

**4275 PARK AVENUE, BRONX, NEW YORK**

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# **Remedial Action Work Plan**

**NYC VCP Number: 14CVCP249X**

**NYC E Designation Number: 14EH-N537M**

**Prepared for:**

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**AND**

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**JUNE 18, 2014**

# **REMEDIAL ACTION WORK PLAN**

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## LIST OF ACRONYMS

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

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

# CERTIFICATION

I, John Mohlin, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 4275 Park Avenue Site.

I, ERNEST ROSSANO am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 4275 Park Avenue. 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.

John Mohlin  
Name

077921  
NYS PE License Number

  
Signature

6/18/14  
Date



ERNEST ROSSANO  
QEP Name

Ernest Rossano  
QEP Signature

6-18-2014  
Date

# EXECUTIVE SUMMARY

Mountco Construction and Development Corporation (Mountco) and Common Ground Community II HDFC (Common Ground) has enrolled in the New York City Voluntary Brownfield Cleanup Program (NYC VCP) to investigate and remediate a 0.78 acre site located at 4275 Park Avenue in Bronx, New York. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

## Site Location and Current Usage

The Site is located along Webster Avenue in the Tremont section in Bronx, New York and is identified as Block 3028 and Lots 48 (portion) and 75 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is approximately 43,360-square feet and is bounded by 1984 Webster Avenue, a warehouse to the north, East 178th Street and beyond by commercial and residential properties to the south, Park Avenue and beyond by MTA Metro North railway lines to the east, and Webster Avenue and beyond by commercial and residential properties to the west. . A map of the site boundary is shown in **Figure 2**. Currently, the Site is improved with an unoccupied one-story and partial two-story steel framed masonry block structure on Lot 48 which was last occupied several years ago by a Western Beef Supermarket. No additional permanent structures or other pertinent Site features exist on the property.

## Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of residential housing units (affordable housing). Layout of the proposed site development is presented in **Figure 3**. The current zoning designation is C4-5X for parking facilities, vacant land, and commercial and office buildings. The proposed use is consistent with existing zoning for the property.

The proposed redevelopment plan and end use of the property is affordable housing. Under current redevelopment plans, a slab on grade, high efficiency building (a thirteen-story totaling

222,250 square feet) will be constructed with 248 rental residential dwelling units with grade parking to include 37 parking spaces. The grade level of the development will include a paved parking lot, retail stores, landscaped areas and offices. The development plans will include excavating approximately 2 feet across the entire site, and down to approximately 8 - 12 feet for footings and elevator pits at required locations. Excavations and footings will not be located beneath the groundwater table at the Site. A minimum of two feet of clean fill material will be placed in all areas not covered by the building. Mountco and Common Ground plan to demolish the current 42,400 square foot building on-Site during the proposed redevelopment.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

### **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 for particulates and volatile organic carbon compounds;
3. Establish Track 4 Soil Cleanup Objectives (SCOs);
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking and staking excavation areas;
1. Excavation and removal of soil/fill exceeding Track 4 – Site Specific SCOs. Most of the property will be excavated to a depth of two feet and down to approximately 8 - 12 feet

for footings and elevator pits at required locations. Approximately, 3,265 tons of soils will be excavated and removed from this Site;

5. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site;
6. Removal of underground storage tanks and closure of petroleum spills in compliance with applicable local, State and Federal laws and regulations;
7. 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;
8. Collection and analysis of 8 end-point samples (if required) with each potential UST (anomaly) found during geophysical survey with regards to any visually impacted soil is unearthed during excavation. In addition, some exploratory excavation would be performed in the vicinity of any UST(s) found on-site;
9. Demarcation of residual soil/fill;
10. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
11. Installation of a vapor barrier system beneath the building slab and behind foundation sidewalls below grade. The sub-slab vapor barrier will consist of a 46 mil high density polyethylene (HDPE) designed to provide a barrier against water, moisture, and gas. A 60 mil HDPE membrane will be applied to vertical foundation walls;
12. Installation of an active Sub-Slab Depressurization System;
13. Construction and maintenance of an engineered composite cover consisting of two feet of clean fill in all landscaped areas, hard cover in the form of concrete or asphalt pavement over parking lot areas, and the building slab;

14. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations;
15. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations;
16. 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;
17. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for maintenance, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency; and
18. Continued registration with an E-Designation; establishment of Engineering Controls and Institutional Controls in this RAWP; a requirement that management of these controls must be in compliance with an approved SMP; and Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

## COMMUNITY PROTECTION STATEMENT

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

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

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

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

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

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

**Site Safety Coordinator.** This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is Brice Lynch and can be reached at (631)-756-8900.

**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 or NYC Office of Environmental Remediation Project Manager Ms. Rebecca Bub at (212)-341-2073.

**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 8am to 4pm and on Monday-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 Christopher O'Leary at (631)-756-8900, the NYC Office of Environmental Remediation Project Manager Ms. Rebecaa Bub at (212)-341-2073, 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 New York Public Library - Tremont Library (address: 1866 Washington Avenue, Bronx, NY 10457).

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

Mountco Construction and Development Corporation (Mountco) and Common Ground Community II HDFC (Common Ground) has enrolled in the New York City Voluntary Brownfield Cleanup Program (NYC VCP) to investigate and remediate a 0.78 acre site located at 4275 Park Avenue in Bronx, New York. (the “Site”). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides 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 along Webster Avenue in the Tremont section in Bronx, New York and is identified as Block 3028 and Lots 48 (portion) and 75 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is approximately 43,360-square feet and is bounded by 1984 Webster Avenue, a warehouse to the north, East 178th Street and beyond by commercial and residential properties to the south, Park Avenue and beyond by MTA Metro North railway lines to the east, and Webster Avenue and beyond by commercial and residential properties to the west. A map of the site boundary is shown in **Figure 2**. Currently, the Site is improved with an unoccupied one-story and partial two-story steel framed masonry block structure on lot 48 which was last occupied several years ago by a Western Beef Supermarket. No additional permanent structures or other pertinent Site features exist on the property.

## 1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of residential housing units (affordable housing). Layout of the proposed site development is presented in **Figure 3**. The current zoning designation is C4-5X for parking facilities, vacant land, and commercial and office buildings. The proposed use is consistent with existing zoning for the property.

The proposed redevelopment plan and end use of the property is affordable housing. Under current redevelopment plans, a slab on grade, high efficiency building (a thirteen-story totaling 222,250 square feet) will be constructed with 248 rental residential dwelling units with grade parking to include 37 parking spaces. The grade level of the development will include a paved parking lot, retail stores, landscaped areas and offices. The development plans will include excavating approximately 2 feet across the entire site, and down to approximately 8 - 12 feet for footings and elevator pits at required locations. Excavations and footings will not be located beneath the groundwater table at the Site. A minimum of two feet of clean fill material will be placed in all areas not covered by the building. Mountco and Common Ground plan to demolish the current 42,400 square foot building on-Site during the proposed redevelopment.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

## 1.3 DESCRIPTION OF SURROUNDING PROPERTY

The subject property is situated within a commercial (C4-5X) zoning area. The surrounding properties include:

### **Direction: Use/ Description**

North: 1984 Webster Avenue (warehouse) and 4283 Park Avenue (church/synagogue);

South: East 178th Street and beyond by commercial and residential properties;

East: Park Avenue and beyond by MTA Metro North railway lines; and

West: Webster Avenue and beyond by commercial and residential properties.

**Figure 2** 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, 1960-1982 Webster Avenue*”, dated October, 2013(RIR).

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

A review of Sanborn Fire Insurance Maps from 1901 and 1915 identified the parcels to have formerly contained a number of private dwellings (residences), retail stores, patent office, painter, paint shop, wagon house, and stable. The City Directory listing for the Site revealed a service station and parts department; Studebaker Corporation of America; Park Avenue Auto Body Company Inc.; and G Auto Bodies on the Site in 1927 and 1940. A 1951 Sanborn map depicted the presence of unlabeled structures in the eastern section of the Site (no site use or tenancy was listed). The Sanborn map also indicated the southern and western portions of the Site maintained seven residential dwellings and retail stores. According to the City Directory listing, said retail stores included: Lane Curtin Company; Luminiere Manufacturing Company Lamps and Shades; Premier Lamp Company Inc.; Federal Hook and Eye Corporation; and Lagin Harry Company Lamps and Shades. Lots 6, 7, 8, and 75 were shown to have been improved with two-story residences until 1981. The 1984 aerial photograph depicts the Site in its current layout and building configuration.

The AOCs identified for this site include:

1. The potential for underground storage tanks (USTs).
2. Former use as an autobody shop and service station, a lamp manufacturer as well as various manufacturing uses.
3. Historic fill layer present at the Site from grade to 5 to 8 feet below grade.
4. Closed Spill Case No. 121465.
5. E-designation for Hazardous Materials and Noise.

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

DT Consulting Services, Inc. (DT) performed the following scope of work in December 2012 and January 2013:

1. Conducted a geophysical survey within the building;
2. Installed 13 soil borings across the northern half of the project Site, and collected 26 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 8 groundwater monitoring wells within the northern half of the Site to establish groundwater flow and collected 8 groundwater samples for chemical analysis to evaluate groundwater quality; and
4. Installed 8 soil vapor probes across the northern half of the Site and collected 8 samples for chemical analysis.

To supplement the previous work performed by DT and fill in data gaps (southern and western portion of Site); ERM performed the following scope of work with NYC OER approval in September, 2013:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. underground storage tanks, structures, buildings, etc.);
2. Conducted a geophysical survey of the paved parking lot and grassed area surrounding the building using a T-W6 metal detector and a cart mounted ground-penetrating radar (GPR) unit;
3. Installed 7 soil borings across the southern and northwestern portion of the Site, and collected 14 soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed 4 groundwater monitoring wells across the southern and northwestern portion of the Site to establish groundwater flow and collected 4 groundwater samples for chemical analysis to evaluate groundwater quality; and
5. Installed 5 soil vapor probes across the southern and northwestern portion of the Site and collected 5 samples for chemical analysis.

## Summary of Environmental Findings

1. Elevation of the property is approximately 40 to 44 feet.
2. Depth to groundwater ranges from 14 to 19.5 feet at the Site.
3. Groundwater flow is generally southeast beneath the Site.
4. Depth to bedrock at the Site is greater than 50 feet.
6. The stratigraphy of the Site, from the surface down, consists of 5 to 8 feet of historic fill material underlain by native brown silty sand. Soil/fill samples collected during the RI showed that the detection limits of several VOCs including vinyl chloride (310 ppb), trans-1,2-dichloroethane (310 ppb), methylene chloride (310 ppb), cis-1,2-dichloroethane (310 ppb), benzene (63 ppb), 1,4-dioxane (7900 ppb), 1,2-dichloroethane (63 ppb), 1,1-dichloroethane (310 ppb) in one deep sample (ERMSB-04) were above Track 1 Unrestricted Use SCOs. Acetone was detected in most soil samples to a maximum concentrations of 46 ppb. Trace levels of PCE (7 ppb) and TCE (14 ppb) were detected in one soil boring location. Four pesticides including 4,4'-DDD (24.8 ppb), 4,4'-DDE (15.6 ppb), 4,4'-DDT (58.2 ppb), and dieldrin (14 ppb) were detected above their respective Unrestricted Use SCOs, but well below their respective Restricted Residential Use SCOs in one shallow soil sample. Six SVOCs, all Polycyclic Aromatic Hydrocarbons (PAHs) compounds, were detected in two shallow samples and one deep sample at concentrations exceeding Track 1 Unrestricted Use SCOs. These SVOCs included benzo(a)anthracene (1,270 ppb), benzo(a)pyrene (1,200 ppb), benzo(b)-fluoranthene (1,090 ppb) benzo(k)fluoranthene (874 ppb), chrysene (1,240 ppb), and indeno(1,2,3-cd)pyrene (850 ppb). Of these SVOCs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene and indeno(1,2,3-cd)pyrene were detected above their respective Track 2, Restricted Residential Use SCOs in shallow boring ERMSB-7, indicating a hotspot. Five metals including barium (max of 2,870 ppm), copper (418 ppm), chromium (max of 125 ppm), lead (max of 3120 ppm) and zinc (max of 3640 ppm) exceeded Track 1 Unrestricted Use SCOs. Of these metals, barium, copper and lead also exceeded Restricted Residential SCOs in two shallow samples. Trace levels of PCBs (85

ppb) were detected in one shallow soil, well below its Unrestricted Use SCOs. Overall the findings were consistent with observations of historical fill.

7. Groundwater samples collected during the RI showed no detectable concentrations of PCBs . Tetrachloroethene was the only VOC detected (max of 5.5 ug/L) in one groundwater sample exceeding Groundwater Quality Standards (GQS). One SVOC, bis(2-ethylhexyl)phthalate (max of 351 ug/L) was detected above GQS in two groundwater samples collected in 2012/2013 by DT, but samples collected by ERM in 2013 showed no detections of SVOCs in groundwater suggesting that the earlier findings are linked with a turbid samples rather than on-Site conditions. Metals including iron (621 ug/L), magnesium (max of 65,800 ug/L) and sodium (max of 229,000 ug/L) were detected above GQS in 11 of the 12 samples. The only pesticide detected above GQS was dieldrin in two samples, at a maximum concentration of 0.0067 ug/L.
8. Soil vapor samples collected during both phases of the RI detected concentrations of chlorinated and petroleum-related VOCs. Tetrachloroethene (PCE) was identified in 10 of the 13 samples at a maximum concentration of 732 µg/m<sup>3</sup>. 1,1,1-Trichloroethane was detected in 8 of the 13 vapor samples at a maximum concentration of 1,310 µg/m<sup>3</sup>. Trichloroethene (TCE) was detected in 7 of the 13 samples collected for soil vapor at a maximum concentration of 407 µg/m<sup>3</sup>. Carbon Tetrachloride was not detected in any of the 13 samples. The PCE, 1,1,1,-Trichloroethane and TCE concentrations are above the monitoring level ranges established within the State NYS DOH soil vapor guidance matrix.

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:

### **2.1 GROUNDWATER**

- Prevent direct exposure to contaminated groundwater.

### **2.2 SOIL**

- Prevent direct contact with contaminated soil.
- Prevent migration of contaminants that would result in groundwater contamination.

### **2.3 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 impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance;
- Land use; and
- Sustainability.

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

- Alternative 1 involves
  - Establishment of Track 1 Unrestricted Use Soil Cleanup Objections (SCOs).
  - Removal of all soil/fill exceeding Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. If soil/fill containing analytes at concentrations above Unrestricted Use SCOs is still present at the base of the excavation, additional excavation will 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 foundation and behind foundation sidewalls of the new building as a part of development to prevent any potential future exposures from off-Site soil vapor.
- As part of new development, installation and operation of an active Sub Slab Depressurization System (SSDS).
- Placement of a final cover over the entire Site as part of new development.
- Alternative 2 involves
  - Establishment of Site-Specific (Track 4) SCOs.
  - Removal of all soil/fill exceeding Track 4 Site-Specific SCOs and confirmation that Track 4 Site-Specific SCOs have been achieved with post-excavation endpoint sampling. For new development, excavation would take place to 2 feet below grade across the entire site and excavation for footings and elevator pits would take place to a depth of approximately 8 to 12 feet in certain locations. 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 meet Track 4 Site-Specific SCOs.
  - Placement of a final cover over the entire Site to eliminate exposure to remaining soil/fill.
  - Placement of vapor barrier beneath foundation slab and behind accessible sidewalls to prevent soil vapor entering new building.
  - Installation and operation of an active Sub Slab Depressurization System.
  - Establishment of use restrictions including prohibitions on the use of groundwater from the site and prohibitions on sensitive site uses, such as farming or vegetable gardening, to eliminate future exposure pathways.
  - Establishment of an approved Site Management Plan to ensure long-term management of these engineering and institutional controls including the performance of periodic inspections and certification that the controls are performing as they were intended.

- Continued registration as an E-designated property to memorialize the remedial action and the Engineering and Institutional Controls required by the 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 contaminated 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 contaminants leaching into groundwater.

**Alternative 2** would achieve comparable protections of human health and the environment by ensuring that remaining soil/fill on-Site meets Track 4 Site-Specific SCOs, as well as by placement of Institutional and Engineering controls, including a vapor barrier, SSDS and composite cover system. The composite cover system would prevent direct contact with any remaining on-Site soil/fill. Vapor barrier and active SSDS would prevent vapor infringement in future. Implementing Institutional Controls including a Site Management Plan would ensure that the composite cover system remains intact and protective. Establishment of Track 4 Site-Specific SCOs would minimize the risk of contamination leaching into groundwater.

For both Alternatives, potential exposure to the contaminated soils or groundwater during construction would be minimized by implementing a Construction Health and Safety Plan (CHASP), a Soil and Materials Management Plan, and Community Air Monitoring Plan (CAMP). Groundwater is not expected to be encountered during development, and potential contact with contaminated groundwater would be prevented as City laws and regulations prohibit its use. Potential future migration of off-Site soil vapors into the new building would be prevented by installing a vapor barrier system below the new building's slab and continuing the vapor barrier around the foundation walls, and installing an active sub slab depressurization

system below the building slab.

### **3.2. Balancing Criteria**

#### **Compliance with Standards, Criteria and Guidance (SCGs)**

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

**Alternative 1** would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to Track 1 Unrestricted Use SCOs and groundwater protection standards. Compliance with SCGs for soil vapor would also be achieved by installation of vapor barrier system below the new building's slab and continuing the vapor barrier around the foundation walls as part of development, and installation of an SSDS.

**Alternative 2** would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to meet Track 4 site-specific SOCs. Compliance with SCGs for soil vapor would also be achieved by installation of an SSDS, installing a vapor barrier system below the new building's slab and continuing the vapor barrier around the foundation walls. A site management plan would ensure that these control remained protective for the long term.

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

#### **Short-term effectiveness and impacts**

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

impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both Alternatives 1 and 2 have short term effectiveness, as each requires excavation of historic fill material. Short term impacts are likely to be higher for the Alternative 1 due to excavation of greater amounts of historic fill material. The Track 1 Alternative (Unrestricted Use) would require the removal of an additional 25,107 tons of soil from the Site beyond the Track 4 Alternative. In addition, the removal of this additional soil would require an estimated 1,142 truckloads of daily traffic, therefore, creating a greater disruption to the residential neighborhood. Both Alternatives are considered to be effective in protecting human health and the environment in the short term. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic.

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 prevent the release of significant contaminants into the environment. Both alternatives provide short term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under appropriate management procedures and a Construction Health and Safety Plan (CHASP) will be protected from on-Site contaminants (personal protective equipment would be worn consistent with the documented risks within the respective work zones).

### **Long-term effectiveness and permanence**

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of Engineering Controls.

**Alternative 1** would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill and enabling unrestricted usage of the property.

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

#### **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** will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of unrestricted use SCOs. Alternative 1 would eliminate a greater total mass of contaminants on-Site.

**Alternative 2** would confine remaining on-Site soil beneath the new building will meet Track 4 - Site-Specific SCOs. Alternative 1 would eliminate a greater total mass of contaminants on Site.

## **Implementability**

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

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

## **Cost effectiveness**

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

Initial costs associated with the Track 1 alternative are higher than the Track 4 alternative in that a higher volume of soil/fill will be excavated for off-Site disposal to achieve a Track 1 status over the entire Site. However, long-term costs are anticipated to be higher for Alternative 2 than Alternative 1 based on implementation of a Site Management as part of Alternative 2. In both cases, appropriate public health and environmental protections are achieved.

## **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 observations by the project team, both of the alternatives for the Site would be acceptable to the community. This RAWP will be subject to and undergo public review under the NYC VCP and will provide the

opportunity for detailed public input on the remedial alternatives and the selected remedial action. This public comment will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Attachment A.

### **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 proposed for the Track 1 alternative, it provides protection of public health and the environment for both the proposed use of the Site and any future use. Alternative 1 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.

Alternative 2 also provides sufficient environmental and public health protection for the intended use. This alternative provides for engineering controls and institutional controls that would provide protections against off-Site vapor migration.

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, C4-5X for the property and is consistent with recent development patterns. The Site is surrounded by commercial and residential properties and both alternatives provide comprehensive protection of public health and the environment for these uses. Improvements in the current brownfield condition of the property achieved by both alternatives are also consistent

with the City's goals for cleanup of contaminated land and bringing such properties into productive reuse. Both alternatives are equally protective of natural resources and cultural resources.

### **Sustainability of the Remedial Action**

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

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. The New York City Clean Soil Bank program may be utilized for import of backfill. 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 D.

## **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:

2. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan (CPP);
3. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds;
4. Establishment of Site Specific (Track 4) Soil Cleanup Objectives (SCOs);
5. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking and staking excavation areas;
6. Excavation and removal of soil/fill exceeding Track 4 – Site Specific SCOs. Entire property will be excavated to a depth of two feet, and certain portion of the property will be excavated down to approximately 8 - 12 feet for footings and elevator pits. Approximately, 3265 tons of soils 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 on-Site;

8. Removal of underground storage tanks (if encountered in the two anomalies identified during geophysical investigation) 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. 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;
10. Collection and analysis of 8 end-point samples to determine the performance of the remedy with respect to attainment of SCOs. Additional end point samples will be obtained with each potential UST (anomaly) found during geophysical survey with regards to any visually impacted soil is unearthed during excavation;
11. Demarcation of residual soil/fill;
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. Installation of a vapor barrier system beneath the building slab and behind foundation sidewalls below grade. The sub-slab vapor barrier will consist of a 46 mil high density polyethylene (HDPE) designed to provide a barrier against water, moisture, and gas. A 60 mil HDPE membrane will be applied to vertical foundation walls.;
14. Installation of an active Sub-Slab Depressurization System;
15. Construction and maintenance of an engineered composite cover consisting of two feet of clean fill in all landscaped areas, hard cover in the form of concrete or asphalt pavement over parking lot areas, and the building slab;
16. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations;
17. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations;

18. 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;
19. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for maintenance, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency; and
20. Continued registration with an E-Designation; establishment of Engineering Controls and Institutional Controls in this RAWP; a requirement that management of these controls must be in compliance with an approved SMP; and Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

#### **4.2 SOIL CLEANUP OBJECTIVES AND SOIL/FILL MANAGEMENT**

Track 4 Soil Cleanup Objectives (SCOs) are proposed for this project. The SCOs for this Site are included in the 6 NYCRR Part 703.5 Table 6.8 (b) as amended by for compounds below.

<b><u>Contaminant</u></b>	<b><u>Track 4 SCOs</u></b>
Total SVOCs	250 ppm
Barium	750 ppm
Lead	1,000 ppm

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix C. The location of planned excavations is shown in **Figure 4**. The proposed building layout is shown in **Figure 5**.

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.

#### **4.2.1 Estimated Soil/Fill Removal Quantities**

During property redevelopment, the total quantity of soil/fill expected to be excavated and disposed off-Site is 3,265 tons.

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

#### **4.2.2 End-Point Sampling**

Collection and analysis of an estimated 8 end-point samples with each potential UST (anomaly) found during geophysical survey with regards to any visually impacted soil is unearthed during excavation. Samples will be analyzed for trigger compounds and elements established on the Track 4 SCO list including; SVOCs, barium copper and lead. In addition, some exploratory excavation would be performed in the vicinity of any UST(s) found on-Site. See attached **Figure 6** for potential endpoint sample locations. The actual number of endpoint samples will be dictated by the sampling frequency below.

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 Confirmation samples 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.

#### **4.2.3 Quality Assurance/Quality Control**

Field QA/QC will include the following procedures:

- Calibration of field equipment, including PID, on a daily basis;
- Analysis of one (1) duplicate sample;
- Use of dedicated and/or disposable field sampling equipment;
- Proper sample handling and preservation;
- Proper sample chain of custody documentation; and
- Completion of report logs.

The above procedures will be executed as follows:

- If endpoint sampling related to unearthed USTs are revealed on-Site, one (1) duplicate end-point soil sample will be collected to evaluate field sampling precision or reproducibility of measurements of the same parameter under the given set of conditions;
- Disposable sampling equipment will be used to minimize cross-contamination between samples;
- For each of the parameters analyzed, a sufficient sample volume will be collected to adhere to the specific analytical protocol, and provide sufficient sample for reanalysis if necessary;
- Appropriate sample preservation techniques, including cold temperature storage at 4° C, will be utilized to ensure that the analytical parameters concentrations do not change between the time of sample collection and analysis; and
- Samples will be analyzed prior to the expiration of the respective holding time for each analytical parameter to ensure the integrity of the analytical results.

#### **4.2.4 Import and Reuse of Soils**

Import of soils onto the property and reuse of soils already on-Site will be performed in conformance with the Soil/Materials Management Plan in Appendix C. The estimated quantity of soil to be imported into the Site for backfill and cover soil is 1,072 tons. The total amount imported will be necessary to provide a minimum two-foot soil cover in areas not covered by the building or hard pavement. No on-Site soil/fill is expected to be reused/ relocated.

### **4.3 ENGINEERING CONTROLS**

The excavation required for the proposed Site development will achieve Track 4 Site Specific SCOs. Engineering Controls will be employed in the remedial action to address residual contamination remaining at the Site. The Site has three elements which constitute primary Engineering Controls:

- composite cover system consisting of soil, asphalt covered roads, concrete covered sidewalks, and concrete building slabs;
- vapor barrier; and
- active sub slab depressurization system.

#### **4.3.1 Composite Cover System**

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. As presented in **Figure 5**, this composite cover system is comprised of soil, asphalt covered roads, concrete covered sidewalks, and concrete building slabs. The Mat Slab will be 3 feet thick while the typical floor/roof plank will be 8 inches. If the planned soil cover changes during the project, NYCOER will be notified. The final cover system will entail a minimum of two feet of clean fill or the soil will be covered with hard pavement. 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 will be mitigated with a combination of building slab, vapor barrier and an SSDS.

A high density polyethylene vapor barrier liner (HPDE) will be installed prior to pouring the building's concrete slab. The vapor barrier will consist of a 46-mil Preprufe 300R or OER-approved equivalent barrier. The vapor barrier will extend throughout the area occupied by the footprint of the new building and up the accessible foundation walls according to manufacturer specifications. Alternatively, the foundation walls will be covered with 60-mil HDPE Bituthene 4000. These materials were selected not only for preventing vapor migration but also to act as waterproofing materials due to the high water table. The specifications state that all vapor barrier seams, penetrations, and repairs will be sealed according to the manufacturer's recommendations and instructions. Product specifications, cut sheets and installation guidelines are provided in Appendix E. **Figure 8** depicts the site plan and elevation for installation of the vapor barrier.

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 Closure Report will include photographs (maximum of two photos per page) of the installation process.

### **Sub-Slab Depressurization System**

In addition to the vapor barrier, migration of soil vapor will also be mitigated with the construction of an active sub-slab depressurization system beneath the footprint of the new building. The collection layout plan for the SSDS system is provided as **Figure 7a**. Details of the SSD system are provided in **Figure 7b**. The vapor mitigation system consists of the following elements, which are discussed in further detail below:

- Six (6) inches of ASTM #5 aggregate (or similar material) under the entire building footprint (see below for further definition of this material);

- Geotextile material (Mirafi paper – Size 1100N) to prevent migration of fines from any sub-base material into the aggregate layer;
- Two (2) sub-slab suction pits measuring 3 feet by 3 feet by 1 foot deep; and
- Two (2) exhaust stacks consisting of six-inch PVC Schedule 40 piping and an in-line radon-type fan (Radonaway RP265 or equivalent).

#### *Aggregate, Sub-Slab and Suction Pit Installation*

Prior to pouring the concrete building slab, a layer of ASTM #5 aggregate will be placed under the proposed sub-base material beneath the slab. This is stone/crushed aggregate meeting Size #5 specifications as defined in ASTM C-33-90 “Standard Specification for Concrete Aggregates”. This aggregate is between ½-inch and 1 inch in diameter, with less than 10% passing through a ½-inch sieve. This aggregate will provide a highly permeable layer for collection of vapors and will be referred to as the gas collection layer. Once in position, the aggregate will be rolled to prevent sharp edges from protruding. To prevent the migration of fines from any sub-base material to the gas collection layer, Mirafi paper will be placed on top of the gas collection layer, before placement of the sub-base material.

The United States Environmental Protection Agency (USEPA) document “*Radon Prevention in the Design & Construction of Schools and Other Large Buildings (June 1994)*” recommends spacing for suction pits of one per 100,000 square feet based on the following assumptions:

- suction pit sizing of 3 feet by 3 feet by 1 foot;
- an active system using in-line radon-type fans;
- sealing of all penetrations in the building floor and other possible vapor entry routes; and
- use of ASTM #5 aggregate.

To improve the efficiency of the planned mitigation system, a conservative spacing will be used of approximately one suction pit per 50,000 square feet (radius of influence of 126 feet) or less, as illustrated in Figure 7a.

As the building plans are still being developed, various sub-surface features (e.g., deep footers, elevator pits, etc.) could interrupt the gas collection layer and the sub-slab pressure field. Gas collection layer aggregate will be placed around these sub-slab features, terminating on either side of the footings and elevator pit. The gas collection layer aggregate will be continuous beneath any other interior grade beams or sub-slab structures. The suction pits will be located as shown in Figure 7a; however these locations could change depending on final building plans. The exhaust piping will be run vertically up through the roof. This will minimize the length of horizontal piping beneath the slab and will minimize the number of bends.

The design of the suction pits is provided in Figure 7b. A key component of the suction pit is a six-inch, PVC Schedule 40 pipe that terminates in the middle of a void measuring 3 feet by 3 feet by 1 foot deep. Piping will be installed with at least ½-inch clearance around the pipe entrance into the box for settlement purposes. The void will be framed by #13 expanded metal with ½-inch by 1-inch openings attached to angle supports. A galvanized metal deck will be provided on the top of the suction pit to provide support when the concrete building slab is placed. A photograph of a typical suction pit (without the metal deck) is provided below:



The piping will exit the pit horizontally and extend to an adjacent plumbing chase. The horizontal piping will be sloped back toward the suction pit (ideally at a minimum slope of 1/8<sup>th</sup> inch per foot) to allow for any condensation to drain back to the pit. The six-inch piping will run horizontally to the plumbing chase, and then vertically up to, and exiting through the building roof. An inline fan capable of 334 cubic feet per minute at 0 inches water column (w.c.) vacuum (Radonaway RP265) will actively draw VOCs from the subsurface and pull them toward the suction pits, creating a zone of negative pressure under the building slab and mitigating the migration through the slab into indoor air. This fan will be located on the exterior of the building to prevent possible leaks in the exhaust pipe from discharging to the building interior. To prevent entry of subsurface vapors into the building, the exhaust pipes must terminate:

- 1) at least 10 feet above the ground;
- 2) at least 25 feet from other building or heating, ventilation, and air conditioning (HVAC) intakes;
- 3) above the eave of the roof, and preferably 12 inches above the roof; and
- 4) at least 10 feet laterally from any opening less than 2 feet below the exhaust point.

After construction of the system, all components will be labeled to identify them as part of a vapor mitigation system. Exposed exhaust pipes should be labeled at 10 foot intervals. At the roof exit, a permanent label should read, "Soil gas vent stack; do not place air intake within 25 ft." Operating requirements will be detailed in the Site Management Plan.

#### **4.4 INSTITUTIONAL CONTROLS**

Institutional Controls (IC) have been 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 established in a site-specific Site Management Plan (SMP) that will be included in the RAR.

Institutional Controls for this remedial action are:

- The property will continue to be registered with an E-Designation at the NYC Buildings Department. This RAWP includes a description of all ECs and ICs and summarizes the

requirements of the Site Management Plan which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;

- Submittal of a Site Management Plan in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs. SMP will require that the property owner and property owner's successors and assigns will submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determine by OER in the SMP and will comply with RCNY §43-1407(1)(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 and will not be used for a higher level of use without prior approval by OER.

#### **4.5 SITE MANAGEMENT PLAN**

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

OER. The property owner is responsible to ensure that all Site Management responsibilities defined in this RAWP and the Site Management Plan are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the Brownfield Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's and ICs; (2) implementation of monitoring programs; (3) operation and maintenance of EC's; (4) inspection and certification of EC's; and (5) reporting.

Site management activities, reporting, and EC/IC certification will be scheduled 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.

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

##### **Known and Potential Sources**

Historic fill material is present at the Site from grade to approximately 5 to 8 feet below grade. Based on the results of the Remedial Investigation Report, the contaminants of concern found

are:

### Soil

- One VOC, 1,4-dioxane exceeded its respective Restricted Residential SCO.
- SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene and indeno(1,2,3-cd)pyrene were detected above Restricted Residential Use SCOs.
- Metals including barium, copper and lead exceeded the Restricted Residential SCOs.
- Pesticides, including 4,4' -DDD, 4,4' -DDE, 4,4,'-DDT and dieldrin were identified but did not exceed Restricted Residential SCOs.

### Groundwater

- One VOC, Tetrachloroethene was detected above GQS.
- Metals including iron, magnesium and sodium were detected above GQS.
- One SVOCs, bis(2-ethylhexyl)phthalate was detected above the GQS.
- One pesticide, dieldrin was detected above GQS

### Soil vapor

- Chlorinated VOCs including PCE, TCE and 1,1,1-Trichloroethane were detected above NYSDOH monitoring thresholds.

## **Nature, Extent, Fate and Transport of Contaminants**

SVOCs and metals are present in the historic fill materials throughout the Site. Dissolved metals including iron, magnesium, and sodium were detected above GQS. The chlorinated VOCs that were identified in soil gas at the Site were not found in any on-Site soil sample and only at low concentrations in groundwater, suggesting that they are not related to on-Site contamination.

## **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, or soil.

## **Existence of Human Health Exposure**

### Existing

The Site is vacant (currently developed with a building) and partly uncapped. Under current Site conditions, exposure to surficial historic fill material is possible. Groundwater is not exposed at the Site, and because the Site is served by the public water supply, groundwater is not used at the Site. The on-Site building represents an area on-Site where soil vapor could accumulate.

### Construction/ Remediation Activities

Once redevelopment activities begin, construction workers could come into direct contact with surface and subsurface soils as a result of on-Site construction/excavation activities. Similarly, off-Site receptors could be exposed to dust from onsite 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 a Construction Health and Safety Plan. A Health and Safety Plan will be implemented to prevent worker exposure to soil. Groundwater is not anticipated to be encountered, and there will be no structures on-Site where soil vapor could accumulate.

### Proposed Future Conditions

Once the remedial actions and redevelopment of the Site has been completed, there will be no potential on-Site or off-Site exposure pathways to above-grade building occupants. Not only will some historic fill be removed, but the Site will also be fully capped with the concrete building slab, or soil meeting applicable SCOs in the case of the small landscaped areas; this will prevent contact with any residual soils. Any exposures to vapors from off-Site sources will be prevented by installation of a vapor barrier and building slab.

## **Receptor Populations**

On-Site Receptors—The Site is currently vacant, and a fence restricts access to the Site. Therefore, the only potential on-Site receptors are Site representatives and trespassers. 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, workers, and visitors.

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

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

### **Overall Human Health Exposure Assessment**

Based upon this analysis, complete on-Site exposure pathways appear to be present only during the current un-remediated phase and during the remedial action phase. Under current conditions, on-Site exposure pathways are minimized by preventing access to the Site. During the remedial action, on-Site exposure pathways will be eliminated by preventing access to the Site, through implementation of soil/materials management, stormwater pollution prevention, dust controls, employment of a 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, as all soil that exceeds Track 4 Restricted Residential SCOs will have been removed, and operation of an SSDS, and combination of the vapor barrier and concrete building slab will minimize potential for soil vapor intrusion. This assessment takes into consideration the reasonably anticipated use of the Site, which includes a residential structure, Site-wide impervious surface cover cap, and a subsurface vapor barrier 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.

## **5.0 REMEDIAL ACTION MANAGEMENT**

### **5.1 PROJECT ORGANIZATION AND OVERSIGHT**

Principal personnel who will participate in the remedial action include Site Safety Coordinator & Field Team Leader Brice Lynch. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are John Mohlin and Ernest Rossano, respectively. Andrew Coenen will serve as the Quality Assurance/Quality Control lead on this project.

### **5.2 SITE SECURITY**

Site access will be controlled by gated locked entrances to the fenced Site.

### **5.3 WORK HOURS**

The hours for operation of remedial construction will be from 8AM to 4PM. 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 D. The Site Safety Coordinator will be Brice Lynch. 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.

### **5.5.1 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.

### **5.5.2 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 ( $\text{mcg}/\text{m}^3$ ) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed  $150 \text{ mcg}/\text{m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \text{ mcg}/\text{m}^3$  above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \text{ mcg}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

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

## **5.6 AGENCY APPROVALS**

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

## **5.7 SITE PREPARATION**

### **5.7.1 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.

### **5.7.2 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.

### **5.7.3 Utility Marker Layouts, Easement Layouts**

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

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

### **5.7.4 Equipment and Material Staging**

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

### **5.7.5 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.

### **5.7.6 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.

### **5.7.7 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; loose 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 be 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 off-Site areas may require characterization based on-Site conditions, at the discretion of OER. If on-Site 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 if 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](http://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 on-Site or off-Site 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 will be reported to OER prior to the start of the remedial action.

### **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**

### **5.10.1 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.

### **5.10.2 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; and

- 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, John Mohlin 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 4275 Park Avenue.*

*I, Ernest Rossano am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 4275 Park Avenue*

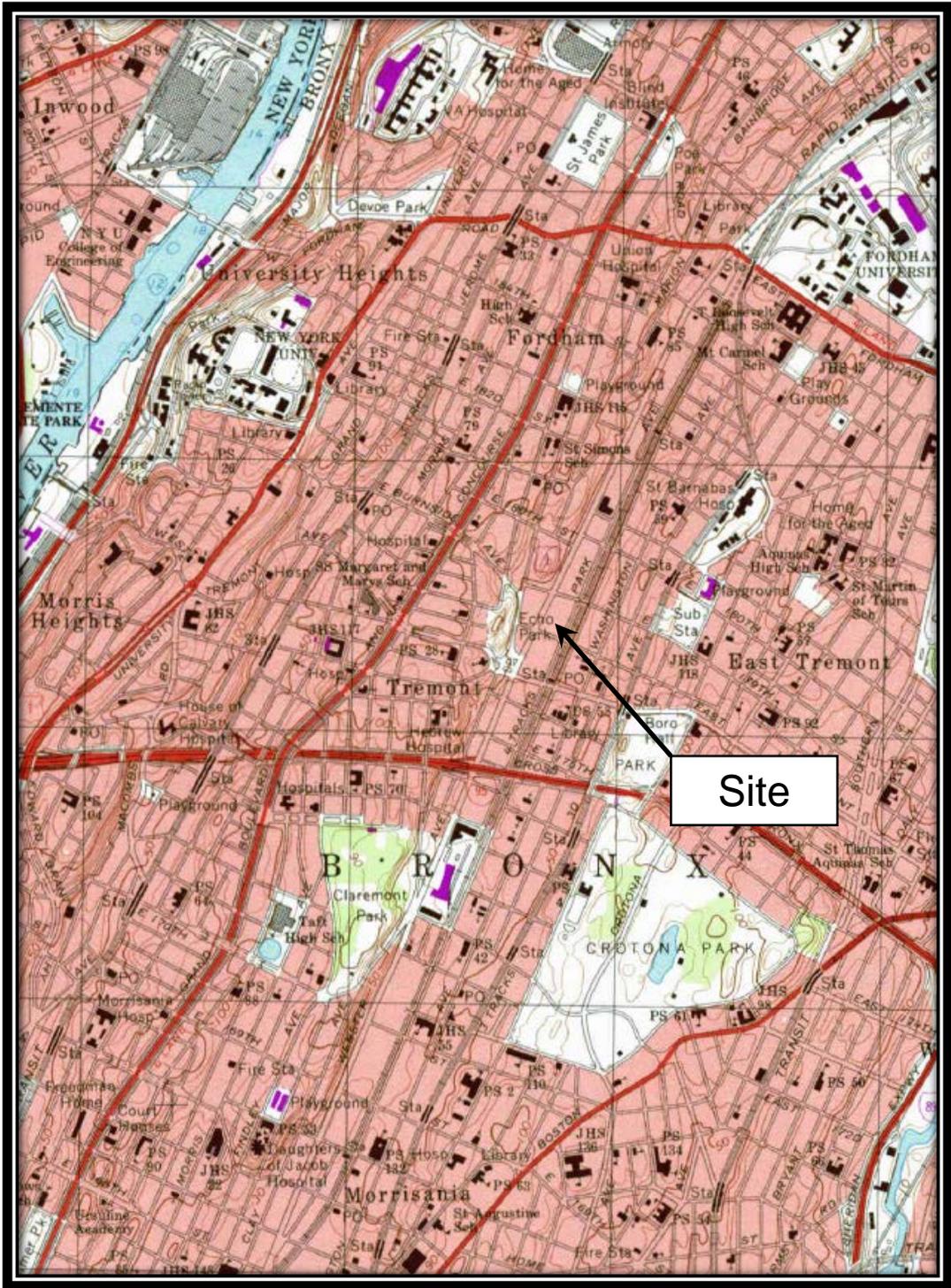
*I certify that the OER-approved Remedial Action Work Plan dated June 18, 2014 a; if any were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.*

## 7.0 SCHEDULE

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

<b>Schedule Milestone</b>	<b>Weeks from Remedial Action Start</b>	<b>Duration (weeks)</b>
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	1	1
Remedial Excavation	9	8
Demobilization	10	1
Submit Remedial Action Report	20	8

# FIGURES

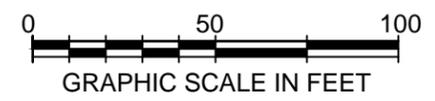


SOURCE: CENTRAL PARK, NY 7.5 MINUTE USGS TOPOGRAPHIC QUADRANGLE, 1995





Legend  
 ——— Property Boundary



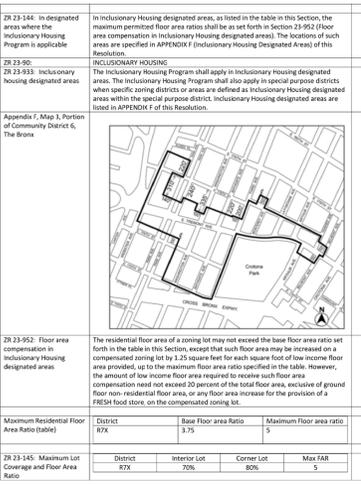
TITLE				2
Site Boundary Map 4275 Park Avenue Bronx, NY 10457				
PREPARED FOR				
Moutco Construction & Development Corporation				
Environmental Resources Management				
DRAWN BY	SCALE	DATE	JOB NO.	2
EMF	GRAPHIC	04/23/2014	0217830.05	





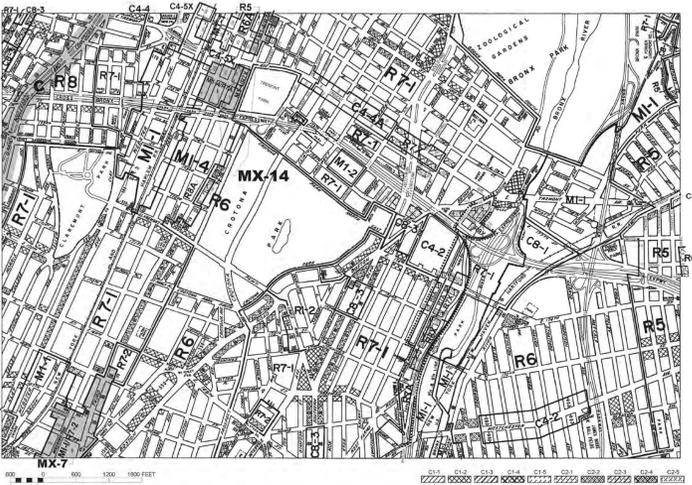
**4269 Park Ave Affordable Housing Zoning, Residential**

Block	3028
Lot	1, 6, 7, 8, 48, 75 (combined and subdivided into lots proposed 101 & 102)
Block Community District	5
Lot Area	60,998 (Lot 101 = 17,638 sq ft and Lot 102 = 43,360) Proposed 101, 4269 Park Ave
Zoning Map	Bronx, M
Zoning District	C4-5X
Equivalent Residential Zoning District	R7X
Use Permitted as of right, C4	Use Groups 1, 2, 3, 4, 5, 6, 8, 9, 13, 12 (C4-5X Public Parking garage not permitted as of right in C4-5X) Use Group 3 - Community Facility, Non-Profit Institution with sleeping accommodation Use Group 2 - Residential
Maximum Permitted Zoning Floor Area Ratio in C4-5X/R7X	Residential use 5
Inclusionary Housing Designated Area	Article 3 Chapter 3 Appendix F, 5(a) is within designated area. Max Base FAR 3.75, with up to 5.14 FAR with required 20% of residential area as affordable housing
Sign Regulations	Unilluminated, non-flashing inside storefront, maximum 8 ft, not more than 3'-Total area of illuminated and non-illuminated signage shall not exceed 5 times the street frontage in feet or 500 sq ft whichever is less. For Community Facility Use Group 3 flags, banners or pennants are permitted without limit.
Lot 102 Zoning Floor Area	Lot Area 47,368 sq ft = 218,900 sq ft
Lot 101 Zoning Floor Area	Lot Area 45,960 sq ft = 218,900 sq ft
20-23-01: Quality Housing Program	In R7X Districts, any building or other structure shall comply with the applicable district bulk regulations set forth in this Chapter and any building containing residences shall also comply with the requirements of Article II, Chapter 8 (Quality Housing Program)
20-23-12: Permitted Obstructions	(a) Driveways, private streets, open accessory off-street parking spaces, unenclosed accessory parking spaces or open accessory off-street loading berths, provided that the total area occupied by all these items does not exceed the percentage set forth in Section 23-144 (Restrictions on Use of Open Space for Parking). (b) Eaves, gutters or downspouts, projecting into such open space not more than 18 inches or 30 percent of the width of such open space, whichever is the lesser distance;



20-23-144: In designated area where the Inclusionary Housing Program is applicable	In Inclusionary Housing designated areas, as listed in the table in this Section, the maximum permitted floor area ratio shall be as set forth in Section 20-23-02 (Floor area composition in Inclusionary Housing designated areas). The location of such areas are specified in APPENDIX F (Inclusionary Housing Designated Areas) of this Resolution.
20-23-02: Inclusionary Housing Designated Areas	The Inclusionary Housing Program shall apply in Inclusionary Housing designated areas. The Inclusionary Housing Program shall also apply in special purpose districts when specific zoning districts or areas are defined as Inclusionary Housing designated areas within the special purpose district. Inclusionary Housing designated areas are listed in APPENDIX F of this Resolution.
20-23-20: DENSITY REGULATIONS	20-23-20: Maximum Number of Dwelling Units or Rooming Units R6 R7 RBX 400 500
20-23-42: Level of Yards	In all Residential Districts, the level of a yard or of a rear yard equivalent shall not be higher than curb level, except that natural grade level need not be disturbed in order to comply with this requirement. No building or other structure shall be erected above ground level in any required yard or rear yard equivalent, except as otherwise provided in Section 23-44 (Permitted Obstructions in Required Yards or Rear Yard Equivalents).
20-23-43: Permitted Obstructions in certain districts	20-23-43: Front setbacks in districts where front yards are not required R7X (b) In the districts indicated, the provisions of this Section and Sections 23-44 (Alternate Front Setbacks) and 23-45 (Tower Regulations) shall be inapplicable. In lieu thereof, the provisions of Section 23-43 (Street wall location and height and setback regulations in certain districts) shall apply. (c) Street wall location: R7X (1) In the districts indicated, the street wall shall be located no closer to the street line than the closest wall of an existing building to such street line, located on the same block, and within 150 feet of such building. However, a street wall need not be located further from the street line than 15 feet. On corner lots, these street wall location provisions shall apply along only one street line. District Minimum 3' Wall Ht. Maximum 5' Wall Ht. Maximum Building Ht. 25 35
20-23-44: Narrow outer courts	20-23-44: If an outer court is less than 30 feet wide, the width of such outer court shall be at least one and one-third the depth of such outer court. If an outer court is 30 feet or more in width, the width of such outer court must be at least equal to the depth of such outer court, except that such width need not exceed 80 feet.
20-23-45: Maximum Lot Coverage and Floor Area Ratio	20-23-145: Maximum Lot Coverage and Floor Area Ratio District Interior Lot Corner Lot Max FAR R7X 70% 80% 5

### 06 ZONING ANALYSIS N.T.S.



**ZONING MAP**

**Major Zoning Classifications:**  
 R - RESIDENTIAL DISTRICT  
 C - COMMERCIAL DISTRICT  
 M - MANUFACTURING DISTRICT  
 S - SPECIAL PURPOSE DISTRICT  
 P - PUBLIC USE DISTRICT  
 D - DISTRICTS RETAINED  
 Effective Date(s) of Rezoning: 10-05-2011 to 10-05-2011

**Special Requirements:**  
 For a full list of rules related to zoning regulations, visit the Department of City Planning website at [www.dcp.nyc.gov](http://www.dcp.nyc.gov). For a full list of rules related to zoning regulations, visit the Department of City Planning website at [www.dcp.nyc.gov](http://www.dcp.nyc.gov).

**MAP KEY**

3a 3b 3c 3d 4a 4b 4c 4d 5a 5b 5c 5d 6a 6b 6c 6d 7a 7b 7c 7d 8a 8b 8c 8d 9a 9b 9c 9d 10a 10b 10c 10d 11a 11b 11c 11d 12a 12b 12c 12d 13a 13b 13c 13d 14a 14b 14c 14d 15a 15b 15c 15d 16a 16b 16c 16d 17a 17b 17c 17d 18a 18b 18c 18d 19a 19b 19c 19d 20a 20b 20c 20d 21a 21b 21c 21d 22a 22b 22c 22d 23a 23b 23c 23d 24a 24b 24c 24d 25a 25b 25c 25d 26a 26b 26c 26d 27a 27b 27c 27d 28a 28b 28c 28d 29a 29b 29c 29d 30a 30b 30c 30d 31a 31b 31c 31d 32a 32b 32c 32d 33a 33b 33c 33d 34a 34b 34c 34d 35a 35b 35c 35d 36a 36b 36c 36d 37a 37b 37c 37d 38a 38b 38c 38d 39a 39b 39c 39d 40a 40b 40c 40d 41a 41b 41c 41d 42a 42b 42c 42d 43a 43b 43c 43d 44a 44b 44c 44d 45a 45b 45c 45d 46a 46b 46c 46d 47a 47b 47c 47d 48a 48b 48c 48d 49a 49b 49c 49d 50a 50b 50c 50d 51a 51b 51c 51d 52a 52b 52c 52d 53a 53b 53c 53d 54a 54b 54c 54d 55a 55b 55c 55d 56a 56b 56c 56d 57a 57b 57c 57d 58a 58b 58c 58d 59a 59b 59c 59d 60a 60b 60c 60d 61a 61b 61c 61d 62a 62b 62c 62d 63a 63b 63c 63d 64a 64b 64c 64d 65a 65b 65c 65d 66a 66b 66c 66d 67a 67b 67c 67d 68a 68b 68c 68d 69a 69b 69c 69d 70a 70b 70c 70d 71a 71b 71c 71d 72a 72b 72c 72d 73a 73b 73c 73d 74a 74b 74c 74d 75a 75b 75c 75d 76a 76b 76c 76d 77a 77b 77c 77d 78a 78b 78c 78d 79a 79b 79c 79d 80a 80b 80c 80d 81a 81b 81c 81d 82a 82b 82c 82d 83a 83b 83c 83d 84a 84b 84c 84d 85a 85b 85c 85d 86a 86b 86c 86d 87a 87b 87c 87d 88a 88b 88c 88d 89a 89b 89c 89d 90a 90b 90c 90d 91a 91b 91c 91d 92a 92b 92c 92d 93a 93b 93c 93d 94a 94b 94c 94d 95a 95b 95c 95d 96a 96b 96c 96d 97a 97b 97c 97d 98a 98b 98c 98d 99a 99b 99c 99d 100a 100b 100c 100d

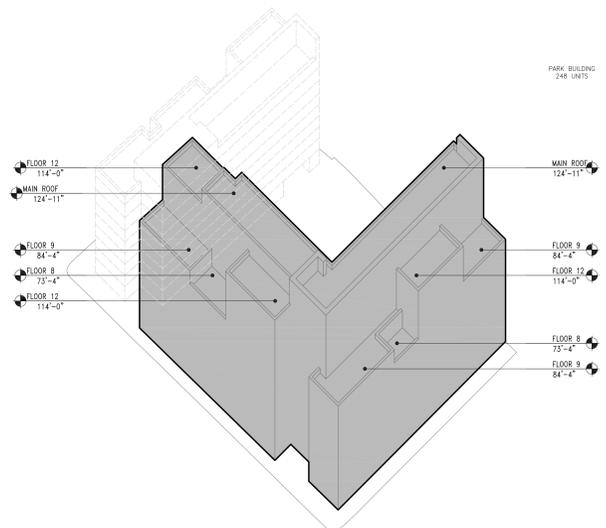
### 03 ZONING MAP N.T.S.

**CODE SUMMARY**

1. OCCUPANCY GROUPS	203	2. CONSTRUCTION CLASSIFICATION	904	3. STRUCTURE HEIGHT	800	4. FIRE DISTRICT	500	5. MULTIPLE DWELLING CLASS	MEC 401	6. AUTOMATIC FIRE DETECTION	403	7. FIRE COMMAND	408	8. ELEVATOR LUBRICATION	402.1.1	9. EMERGENCY POWER	403.1.2	10. SEAWAY COORDINATION	403.1.0	11. SEAWAY COMMUNICATIONS	403.1.1	12. SMOKECHAMBER EXIT	403.1.3	13. SERVICED CONDOMINIUMS	403.1.4	14. SEWER RESISTANT STAIR	403.1.5	15. EXIT SIGN ILLUMINATION	403.1.6	16. OUTDOOR STAIRWAYS	403.1.7	17. OPEN WALKWAY JOISTS	403.1.8	18. SEPARATION FIRE RESISTANCE RATING	403.1.9	19. MECH EQUIP ROOMS	403.1.10	20. ELEC ROOMS	403.1.11	21. TELECOM ROOMS	403.1.12	22. STORAGE ROOMS	403.1.13	23. MECHANICAL ROOMS	403.1.14
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1. STRUCTURAL FRAME	1001.1	2. EXTERIOR FINISHES	1001.2	3. INTERIOR FINISHES	1001.3	4. INTERIOR WALLS	1001.4	5. INTERIOR FLOORS	1001.5	6. INTERIOR CEILING	1001.6	7. INTERIOR ROOFING	1001.7	8. EXTERIOR WALLS	1001.8	9. EXTERIOR ROOFING	1001.9	10. EXTERIOR FINISHES	1001.10	11. EXTERIOR WALLS	1001.11	12. EXTERIOR ROOFING	1001.12	13. EXTERIOR FINISHES	1001.13	14. EXTERIOR WALLS	1001.14	15. EXTERIOR ROOFING	1001.15	16. EXTERIOR FINISHES	1001.16	17. EXTERIOR WALLS	1001.17	18. EXTERIOR ROOFING	1001.18	19. EXTERIOR FINISHES	1001.19	20. EXTERIOR WALLS	1001.20	21. EXTERIOR ROOFING	1001.21	22. EXTERIOR FINISHES	1001.22	23. EXTERIOR WALLS	1001.23	24. EXTERIOR ROOFING	1001.24	25. EXTERIOR FINISHES	1001.25	26. EXTERIOR WALLS	1001.26	27. EXTERIOR ROOFING	1001.27	28. EXTERIOR FINISHES	1001.28	29. EXTERIOR WALLS	1001.29	30. EXTERIOR ROOFING	1001.30	31. EXTERIOR FINISHES	1001.31	32. EXTERIOR WALLS	1001.32	33. EXTERIOR ROOFING	1001.33	34. EXTERIOR FINISHES	1001.34	35. EXTERIOR WALLS	1001.35	36. EXTERIOR ROOFING	1001.36	37. EXTERIOR FINISHES	1001.37	38. EXTERIOR WALLS	1001.38	39. EXTERIOR ROOFING	1001.39	40. EXTERIOR FINISHES	1001.40	41. EXTERIOR WALLS	1001.41	42. EXTERIOR ROOFING	1001.42	43. EXTERIOR FINISHES	1001.43	44. EXTERIOR WALLS	1001.44	45. EXTERIOR ROOFING	1001.45	46. EXTERIOR FINISHES	1001.46	47. EXTERIOR WALLS	1001.47	48. EXTERIOR ROOFING	1001.48	49. EXTERIOR FINISHES	1001.49	50. EXTERIOR WALLS	1001.50	51. EXTERIOR ROOFING	1001.51	52. EXTERIOR FINISHES	1001.52	53. EXTERIOR WALLS	1001.53	54. EXTERIOR ROOFING	1001.54	55. EXTERIOR FINISHES	1001.55	56. EXTERIOR WALLS	1001.56	57. EXTERIOR ROOFING	1001.57	58. EXTERIOR FINISHES	1001.58	59. EXTERIOR WALLS	1001.59	60. EXTERIOR ROOFING	1001.60	61. EXTERIOR FINISHES	1001.61	62. EXTERIOR WALLS	1001.62	63. EXTERIOR ROOFING	1001.63	64. EXTERIOR FINISHES	1001.64	65. EXTERIOR WALLS	1001.65	66. EXTERIOR ROOFING	1001.66	67. EXTERIOR FINISHES	1001.67	68. EXTERIOR WALLS	1001.68	69. EXTERIOR ROOFING	1001.69	70. EXTERIOR FINISHES	1001.70	71. EXTERIOR WALLS	1001.71	72. EXTERIOR ROOFING	1001.72	73. EXTERIOR FINISHES	1001.73	74. EXTERIOR WALLS	1001.74	75. EXTERIOR ROOFING	1001.75	76. EXTERIOR FINISHES	1001.76	77. EXTERIOR WALLS	1001.77	78. EXTERIOR ROOFING	1001.78	79. EXTERIOR FINISHES	1001.79	80. EXTERIOR WALLS	1001.80	81. EXTERIOR ROOFING	1001.81	82. EXTERIOR FINISHES	1001.82	83. EXTERIOR WALLS	1001.83	84. EXTERIOR ROOFING	1001.84	85. EXTERIOR FINISHES	1001.85	86. EXTERIOR WALLS	1001.86	87. EXTERIOR ROOFING	1001.87	88. EXTERIOR FINISHES	1001.88	89. EXTERIOR WALLS	1001.89	90. EXTERIOR ROOFING	1001.90	91. EXTERIOR FINISHES	1001.91	92. EXTERIOR WALLS	1001.92	93. EXTERIOR ROOFING	1001.93	94. EXTERIOR FINISHES	1001.94	95. EXTERIOR WALLS	1001.95	96. EXTERIOR ROOFING	1001.96	97. EXTERIOR FINISHES	1001.97	98. EXTERIOR WALLS	1001.98	99. EXTERIOR ROOFING	1001.99	100. EXTERIOR FINISHES	1001.100
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### 05 BUILDING CODE ANALYSIS N.T.S.



### 04 AXONOMETRIC N.T.S.

**4275 Park Avenue, Bronx, NY (Common Ground/ Mountie)**

Lot	Lot Area	C4-5X Max FAR
Lot 1	17,638 sq ft	5
Lot 2	43,360 sq ft	5
<b>Total</b>	<b>60,998 sq ft</b>	<b>5</b>

NYC Zoning Area Calculations	
ZONING FLOOR AREA	Affordable (Park)
Maximum Permitted Zoning Floor Area (ZSF)	216,800 sq ft
Actual Zoning Floor Area	216,800 sq ft

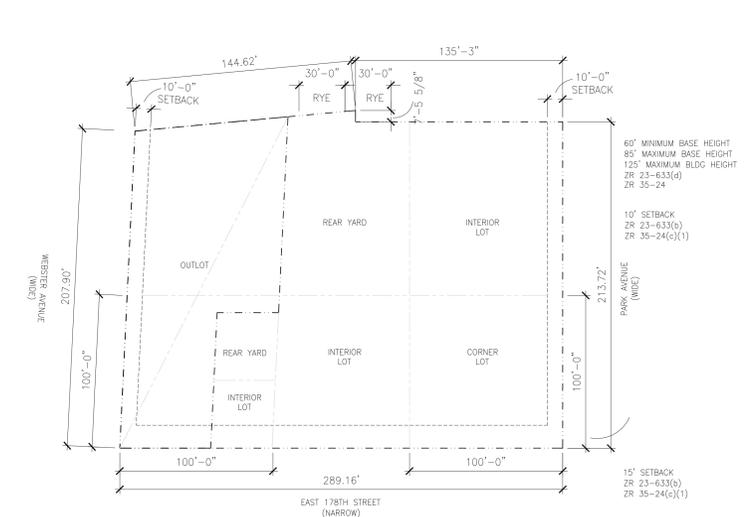
MECHANICAL DEDUCTIONS (NYC ZR 15-10)	
Typical Floor Mechanical Deductions	3.5% Grossing Factor
Actual Mechanical Deductions	3.5%

EXTERIOR WALL WIDTH DEDUCTIONS (NYC ZR 15-10)	
Exterior Wall Width Deduction	8 Inches
Actual Exterior Wall Width Deduction	8 Inches

GROSS FLOOR AREA (ZSF)	
Measured to Outside Face of Glass	243,760 sq ft
Measured to Inside Face of Glass	216,800 sq ft

AFFORDABLE HOUSING UNITS	
1 BR	1
2 BR	1
3 BR	1
4 BR	1
5 BR	1
6 BR	1
7 BR	1
8 BR	1
9 BR	1
10 BR	1
11 BR	1
12 BR	1
13 BR	1
14 BR	1
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92 BR	1
93 BR	1
94 BR	1
95 BR	1
96 BR	1
97 BR	1
98 BR	1
99 BR	1
100 BR	1

### 02 AREA CALCULATIONS N.T.S.



### 01 ZONING LOT ANALYSIS N.T.S.

**COOKFOX**

**4275 PARK AVENUE**  
BRONX, NY 10457

COMMON GROUND COMMUNITY  
305 Eighth Avenue, 15th Floor  
New York, NY 10018  
T: 212.389.8555

MOULTON CONSTRUCTION AND DEVELOPMENT  
700 White Plains Road  
Scarsdale, NY 10583  
T: 914.723.1200

COOKFOX ARCHITECTS, LLP  
641 Avenue of the Americas, Floor 9  
New York, NY 10011  
T: 212.477.0287 F: 212.477.4521

RICKSON CARDINALE ENGINEERS  
324 W 29th St, 4th Floor  
New York, NY 10001  
T: 212.239.1982

MURRAY ENGINEERING  
307 7th Avenue, Suite 1001  
New York, NY 10001  
T: 212.741.1102

TERPANI  
307 7th Avenue, Suite 1001  
New York, NY 10001  
T: 212.741.1102

**COOKFOX**

ISSUES:

NO.	DATE	DESCRIPTION
-----	------	-------------

HPD DESIGN REVIEW  
2014.04.28  
NOT FOR CONSTRUCTION

DRAWING TITLE  
ZONING ANALYSIS

SCALE: AS NOTED  
SHEET SIZE: 36"x48"

DRAWING NO: A-002

























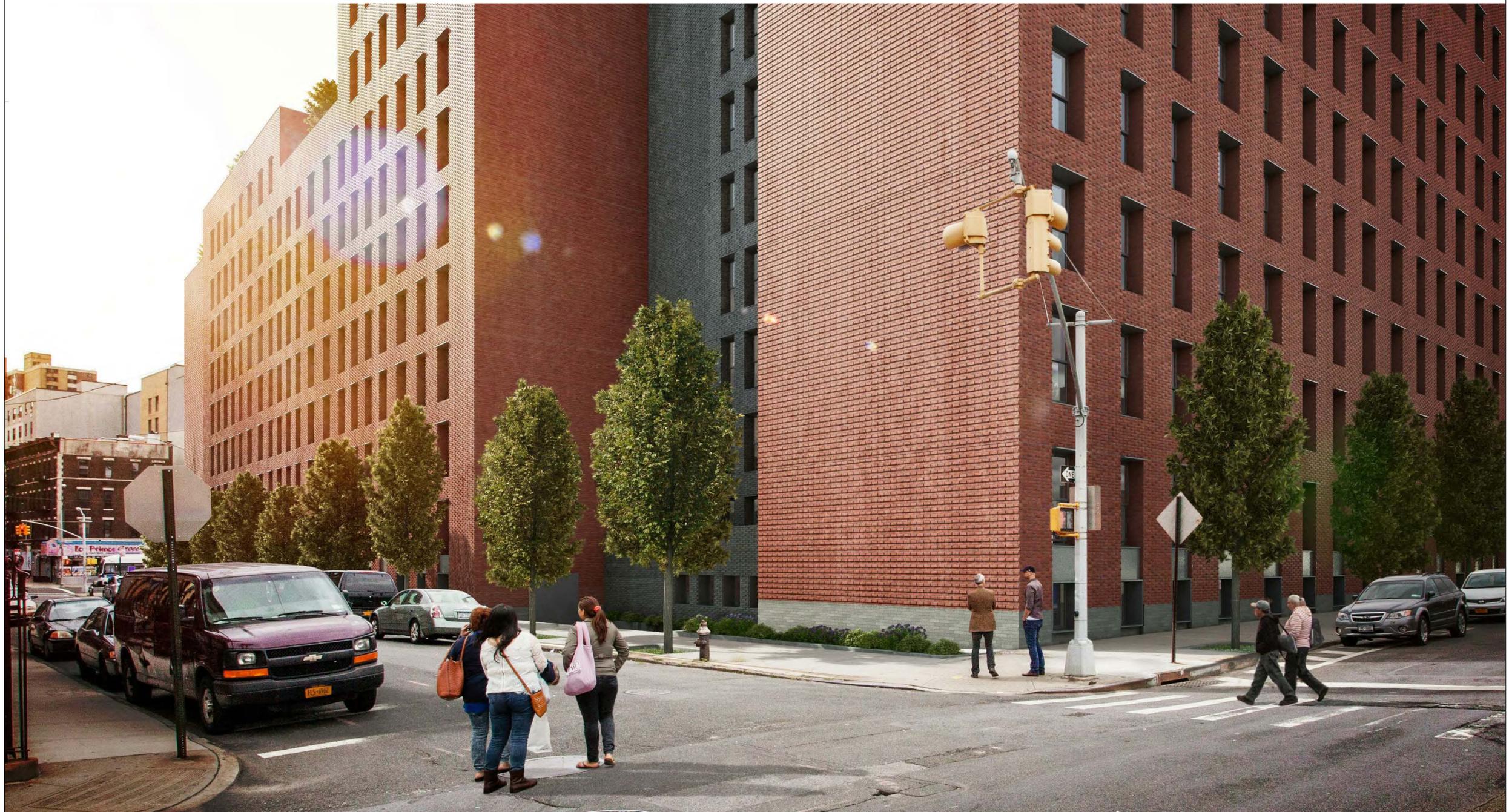


A

B

C

D



**4275  
PARK  
AVENUE**  
4275 PARK AVENUE  
BRONX, NY 10457

COMMON GROUND COMMUNITY owner  
605 Eighth Avenue, 10th Floor  
New York, NY 10018  
T: 212-368-9825

MOLINCO CONSTRUCTION AND DEVELOPMENT owner  
700 White Plains Road  
Scarsdale, NY 10583  
T: 914-723-1200

COOKFOX ARCHITECTS, LLP architect  
641 Avenue of the Americas, Floor 8  
New York, NY 10011  
T: 212-477-0287 F: 212-477-4521

HODKIN CARONALE ENGINEERS MEP ENGINEER  
224 W 29th St, 4th Floor  
New York, NY 10001  
T: 212-238-1962

MURRAY ENGINEERING STRUCTURAL ENGINEER  
307 7th Avenue, Suite 1001  
New York, NY 10001  
T: 212-741-1102



ISSUES:

NO.	DATE	DESCRIPTION

PLOT PLAN (NTS): BLOCK 3029/ LOT: 1, 6, 7, 75, 8, & 48

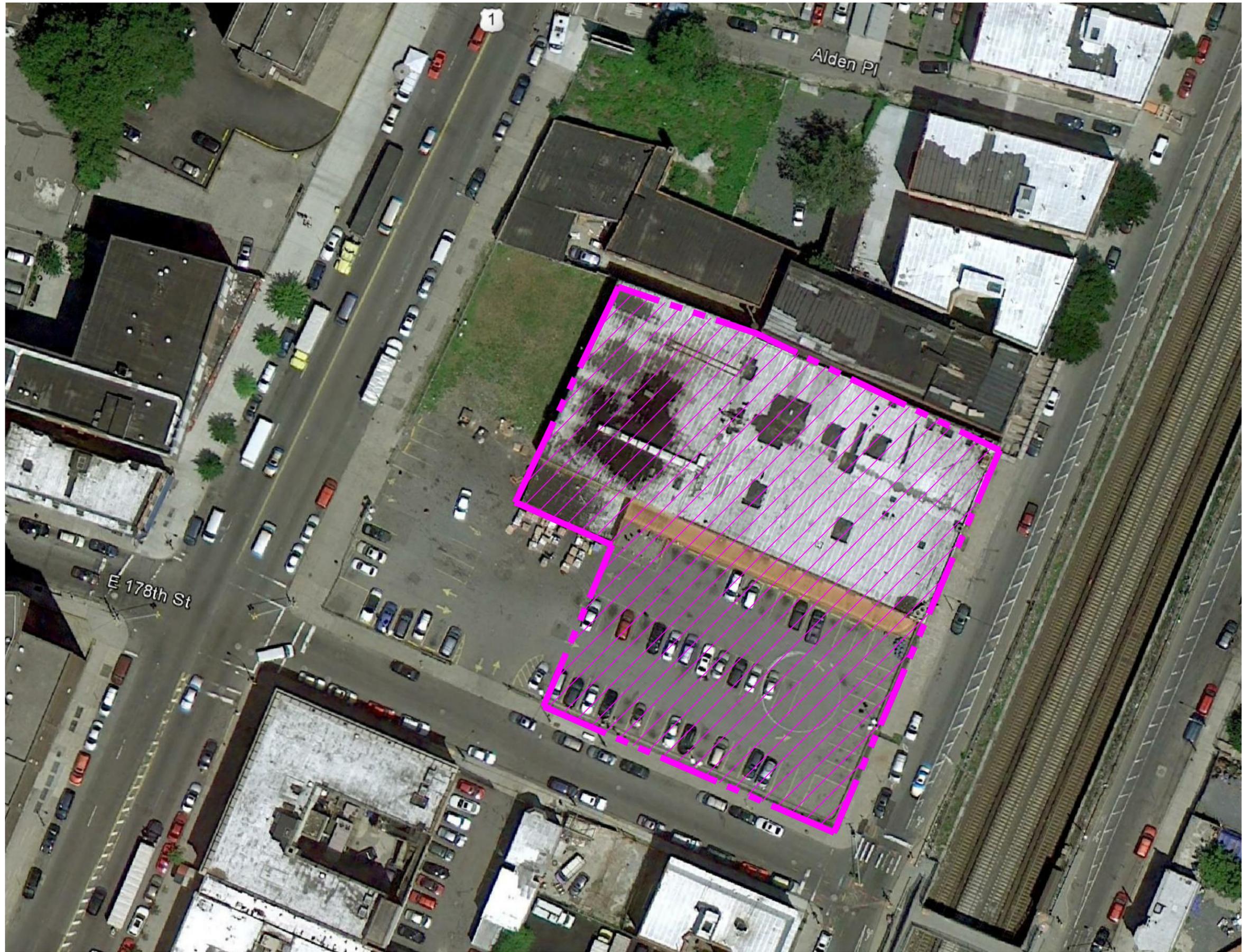


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**HPD DESIGN REVIEW**  
2014.04.28  
**NOT FOR CONSTRUCTION**

DRAWING TITLE  
**RENDERED VIEW -  
PARK AVENUE  
PERSPECTIVE**

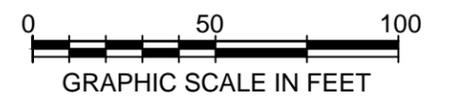
SEAL	PROJECT NO.: 3314
	SCALE
	SHEET SIZE: 48"x36"
	DRAWING NO.: <b>A-210</b>



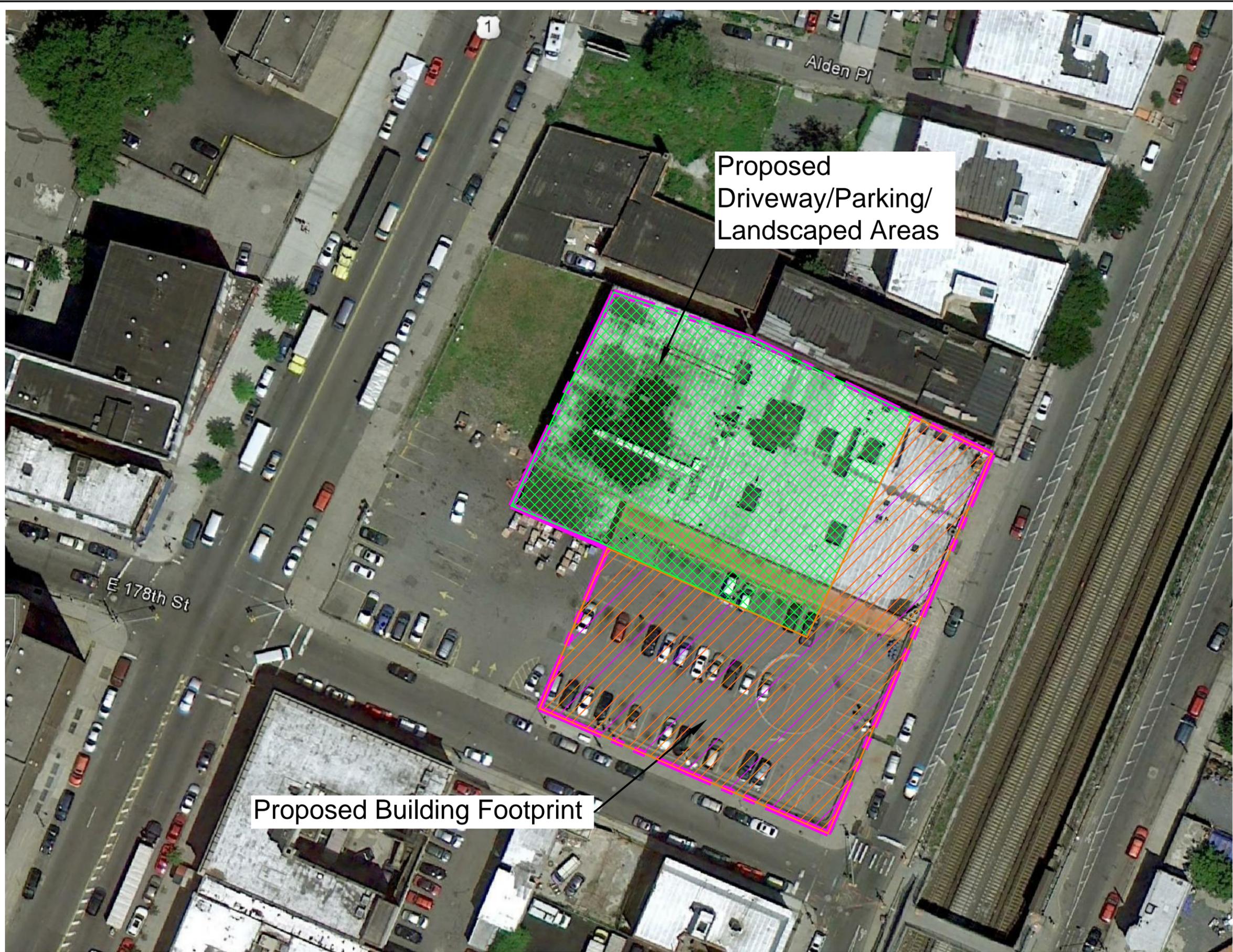
Legend

- Property Boundary
- Extent of Excavation

Note: The development plans will include excavating approximately 2 feet across the entire site, and down to approximately 8-12 feet for footings and elevator pits at required locations. Excavations and footings will not be located beneath the groundwater table at the site.



<p>TITLE</p> <p><b>Extent of Excavation</b>  <b>4275 Park Avenue</b>  <b>Bronx, NY 10457</b></p>			
<p>PREPARED FOR  <b>Mountco Construction &amp; Development Corporation</b></p>			
<p> <b>Environmental Resources Management</b></p>			<p>FIGURE</p> <p><b>4</b></p>
DRAWN BY	SCALE	DATE	JOB NO.
EMF	GRAPHIC	04/23/2014	0217830.05



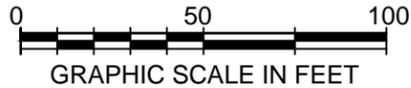
Proposed  
Driveway/Parking/  
Landscaped Areas

Proposed Building Footprint

Legend

-  Property Boundary
-  Proposed Building Footprint
-  Proposed Driveway/Parking Landscaped Areas

Note: The development plans will include excavating approximately 2 feet across the site, and down to approximately 8-12 feet for footings and elevator pits at required locations. Excavations and footings will not be located beneath the groundwater table at the site.



TITLE  
Proposed Development Layout  
4275 Park Avenue  
Bronx, NY 10457

PREPARED FOR  
Mountco Construction & Development Corporation

Environmental Resources Management

FIGURE  
5

DRAWN BY	SCALE	DATE	JOB NO.
EMF	GRAPHIC	04/23/2014	0217830.05



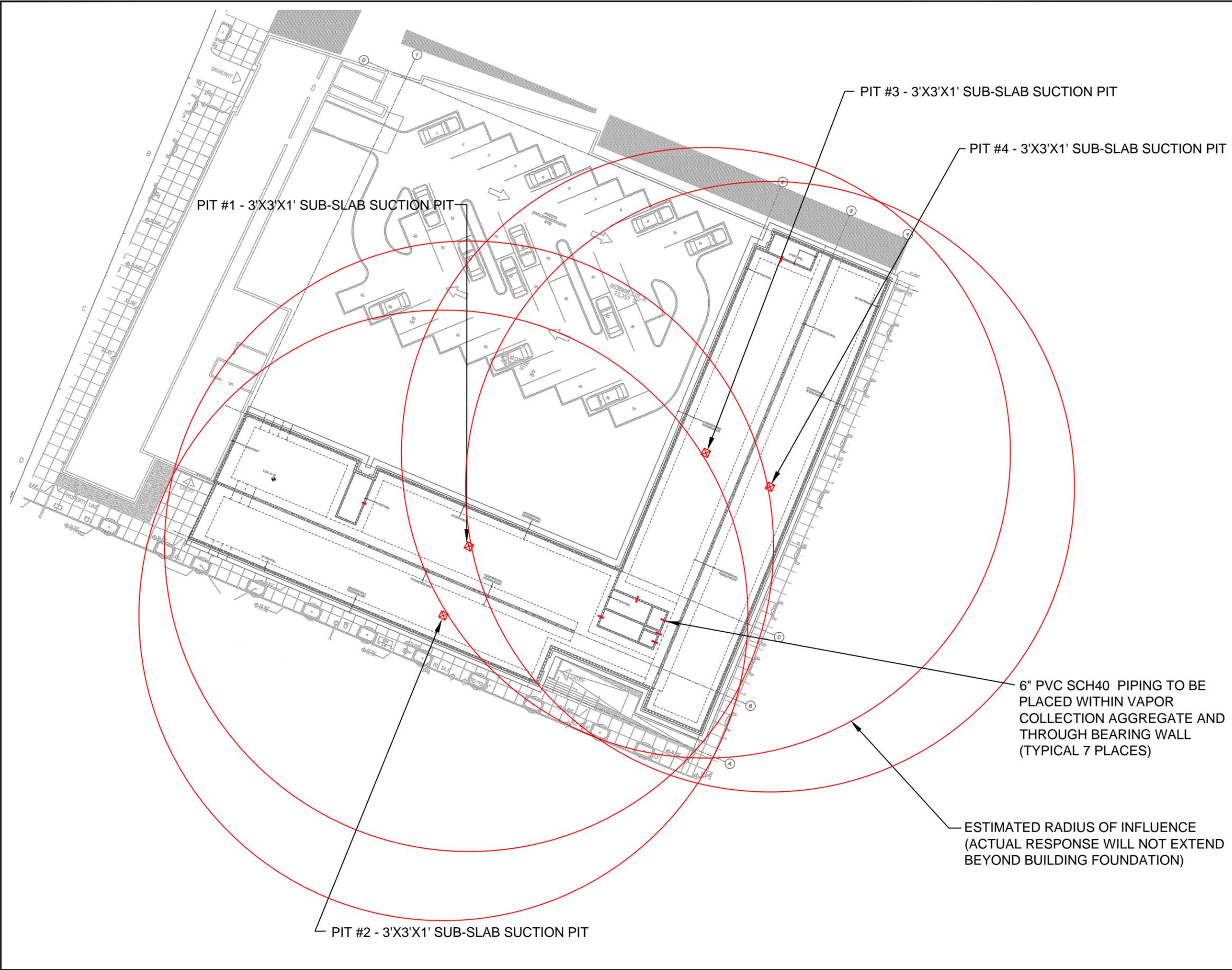
Legend

- Property Boundary
- Proposed Endpoint Sampling Location (If Required)



Metallic Anomaly

TITLE				Proposed Endpoint Sampling Locations 4275 Park Avenue Bronx, NY 10457	
PREPARED FOR				Moutco Construction & Development Corporation	
DRAWN BY				FIGURE	
EMF				6	
SCALE		DATE		JOB NO.	
GRAPHIC		04/23/2014		0217830.05	

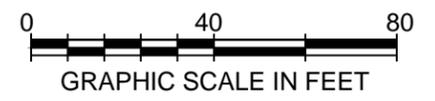


**LEGEND**

- ☒ SUB-SLAB SUCTION PIT  
(CIRCLE IS EST. RADIUS OF INFLUENCE)

**NOTES**

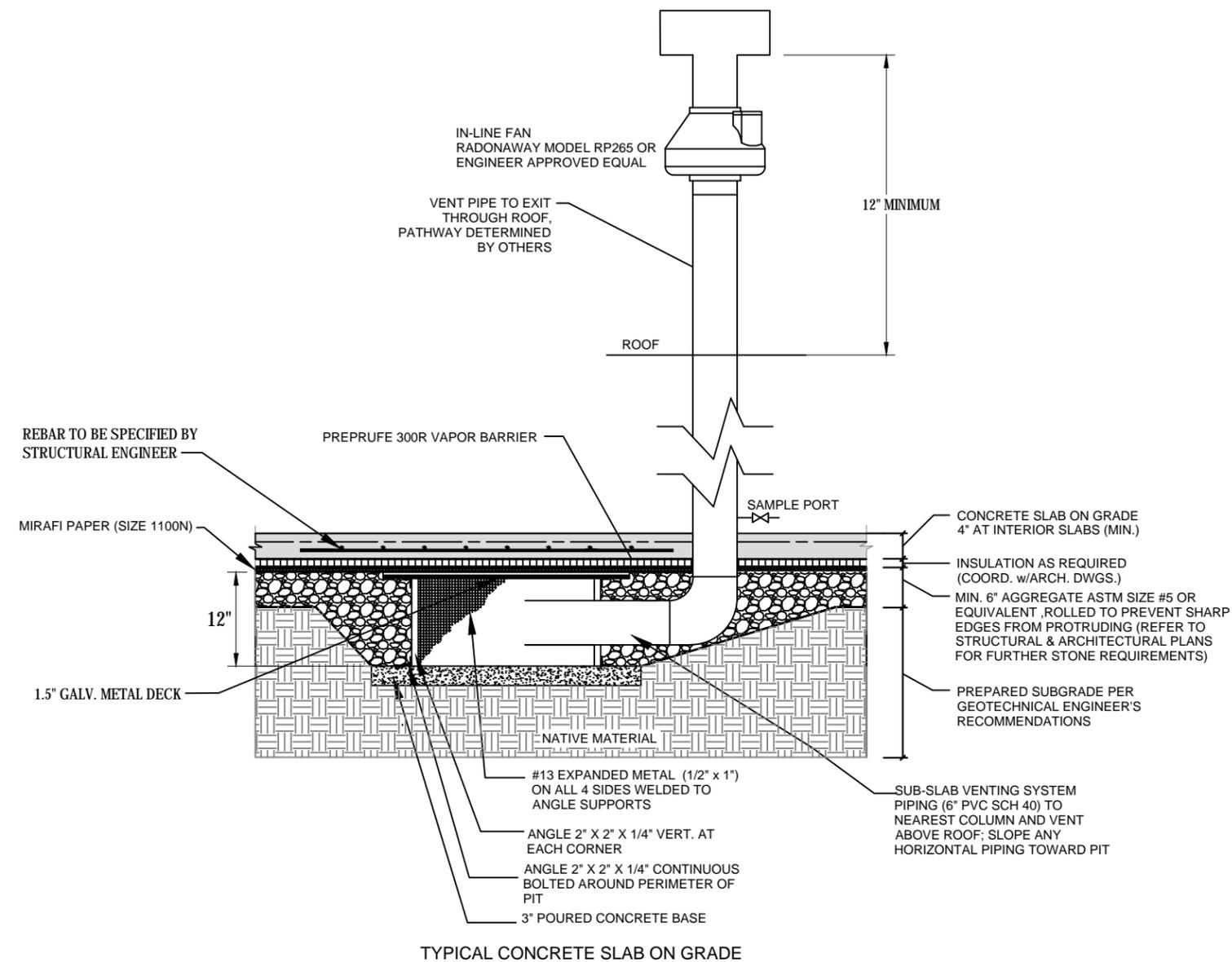
- 1) EXHAUST PIPING SHALL BE ROUTED AS SHOWN AND VENTED THROUGH A VERTICAL EXHAUST STACK (6" PVC SCH 40) AT A POINT AT LEAST 12" ABOVE THE HIGHEST POINT ON THE ROOF, AND AT LEAST 25 FT FROM OTHER BUILDINGS AND HVAC INTAKES.
- 2) THIS DESIGN ASSUMES NO INTERIOR SUB-SLAB WALL. ADDITIONAL SUCTION PITS MAY BE NEEDED BASED ON THE INSTALLATION OF ANY INTERIOR SUB-SLAB WALLS.
- 3) VAPOR COLLECTION AGGREGATE WILL TERMINATE ON EITHER SIDE OF DEEP FOOTINGS BUT WILL BE CONTINUOUS BENEATH ANY OTHER CONTINUOUS, INTERIOR GRADE BEAMS OR OTHER SUB-SLAB STRUCTURES
- 4) THESE PLANS ARE FOR THE VAPOR MITIGATION SYSTEM DESIGN ONLY.



6" PVC SCH40 PIPING TO BE PLACED WITHIN VAPOR COLLECTION AGGREGATE AND THROUGH BEARING WALL (TYPICAL 7 PLACES)

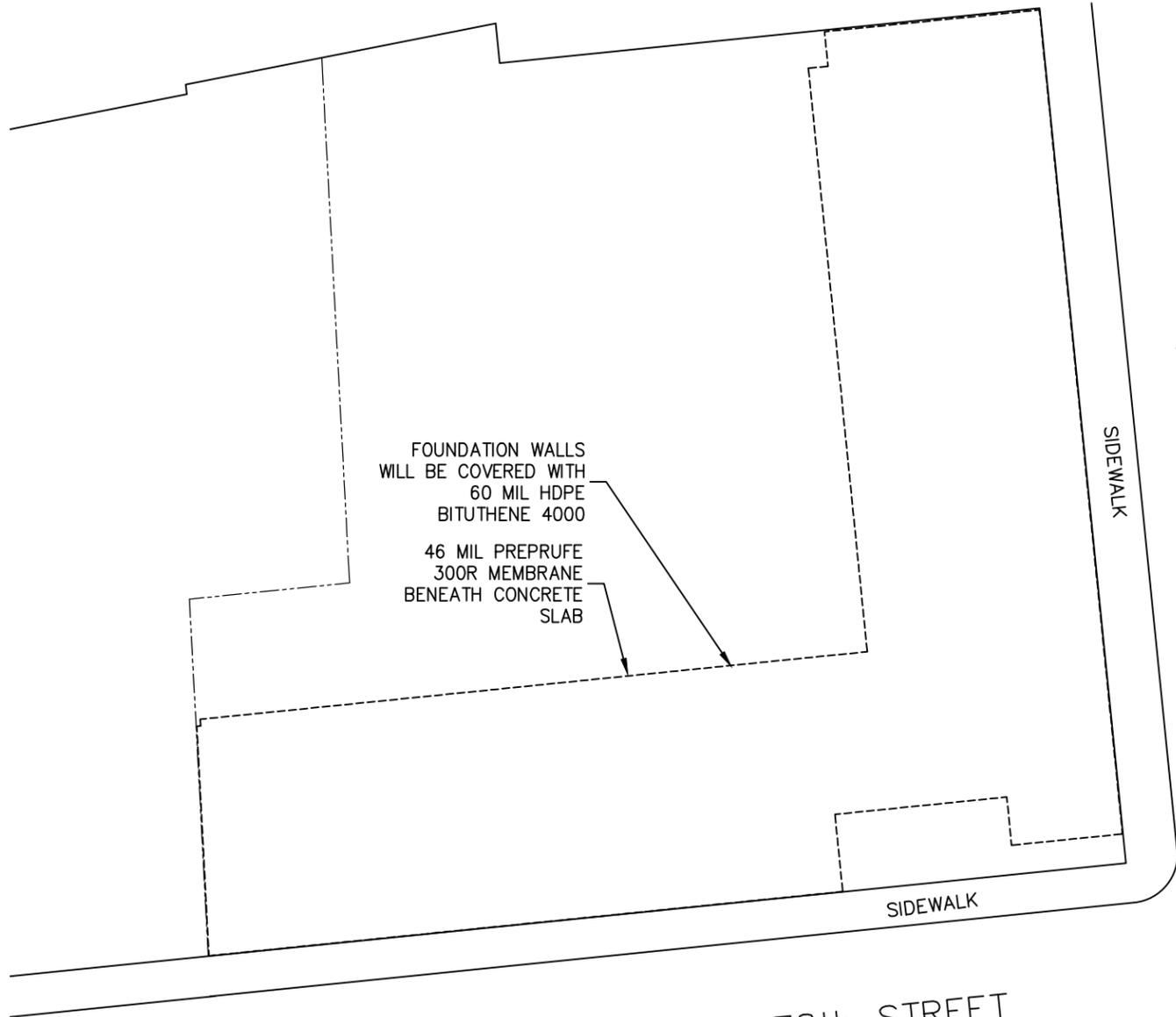
ESTIMATED RADIUS OF INFLUENCE (ACTUAL RESPONSE WILL NOT EXTEND BEYOND BUILDING FOUNDATION)

<p>TITLE</p> <p><b>Proposed Sub-Slab Depressurization System</b> 4275 Park Avenue Bronx, NY 10457</p>			
<p>PREPARED FOR</p> <p>Mountco Construction &amp; Development Corporation</p>			
<p>Environmental Resources Management</p>			<p>FIGURE</p> <p><b>7a</b></p>
DRAWN BY	SCALE	DATE	JOB NO.
EMF	GRAPHIC	05/02/2014	0217830.02



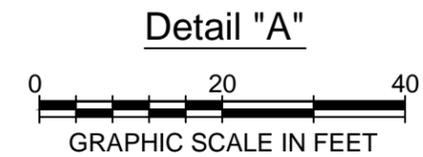
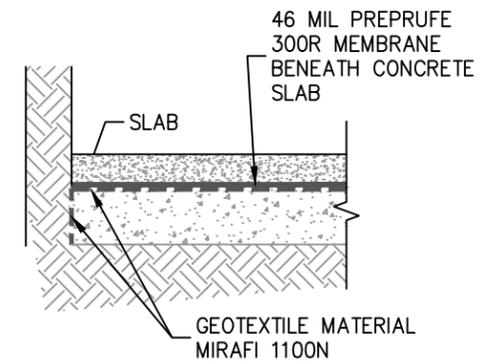
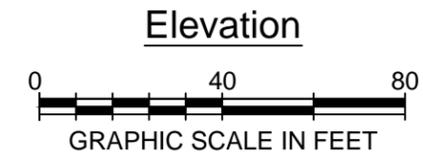
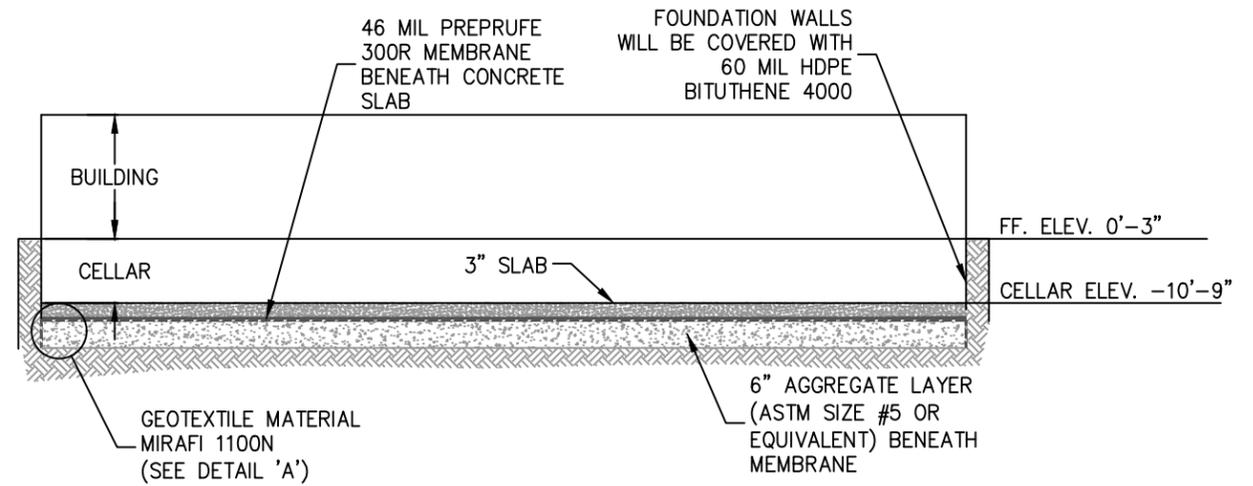
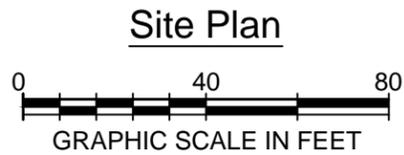
- NOTES
- 1) SUCTION PIT SHALL MEASURE 3' X 3' X 1' DEEP.
  - 2) 6" MINIMUM THICKNESS AGGREGATE LAYER SHALL EXTEND ACROSS THE ENTIRE BUILDING FOOTPRINT.
  - 3) PROVIDE MINIMUM 1/2" CLEARANCE AROUND PIPES ENTRANCE INTO SUCTION PIT.
  - 4) SAMPLE PORTS SHALL BE PROVIDED IN THE PIPING FOR EACH SUCTION PIT. SAMPLE PORTS SHALL INCLUDE 1/4" BALL VALVE AND HOSE BARB.
  - 5) EXTEND PIPING APPROXIMATELY 1 FOOT INTO SUCTION PIT
  - 6) THESE PLANS ARE FOR THE VAPOR MITIGATION SYSTEM DESIGN ONLY.

TITLE				FIGURE
SSDS Detail 4275 Park Avenue Bronx, NY 10457				
PREPARED FOR				7b
Mountco Construction & Development Corporation				
Environmental Resources Management				
DRAWN BY	SCALE	DATE	JOB NO.	
EMF	GRAPHIC	04/23/2014	0217830.02	



FOUNDATION WALLS  
WILL BE COVERED WITH  
60 MIL HDPE  
BITUTHENE 4000

46 MIL PREPRUFE  
300R MEMBRANE  
BENEATH CONCRETE  
SLAB



TITLE				FIGURE
Site Plan and Elevation 4275 Park Avenue Bronx, NY 10457				
PREPARED FOR				
Mountco Construction & Development Corporation				
DRAWN BY		SCALE	DATE	JOB NO.
EMF		Graphic	06/11/2014	xxxxxxx
				8

# **TABLES**















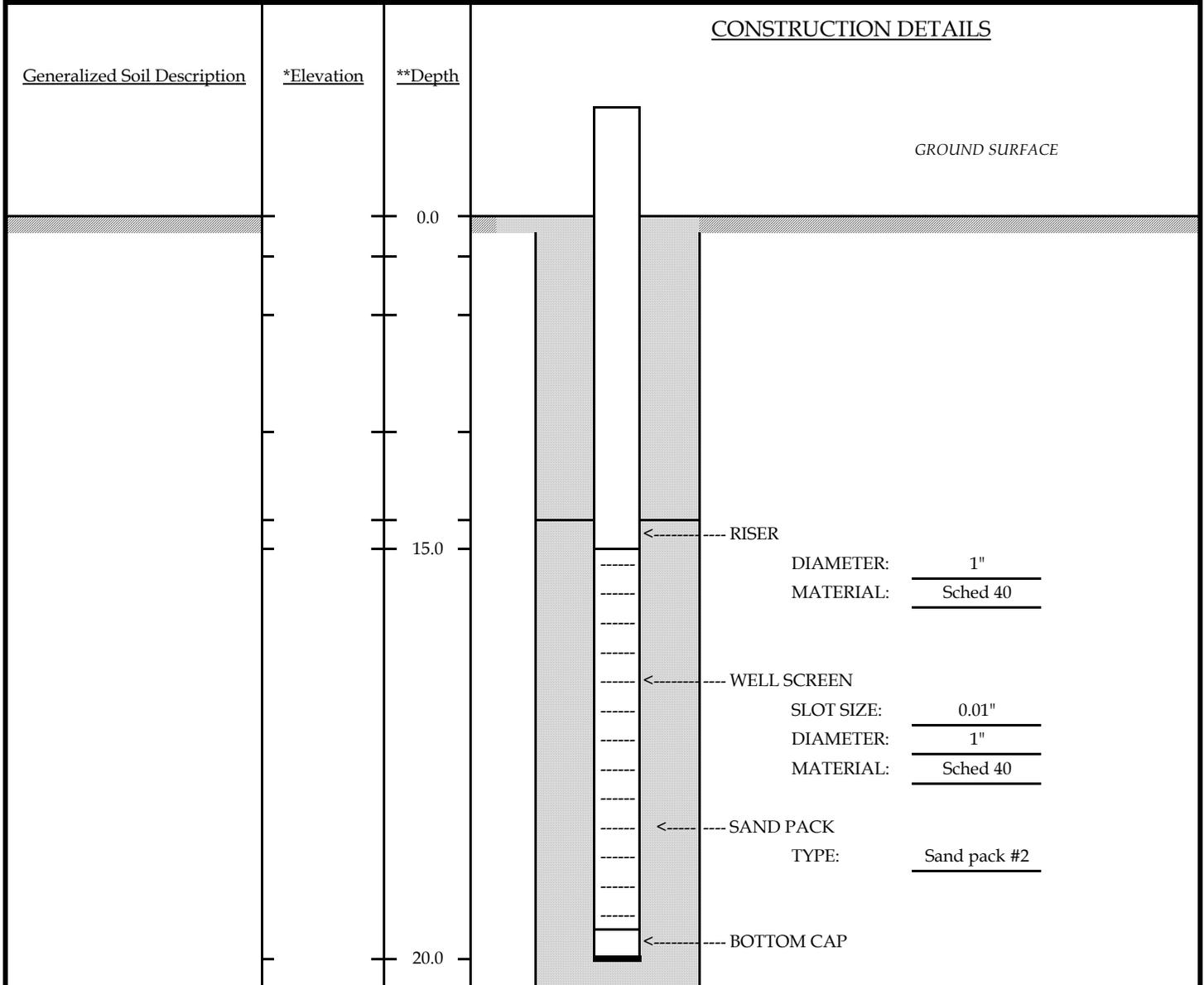
ERM

WELL : ERMGW-01

105 Maxess Road, Suite 316, Melville, NY 11747

## TEMPORARY MONITORING WELL CONSTRUCTION LOG

<i>Project Name &amp; Location</i> <b>Mountco Webster Ave</b>		<i>Project No.</i> <b>0217830</b>		<i>Water Level(s)</i> (ft below top of PVC casing)		<i>Site Elevation Datum (feet)</i>	
<i>Drilling Company</i> <b>Ephase II LLC</b>		<i>Foreman</i> <b>Steve</b>		<i>Date</i>	<i>Time</i>	<i>Level (feet)</i>	<i>Ground Elevation (feet)</i>
<i>Surveyor</i>							<i>Top of Protective Steel Cap Elevation (feet)</i>
<i>Date and Time of Completion</i> <b>9/16/2013</b>		<i>Geologist</i> <b>Brice Lynch</b>				<i>Top of Riser Pipe Elevation (feet)</i>	



REMARKS \_\_\_\_\_

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\_\_\_\_\_

\* Elevation (feet) above mean sea level unless noted

\*\* Depth in feet below ground surface

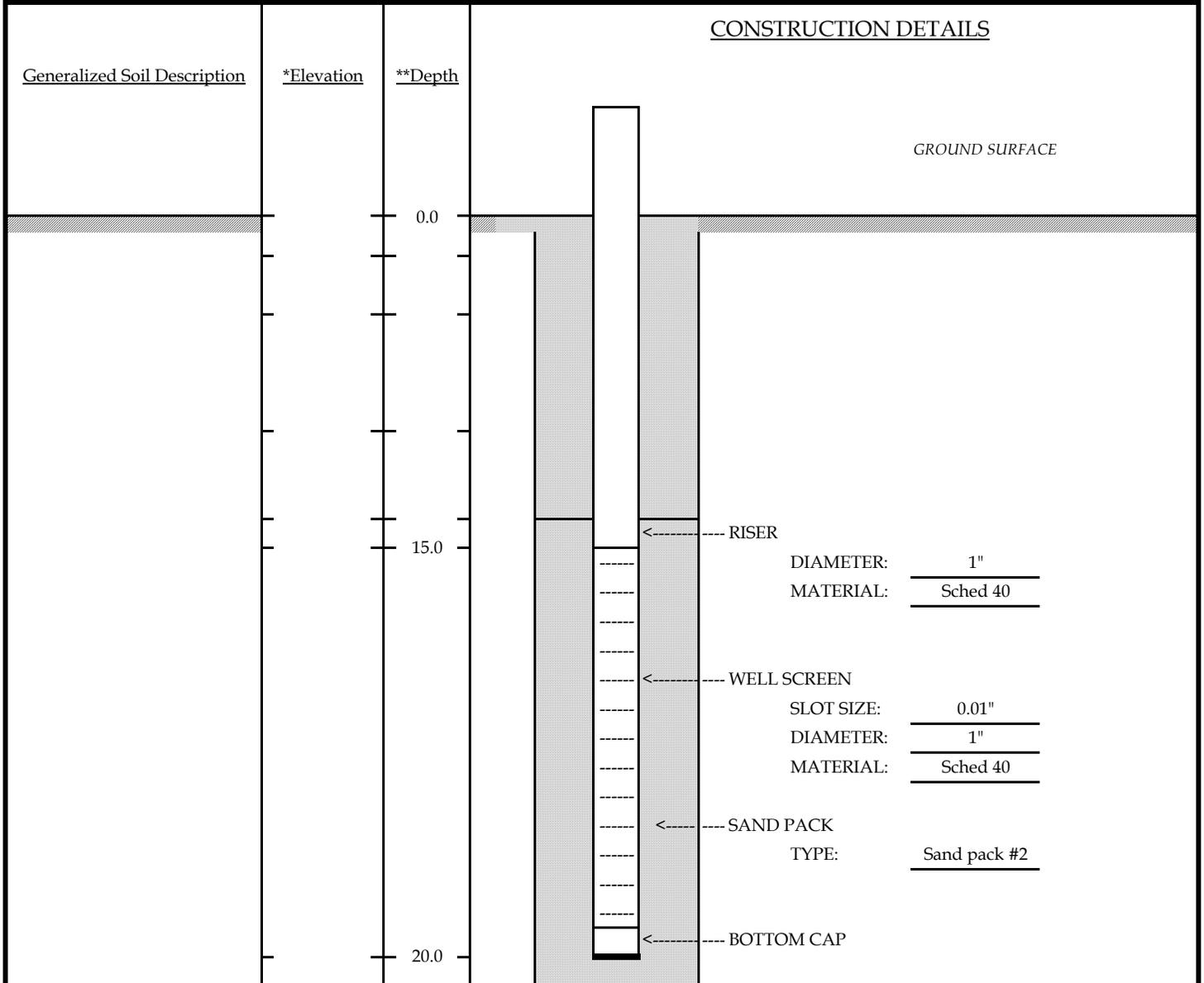
ERM

WELL : ERMGW-02

105 Maxess Road, Suite 316, Melville, NY 11747

## TEMPORARY MONITORING WELL CONSTRUCTION LOG

<i>Project Name &amp; Location</i> <b>Mountco Webster Ave</b>		<i>Project No.</i> <b>0217830</b>		<i>Water Level(s)</i> (ft below top of PVC casing)		<i>Site Elevation Datum (feet)</i>	
<i>Drilling Company</i> <b>Ephase II LLC</b>		<i>Foreman</i> <b>Steve</b>		<i>Date</i>	<i>Time</i>	<i>Level (feet)</i>	<i>Ground Elevation (feet)</i>
<i>Surveyor</i>							<i>Top of Protective Steel Cap Elevation (feet)</i>
<i>Date and Time of Completion</i> <b>9/17/2013</b>		<i>Geologist</i> <b>Brice Lynch</b>				<i>Top of Riser Pipe Elevation (feet)</i>	



REMARKS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\* Elevation (feet) above mean sea level unless noted

\*\* Depth in feet below ground surface

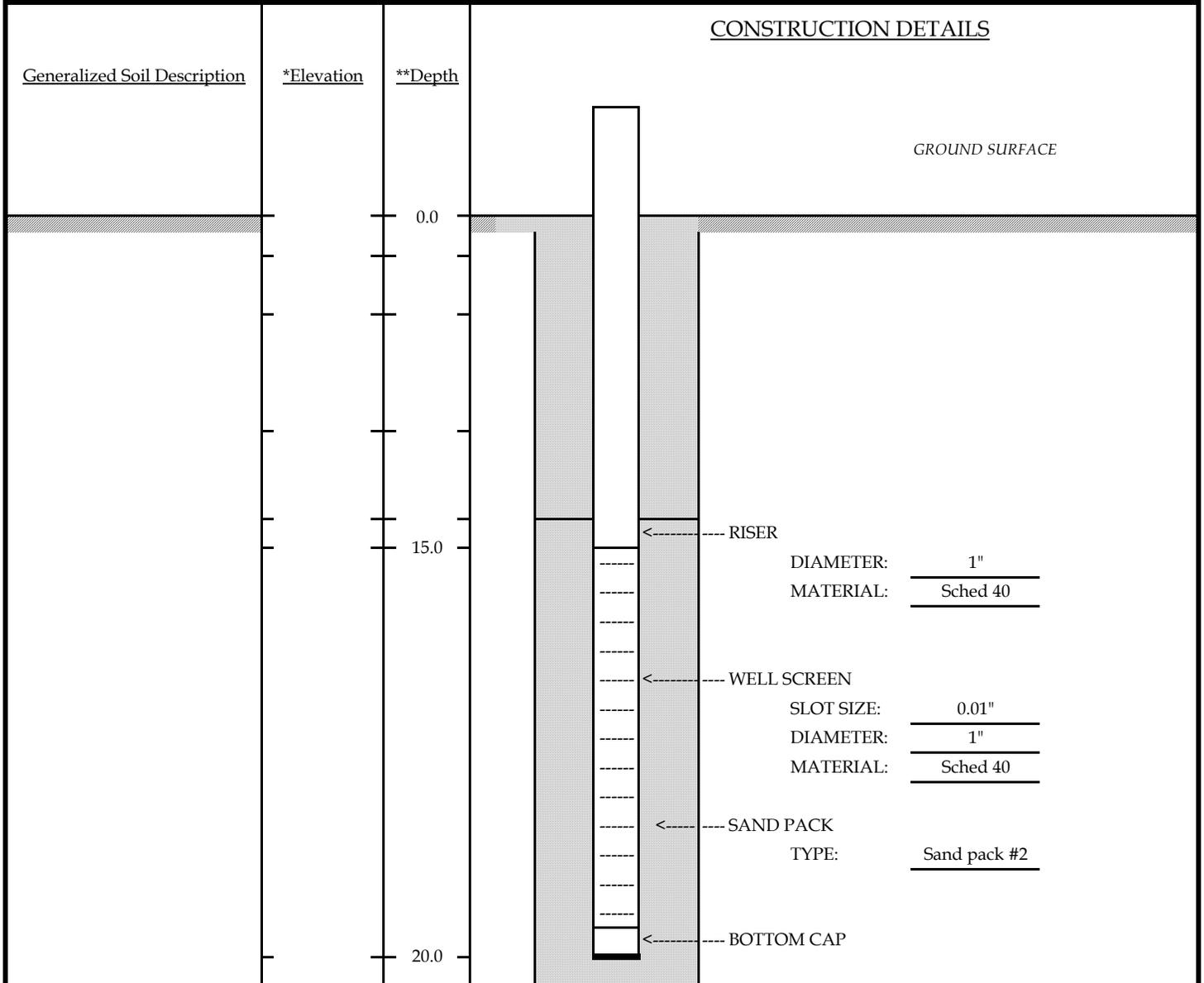
ERM

WELL : ERMGW-03

105 Maxess Road, Suite 316, Melville, NY 11747

## TEMPORARY MONITORING WELL CONSTRUCTION LOG

<i>Project Name &amp; Location</i> <b>Mountco Webster Ave</b>		<i>Project No.</i> <b>0217830</b>		<i>Water Level(s)</i> (ft below top of PVC casing)		<i>Site Elevation Datum (feet)</i>	
<i>Drilling Company</i> <b>Ephase II LLC</b>		<i>Foreman</i> <b>Steve</b>		<i>Date</i>	<i>Time</i>	<i>Level (feet)</i>	<i>Ground Elevation (feet)</i>
<i>Surveyor</i>							<i>Top of Protective Steel Cap Elevation (feet)</i>
<i>Date and Time of Completion</i> <b>9/17/2013</b>		<i>Geologist</i> <b>Brice Lynch</b>				<i>Top of Riser Pipe Elevation (feet)</i>	



REMARKS \_\_\_\_\_

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\_\_\_\_\_

\* Elevation (feet) above mean sea level unless noted

\*\* Depth in feet below ground surface

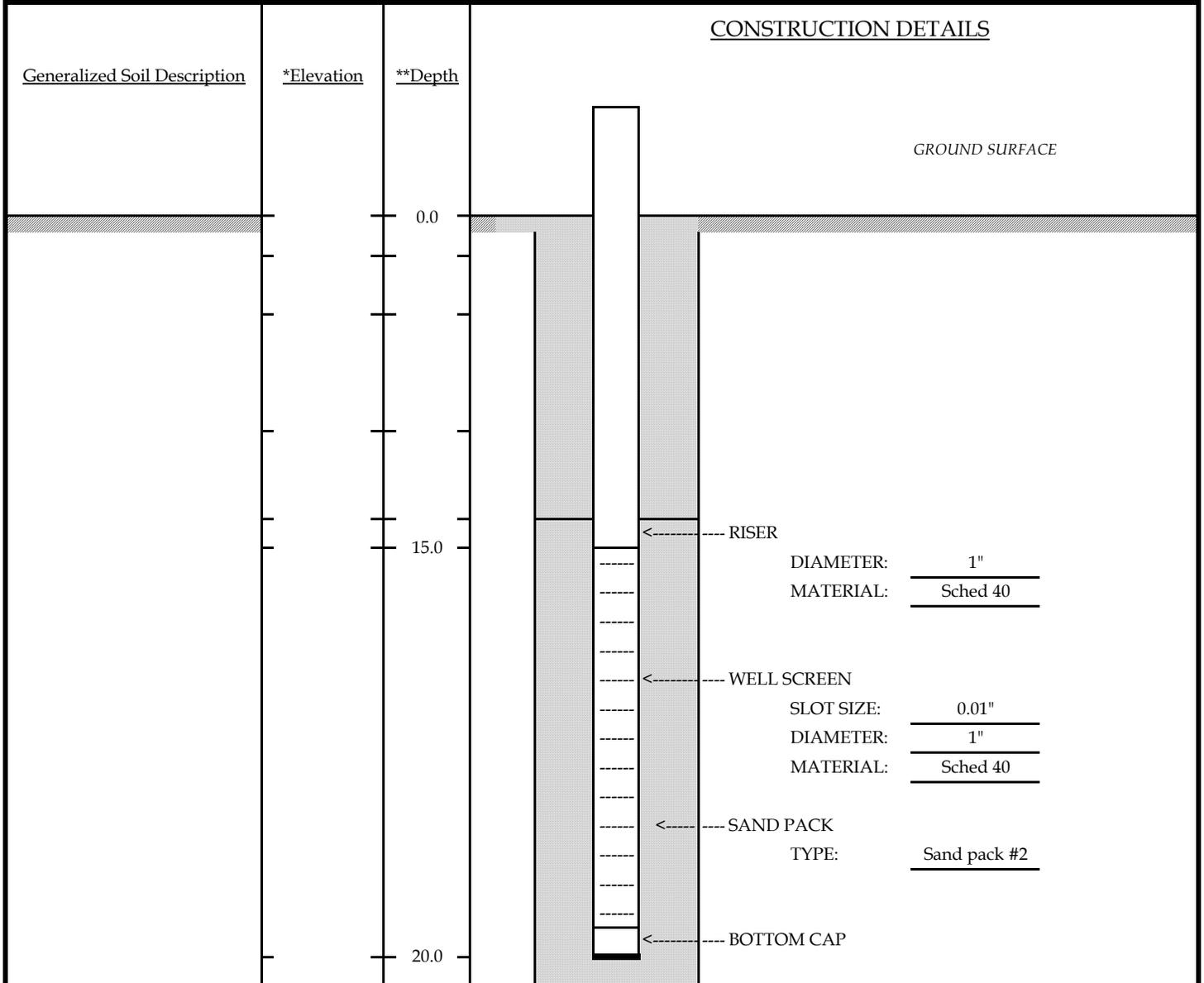
ERM

WELL : ERMGW-04

105 Maxess Road, Suite 316, Melville, NY 11747

## TEMPORARY MONITORING WELL CONSTRUCTION LOG

<i>Project Name &amp; Location</i> <b>Mountco Webster Ave</b>	<i>Project No.</i> <b>0217830</b>	<i>Water Level(s)</i> (ft below top of PVC casing)		<i>Site Elevation Datum (feet)</i>
<i>Drilling Company</i> <b>Ephase II LLC</b>	<i>Foreman</i> <b>Steve</b>	<b>Date</b>	<b>Time</b>	<b>Level</b> (feet)
<i>Surveyor</i>				
<i>Date and Time of Completion</i> <b>9/18/2013</b>				<i>Top of Protective Steel Cap Elevation (feet)</i>
<i>Geologist</i> <b>Brice Lynch</b>				<i>Top of Riser Pipe Elevation (feet)</i>



REMARKS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\* Elevation (feet) above mean sea level unless noted

\*\* Depth in feet below ground surface

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-01 JB47653-1 09/16/2013	ERMSB-01 JB47653-2 09/16/2013	ERMSB-02 JB47653-4 09/16/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
1,1,1-Trichloroethane	(ug/kg)	100000	5.9 U	6.2 U	5.1 U
1,1,2,2-Tetrachloroethane	(ug/kg)	35000	5.9 U	6.2 U	5.1 U
1,1,2-Trichloroethane	(ug/kg)		5.9 U	6.2 U	5.1 U
1,1-Dichloroethane	(ug/kg)	19000	5.9 U	6.2 U	5.1 U
1,1-Dichloroethene	(ug/kg)	100000	5.9 U	6.2 U	5.1 U
1,2,3-Trichlorobenzene	(ug/kg)		5.9 U	6.2 U	5.1 U
1,2,4-Trichlorobenzene	(ug/kg)		5.9 U	6.2 U	5.1 U
1,2-Dibromo-3-chloropropane	(ug/kg)		12 U	12 U	10 U
1,2-Dibromoethane	(ug/kg)		1.2 U	1.2 U	1.0 U
1,2-Dichlorobenzene	(ug/kg)	100000	5.9 U	6.2 U	5.1 U
1,2-Dichloroethane	(ug/kg)	2300	1.2 U	1.2 U	1.0 U
1,2-Dichloropropane	(ug/kg)		5.9 U	6.2 U	5.1 U
1,3-Dichlorobenzene	(ug/kg)	17000	5.9 U	6.2 U	5.1 U
1,4-Dichlorobenzene	(ug/kg)	9800	5.9 U	6.2 U	5.1 U
1,4-Dioxane	(ug/kg)	9800	150 U	150 U	130 U
2-Butanone	(ug/kg)	100000	12 U	12 U	10 U
2-Hexanone	(ug/kg)		5.9 U	6.2 U	5.1 U
4-Methyl-2-Pentanone	(ug/kg)		5.9 U	7.4	5.1 U
Acetone	(ug/kg)	100000	8.4 J	12.7	10 U
Benzene	(ug/kg)	2900	1.2 U	1.2 U	1.0 U
Bromochloromethane	(ug/kg)		5.9 U	6.2 U	5.1 U
Bromodichloromethane	(ug/kg)		5.9 U	6.2 U	5.1 U
Bromoform	(ug/kg)		5.9 U	6.2 U	5.1 U
Bromomethane	(ug/kg)		5.9 U	6.2 U	5.1 U
Carbon Disulfide	(ug/kg)	100000	5.9 U	6.2 U	5.1 U
Carbon Tetrachloride	(ug/kg)	1400	5.9 U	6.2 U	5.1 U
Chlorobenzene	(ug/kg)	100000	5.9 U	6.2 U	5.1 U
Chloroethane	(ug/kg)		5.9 U	6.2 U	5.1 U
Chloroform	(ug/kg)	10000	5.9 U	6.2 U	5.1 U
Chloromethane	(ug/kg)		5.9 U	6.2 U	5.1 U
cis-1,2-Dichloroethene	(ug/kg)	59000	5.9 U	6.2 U	5.1 U
cis-1,3-Dichloropropene	(ug/kg)		5.9 U	6.2 U	5.1 U
Cyclohexane	(ug/kg)		5.9 U	6.2 U	5.1 U
Dibromochloromethane	(ug/kg)		5.9 U	6.2 U	5.1 U
Dichlorodifluoromethane	(ug/kg)		5.9 U	6.2 U	5.1 U
Ethylbenzene	(ug/kg)	30000	0.45 J	1.2 U	1.0 U
Freon 113	(ug/kg)	100000	5.9 U	6.2 U	5.1 U

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-01 JB47653-1 09/16/2013	ERMSB-01 JB47653-2 09/16/2013	ERMSB-02 JB47653-4 09/16/2013
Isopropylbenzene	(ug/kg)	100000	5.9 U	6.2 U	5.1 U
m+p-Xylene	(ug/kg)		1.5	1.0 J	1.0 U
Methyl Acetate	(ug/kg)		5.9 U	6.2 U	5.1 U
Methyl Cyclohexane	(ug/kg)		5.9 U	6.2 U	5.1 U
Methyl Tertiary Butyl Ether	(ug/kg)	62000	1.2 U	1.2 U	1.0 U
Methylene Chloride	(ug/kg)	51000	2.3 J	6.2 U	5.1 U
o-Xylene	(ug/kg)		0.82 J	1.2 U	1.0 U
Styrene	(ug/kg)		5.9 U	0.26 J	5.1 U
Tetrachloroethene	(ug/kg)	5500	5.9 U	6.2 U	5.1 U
Toluene	(ug/kg)	100000	1.2 U	0.29 J	1.0 U
trans-1,2-Dichloroethene	(ug/kg)	100000	5.9 U	6.2 U	5.1 U
trans-1,3-Dichloropropene	(ug/kg)		5.9 U	6.2 U	5.1 U
Trichloroethene	(ug/kg)	10000	5.9 U	6.2 U	5.1 U
Trichlorofluoromethane	(ug/kg)		5.9 U	6.2 U	5.1 U
Vinyl chloride	(ug/kg)	210	5.9 U	6.2 U	5.1 U
Xylene (total)	(ug/kg)	100000	2.3	1.0 J	1.0 U

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-02 JB47653-5 09/16/2013	ERMSB-03 JB47653-8 09/17/2013	ERMSB-03 JB47653-9 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
1,1,1-Trichloroethane	(ug/kg)	100000	5.2 U	5.7 U	310 U
1,1,2,2-Tetrachloroethane	(ug/kg)	35000	5.2 U	5.7 U	310 U
1,1,2-Trichloroethane	(ug/kg)		5.2 U	5.7 U	310 U
1,1-Dichloroethane	(ug/kg)	19000	5.2 U	5.7 U	310 U
1,1-Dichloroethene	(ug/kg)	100000	5.2 U	5.7 U	310 U
1,2,3-Trichlorobenzene	(ug/kg)		5.2 U	5.7 U	310 U
1,2,4-Trichlorobenzene	(ug/kg)		5.2 U	5.7 U	310 U
1,2-Dibromo-3-chloropropane	(ug/kg)		10 U	11 U	630 U
1,2-Dibromoethane	(ug/kg)		1.0 U	1.1 U	63 U
1,2-Dichlorobenzene	(ug/kg)	100000	5.2 U	5.7 U	310 U
1,2-Dichloroethane	(ug/kg)	2300	1.0 U	1.1 U	63 U
1,2-Dichloropropane	(ug/kg)		5.2 U	5.7 U	310 U
1,3-Dichlorobenzene	(ug/kg)	17000	5.2 U	5.7 U	310 U
1,4-Dichlorobenzene	(ug/kg)	9800	5.2 U	5.7 U	310 U
1,4-Dioxane	(ug/kg)	9800	130 U	140 U	7900 U
2-Butanone	(ug/kg)	100000	10 U	11 U	630 U
2-Hexanone	(ug/kg)		5.2 U	5.7 U	310 U
4-Methyl-2-Pentanone	(ug/kg)		5.2 U	5.7 U	310 U
Acetone	(ug/kg)	100000	10 U	25.7	630 U
Benzene	(ug/kg)	2900	1.0 U	0.39 J	63 U
Bromochloromethane	(ug/kg)		5.2 U	5.7 U	310 U
Bromodichloromethane	(ug/kg)		5.2 U	5.7 U	310 U
Bromoform	(ug/kg)		5.2 U	5.7 U	310 U
Bromomethane	(ug/kg)		5.2 U	5.7 U	310 U
Carbon Disulfide	(ug/kg)	100000	5.2 U	5.7 U	310 U
Carbon Tetrachloride	(ug/kg)	1400	5.2 U	5.7 U	310 U
Chlorobenzene	(ug/kg)	100000	5.2 U	5.7 U	310 U
Chloroethane	(ug/kg)		5.2 U	5.7 U	310 U
Chloroform	(ug/kg)	10000	5.2 U	5.7 U	310 U
Chloromethane	(ug/kg)		5.2 U	5.7 U	310 U
cis-1,2-Dichloroethene	(ug/kg)	59000	5.2 U	0.47 J	310 U
cis-1,3-Dichloropropene	(ug/kg)		5.2 U	5.7 U	310 U
Cyclohexane	(ug/kg)		5.2 U	5.7 U	310 U
Dibromochloromethane	(ug/kg)		5.2 U	5.7 U	310 U
Dichlorodifluoromethane	(ug/kg)		5.2 U	5.7 U	310 U
Ethylbenzene	(ug/kg)	30000	1.0 U	0.61 J	63 U
Freon 113	(ug/kg)	100000	5.2 U	5.7 U	310 U

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-02 JB47653-5 09/16/2013	ERMSB-03 JB47653-8 09/17/2013	ERMSB-03 JB47653-9 09/17/2013
Isopropylbenzene	(ug/kg)	100000	5.2 U	5.7 U	310 U
m+p-Xylene	(ug/kg)		1.0 U	1.6	63 U
Methyl Acetate	(ug/kg)		5.2 U	5.7 U	310 U
Methyl Cyclohexane	(ug/kg)		5.2 U	5.7 U	310 U
Methyl Tertiary Butyl Ether	(ug/kg)	62000	1.0 U	1.1 U	63 U
Methylene Chloride	(ug/kg)	51000	5.2 U	5.7 U	310 U
o-Xylene	(ug/kg)		1.0 U	0.59 J	63 U
Styrene	(ug/kg)		5.2 U	5.7 U	310 U
Tetrachloroethene	(ug/kg)	5500	5.2 U	5.7 U	310 U
Toluene	(ug/kg)	100000	1.0 U	0.94 J	63 U
trans-1,2-Dichloroethene	(ug/kg)	100000	5.2 U	5.7 U	310 U
trans-1,3-Dichloropropene	(ug/kg)		5.2 U	5.7 U	310 U
Trichloroethene	(ug/kg)	10000	5.2 U	5.7 U	310 U
Trichlorofluoromethane	(ug/kg)		5.2 U	5.7 U	310 U
Vinyl chloride	(ug/kg)	210	5.2 U	5.7 U	310 U
Xylene (total)	(ug/kg)	100000	1.0 U	2.2	63 U

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-04 JB47653-6 09/16/2013	ERMSB-04 JB47653-7 09/16/2013	ERMSB-05 JB47653-10 09/17/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
1,1,1-Trichloroethane	(ug/kg)	100000	5.4 U	5.2 U	5.3 U
1,1,2,2-Tetrachloroethane	(ug/kg)	35000	5.4 U	5.2 U	5.3 U
1,1,2-Trichloroethane	(ug/kg)		5.4 U	5.2 U	5.3 U
1,1-Dichloroethane	(ug/kg)	19000	5.4 U	5.2 U	5.3 U
1,1-Dichloroethene	(ug/kg)	100000	5.4 U	5.2 U	5.3 U
1,2,3-Trichlorobenzene	(ug/kg)		5.4 U	5.2 U	5.3 U
1,2,4-Trichlorobenzene	(ug/kg)		5.4 U	5.2 U	5.3 U
1,2-Dibromo-3-chloropropane	(ug/kg)		11 U	10 U	11 U
1,2-Dibromoethane	(ug/kg)		1.1 U	1.0 U	1.1 U
1,2-Dichlorobenzene	(ug/kg)	100000	5.4 U	5.2 U	5.3 U
1,2-Dichloroethane	(ug/kg)	2300	1.1 U	1.0 U	1.1 U
1,2-Dichloropropane	(ug/kg)		5.4 U	5.2 U	5.3 U
1,3-Dichlorobenzene	(ug/kg)	17000	5.4 U	5.2 U	5.3 U
1,4-Dichlorobenzene	(ug/kg)	9800	5.4 U	5.2 U	5.3 U
1,4-Dioxane	(ug/kg)	9800	130 U	130 U	130 U
2-Butanone	(ug/kg)	100000	11 U	10 U	11 U
2-Hexanone	(ug/kg)		5.4 U	5.2 U	5.3 U
4-Methyl-2-Pentanone	(ug/kg)		5.4 U	5.2 U	5.3 U
Acetone	(ug/kg)	100000	11 U	10 U	5.4 J
Benzene	(ug/kg)	2900	1.1 U	1.0 U	0.62 J
Bromochloromethane	(ug/kg)		5.4 U	5.2 U	5.3 U
Bromodichloromethane	(ug/kg)		5.4 U	5.2 U	5.3 U
Bromoform	(ug/kg)		5.4 U	5.2 U	5.3 U
Bromomethane	(ug/kg)		5.4 U	5.2 U	5.3 U
Carbon Disulfide	(ug/kg)	100000	5.4 U	5.2 U	5.3 U
Carbon Tetrachloride	(ug/kg)	1400	5.4 U	5.2 U	5.3 U
Chlorobenzene	(ug/kg)	100000	5.4 U	5.2 U	5.3 U
Chloroethane	(ug/kg)		5.4 U	5.2 U	5.3 U
Chloroform	(ug/kg)	10000	5.4 U	5.2 U	5.3 U
Chloromethane	(ug/kg)		5.4 U	5.2 U	5.3 U
cis-1,2-Dichloroethene	(ug/kg)	59000	0.31 J	5.2 U	0.70 J
cis-1,3-Dichloropropene	(ug/kg)		5.4 U	5.2 U	5.3 U
Cyclohexane	(ug/kg)		5.4 U	5.2 U	5.3 U
Dibromochloromethane	(ug/kg)		5.4 U	5.2 U	5.3 U
Dichlorodifluoromethane	(ug/kg)		5.4 U	5.2 U	5.3 U
Ethylbenzene	(ug/kg)	30000	1.1 U	1.0 U	0.57 J
Freon 113	(ug/kg)	100000	5.4 U	5.2 U	5.3 U

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-04 JB47653-6 09/16/2013	ERMSB-04 JB47653-7 09/16/2013	ERMSB-05 JB47653-10 09/17/2013
Isopropylbenzene	(ug/kg)	100000	5.4 U	5.2 U	5.3 U
m+p-Xylene	(ug/kg)		1.1 U	1.0 U	1.4
Methyl Acetate	(ug/kg)		5.4 U	5.2 U	5.3 U
Methyl Cyclohexane	(ug/kg)		5.4 U	5.2 U	5.3 U
Methyl Tertiary Butyl Ether	(ug/kg)	62000	1.1 U	1.0 U	1.1 U
Methylene Chloride	(ug/kg)	51000	1.5 J	5.2 U	2.0 J
o-Xylene	(ug/kg)		1.1 U	1.0 U	0.44 J
Styrene	(ug/kg)		5.4 U	5.2 U	5.3 U
Tetrachloroethene	(ug/kg)	5500	5.4 U	5.2 U	5.3 U
Toluene	(ug/kg)	100000	0.34 J	1.0 U	1.4
trans-1,2-Dichloroethene	(ug/kg)	100000	5.4 U	5.2 U	5.3 U
trans-1,3-Dichloropropene	(ug/kg)		5.4 U	5.2 U	5.3 U
Trichloroethene	(ug/kg)	10000	5.4 U	5.2 U	5.3 U
Trichlorofluoromethane	(ug/kg)		5.4 U	5.2 U	5.3 U
Vinyl chloride	(ug/kg)	210	5.4 U	5.2 U	5.3 U
Xylene (total)	(ug/kg)	100000	1.1 U	1.0 U	1.9

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-05 JB47653-11 09/17/2013	ERMSB-06 JB47653-13 09/17/2013	ERMSB-06 JB47653-14 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
1,1,1-Trichloroethane	(ug/kg)	100000	5.4 U	5.4 U	5.2 U
1,1,2,2-Tetrachloroethane	(ug/kg)	35000	5.4 U	5.4 U	5.2 U
1,1,2-Trichloroethane	(ug/kg)		5.4 U	5.4 U	5.2 U
1,1-Dichloroethane	(ug/kg)	19000	5.4 U	5.4 U	5.2 U
1,1-Dichloroethene	(ug/kg)	100000	5.4 U	5.4 U	5.2 U
1,2,3-Trichlorobenzene	(ug/kg)		5.4 U	5.4 U	5.2 U
1,2,4-Trichlorobenzene	(ug/kg)		5.4 U	5.4 U	5.2 U
1,2-Dibromo-3-chloropropane	(ug/kg)		11 U	11 U	10 U
1,2-Dibromoethane	(ug/kg)		1.1 U	1.1 U	1.0 U
1,2-Dichlorobenzene	(ug/kg)	100000	5.4 U	5.4 U	5.2 U
1,2-Dichloroethane	(ug/kg)	2300	1.1 U	1.1 U	1.0 U
1,2-Dichloropropane	(ug/kg)		5.4 U	5.4 U	5.2 U
1,3-Dichlorobenzene	(ug/kg)	17000	5.4 U	5.4 U	5.2 U
1,4-Dichlorobenzene	(ug/kg)	9800	5.4 U	5.4 U	5.2 U
1,4-Dioxane	(ug/kg)	9800	130 U	130 U	130 U
2-Butanone	(ug/kg)	100000	11 U	11 U	10 U
2-Hexanone	(ug/kg)		5.4 U	5.4 U	5.2 U
4-Methyl-2-Pentanone	(ug/kg)		5.4 U	5.4 U	5.2 U
Acetone	(ug/kg)	100000	9.2 J	6.9 J	5.8 J
Benzene	(ug/kg)	2900	1.1 U	0.57 J	0.39 J
Bromochloromethane	(ug/kg)		5.4 U	5.4 U	5.2 U
Bromodichloromethane	(ug/kg)		5.4 U	5.4 U	5.2 U
Bromoform	(ug/kg)		5.4 U	5.4 U	5.2 U
Bromomethane	(ug/kg)		5.4 U	5.4 U	5.2 U
Carbon Disulfide	(ug/kg)	100000	5.4 U	0.48 J	5.2 U
Carbon Tetrachloride	(ug/kg)	1400	5.4 U	5.4 U	5.2 U
Chlorobenzene	(ug/kg)	100000	5.4 U	5.4 U	5.2 U
Chloroethane	(ug/kg)		5.4 U	5.4 U	5.2 U
Chloroform	(ug/kg)	10000	5.4 U	5.4 U	5.2 U
Chloromethane	(ug/kg)		5.4 U	5.4 U	5.2 U
cis-1,2-Dichloroethene	(ug/kg)	59000	5.4 U	0.69 J	0.39 J
cis-1,3-Dichloropropene	(ug/kg)		5.4 U	5.4 U	5.2 U
Cyclohexane	(ug/kg)		5.4 U	5.4 U	5.2 U
Dibromochloromethane	(ug/kg)		5.4 U	5.4 U	5.2 U
Dichlorodifluoromethane	(ug/kg)		5.4 U	5.4 U	5.2 U
Ethylbenzene	(ug/kg)	30000	1.1 U	0.73 J	0.71 J
Freon 113	(ug/kg)	100000	5.4 U	5.4 U	5.2 U

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-05 JB47653-11 09/17/2013	ERMSB-06 JB47653-13 09/17/2013	ERMSB-06 JB47653-14 09/17/2013
Isopropylbenzene	(ug/kg)	100000	5.4 U	5.4 U	5.2 U
m+p-Xylene	(ug/kg)		1.1 U	1.8	1.8
Methyl Acetate	(ug/kg)		5.4 U	5.4 U	3.7 J
Methyl Cyclohexane	(ug/kg)		5.4 U	5.4 U	5.2 U
Methyl Tertiary Butyl Ether	(ug/kg)	62000	1.1 U	1.1 U	1.0 U
Methylene Chloride	(ug/kg)	51000	5.4 U	5.3 J	5.2 U
o-Xylene	(ug/kg)		1.1 U	0.65 J	0.57 J
Styrene	(ug/kg)		5.4 U	5.4 U	5.2 U
Tetrachloroethene	(ug/kg)	5500	5.4 U	5.4 U	5.2 U
Toluene	(ug/kg)	100000	1.1 U	1.7	1.3
trans-1,2-Dichloroethene	(ug/kg)	100000	5.4 U	5.4 U	5.2 U
trans-1,3-Dichloropropene	(ug/kg)		5.4 U	5.4 U	5.2 U
Trichloroethene	(ug/kg)	10000	5.4 U	5.4 U	5.2 U
Trichlorofluoromethane	(ug/kg)		5.4 U	5.4 U	5.2 U
Vinyl chloride	(ug/kg)	210	5.4 U	5.4 U	5.2 U
Xylene (total)	(ug/kg)	100000	1.1 U	2.4	2.4

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-07 JB47711-1 09/17/2013	ERMSB-07 JB47711-2 09/17/2013
Starting Depth	(feet)		0.00	12.00
Ending Depth	(feet)		2.00	14.00
1,1,1-Trichloroethane	(ug/kg)	100000	5.6 U	5.9 U
1,1,2,2-Tetrachloroethane	(ug/kg)	35000	5.6 U	5.9 U
1,1,2-Trichloroethane	(ug/kg)		5.6 U	5.9 U
1,1-Dichloroethane	(ug/kg)	19000	5.6 U	5.9 U
1,1-Dichloroethene	(ug/kg)	100000	5.6 U	5.9 U
1,2,3-Trichlorobenzene	(ug/kg)		5.6 U	5.9 U
1,2,4-Trichlorobenzene	(ug/kg)		5.6 U	5.9 U
1,2-Dibromo-3-chloropropane	(ug/kg)		11 U	12 U
1,2-Dibromoethane	(ug/kg)		1.1 U	1.2 U
1,2-Dichlorobenzene	(ug/kg)	100000	5.6 U	5.9 U
1,2-Dichloroethane	(ug/kg)	2300	1.1 U	1.2 U
1,2-Dichloropropane	(ug/kg)		5.6 U	5.9 U
1,3-Dichlorobenzene	(ug/kg)	17000	5.6 U	5.9 U
1,4-Dichlorobenzene	(ug/kg)	9800	5.6 U	5.9 U
1,4-Dioxane	(ug/kg)	9800	140 U	150 U
2-Butanone	(ug/kg)	100000	11 U	12 U
2-Hexanone	(ug/kg)		5.6 U	5.9 U
4-Methyl-2-Pentanone	(ug/kg)		5.6 U	5.9 U
Acetone	(ug/kg)	100000	11 U	12 U
Benzene	(ug/kg)	2900	1.1 U	1.2 U
Bromochloromethane	(ug/kg)		5.6 U	5.9 U
Bromodichloromethane	(ug/kg)		5.6 U	5.9 U
Bromoform	(ug/kg)		5.6 U	5.9 U
Bromomethane	(ug/kg)		5.6 U	5.9 U
Carbon Disulfide	(ug/kg)	100000	5.6 U	5.9 U
Carbon Tetrachloride	(ug/kg)	1400	5.6 U	5.9 U
Chlorobenzene	(ug/kg)	100000	5.6 U	5.9 U
Chloroethane	(ug/kg)		5.6 U	5.9 U
Chloroform	(ug/kg)	10000	5.6 U	5.9 U
Chloromethane	(ug/kg)		5.6 U	5.9 U
cis-1,2-Dichloroethene	(ug/kg)	59000	5.6 U	5.9 U
cis-1,3-Dichloropropene	(ug/kg)		5.6 U	5.9 U
Cyclohexane	(ug/kg)		5.6 U	5.9 U
Dibromochloromethane	(ug/kg)		5.6 U	5.9 U
Dichlorodifluoromethane	(ug/kg)		5.6 U	5.9 U
Ethylbenzene	(ug/kg)	30000	1.1 U	1.2 U
Freon 113	(ug/kg)	100000	5.6 U	5.9 U

See the Endnotes following the last page of this table.

Table 2  
Soil Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-07 JB47711-1 09/17/2013	ERMSB-07 JB47711-2 09/17/2013
Isopropylbenzene	(ug/kg)	100000	5.6 U	5.9 U
m+p-Xylene	(ug/kg)		1.1 U	0.54 J
Methyl Acetate	(ug/kg)		5.6 U	5.9 U
Methyl Cyclohexane	(ug/kg)		5.6 U	5.9 U
Methyl Tertiary Butyl Ether	(ug/kg)	62000	1.1 U	1.2 U
Methylene Chloride	(ug/kg)	51000	5.6 U	2.8 J
o-Xylene	(ug/kg)		1.1 U	1.2 U
Styrene	(ug/kg)		5.6 U	5.9 U
Tetrachloroethene	(ug/kg)	5500	5.6 U	5.9 U
Toluene	(ug/kg)	100000	1.1 U	0.38 J
trans-1,2-Dichloroethene	(ug/kg)	100000	5.6 U	5.9 U
trans-1,3-Dichloropropene	(ug/kg)		5.6 U	5.9 U
Trichloroethene	(ug/kg)	10000	5.6 U	5.9 U
Trichlorofluoromethane	(ug/kg)		5.6 U	5.9 U
Vinyl chloride	(ug/kg)	210	5.6 U	5.9 U
Xylene (total)	(ug/kg)	100000	1.1 U	0.54 J

See the Endnotes following the last page of this table.

**Table 2**  
**Soil Analytical Results**  
**Volatile Organic Compounds (VOCs)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g}/\text{kg}$  = micrograms per kilogram (parts per billion; ppb).
- All depth measurements are in feet (ft) below ground surface.
- 6NYCRR Part 375 and CP-51 Residential = New York State Department of Environmental Conservation (NYSDEC) Restricted Soil Cleanup Objective (SCO) Residential as presented in Title 6 of the Official Compilation of New York Codes, Rules and Regulations (6 NYCRR) Subpart 375-6.8(b). Includes Final Commissioner Policy CP-51 / Soil Cleanup Guidance, October 21, 2010.

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL). The value is usable as an estimated result.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-01 JB47653-1 09/16/2013	ERMSB-01 JB47653-2 09/16/2013	ERMSB-02 JB47653-4 09/16/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
1,2,4,5-Tetrachlorobenzene	(ug/kg)		160 U	170 U	320 U
2,3,4,6-Tetrachlorophenol	(ug/kg)		160 U	170 U	320 U
2,4,5-Trichlorophenol	(ug/kg)	100000	160 U	170 U	320 U
2,4,6-Trichlorophenol	(ug/kg)		160 U	170 U	320 U
2,4-Dichlorophenol	(ug/kg)	100000	160 U	170 U	320 U
2,4-Dimethylphenol	(ug/kg)		160 U	170 U	320 U
2,4-Dinitrophenol	(ug/kg)	100000	650 U	680 U	1300 U
2,4-Dinitrotoluene	(ug/kg)		65 U	68 U	130 U
2,6-Dinitrotoluene	(ug/kg)	1030	65 U	68 U	130 U
2-Chloronaphthalene	(ug/kg)		65 U	68 U	130 U
2-Chlorophenol	(ug/kg)	100000	160 U	170 U	320 U
2-Methylnaphthalene	(ug/kg)	410	65 U	68 U	130 U
3,3-Dichlorobenzidine	(ug/kg)		160 U	170 U	320 U
4,6-Dinitro-o-cresol	(ug/kg)		650 U	680 U	1300 U
4-Bromophenyl phenyl ether	(ug/kg)		65 U	68 U	130 U
4-Chlorophenyl phenyl ether	(ug/kg)		65 U	68 U	130 U
Acenaphthene	(ug/kg)	100000	32 U	34 U	63 U
Acenaphthylene	(ug/kg)	100000	15.2 J	34 U	63 U
Acetophenone	(ug/kg)		160 U	170 U	320 U
Anthracene	(ug/kg)	100000	25.0 J	34 U	63 U
Atrazine	(ug/kg)		160 U	170 U	320 U
Benzaldehyde	(ug/kg)		160 U	170 U	320 U
Benzo(a)anthracene	(ug/kg)	1000	73.9	34 U	58.5 J
Benzo(a)pyrene	(ug/kg)	1000	94.0	34 U	74.1
Benzo(b)fluoranthene	(ug/kg)	1000	96.1	34 U	67.3
Benzo(ghi)perylene	(ug/kg)	100000	93.9	34 U	52.6 J
Benzo(k)fluoranthene	(ug/kg)	1000	67.5	34 U	49.7 J
Biphenyl	(ug/kg)		65 U	68 U	130 U
Bis(2-chloroethoxy)methane	(ug/kg)		65 U	68 U	130 U
Bis(2-chloroethyl)ether	(ug/kg)		65 U	68 U	130 U
Bis(2-chloroisopropyl)ether	(ug/kg)		65 U	68 U	130 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)	50000	56.9 J	68 U	130 U
Butyl benzyl phthalate	(ug/kg)	100000	65 U	68 U	130 U
Caprolactam	(ug/kg)		65 U	68 U	130 U
Carbazole	(ug/kg)		65 U	68 U	130 U
Chrysene	(ug/kg)	1000	76.2	34 U	65.7
Dibenzo(a,h)anthracene	(ug/kg)	330	32 U	34 U	63 U

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-01 JB47653-1 09/16/2013	ERMSB-01 JB47653-2 09/16/2013	ERMSB-02 JB47653-4 09/16/2013
Dibenzofuran	(ug/kg)	14000	65 U	68 U	130 U
Diethyl phthalate	(ug/kg)	100000	65 U	68 U	130 U
Dimethyl phthalate	(ug/kg)	100000	65 U	68 U	130 U
Di-n-butyl phthalate	(ug/kg)	100000	65 U	68 U	130 U
Di-n-octyl phthalate	(ug/kg)	100000	65 U	68 U	130 U
Fluoranthene	(ug/kg)	100000	113	34 U	89.2
Fluorene	(ug/kg)	100000	32 U	34 U	63 U
Hexachlorobenzene	(ug/kg)	410	65 U	68 U	130 U
Hexachlorobutadiene	(ug/kg)		32 U	34 U	63 U
Hexachlorocyclopentadiene	(ug/kg)		320 U	340 U	630 U
Hexachloroethane	(ug/kg)		160 U	170 U	320 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	500	61.0	34 U	46.9 J
Isophorone	(ug/kg)	100000	65 U	68 U	130 U
m+p-Cresol	(ug/kg)		65 U	68 U	130 U
m-Nitroaniline	(ug/kg)		160 U	170 U	320 U
Naphthalene	(ug/kg)	100000	32 U	34 U	63 U
Nitrobenzene	(ug/kg)	3700	65 U	68 U	130 U
N-Nitrosodiphenylamine	(ug/kg)		160 U	170 U	320 U
N-Nitrosodipropylamine	(ug/kg)		65 U	68 U	130 U
o-Cresol	(ug/kg)	100000	65 U	68 U	130 U
o-Nitroaniline	(ug/kg)		160 U	170 U	320 U
o-Nitrophenol	(ug/kg)		160 U	170 U	320 U
p-Chloroaniline	(ug/kg)	100000	160 U	170 U	320 U
p-Chloro-m-cresol	(ug/kg)		160 U	170 U	320 U
Pentachlorophenol	(ug/kg)	2400	320 U	340 U	630 U
Phenanthrene	(ug/kg)	100000	49.6	34 U	42.0 J
Phenol	(ug/kg)	100000	65 U	68 U	130 U
p-Nitroaniline	(ug/kg)		160 U	170 U	320 U
p-Nitrophenol	(ug/kg)		320 U	340 U	630 U
Pyrene	(ug/kg)	100000	110	19.3 J	92.9

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-02 JB47653-5 09/16/2013	ERMSB-03 JB47653-8 09/17/2013	ERMSB-03 JB47653-9 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
1,2,4,5-Tetrachlorobenzene	(ug/kg)		170 U	180 U	170 U
2,3,4,6-Tetrachlorophenol	(ug/kg)		170 U	180 U	170 U
2,4,5-Trichlorophenol	(ug/kg)	100000	170 U	180 U	170 U
2,4,6-Trichlorophenol	(ug/kg)		170 U	180 U	170 U
2,4-Dichlorophenol	(ug/kg)	100000	170 U	180 U	170 U
2,4-Dimethylphenol	(ug/kg)		170 U	180 U	170 U
2,4-Dinitrophenol	(ug/kg)	100000	690 U	710 U	680 U
2,4-Dinitrotoluene	(ug/kg)		69 U	71 U	68 U
2,6-Dinitrotoluene	(ug/kg)	1030	69 U	71 U	68 U
2-Chloronaphthalene	(ug/kg)		69 U	71 U	68 U
2-Chlorophenol	(ug/kg)	100000	170 U	180 U	170 U
2-Methylnaphthalene	(ug/kg)	410	69 U	71 U	68 U
3,3-Dichlorobenzidine	(ug/kg)		170 U	180 U	170 U
4,6-Dinitro-o-cresol	(ug/kg)		690 U	710 U	680 U
4-Bromophenyl phenyl ether	(ug/kg)		69 U	71 U	68 U
4-Chlorophenyl phenyl ether	(ug/kg)		69 U	71 U	68 U
Acenaphthene	(ug/kg)	100000	34 U	35 U	34 U
Acenaphthylene	(ug/kg)	100000	34 U	35 U	34 U
Acetophenone	(ug/kg)		170 U	180 U	170 U
Anthracene	(ug/kg)	100000	34 U	35 U	34 U
Atrazine	(ug/kg)		170 U	180 U	170 U
Benzaldehyde	(ug/kg)		170 U	180 U	170 U
Benzo(a)anthracene	(ug/kg)	1000	34 U	38.3	34 U
Benzo(a)pyrene	(ug/kg)	1000	34 U	39.4	34 U
Benzo(b)fluoranthene	(ug/kg)	1000	34 U	49.8	34 U
Benzo(ghi)perylene	(ug/kg)	100000	34 U	31.8 J	34 U
Benzo(k)fluoranthene	(ug/kg)	1000	34 U	17.8 J	34 U
Biphenyl	(ug/kg)		69 U	71 U	68 U
Bis(2-chloroethoxy)methane	(ug/kg)		69 U	71 U	68 U
Bis(2-chloroethyl)ether	(ug/kg)		69 U	71 U	68 U
Bis(2-chloroisopropyl)ether	(ug/kg)		69 U	71 U	68 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)	50000	69 U	57.3 J	68 U
Butyl benzyl phthalate	(ug/kg)	100000	69 U	71 U	68 U
Caprolactam	(ug/kg)		69 U	71 U	68 U
Carbazole	(ug/kg)		69 U	71 U	68 U
Chrysene	(ug/kg)	1000	34 U	42.6	34 U
Dibenzo(a,h)anthracene	(ug/kg)	330	34 U	35 U	34 U

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-02 JB47653-5 09/16/2013	ERMSB-03 JB47653-8 09/17/2013	ERMSB-03 JB47653-9 09/17/2013
Dibenzofuran	(ug/kg)	14000	69 U	71 U	68 U
Diethyl phthalate	(ug/kg)	100000	69 U	71 U	68 U
Dimethyl phthalate	(ug/kg)	100000	69 U	71 U	68 U
Di-n-butyl phthalate	(ug/kg)	100000	69 U	71 U	68 U
Di-n-octyl phthalate	(ug/kg)	100000	69 U	71 U	68 U
Fluoranthene	(ug/kg)	100000	34 U	61.4	34 U
Fluorene	(ug/kg)	100000	34 U	35 U	34 U
Hexachlorobenzene	(ug/kg)	410	69 U	71 U	68 U
Hexachlorobutadiene	(ug/kg)		34 U	35 U	34 U
Hexachlorocyclopentadiene	(ug/kg)		340 U	350 U	340 U
Hexachloroethane	(ug/kg)		170 U	180 U	170 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	500	34 U	24.3 J	34 U
Isophorone	(ug/kg)	100000	69 U	71 U	68 U
m+p-Cresol	(ug/kg)		69 U	71 U	68 U
m-Nitroaniline	(ug/kg)		170 U	180 U	170 U
Naphthalene	(ug/kg)	100000	34 U	35 U	34 U
Nitrobenzene	(ug/kg)	3700	69 U	71 U	68 U
N-Nitrosodiphenylamine	(ug/kg)		170 U	180 U	170 U
N-Nitrosodipropylamine	(ug/kg)		69 U	71 U	68 U
o-Cresol	(ug/kg)	100000	69 U	71 U	68 U
o-Nitroaniline	(ug/kg)		170 U	180 U	170 U
o-Nitrophenol	(ug/kg)		170 U	180 U	170 U
p-Chloroaniline	(ug/kg)	100000	170 U	180 U	170 U
p-Chloro-m-cresol	(ug/kg)		170 U	180 U	170 U
Pentachlorophenol	(ug/kg)	2400	340 U	350 U	340 U
Phenanthrene	(ug/kg)	100000	34 U	25.6 J	34 U
Phenol	(ug/kg)	100000	69 U	71 U	68 U
p-Nitroaniline	(ug/kg)		170 U	180 U	170 U
p-Nitrophenol	(ug/kg)		340 U	350 U	340 U
Pyrene	(ug/kg)	100000	34 U	56.0	14.8 J

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-04 JB47653-6 09/16/2013	ERMSB-04 JB47653-7 09/16/2013	ERMSB-05 JB47653-10 09/17/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
1,2,4,5-Tetrachlorobenzene	(ug/kg)		350 U	150 U	300 U
2,3,4,6-Tetrachlorophenol	(ug/kg)		350 U	150 U	300 U
2,4,5-Trichlorophenol	(ug/kg)	100000	350 U	150 U	300 U
2,4,6-Trichlorophenol	(ug/kg)		350 U	150 U	300 U
2,4-Dichlorophenol	(ug/kg)	100000	350 U	150 U	300 U
2,4-Dimethylphenol	(ug/kg)		350 U	150 U	300 U
2,4-Dinitrophenol	(ug/kg)	100000	1400 U	610 U	1200 U
2,4-Dinitrotoluene	(ug/kg)		140 U	61 U	120 U
2,6-Dinitrotoluene	(ug/kg)	1030	140 U	61 U	120 U
2-Chloronaphthalene	(ug/kg)		140 U	61 U	120 U
2-Chlorophenol	(ug/kg)	100000	350 U	150 U	300 U
2-Methylnaphthalene	(ug/kg)	410	140 U	61 U	120 U
3,3-Dichlorobenzidine	(ug/kg)		350 U	150 U	300 U
4,6-Dinitro-o-cresol	(ug/kg)		1400 U	610 U	1200 U
4-Bromophenyl phenyl ether	(ug/kg)		140 U	61 U	120 U
4-Chlorophenyl phenyl ether	(ug/kg)		140 U	61 U	120 U
Acenaphthene	(ug/kg)	100000	57.7 J	30 U	61 U
Acenaphthylene	(ug/kg)	100000	31.3 J	30 U	61 U
Acetophenone	(ug/kg)		350 U	150 U	300 U
Anthracene	(ug/kg)	100000	165	30 U	61 U
Atrazine	(ug/kg)		350 U	150 U	300 U
Benzaldehyde	(ug/kg)		350 U	150 U	300 U
Benzo(a)anthracene	(ug/kg)	1000	400	30 U	85.2
Benzo(a)pyrene	(ug/kg)	1000	365	30 U	88.2
Benzo(b)fluoranthene	(ug/kg)	1000	429	30 U	91.1
Benzo(ghi)perylene	(ug/kg)	100000	259	30 U	86.7
Benzo(k)fluoranthene	(ug/kg)	1000	169	30 U	66.9
Biphenyl	(ug/kg)		140 U	61 U	120 U
Bis(2-chloroethoxy)methane	(ug/kg)		140 U	61 U	120 U
Bis(2-chloroethyl)ether	(ug/kg)		140 U	61 U	120 U
Bis(2-chloroisopropyl)ether	(ug/kg)		140 U	61 U	120 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)	50000	136 J	61 U	79.3 J
Butyl benzyl phthalate	(ug/kg)	100000	140 U	61 U	120 U
Caprolactam	(ug/kg)		140 U	61 U	120 U
Carbazole	(ug/kg)		47.3 J	61 U	120 U
Chrysene	(ug/kg)	1000	401	30 U	92.3
Dibenzo(a,h)anthracene	(ug/kg)	330	80.9	30 U	61 U

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-04 JB47653-6 09/16/2013	ERMSB-04 JB47653-7 09/16/2013	ERMSB-05 JB47653-10 09/17/2013
Dibenzofuran	(ug/kg)	14000	28.2 J	61 U	120 U
Diethyl phthalate	(ug/kg)	100000	140 U	61 U	120 U
Dimethyl phthalate	(ug/kg)	100000	140 U	61 U	120 U
Di-n-butyl phthalate	(ug/kg)	100000	140 U	61 U	120 U
Di-n-octyl phthalate	(ug/kg)	100000	140 U	61 U	120 U
Fluoranthene	(ug/kg)	100000	826	30 U	122
Fluorene	(ug/kg)	100000	66.3 J	30 U	61 U
Hexachlorobenzene	(ug/kg)	410	140 U	61 U	120 U
Hexachlorobutadiene	(ug/kg)		70 U	30 U	61 U
Hexachlorocyclopentadiene	(ug/kg)		700 U	300 U	610 U
Hexachloroethane	(ug/kg)		350 U	150 U	300 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	500	210	30 U	57.2 J
Isophorone	(ug/kg)	100000	140 U	61 U	120 U
m+p-Cresol	(ug/kg)		140 U	61 U	120 U
m-Nitroaniline	(ug/kg)		350 U	150 U	300 U
Naphthalene	(ug/kg)	100000	70 U	30 U	61 U
Nitrobenzene	(ug/kg)	3700	140 U	61 U	120 U
N-Nitrosodiphenylamine	(ug/kg)		350 U	150 U	300 U
N-Nitrosodipropylamine	(ug/kg)		140 U	61 U	120 U
o-Cresol	(ug/kg)	100000	140 U	61 U	120 U
o-Nitroaniline	(ug/kg)		350 U	150 U	300 U
o-Nitrophenol	(ug/kg)		350 U	150 U	300 U
p-Chloroaniline	(ug/kg)	100000	350 U	150 U	300 U
p-Chloro-m-cresol	(ug/kg)		350 U	150 U	300 U
Pentachlorophenol	(ug/kg)	2400	700 U	300 U	610 U
Phenanthrene	(ug/kg)	100000	551	30 U	52.5 J
Phenol	(ug/kg)	100000	140 U	61 U	120 U
p-Nitroaniline	(ug/kg)		350 U	150 U	300 U
p-Nitrophenol	(ug/kg)		700 U	300 U	610 U
Pyrene	(ug/kg)	100000	652	30 U	115

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-05 JB47653-11 09/17/2013	ERMSB-06 JB47653-13 09/17/2013	ERMSB-06 JB47653-14 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
1,2,4,5-Tetrachlorobenzene	(ug/kg)		170 U	180 U	160 U
2,3,4,6-Tetrachlorophenol	(ug/kg)		170 U	180 U	160 U
2,4,5-Trichlorophenol	(ug/kg)	100000	170 U	180 U	160 U
2,4,6-Trichlorophenol	(ug/kg)		170 U	180 U	160 U
2,4-Dichlorophenol	(ug/kg)	100000	170 U	180 U	160 U
2,4-Dimethylphenol	(ug/kg)		170 U	180 U	160 U
2,4-Dinitrophenol	(ug/kg)	100000	660 U	700 U	620 U
2,4-Dinitrotoluene	(ug/kg)		66 U	70 U	62 U
2,6-Dinitrotoluene	(ug/kg)	1030	66 U	70 U	62 U
2-Chloronaphthalene	(ug/kg)		66 U	70 U	62 U
2-Chlorophenol	(ug/kg)	100000	170 U	180 U	160 U
2-Methylnaphthalene	(ug/kg)	410	66 U	70 U	62 U
3,3-Dichlorobenzidine	(ug/kg)		170 U	180 U	160 U
4,6-Dinitro-o-cresol	(ug/kg)		660 U	700 U	620 U
4-Bromophenyl phenyl ether	(ug/kg)		66 U	70 U	62 U
4-Chlorophenyl phenyl ether	(ug/kg)		66 U	70 U	62 U
Acenaphthene	(ug/kg)	100000	33 U	35 U	31 U
Acenaphthylene	(ug/kg)	100000	33 U	40.2	31 U
Acetophenone	(ug/kg)		170 U	180 U	160 U
Anthracene	(ug/kg)	100000	33 U	27.7 J	31 U
Atrazine	(ug/kg)		170 U	180 U	160 U
Benzaldehyde	(ug/kg)		170 U	180 U	160 U
Benzo(a)anthracene	(ug/kg)	1000	33 U	92.1	31 U
Benzo(a)pyrene	(ug/kg)	1000	33 U	128	31 U
Benzo(b)fluoranthene	(ug/kg)	1000	33 U	180	31 U
Benzo(ghi)perylene	(ug/kg)	100000	33 U	127	31 U
Benzo(k)fluoranthene	(ug/kg)	1000	33 U	57.8	31 U
Biphenyl	(ug/kg)		66 U	70 U	62 U
Bis(2-chloroethoxy)methane	(ug/kg)		66 U	70 U	62 U
Bis(2-chloroethyl)ether	(ug/kg)		66 U	70 U	62 U
Bis(2-chloroisopropyl)ether	(ug/kg)		66 U	70 U	62 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)	50000	66 U	236	39.6 J
Butyl benzyl phthalate	(ug/kg)	100000	66 U	70 U	62 U
Caprolactam	(ug/kg)		66 U	70 U	62 U
Carbazole	(ug/kg)		66 U	70 U	62 U
Chrysene	(ug/kg)	1000	33 U	114	31 U
Dibenzo(a,h)anthracene	(ug/kg)	330	33 U	42.8	31 U

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-05 JB47653-11 09/17/2013	ERMSB-06 JB47653-13 09/17/2013	ERMSB-06 JB47653-14 09/17/2013
Dibenzofuran	(ug/kg)	14000	66 U	70 U	62 U
Diethyl phthalate	(ug/kg)	100000	66 U	70 U	62 U
Dimethyl phthalate	(ug/kg)	100000	66 U	70 U	62 U
Di-n-butyl phthalate	(ug/kg)	100000	66 U	70 U	62 U
Di-n-octyl phthalate	(ug/kg)	100000	66 U	70 U	62 U
Fluoranthene	(ug/kg)	100000	33 U	107	31 U
Fluorene	(ug/kg)	100000	33 U	35 U	31 U
Hexachlorobenzene	(ug/kg)	410	66 U	70 U	62 U
Hexachlorobutadiene	(ug/kg)		33 U	35 U	31 U
Hexachlorocyclopentadiene	(ug/kg)		330 U	350 U	310 U
Hexachloroethane	(ug/kg)		170 U	180 U	160 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	500	33 U	103	31 U
Isophorone	(ug/kg)	100000	66 U	70 U	62 U
m+p-Cresol	(ug/kg)		66 U	70 U	62 U
m-Nitroaniline	(ug/kg)		170 U	180 U	160 U
Naphthalene	(ug/kg)	100000	33 U	35 U	31 U
Nitrobenzene	(ug/kg)	3700	66 U	70 U	62 U
N-Nitrosodiphenylamine	(ug/kg)		170 U	180 U	160 U
N-Nitrosodipropylamine	(ug/kg)		66 U	70 U	62 U
o-Cresol	(ug/kg)	100000	66 U	70 U	62 U
o-Nitroaniline	(ug/kg)		170 U	180 U	160 U
o-Nitrophenol	(ug/kg)		170 U	180 U	160 U
p-Chloroaniline	(ug/kg)	100000	170 U	180 U	160 U
p-Chloro-m-cresol	(ug/kg)		170 U	180 U	160 U
Pentachlorophenol	(ug/kg)	2400	330 U	350 U	310 U
Phenanthrene	(ug/kg)	100000	33 U	26.9 J	31 U
Phenol	(ug/kg)	100000	66 U	70 U	62 U
p-Nitroaniline	(ug/kg)		170 U	180 U	160 U
p-Nitrophenol	(ug/kg)		330 U	350 U	310 U
Pyrene	(ug/kg)	100000	33 U	134	15.0 J

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-07 JB47711-1 09/17/2013	ERMSB-07 JB47711-2 09/17/2013
Starting Depth	(feet)		0.00	12.00
Ending Depth	(feet)		2.00	14.00
1,2,4,5-Tetrachlorobenzene	(ug/kg)		170 U	170 U
2,3,4,6-Tetrachlorophenol	(ug/kg)		170 U	170 U
2,4,5-Trichlorophenol	(ug/kg)	100000	170 U	170 U
2,4,6-Trichlorophenol	(ug/kg)		170 U	170 U
2,4-Dichlorophenol	(ug/kg)	100000	170 U	170 U
2,4-Dimethylphenol	(ug/kg)		170 U	170 U
2,4-Dinitrophenol	(ug/kg)	100000	660 U	670 U
2,4-Dinitrotoluene	(ug/kg)		66 U	67 U
2,6-Dinitrotoluene	(ug/kg)	1030	66 U	67 U
2-Chloronaphthalene	(ug/kg)		66 U	67 U
2-Chlorophenol	(ug/kg)	100000	170 U	170 U
2-Methylnaphthalene	(ug/kg)	410	33.4 J	67 U
3,3-Dichlorobenzidine	(ug/kg)		170 U	170 U
4,6-Dinitro-o-cresol	(ug/kg)		660 U	670 U
4-Bromophenyl phenyl ether	(ug/kg)		66 U	67 U
4-Chlorophenyl phenyl ether	(ug/kg)		66 U	67 U
Acenaphthene	(ug/kg)	100000	157	33 U
Acenaphthylene	(ug/kg)	100000	70.2	33 U
Acetophenone	(ug/kg)		170 U	170 U
Anthracene	(ug/kg)	100000	492	33 U
Atrazine	(ug/kg)		170 U	170 U
Benzaldehyde	(ug/kg)		170 U	170 U
Benzo(a)anthracene	(ug/kg)	1000	[1270]	33 U
Benzo(a)pyrene	(ug/kg)	1000	[1200]	33 U
Benzo(b)fluoranthene	(ug/kg)	1000	[1090]	33 U
Benzo(ghi)perylene	(ug/kg)	100000	822	33 U
Benzo(k)fluoranthene	(ug/kg)	1000	874	33 U
Biphenyl	(ug/kg)		66 U	67 U
Bis(2-chloroethoxy)methane	(ug/kg)		66 U	67 U
Bis(2-chloroethyl)ether	(ug/kg)		66 U	67 U
Bis(2-chloroisopropyl)ether	(ug/kg)		66 U	67 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)	50000	298	67 U
Butyl benzyl phthalate	(ug/kg)	100000	66 U	67 U
Caprolactam	(ug/kg)		66 U	67 U
Carbazole	(ug/kg)		223	67 U
Chrysene	(ug/kg)	1000	[1240]	33 U
Dibenzo(a,h)anthracene	(ug/kg)	330	280	33 U

See the Endnotes following the last page of this table.

Table 3  
Soil Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-07 JB47711-1 09/17/2013	ERMSB-07 JB47711-2 09/17/2013
Dibenzofuran	(ug/kg)	14000	121	67 U
Diethyl phthalate	(ug/kg)	100000	66 U	67 U
Dimethyl phthalate	(ug/kg)	100000	66 U	67 U
Di-n-butyl phthalate	(ug/kg)	100000	66 U	67 U
Di-n-octyl phthalate	(ug/kg)	100000	66 U	67 U
Fluoranthene	(ug/kg)	100000	2570	33 U
Fluorene	(ug/kg)	100000	147	33 U
Hexachlorobenzene	(ug/kg)	410	66 U	67 U
Hexachlorobutadiene	(ug/kg)		33 U	33 U
Hexachlorocyclopentadiene	(ug/kg)		330 U	330 U
Hexachloroethane	(ug/kg)		170 U	170 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	500	[725]	33 U
Isophorone	(ug/kg)	100000	66 U	67 U
m+p-Cresol	(ug/kg)		66 U	67 U
m-Nitroaniline	(ug/kg)		170 U	170 U
Naphthalene	(ug/kg)	100000	47.9	33 U
Nitrobenzene	(ug/kg)	3700	66 U	67 U
N-Nitrosodiphenylamine	(ug/kg)		170 U	170 U
N-Nitrosodipropylamine	(ug/kg)		66 U	67 U
o-Cresol	(ug/kg)	100000	66 U	67 U
o-Nitroaniline	(ug/kg)		170 U	170 U
o-Nitrophenol	(ug/kg)		170 U	170 U
p-Chloroaniline	(ug/kg)	100000	170 U	170 U
p-Chloro-m-cresol	(ug/kg)		170 U	170 U
Pentachlorophenol	(ug/kg)	2400	330 U	330 U
Phenanthrene	(ug/kg)	100000	2120	33 U
Phenol	(ug/kg)	100000	66 U	67 U
p-Nitroaniline	(ug/kg)		170 U	170 U
p-Nitrophenol	(ug/kg)		330 U	330 U
Pyrene	(ug/kg)	100000	2230	33 U

See the Endnotes following the last page of this table.

**Table 3**  
**Soil Analytical Results**  
**Semivolatile Organic Compounds (SVOCs)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g}/\text{kg}$  = micrograms per kilogram (parts per billion; ppb).
- All depth measurements are in feet (ft) below ground surface.
- 6NYCRR Part 375 and CP-51 Residential = New York State Department of Environmental Conservation (NYSDEC) Restricted Soil Cleanup Objective (SCO) Residential as presented in Title 6 of the Official Compilation of New York Codes, Rules and Regulations (6 NYCRR) Subpart 375-6.8(b). Includes Final Commissioner Policy CP-51 / Soil Cleanup Guidance, October 21, 2010.
- Bracketed and highlighted values indicate a positive concentration that exceeds the lower of the two SCO.

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL). The value is usable as an estimated result.

Table 4  
Soil Analytical Results  
Pesticides/Polychlorinated Biphenyls (Pest/PCBs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-01 JB47653-1 09/16/2013	ERMSB-01 JB47653-2 09/16/2013	ERMSB-02 JB47653-4 09/16/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
4,4'-DDD	(ug/kg)	2600	0.68 U	0.72 U	1.3
4,4'-DDE	(ug/kg)	1800	0.82	0.72 U	2.7
4,4'-DDT	(ug/kg)	1700	1.1	0.72 U	0.68 U
Aldrin	(ug/kg)	19	0.68 U	0.72 U	0.68 U
alpha-BHC	(ug/kg)	97	0.68 U	0.72 U	0.68 U
alpha-Chlordane	(ug/kg)	910	3.1	0.72 U	3.3
beta-BHC	(ug/kg)	72	0.68 U	0.72 U	0.68 U
delta-BHC	(ug/kg)	100000	0.68 U	0.72 U	0.68 U
Dieldrin	(ug/kg)	39	1.4	0.72 U	1.4
Endosulfan I	(ug/kg)	4800	0.68 U	0.72 U	0.68 U
Endosulfan II	(ug/kg)	4800	0.68 U	0.72 U	0.68 U
Endosulfan sulfate	(ug/kg)	4800	0.68 U	0.72 U	0.68 U
Endrin	(ug/kg)	2200	0.68 U	0.72 U	0.68 U
Endrin aldehyde	(ug/kg)		0.68 U	0.72 U	0.68 U
Endrin ketone	(ug/kg)		0.68 U	0.72 U	0.68 U
gamma-BHC (Lindane)	(ug/kg)	280	0.68 U	0.72 U	0.68 U
gamma-Chlordane	(ug/kg)	540	2.3	0.72 U	3.7
Heptachlor	(ug/kg)	420	0.68 U	0.72 U	0.68 U
Heptachlor epoxide	(ug/kg)	80	0.68 U	0.72 U	0.68 U
Methoxychlor	(ug/kg)	100000	1.4 U	1.4 U	1.4 U
Toxaphene	(ug/kg)		17 U	18 U	17 U
Aroclor 1016	(ug/kg)		34 U	36 U	34 U
Aroclor 1221	(ug/kg)		34 U	36 U	34 U
Aroclor 1232	(ug/kg)		34 U	36 U	34 U
Aroclor 1242	(ug/kg)		34 U	36 U	34 U
Aroclor 1248	(ug/kg)		34 U	36 U	34 U
Aroclor 1254	(ug/kg)		34 U	36 U	34 U
Aroclor 1260	(ug/kg)		34 U	36 U	34 U
Aroclor-1262	(ug/kg)		34 U	36 U	34 U
Aroclor-1268	(ug/kg)		34 U	36 U	34 U

See the Endnotes following the last page of this table.

Table 4  
Soil Analytical Results  
Pesticides/Polychlorinated Biphenyls (Pest/PCBs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-02 JB47653-5 09/16/2013	ERMSB-03 JB47653-8 09/17/2013	ERMSB-03 JB47653-9 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
4,4'-DDD	(ug/kg)	2600	0.69 U	0.73 U	0.70 U
4,4'-DDE	(ug/kg)	1800	0.69 U	0.73 U	0.70 U
4,4'-DDT	(ug/kg)	1700	0.69 U	0.73 U	0.70 U
Aldrin	(ug/kg)	19	0.69 U	0.73 U	0.70 U
alpha-BHC	(ug/kg)	97	0.69 U	0.73 U	0.70 U
alpha-Chlordane	(ug/kg)	910	0.69 U	0.73 U	0.70 U
beta-BHC	(ug/kg)	72	0.69 U	0.73 U	0.70 U
delta-BHC	(ug/kg)	100000	0.69 U	0.73 U	0.70 U
Dieldrin	(ug/kg)	39	0.69 U	0.73 U	0.70 U
Endosulfan I	(ug/kg)	4800	0.69 U	0.73 U	0.70 U
Endosulfan II	(ug/kg)	4800	0.69 U	0.73 U	0.70 U
Endosulfan sulfate	(ug/kg)	4800	0.69 U	0.73 U	0.70 U
Endrin	(ug/kg)	2200	0.69 U	0.73 U	0.70 U
Endrin aldehyde	(ug/kg)		0.69 U	0.73 U	0.70 U
Endrin ketone	(ug/kg)		0.69 U	0.73 U	0.70 U
gamma-BHC (Lindane)	(ug/kg)	280	0.69 U	0.73 U	0.70 U
gamma-Chlordane	(ug/kg)	540	0.69 U	0.73 U	0.70 U
Heptachlor	(ug/kg)	420	0.69 U	0.73 U	0.70 U
Heptachlor epoxide	(ug/kg)	80	0.69 U	0.73 U	0.70 U
Methoxychlor	(ug/kg)	100000	1.4 U	1.5 U	1.4 U
Toxaphene	(ug/kg)		17 U	18 U	17 U
Aroclor 1016	(ug/kg)		34 U	37 U	35 U
Aroclor 1221	(ug/kg)		34 U	37 U	35 U
Aroclor 1232	(ug/kg)		34 U	37 U	35 U
Aroclor 1242	(ug/kg)		34 U	37 U	35 U
Aroclor 1248	(ug/kg)		34 U	37 U	35 U
Aroclor 1254	(ug/kg)		34 U	37 U	35 U
Aroclor 1260	(ug/kg)		34 U	37 U	35 U
Aroclor-1262	(ug/kg)		34 U	37 U	35 U
Aroclor-1268	(ug/kg)		34 U	37 U	35 U

See the Endnotes following the last page of this table.

Table 4  
Soil Analytical Results  
Pesticides/Polychlorinated Biphenyls (Pest/PCBs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-04 JB47653-6 09/16/2013	ERMSB-04 JB47653-7 09/16/2013	ERMSB-05 JB47653-10 09/17/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
4,4'-DDD	(ug/kg)	2600	0.70 U	0.62 U	0.70 U
4,4'-DDE	(ug/kg)	1800	0.70 U	0.62 U	1.2
4,4'-DDT	(ug/kg)	1700	1.7	0.62 U	1.6
Aldrin	(ug/kg)	19	0.70 U	0.62 U	0.70 U
alpha-BHC	(ug/kg)	97	0.70 U	0.62 U	0.70 U
alpha-Chlordane	(ug/kg)	910	1.3	0.62 U	1.8
beta-BHC	(ug/kg)	72	0.70 U	0.62 U	0.70 U
delta-BHC	(ug/kg)	100000	0.70 U	0.62 U	0.70 U
Dieldrin	(ug/kg)	39	0.70 U	0.62 U	1.5
Endosulfan I	(ug/kg)	4800	0.70 U	0.62 U	0.70 U
Endosulfan II	(ug/kg)	4800	0.70 U	0.62 U	0.70 U
Endosulfan sulfate	(ug/kg)	4800	0.70 U	0.62 U	0.70 U
Endrin	(ug/kg)	2200	0.70 U	0.62 U	0.70 U
Endrin aldehyde	(ug/kg)		0.70 U	0.62 U	0.70 U
Endrin ketone	(ug/kg)		0.70 U	0.62 U	0.70 U
gamma-BHC (Lindane)	(ug/kg)	280	0.70 U	0.62 U	0.70 U
gamma-Chlordane	(ug/kg)	540	1.1	0.62 U	1.9
Heptachlor	(ug/kg)	420	0.70 U	0.62 U	0.70 U
Heptachlor epoxide	(ug/kg)	80	0.70 U	0.62 U	0.70 U
Methoxychlor	(ug/kg)	100000	1.4 U	1.2 U	1.4 U
Toxaphene	(ug/kg)		17 U	16 U	18 U
Aroclor 1016	(ug/kg)		35 U	31 U	35 U
Aroclor 1221	(ug/kg)		35 U	31 U	35 U
Aroclor 1232	(ug/kg)		35 U	31 U	35 U
Aroclor 1242	(ug/kg)		35 U	31 U	35 U
Aroclor 1248	(ug/kg)		35 U	31 U	35 U
Aroclor 1254	(ug/kg)		35 U	31 U	35 U
Aroclor 1260	(ug/kg)		35 U	31 U	35 U
Aroclor-1262	(ug/kg)		35 U	31 U	35 U
Aroclor-1268	(ug/kg)		35 U	31 U	35 U

See the Endnotes following the last page of this table.

Table 4  
Soil Analytical Results  
Pesticides/Polychlorinated Biphenyls (Pest/PCBs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-05 JB47653-11 09/17/2013	ERMSB-06 JB47653-13 09/17/2013	ERMSB-06 JB47653-14 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
4,4'-DDD	(ug/kg)	2600	0.69 U	0.74	0.67 U
4,4'-DDE	(ug/kg)	1800	0.69 U	0.67 U	0.67 U
4,4'-DDT	(ug/kg)	1700	0.69 U	1.0	0.67 U
Aldrin	(ug/kg)	19	0.69 U	0.67 U	0.67 U
alpha-BHC	(ug/kg)	97	0.69 U	0.67 U	0.67 U
alpha-Chlordane	(ug/kg)	910	0.69 U	0.67 U	0.67 U
beta-BHC	(ug/kg)	72	0.69 U	0.67 U	0.67 U
delta-BHC	(ug/kg)	100000	0.69 U	0.67 U	0.67 U
Dieldrin	(ug/kg)	39	0.69 U	1.0	0.67 U
Endosulfan I	(ug/kg)	4800	0.69 U	0.67 U	0.67 U
Endosulfan II	(ug/kg)	4800	0.69 U	0.67 U	0.67 U
Endosulfan sulfate	(ug/kg)	4800	0.69 U	0.67 U	0.67 U
Endrin	(ug/kg)	2200	0.69 U	0.67 U	0.67 U
Endrin aldehyde	(ug/kg)		0.69 U	0.67 U	0.67 U
Endrin ketone	(ug/kg)		0.69 U	0.67 U	0.67 U
gamma-BHC (Lindane)	(ug/kg)	280	0.69 U	0.67 U	0.67 U
gamma-Chlordane	(ug/kg)	540	0.69 U	0.67 U	0.67 U
Heptachlor	(ug/kg)	420	0.69 U	0.67 U	0.67 U
Heptachlor epoxide	(ug/kg)	80	0.69 U	0.67 U	0.67 U
Methoxychlor	(ug/kg)	100000	1.4 U	1.3 U	1.3 U
Toxaphene	(ug/kg)		17 U	17 U	17 U
Aroclor 1016	(ug/kg)		34 U	33 U	34 U
Aroclor 1221	(ug/kg)		34 U	33 U	34 U
Aroclor 1232	(ug/kg)		34 U	33 U	34 U
Aroclor 1242	(ug/kg)		34 U	33 U	34 U
Aroclor 1248	(ug/kg)		34 U	33 U	34 U
Aroclor 1254	(ug/kg)		34 U	33 U	34 U
Aroclor 1260	(ug/kg)		34 U	33 U	34 U
Aroclor-1262	(ug/kg)		34 U	33 U	34 U
Aroclor-1268	(ug/kg)		34 U	33 U	34 U

See the Endnotes following the last page of this table.

Table 4  
Soil Analytical Results  
Pesticides/Polychlorinated Biphenyls (Pest/PCBs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-07 JB47711-1 09/17/2013	ERMSB-07 JB47711-2 09/17/2013
Starting Depth	(feet)		0.00	12.00
Ending Depth	(feet)		2.00	14.00
4,4'-DDD	(ug/kg)	2600	24.8	0.69 U
4,4'-DDE	(ug/kg)	1800	15.6	0.69 U
4,4'-DDT	(ug/kg)	1700	58.2	0.69 U
Aldrin	(ug/kg)	19	0.62 U	0.69 U
alpha-BHC	(ug/kg)	97	0.62 U	0.69 U
alpha-Chlordane	(ug/kg)	910	10.7	0.69 U
beta-BHC	(ug/kg)	72	0.62 U	0.69 U
delta-BHC	(ug/kg)	100000	0.62 U	0.69 U
Dieldrin	(ug/kg)	39	14.0	0.69 U
Endosulfan I	(ug/kg)	4800	0.62 U	0.69 U
Endosulfan II	(ug/kg)	4800	0.62 U	0.69 U
Endosulfan sulfate	(ug/kg)	4800	0.62 U	0.69 U
Endrin	(ug/kg)	2200	0.62 U	0.69 U
Endrin aldehyde	(ug/kg)		0.62 U	0.69 U
Endrin ketone	(ug/kg)		0.62 U	0.69 U
gamma-BHC (Lindane)	(ug/kg)	280	0.62 U	0.69 U
gamma-Chlordane	(ug/kg)	540	9.0	0.69 U
Heptachlor	(ug/kg)	420	0.62 U	0.69 U
Heptachlor epoxide	(ug/kg)	80	1.1	0.69 U
Methoxychlor	(ug/kg)	100000	1.2 U	1.4 U
Toxaphene	(ug/kg)		15 U	17 U
Aroclor 1016	(ug/kg)		31 U	34 U
Aroclor 1221	(ug/kg)		31 U	34 U
Aroclor 1232	(ug/kg)		31 U	34 U
Aroclor 1242	(ug/kg)		31 U	34 U
Aroclor 1248	(ug/kg)		31 U	34 U
Aroclor 1254	(ug/kg)		31 U	34 U
Aroclor 1260	(ug/kg)		31 U	34 U
Aroclor-1262	(ug/kg)		31 U	34 U
Aroclor-1268	(ug/kg)		31 U	34 U

See the Endnotes following the last page of this table.

**Table 4**  
**Soil Analytical Results**  
**Pesticides/Polychlorinated Biphenyls (Pest/PCBs)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g}/\text{kg}$  = micrograms per kilogram (parts per billion; ppb).
- All depth measurements are in feet (ft) below ground surface.
- 6NYCRR Part 375 and CP-51 Residential = New York State Department of Environmental Conservation (NYSDEC) Restricted Soil Cleanup Objective (SCO) Residential as presented in Title 6 of the Official Compilation of New York Codes, Rules and Regulations (6 NYCRR) Subpart 375-6.8(b). Includes Final Commissioner Policy CP-51 / Soil Cleanup Guidance, October 21, 2010.

Qualifiers

- |              |   |
|--------------|---|
| no qualifier | The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.  |
| U            | Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit. |

Table 5  
Soil Analytical Results  
Metals

Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-01 JB47653-1 09/16/2013	ERMSB-01 JB47653-2 09/16/2013	ERMSB-02 JB47653-4 09/16/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
Aluminum	(mg/kg)		3410	6790	3440
Antimony	(mg/kg)		2.1 U	2.3 U	2.1 U
Arsenic	(mg/kg)	16	2.1 U	2.3 U	2.1 U
Barium	(mg/kg)	350	25.1	34.3	26.0
Beryllium	(mg/kg)	14	0.39	0.29	0.46
Cadmium	(mg/kg)	2.5	0.54 U	0.57 U	0.52 U
Calcium	(mg/kg)		8410	1900	14200
Chromium	(mg/kg)	36	10.3	17.6	11.3
Cobalt	(mg/kg)	30	9.6	5.7 U	7.5
Copper	(mg/kg)	270	24.0	14.6	39.4
Iron	(mg/kg)	2000	[16900]	[11600]	[18100]
Lead	(mg/kg)	400	17.7	2.5	7.2
Magnesium	(mg/kg)		3520	3620	7070
Manganese	(mg/kg)	2000	122	106	117
Mercury	(mg/kg)	0.81	0.035 U	0.033 U	0.032 U
Nickel	(mg/kg)	140	12.9	12.1	13.6
Potassium	(mg/kg)		1150	1300	1350
Selenium	(mg/kg)	36	2.1 U	2.3 U	2.1 U
Silver	(mg/kg)	36	0.54 U	0.57 U	0.52 U
Sodium	(mg/kg)		1100 U	1100 U	1000 U
Thallium	(mg/kg)		1.1 U	1.1 U	1.0 U
Vanadium	(mg/kg)	100	41.6	22.8	43.7
Zinc	(mg/kg)	2200	24.3	55.0	16.5

See the Endnotes following the last page of this table.

Table 5  
Soil Analytical Results  
Metals

Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-02 JB47653-5 09/16/2013	ERMSB-03 JB47653-8 09/17/2013	ERMSB-03 JB47653-9 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
Aluminum	(mg/kg)		7080	14300	7150
Antimony	(mg/kg)		2.0 U	2.3 U	2.3 U
Arsenic	(mg/kg)	16	2.0 U	4.0	2.3 U
Barium	(mg/kg)	350	33.2	82.3	71.4
Beryllium	(mg/kg)	14	0.20	0.60	0.23 U
Cadmium	(mg/kg)	2.5	0.50 U	0.58 U	0.57 U
Calcium	(mg/kg)		2290	20400	6600
Chromium	(mg/kg)	36	23.2	28.0	25.4
Cobalt	(mg/kg)	30	5.0 U	7.8	5.7 U
Copper	(mg/kg)	270	17.2	19.1	20.4
Iron	(mg/kg)	2000	[10200]	[16200]	[11800]
Lead	(mg/kg)	400	2.6	64.7	3.0
Magnesium	(mg/kg)		2850	8590	5810
Manganese	(mg/kg)	2000	111	398	121
Mercury	(mg/kg)	0.81	0.033 U	0.12	0.034 U
Nickel	(mg/kg)	140	11.6	18.6	16.0
Potassium	(mg/kg)		1390	1590	2150
Selenium	(mg/kg)	36	2.0 U	2.3 U	2.3 U
Silver	(mg/kg)	36	0.50 U	0.58 U	0.57 U
Sodium	(mg/kg)		1000 U	1200 U	1100 U
Thallium	(mg/kg)		1.0 U	1.2 U	1.1 U
Vanadium	(mg/kg)	100	23.3	32.4	24.7
Zinc	(mg/kg)	2200	29.3	161	45.8

See the Endnotes following the last page of this table.

Table 5  
Soil Analytical Results  
Metals

Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-04 JB47653-6 09/16/2013	ERMSB-04 JB47653-7 09/16/2013	ERMSB-05 JB47653-10 09/17/2013
Starting Depth	(feet)		0.00	12.00	0.00
Ending Depth	(feet)		2.00	14.00	2.00
Aluminum	(mg/kg)		6140	6540	4810
Antimony	(mg/kg)		2.1 U	2.0 U	2.2 U
Arsenic	(mg/kg)	16	4.2	2.0 U	2.2 U
Barium	(mg/kg)	350	63.9	32.9	45.0
Beryllium	(mg/kg)	14	0.37	0.20 U	0.32
Cadmium	(mg/kg)	2.5	0.53 U	0.50 U	0.55 U
Calcium	(mg/kg)		16800	2560	25900
Chromium	(mg/kg)	36	18.6	23.1	14.9
Cobalt	(mg/kg)	30	8.8	5.1	7.7
Copper	(mg/kg)	270	42.8	14.1	26.2
Iron	(mg/kg)	2000	[17200]	[11500]	[16500]
Lead	(mg/kg)	400	155	2.2	53.1
Magnesium	(mg/kg)		9730	3180	6960
Manganese	(mg/kg)	2000	165	105	145
Mercury	(mg/kg)	0.81	0.15	0.031 U	0.065
Nickel	(mg/kg)	140	23.2	12.8	16.8
Potassium	(mg/kg)		1470	1540	1390
Selenium	(mg/kg)	36	2.1 U	2.0 U	2.2 U
Silver	(mg/kg)	36	0.53 U	0.50 U	0.55 U
Sodium	(mg/kg)		1100 U	990 U	1100 U
Thallium	(mg/kg)		1.1 U	0.99 U	1.1 U
Vanadium	(mg/kg)	100	43.5	23.9	47.9
Zinc	(mg/kg)	2200	90.2	31.4	40.1

See the Endnotes following the last page of this table.

Table 5  
Soil Analytical Results  
Metals

Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-05 JB47653-11 09/17/2013	ERMSB-06 JB47653-13 09/17/2013	ERMSB-06 JB47653-14 09/17/2013
Starting Depth	(feet)		11.00	0.00	12.00
Ending Depth	(feet)		13.00	2.00	14.00
Aluminum	(mg/kg)		7030	3620	11000
Antimony	(mg/kg)		2.1 U	2.1 U	2.0 U
Arsenic	(mg/kg)	16	2.1 U	2.1 U	2.0 U
Barium	(mg/kg)	350	39.7	37.3	93.7
Beryllium	(mg/kg)	14	0.21	0.38	0.24
Cadmium	(mg/kg)	2.5	0.52 U	0.52 U	0.49 U
Calcium	(mg/kg)		5700	11000	2820
Chromium	(mg/kg)	36	21.2	15.2	[46.4]
Cobalt	(mg/kg)	30	7.1	8.1	7.6
Copper	(mg/kg)	270	21.6	24.6	27.2
Iron	(mg/kg)	2000	[10800]	[17300]	[19000]
Lead	(mg/kg)	400	3.0	15.7	4.4
Magnesium	(mg/kg)		4980	6600	6000
Manganese	(mg/kg)	2000	161	141	198
Mercury	(mg/kg)	0.81	0.032 U	0.035 U	0.032 U
Nickel	(mg/kg)	140	20.5	19.3	20.4
Potassium	(mg/kg)		1620	1560	5700
Selenium	(mg/kg)	36	2.1 U	2.1 U	2.0 U
Silver	(mg/kg)	36	0.52 U	0.52 U	0.49 U
Sodium	(mg/kg)		1000 U	1000 U	990 U
Thallium	(mg/kg)		1.0 U	1.0 U	0.99 U
Vanadium	(mg/kg)	100	24.1	44.9	40.1
Zinc	(mg/kg)	2200	27.7	23.8	43.5

See the Endnotes following the last page of this table.

Table 5  
Soil Analytical Results  
Metals

Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/17/2013 - Inclusive

SAMPLE TYPE: Soil

CONSTITUENT	SITE LAB SAMPLE ID DATE	6NYCRR Part 375 and CP-51 Residential	ERMSB-07 JB47711-1 09/17/2013	ERMSB-07 JB47711-2 09/17/2013
Starting Depth	(feet)		0.00	12.00
Ending Depth	(feet)		2.00	14.00
Aluminum	(mg/kg)		4750	11500
Antimony	(mg/kg)		2.0 U	2.0 U
Arsenic	(mg/kg)	16	4.2	2.5
Barium	(mg/kg)	350	[582]	66.2
Beryllium	(mg/kg)	14	0.20 U	0.27
Cadmium	(mg/kg)	2.5	0.61	0.51 U
Calcium	(mg/kg)		40300	4410
Chromium	(mg/kg)	36	14.9	[38.9]
Cobalt	(mg/kg)	30	6.9	7.7
Copper	(mg/kg)	270	25.5	21.8
Iron	(mg/kg)	2000	[15100]	[17700]
Lead	(mg/kg)	400	191	3.7
Magnesium	(mg/kg)		19400	4340
Manganese	(mg/kg)	2000	185	181
Mercury	(mg/kg)	0.81	0.17	0.034 U
Nickel	(mg/kg)	140	14.4	20.2
Potassium	(mg/kg)		1150	2100
Selenium	(mg/kg)	36	2.0 U	2.0 U
Silver	(mg/kg)	36	0.61	0.51 U
Sodium	(mg/kg)		990 U	1000 U
Thallium	(mg/kg)		0.99 U	1.0 U
Vanadium	(mg/kg)	100	31.4	44.4
Zinc	(mg/kg)	2200	263	37.4

See the Endnotes following the last page of this table.

**Table 5**  
**Soil Analytical Results**  
**Metals**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- mg/kg = milligrams per kilogram (parts per million; ppm).
- All depth measurements are in feet (ft) below ground surface.
- 6NYCRR Part 375 and CP-51 Residential = New York State Department of Environmental Conservation (NYSDEC) Restricted Soil Cleanup Objective (SCO) Residential as presented in Title 6 of the Official Compilation of New York Codes, Rules and Regulations (6 NYCRR) Subpart 375-6.8(b). Includes Final Commissioner Policy CP-51 / Soil Cleanup Guidance, October 21, 2010.
- Bracketed and highlighted values indicate a positive concentration that exceeds the lower of the two SCO.

Qualifiers

- |              |   |
|--------------|---|
| no qualifier | The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.  |
| U            | Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit. |

Table 6  
Groundwater Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-01	ERMGW-02	ERMGW-03
	LAB SAMPLE ID		JB47653-3	JB47653-12	JB47653-17
	DATE	NYSDEC	09/16/2013	09/17/2013	09/17/2013
	RESULT TYPE	TOGS	Primary	Primary	Primary
1,1,1-Trichloroethane	(ug/l)	5	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	(ug/l)	5	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	(ug/l)	1	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	(ug/l)	5	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	(ug/l)	5	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	(ug/l)	5	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	(ug/l)	5	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane	(ug/l)	0.04	10 U	10 U	10 U
1,2-Dibromoethane	(ug/l)	0.0006	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	(ug/l)	3	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	(ug/l)	0.6	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	(ug/l)	1	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	(ug/l)	3	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	(ug/l)	3	1.0 U	1.0 U	1.0 U
1,4-Dioxane	(ug/l)		130 U	130 U	130 U
2-Butanone	(ug/l)	50	10 U	10 U	10 U
2-Hexanone	(ug/l)	50	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	(ug/l)		5.0 U	5.0 U	5.0 U
Acetone	(ug/l)	50	10 U	3.5 J	4.0 J
Benzene	(ug/l)	1	1.0 U	1.0 U	1.0 U
Bromochloromethane	(ug/l)	5	5.0 U	5.0 U	5.0 U
Bromodichloromethane	(ug/l)	50	1.0 U	1.0 U	1.0 U
Bromoform	(ug/l)	50	4.0 U	4.0 U	4.0 U
Bromomethane	(ug/l)	5	2.0 U	2.0 U	2.0 U
Carbon Disulfide	(ug/l)	60	2.0 U	2.0 U	2.0 U
Carbon Tetrachloride	(ug/l)	5	1.0 U	1.0 U	1.0 U
Chlorobenzene	(ug/l)	5	1.0 U	1.0 U	1.0 U
Chloroethane	(ug/l)	5	1.0 U	1.0 U	1.0 U
Chloroform	(ug/l)	7	1.0	0.78 J	0.29 J
Chloromethane	(ug/l)	5	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	(ug/l)	5	1.0 U	0.38 J	0.33 J
cis-1,3-Dichloropropene	(ug/l)	0.4	1.0 U	1.0 U	1.0 U
Cyclohexane	(ug/l)		5.0 U	5.0 U	5.0 U
Dibromochloromethane	(ug/l)	50	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	(ug/l)	5	5.0 U	5.0 U	5.0 U
Ethylbenzene	(ug/l)	5	1.0 U	1.0 U	1.0 U
Freon 113	(ug/l)	5	5.0 U	5.0 U	5.0 U
Isopropylbenzene	(ug/l)	5	2.0 U	2.0 U	2.0 U
m+p-Xylene	(ug/l)	5	1.0 U	1.0 U	1.0 U

See the Endnotes following the last page of this table.

Table 6  
Groundwater Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-01	ERMGW-02	ERMGW-03
	LAB SAMPLE ID		JB47653-3	JB47653-12	JB47653-17
	DATE	NYSDEC	09/16/2013	09/17/2013	09/17/2013
	RESULT TYPE	TOGS	Primary	Primary	Primary
Methyl Acetate	(ug/l)		5.0 U	5.0 U	5.0 U
Methyl Cyclohexane	(ug/l)		5.0 U	5.0 U	0.31 J
Methyl Tertiary Butyl Ether	(ug/l)	10	1.0 U	1.0 U	1.0 U
Methylene Chloride	(ug/l)	5	2.0 U	2.0 U	2.0 U
o-Xylene	(ug/l)	5	1.0 U	1.0 U	1.0 U
Styrene	(ug/l)	5	5.0 U	5.0 U	5.0 U
Tetrachloroethene	(ug/l)	5	[5.5]	3.6	0.67 J
Toluene	(ug/l)	5	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	(ug/l)	5	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	(ug/l)	0.4	1.0 U	1.0 U	1.0 U
Trichloroethene	(ug/l)	5	0.35 J	2.3	1.7
Trichlorofluoromethane	(ug/l)	5	5.0 U	5.0 U	5.0 U
Vinyl chloride	(ug/l)	2	1.0 U	1.0 U	1.0 U
Xylene (total)	(ug/l)	5	1.0 U	1.0 U	1.0 U

See the Endnotes following the last page of this table.

Table 6  
Groundwater Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-04	ERMGW-04
	LAB SAMPLE ID		JB47711-3	JB47711-6
	DATE	NYSDEC	09/18/2013	09/18/2013
	RESULT TYPE	TOGS	Primary	Duplicate 1
1,1,1-Trichloroethane	(ug/l)	5	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	(ug/l)	5	1.0 U	1.0 U
1,1,2-Trichloroethane	(ug/l)	1	1.0 U	1.0 U
1,1-Dichloroethane	(ug/l)	5	1.0 U	1.0 U
1,1-Dichloroethene	(ug/l)	5	1.0 U	1.0 U
1,2,3-Trichlorobenzene	(ug/l)	5	5.0 U	5.0 U
1,2,4-Trichlorobenzene	(ug/l)	5	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane	(ug/l)	0.04	10 U	10 U
1,2-Dibromoethane	(ug/l)	0.0006	2.0 U	2.0 U
1,2-Dichlorobenzene	(ug/l)	3	1.0 U	1.0 U
1,2-Dichloroethane	(ug/l)	0.6	1.0 U	1.0 U
1,2-Dichloropropane	(ug/l)	1	1.0 U	1.0 U
1,3-Dichlorobenzene	(ug/l)	3	1.0 U	1.0 U
1,4-Dichlorobenzene	(ug/l)	3	1.0 U	1.0 U
1,4-Dioxane	(ug/l)		130 U	130 U
2-Butanone	(ug/l)	50	10 U	10 U
2-Hexanone	(ug/l)	50	5.0 U	5.0 U
4-Methyl-2-Pentanone	(ug/l)		5.0 U	5.0 U
Acetone	(ug/l)	50	4.3 J	10 U
Benzene	(ug/l)	1	1.0 U	1.0 U
Bromochloromethane	(ug/l)	5	5.0 U	5.0 U
Bromodichloromethane	(ug/l)	50	1.0 U	1.0 U
Bromoform	(ug/l)	50	4.0 U	4.0 U
Bromomethane	(ug/l)	5	2.0 U	2.0 U
Carbon Disulfide	(ug/l)	60	2.0 U	2.0 U
Carbon Tetrachloride	(ug/l)	5	1.0 U	1.0 U
Chlorobenzene	(ug/l)	5	1.0 U	1.0 U
Chloroethane	(ug/l)	5	1.0 U	1.0 U
Chloroform	(ug/l)	7	1.5	1.5
Chloromethane	(ug/l)	5	1.0 U	1.0 U
cis-1,2-Dichloroethene	(ug/l)	5	0.23 J	0.21 J
cis-1,3-Dichloropropene	(ug/l)	0.4	1.0 U	1.0 U
Cyclohexane	(ug/l)		5.0 U	5.0 U
Dibromochloromethane	(ug/l)	50	1.0 U	1.0 U
Dichlorodifluoromethane	(ug/l)	5	5.0 U	5.0 U
Ethylbenzene	(ug/l)	5	1.0 U	1.0 U
Freon 113	(ug/l)	5	5.0 U	5.0 U
Isopropylbenzene	(ug/l)	5	2.0 U	2.0 U
m+p-Xylene	(ug/l)	5	1.0 U	1.0 U

See the Endnotes following the last page of this table.

Table 6  
 Groundwater Analytical Results  
 Volatile Organic Compounds (VOCs)  
 Mountco Construction & Development Corp.  
 1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-04	ERMGW-04
	LAB SAMPLE ID		JB47711-3	JB47711-6
	DATE	NYSDEC	09/18/2013	09/18/2013
	RESULT TYPE	TOGS	Primary	Duplicate 1
Methyl Acetate	(ug/l)		5.0 U	5.0 U
Methyl Cyclohexane	(ug/l)		5.0 U	5.0 U
Methyl Tertiary Butyl Ether	(ug/l)	10	1.0 U	1.0 U
Methylene Chloride	(ug/l)	5	2.0 U	2.0 U
o-Xylene	(ug/l)	5	1.0 U	1.0 U
Styrene	(ug/l)	5	5.0 U	5.0 U
Tetrachloroethene	(ug/l)	5	1.6	1.5
Toluene	(ug/l)	5	1.0 U	1.0 U
trans-1,2-Dichloroethene	(ug/l)	5	1.0 U	1.0 U
trans-1,3-Dichloropropene	(ug/l)	0.4	1.0 U	1.0 U
Trichloroethene	(ug/l)	5	2.9	2.9
Trichlorofluoromethane	(ug/l)	5	5.0 U	5.0 U
Vinyl chloride	(ug/l)	2	1.0 U	1.0 U
Xylene (total)	(ug/l)	5	1.0 U	1.0 U

See the Endnotes following the last page of this table.

**Table 6**  
**Groundwater Analytical Results**  
**Volatile Organic Compounds (VOCs)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g/l}$  = micrograms per liter (parts per billion; ppb).
- NYSDEC TOGS = Standards listed are the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 values.
- Bracketed and highlighted values indicate a positive concentration that exceeds the TOGS.

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL). The value is usable as an estimated result.

Table 7  
Groundwater Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-01	ERMGW-02	ERMGW-03
	LAB SAMPLE ID		JB47653-3	JB47653-12	JB47653-17
	DATE	NYSDEC	09/16/2013	09/17/2013	09/17/2013
	RESULT TYPE	TOGS	Primary	Primary	Primary
1,2,4,5-Tetrachlorobenzene	(ug/l)	5	2.0 U	2.1 U	2.0 U
2,3,4,6-Tetrachlorophenol	(ug/l)		5.0 U	5.2 U	5.0 U
2,4,5-Trichlorophenol	(ug/l)	1	5.0 U	5.2 U	5.0 U
2,4,6-Trichlorophenol	(ug/l)	1	5.0 U	5.2 U	5.0 U
2,4-Dichlorophenol	(ug/l)	5	5.0 U	5.2 U	5.0 U
2,4-Dimethylphenol	(ug/l)	1	5.0 U	5.2 U	5.0 U
2,4-Dinitrophenol	(ug/l)	10	20 U	21 U	20 U
2,4-Dinitrotoluene	(ug/l)	5	2.0 U	2.1 U	2.0 U
2,6-Dinitrotoluene	(ug/l)	5	2.0 U	2.1 U	2.0 U
2-Chloronaphthalene	(ug/l)	10	2.0 U	2.1 U	2.0 U
2-Chlorophenol	(ug/l)	1	5.0 U	5.2 U	5.0 U
2-Methylnaphthalene	(ug/l)		1.0 U	1.0 U	1.0 U
3,3-Dichlorobenzidine	(ug/l)	5	5.0 U	5.2 U	5.0 U
4,6-Dinitro-o-cresol	(ug/l)	1	20 U	21 U	20 U
4-Bromophenyl phenyl ether	(ug/l)		2.0 U	2.1 U	2.0 U
4-Chlorophenyl phenyl ether	(ug/l)		2.0 U	2.1 U	2.0 U
Acenaphthene	(ug/l)	20	1.0 U	1.0 U	1.0 U
Acenaphthylene	(ug/l)		1.0 U	1.0 U	1.0 U
Acetophenone	(ug/l)		2.0 U	2.1 U	2.0 U
Anthracene	(ug/l)	50	1.0 U	1.0 U	1.0 U
Atrazine	(ug/l)	7.5	5.0 U	5.2 U	5.0 U
Benzaldehyde	(ug/l)		5.0 U	5.2 U	5.0 U
Benzo(a)anthracene	(ug/l)	0.002	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	(ug/l)	0	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	(ug/l)	0.002	1.0 U	1.0 U	1.0 U
Benzo(ghi)perylene	(ug/l)		1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	(ug/l)	0.002	1.0 U	1.0 U	1.0 U
Biphenyl	(ug/l)		1.0 U	1.0 U	1.0 U
Bis(2-chloroethoxy)methane	(ug/l)	5	2.0 U	2.1 U	2.0 U
Bis(2-chloroethyl)ether	(ug/l)	1	2.0 U	2.1 U	2.0 U
Bis(2-chloroisopropyl)ether	(ug/l)		2.0 U	2.1 U	2.0 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/l)	5	2.0 U	2.1 U	2.0 U
Butyl benzyl phthalate	(ug/l)	50	2.0 U	2.1 U	2.0 U
Caprolactam	(ug/l)		2.0 U	2.1 U	2.0 U
Carbazole	(ug/l)		1.0 U	1.0 U	1.0 U
Chrysene	(ug/l)	0.002	1.0 U	1.0 U	1.0 U
Dibenzo(a,h)anthracene	(ug/l)		1.0 U	1.0 U	1.0 U
Dibenzofuran	(ug/l)		5.0 U	5.2 U	5.0 U
Diethyl phthalate	(ug/l)	50	2.0 U	2.1 U	2.0 U

See the Endnotes following the last page of this table.

Table 7  
Groundwater Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-01	ERMGW-02	ERMGW-03
	LAB SAMPLE ID		JB47653-3	JB47653-12	JB47653-17
	DATE	NYSDEC	09/16/2013	09/17/2013	09/17/2013
	RESULT TYPE	TOGS	Primary	Primary	Primary
Dimethyl phthalate	(ug/l)	50	2.0 U	2.1 U	2.0 U
Di-n-butyl phthalate	(ug/l)	50	2.0 U	2.1 U	2.0 U
Di-n-octyl phthalate	(ug/l)	50	2.0 U	2.1 U	2.0 U
Fluoranthene	(ug/l)	50	1.0 U	1.0 U	1.0 U
Fluorene	(ug/l)	50	1.0 U	1.0 U	1.0 U
Hexachlorobenzene	(ug/l)	0.04	1.0 U	1.0 U	1.0 U
Hexachlorobutadiene	(ug/l)	0.5	1.0 U	1.0 U	1.0 U
Hexachlorocyclopentadiene	(ug/l)	5	10 U	10 U	10 U
Hexachloroethane	(ug/l)	5	2.0 U	2.1 U	2.0 U
Indeno(1,2,3-cd)pyrene	(ug/l)	0.002	1.0 U	1.0 U	1.0 U
Isophorone	(ug/l)	50	2.0 U	2.1 U	2.0 U
m+p-Cresol	(ug/l)		2.0 U	2.1 U	2.0 U
m-Nitroaniline	(ug/l)	5	5.0 U	5.2 U	5.0 U
Naphthalene	(ug/l)	10	1.0 U	1.0 U	1.0 U
Nitrobenzene	(ug/l)	0.4	2.0 U	2.1 U	2.0 U
N-Nitrosodiphenylamine	(ug/l)	50	5.0 U	5.2 U	5.0 U
N-Nitrosodipropylamine	(ug/l)		2.0 U	2.1 U	2.0 U
o-Cresol	(ug/l)	1	2.0 U	2.1 U	2.0 U
o-Nitroaniline	(ug/l)	5	5.0 U	5.2 U	5.0 U
o-Nitrophenol	(ug/l)	1	5.0 U	5.2 U	5.0 U
p-Chloroaniline	(ug/l)	5	5.0 U	5.2 U	5.0 U
p-Chloro-m-cresol	(ug/l)	1	5.0 U	5.2 U	5.0 U
Pentachlorophenol	(ug/l)	1	10 U	10 U	10 U
Phenanthrene	(ug/l)	50	1.0 U	1.0 U	1.0 U
Phenol	(ug/l)	1	2.0 U	2.1 U	2.0 U
p-Nitroaniline	(ug/l)	5	5.0 U	5.2 U	5.0 U
p-Nitrophenol	(ug/l)	1	10 U	10 U	10 U
Pyrene	(ug/l)	50	1.0 U	1.0 U	1.0 U

See the Endnotes following the last page of this table.

Table 7  
Groundwater Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-04	ERMGW-04
	LAB SAMPLE ID		JB47711-3	JB47711-6
	DATE	NYSDEC	09/18/2013	09/18/2013
	RESULT TYPE	TOGS	Primary	Duplicate 1
1,2,4,5-Tetrachlorobenzene	(ug/l)	5	2.0 U	2.0 U
2,3,4,6-Tetrachlorophenol	(ug/l)		5.0 U	5.0 U
2,4,5-Trichlorophenol	(ug/l)	1	5.0 U	5.0 U
2,4,6-Trichlorophenol	(ug/l)	1	5.0 U	5.0 U
2,4-Dichlorophenol	(ug/l)	5	5.0 U	5.0 U
2,4-Dimethylphenol	(ug/l)	1	5.0 U	5.0 U
2,4-Dinitrophenol	(ug/l)	10	20 U	20 U
2,4-Dinitrotoluene	(ug/l)	5	2.0 U	2.0 U
2,6-Dinitrotoluene	(ug/l)	5	2.0 U	2.0 U
2-Chloronaphthalene	(ug/l)	10	2.0 U	2.0 U
2-Chlorophenol	(ug/l)	1	5.0 U	5.0 U
2-Methylnaphthalene	(ug/l)		1.0 U	1.0 U
3,3-Dichlorobenzidine	(ug/l)	5	5.0 U	5.0 U
4,6-Dinitro-o-cresol	(ug/l)	1	20 U	20 U
4-Bromophenyl phenyl ether	(ug/l)		2.0 U	2.0 U
4-Chlorophenyl phenyl ether	(ug/l)		2.0 U	2.0 U
Acenaphthene	(ug/l)	20	1.0 U	1.0 U
Acenaphthylene	(ug/l)		1.0 U	1.0 U
Acetophenone	(ug/l)		2.0 U	2.0 U
Anthracene	(ug/l)	50	1.0 U	1.0 U
Atrazine	(ug/l)	7.5	5.0 U	5.0 U
Benzaldehyde	(ug/l)		5.0 U	5.0 U
Benzo(a)anthracene	(ug/l)	0.002	1.0 U	1.0 U
Benzo(a)pyrene	(ug/l)	0	1.0 U	1.0 U
Benzo(b)fluoranthene	(ug/l)	0.002	1.0 U	1.0 U
Benzo(ghi)perylene	(ug/l)		1.0 U	1.0 U
Benzo(k)fluoranthene	(ug/l)	0.002	1.0 U	1.0 U
Biphenyl	(ug/l)		1.0 U	1.0 U
Bis(2-chloroethoxy)methane	(ug/l)	5	2.0 U	2.0 U
Bis(2-chloroethyl)ether	(ug/l)	1	2.0 U	2.0 U
Bis(2-chloroisopropyl)ether	(ug/l)		2.0 U	2.0 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/l)	5	2.0 U	2.0 U
Butyl benzyl phthalate	(ug/l)	50	2.0 U	2.0 U
Caprolactam	(ug/l)		2.0 U	2.0 U
Carbazole	(ug/l)		1.0 U	1.0 U
Chrysene	(ug/l)	0.002	1.0 U	1.0 U
Dibenzo(a,h)anthracene	(ug/l)		1.0 U	1.0 U
Dibenzofuran	(ug/l)		5.0 U	5.0 U
Diethyl phthalate	(ug/l)	50	2.0 U	2.0 U

See the Endnotes following the last page of this table.

Table 7  
Groundwater Analytical Results  
Semivolatile Organic Compounds (SVOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-04	ERMGW-04
	LAB SAMPLE ID		JB47711-3	JB47711-6
	DATE	NYSDEC	09/18/2013	09/18/2013
	RESULT TYPE	TOGS	Primary	Duplicate 1
Dimethyl phthalate	(ug/l)	50	2.0 U	2.0 U
Di-n-butyl phthalate	(ug/l)	50	2.0 U	2.0 U
Di-n-octyl phthalate	(ug/l)	50	2.0 U	2.0 U
Fluoranthene	(ug/l)	50	1.0 U	1.0 U
Fluorene	(ug/l)	50	1.0 U	1.0 U
Hexachlorobenzene	(ug/l)	0.04	1.0 U	1.0 U
Hexachlorobutadiene	(ug/l)	0.5	1.0 U	1.0 U
Hexachlorocyclopentadiene	(ug/l)	5	10 U	10 U
Hexachloroethane	(ug/l)	5	2.0 U	2.0 U
Indeno(1,2,3-cd)pyrene	(ug/l)	0.002	1.0 U	1.0 U
Isophorone	(ug/l)	50	2.0 U	2.0 U
m+p-Cresol	(ug/l)		2.0 U	2.0 U
m-Nitroaniline	(ug/l)	5	5.0 U	5.0 U
Naphthalene	(ug/l)	10	1.0 U	1.0 U
Nitrobenzene	(ug/l)	0.4	2.0 U	2.0 U
N-Nitrosodiphenylamine	(ug/l)	50	5.0 U	5.0 U
N-Nitrosodipropylamine	(ug/l)		2.0 U	2.0 U
o-Cresol	(ug/l)	1	2.0 U	2.0 U
o-Nitroaniline	(ug/l)	5	5.0 U	5.0 U
o-Nitrophenol	(ug/l)	1	5.0 U	5.0 U
p-Chloroaniline	(ug/l)	5	5.0 U	5.0 U
p-Chloro-m-cresol	(ug/l)	1	5.0 U	5.0 U
Pentachlorophenol	(ug/l)	1	10 U	10 U
Phenanthrene	(ug/l)	50	1.0 U	1.0 U
Phenol	(ug/l)	1	2.0 U	2.0 U
p-Nitroaniline	(ug/l)	5	5.0 U	5.0 U
p-Nitrophenol	(ug/l)	1	10 U	10 U
Pyrene	(ug/l)	50	1.0 U	1.0 U

See the Endnotes following the last page of this table.

**Table 7**  
**Groundwater Analytical Results**  
**Semivolatile Organic Compounds (SVOCs)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g/l}$  = micrograms per liter (parts per billion; ppb).
- NYSDEC TOGS = Standards listed are the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 values.

Qualifiers

U Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.

Table 8  
Groundwater Analytical Results  
Pesticides/Polychlorinated Biphenyls (Pest/PCBs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-01	ERMGW-02	ERMGW-03
	LAB SAMPLE ID		JB47653-3	JB47653-12	JB47653-17
	DATE	NYSDEC	09/16/2013	09/17/2013	09/17/2013
	RESULT TYPE	TOGS	Primary	Primary	Primary
4,4'-DDD	(ug/l)	0.3	0.010 U	0.010 U	0.010 U
4,4'-DDE	(ug/l)	0.2	0.010 U	0.010 U	0.010 U
4,4'-DDT	(ug/l)	0.2	0.010 U	0.010 U	0.010 U
Aldrin	(ug/l)	0	0.010 U	0.010 U	0.010 U
alpha-BHC	(ug/l)	0.01	0.010 U	0.010 U	0.010 U
alpha-Chlordane	(ug/l)		0.010 U	0.010 U	0.010 U
beta-BHC	(ug/l)	0.04	0.010 U	0.010 U	0.010 U
delta-BHC	(ug/l)	0.04	0.010 U	0.010 U	0.010 U
Dieldrin	(ug/l)	0.004	0.010 U	0.010 U	0.010 U
Endosulfan I	(ug/l)		0.010 U	0.010 U	0.010 U
Endosulfan II	(ug/l)		0.010 U	0.010 U	0.010 U
Endosulfan sulfate	(ug/l)		0.010 U	0.010 U	0.010 U
Endrin	(ug/l)	0	0.010 U	0.010 U	0.010 U
Endrin aldehyde	(ug/l)	5	0.010 U	0.010 U	0.010 U
Endrin ketone	(ug/l)	5	0.010 U	0.010 U	0.010 U
gamma-BHC (Lindane)	(ug/l)	0.05	0.010 U	0.010 U	0.010 U
gamma-Chlordane	(ug/l)		0.010 U	0.010 U	0.010 U
Heptachlor	(ug/l)	0.04	0.010 U	0.010 U	0.010 U
Heptachlor epoxide	(ug/l)	0.03	0.010 U	0.010 U	0.010 U
Methoxychlor	(ug/l)	35	0.020 U	0.020 U	0.020 U
Toxaphene	(ug/l)	0.06	0.25 U	0.25 U	0.25 U
Aroclor 1016	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor 1221	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor 1232	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor 1242	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor 1248	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor 1254	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor 1260	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor-1262	(ug/l)		0.50 U	0.50 U	0.50 U
Aroclor-1268	(ug/l)		0.50 U	0.50 U	0.50 U

See the Endnotes following the last page of this table.

Table 8  
Groundwater Analytical Results  
Pesticides/Polychlorinated Biphenyls (Pest/PCBs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-04	ERMGW-04
	LAB SAMPLE ID		JB47711-3	JB47711-6
	DATE	NYSDEC	09/18/2013	09/18/2013
	RESULT TYPE	TOGS	Primary	Duplicate 1
4,4'-DDD	(ug/l)	0.3	0.010 U	0.010 U
4,4'-DDE	(ug/l)	0.2	0.010 U	0.010 U
4,4'-DDT	(ug/l)	0.2	0.010 U	0.010 U
Aldrin	(ug/l)	0	0.010 U	0.010 U
alpha-BHC	(ug/l)	0.01	0.010 U	0.010 U
alpha-Chlordane	(ug/l)		0.010 U	0.010 U
beta-BHC	(ug/l)	0.04	0.010 U	0.010 U
delta-BHC	(ug/l)	0.04	0.010 U	0.010 U
Dieldrin	(ug/l)	0.004	0.010 U	0.010 U
Endosulfan I	(ug/l)		0.010 U	0.010 U
Endosulfan II	(ug/l)		0.010 U	0.010 U
Endosulfan sulfate	(ug/l)		0.010 U	0.010 U
Endrin	(ug/l)	0	0.010 U	0.010 U
Endrin aldehyde	(ug/l)	5	0.010 U	0.010 U
Endrin ketone	(ug/l)	5	0.010 U	0.010 U
gamma-BHC (Lindane)	(ug/l)	0.05	0.010 U	0.010 U
gamma-Chlordane	(ug/l)		0.010 U	0.010 U
Heptachlor	(ug/l)	0.04	0.010 U	0.010 U
Heptachlor epoxide	(ug/l)	0.03	0.010 U	0.010 U
Methoxychlor	(ug/l)	35	0.020 U	0.020 U
Toxaphene	(ug/l)	0.06	0.25 U	0.25 U
Aroclor 1016	(ug/l)		0.50 U	0.50 U
Aroclor 1221	(ug/l)		0.50 U	0.50 U
Aroclor 1232	(ug/l)		0.50 U	0.50 U
Aroclor 1242	(ug/l)		0.50 U	0.50 U
Aroclor 1248	(ug/l)		0.50 U	0.50 U
Aroclor 1254	(ug/l)		0.50 U	0.50 U
Aroclor 1260	(ug/l)		0.50 U	0.50 U
Aroclor-1262	(ug/l)		0.50 U	0.50 U
Aroclor-1268	(ug/l)		0.50 U	0.50 U

See the Endnotes following the last page of this table.

**Table 8**  
**Groundwater Analytical Results**  
**Pesticides/Polychlorinated Biphenyls (Pest/PCBs)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g/l}$  = micrograms per liter (parts per billion; ppb).
- NYSDEC TOGS = Standards listed are the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 values.

Qualifiers

U Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.

Table 9  
Groundwater Analytical Results  
Metals (Total and Dissolved)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-01	ERMGW-02	ERMGW-03
	LAB SAMPLE ID		JB47653-3	JB47653-12	JB47653-17
	DATE	NYSDEC	09/16/2013	09/17/2013	09/17/2013
	RESULT TYPE	TOGS	Primary	Primary	Primary
Aluminum	(ug/l)		233	538	632
Aluminum (Dissolved)	(ug/l)		200 U	200 U	205
Antimony	(ug/l)	3	6.0 U	6.0 U	6.0 U
Antimony (Dissolved)	(ug/l)	3	6.0 U	6.0 U	6.0 U
Arsenic	(ug/l)	25	3.0 U	3.0 U	3.0 U
Arsenic (Dissolved)	(ug/l)	25	3.0 U	3.0 U	3.0 U
Barium	(ug/l)	1000	200 U	200 U	200 U
Barium (Dissolved)	(ug/l)	1000	200 U	200 U	200 U
Beryllium	(ug/l)	3	1.0 U	1.0 U	1.0 U
Beryllium (Dissolved)	(ug/l)	3	1.0 U	1.0 U	1.0 U
Cadmium	(ug/l)	5	3.0 U	3.0 U	3.0 U
Cadmium (Dissolved)	(ug/l)	5	3.0 U	3.0 U	3.0 U
Calcium	(ug/l)		97300	139000	102000
Calcium (Dissolved)	(ug/l)		98600	153000	112000
Chromium	(ug/l)	50	10 U	10 U	10 U
Chromium (Dissolved)	(ug/l)	50	10 U	10 U	10 U
Cobalt	(ug/l)		50 U	50 U	50 U
Cobalt (Dissolved)	(ug/l)		50 U	50 U	50 U
Copper	(ug/l)	200	10 U	10 U	10 U
Copper (Dissolved)	(ug/l)	200	10 U	10 U	10 U
Iron	(ug/l)	300	[639]	[2180]	[1430]
Iron (Dissolved)	(ug/l)	300	100 U	113	229
Lead	(ug/l)	25	3.0 U	3.8	3.0 U
Lead (Dissolved)	(ug/l)	25	3.0 U	3.0 U	3.0 U
Magnesium	(ug/l)	35000	30600	[60100]	[42000]
Magnesium (Dissolved)	(ug/l)	35000	31000	[65800]	[45800]
Manganese	(ug/l)	300	167	181	114
Manganese (Dissolved)	(ug/l)	300	165	175	101
Mercury	(ug/l)	0.7	0.20 U	0.20 U	0.20 U
Mercury (Dissolved)	(ug/l)	0.7	NA	0.20 U	NA
Nickel	(ug/l)	100	10 U	10 U	10 U
Nickel (Dissolved)	(ug/l)	100	10 U	10 U	10 U
Potassium	(ug/l)		10000 U	10000 U	10000 U
Potassium (Dissolved)	(ug/l)		10000 U	10000 U	10000 U
Selenium	(ug/l)	10	10 U	10 U	10 U
Selenium (Dissolved)	(ug/l)	10	10 U	10 U	10 U
Silver	(ug/l)	50	10 U	10 U	10 U
Silver (Dissolved)	(ug/l)	50	10 U	10 U	10 U
Sodium	(ug/l)	20000	[232000]	[78900]	[88400]

See the Endnotes following the last page of this table.

Table 9  
Groundwater Analytical Results  
Metals (Total and Dissolved)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-01	ERMGW-02	ERMGW-03
	LAB SAMPLE ID		JB47653-3	JB47653-12	JB47653-17
	DATE	NYSDEC	09/16/2013	09/17/2013	09/17/2013
	RESULT TYPE	TOGS	Primary	Primary	Primary
Sodium (Dissolved)	(ug/l)	20000	[229000]	[90700]	[95800]
Thallium	(ug/l)	0.5	2.0 U	2.0 U	2.0 U
Thallium (Dissolved)	(ug/l)	0.5	2.0 U	2.0 U	2.0 U
Vanadium	(ug/l)		50 U	50 U	50 U
Vanadium (Dissolved)	(ug/l)		50 U	50 U	50 U
Zinc	(ug/l)	2000	20 U	20 U	20 U
Zinc (Dissolved)	(ug/l)	2000	20 U	20 U	20 U

See the Endnotes following the last page of this table.

Table 9  
Groundwater Analytical Results  
Metals (Total and Dissolved)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-04	ERMGW-04
	LAB SAMPLE ID		JB47711-3	JB47711-6
	DATE	NYSDEC	09/18/2013	09/18/2013
	RESULT TYPE	TOGS	Primary	Duplicate 1
Aluminum	(ug/l)		303	200 U
Aluminum (Dissolved)	(ug/l)		200 U	200 U
Antimony	(ug/l)	3	6.0 U	6.0 U
Antimony (Dissolved)	(ug/l)	3	6.0 U	6.0 U
Arsenic	(ug/l)	25	3.0 U	3.0 U
Arsenic (Dissolved)	(ug/l)	25	3.0 U	3.0 U
Barium	(ug/l)	1000	200 U	200 U
Barium (Dissolved)	(ug/l)	1000	200 U	200 U
Beryllium	(ug/l)	3	1.0 U	1.0 U
Beryllium (Dissolved)	(ug/l)	3	1.0 U	1.0 U
Cadmium	(ug/l)	5	3.0 U	3.0 U
Cadmium (Dissolved)	(ug/l)	5	3.0 U	3.0 U
Calcium	(ug/l)		127000	128000
Calcium (Dissolved)	(ug/l)		125000	125000
Chromium	(ug/l)	50	10 U	10 U
Chromium (Dissolved)	(ug/l)	50	10 U	10 U
Cobalt	(ug/l)		50 U	50 U
Cobalt (Dissolved)	(ug/l)		50 U	50 U
Copper	(ug/l)	200	10 U	10 U
Copper (Dissolved)	(ug/l)	200	10 U	10 U
Iron	(ug/l)	300	[1040]	[800]
Iron (Dissolved)	(ug/l)	300	100 U	100 U
Lead	(ug/l)	25	3.0 U	3.0 U
Lead (Dissolved)	(ug/l)	25	3.0 U	3.0 U
Magnesium	(ug/l)	35000	[53800]	[53500]
Magnesium (Dissolved)	(ug/l)	35000	[52500]	[52700]
Manganese	(ug/l)	300	115	113
Manganese (Dissolved)	(ug/l)	300	106	105
Mercury	(ug/l)	0.7	0.20 U	0.20 U
Mercury (Dissolved)	(ug/l)	0.7	0.20 U	0.20 U
Nickel	(ug/l)	100	10 U	10 U
Nickel (Dissolved)	(ug/l)	100	10 U	10 U
Potassium	(ug/l)		10000 U	10000 U
Potassium (Dissolved)	(ug/l)		10000 U	10000 U
Selenium	(ug/l)	10	10 U	10 U
Selenium (Dissolved)	(ug/l)	10	10 U	10 U
Silver	(ug/l)	50	10 U	10 U
Silver (Dissolved)	(ug/l)	50	10 U	10 U
Sodium	(ug/l)	20000	[106000]	[106000]

See the Endnotes following the last page of this table.

Table 9  
Groundwater Analytical Results  
Metals (Total and Dissolved)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/16/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Water

CONSTITUENT	SITE		ERMGW-04	ERMGW-04
	LAB SAMPLE ID		JB47711-3	JB47711-6
	DATE	NYSDEC	09/18/2013	09/18/2013
	RESULT TYPE	TOGS	Primary	Duplicate 1
Sodium (Dissolved)	(ug/l)	20000	[104000]	[104000]
Thallium	(ug/l)	0.5	2.0 U	2.0 U
Thallium (Dissolved)	(ug/l)	0.5	2.0 U	2.0 U
Vanadium	(ug/l)		50 U	50 U
Vanadium (Dissolved)	(ug/l)		50 U	50 U
Zinc	(ug/l)	2000	20 U	20 U
Zinc (Dissolved)	(ug/l)	2000	20 U	20 U

See the Endnotes following the last page of this table.

**Table 9**  
**Groundwater Analytical Results**  
**Metals (Total and Dissolved)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g/l}$  = micrograms per liter (parts per billion; ppb).
- NYSDEC TOGS = Standards listed are the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 values.
- Bracketed and highlighted values indicate a positive concentration that exceeds the TOGS.

Qualifiers

- |              |   |
|--------------|---|
| no qualifier | The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.  |
| U            | Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit. |

Table 10  
Soil Gas Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/18/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Air

CONSTITUENT	SITE		ERM-SV-01	ERM-SV-02	ERM-SV-03
	LAB SAMPLE ID	NYSDOH	JB47764-1	JB47764-2	JB47764-3
	DATE	Guidance	09/18/2013	09/18/2013	09/18/2013
1,1,1-Trichloroethane	(ug/m3)	100	4.7	6.0	[1310]
1,1,2,2-Tetrachloroethane	(ug/m3)		5.5 U	5.5 U	5.5 U
1,1,2-Trichloroethane	(ug/m3)		4.4 U	4.4 U	4.4 U
1,1-Dichloroethane	(ug/m3)		3.2 U	3.2 U	4.5
1,1-Dichloroethene	(ug/m3)		3.2 U	3.2 U	5.9
1,2,4-Trichlorobenzene	(ug/m3)		5.9 U	5.9 U	5.9 U
1,2,4-Trimethylbenzene	(ug/m3)		23	5.4	17
1,2-Dibromoethane	(ug/m3)		6.1 U	6.1 U	6.1 U
1,2-Dichlorobenzene	(ug/m3)		4.8 U	4.8 U	4.8 U
1,2-Dichloroethane	(ug/m3)		3.2 U	3.2 U	3.2 U
1,2-Dichloropropane	(ug/m3)		3.7 U	3.7 U	3.7 U
1,3,5-Trimethylbenzene	(ug/m3)		7.9	3.9 U	5.4
1,3-Butadiene	(ug/m3)		1.8 U	1.8 U	1.8 U
1,3-Dichlorobenzene	(ug/m3)		20	14	9.6
1,4-Dichlorobenzene	(ug/m3)		4.8 U	4.8 U	4.8 U
1,4-Dioxane	(ug/m3)		2.9 U	2.9 U	2.9 U
2,2,4-Trimethylpentane	(ug/m3)		3.7 U	3.7 U	13
2-Butanone	(ug/m3)		211	77.0	51.3
2-Chlorotoluene	(ug/m3)		4.1 U	4.1 U	4.1 U
2-Hexanone	(ug/m3)		3.3 U	3.3 U	3.3 U
3-Chloropropene	(ug/m3)		2.5 U	2.5 U	2.5 U
4-Ethyltoluene	(ug/m3)		6.4	3.9 U	4.0
4-Methyl-2-Pentanone	(ug/m3)		65.6	10	3.3 U
Acetone	(ug/m3)		710	344	207
Benzene	(ug/m3)		27	34.8	9.6
Benzyl chloride	(ug/m3)		4.1 U	4.1 U	4.1 U
Bromodichloromethane	(ug/m3)		5.4 U	5.4 U	5.4 U
Bromoethene	(ug/m3)		3.5 U	3.5 U	3.5 U
Bromoform	(ug/m3)		8.3 U	8.3 U	8.3 U
Bromomethane	(ug/m3)		3.1 U	3.1 U	3.1 U
Carbon Disulfide	(ug/m3)		189	25	14
Carbon Tetrachloride	(ug/m3)		5.0 U	5.0 U	5.0 U
Chlorobenzene	(ug/m3)		3.7 U	3.7 U	3.7 U
Chloroethane	(ug/m3)		2.1 U	2.1 U	2.1 U
Chloroform	(ug/m3)		2.0 J	5.9	27
Chloromethane	(ug/m3)		1.7 U	1.7 U	1.7 U
cis-1,2-Dichloroethene	(ug/m3)		1.9 J	3.2 U	3.2 U
cis-1,3-Dichloropropene	(ug/m3)		3.6 U	3.6 U	3.6 U
Cyclohexane	(ug/m3)		11	2.8 U	3.3

See the Endnotes following the last page of this table.

Table 10  
Soil Gas Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/18/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Air

CONSTITUENT	SITE		ERM-SV-01	ERM-SV-02	ERM-SV-03
	LAB SAMPLE ID	NYSDOH	JB47764-1	JB47764-2	JB47764-3
	DATE	Guidance	09/18/2013	09/18/2013	09/18/2013
Dibromochloromethane	(ug/m3)		6.8 U	6.8 U	6.8 U
Dichlorodifluoromethane	(ug/m3)		26	43	3.8 J
Ethanol	(ug/m3)		135	107	44.7
Ethyl acetate	(ug/m3)		57.2	29	2.9 U
Ethylbenzene	(ug/m3)		25	9.6	13
Freon 113	(ug/m3)		6.1 U	6.1 U	6.1 U
Freon 114	(ug/m3)		5.6 U	5.6 U	5.6 U
Heptane	(ug/m3)		32	27	11
Hexachlorobutadiene	(ug/m3)		8.5 U	8.5 U	8.5 U
Hexane	(ug/m3)		27	39.8	17
Isopropyl Alcohol	(ug/m3)		2.0 U	2.0 U	2.0 U
m+p-Xylene	(ug/m3)		77.7	28	38
Methyl Tertiary Butyl Ether	(ug/m3)		2.9 U	2.9 U	2.9 U
Methylene Chloride	(ug/m3)		2.8 U	3.5	2.8 U
Methylmethacrylate	(ug/m3)		3.3 U	4.0	3.3 U
o-Xylene	(ug/m3)		30	8.7	15
Propylene	(ug/m3)		187	220	130
Styrene	(ug/m3)		4.3	3.4 U	3.4 U
Tertiary Butyl Alcohol	(ug/m3)		17	16	17
Tetrachloroethene	(ug/m3)	100	57	47	[732]
Tetrahydrofuran	(ug/m3)		2.0 J	1.3 J	2.4 U
Toluene	(ug/m3)		99.1	69.0	37
trans-1,2-Dichloroethene	(ug/m3)		3.2 U	3.2 U	3.2 U
trans-1,3-Dichloropropene	(ug/m3)		3.6 U	3.6 U	3.6 U
Trichloroethene	(ug/m3)	5.0	[5.4]	1.3	[407]
Trichlorofluoromethane	(ug/m3)		13	16	42
Vinyl Acetate	(ug/m3)		2.8 U	2.8 U	2.8 U
Vinyl chloride	(ug/m3)		2.0 U	2.0 U	2.0 U
Xylene (total)	(ug/m3)		109	36	53.0

See the Endnotes following the last page of this table.

Table 10  
Soil Gas Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/18/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Air

CONSTITUENT	SITE		ERM-SV-04	ERM-SV-05
	LAB SAMPLE ID	NYSDOH	JB47764-4	JB47764-5
	DATE	Guidance	09/18/2013	09/18/2013
1,1,1-Trichloroethane	(ug/m3)	100	69.3	24
1,1,2,2-Tetrachloroethane	(ug/m3)		5.5 U	1.4 U
1,1,2-Trichloroethane	(ug/m3)		4.4 U	1.1 U
1,1-Dichloroethane	(ug/m3)		3.2 U	1.1
1,1-Dichloroethene	(ug/m3)		3.2 U	0.79 U
1,2,4-Trichlorobenzene	(ug/m3)		5.9 U	1.5 U
1,2,4-Trimethylbenzene	(ug/m3)		4.1	8.4
1,2-Dibromoethane	(ug/m3)		6.1 U	1.5 U
1,2-Dichlorobenzene	(ug/m3)		4.8 U	1.2 U
1,2-Dichloroethane	(ug/m3)		3.2 U	0.81 U
1,2-Dichloropropane	(ug/m3)		3.7 U	0.92 U
1,3,5-Trimethylbenzene	(ug/m3)		1.5 J	2.8
1,3-Butadiene	(ug/m3)		1.8 U	0.44 U
1,3-Dichlorobenzene	(ug/m3)		12	16
1,4-Dichlorobenzene	(ug/m3)		4.8 U	1.2 U
1,4-Dioxane	(ug/m3)		6.5	0.72 U
2,2,4-Trimethylpentane	(ug/m3)		3.7 U	0.93 U
2-Butanone	(ug/m3)		61.6	110
2-Chlorotoluene	(ug/m3)		4.1 U	1.0 U
2-Hexanone	(ug/m3)		3.3 U	0.82 U
3-Chloropropene	(ug/m3)		2.5 U	0.63 U
4-Ethyltoluene	(ug/m3)		3.9 U	2.2
4-Methyl-2-Pentanone	(ug/m3)		8.6	6.1
Acetone	(ug/m3)		309	229
Benzene	(ug/m3)		5.8	21
Benzyl chloride	(ug/m3)		4.1 U	1.0 U
Bromodichloromethane	(ug/m3)		5.4 U	1.3 U
Bromoethene	(ug/m3)		3.5 U	0.87 U
Bromoform	(ug/m3)		8.3 U	2.1 U
Bromomethane	(ug/m3)		3.1 U	0.78 U
Carbon Disulfide	(ug/m3)		7.8	46.1
Carbon Tetrachloride	(ug/m3)		5.0 U	1.3 U
Chlorobenzene	(ug/m3)		3.7 U	0.92 U
Chloroethane	(ug/m3)		2.1 U	0.53 U
Chloroform	(ug/m3)		51.3	0.98 U
Chloromethane	(ug/m3)		1.3 J	0.41 U
cis-1,2-Dichloroethene	(ug/m3)		3.2 U	1.4
cis-1,3-Dichloropropene	(ug/m3)		3.6 U	0.91 U
Cyclohexane	(ug/m3)		1.5 J	27

See the Endnotes following the last page of this table.

Table 10  
Soil Gas Analytical Results  
Volatile Organic Compounds (VOCs)  
Mountco Construction & Development Corp.  
1960-1982 Webster Avenue, Bronx, New York 10457

PERIOD: From 09/18/2013 thru 09/18/2013 - Inclusive

SAMPLE TYPE: Air

CONSTITUENT	SITE		ERM-SV-04	ERM-SV-05
	LAB SAMPLE ID	NYSDOH	JB47764-4	JB47764-5
	DATE	Guidance	09/18/2013	09/18/2013
Dibromochloromethane	(ug/m3)		6.8 U	1.7 U
Dichlorodifluoromethane	(ug/m3)		2.2 J	2.2 J
Ethanol	(ug/m3)		75.9	63.3
Ethyl acetate	(ug/m3)		14	0.72 U
Ethylbenzene	(ug/m3)		6.5	7.8
Freon 113	(ug/m3)		6.1 U	1.5 U
Freon 114	(ug/m3)		5.6 U	1.4 U
Heptane	(ug/m3)		7.4	33
Hexachlorobutadiene	(ug/m3)		8.5 U	2.1 U
Hexane	(ug/m3)		12	14
Isopropyl Alcohol	(ug/m3)		12	6.1
m+p-Xylene	(ug/m3)		22	28
Methyl Tertiary Butyl Ether	(ug/m3)		2.9 U	0.72 U
Methylene Chloride	(ug/m3)		16	34.7
Methylmethacrylate	(ug/m3)		3.3 U	0.82 U
o-Xylene	(ug/m3)		7.4	10
Propylene	(ug/m3)		70.6	145
Styrene	(ug/m3)		3.4 U	0.64 J
Tertiary Butyl Alcohol	(ug/m3)		14	15
Tetrachloroethene	(ug/m3)	100	69.2	36
Tetrahydrofuran	(ug/m3)		2.4 U	2.9
Toluene	(ug/m3)		28	50.1
trans-1,2-Dichloroethene	(ug/m3)		3.2 U	0.79 U
trans-1,3-Dichloropropene	(ug/m3)		3.6 U	0.91 U
Trichloroethene	(ug/m3)	5.0	[9.7]	[7.0]
Trichlorofluoromethane	(ug/m3)		2.8 J	15
Vinyl Acetate	(ug/m3)		2.8 U	0.70 U
Vinyl chloride	(ug/m3)		2.0 U	0.51 U
Xylene (total)	(ug/m3)		30	38

See the Endnotes following the last page of this table.

**Table 10**  
**Soil Vapor Sampling Results**  
**Volatile Organic Compounds (VOCs)**  
**Mountco Construction & Development Corp.**  
**1960-1982 Webster Avenue, Bronx, New York 10457**

Notes:

- $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
- NYSDOH Guidance = New York State Department Of Health's (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York; Table 3.1 - Air guideline values derived by the NYSDOH.
- Bracketed and highlighted values indicate a positive concentration that exceeds the NYSDOH Guidance.

Dissolved

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL). The value is usable as an estimated result.

**APPENDIX A**  
**CITIZEN PARTICIPATION PLAN**

# APPENDIX A

## Citizen Participation Plan

The NYC Office of Environmental Remediation and Mountco Construction and Development Corporation (Mountco) and Common Ground Community II HDFC (Common Ground) 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, Mountco and Common Ground 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, Ms. Rebecca Bub, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841

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

manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at [brownfields@cityhall.nyc.gov](mailto: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. Mountco and Common Ground will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

**Repository Name:** New York Public Library - Tremont Library

**Repository Address:** 1866 Washington Avenue, Bronx, NY 10457

**Repository Telephone Number:** (718) 299-5177

**Repository Hours of Operation:** Monday to Friday from 11:00 AM - 5:00 PM

**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.

**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 Mountco and Common Ground, reviewed and approved by OER prior to distribution and mailed by Mountco and Common Ground. 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 B**  
**SUSTAINABILITY STATEMENT**

# **APPENDIX B**

## **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.** Mountco and Common Ground 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.** Mountco and Common Ground 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 C**

# **SOIL/MATERIALS MANAGEMENT PLAN**

# APPENDIX C

## 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 will be reported to the OER prior to the start of the remedial action. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site

queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

### **1.6 Materials Disposal Off-Site**

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

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

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

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

on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

### **1.7 Materials Reuse On-Site**

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan may be reused on-Site. 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. Imported soil will meet the NYSDEC DER-10 soil criteria (Appendix 5 - Allowable Constituent Levels for Imported Fill or Soil Subdivision 5.4(e)) applicable to Restricted Residential Use SCO. In doing so, the material will meet the lower of the Restricted Residential SCOs or Protection of Groundwater SCOs.

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. The area of the Site exceeds one acre; therefore coverage under SPDES General Permit for Stormwater Discharges from Construction Activity - GP-0-10-001 must be obtained prior to any soil disturbance activities.

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 D**

**CONSTRUCTION HEALTH & SAFETY PLAN**

# ***CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)***

4275 Park Avenue  
Bronx, New York

*May 2014*

Project Number: 0217830

Prepared for:

**Mountco Construction and Development Corp.**  
700 White Plains Road, Suite 363, Scarsdale, NY

and

**Common Ground Community II HDFC**  
505 Eighth Avenue, 5th Floor, New York, NY

Prepared by:

**ERM Consulting & Engineering Inc.**  
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**CONSTRUCTION HEALTH  
AND SAFETY PLAN (CHASP)**

Ernie Rossano  
*Project Director*

Christopher O'Leary  
*Project Manager*

Paulina Gravier  
*Project Health and Safety Coordinator*

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*Field Team Leader*

Brice Lynch  
*Site Safety Officer*

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## **INTRODUCTION**

This Construction Health and Safety Plan (CHASP) has been developed by ERM for construction activities at 4275 Park Avenue in Bronx, New York (the Site). The procedures set forth in this CHASP are designed to reduce the risk of exposure to chemical substances and physical or other hazards that may be present. The procedures described herein were developed to comply with Occupational Safety and Health Administration (OSHA) Regulations 29 CFR Part 1910.1025.

The recommended health and safety guidelines within this CHASP will be modified if future information changes the activities to be performed or the characterization of the area in which work is to be performed.

### **1.1 HEALTH AND SAFETY POLICY STATEMENT**

ERM considers the health, safety, and well being of its employees to be of unconditional importance. Reflecting that concern, it is the policy of management to support the implementation of the Health and Safety Program. The proper resources (financial and human resources) are provided to ensure operation of a comprehensive program. The following policies will be employed:

- Prevention of occupational illnesses, accidents, resulting personal hardship, and financial loss takes precedence in the conduct of our business. Objectives of the Health and Safety Program include the identification of and the elimination or control of all hazards to personnel, products, equipment, and facilities.
- The active participation and involvement of all levels of management are essential to the success of the program. The Health and Safety Program Manager (HSPM) directs, reviews, and evaluates Health and Safety Program activities. The HSPM reports directly to the President of ERM.
- All levels of supervision are responsible for maintaining safe working conditions, instructing each subordinate in proper health and safety practices, and enforcing health and safety program specifications. In addition, each supervisor is responsible for discussing the specifications of the CHASP with each employee, and verifying that each employee understands/complies with health and safety directives.
- All employees have personal responsibility to conscientiously follow health and safety procedures, and to notify the project manager of potential or existing hazards to worker health or safety, so that they may be corrected prior to initiation or continuation of work.

Safe conduct is a condition of employment. Disregard for company safety rules are a serious infraction, and disciplinary action will be taken as outlined in this Section.

## **1.2 ERM PROJECT PERSONNEL AND RESPONSIBILITIES**

### **ERM Project Director (PD):**

**Ernie Rossano**

*Responsible for all work and conducts ultimate Quality Assurance/Quality Control (QA/QC) overview.*

### **ERM Project Manager (PM):**

**Christopher O'Leary**

*Manages day-to-day activities; reports to PD.*

### **ERM Project Health and Safety Coordinator:**

**Paulina Gravier**

*Directs development of CHASP; provides technical advice on health and safety issues.*

### **ERM Site Safety Officer (SSO):**

**Brice Lynch**

*Responsible for implementation of CHASP; reports to PD and PM*

## 2.0

## **FIELD ACTIVITIES**

### **2.1 SITE WORK**

The objective of this CHASP is to identify any hazards that pose a threat to personnel and property. The scope of work covered under this CHASP is comprised of the following tasks:

*Soil Excavation:*

Areas identified during the Phase II ESA investigation containing elevated levels of analytes will be excavated and contaminated soils will be shipped off-site.

*Installation of vapor mitigation system and soil sampling:*

The installation of a mitigation system and soil sampling will be performed to protect human contact and exposure to any potential contaminants.

## 3.0

## HAZARD IDENTIFICATION AND CONTROL

### 3.1 HAZARD IDENTIFICATION PROCESS

Prior to initiating any new project activity or when there is a change in site conditions, the Site Safety Officer (SSO) will assist project team members in completing a Job Hazard Analysis (JHA). A copy of the JHA form is presented in Attachment 1.

#### 3.1.1 *Chemical Hazards*

Chemicals may be introduced into the body by ingestion, inhalation, or absorption through the skin. Since not all chemicals have the same level of toxicity, the length of time for the exposure and the concentration of the chemical are important in determining the risk. Inhalation and skin contact are the most common routes of entry. Chemicals can be introduced into the body by ingestion when chemicals present on the hands are transferred to food or cigarettes.

Based on historical soil and groundwater sampling, the chemicals of concern may be encountered at the site are listed in Table 1 along with pertinent health and safety information.

#### 3.1.2 *Heavy Machinery/Equipment*

All site employees must remain aware of those site activities that involve the use of heavy machinery. Repertory protection and protective eyewear must be worn frequently during site activities. The protective equipment significantly reduces peripheral vision of the wearer; therefore, it is essential that the employees at the site exercise extreme caution during operation of equipment and machinery to avoid physical injury to themselves or others.

#### 3.1.3 *Vehicular Traffic*

All employees will be required to wear a fluorescent safety vest at all times while on site. In addition, supplemental traffic safety equipment use can be exercised when warranted by specific tasks. Supplemental equipment can be items such as cones, flags, barricades, and/or caution tape. Drivers of waste transportation vehicles will only exit vehicles in designated areas within the Support Zone. During this time, drivers will only be allowed to inspect the placement of waste loads and cover their trailers.

#### 3.1.4 *Site-Specific/Task-Specific Hazards and Control Strategies*

The hazards and control strategies associated with planned work activities are summarized in Table 2. During the mobilization phase of a specific work task, the project team can quickly review the hazards and control strategies by locating the task or activity to be performed on the table. Hazards that are

common to all activities performed at the site at listed first. The hazards listed for a particular task or activity includes the common hazards.

## 4.0

### ***PERSONAL PROTECTIVE EQUIPMENT***

The level of PPE selected for a task is based on the following:

- Type and measured concentration of the chemical substance in the ambient atmosphere and its toxicity.
- Potential for exposure to substances in air, splashes of liquids or other direct contact with material due to work being done.
- Knowledge of chemicals on-site along with properties such as toxicity, route of exposure, and contaminant matrix.

In situations where the type of chemical, concentration, and possibilities of contact are not known, the appropriate level of protection must be selected based on professional experience and judgment until the hazards can be better identified.

In addition to summarizing the general PPE requirements for tasks performed at the site, Table 3 also serves as the written certification that the PPE Hazard Assessment has been conducted.

#### ***4.1 RESPIRATORY PROTECTION***

The type of respiratory protection required will be based on the results of ambient air monitoring, the results of any models used to predict ambient air concentrations, and the professional judgment of either the SSO or the Project Health and Safety Coordinator.

As required by 29 CFR 1910.134, *Respiratory Protection*, a cartridge change-out schedule will be developed if it is necessary to upgrade to Level C based on either the results of ambient air monitoring, the results of any models used to predict ambient air concentration; or the professional judgment of the Project Health and Safety Coordinator. At a minimum, new respirator cartridges must be placed on the respirator at the beginning of the shift and after lunch.

## 5.0

## HEAT AND COLD STRESS

### 5.1 HEAT STRESS

The timing of these activities may be such that heat stress may pose a threat to the health and safety of Site personnel. Acclimation periods and work/rest regimens will be implemented as necessary so that personnel do not suffer adverse effects from heat stress. Heat stress, if necessary, will be monitored in accordance with the American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) for Heat Stress or equivalent when the temperature is greater than 80°F. The following work/rest regimen will be utilized:

<u>Temp °F</u>	<u>Work-Rest Regimen</u>
80	Work Break Every 2 hours.
82	75% Work - 25% Rest, each hour.
85	50% Work - 50% Rest, each hour.
88	25% Work - 75% Rest, each hour.
90	Delay work until cooler temperatures prevail.

Special clothing and an appropriate diet and fluid intake will be recommended for all Site personnel to further reduce these temperature-related hazards. A good rule of thumb to prevent dehydration from heat stress is that fluid intake should equal fluid loss from the body, which can be accomplished through frequent small intakes of water. Potable water and/or a drink substitute (i.e., Gatorade) will be available for employee consumption.

### 5.2 COLD STRESS

The timing of investigative or remediation activities may be such that cold stress may also present a threat to the health and safety of Site employees. Work/rest schedules, with rest in a warming shelter, will be implemented as necessary to reduce adverse effects from cold exposure. Cold stress, if necessary, will be monitored in accordance with the ACGIH TLV for Cold Stress or equivalent. The addition of wind speed and the resulting wind chill will be considered when determining an appropriate work/rest schedule and appropriate clothing.

Site personnel will be encouraged to consume water to avoid dehydration. Potable water and/or a drink substitute (i.e., Gatorade) shall be available for employee consumption. Workers will wear adequately insulated clothing to limit exposure to cold.

## 6.0

### ***SAFE WORK PRACTICES AND STANDARD OPERATING PROCEDURES***

#### **6.1 GENERAL SITE PROVISIONS**

##### **6.1.1 *Smoking and Eating Areas***

Smoking will only be allowed in designated areas. Upon mobilization at the site, the SSO will establish smoking areas per site-specific or client-specific requirements. Individuals caught smoking outside the designated smoking areas will be subject to disciplinary action up to and including immediate termination.

Upon mobilization at the site, the SSO will establish eating and break areas per site-specific or client-specific requirements. Eating will only be allowed in the designated areas and the areas will be maintained in a clean and sanitary condition.

##### **6.1.2 *Temporary Facilities***

This project will not require any temporary facilities.

##### **6.1.3 *Standard Operating Procedures***

The following standard operating procedures will be adhered to at all times.

- All personnel entering the site must check in with the SSO.
- All individuals entering the site must demonstrate to the SSO that they have been adequately trained as defined in Section 8.0.
- All individuals must be familiar with emergency communication methods and how to summon emergency assistance.
- Use of alcoholic beverages before, during operations, or immediately after hours is absolutely forbidden. Alcohol can reduce the ability to detoxify compounds absorbed into the body as the result of minor exposures and may have negative effects with exposure to other chemicals. In addition, alcoholic beverages will dehydrate the body and intensify the effects of heat stress.
- Horseplay of any type is forbidden.
- All unsafe conditions will be immediately reported to the SSO, who will document such conditions in the field log. The SSO will be responsible for ensuring that the unsafe condition is corrected as quickly as possible.
- Smoking, matches, and lighters are only allowed in the designated smoking area.

- Avoid contact with potentially contaminated substances. Avoid, whenever possible, kneeling on the ground, or leaning or sitting on trucks, equipment or the ground. Do not place equipment on potentially contaminated surfaces.

## **6.2 SAFE WORK PRACTICES**

### **6.2.1 Ergonomics**

Ergonomic risk factors include repetitive motion, force, awkward posture, and vibration. The key to preventing ergonomic injuries is education of personnel relative to the hazards and risk factors and implementation of proper controls and work practices.

Several tasks associated with this project have the potential to cause back injuries, if proper lifting techniques are not followed. Site workers should not lift objects that are beyond their physical capabilities and the use of mechanical devices such as forklifts is encouraged. In addition, when shoveling, site workers should not twist their backs while moving materials with the shovel. The proper technique is to move the feet.

Proper lifting techniques are summarized below.

- Place feet, shoulder-width apart, with toes pointing slightly out.
- Bend at your knees keeping back straight.
- Get a good grip on the object and pull object close to your body.
- Tighten abdominal muscles.
- Keep your head up, looking forward, and lift with your legs while maintaining a straight back.
- Keep load close to your body and ensure your view is not obstructed.
- If one end of the load is heavier than the other, the heavier end should be closest to your body.
- Move your feet to relocate the object as opposed to twisting your back.
- When placing the object down, bend your knees and use your leg muscles while keeping your back straight.

## **6.3 PRE-DRILLING/PRE-EXCAVATION AND PROBING PROTOCOL**

Prior to mobilizing to the field, the Contractor will be responsible for ensuring the following issues have been adequately addressed:

- Contacting One-Call or equivalent to identify underground pipelines, utility lines, and fiber optic cable.

- Contacting appropriate municipality to identify underground and sewer lines.
- Contacting posted pipeline companies.

#### **6.4 FALL PROTECTION**

This project does not involve working from heights more than six feet above grade.

#### **6.5 WEATHER RELATED EVENTS**

Weather related events that may impact fieldwork include, but are not limited to, rain, snow, and thunder/lightning. The SSO will be responsible for determining what site work can be performed safely in the rain and at what point work will cease due to either quality or safety issues. In the event of thunder and/or lightning, all work will be suspended until 15 minutes have elapsed from the last clap of thunder/flash of lightning.

During rain, lightning/thunder events, site workers should seek shelter in either a building or vehicle.

#### **6.6 SOIL EXCAVATION/TANK REMOVAL**

Excavation risk factors include collapse of excavation side walls, working with heavy machinery; manual handling of materials; working in proximity to traffic; electrical hazards from overhead and underground power-lines; and underground utilities, such as natural gas.

Trench protection (e.g. sloping of side walls, shoring) is required on all excavation greater than 5 feet deep in order to protect against collapse.

At no time during this project shall any employee or subcontractor enter into an open excavation. All excavations should be secured with fencing at the end of every work shift to protect against accidental entry in to an excavation.

#### **6.7 NIGHT WORK**

This project will not involve activities being performed at night.

#### **6.8 NOISE**

Employees performing any noisy task, such as but not limited to, operating heavy equipment, drilling, using power tools, or employees working within 20 feet of the person performing the task will wear hearing protection consisting of either earplugs or earmuffs. Personnel operating a drilling rig or standing within 20 feet of a drilling rig during operation will also wear hearing protection.

## 7.0

### **EMPLOYEE TRAINING**

All employees and subcontractors working on-site, who may be exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site will receive training meeting the requirements of 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response* (HAZWOPER) before they are permitted to engage in any job task. Employees will not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility. All site workers will receive training that, at a minimum, covers the following:

- Names of personnel and alternates responsible for site safety and health;
- Safety, health and other hazards present on the site;
- Use of PPE;
- Safe use of engineering controls and equipment on the site; and
- Medical surveillance requirements including recognition of symptoms and signs that might indicate overexposure to hazards.

#### **7.1 SUBCONTRACTOR TRAINING**

The SSO will verify that subcontractor personnel have received all appropriate training as required by this CHASP prior to their arriving on-site. Verification will consist of reviewing written training documentation such as copies of training certificates or cards. Copies of the written training documentation will be retained in the project file. Subcontractor personnel will not be allowed to work at the site unless said training documentation is available.

#### **7.2 DAILY TAILGATE SAFETY MEETING**

A tailgate safety meeting will be conducted each morning. The daily safety meeting meetings will include awareness concerns such as special concerns regarding health and safety, pollution prevention or a discussion of recent incidents or safety observations. Issues such as any changes to the CHASP will be addressed daily. The meetings will include a discussion of what tasks will be completed that day and how those tasks will be conducted safely. The meetings will be documented on the Daily Safety Meeting form found in Attachment 2.

***MEDICAL SURVEILLANCE***

All ERM employees are enrolled in a medical surveillance program. All employees receive an initial medical examination and consultation prior to assignment to any job site. In addition, employees receive an annual medical examination, a medical examination upon termination of employment, and a medical examination when the employee exhibits signs or symptoms relating to possible overexposure to hazardous substances or when an injury or exposure above published exposure limits has occurred in an emergency situation.

Additional medical surveillance should be provided for employees who:

- Are or may be exposed to hazardous substances or health hazards at or above published exposure levels for these substances for 30 days or more a year;
- Wear a respirator for 30 days or more a year or as required by 29 CFR 1910.134, *Respiratory Protection*; and
- Are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.

## **9.0**

### ***SITE CONTROL MEASURES***

#### **9.1 EXCAVATION**

The soil excavation and surrounding area will be considered the work zone. Excavations will take place in different area and new work zones will be delineated by the SSO. All work zones around open excavations will be bounded by orange snow fence and secured at the end of the work shift to prevent accidental entry into the area. The SSO will ensure that no one enters the work zone without the proper training and requirements. No persons including ERM employee or subcontractors will be allowed to enter any open excavations. All personnel entering the Work Zone will sign the project sign-in sheet in Attachment 3. Furthermore, all ERM personnel and subcontractor will sign-in at the start of each workday and sign-out at the end of each workday.

## **10.0**

### ***DECONTAMINATION PROCEDURES***

Decontamination involves the orderly controlled removal of contaminants from both personnel and equipment. The purpose of decontamination procedures is to prevent the spreading of contaminated materials into uncontaminated areas. All site personnel should limit contact with contaminated soil, groundwater or equipment in order to reduce the need for extensive decontamination.

#### **10.1 PERSONNEL DECONTAMINATION**

The following decontamination procedures will be utilized:

- Clean rubber boots with water.
- Remove all PPE and dispose of the PPE in the designated drums.
- Wash hands and any skin that may have come in contact with affected soil or groundwater with moistened disposable towels, such as baby wipes, or soap and water.

**11.0**

***CONFINED SPACE ENTRY PROCEDURES***

Entry into permit-required confined spaces is not anticipated or permitted.

## 12.0

### *SPILL CONTAINMENT PROGRAM*

If project activities involve the use of drums or other containers, the drums or containers will meet the appropriate DOT regulations and will be inspected and their integrity assured prior to being used or moved. Operations will be organized so as to minimize drum or container movement. Drums or containers that cannot be moved without failure will be over packed into an appropriate container.

In the event of an unexpected release of hydraulic fluid, engine oil, gasoline or diesel fuel, the release material will be absorbed with sorbent pads, which will be placed in a designated drum for disposal. Impacted soil will be excavated and placed on plastic sheeting and covered until characterization and/or disposal can be arranged.

## **13.0**

### ***SITE COMMUNICATION***

Cell phones will be used for communication between the project team and the client and office.

*COMMUNICATION AND REVIEW OF SITE-SPECIFIC HEALTH AND SAFETY  
PLAN*

An initial review of the site-specific CHASP will be held either prior to mobilization or after mobilization but prior to commencing work at the site to communicate CHASP details and answer questions to individuals working at the site. Daily tailgate safety meetings will be held each morning to review work practices for the day and to discuss safety issues. Any new hazard or safety information will be disseminated at the daily tailgate safety meeting or as needed throughout the day.

## 15.0

## **EMERGENCY RESPONSE PLAN**

This section describes possible contingencies and emergency procedures to be implemented at the site.

### **15.1 PERSONNEL ROLES AND LINES OF AUTHORITY**

The SSO has primary responsibility for site evacuation and notification in the event of an emergency situation. This includes taking appropriate measures to ensure the safety of site personnel and the public. Possible actions may involve the evacuation of personnel from the site area and ensuring that corrective measures have been implemented, appropriate authorities notified, and follow-up reports completed. If the SSO is not available, the ERM Project Geologist/Engineer will assume these responsibilities. Subcontractors are responsible for assisting the SSO in their mission within the parameters of their scope of work.

### **15.2 EMERGENCY ALARMS**

Because of the small work area and mobility of work areas, an emergency evacuation plan and meeting place will be decided upon based on sampling locations.

### **15.3 REPORTING EMERGENCIES**

All, including any late developing or aggravated injuries, must receive prompt medical attention. For non-life threatening injuries or illnesses site workers should be transported to the hospital. For life threatening injuries or illnesses, the local emergency responders should be contacted via 911.

The SSO is responsible for reporting all injuries, illnesses, fires, spills/releases, property damage or near misses to the following individuals.

- Injured/involved employee's supervisor
- ERM Project Manager
- ERM Partner-In-Charge
- ERM Project Health and Safety Consultant
- Client Contact

## 15.4 EMERGENCY CONTACTS

In case of an emergency, the SSO will contact the following as appropriate.

<i>Title/Name</i>	<i>Phone Numbers</i>
ERM Project Director Ernie Rossano.	Work: 631-756-8900 Mobile: 516-250-1429
Project Manager Christopher O'Leary	Work: 631-756-8900 Mobile: 631-316-3443
Site Safety Officer/ Geologist Brice Lynch	Work: 631-756-8900 Mobile: 631-219-6819
Project Health and Safety Coordinator Paulina Gravier	Work: 212-447-1900 Mobile: 484-802-5243
Local Emergency Responders - all services	Phone: 911
Hospital: <b>Bronx Lebanon Hospital</b> <b>1276 Fulton Avenue</b>	Phone: 718-518-5540

## 15.5 INCIDENT INVESTIGATIONS

An ERM Incident Form, Attachment 4, will be completed and forwarded to the Project Manager within 24 hours of an incident. All incidents will be investigated in a timely manner. The SSO and/or the Project Manager will schedule the investigation and include project supervision (ERM, subcontractors, and client), the injured/involved employee(s) and the Project Health and Safety Coordinator. Root cause analysis will be performed to assess the apparent cause and identify corrective measures to be implemented to prevent re-occurrence. The last page of the Incident Form is used to document the investigation.

## 15.6 DIRECTIONS TO NEAREST HOSPITAL

The nearest hospital is Bronx Lebanon Hospital. A map and directions to the medical facility is located in Attachment 5.

**Bronx Lebanon Hospital**  
**1276 Fulton Avenue**  
(718)-518-5540

## 15.7 EMERGENCY DRILLS

In accordance with HAZWOPER Standard emergency response plans will be rehearsed regularly as part of the overall training program for site operations. The frequency of this drill (rehearsal) is outlined on Table 4. All drills will be documented on the Emergency Drill Evaluation Form found in Table 4. Drills do not need to be elaborate. A tabletop scenario during the daily safety meeting is an adequate drill.

## 16.0

### *SAFETY EQUIPMENT*

A first aid kit containing first aid items for minor incidents only and a fire extinguisher is maintained in each ERM Northeast vehicle. If you are driving a personal vehicle or a rental vehicle, please rent a first aid kit and fire extinguisher from the equipment room.

17.0

**CERTIFICATION OF FAMILIARITY WITH PLAN BY SITE PERSONNEL**

By signing below, your signature certifies that you have read, understand and will abide by the contents of this CHASP.

<b>Name</b>	<b>Signature</b>	<b>Company</b>	<b>Date</b>

***ATTACHMENT 1***

***Job Hazard Analysis***



## JOB HAZARD ANALYSIS

Required for those field projects that do not require a HASP (see Project Safety Evaluation Checklist). JHAs also are used to supplement HASPs.

Prior to conducting fieldwork a Job Hazard Analysis must be completed and reviewed with all members of the Project Team. At the time of site mobilization, the job Hazard Analysis will be verified and reviewed again with the Project Team at the beginning of each day as fieldwork continues.

Client:	W.O.#
Project Name:	
Location:	
ERM Project Director:	Date:
ERM Project Manager:	Revision No.:
ERM Project Team:	
Subcontractors:	

**Field Work Description**

**NOTE:** For any hazards that are not applicable for your task, mark the left hand column with N/A. Do not leave any hazards blank.

Hazard Identification	Describe Hazard Control (appropriate for site)
Job Location/Setting:	<input type="checkbox"/> Industrial facility <input type="checkbox"/> Commercial are <input type="checkbox"/> Urban area <input type="checkbox"/> Residential area <input type="checkbox"/> Undeveloped/vacant <input type="checkbox"/> Lone worker
<input type="checkbox"/> Chemicals at site List or attach separate page:	<input type="checkbox"/> MSDS or chemical information available to project team for each chemical (required) <input type="checkbox"/> PPE (see PPE Section) <input type="checkbox"/> Exposure monitoring <input type="checkbox"/> Decontamination: Specify methods:
<input type="checkbox"/> Chemicals ERM will take to site	<input type="checkbox"/> Attach copies of MSDSs for all chemicals to en to clients site.
<input type="checkbox"/> Dust-Describe source	<input type="checkbox"/> PPE ( <i>see</i> PPE Section) <input type="checkbox"/> Exposure monitoring (see monitoring section) <input type="checkbox"/> Dust suppression
<input type="checkbox"/> Confined Space	Coordinator ERM Health and Safety for assistance

Hazard Identification	Describe Hazard Control (appropriate for site)
<input type="checkbox"/> Slips (Wet Surface), Trips and Falls <ul style="list-style-type: none"> <li><input type="checkbox"/> fall less than 6 feet</li> <li><input type="checkbox"/> fall more than 6 feet</li> </ul>	<input type="checkbox"/> Clean/ dry surfaces <input type="checkbox"/> Barricade the unsafe area <input type="checkbox"/> Eyes on path <input type="checkbox"/> Relocate the work area <input type="checkbox"/> Use alternate route <input type="checkbox"/> Use a construction platform <input type="checkbox"/> Tie-off to equipment <input type="checkbox"/> Move work to ground level <input type="checkbox"/> Fall restraint, guardrails, short lanyard
<input type="checkbox"/> Electrical Shock	<input type="checkbox"/> Area around electrical equipment dry <input type="checkbox"/> Energy isolation or Lock-out/Tag-out (LOTO) <input type="checkbox"/> Grounding <input type="checkbox"/> GCFI <input type="checkbox"/> Shielding on equipment
<input type="checkbox"/> Combustible materials, Fire, Explosion	<input type="checkbox"/> Remove combustible materials <input type="checkbox"/> Relocate work <input type="checkbox"/> Isolation/ LOTO <input type="checkbox"/> Area air monitoring <input type="checkbox"/> PPE/ Flame Retardant Clothing (FRC) (See PPE Section) <input type="checkbox"/> Fire watch <input type="checkbox"/> Fire extinguisher available
<input type="checkbox"/> Heat/Cold Stress	<input type="checkbox"/> Work/Rest regimen <input type="checkbox"/> Task rotation, shared tasks <input type="checkbox"/> Source of cool water/electrolyte replacement drinks <input type="checkbox"/> Ventilation
<input type="checkbox"/> Noise - Describe source	<input type="checkbox"/> PPE (see PPE Section) <input type="checkbox"/> Relocate work <input type="checkbox"/> Control noise source
<input type="checkbox"/> Lighting/ Visibility	<input type="checkbox"/> Adequate for task <input type="checkbox"/> Nighttime considerations <input type="checkbox"/> PPE (see PPE Section) <input type="checkbox"/> Safety cones
<input type="checkbox"/> Lifting, Pulling, Pushing, Repetitive Motion	<input type="checkbox"/> Get equipment designed for the job <input type="checkbox"/> Proper technique <input type="checkbox"/> Smaller, lighter loads <input type="checkbox"/> Prepared for "unexpected release" <input type="checkbox"/> Move feet to turn with load
<input type="checkbox"/> Airborne/Flying Material	<input type="checkbox"/> Cover/Shield source <input type="checkbox"/> PPE (see PPE Section) <input type="checkbox"/> Positioning
<input type="checkbox"/> Rotating/Moving Equipment and Pinch Points	<input type="checkbox"/> Energy isolation, Lock-out/Tag-out (LOTO) <input type="checkbox"/> Guarding, barricading <input type="checkbox"/> No loose clothing <input type="checkbox"/> Positioning
<input type="checkbox"/> Sharp Objects	<input type="checkbox"/> Guarding <input type="checkbox"/> PPE (see PPE Section) <input type="checkbox"/> Positioning
<input type="checkbox"/> Falling Objects	<input type="checkbox"/> Secure objects <input type="checkbox"/> Guarding, covers <input type="checkbox"/> PPE (see PPE Section) Barricading
<input type="checkbox"/> Hazards from others working in	<input type="checkbox"/> Communication: Specify Method
<input type="checkbox"/> Hazards to other working in vicinity	<input type="checkbox"/> Communication: Specify Method

Hazard Identification	Describe Hazard Control (appropriate for site)
<input type="checkbox"/> Environmental Spill	<input type="checkbox"/> Containment <input type="checkbox"/> Waste Plan <input type="checkbox"/> Waste containers <input type="checkbox"/> Other
<input type="checkbox"/> Overhead lines/subsurface lines	<input type="checkbox"/> Spotter <input type="checkbox"/> Verify clearance with client <input type="checkbox"/> One-Call <input type="checkbox"/> Mark line
<input type="checkbox"/> Site-specific training required	<input type="checkbox"/> Specify training requirement
<input type="checkbox"/> Client-specific safety procedure/policy required?	<input type="checkbox"/> Specify client specific safety procedure or policy (attach a copy)
<input type="checkbox"/> Client permit required?	<input type="checkbox"/> Specify method for obtaining permit:
<input type="checkbox"/> Subcontractor on-site	<input type="checkbox"/> Obtain proof of required (including site-specific) training <input type="checkbox"/> Obtain proof of required (including site-specific) medical surveillance
<input type="checkbox"/> Other Hazards	<input type="checkbox"/> Description:

Exposure Monitoring

The following equipment will be used to monitor personnel exposure:

--

Emergency Plan required for every site job

Method of obtaining assistance	
Evacuation Route	
Prevailing wind direction	
Emergency call list	911 or Other emergency #: ERM Project Manager: ERM Project Director: Client Coordinator: Subcontractor Coordinator:
Emergency assembly area	



***ATTACHMENT 2***

***Daily Safety Meeting Form***



***ATTACHMENT 3***

***Project Sign-in Sheet***



***ATTACHMENT 4***

***ERM Incident Reporting Form***

# Environmental Resources Management

## ERM INCIDENT REPORT FORM

Client Name:

---

Date and Time of Incident:

---

Type of Incident:

---

Location of Incident:

---

Employee:

---

Employee Job Title:

---

Specific Job At Time of  
Incident:

---

Level of Protection Worn at  
Time of Exposure:

---

Summary of What Occurred:

---

---

Actions Taken To Correct  
Situation (Engineering, PPE,  
etc.):

---

---

Employee Signature:

---

Site Safety Officer:

---

ERM Project Manager:

---

Time and Date of Report:

---

***Please return completed forms to the Health and Safety Program Manager***

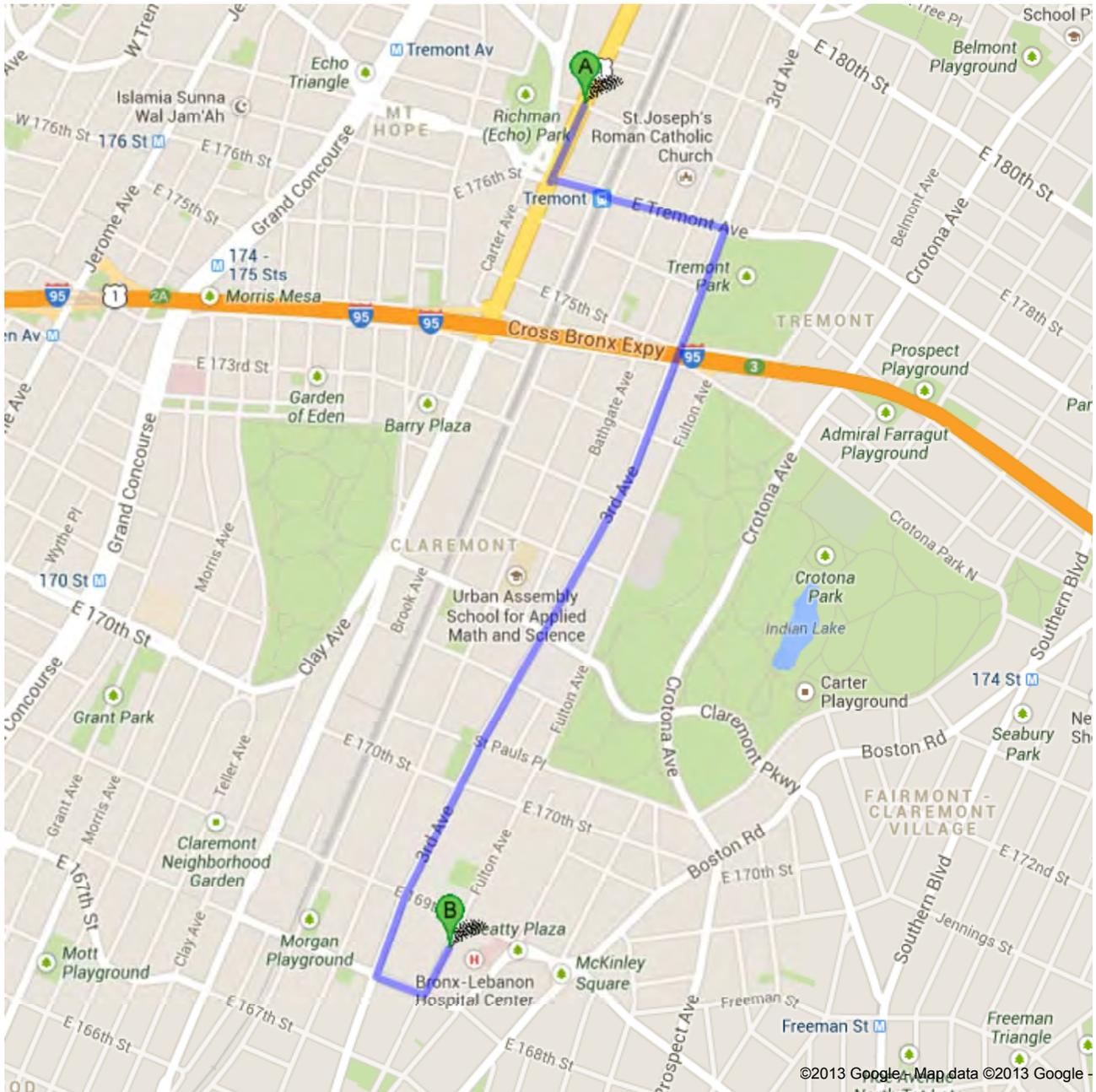
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***ATTACHMENT 5***

***Hospital Route Map and Directions***



Directions to 1276 Fulton Ave, Bronx, NY 10456  
1.7 mi – about 7 mins



## ***TABLES***

**TABLE 1**  
**SUMMARY OF CHEMICAL HAZARDS FOR CHEMICALS OF CONCERN**  
**4275 Park Avenue, Bronx, NY**

Chemical	Published Exposure Limit <sup>1</sup> (8-hour TWA <sup>2</sup> )	Routes of Exposure	Target Organs	Signs/Symptoms of Exposure (Acute versus Chronic Effects)	First Aid &Emergency Response
Chemical Name: <b>Benzene</b>  CAS: 71-43-2  Vapor Pressure: 75 mmHg	1 ppm (OSHA PEL)	Inhalation Skin absorption Ingestion Skin or eye contact	Eyes, skin, respiratory system, bone marrow, blood and central nervous system.	Acute: Irritation eyes, skin, nose, throat, respiratory system, nausea, dizziness, staggered gate, headache, anorexia,  Chronic: leukemia	Flush skin/eyes with water  Administer artificial respiration if no breathing  If ingested seek medical attention
Chemical Name: <b>Xylene</b>  CAS: 1330-20-7  Vapor Pressure: 7 - 9 mmHg	100 ppm (OSHA PEL)	Inhalation Skin absorption Ingestion Skin or eye contact	Eyes, skin, blood, respiratory system, heart, liver,	Acute: headache, fatigue, nausea, flatulence, irritation of eyes nose and throat, visual disturbance  <b>Chronic:</b>	Flush skin/eyes with water  Administer artificial respiration if no breathing  If ingested seek medical attention do not induce vomiting
Chemical Name: <b>Napthalene</b>  CAS: 91-20-3  Vapor Pressure: 0.8 mmHg	10 ppm (OSHA PEL)	Inhalation Skin absorption Ingestion Skin or eye contact	Eyes, nose, throat, skin, blood, liver, kidneys, central nervous system	Acute: salivation, vomiting, fever, abdominal pain, labored breathing,  <b>Chronic:</b> liver and kidney damage	Flush skin/eyes with water  Administer artificial respiration if no breathing  If ingested seek medical attention

Chemical	Published Exposure Limit 1 (8-hour TWA 2)	Routes of Exposure	Target Organs	Signs/Symptoms of Exposure (Acute versus Chronic Effects)	First Aid & Emergency Response
Chemical Name: <b>2 Methyl Naphthalene</b>  CAS: 75-35-4  Vapor Pressure: .068 mmHg	None -	Skin absorption Ingestion Skin or eye contact	Eye and Skin irritation.	Acute: Irritation eyes, skin,	Flush skin/eyes with water  Administer artificial respiration if no breathing  If ingested seek medical attention
Chemical Name: <b>Ethyl Benzene</b>  CAS: 100-41-4  Vapor Pressure: 7 mmHg  Ionization Potential: 8.76 eV	(OSHA PEL) 100 ppm	Inhilation, ingestion, skin and/or eye contact.	Eyes, skin, respiratory system, central nervous system	Acute: Irritation eyes, skin, mucous membrane, dermatitis, headache, narcosis, coma	Eye: Irrigate Immediately  Skin: Soap/Flush promptly  Breathing: Respiratory Support  Ingestion: Medical attention immediately
Chemical Name: <b>MTBE</b> CAS: 1634-04-4  Vapor Pressure: 245 mmHg  Ionization Potential: 9.24 eV	200 ppm (OSHA PEL)	Inhalation Skin adsorption Ingestion Skin or eye contact	headaches, nausea, dizziness, irritation of the nose or throat, and sense of confusion	Acute: headaches, nausea, dizziness, irritation of the nose or throat, and sense of confusion.  <b>Chronic:</b> Carcinogen	Eye: Irrigate immediately  Skin: Soap wash promptly  Breathing: Respiratory support  If ingested seek medical attention immediately
Chemical Name: <b>Toluene</b> CAS: 108-88-3  Vapor Pressure: 21 mmHg	200 ppm (OSHA PEL)	Inhalation Skin adsorption Ingestion Skin or eye contact	Eyes, skin, respiratory system, liver, kidneys, central nervous system.	Acute: Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage.	Eye: Irrigate immediately  Skin: Soap wash promptly  Breathing: Respiratory support  If ingested seek medical attention immediately

<b>Chemical</b>	<b>Published Exposure Limit 1 (8-hour TWA 2)</b>	<b>Routes of Exposure</b>	<b>Target Organs</b>	<b>Signs/Symptoms of Exposure (Acute versus Chronic Effects)</b>	<b>First Aid &amp;Emergency Response</b>
Chemical Name: <b>PCBs</b>	1 mg/m3 (OSHA PEL)	Inhalation Skin adsorption Ingestion Skin or eye contact	Eyes, skin, respiratory system, liver, kidneys, central nervous system.	Acute: lesions, rashes, and burning eyes and skin  Chronic: toxic effects on the liver	Eye: Irrigate immediately  Skin: Soap wash promptly  Breathing: Respiratory support  If ingested seek medical attention immediately
Chemical Name: <b>Dieldrin</b> CAS: 60-57-1	.25 mg/m3 (OSHA PEL)	Inhalation Skin adsorption Ingestion Skin or eye contact	Central nervous system, liver, kidneys, skin	Acute: Headaches, dizziness, nausea, vomiting, sweating, tonic convulsions, coma  Chronic: carcinogenic	Eye: Irrigate immediately  Skin: Soap wash promptly  Breathing: Respiratory support  If ingested seek medical attention immediately
Chemical Name: <b>Lead</b> CAS: 7439-92-1	TWA: 0.03 (mg/m3) NIOSH	Inhalation Skin adsorption Ingestion Skin or eye contact	blood, kidneys, central nervous system (CNS)	Chronic: Developmental Toxicity, possible mutagenic effect	Eye: Irrigate immediately  Skin: Soap wash promptly  Breathing: Move to fresh Air Respiratory support  If ingested seek medical attention immediately Do not induce vomiting
Chemical Name: <b>Chromium</b> CAS: 7440-47-3	TWA: 0.5 (mg/m3) NIOSH	Inhalation, skin or eye contact	Kidneys, lungs, liver, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage	Accute: skin (irritant) eye contact (irritant)  Chronic: sneezing, reddeness of the throat, asthma, cough, polyps, chronic inflammation,. Effects on the nose include irritation, ulceration, and perforation of the nasal septum. Inflammation and ulceration of the larynx may also occur. Chronic exposure may cause liver and kidney damage.	Eye: Irrigate immediately  Skin: Soap wash promptly, seek Medical attention  Breathing: Move to fresh Air Respiratory support  If ingested seek medical attention immediately Do not induce vomiting

<b>Chemical</b>	<b>Published Exposure Limit 1 (8-hour TWA 2)</b>	<b>Routes of Exposure</b>	<b>Target Organs</b>	<b>Signs/Symptoms of Exposure (Acute versus Chronic Effects)</b>	<b>First Aid &amp;Emergency Response</b>
Chemical Name: <b>Barium</b> CAS: 7440-39-3	0.5 mg/m <sup>3</sup> (OSHA PEL)	Eyes, skin and inhalation	smooth muscles, heart, intestines, vascular construction and bladder	Accute effects: Can cause irritation to the nose, throat, and upper respiratory tract. Causes severe irritation of the mouth, throat, and esophagus. Chronic Effects: Severe irritation or burns.	Eye: Irrigate immediately seek medical attention Skin: Soap wash promptly, seek Medical attention Breathing: Move to fresh Air Respiratory support If ingested seek medical attention immediately Do not induce vomiting
Chemical Name: <b>Beryllium</b> CAS: 7440-41-7	.002 mg/m <sup>3</sup> (OSHA PEL)	Inhalation	Lungs, heart	Acute: may irritate eyes or skin  Chronic: prolonged exposure may cause serious lung disease	Eye: Irrigate immediately seek medical attention Breathing: Move to fresh Air Respiratory support ingested: drink large volume of water Induce vomiting

**NOTES:**

1. The most conservative published occupational exposure limit is listed. Sources for occupational exposure limits were OSHA and ACGIH.

2. TWA = time weighted average.

3. ppm – parts of contaminant per million parts of air.

Sources of information include published exposure limits in 29 CFR 1910.1000 or the 2002 TLV Booklet published by ACGIH, NIOSH pocket guide, Chemical/Physical Properties from Texas Risk Reduction Program, International Chemical Safety Cards, MSDSs, and the HNU listing of Photoionization Characteristics of Selected Compounds.

**TABLE 2**  
**SITE-SPECIFIC AND TASK-SPECIFIC HAZARDS AND CONTROL STRATEGIES**  
**4275 Park Avenue, Bronx, NY**

<b>Task/Activity</b>	<b>Hazards</b>	<b>Control Strategy</b>
All activities at site  Level D PPE	Poisonous plants  Non-stinging insects  Stinging insects  Thunder/Lightning	<ul style="list-style-type: none"> <li>• Identify suspect plants</li> <li>• Vegetation control at or below ankle height by having client mow/weed-eat path and work area</li> <li>• Appropriate protective clothing disposable Tyvek™ coveralls, thin nitrile gloves, disposal boots, tape at wrists and ankles</li> <li>• Barrier cream for uncovered skin</li> <li>• Wash exposed body parts and equipment thoroughly after work in highly-vegetated areas</li> <li>• Insect repellent</li> <li>• Survey work area for presence of nests</li> <li>• Eliminate nests</li> <li>• If drilling, cease work following first indication of thunder/lightning</li> <li>• Shelter in buildings or vehicles not underneath trees or near drilling equipment</li> <li>• Begin work after 15 minutes has elapsed from last thunder/lightning</li> </ul>
Drilling	Heavy equipment movement  Dropped equipment, slip, trip or fall.  Noise	<ul style="list-style-type: none"> <li>• Personnel maintain eye contact with operators when near the rig.</li> <li>• Hard hats, steel-toe safety shoes and safety glasses worn during equipment operation.</li> <li>• Hearing protectors with proper noise reduction rating.</li> </ul>
Completion and development of groundwater well	Splashing of chemical in groundwater	<ul style="list-style-type: none"> <li>• Safety glasses; chemical-resistant suits (as determined necessary by SSO)</li> </ul>

**TABLE 3**  
**PERSONAL PROTECTION EQUIPMENT REQUIREMENTS**  
**4275 Park Avenue, Bronx, NY**

<b>PPE Level</b>	<b>Ensemble Components</b>	<b>Anticipated Use</b>
<p><b>Level D</b></p> <p>Should be worn only as a work uniform and not in any area with respiratory or skin hazards. It provides minimal protection against chemical hazards.</p>	<ul style="list-style-type: none"> <li>• Long pants and shirt with sleeves</li> <li>• Steel-toed footwear</li> <li>• Safety glasses with molded side shields or goggles.</li> <li>• Hard hat if potential for head injury or falling debris is possible/or client requirement</li> <li>• General purpose work gloves if task does not involve water or wet materials</li> <li>• Hearing protection</li> <li>• High visibility traffic vest when in traffic areas</li> </ul>	<p>All activities unless otherwise directed by the SSO, PM, and Project Manager and Project Health and Safety Coordinator</p>
<p><b>Modified Level D</b></p>	<p>Level D and the following:</p> <ul style="list-style-type: none"> <li>• Disposal Tyvek coveralls</li> <li>• Steel-toed rubber boots or disposal boot covers over shoes</li> <li>• Thin nitrile gloves</li> <li>• Green nitrile gloves over thin nitrile gloves when primary gloves may tear or puncture</li> </ul>	<p>Any of the above-referenced tasks in which there is moderate potential for skin contact</p>
<p><b>Level C</b></p> <p>Should be worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is needed.</p>	<p>Level D or Modified Level D and the following:</p> <ul style="list-style-type: none"> <li>• Half-face air purifying respirator with combination organic vapor/high efficiency particulate air (HEPA) cartridges</li> </ul>	<p>Any of the above-referenced tasks in which there is moderate potential for skin contact with constituents and data indicating need for respiratory protection.</p> <p>No upgrade to Level C without approval from Project Manager and Project Health and Safety Coordinator</p>
<p><b>Level B</b></p> <p>Should be worn when the highest level of respiratory protection is needed, but a lesser level of skin protection is needed.</p>	<p>Not anticipated to be required</p>	<p>Tasks requiring Level B PPE are not anticipated during this project. If Level B PPE is needed, as determined by the SSO and/or the Project Health and Safety Consultant, the HASP will be revised.</p>
<p><b>Level A</b></p> <p>Should be worn when the highest level of respiratory, skin, and eye protection is needed.</p>	<p>Not anticipated to be required</p>	<p>Tasks requiring Level A PPE are not anticipated during this project. If Level A PPE is needed, as determined by the SSO and/or the Project Health and Safety Consultant, the HASP will be revised</p>

**TABLE 4**  
**EMERGENCY DRILL FREQUENCY**  
**4275 Park Avenue, Bronx, NY**

<b><i>Project Duration</i></b>	<b><i>Drill Frequency</i></b>
Less than 30 days	None, cover during review/sign-off of HASP
Greater than one month but less than one year	Once
Greater than one year	Annually

**APPENDIX E**

**SPECIFICATION & CUT SHEETS FOR VAPOR**

**BARRIER**

## SECTION 071326

### SHEET MEMBRANE WATERPROOFING

#### PART 1 GENERAL

##### 1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

##### 1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the sheet membrane waterproofing as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:
  - 1. Sheet membrane waterproofing for underslab conditions.
  - 2. Sheet membrane waterproofing for foundation wall surfaces.
  - 3. Sheet membrane waterproofing for blindside of foundation wall surfaces.

##### 1.3 RELATED SECTIONS

- A. Concrete - Section 033000.
- B. Earthwork - Section 312000.

##### 1.4 SUBMITTALS

- A. Shop Drawings: Typical installation details, showing details at flashings, at terminations, at joints, at intersection of horizontal and vertical surfaces, and at penetrations in membrane system.
- B. Samples - Submit
  - 1. Membrane, 6" x 6" samples of each membrane.
  - 2. 6" x 6" sample of flashing.
  - 3. 6" x 6" sample of drainage board.
- C. Manufacturer's Literature: Submit manufacturer's technical, safety data sheets, and installation literature for all materials of this Section. Submit Independent Test data indicating that membrane meets properties specified herein.
- D. General Contractor's Certification: Submit per Article 1.7.

## 1.5 STORAGE OF MATERIALS

- A. All materials shall be stored in their original tightly sealed containers or unopened packages; shall be clearly labeled with the manufacturer's name, brand name and number, and batch number of the material with expiration date where appropriate.
- B. Materials shall be stored in a neat and safe manner so as not to exceed the allowable live load of the storage area.
- C. Material shall be stored out of the weather in a clean, dry area.
- D. Liquid materials, such as adhesives, thinners and primers, shall be stored in areas away from sparks, open flames and excessive heat.

## 1.6 JOB CONDITIONS

- A. No application of waterproofing shall commence or proceed during inclement weather, or the threat of imminent precipitation.
- B. All surfaces to receive the system shall be thoroughly dry and free of dew or frost.
- C. Materials shall be stored until time of mixing at temperatures above 60 deg. F. to maintain a consistency suitable for mixing. Do no work below 40 deg. F.
- D. Prior to and during application, all dirt and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air, or similar methods.
- E. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.

## 1.7 WARRANTY

- A. The manufacturer of the waterproofing system executed under this Section warrants the waterproofing system to be watertight and free from defects in materials and workmanship for a period of ten (10) years from date of acceptance of this Contract, and that he, at his own expense, repair and/or replace all other work which may be damaged as a result of such defective work, and which becomes defective during the warranty period.
- B. Contractor's Two Year Workmanship Warranty: Provide a written guarantee for all work of this Section, stating that if, within two years after the Date of Substantial Completion of the Work, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so. The guarantee shall state that the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, to enforce compliance with the obligations of this Guarantee, and will replace any material or system that requires repeated maintenance or repair to function effectively. The obligation of this Guarantee shall run directly to the Owner, and may be enforced by the Owner against the Contractor, shall survive the termination of the Contract and shall not be limited by Conditions other than this Contract.

## 1.8 QUALITY ASSURANCE

- A. Preinstallation Conference: Approximately 2 weeks prior to scheduled commencement of waterproofing installation, meet at Project site with Waterproofing Installer; preparer of substrate to receive waterproofing; installers of other work in and around waterproofing that must precede, follow, or penetrate waterproofing (including Mechanical and Electrical Installers as applicable); Architect; Owner; and waterproofing manufacturer's representative to review materials, procedures, schedules, and other requirements and conditions related to installing waterproofing.
- B. Qualifications of Subcontractors
  - 1. Subcontractors: All work of this Section shall be performed by a subcontractor who is approved by the manufacturer of the waterproofing material.
  - 2. Qualifications of Subcontractors: Subcontractors shall submit evidence of being bona fide waterproofing subcontractors, for a period of not less than five (5) years, and that they are approved by the manufacturer of the waterproofing material for the installation of the manufacturer's material in accordance with the requirements of this Section.
    - a. Subcontractor shall submit a letter from manufacturer of waterproofing material stating that subcontractor is approved by the manufacturer for the application of the waterproofing systems specified and accepted for use on the Project.
    - b. Letter shall certify that the subcontractor has previously and satisfactorily applied the waterproofing systems specified herein on jobs of similar size and scope, under manufacturer's supervision.
    - c. Letter shall be on manufacturer's letterhead and shall be signed by an officer of the company, not by a local sales representative.
- C. Manufacturer's Representative/Contractor's Certification
  - 1. Representative of the waterproofing material manufacturer shall be required to provide field instructions and supervision for the installation of the waterproofing systems at the start of the work of this Section.
  - 2. The manufacturer's representative shall be required to make sure that the workmen for waterproofing systems on the site of the Project are fully instructed and trained in the handling and application of all the materials, and shall see that all the materials are correctly installed.
  - 3. Upon completion of the Installation, submit to the Architect written certification that the representative of the manufacturer of the waterproofing material has supervised the work of this Section and that all materials were correctly installed.

## 1.9 PROTECTION

- A. Against Loads: Protect work of this Section against concentrated loads and any other loads or equipment that would damage the materials or work.
- B. Against Traffic: Do not permit traffic on horizontally installed work of this Section, except for workmen doing the work, during the installation, and after the installation

until membrane systems are covered with protective boards or with the specified finishing materials.

- C. Against Damage: Protect vertically installed work of this section from damage by reinforcing and placement.
  - 1. Take and maintain necessary preventive measures to protect work of this Section from damage until Project is accepted.
  - 2. Rejection of Damaged Work
    - a. Damaged materials or work will be rejected.
    - b. Rejected materials or work must be immediately removed and replaced with new materials.

#### 1.10 FIELD QUALITY CONTROL

- A. Construction Traffic:
  - 1. Limit construction traffic over completed membrane.
  - 2. General Contractor shall provide 1/2 in. plywood protection layer, where construction traffic is unavoidable.
- B. Inform Architect in writing on a daily basis of any of the following events. State specific location of each occurrence.
  - 1. Buckling to the Waterproofing and other deformations as a result of ground water events.
  - 2. Leakage through the finished waterproofing installation.
  - 3. Damage by other trades.
- C. Provide Manufacturer's Representative's report (prior to backfill) stating that the waterproofing has been inspected and is acceptable and eligible for manufacturer's warranty.

### PART 2 PRODUCTS

#### 2.1 WATERPROOFING MEMBRANE

- A. Trade names used herein for membrane waterproofing are those of W.R. Grace. Other acceptable manufacturers include Sika, Greenstreak, Carlisle Coatings and Waterproofing, Henry Co. and Polyguard provided manufacturers noted substitute their equivalent products.
- B. For accessible foundation wall waterproofing, provide "Bituthene 4000" sheet waterproofing membrane, 60 mils thick, and "Bituthene Liquid Membrane," 60 mils thick, for flashing, as manufactured by W. R. Grace or approved equal noted above.
- C. At underslab conditions, provide adhesive coated HDPE Composite Sheet "Bituthene Preprufe 300R" system by W. R. Grace & Co. or approved equal noted above.

- D. At blind side waterproof condition, provide adhesive coated HDPE Composite Sheet "Bituthene Preprufe 160R" system by W. R. Grace & Co. or approved equal noted above.
- E. HDPE membrane shall have a protective layer to protect the membrane from the weather and U.V. for up to 30 days before casting concrete against it.
- F. Bituthene "4000" Conditioner: Latex/water based primer specifically formulated to provide adhesion of Bituthene Waterproofing Membranes.
  - 1. If water based primer does not provide sufficient adhesion to substrate, substitute Bituthane Primer B-2 solvent based primer.
- G. Bituthene Elastomeric Mastic: Rubberized asphalt base mastic.
- H. Tape: Double sided synthetic adhesive tape equal to "Preprufe LT" and "HC."
- I. Protection Board: 1/4" thick semi-rigid protection board, "Bituthene Asphaltic Hardboard."
- J. Bituthene Liquid Membrane: Two-component 100% solids trowel grade asphalt modified urethane.
- K. "Hydroduct 220" Drainage Board/Composite: Prefabricated dimpled polystyrene drainage core with a non-woven filter fabric on one side and a polymer film on the reverse side by W.R. Grace.
  - 1. At horizontal applications, use "Hydroduct 660" by W.R. Grace.

### PART 3 EXECUTION

#### 3.1 INSPECTION

- A. Examine the areas and conditions where membrane waterproofing is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work. Starting of work implies acceptance of substrate.

#### 3.2 PREPARATION OF SURFACES TO RECEIVE WATERPROOFING

- A. Conform to the requirements of Bituthene Techletter No. BTL 82-02, published by W. R. Grace if using W.R. Grace products.
- B. Earth or crushed stone substrates shall be compacted to produce an even, sound substrate. Loose aggregate, sharp protrusions and standing water shall be removed.
- C. Conform to the requirements of Bituthene Techletter No. BTL 13, published by W.R. Grace, for "Forming Systems for Use with the Preprufe 160R Membrane" if using W.R. Grace products.

### 3.3 INSTALLATION

- A. General: Conform to recommendations and published specifications of the manufacturer' including environmental requirements and preparation requirements to receive waterproofing.
- B. Foundation Walls (Accessible Walls)
  - 1. General: The membrane, when in place must withstand a minimum static ground water pressure of 150 feet.
  - 2. Priming: Application of primer shall be limited to what can be covered with Bituthene Waterproofing Membrane in a given work day. Primed areas not covered by membrane during the work day will be reprimed. Apply primer by spray, roller or brush at a rate of 250 - 350 sq. ft. per gallon. Roller shall be natural material such as lamb's wool, having a nap of approximately one inch. Primer shall be applied to a clean, dry, frost-free and dust-free surface. Sufficient primer must be used on the day surface to condition it to a dust-free state suitable for the application of Bituthene Waterproofing Membranes.
    - a. Bituthene 4000 Surface Conditioner should not be applied below 40 deg. F. on vertical surfaces. Allow primer to dry 30 minutes. Conditioner is considered dry when the substrate returns to its original color.
    - b. Re-prime areas that become dusty or dirty prior to membrane installation.
  - 3. Membrane Installation: Apply Bituthene Waterproofing Membrane vertically in sections of 8' in length or less. On higher walls apply two or more sections with the upper overlapping the lower by a least 2-1/2". Press all membrane in place with heavy hand pressure or rollers during application.
  - 4. Sealing Edges: Bituthene Waterproofing Membrane shall be applied over the edge of the slab or over the top of the foundation or parapet wall. If the membranes are terminated on the vertical surface, a reglet or counter flashing may be used or the membrane may be terminated directly on the vertical surface by pressing very firmly to the wall. Press edges with a metal or hardwood tool such as a hammer or knife handle. Apply a troweled bead of Bituthene Mastic to all vertical and horizontal terminations. Bituthene Liquid Membrane can be used as an alternative method at the General Contractor's option.
  - 5. Sealing Seams: All edges and end seams must be overlapped at least 2-1/2". Apply succeeding sheets with a minimum 2-1/2" overlap and stagger end laps. Roll or press the entire membrane firmly and completely as soon as possible. Patch misaligned or inadequately lapped seams with Bituthene Membrane. Slit any fish mouths, overlap the flaps, and repair with a patch of Bituthene and press or roll in place. The edges of the patch shall be sealed with a troweling of mastic. Laps within 12" of all corners shall be sealed with a troweling of mastic.
  - 6. Corner Forming: Outside corners must be free of sharp edges. Inside corners shall receive a fillet formed with Liquid Membrane, latex modified cement mortar equal to Daraweld C made by Grace mixed with cement mortar or epoxy mortar. Do not use fiber or wood cants. One of two methods may be used for treating corners at the General Contractor's option:

- a. Apply Bituthene Liquid Membrane 6" in each direction from the corner and form a fillet with a minimum 3/4" face.
  - b. Install an 11" minimum strip of Bituthene Membrane centered on the corner. Install Bituthene Membrane over the treated inside and outside corners.
7. Over waterproofing, apply drainage composite board by adhering board to cured membrane using tape or adhesive per manufacturer's recommendations; lap all edges 4" and conform to the following:
- a. Install drainage layer directly over the membrane. Start at the low points on the wall and shingle all laps to the flow of water.
  - b. Splice drainage panels together by butting longitudinal edges of adjacent sheets and peeling back fabric to expose the cores of the panels. Install precut "lock strips" consisting of 4 dimple x 5 dimple sections of the drainage panel centered on the joint between the panels and spaced every 10 dimples along the length of the joint. Snap dimples of "lock strip" to dimples of each panel and reattach fabric over the panel joint.
  - c. Cut the core of the drainage panels around penetrations, and cut an "X" in the filter fabric and tape the fabric to the sides of the penetration.
  - d. Cover all terminal edges of the drainage composite with an integral fabric flap by tucking the fabric around the edge of the core and adhering the fabric to the bottom of the core.

#### 3.4 INSTALLATION OF WATERPROOFING FOR BLINDSIDE WALLS AND BELOW GRADE UNDERSLAB WATERPROOFING

- A. General: Install adhesive coated HDPE composite sheet according to waterproofing manufacturer's written instructions.
1. Install drainage layer directly over the membrane. Start at the low points on the wall and shingle all laps to the flow of water.
  2. Splice drainage panels together by butting longitudinal edges of adjacent sheets and peeling back fabric to expose the cores of the panels. Install precut "lock strips" consisting of 4 dimple x 5 dimple sections of the drainage panel centered on the joint between the panels and spaced every 10 dimples along the length of the joint. Snap dimples of "lock strip" to dimples of each panel and reattach fabric over the panel joint.
  3. Cut the core of the drainage panels around penetrations, and cut an "X" in the filter fabric and tape the fabric to the sides of the penetration.
  4. Cover all terminal edges of the drainage composite with an integral fabric flap by tucking the fabric around the edge of the core and adhering the fabric to the bottom of the core.
- B. Preparation
1. Surfaces to receive blind side membranes must be smooth and sound, with no gaps or voids in excess of 1/2 in. Earth and stone substrates must be compacted to produce an even, solid substrate. If required by membrane manufacturer, provide an additional layer of underlayment protection board over sharp or angular stone

substrates. Surfaces to receive waterproofing shall be thoroughly dry and free of moisture.

2. General: Comply with manufacturer's instructions for preparing surface including joint or crack treatment.
3. Apply primer to substrate surfaces at rate recommended by manufacturer of primary waterproofing materials. Prime only area that will be covered by waterproofing membrane in same working day. Reprime areas not covered by waterproofing membrane within 24 hrs.

#### C. Wall Applications

1. Refer to manufacturer's literature for complete installation instructions but not limited to the following:
  - a. Apply Hydroduct 220 Drainage Composite to a point 6" below grade line. Fasten Hydroduct 220 to the adjacent buildings foundation wall or soil retention system.
  - b. Peel back bottom flap of filter fabric and place core behind discharge pipe. Wrap loose filter fabric over and around discharge pipe. Tuck excess filter fabric behind pipe. Fold excess filter fabric at top termination down between drainage composite and membrane.
  - c. Apply membrane with the HDPE film facing the soil retention system or adjacent foundation. Remove the release liner and fasten membrane to Hydroduct drainage composite with large head nails or staples. All nail heads or staples must be covered with overlapping sheets of membrane.
  - d. Apply succeeding sheets by overlapping the previous sheet 3 inches along the uncoated edge of the membrane.
  - e. Overlap the ends of the membrane 3 inches. Apply Preprufe Tape centered over the end lap and roll firmly. Remove release liner.
  - f. Seal all transition, penetrations, tie down bracing and other conditions with initial membrane layer plus manufacturer's recommended accessory materials, prior to application of the full membrane.
  - g. Concrete must be poured within 30 days of membrane application. Protect membrane until concrete pour.
  - h. If membrane ties into a vertical membrane, leave an additional 12" flap of Preprufe membrane to tie into Bituthene membrane.

#### D. Underslab Applications

1. Apply Hydroduct 660 drainage composite board as recommended by manufacturer over the compacted sub-grade.
2. Apply the membrane over the drainage composite board with the HDPE side facing the drainage composite board and the treated white coating surface facing the concrete to be poured. The membrane may be installed at any convenient length. Apply succeeding sheets by overlapping previous sheets 3" along the self-adhesive edge of the membrane. Remove the silicone coated release liner covering the membrane and roll the side lap to assure a tight seal.

### 3.5 SEAM REINFORCEMENT FOR HDPE COMPOSITE SHEETS ONLY

- A. Provide a 6 in. strip of modified bituminous sheet membrane (Bituthene 4000) centered behind all laps.
- B. At locations where a salvage edge is not present and at end laps, lap sheets 6 in., apply a 1/8 in. thick by 6 in. wide application of liquid membrane between sheets, to provide a 6 in. wide seal.
- C. Integration of old onto new pre-applied sheet membrane.
  - 1. Integration of Sheet Membrane onto Sheet Membrane that has been installed in excess of 30 days prior
    - a. Lap sheets 12 in., apply a 1/8 in. thick by 12 in. wide application of fluid membrane between sheets, to provide a 12 in. wide seal at this location.
    - b. Install Waterproofing Tape centered at edge of lap and roll firmly into place with an approved roller.
    - c. Install additional Waterproofing Tape to cover white film that has been installed over 30 days prior.
  - 2. Repair of pre-applied sheet membrane
    - a. Scratch on white coating exposing underlying black surface of Sheet Membrane. Install Waterproofing Tape at areas where the white coating of the membrane is damaged, including boot scuff marks and abrasions by rebar.
    - b. Damage or Puncture of Sheet Membrane: Install Patch of short Membrane set in Liquid Membrane. Patch must extend 3 in. in every direction around extent of damaged area. Install Waterproofing Tape centered over the edge of the patch. If the damaged area does not have 5 in. of sound material around it, inject Liquid Membrane into puncture until Liquid Membrane backs out, and proceed with patch as space allows.

### 3.6 CLEAN-UP

- A. Upon completion of the waterproofing system, the General Contractor shall remove all equipment, material and debris from the work and storage area, and leave those areas in an undamaged and acceptable condition.

END OF SECTION

# Grace Below Grade Waterproofing

## PREPRUFE® 300R Plus & 160R Plus

Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites

### Description

Preprufe® 300R Plus & 160R Plus membranes are unique composite sheets comprising, a thick HDPE film, an aggressive pressure sensitive adhesive a weather resistant protective coating and an adhesive to adhesive seam overlap.

Unlike conventional non-adhering membranes, which are vulnerable to water ingress tracking between the unbonded membrane and structure, the unique Preprufe bond to concrete prevents ingress or migration of water around the structure.

The Preprufe R Plus System includes:

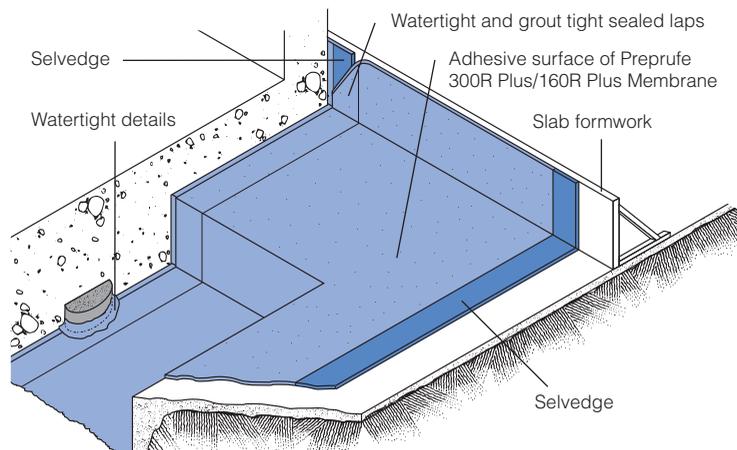
- **Preprufe 300R Plus**—heavy-duty grade for use below slabs and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
- **Preprufe 160R Plus**—thinner grade for blindside, zero property line applications against soil retention systems.
- **Preprufe Tape LT**—for covering cut edges, roll ends, penetrations and detailing (temperatures between 25°F (-4°C) and 86°F (+30°C)).
- **Preprufe Tape HC**—as above for use in Hot Climates (minimum 50°F (10°C)).
- **Bituthene® Liquid Membrane**—for sealing around penetrations, etc.
- **Adcor™ ES**—waterstop for joints in concrete walls and floors
- **Preprufe Tieback Covers**—preformed cover for soil retention wall tieback heads
- **Preprufe Preformed Corners**—preformed inside and outside corners

Preprufe 300R Plus & 160R Plus membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe can be turned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene® self-adhesive membrane or Procor® fluid applied membrane to walls after removal of formwork for a fully bonded system to all structural surfaces.

### Advantages

- **Forms a unique continuous adhesive bond to concrete poured against it**—prevents water migration and makes it unaffected by ground settlement beneath slabs
- **Fully-adhered adhesive to adhesive watertight laps and detailing**
- **Provides a barrier to water, moisture and gas**—physically isolates the structure from the surrounding ground
- **Easy roll/kick out installation**—reduces installation time and cost
- **Release Liner free**—expedites installation and reduces construction site waste
- **Solar reflective**—reduced temperature gain
- **Simple and quick to install**—requiring no priming or fillets
- **Can be applied to permanent formwork**—allows maximum use of confined sites
- **Self protecting**—can be trafficked immediately after application and ready for immediate placing of reinforcement
- **Unaffected by wet conditions**—cannot activate prematurely
- **Inherently waterproof, non-reactive system:**
  - not reliant on confining pressures or hydration
  - unaffected by freeze/thaw, wet/dry cycling
- **Chemical resistant**—effective in most types of soils and waters, protects structure from salt or sulphate attack



Drawings are for illustration purposes only.  
Please refer to [graceconstruction.com](http://graceconstruction.com) for specific application details.

## Installation

The most current application instructions, detail drawings and technical letters can be viewed at [graceconstruction.com](http://graceconstruction.com). For other technical information contact your local Grace representative.

Preprufe Plus has colored zip strips at the top and bottom of the seam area on the edge of the roll. Both zip strips cover an aggressive adhesive. Once the yellow zip strip on the top of the membrane and the blue zip strip on the bottom of the membrane are removed, a strong adhesive to adhesive bond is achieved in the overlap area.

### Substrate Preparation

**All surfaces**—It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability (see Figure 1).

**Horizontal**—The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

**Vertical**—Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 0.5 in. (12 mm) out of alignment.

### Membrane Installation

Preprufe can be applied at temperatures of 25°F (-4°C) or above. When installing Preprufe in cold or marginal weather conditions <40°F (<4°C) the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean, dry surfaces and the release liner must be removed immediately after application. Alternatively, Preprufe Plus Low Temperature (LT) is available for low temperature condition applications. Refer to Preprufe Plus LT data sheet for more information.

**Horizontal substrates**—Kick out or roll out the membrane HDPE film side to the substrate with the yellow zip strip facing towards the concrete pour. End laps should be staggered to avoid a build up of layers. Leave yellow and blue zip strips on the membrane until overlap procedure is completed.

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the yellow zip strip. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the yellow and blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.

Refer to Grace Tech Letter 15 for information on suitable rebar chairs for Preprufe.

**Vertical substrates**—Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the yellow zip strip facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge using a small and low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the yellow zip strip. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the yellow and

blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap. Roll firmly to ensure a watertight seal.

**Roll ends and cut edges**—Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly (see Figure 2). Immediately remove tinted plastic release liner from the tape.

### Details

Refer to Preprufe Field Application Manual, Section V Application Instructions or visit [graceconstruction.com](http://graceconstruction.com). This manual gives comprehensive guidance and standard details.

### Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Repair small punctures (0.5 in. (12 mm) or less) and slices by applying Preprufe Tape centered over the damaged area and roll firmly. Remove the release liner from the tape. Repair holes and large punctures by applying a patch of Preprufe membrane, which extends 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch with Preprufe Tape, remove the release liner from the tape and roll firmly. Any areas of damaged adhesive should be covered with Preprufe Tape. Remove tinted plastic release liner from tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh Preprufe Tape, rolling firmly. Alternatively, use a hot air gun or similar to activate adhesive and firmly roll lap to achieve continuity.

### Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe Tape.

It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Following proper ACI guidelines, concrete must be placed carefully and consolidated properly to avoid damage to the membrane. Never use a sharp object to consolidate the concrete. Provide temporary protection from concrete over splash for areas of the Preprufe membrane that are adjacent to a concrete pour.

### Removal of Formwork

Preprufe membranes can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe membranes are not recommended for conventional twin-sided wall forming systems.

A minimum concrete compressive strength of 1500 psi (10 N/mm<sup>2</sup>) is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

Refer to Grace Tech Letter 17 for information on removal of formwork for Preprufe.

Figure 1

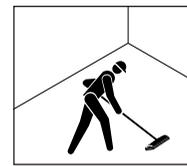
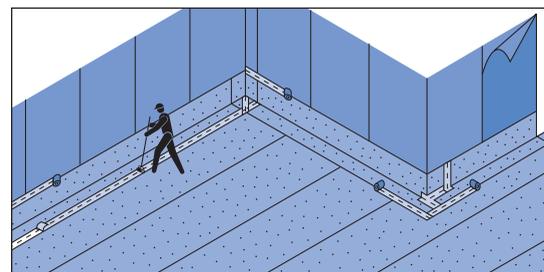
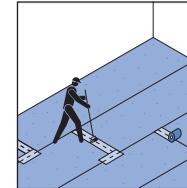


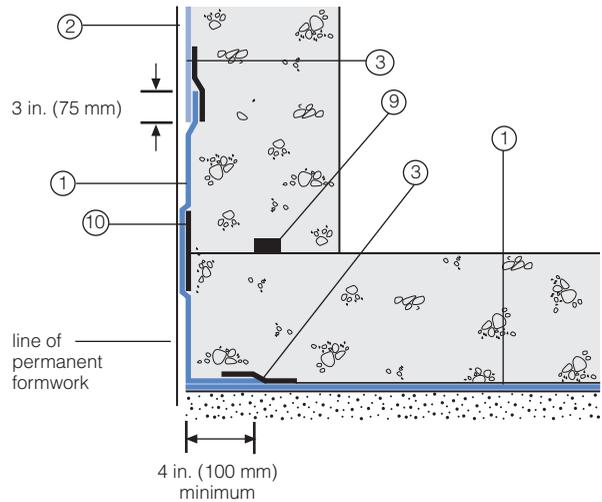
Figure 2



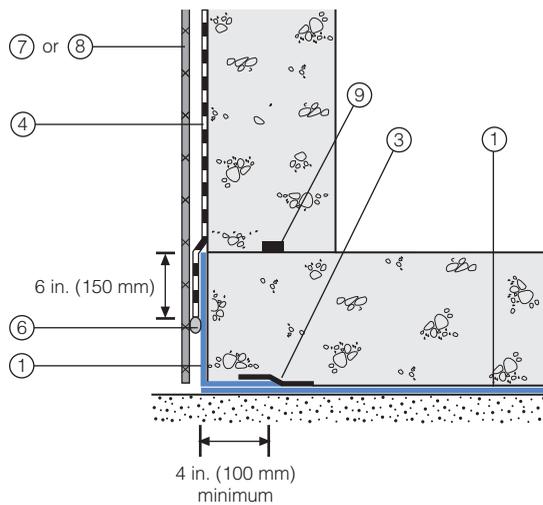
## Detail Drawings

Details shown are typical illustrations and not working details. For a list of the most current details, visit us at [graceconstruction.com](http://graceconstruction.com). For technical assistance with detailing and problem solving please call toll free at 866-333-3SBM (3726).

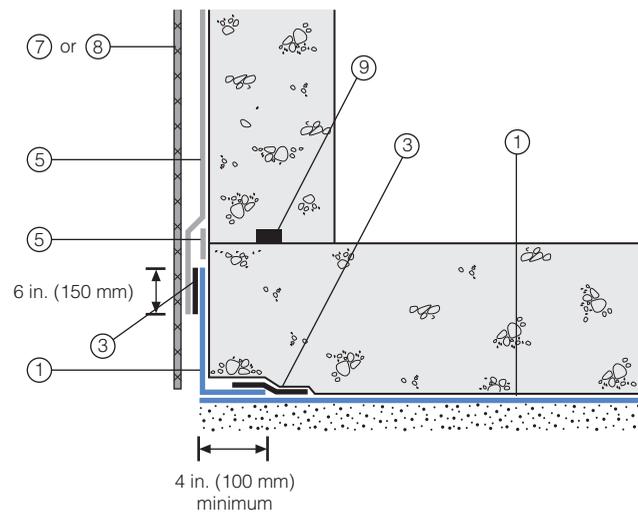
### Wall base detail against permanent shutter



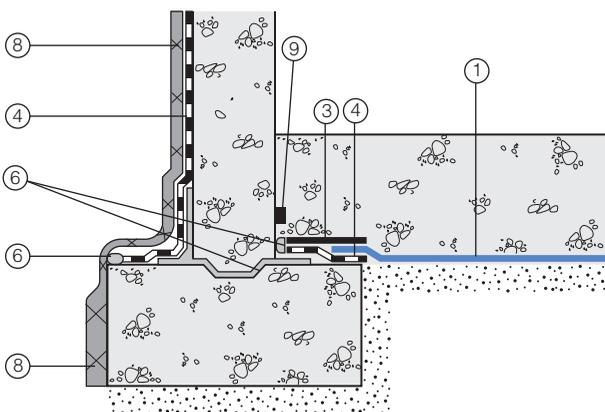
### Bituthene wall base detail (Option 1)



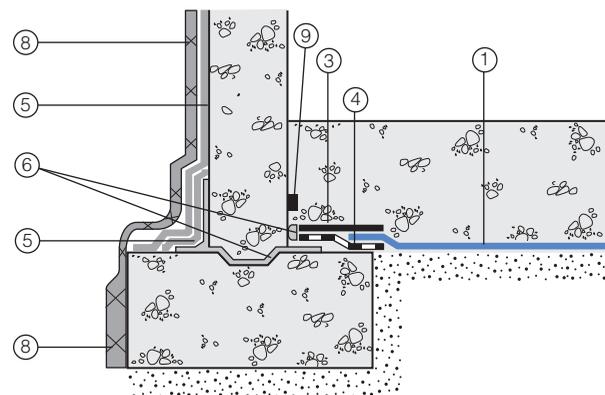
### Procor wall base detail (Option 1)



### Bituthene wall base detail (Option 2)



### Procor wall base detail (Option 2)



- 1 Preprufe 300R Plus
- 2 Preprufe 160R Plus
- 3 Preprufe Tape
- 4 Bituthene®

- 5 Procor
- 6 Bituthene Liquid Membrane
- 7 Protection

- 8 Hydroduct®
- 9 Adcor ES
- 10 Preprufe CJ Tape

## Supply

Dimensions (Nominal)	Preprufe 300R Plus Membrane	Preprufe 160R Plus Membrane	Preprufe Tape (LT or HC*)
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	
Roll size	3 ft. 10 in. x 102 ft. (1.17m x 31.15m)	3 ft. 10 in. x 120 ft. (1.17m x 36.6m)	4 in. x 49 ft (100 mm x 15 m)
Roll area	392 ft <sup>2</sup> (36 m <sup>2</sup> )	460 ft <sup>2</sup> (42 m <sup>2</sup> )	
Roll weight	108 lbs (50 kg)	92 lbs (42 kg)	4.3 lbs (2 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)	3 in. (75 mm)
* LT denotes Low Temperature (between 25°F (-4°C) and 86°F (+30°C)) HC denotes Hot Climate (50°F (>+10°C))			
<b>Ancillary Products</b>			
Bituthene Liquid Membrane—1.5 US gal (5.7 liter) or 4 US gal (15.1 liter)			

## Physical Properties

Property	Typical Value 300R Plus	Typical Value 160R Plus	Test Method
Color	white	white	
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	ASTM D3767
Lateral Water Migration Resistance	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385, modified <sup>1</sup>
Low temperature flexibility	Unaffected at -20°F (-29°C)	Unaffected at -20°F (-29°C)	ASTM D1970
Resistance to hydrostatic head	231 ft (71 m)	231 ft (71 m)	ASTM D5385, modified <sup>2</sup>
Elongation	500%	500%	ASTM D412, modified <sup>3</sup>
Tensile strength, film	4000 psi (27.6 MPa)	4000 psi (27.6 MPa)	ASTM D412
Crack cycling at -9.4°F (-23°C), 100 cycles	Unaffected, Pass	Unaffected, Pass	ASTM C836 <sup>4</sup>
Puncture resistance	221 lbs (990 N)	100 lbs (445 N)	ASTM E154
Peel adhesion to concrete	5 lbs/in. (880 N/m)	5 lbs/in. (880 N/m)	ASTM D903, modified <sup>5</sup>
Lap peel adhesion at 72°F (22°C)	8 lbs/in. (1408 N/m)	8 lbs/in. (1408 N/m)	ASTM D1876, modified <sup>6</sup>
Lap peel adhesion at 40°F (4°C)	8 lbs/in. (1408 N/m)	8 lbs/in. (1408 N/m)	ASTM D1876, modified <sup>6</sup>
Permeance to water vapor transmission	0.01 perms (0.6 ng/(Pa x s x m <sup>2</sup> ))	0.01 perms (0.6 ng/(Pa x s x m <sup>2</sup> ))	ASTM E96, method B

### Footnotes:

- Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
- Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before the concrete cures, a 0.125 in. (3 mm) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
- Elongation of membrane is run at a rate of 2 in. (50 mm) per minute.
- Concrete is cast against the Preprufe membrane and allowed to cure (7 days minimum)
- Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 2 in. (50 mm) per minute at room temperature.
- The test is conducted 15 minutes after the lap is formed (per Grace published recommendations) and run at a rate of 2 in. (50 mm) per minute at 72°F (22°C).

## Specification Clauses

Preprufe 300R Plus or 160R Plus shall be applied with its adhesive face presented to receive fresh concrete to which it will integrally bond. Only Grace Construction Products approved membranes shall be bonded to Preprufe. All Preprufe system materials shall be supplied by Grace Construction Products, and applied strictly in accordance with their instructions. Specimen performance and formatted clauses are also available.

NOTE: Use Preprufe Tape to tie-in Procor with Preprufe.

## Health and Safety

Refer to relevant Material Safety data sheet. Complete rolls should be lifted and carried by a minimum of two persons.

[www.graceconstruction.com](http://www.graceconstruction.com)

**For technical assistance call toll free at 866-333-3SBM (3726)**

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We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.—Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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**GRACE**

# Grace Below Grade Waterproofing

## BITUTHENE® SYSTEM 4000

Self-adhesive HDPE waterproofing membrane with super tacky compound for use with patented, water-based System 4000 Surface Conditioner

### Description

Bituthene® System 4000 is a 1.5 mm (1/16 in.) flexible, pre-formed waterproof membrane which combines a high performance, cross laminated, HDPE carrier film with a unique, super tacky, self-adhesive rubberized asphalt compound.

System 4000 Surface Conditioner is a unique, water-based, latex surface treatment which imparts an aggressive, high tack finish to the treated substrate. It is specifically formulated to bind site dust and concrete efflorescence, thereby providing a suitable surface for the Bituthene System 4000 Waterproofing Membrane.

Conveniently packaged in each roll of membrane, System 4000 Surface Conditioner promotes good initial adhesion and, more importantly, excellent permanent adhesion of the Bituthene System 4000 Waterproofing Membrane. The VOC (Volatile Organic Compound) content of this product is 100 g/L.

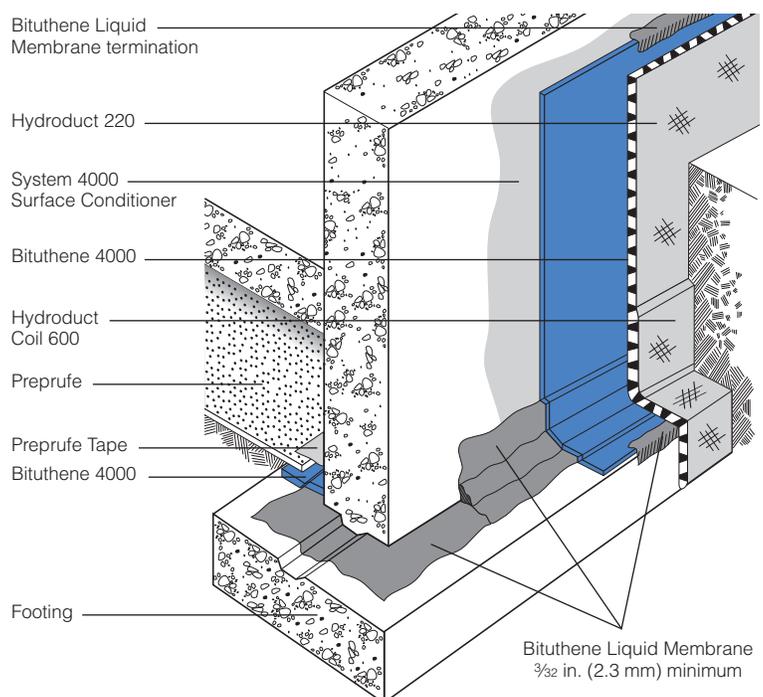
### Product Advantages

- Excellent adhesion
- Cold applied
- Reduced inventory and handling costs
- Wide application temperature range
- Overlap security
- Cross laminated, high density polyethylene carrier film
- Flexible
- Ripcord

Architectural and Industrial Maintenance Regulations limit the VOC content in products classified as Architectural Coatings. Refer to Technical Letters at [graceconstruction.com](http://graceconstruction.com) for most current list of allowable limits.

### Advantages

- **Excellent adhesion**—special adhesive compound engineered to work with high tack System 4000 Surface Conditioner
- **Cold applied**—simple application to substrates, especially at low temperatures
- **Reduced inventory and handling costs**—System 4000 Surface Conditioner is included with each roll of membrane
- **Wide application temperature range**—excellent bond to self and substrate from 25°F (-4°C) and above



Drawings are for illustration purposes only. Please refer to [graceconstruction.com](http://graceconstruction.com) for specific application details.

- **Overlap security**—minimizes margin for error under site conditions
- **Cross laminated, high density polyethylene carrier film**—provides high tear strength, puncture and impact resistance
- **Flexible**—accommodates minor structural movements and will bridge shrinkage cracks
- **Ripcord**<sup>®</sup>—this split release on demand feature allows the splitting of the release paper into two (2) pieces for ease of installation in detailed areas

## Use

Bituthene is ideal for waterproofing concrete, masonry and wood surfaces where in-service temperatures will not exceed 135°F (57°C). It can be applied to foundation walls, tunnels, earth sheltered structures and split slab construction, both above and below grade. (For above grade applications, see *Above Grade Waterproofing Bituthene System 4000*.)

Bituthene is 1/16 in. (1.5 mm) thick, 3 ft (0.9 m) wide and 66.7 ft (20 m) long and is supplied in rolls. It is unrolled sticky side down onto concrete slabs or applied onto vertical concrete faces primed with System 4000 Surface Conditioner. Continuity is achieved by overlapping a minimum 2 in. (50 mm) and firmly rolling the joint.

Bituthene is extremely flexible. It is capable of bridging shrinkage cracks in the concrete and will accommodate minor differential movement throughout the service life of the structure.

## Application Procedures

### Safety, Storage and Handling Information

Bituthene products must be handled properly. Vapors from solvent-based primers and mastic are harmful and flammable. For these products, the best available information on safe handling, storage, personal protection, health and environmental considerations has been gathered. Material Safety Data Sheets (MSDS) are available at [graceconstruction.com](http://graceconstruction.com) and users should acquaint themselves with this information. Carefully read detailed precaution statements on product labels and the MSDS before use.

## Surface Preparation

Surfaces should be structurally sound and free of voids, spalled areas, loose aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris. Concrete must be properly dried (minimum 7 days for normal structural concrete and 14 days for lightweight structural concrete).

**If time is critical, Bituthene Primer B2 or Bituthene Primer B2 LVC may be used to allow priming and installation of membrane on damp surfaces or green concrete. Priming may begin in this case as soon as the concrete will maintain structural integrity.** Use form release agents which will not transfer to the concrete. Remove forms as soon as possible from below horizontal slabs to prevent entrapment of excess moisture. Excess moisture may lead to blistering of the membrane. Cure concrete with clear, resin-based curing compounds which do not contain oil, wax or pigment. Except with Bituthene Primer B2 or Bituthene Primer B2 LVC, allow concrete to thoroughly dry following rain. Do not apply any products to frozen concrete.

Repair defects such as spalled or poorly consolidated areas. Remove sharp protrusions and form match lines. On masonry surfaces, apply a parge coat to rough concrete block and brick walls or trowel cut mortar joints flush to the face of the concrete blocks.

## Temperature

- Apply Bituthene System 4000 Membrane and Conditioner only in dry weather and when air and surface temperatures are 25°F (-4°C) or above.
- Apply Bituthene Primer B2 or Bituthene Primer B2 LVC in dry weather above 25°F (-4°C). (See separate product information sheet.)

## Conditioning

Bituthene System 4000 Surface Conditioner is ready to use and can be applied by spray or roller. For best results, use a pump-type air sprayer with fan tip nozzle, like the Bituthene System 4000 Surface Conditioner Sprayer, to apply the surface conditioner.

Apply Bituthene System 4000 Surface Conditioner to clean, dry, frost-free surfaces at a coverage rate of 300 ft<sup>2</sup>/gal (7.4 m<sup>2</sup>/L). Coverage should be uniform. Surface conditioner should not be applied so heavily that it puddles or runs. **Do not apply conditioner to Bituthene membrane.**

Allow Bituthene System 4000 Surface Conditioner to dry one hour or until substrate returns to its original color. At low temperatures or in high humidity conditions, dry time may be longer.

Bituthene System 4000 Surface Conditioner is clear when dry and may be slightly tacky. In general, conditioning should be limited to what can be covered within 24 hours. In situations where long dry times may prevail, substrates may be conditioned in advance. Substrates should be reconditioned if significant dirt or dust accumulates.

Before surface conditioner dries, tools should be cleaned with water. After surface conditioner dries, tools should be cleaned with mineral spirits. Mineral spirits is a combustible liquid which should be used only in accordance with manufacturer's recommendations. **Do not use solvents to clean hands or skin.**

### Corner Details

The treatment of corners varies depending on the location of the corner. For detailed information on Bituthene Liquid Membrane, see separate product information sheet.

- At wall to footing inside corners—  
**Option 1:** Apply membrane to within 1 in. (25 mm) of base of wall. Treat the inside corner by installing a ¾ in. (20 mm) fillet of Bituthene Liquid Membrane. Extend Bituthene Liquid Membrane at least 2½ in. (65 mm) onto footing, and 2½ in. (65 mm) onto wall membrane.  
**Option 2:** Treat the inside corner by installing a ¾ in. (20 mm) fillet of Bituthene Liquid Membrane. Apply 12 in. (300 mm) wide strip of sheet membrane centered over fillet. Apply wall membrane over inside corner and extend 6 in. (150 mm) onto footing. Apply 1 in. (25 mm) wide troweling of Bituthene Liquid Membrane over all terminations and seams within 12 in. (300 mm) of corner.

- At footings where the elevation of the floor slab is 6 in. (150 mm) or more above the footing, treat the inside corner either by the above two methods or terminate the membrane at the base of the wall. Seal the termination with Bituthene Liquid Membrane.

### Joints

Properly seal all joints with waterstop, joint filler and sealant as required. Bituthene membranes are not intended to function as the primary joint seal. Allow sealants to fully cure. Pre-strip all slab and wall cracks over ¼ in. (1.5 mm) wide and all construction and control joints with 9 in. (230 mm) wide sheet membrane strip.

### Application on Horizontal Surfaces

(Note: Preprufe® pre-applied membranes are strongly recommended for below slab or for any application where the membrane is applied before concreting. See Preprufe product information sheets.)

Apply membrane from the low point to the high point so that laps shed water. Overlap all seams at least 2 in. (50 mm). Stagger all end laps. Roll the entire membrane firmly and completely as soon as possible. Use a linoleum roller or standard water-filled garden roller less than 30 in. (760 mm) wide, weighing a minimum of 75 lbs (34 kg) when filled. Cover the face of the roller with a resilient material such as a ½ in. (13 mm) plastic foam or two wraps of indoor-outdoor carpet to allow the membrane to fully contact the primed substrate. Seal all T-joints and membrane terminations with Bituthene Liquid Membrane at the end of the day.

### Protrusions and Drains

Apply membrane to within 1 in. (25 mm) of the base of the protrusion. Apply Bituthene Liquid Membrane 0.1 in. (2.5 mm) thick around protrusion. Bituthene Liquid Membrane should extend over the membrane a minimum of 2½ in. (65 mm) and up the penetration to just below the finished height of the wearing course.

### Vertical Surfaces

Apply membrane in lengths up to 8 ft (2.5 m). Overlap all seams at least 2 in. (50 mm). On higher walls apply membrane in two or more sections with the upper overlapping the lower by at least 2 in. (50 mm). Roll all membrane with a hand roller.

Terminate the membrane at grade level. Press the membrane firmly to the wall with the butt end of a hardwood tool such as a hammer handle or secure into a reglet. Failure to use heavy pressure at terminations can result in a poor seal. A termination bar may be used to ensure a tight seal. Terminate the membrane at the base of the wall if the bottom of the interior floor slab is at least 6 in. (150 mm) above the footing. Otherwise, use appropriate inside corner detail where the wall and footing meet.

### Membrane Repairs

Patch tears and inadequately lapped seams with membrane. Clean membrane with a damp cloth and dry. Slit fishmouths and repair with a patch extending 6 in. (150 mm) in all directions from the slit and seal edges of the patch with Bituthene Liquid Membrane. Inspect the membrane thoroughly before covering and make any repairs.

## Drainage

Hydroduct® drainage composites are recommended for both active drainage and protection of the membrane. See Hydroduct product information sheets.

## Protection of Membrane

Protect Bituthene membranes to avoid damage from other trades, construction materials or backfill. Place protection immediately in temperatures above 77°F (25°C) to avoid potential for blisters.

- On vertical applications, use Hydroduct 220 Drainage Composite. Adhere Hydroduct 220 Drainage Composite to membrane with Preprufe Detail Tape. Alternative methods of protection are to use 1 in. (25 mm) expanded polystyrene or ¼ in. (6 mm) extruded polystyrene that has a minimum compressive strength of 8 lbs/in.<sup>2</sup> (55 kN/m<sup>2</sup>). Such alternatives do not provide

## System 4000 Surface Conditioner Sprayer

The Bituthene System 4000 Surface Conditioner Sprayer is a professional grade, polyethylene, pump-type, compressed air sprayer with a brass fan tip nozzle. It has a 2 gal (7.6 L) capacity. The nozzle orifice and spray pattern have been specifically engineered for the optimum application of Bituthene System 4000 Surface Conditioner.

Hold nozzle 18 in. (450 mm) from substrate and squeeze handle to spray. Spray in a sweeping motion until substrate is uniformly covered.

Sprayer should be repressurized by pumping as needed. For best results, sprayer should be maintained at high pressure during spraying.

To release pressure, invert the sprayer and spray until all compressed air is released.



### Maintenance

The Bituthene System 4000 Surface Conditioner Sprayer should perform without trouble for an extended period if maintained properly.

Sprayer should not be used to store Bituthene System 4000 Surface Conditioner. The sprayer should be flushed with clean water immediately after spraying. For breaks in the spray operation of one hour or less, invert the sprayer and squeeze the spray handle until only air comes from the nozzle. This will avoid clogging.

Should the sprayer need repairs or parts, call the maintenance telephone number on the sprayer tank (800-323-0620).

positive drainage to the system. If ¼ in. (6 mm) extruded polystyrene protection board is used, backfill should not contain sharp rock or aggregate over 2 in. (50 mm) in diameter. Adhere polystyrene protection board with Preprufe Detail Tape.

- In mud slab waterproofing, or other applications where positive drainage is not desired and where reinforced concrete slabs are placed over the membrane, the use of ¼ in. (6 mm) hardboard or 2 layers of ⅛ in. (3 mm) hardboard is recommended.

## Insulation

Always apply Bituthene membrane directly to primed or conditioned structural substrates. Insulation, if used, must be applied over the membrane. Do not apply Bituthene membranes over lightweight insulating concrete.

## Backfill

Place backfill as soon as possible. Use care during backfill operation to avoid damage to the waterproofing system. Follow generally accepted practices for backfilling and compaction. Backfill should be added and compacted in 6 in. (150 mm) to 12 in. (300 mm) lifts.

For areas which cannot be fully compacted, a termination bar is recommended across the top termination of the membrane.

## Placing Steel

When placing steel over properly protected membrane, use concrete bar supports (dobies) or chairs with plastic tips or rolled feet to prevent damage from sharp edges. Use special care when using wire mesh, especially if the mesh is curled.

## Approvals

- City of Los Angeles Research Report RR 24386
- Miami-Dade County Code Report NOA 04-0114.03
- U.S. Department of Housing and Urban Development (HUD) HUD Materials Release 628E
- Bituthene 4000 Membranes carry a Underwriters' Laboratory Class A Fire Rating (Building Materials Directory, File #R7910) when used in either of the following constructions:
  - Limited to noncombustible decks at inclines not exceeding ¼ in. (6 mm) to the horizontal 1 ft (0.3 m). One layer of Bituthene waterproofing membrane, followed by one layer of ⅛ in. (3 mm) protection board, encased in 2 in. (50 mm) minimum concrete monolithic pour.
  - Limited to noncombustible decks at inclines not exceeding ¼ in. (6 mm) to the horizontal 1 ft (0.3 m). One layer of Bituthene waterproofing membrane, followed by one layer of DOW Styrofoam PD Insulation Board [2 in. (50 mm) thick]. This is covered with one layer of 2 ft x 2 ft x 2 in. (0.6 m x 0.6 m x 50 mm) of concrete paver topping.

## Warranty

Five year material warranties covering Bituthene and Hydroduct products are available upon request. Contact your Grace sales representative for details.

## Technical Services

Support is provided by full time, technically trained Grace representatives and technical service personnel, backed by a central research and development staff.

## Supply

<b>Bituthene System 4000</b>	3 ft x 66.7 ft roll (200 ft <sup>2</sup> ) [0.9 m x 20 m (18.6 m <sup>2</sup> )]
Roll weight	83 lbs (38 kg) gross
Palletization	25 rolls per pallet
Storage	Store upright in dry conditions below 95°F (+35°C).
<b>System 4000 Surface Conditioner</b>	1 x 0.625 gal (2.3 L) bottle in each roll of System 4000 Membrane
<b>Ancillary Products</b>	
Surface Conditioner Sprayer	2 gal (7.6 L) capacity professional grade sprayer with specially engineered nozzle
Bituthene Liquid Membrane	1.5 gal (5.7 L) pail/125 pails per pallet or 4 gal (15.1 L) pail/48 pails per pallet
Preprufe Detail Tape	2 in. x 50 ft (50 mm x 15 m) roll/16 rolls per carton
Bituthene Mastic	Twelve 30 oz (0.9 L) tubes/carton or 5 gal (18.9 L) pail/36 pails per pallet
<b>Complementary Material</b>	
Hydroduct	See separate data sheets

**Equipment by others:** Soft broom, utility knife, brush or roller for priming

## Physical Properties for Bituthene 4000 Membrane

Property	Typical Value	Test Method
Color	Dark gray-black	
Thickness	1/16 in. (1.5 mm) nominal	ASTM D3767—method A
Flexibility, 180° bend over 1 in. (25 mm) mandrel at -25°F (-32°C)	Unaffected	ASTM D1970
Tensile strength, membrane, die C	325 lbs/in. <sup>2</sup> (2240 kPa) minimum	ASTM D412 modified <sup>1</sup>
Tensile strength, film	5,000 lbs/in. <sup>2</sup> (34.5 MPa) minimum	ASTM D882 modified <sup>1</sup>
Elongation, ultimate failure of rubberized asphalt	300% minimum	ASTM D412 modified <sup>1</sup>
Crack cycling at -25°F (-32°C), 100 cycles	Unaffected	ASTM C836
Lap adhesion at minimum application temperature	5 lbs/in. (880 N/m)	ASTM D1876 modified <sup>2</sup>
Peel strength	9 lbs/in. (1576 N/m)	ASTM D903 modified <sup>3</sup>
Puncture resistance, membrane	50 lbs (222 N) minimum	ASTM E154
Resistance to hydrostatic head	210 ft (70 m) of water	ASTM D5385
Permeance	0.05 perms (2.9 ng/m <sup>2</sup> sPa) maximum	ASTM E96, section 12—water method
Water absorption	0.1% maximum	ASTM D570

### Footnotes:

1. The test is run at a rate of 2 in. (50 mm) per minute.
2. The test is conducted 15 minutes after the lap is formed and run at a rate of 2 in. (50 mm) per minute at 40°F (5°C).
3. The 180° peel strength is run at a rate of 12 in. (300 mm) per minute.

## Physical Properties for System 4000 Surface Conditioner

Property	Typical Value
Solvent type	Water
Flash point	>140°F (>60°C)
VOC* content	91 g/L
Application temperature	25°F (-4°C) and above
Freeze thaw stability	5 cycles (minimum)
Freezing point (as packaged)	14°F (-10°C)
Dry time (hours)	1 hour**

\* Volatile Organic Compound

\*\* Dry time will vary with weather conditions

[www.graceconstruction.com](http://www.graceconstruction.com)

**For technical assistance call toll free at 866-333-3SBM (3726)**

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