1 (0-2') 8/4/14	SB-1 (12-14') 8/4/14	SB-2 (0-2') 8/4/14	SB-2 (12-14) 8/4/14	SB-3 (0-2) 8/4/14	SB-3 (12-14) 8/4/14
Toxaphene	NS	NS	NS	<90.2	<92.7	<90.2	<93.0	<91.0	<95.3
Methoxychlor	NS	NS	NS	<8.92	<9.16	<8.92	<9.19	<8.99	<9.42
Heptachlor epoxide	NS	NS	NS	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Heptachlor	42	420	15,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
gamma-BHC	100	280	9,200	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Endrin ketone	NS	NS	NS	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Endrin aldehyde	NS	NS	NS	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Endrin	14	2,200	89,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Endosulfan sulfate	2,400	4,800	200,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Endosulfan II	2,400	4,800	200,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Endosulfan I	2,400	4,800	200,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Dieldrin	5	39	1,400	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
delta-BHC	40	100,000	500,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Chlordane, total	NS	NS	NS	**31.5**	<7.33	**24.3**	<7.35	**36.3**	<7.54
beta-BHC	36	72	3,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
alpha-BHC	20	97	3,400	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Aldrin	5	19	680	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
4,4´-DDT	3.3	1,700	47,000	**9.46**	<1.83	**6.95**	<1.84	**11.4**	<1.88
4,4´-DDE	3.3	1,800	62,000	<1.78	<1.83	**2.99**	<1.84	<1.80	<1.88
4,4´-DDD	3.3	2,600	92,000	<1.78	<1.83	<1.78	<1.84	<1.80	<1.88
Aroclor 1260	100	1,000	1,000	<18.4	<18.9	<18.4	<18.9	<18.5	<19.4
Aroclor 1254	100	1,000	1,000	<18.4	<18.9	<18.4	<18.9	<18.5	<19.4
Aroclor 1248	100	1,000	1,000	<18.4	<18.9	<18.4	<18.9	<18.5	<19.4
Aroclor 1242	100	1,000	1,000	<18.4	<18.9	<18.4	<18.9	<18.5	<19.4
Aroclor 1232	100	1,000	1,000	<18.4	<18.9	<18.4	<18.9	<18.5	<19.4
Aroclor 1221	100	1,000	1,000	<18.4	<18.9	<18.4	<18.9	<18.5	<19.4
Aroclor 1016	100	1,000	1,000	<18.4	<18.9	<18.4	<18.9	<18.5	<19.4

[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
NS = No Standard

Table 3 continued.

PCBs and Pesticides in Soil (ug/kg-dry)
EPA Method 8081/8082
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-4 (0-2) 8/4/14	SB-4 (3-5) 8/4/14	SB-5 (0-2') 8/4/14	SB-5 (3-5) 8/4/14	SB-6 (0-2) 8/4/14	SB-6 (3-5) 8/4/14
Toxaphene	NS	NS	NS	<92.1	<92.7	<89.1	<88.4	<89.5	<95.0
Methoxychlor	NS	NS	NS	<9.10	<9.15	<8.80	<8.74	<8.84	<9.39
Heptachlor epoxide	NS	NS	NS	<1.82	<1.83	**3.22**	<1.75	**1.98**	<1.88
Heptachlor	42	420	15,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
gamma-BHC	100	280	9,200	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Endrin ketone	NS	NS	NS	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Endrin aldehyde	NS	NS	NS	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Endrin	14	2,200	89,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Endosulfan sulfate	2,400	4,800	200,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Endosulfan II	2,400	4,800	200,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Endosulfan I	2,400	4,800	200,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Dieldrin	5	39	1,400	<1.82	<1.83	<1.76	**3.02**	<1.77	<1.88
delta-BHC	40	100,000	500,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Chlordane, total	NS	NS	NS	**57.0**	<7.32	**113**	**6.99**	**81.2**	<7.51
beta-BHC	36	72	3,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
alpha-BHC	20	97	3,400	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Aldrin	5	19	680	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
4,4´-DDT	3.3	1,700	47,000	**12.2**	**7.33**	**9.37**	**22.7**	**7.69**	**52.3**
4,4´-DDE	3.3	1,800	62,000	<1.82	<1.83	<1.76	**1.98**	**2.58**	**4.37**
4,4´-DDD	3.3	2,600	92,000	<1.82	<1.83	<1.76	<1.75	<1.77	<1.88
Aroclor 1260	100	1,000	1,000	<18.7	<18.9	**19.1**	<18.0	<18.2	<19.3
Aroclor 1254	100	1,000	1,000	<18.7	<18.9	<18.1	<18.0	<18.2	<19.3
Aroclor 1248	100	1,000	1,000	<18.7	<18.9	<18.1	<18.0	<18.2	<19.3
Aroclor 1242	100	1,000	1,000	<18.7	<18.9	<18.1	<18.0	<18.2	<19.3
Aroclor 1232	100	1,000	1,000	<18.7	<18.9	<18.1	<18.0	<18.2	<19.3
Aroclor 1221	100	1,000	1,000	<18.7	<18.9	<18.1	<18.0	<18.2	<19.3
Aroclor 1016	100	1,000	1,000	<18.7	<18.9	<18.1	<18.0	<18.2	<19.3

[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 standard
NS = No Standard

Table 3 continued.

PCBs and Pesticides in Soil (ug/kg-dry)
EPA Method 8081/8082
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-7 (0-2) 8/4/14	SB-7 (3-5) 8/4/14	SB-8 (0-2) 8/4/14	SB-8 (3-5) 8/4/14	SB-9 (0-2) 8/4/14	SB-9 (12-14) 8/4/14
Toxaphene	NS	NS	NS	<91.0	<96.5	<90.8	<92.9	<92.2	<91.7
Methoxychlor	NS	NS	NS	<8.99	<9.54	<8.98	<9.18	<9.11	<9.06
Heptachlor epoxide	NS	NS	NS	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Heptachlor	42	420	15,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
gamma-BHC	100	280	9,200	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Endrin ketone	NS	NS	NS	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Endrin aldehyde	NS	NS	NS	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Endrin	14	2,200	89,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Endosulfan sulfate	2,400	4,800	200,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Endosulfan II	2,400	4,800	200,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Endosulfan I	2,400	4,800	200,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Dieldrin	5	39	1,400	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
delta-BHC	40	100,000	500,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Chlordane, total	NS	NS	NS	<7.19	<7.63	<7.18	<7.34	<7.28	<7.25
beta-BHC	36	72	3,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
alpha-BHC	20	97	3,400	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Aldrin	5	19	680	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
4,4´-DDT	3.3	1,700	47,000	<1.80	<1.91	**7.67**	**3.71**	**7.19**	<1.81
4,4´-DDE	3.3	1,800	62,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
4,4´-DDD	3.3	2,600	92,000	<1.80	<1.91	<1.80	<1.84	<1.82	<1.81
Aroclor 1260	100	1,000	1,000	<18.5	<19.7	<18.5	<18.9	<18.8	<18.7
Aroclor 1254	100	1,000	1,000	**125**	<19.7	<18.5	<18.9	<18.8	<18.7
Aroclor 1248	100	1,000	1,000	<18.5	<19.7	<18.5	<18.9	<18.8	<18.7
Aroclor 1242	100	1,000	1,000	<18.5	<19.7	<18.5	<18.9	<18.8	<18.7
Aroclor 1232	100	1,000	1,000	<18.5	<19.7	<18.5	<18.9	<18.8	<18.7
Aroclor 1221	100	1,000	1,000	<18.5	<19.7	<18.5	<18.9	<18.8	<18.7
Aroclor 1016	100	1,000	1,000	<18.5	<19.7	<18.5	<18.9	<18.8	<18.7

[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
NS = No Standard

Table 4

Metals in Soil (mg/kg-dry)
EPA Method 6010
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-1 (0-2) 8/4/14	SB-1 (12-14) 8/4/14	SB-2 (0-2) 8/4/14	SB-2 (12-14) 8/4/14	SB-3 (0-2) 8/4/14	SB-3 (12-14) 8/4/14
Aluminum	NS	NS	NS	8,820	5,140	10,900	7,230	10,500	6,810
Antimony	NS	NS	NS	<0.540	<0.555	<0.540	<0.557	<0.545	<0.571
Arsenic	13	16	16	5.20	2.00	10.1	1.57	6.04	1.71
Barium	350	400	400	135	24.2	232	41.4	154	38.8
Beryllium	7.2	72	590	<0.108	<0.111	8.91	<0.111	2.31	<0.114
Cadmium	2.5	4.3	9.3	<0.324	<0.333	<0.325	<0.334	<0.327	<0.343
Calcium	NS	NS	NS	26,100	631	55,500	1,140	26,900	2,050
Chromium	30	180	1,500	22.8	12.2	59.7	15.3	38.9	17.2
Cobalt	NS	NS	NS	6.60	5.44	24.3	7.00	13.6	8.04
Copper	50	270	270	46.3	11.6	350	13.3	158	15.6
Iron	NS	NS	NS	16,800	10,300	23,400	13,900	20,600	14,400
Lead	63	400	1,000	182	4.09	362	4.92	259	4.21
Magnesium	NS	NS	NS	5,300	1,900	5,950	2,970	5,250	4,150
Manganese	1,600	2,000	10,000	274	237	684	439	528	446
Mercury	0.18	0.81	2.8	0.419	<0.0333	0.244	<0.0334	0.178	<0.0343
Nickel	30	310	310	16.1	11.4	62.7	14.9	30.5	16.3
Potassium	NS	NS	NS	1,310	645	1,430	1,380	1,410	1,150
Selenium	3.9	180	1,500	1.75	1.32	2.29	1.73	2.98	1.75
Silver	2	180	1,500	<0.540	<0.555	<0.540	<0.557	<0.545	<0.571
Sodium	NS	NS	NS	422	53.1	1,080	98.8	487	119
Thallium	NS	NS	NS	<1.08	<1.11	<1.08	<1.11	<1.09	<1.14
Vanadium	NS	NS	NS	23.8	15.7	22.1	21.4	30.1	24.6
Zinc	109	10,000	10,000	217	19.1	2,640	44.4	1,080	39.0

[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
NS = No Standard

Table 4 continued.

Metals in Soil (mg/kg-dry)
EPA Method 6010
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-4 (0-2) 8/4/14	SB-4 (3-5) 8/4/14	SB-5 (0-2') 8/4/14	SB-5 (3-5) 8/4/14	SB-6 (0-2) 8/4/14	SB-6 (3-5) 8/4/14
Aluminum	NS	NS	NS	9,510	8,840	8,850	5,880	10,700	7,740
Antimony	NS	NS	NS	<0.551	<0.555	<0.534	0.831	<0.536	<0.569
Arsenic	13	16	16	3.66	8.30	2.83	6.41	20.5	7.94
Barium	350	400	400	88.9	216	135	216	208	247
Beryllium	7.2	72	590	0.272	6.37	9.03	<0.106	15.6	<0.114
Cadmium	2.5	4.3	9.3	<0.331	<0.333	<0.320	<0.318	<0.321	1.54
Calcium	NS	NS	NS	9,730	31,800	7,550	4,920	26,300	9,620
Chromium	30	180	1,500	26.2	46.7	67.6	14.6	94.1	18.6
Cobalt	NS	NS	NS	9.89	22.3	53.4	5.46	40.3	5.92
Copper	50	270	270	53.2	326	735	47.3	738	90.9
Iron	NS	NS	NS	20,700	23,100	31,100	12,100	48,500	17,300
Lead	63	400	1,000	105	422	865	558	617	709
Magnesium	NS	NS	NS	3,220	3,770	4,020	2,640	3,880	2,150
Manganese	1,600	2,000	10,000	313	380	435	290	485	360
Mercury	0.18	0.81	2.8	0.103	0.379	0.242	0.295	0.507	3.02
Nickel	30	310	310	18.6	53.4	178	15.9	101	18.5
Potassium	NS	NS	NS	1,600	1,190	1,550	801	1,730	742
Selenium	3.9	180	1,500	3.36	3.17	2.19	1.83	3.19	2.34
Silver	2	180	1,500	<0.551	<0.555	<0.534	0.794	<0.536	1.39
Sodium	NS	NS	NS	259	750	732	137	1,230	137
Thallium	NS	NS	NS	<1.10	<1.11	<1.07	<1.06	<1.07	<1.14
Vanadium	NS	NS	NS	31.2	20.3	28.6	22.7	27.7	29.4
Zinc	109	10,000	10,000	326	2,270	6,290	316	4,450	768

[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
NS = No Standard

Table 4 continued.

Metals in Soil (mg/kg-dry)
EPA Method 6010
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-7 (0-2) 8/4/14	SB-7 (3-5) 8/4/14	SB-8 (0-2) 8/4/14	SB-8 (3-5) 8/4/14	SB-9 (0-2) 8/4/14	SB-9 (12-14) 8/4/14
Aluminum	NS	NS	NS	7,880	9,420	8,260	7,130	8,090	6,820
Antimony	NS	NS	NS	<0.545	<0.578	0.775	1.53	<0.552	<0.549
Arsenic	13	16	16	5.47	4.41	5.54	7.36	6.99	2.04
Barium	350	400	400	169	71.4	134	192	237	42.7
Beryllium	7.2	72	590	<0.109	<0.116	<0.109	<0.111	1.24	<0.110
Cadmium	2.5	4.3	9.3	<0.327	<0.347	<0.326	0.824	<0.331	<0.329
Calcium	NS	NS	NS	24,500	3,250	42,400	38,100	38,600	2,080
Chromium	30	180	1,500	18.8	16.6	19.0	16.1	27.3	16.5
Cobalt	NS	NS	NS	5.06	6.65	4.97	6.63	13.7	8.01
Copper	50	270	270	117	20.4	42.1	82.3	136	22.1
Iron	NS	NS	NS	12,900	13,500	13,500	16,200	14,100	14,300
Lead	63	400	1,000	244	160	345	301	297	4.57
Magnesium	NS	NS	NS	3,250	2,840	3,820	4,430	3,790	4,160
Manganese	1,600	2,000	10,000	251	316	270	741	272	356
Mercury	0.18	0.81	2.8	0.300	0.465	0.317	0.451	0.329	<0.0329
Nickel	30	310	310	12.7	14.4	12.9	14.7	31.6	17.0
Potassium	NS	NS	NS	1,180	952	1,090	1,120	1,080	1,620
Selenium	3.9	180	1,500	1.95	2.49	1.79	2.34	1.87	2.11
Silver	2	180	1,500	<0.545	<0.578	<0.544	<0.556	<0.552	<0.549
Sodium	NS	NS	NS	298	182	492	444	608	191
Thallium	NS	NS	NS	<1.09	<1.16	<1.09	<1.11	<1.10	<1.10
Vanadium	NS	NS	NS	19.5	24.2	18.5	19.1	20.9	22.9
Zinc	109	10,000	10,000	176	143	278	230	1,060	79.9

[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
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NS = No Standard

Table 5

Volatile Organic Compounds in Groundwater (ug/l)
EPA Method 8260
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	Standard [1]	TW-1 8/7/14	TW-2 8/7/14	TW-5 8/7/14
1,1,1,2-Tetrachloroethane	5	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	5	<0.20	<0.20	<0.20
1,1,2,2-Tetrachloroethane	0.2	<0.20	<0.20	<0.20
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	1	<0.20	<0.20	<0.20
1,1-Dichloroethane	5	<0.20	<0.20	<0.20
1,1-Dichloroethene	0.7	<0.20	<0.20	<0.20
1,2,4-Trichlorobenzene	5	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	5	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane	0.04	<0.20	<0.20	<0.20
1,2-Dibromoethane	NS	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	2	<0.20	<0.20	<0.20
1,2-Dichloroethane	0.6	<0.20	<0.20	<0.20
1,2-Dichloropropane	1	<0.20	<0.20	<0.20
1,3,5-Trimethylbenzene	5	<0.20	<0.20	<0.20
1,3-Dichlorobenzene	3	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	3	<0.20	<0.20	<0.20
1,4-Dioxane	NS	<40	<40	<40
2-Butanone	50	<0.50	<0.50	**1.1**
2-Hexanone	50	<0.20	<0.20	<0.20
4-Methyl-2-pentanone	NS	<0.20	<0.20	<0.20
Acetone	50	**4.2**	**3.1**	**9.7**
Acrolein	NS	<0.20	<0.20	<0.20
Acrylonitrile	5	<0.20	<0.20	<0.20
Benzene	0.7	<0.20	<0.20	<0.20
Bromodichloromethane	50	**0.51**	**0.23**	0.23
Bromoform	50	<0.20	<0.20	<0.20
Bromomethane	5	<0.20	<0.20	<0.20
Carbon disulfide	NS	<0.20	<0.20	<0.20
Carbon tetrachloride	5	<0.20	<0.20	<0.20
Chlorobenzene	5	<0.20	<0.20	<0.20
Chloroethane	5	<0.20	<0.20	<0.20
Chloroform	7	**16**	**5.1**	**0.23**
Chloromethane	NS	<0.20	<0.20	<0.20
cis-1,2-Dichloroethene	5	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	0.4	<0.20	<0.20	<0.20
Dibromochloromethane	50	<0.20	<0.20	<0.20
Dibromomethane	5	<0.20	<0.20	<0.20
Dichlorodifluoromethane	5	<0.20	<0.20	<0.20
Ethylbenzene	5	<0.20	<0.20	<0.20
Hexachlorobutadiene	0.5	<0.20	<0.20	<0.20
Isopropylbenzene	5	<0.20	<0.20	<0.20
Methyl Acetate	NS	<0.20	<0.20	<0.20
Methyl tert-butyl ether	10	<0.20	<0.20	<0.20
Methylene chloride	5	<1.0	<1.0	<1.0
n-Butylbenzene	5	<0.20	<0.20	<0.20
n-Propylbenzene	5	<0.20	<0.20	<0.20
o-Xylene	5	<0.20	<0.20	<0.20
p- & m-Xylenes	5	<0.50	<0.50	<0.50
p-Isopropyltoluene	5	<0.20	<0.20	<0.20
sec-Butylbenzene	5	<0.20	<0.20	<0.20
Styrene	50	<0.20	<0.20	<0.20
tert-Butyl alcohol (TBA)	NS	<0.50	<0.50	<0.50
tert-Butylbenzene	5	<0.20	<0.20	<0.20
Tetrachloroethene	5	**0.23**	**0.25**	<0.20
Toluene	5	<0.20	<0.20	<0.20
trans-1,2-Dichloroethene	5	<0.20	<0.20	<0.20
trans-1,3-Dichloropropene	NS	<0.20	<0.20	<0.20
Trichloroethene	5	<0.20	<0.20	<0.20
Trichlorofluoromethane	5	<0.20	<0.20	<0.20
Vinyl chloride	2	<0.50	<0.50	<0.50
Xylene (total)	15	<0.60	<0.60	<0.60

[1] NYS DEC TOGS 1.1.1, June, 1998
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NS = No Standard

Table 6

Semi Volatile Organic Compounds in Groundwater (ug/l)
EPA Method 8270
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	Standard [1]	TW-1 8/7/14	TW-2 8/7/14	TW-5 8/7/14
Acenaphthene	20	<0.0870	<0.0833	<0.0606
Acenaphthylene	NS	<0.0870	<0.0833	<0.0606
Acetophenone	NS	<4.35	<4.17	<3.03
Anthracene	50	<4.35	<4.17	<3.03
Atrazine	7.5	<0.0870	<0.0833	<0.0606
Benzaldehyde	NS	<0.870	<0.833	<0.606
Benzidine	5	<4.35	<4.17	<3.03
Benzo(a)anthracene	NS	<17.4	<16.7	<12.1
Benzo(a)pyrene	NS	<0.0870	<0.0833	<0.0606
Benzo(b)fluoranthene	0.002	<0.0870	<0.0833	<0.0606
Benzo(g,h,i)perylene	NS	<0.0870	<0.0833	<0.0606
Benzoic acid	NS	<43.5	<41.7	<30.3
Benzo(k)fluoranthene	0.002	<0.0870	<0.0833	<0.0606
Benzyl alcohol	NS	<4.35	<4.17	<3.03
Benzyl butyl phthalate	50	<4.35	<4.17	<3.03
1,1´-Biphenyl	5	<4.35	<4.17	<3.03
4-Bromophenyl-phenylether	NS	<4.35	<4.17	<3.03
Caprolactam	NS	<4.35	<4.17	<3.03
Carbazole	NS	<4.35	<4.17	<3.03
Bis(2-chloroethoxy)methane	5	<4.35	<4.17	<3.03
Bis(2-chloroethyl)ether	1	<4.35	<4.17	<3.03
Bis(2-chloroisopropyl)ether	5	<4.35	<4.17	<3.03
2-Chloronaphthalene	10	<4.35	<4.17	<3.03
2-Chlorophenol	NS	<4.35	<4.17	<3.03
4-Chlorophenyl phenyl ether	NS	<4.35	<4.17	<3.03
Chrysene	0.002	<0.0870	<0.0833	<0.0606
Dibenzo(a,h)anthracene	NS	<0.0870	<0.0833	<0.0606
Dibenzofuran	NS	<4.35	<4.17	<3.03
Di-n-butyl phthalate	50	<4.35	<4.17	<3.03
1,4-Dichlorobenzene	3	<4.35	<4.17	<3.03
1,2-Dichlorobenzene	3	<4.35	<4.17	<3.03
1,3-Dichlorobenzene	3	<4.35	<4.17	<3.03
3,3´-Dichlorobenzidine	5	<4.35	<4.17	<3.03
2,4-Dichlorophenol	0.3	<4.35	<4.17	<3.03
Diethyl phthalate	50	<4.35	<4.17	<3.03
2,4-Dimethylphenol	50	<4.35	<4.17	<3.03
Dimethyl phthalate	50	<4.35	<4.17	<3.03
4,6-Dinitro-2-methylphenol	NS	<4.35	<4.17	<3.03
2,4-Dinitrophenol	10	<4.35	<4.17	<3.03
2,4-Dinitrotoluene	5	<4.35	<4.17	<3.03
2,6-Dinitrotoluene	0.07	<4.35	<4.17	<3.03
Di-n-octyl phthalate	50	<4.35	<4.17	<3.03
1,2-Diphenyhydrazine	NS	<4.35	<4.17	<3.03
Bis(2-ethylhexyl)phthalate	5	<0.870	**1.83**	**1.08**
Fluoranthene	50	<0.0870	<0.0833	**0.0727**
Fluorene	50	<0.0870	<0.0833	<0.0606
Hexachlorobenzene	0.04	<0.0870	<0.0833	<0.0242
Hexachlorobutadiene	0.5	<0.870	<0.833	<0.606
Hexachlorocyclopentadiene	5	<4.35	<4.17	<3.03
Hexachloroethane	5	<0.870	<0.833	<0.606
Indeno(1,2,3-c,d)pyrene	0.002	<0.0870	<0.0833	<0.0606
Isophorone	50	<4.35	<4.17	<3.03
2-Methylnaphthalene	42	<4.35	<4.17	<3.03
2-Methylphenol	NS	<4.35	<4.17	<3.03
3- & 4-Methylphenol	NS	<4.35	<4.17	<3.03
Naphthalene	10	<0.0870	<0.0833	<0.0606
3-Nitroaniline	5	<4.35	<4.17	<3.03
4-Nitroaniline	5	<4.35	<4.17	<3.03
2-Nitroaniline	5	<4.35	<4.17	<3.03
Nitrobenzene	0.4	<0.435	<0.417	<0.435
4-Nitrophenol	NS	<4.35	<4.17	<3.03
2-Nitrophenol	NS	<4.35	<4.17	<3.03
N-Nitrosodi-n-propylamine	NS	<4.35	<4.17	<3.03
N-Nitrosodimethylamine	NS	<0.870	<0.833	<0.606
N-Nitrosodiphenylamine	50	<4.35	<4.17	<3.03
Pentachlorophenol	NS	<0.435	<0.417	<0.435
Phenanthrene	50	<0.0870	<0.0833	**0.0848**
Phenol	NS	<4.35	<4.17	<3.03
Pyrene	50	<0.0870	<0.0833	**0.0727**
1,2,4,5-Tetrachlorobenzene		<4.35	<4.17	<3.03
2,3,4,6-Tetrachlorophenol		<4.35	<4.17	<3.03
1,2,4-Trichlorobenzene	50	<4.35	<4.17	<3.03
2,4,6-Trichlorophenol	NS	<4.35	<4.17	<3.03
2,4,5-Trichlorophenol	NS	<4.35	<4.17	<3.03

[1] NYS DEC TOGS 1.1.1, June, 1998
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NS = No Standard

Table 7

PCBs and Pesticides in Groundwater (ug/l)
EPA Method 8081/8082
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	Standard [1]	TW-1 8/7/14	TW-2 8/7/14	TW-5 8/7/14
Toxaphene	0.06	<0.133	<0.222	NA
Methoxychlor	NS	<0.00533	<0.00889	NA
Heptachlor epoxide	0.02	<0.00533	<0.00889	NA
Heptachlor	0.1	<0.00533	<0.00889	NA
gamma-BHC	0.06	<0.00533	<0.00889	NA
Endrin ketone	NS	<0.0133	<0.0222	NA
Endrin aldehyde	NS	<0.0133	<0.0222	NA
Endrin	0.1	<0.00533	<0.00889	NA
Endosulfan sulfate	1	<0.00533	<0.00889	NA
Endosulfan II	0.9	<0.00533	<0.00889	NA
Endosulfan I	0.9	<0.00533	<0.00889	NA
Dieldrin	0.044	<0.00267	<0.00205	NA
delta-BHC	0.3	<0.00533	<0.00889	NA
Chlordane, total	0.05	<0.0533	<0.0889	NA
beta-BHC	0.2	<0.00533	<0.00889	NA
alpha-BHC	0.11	<0.00533	<0.00889	NA
Aldrin	0.041	<0.00533	<0.00889	NA
4,4´-DDT	2.1	<0.00533	<0.00889	NA
4,4´-DDE	2.1	<0.00533	<0.00889	NA
4,4´-DDD	2.9	<0.00533	<0.00889	NA
Aroclor 1260	10	<0.0563	<0.0938	NA
Aroclor 1254	10	<0.0563	<0.0938	NA
Aroclor 1248	10	<0.0807	<0.0807	NA
Aroclor 1242	10	<0.0807	<0.0807	NA
Aroclor 1232	10	<0.0807	<0.0807	NA
Aroclor 1221	10	<0.0807	<0.0807	NA
Aroclor 1016	10	<0.0807	<0.0807	NA

[1] NYS DEC TOGS 1.1.1, June, 1998
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NA = Not Analyzed
NS = No Standard

Table 8

Total and Dissolved Metals in Groundwater (ug/l)
EPA Method 6010 and 7471
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID Sample Date	Standard [1]	TW-1 8/7/14	TW-2 8/7/14	TW-5 8/7/14
Total				
Aluminum	100	<0.010	<0.010	0.02
Antimony	3	<0.005	<0.005	<0.005
Arsenic	50	<0.004	<0.004	<0.004
Barium	1,000	**0.023**	**0.081**	**0.025**
Beryllium	3	<0.001	<0.001	<0.001
Cadmium	5	<0.003	<0.003	<0.003
Calcium	NS	**28.9**	**35.2**	**29.7**
Chromium	50	<0.005	<0.005	**0.006**
Cobalt	5	<0.005	<0.005	<0.005
Copper	200	<0.003	<0.003	<0.003
Iron	300	<0.020	**0.033**	**0.056**
Lead	50	<0.003	<0.003	<0.003
Magnesium	35,000	**11.5**	**14.9**	**13.5**
Manganese	300	**0.019**	**0.022**	**0.04**
Mercury	0.7	<0.00020	<0.00020	<0.00020
Nickel	100	<0.005	**0.006**	<0.005
Potassium	NS	**1.72**	**3.14**	**1.28**
Selenium	10	<0.010	<0.010	**0.015**
Silver	NS	<0.005	<0.005	<0.005
Sodium	20,000	**45.8**	**66.2**	**102**
Thallium	8	<0.005	<0.005	<0.005
Vanadium	14	<0.010	<0.010	<0.010
Zinc	66	**0.013**	**0.015**	**0.014**
Dissolved				
Aluminum	100	<0.010	<0.010	<0.010
Antimony	3	<0.005	<0.005	<0.005
Arsenic	50	<0.004	<0.004	<0.004
Barium	1,000	**0.027**	**0.085**	**0.023**
Beryllium	3	<0.001	<0.001	<0.001
Cadmium	5	<0.003	<0.003	<0.003
Calcium	NS	**34.6**	**38.1**	**29.9**
Chromium	50	<0.005	<0.005	<0.005
Cobalt	5	<0.005	<0.005	<0.005
Copper	200	<0.003	<0.003	<0.003
Iron	300	<0.020	<0.020	**0.021**
Lead	50	<0.003	<0.003	<0.003
Magnesium	35,000	**13.9**	**16.2**	**12.8**
Manganese	300	**0.019**	**0.023**	**0.075**
Mercury	0.7	<0.00020	<0.00020	<0.00020
Nickel	100	<0.005	<0.005	**0.006**
Potassium	NS	**2.08**	**3.45**	**1.43**
Selenium	10	<0.010	<0.10	<0.010
Silver	NS	<0.005	<0.005	<0.005
Sodium	20,000	**57.2**	**73.0**	**97.3**
Thallium	8	<0.005	<0.005	<0.005
Vanadium	14	<0.010	<0.010	<0.010
Zinc	66	**0.010**	**0.026**	**0.015**

[1] NYS DEC TOGS 1.1.1, June, 1998
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance in dissolved samples
NS = No Standard

Table 9

Volatile Organic Compounds in Soil Vapor, Indoor and Ambient Air (ug/m3)
EPA Method TO-15
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID **Sample Date**	**NYSDOH Indoor Air Guideline** [1]	**SV-1** **8/6/14**	**SV-2** **8/6/14**	**SV-3** **8/7/14**
Vinyl chloride	NA	<2.4	<2.3	<2.6
Vinyl acetate	NA	<6.6	<6.3	<7.2
Trichloroethene	5	**15**	**5.8**	<2.8
1,3-Dichloropropene (trans)	NA	<8.5	<8.2	<9.3
1,2-Dichloroethene (trans)	NA	<7.4	<7.1	<8.2
Toluene	NA	**81**	**60**	**98**
Tetrahydrofuran	NA	**7.7**	<5.3	**6.1**
Tetrachloroethene	30	**46**	**32**	**9.8**
Styrene	NA	<8.0	<7.7	<8.8
Propylene	NA	<3.2	<3.1	<3.5
4-Ethyltoluene	NA	**29.0**	**29**	**32.0**
Xylenes (m&p)	NA	**85**	**77**	**92**
Xylenes (o)	NA	**27**	**25.0**	**29.0**
n-Hexane	NA	**38**	**13.0**	**27.0**
n-Heptane	NA	**14**	**13**	**23.0**
Methylene chloride	60	**43**	<13	**20.0**
Methyl tert-butyl ether	NA	<6.7	<6.5	<7.4
4-Methyl-2-pentanone	NA	<7.6	**7.4**	**10**
Isopropanol	NA	**69**	<8.8	<10
1,3-Hexachlorobutadiene	NA	<20	<19	<22
Ethylbenzene	NA	**24**	**22**	**27**
Ethyl acetate	NA	<13	<13	<15
Cyclohexane	NA	<6.4	<6.2	<7.1
1,3-Dichloropropene (cis)	NA	<8.5	<8.2	<9.3
1,2-Dichloroethene (cis)	NA	<7.4	<7.1	<8.2
Chloromethane	NA	**3.9**	<3.7	<4.2
Chloroform	NA	<9.1	**57**	**40**
Chloroethane	NA	<4.9	<4.7	<5.4
Carbon tetrachloride	NA	<2.9	<2.8	<3.2
Carbon disulfide	NA	<5.8	<5.6	<6.4
Bromomethane	NA	<7.2	<7.0	<8.0
Bromoform	NA	<19	<19	<21
Bromodichloromethane	NA	<12	<11	<13
Benzyl Chloride	NA	<9.7	<9.3	<11
Benzene	NA	**9.5**	**5.8**	**11**
Acetone	NA	**160**	**680**	**640**
2-Hexanone	NA	**100**	**370**	**380**
2-Butanone	NA	**750**	**3,600**	**3,800**
1,4-Dioxane	NA	<6.7	<6.5	<7.4
1,4-Dichlorobenzene	NA	<11	<11	<12
1,3-Dichlorobenzene	NA	<11	<11	<12
1,3-Butadiene	NA	<8.1	<7.8	<8.9
1,3,5-Trimethylbenzene	NA	**9.2**	**9.7**	**10**
1,2-Dichlorotetrafluoroethane	NA	<13	<13	<14
1,2-Dichloropropane	NA	<8.6	<8.3	<9.5
1,2-Dichloroethane	NA	<7.6	<7.3	<8.3
1,2-Dichlorobenzene	NA	<11	<11	<12
1,2,4-Trimethylbenzene	NA	**32**	**34**	**35**
1,2,4-Trichlorobenzene	NA	<14	<8.8	<15
1,1-Dichloroethene	NA	<7.4	<13	<8.2
1,1-Dichloroethane	NA	<7.6	<7.1	<8.3
Trichlorofluoromethane	NA	**20**	<10	<12
1,1,2-Trichloroethane	NA	<10	<9.8	<11
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	<14	<14	<16
1,1,2,2-Tetrachloroethane	NA	<13	<12	<14
1,1,1-Trichloroethane	NA	<10	<9.8	<11
Dichlorodifluoromethane	NA	<9.2	<8.9	<10
1,2-Dibromoethane	NA	<14	<14	<16
Dibromochloromethane	NA	<15	<14	<17
Methyl Methacrylate	NA	<7.6	<9.4	<8.4
Chlorobenzene	NA	<8.6	<8.3	<9.5

[1] Table 3.1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[3] Matrix 1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[4] Matrix 2, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
Bolded values signify detection above method detection limit
Highlighted values signify detection above guidance value
NA = Guidance Value Not Available

Table 9 continued.

Volatile Organic Compounds in Soil Vapor (ug/m3)
EPA Method TO-15
4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-LINY

Sample ID **Sample Date**	**NYSDOH Indoor Air Guideline [1]**	**SV-4** **8/6/14**	**SV-5** **8/7/14**	**SV-6** **8/7/14**
Vinyl chloride	NA	<3.1	<2.4	<2.3
Vinyl acetate	NA	<8.5	<6.6	<6.5
Trichloroethene	5	<3.2	<2.5	**38**
1,3-Dichloropropene (trans)	NA	<11	<8.5	<8.3
1,2-Dichloroethene (trans)	NA	<9.5	<7.4	<7.3
Toluene	NA	**60**	**58**	**37**
Tetrahydrofuran	NA	<7.1	<5.5	<5.4
Tetrachloroethene	30	**60**	**38**	**340**
Styrene	NA	<10	<8.0	<7.8
Propylene	NA	<4.1	<3.2	<3.2
4-Ethyltoluene	NA	**37**	**34**	**23**
Xylenes (m&p)	NA	**93**	**85**	**49**
Xylenes (o)	NA	**30**	**28**	**17**
n-Hexane	NA	**8.5**	**9.9**	**17**
n-Heptane	NA	**9.8**	**13**	**8.3**
Methylene chloride	60	<17	<13	**20**
Methyl tert-butyl ether	NA	<8.6	<6.7	<6.6
4-Methyl-2-pentanone	NA	<9.8	<7.6	<7.5
Isopropanol	NA	**15**	**30**	**9.5**
1,3-Hexachlorobutadiene	NA	<26	<20	<20
Ethylbenzene	NA	**25**	**23**	**14**
Ethyl acetate	NA	<17	<13	<13
Cyclohexane	NA	<8.3	<6.4	<6.3
1,3-Dichloropropene (cis)	NA	<11	<8.5	<8.3
1,2-Dichloroethene (cis)	NA	<9.5	<7.4	<7.3
Chloromethane	NA	**5.0**	<3.9	<3.8
Chloroform	NA	<12	**9.1**	**45**
Chloroethane	NA	<6.3	<4.9	<4.8
Carbon tetrachloride	NA	<3.8	<2.9	<2.9
Carbon disulfide	NA	<7.5	<5.8	<5.7
Bromomethane	NA	<9.3	<7.2	<7.1
Bromoform	NA	<25	<19	<19
Bromodichloromethane	NA	<15	<12	<11
Benzyl Chloride	NA	<12	<9.7	<9.5
Benzene	NA	<7.7	<6.0	**7.0**
Acetone	NA	**160**	**300**	**330**
2-Hexanone	NA	**130**	**270**	**130**
2-Butanone	NA	**940**	**1,600**	**1,200**
1,4-Dioxane	NA	<8.6	<6.7	<6.6
1,4-Dichlorobenzene	NA	<14	<11	<11
1,3-Dichlorobenzene	NA	<14	<11	<11
1,3-Butadiene	NA	<10	<8.1	<7.9
1,3,5-Trimethylbenzene	NA	**12**	**10**	<9.0
1,2-Dichlorotetrafluoroethane	NA	<17	<13	<13
1,2-Dichloropropane	NA	<11	<8.6	<8.5
1,2-Dichloroethane	NA	<9.7	<7.6	<7.4
1,2-Dichlorobenzene	NA	<14	<11	<11
1,2,4-Trimethylbenzene	NA	**41**	**37**	**29**
1,2,4-Trichlorobenzene	NA	<18	<14	<14
1,1-Dichloroethene	NA	<9.5	<7.4	<.3
1,1-Dichloroethane	NA	<9.7	<7.6	<7.4
Trichlorofluoromethane	NA	**200**	<10	<10
1,1,2-Trichloroethane	NA	<13	<10	<10
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	<18	<14	<14
1,1,2,2-Tetrachloroethane	NA	<16	<13	<13
1,1,1-Trichloroethane	NA	<13	<10	**27**
Dichlorodifluoromethane	NA	<12	<9.2	<9.1
1,2-Dibromoethane	NA	<18	<14	<14
Dibromochloromethane	NA	<19	<15	<15
Methyl Methacrylate	NA	<9.8	<7.6	<7.5
Chlorobenzene	NA	<11	<8.6	<8.4

[1] Table 3.1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[3] Matrix 1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[4] Matrix 2, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
Bolded values signify detection above method detection limit
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NA = Guidance Value Not Available

Table 10

Approximated Groundwater Elevation (ft.)

4118/30 24th Street
Long Island City, NY

ACT Project No.: 7794-BKNY

Date Sampled	Monitoring Well ID	Casing Elevation	Depth to water	Groundwater Elevation
8/7/14	TW-1	31.1	19.77	11.33
8/7/14	TW-2	32.68	20.73	11.95
8/7/14	TW-5	31.77	21.03	10.74

Top of rod elevations were surveyed to an arbitrary elevation of 30 feet and are approximations.

APPENDIX 1
CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and SMA Real Estate have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Voluntary 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 VCP, SMA Real Estate 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, Horace Zhang, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8484.

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) 788-8484 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. SMA Real Estate will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

Long Island City Public Library

3744 21st Street, Long Island City, NY 11101

718-752-3700

Monday	9:00 am – 8:00 pm
Tuesday	2:00 – 7:00 pm
Wednesday	11:00 am – 7:00 pm
Thursday	11:00 am – 7:00 pm
Friday	11:00 am – 7:00 pm
Saturday	10:00 am – 5:30 pm
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. SMA Real Estate. 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 SMA Real Estate, reviewed and approved by OER prior to distribution and mailed by SMA Real Estate. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary 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.

Citizen Participation Milestones. Public notice and public comment activities occur at several steps during a typical NYC VCP project. See flow chart on the following page, which identifies when during the NYC VCP 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.**

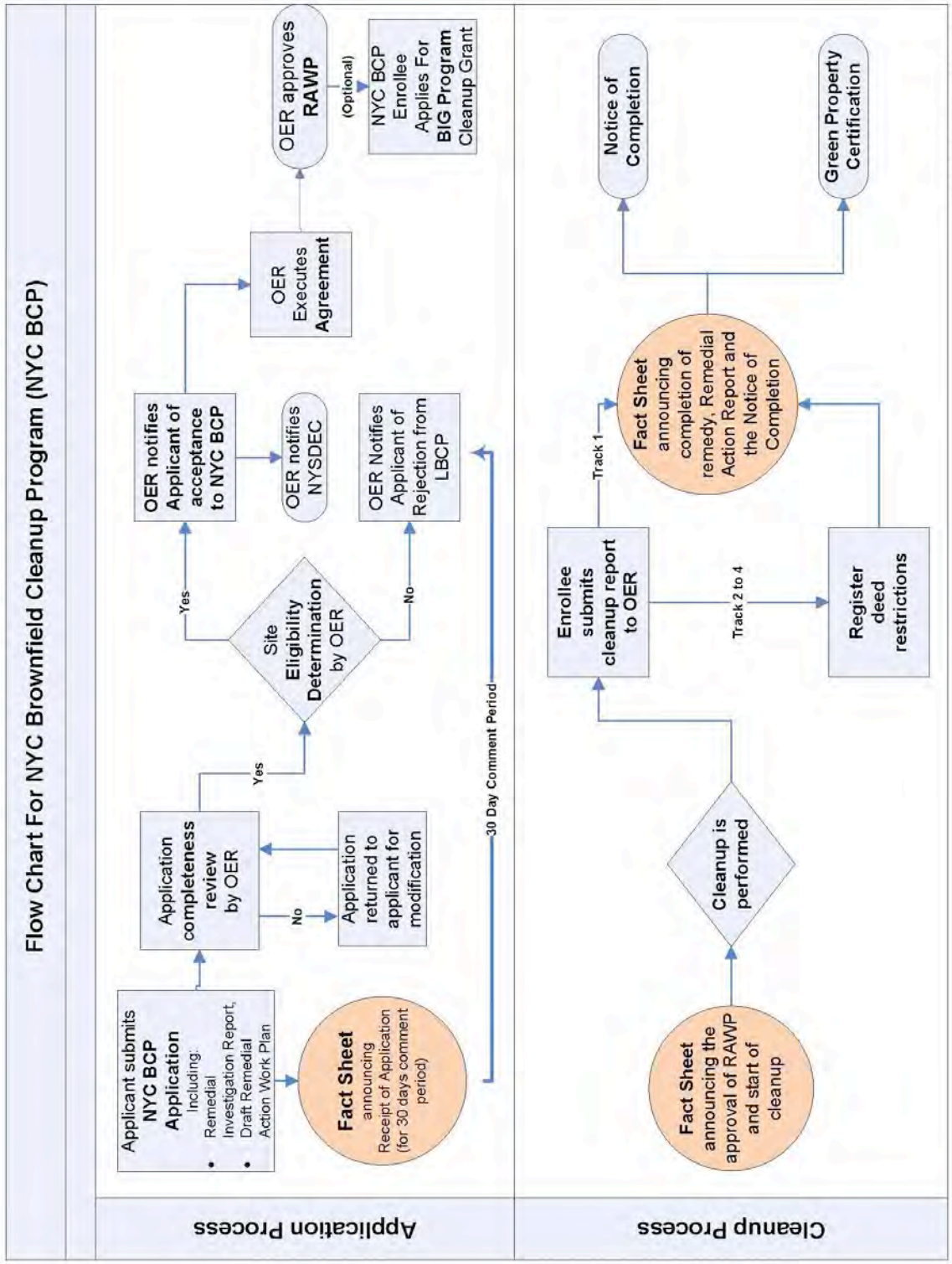
  Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes 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. SMA Real Estate 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. SMA Real Estate 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 describe here or show in Figure. 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 Queens, 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. The soil cleanup objectives for on-Site reuse are listed in Section 4.2. '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 VCP 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.

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

41-18/30 24th Street
Long Island City, New York 11101
Block 413, Lots 32 and 37
OER Project Number 14EHAZ596Q

ACT File #: 7794-LINY

October 1st, 2014

Prepared for:

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1.0 INTRODUCTION

The construction of a 12-story residential building is being proposed at the property located at 41-18/30 24th Street, Long Island City, 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

A diagram of the vicinity of the Site is provided as Figure 2 of the accompanying Work Plan. The most recent use of the site was as three consecutive warehouses. The site is currently vacant.

The site is bounded by a two story commercial building to the north, a construction site to the south, a multi-story building under construction to the east, and two and three story residential houses to the west.

1.3 Environmental Concerns

A Remedial Investigation Report dated August 2014, was prepared by ACT. The purpose of the report was to delineate the extent for contamination at the site related to the E-designation that had been assigned to the site. The scope of work included the installation of 9 soil borings, 3 temporary monitoring wells, and 6 soil vapor probes and the analysis of eighteen soil samples, three groundwater samples and 6 soil vapor samples. The report concluded the following:

- Shallow soil at the Site contained exceedances of semi-volatile organic compounds above regulatory criteria.
- Groundwater samples showed a trace concentration of chloroform.
- Soil vapor contained exceedances of chlorinated solvents above NYSDOH Indoor air guidelines. The highest concentrations were detected on the northern side of the site.

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	Timothy Young	516-640-2947
Project Manager ACT	Theresa Burkard	516-441-5800, Ext. 105
Health and Safety Officer ACT	Yisong Yang	516-441-5800, Ext. 108

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**
Fire Department:	**911**
Astoria Urgent Care Center:	**(718) 721-0101**

Police: **911**

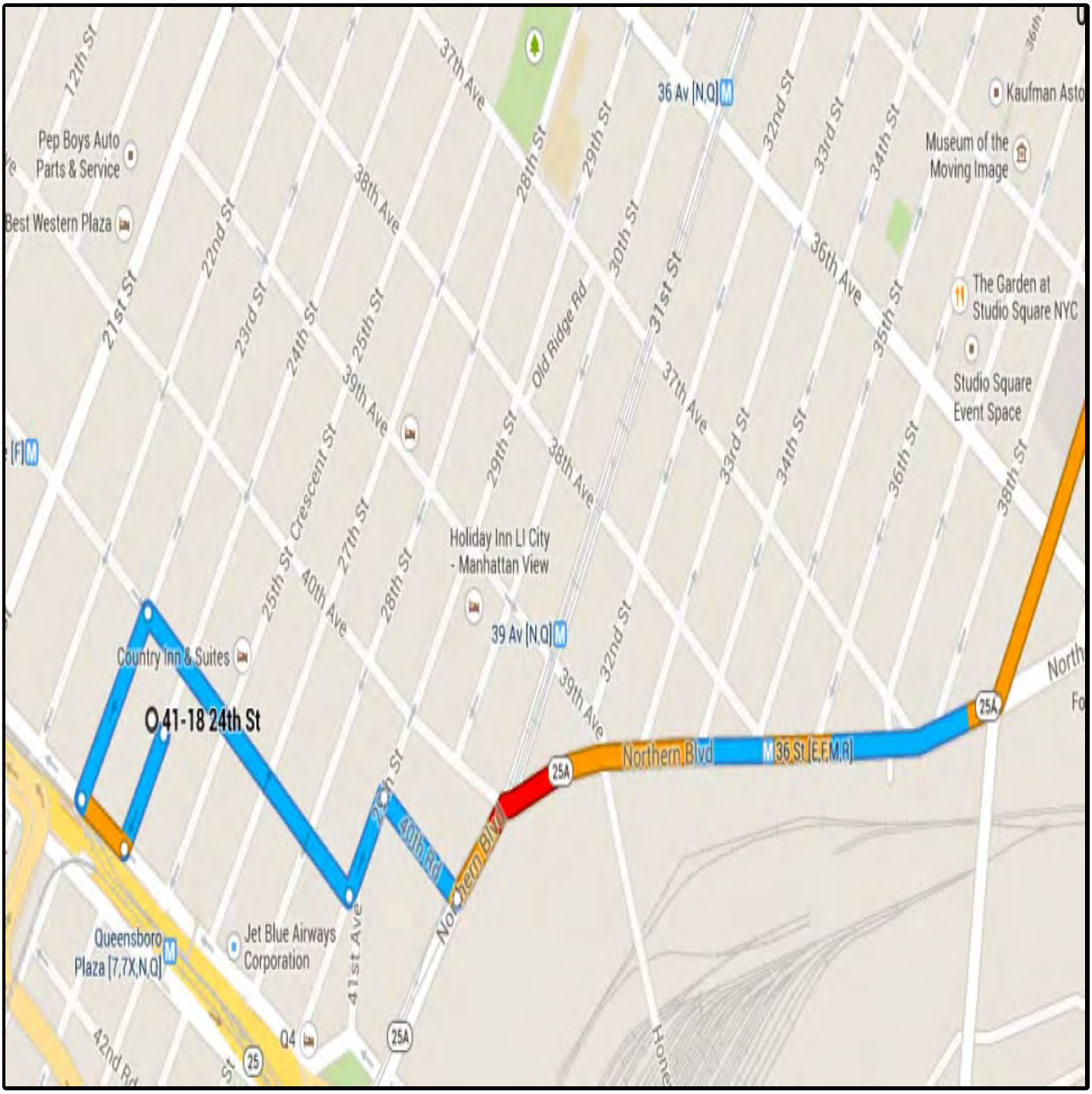
Poison Control Center: **(516) 542-2323**

The nearest emergency medical facility is the Astoria Urgent Care Center, 32-74 Steinway Street, Astoria, New York, which is located 1.6 miles from the Site. Transport will be by on-site vehicle or by calling NYC EMS personnel. A map of the route to this hospital is attached. Directions to the hospital from the site are provided below.

- **Head southeast on 24th Street towards Queens Plaza N;**
- **Turn left onto 29th Street;**
- **Turn right onto 40th Road;**
- **Turn left onto Northern Boulevard;**
- **Slight left onto Steinway Street;**
- **Urgent Medical Care Astoria is located on the left.**

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.



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Hospital Route

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