Remedial Action Plan

For

1413 Fulton Street

Block 1854, Lot 52

OER Project Number 14EH-N266K

E-Designation E-185

Bedford Stuyvesant South Rezoning and Text Amendment

Prepared for:

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REMEDIAL ACTION PLAN

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CO	Certificate of Occupancy
CPC	City Planning Commission
DNAPL	Dense Non-Aqueous Phase Liquid
DSNY	Department of Sanitation
"E"	E-Designation
EAS	Environmental Assessment Statement
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
EC/IC	Engineering Control and Institutional Control
ELAP	Environmental Laboratory Accreditation Program
FDNY	New York City Fire Department
ft bg	Feet Below Grade
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IDW	Investigation Derived Waste
LBGES	LBG Engineering Services, P.C.
LNAPL	Light Non-Aqueous Phase Liquid
mcg/m^3	Micrograms Per Cubic Meter
Notice - NNO	Notice of No Objection
Notice - NTP	Notice To Proceed
Notice - NOS	Notice Of Satisfaction

Acronym	Definition
Notice - FNOS	Final Notice of Satisfaction
NYCBSA	New York City Board of Standards and Appeals
NYCDCP	New York City Department of City Planning
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCDOF	New York City Department of Finance
NYCHPD	New York City Housing Preservation and Development
NYCRR	New York Codes Rules and Regulations
NYCOER	New York City Office of Environmental Remediation
NYSDEC	New York State Department of Environmental Conservation
NYSDEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYSDEC PBS	New York State Department of Environmental Conservation Petroleum Bulk Storage
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OSHA	United States Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photoionization Detector
PPE	Personal Protection Equipment
PM	Particulate Matter
ppm	Parts Per Million
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RA	Register Architect
RAP	Remedial Action Plan
RCA	Recycled Concrete Aggregate
RCR	Remedial Closure Report
RD	Restrictive Declaration
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives

Acronym	Definition
SCG	Standards, Criteria and Guidance
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SPEED	Searchable Property Environmental Electronic Database
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	Underground Storage Tank
TAL	Target Analyte List
TCL	Target Compound List
TCO	Temporary Certificate of Occupancy
VB	Vapor Barrier
VOCs	Volatile Organic Compounds

CERTIFICATION

I, William K. Beckman, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 1413 Fulton Street, E-185, Project Number 14EH-N266K.

I, Paul Woodell, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 1413 Fulton Street, E-185, Project Number 14EH-N266K.

I certify that this Remedial Action Plan (RAP) 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 RAP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

William K. Beckman
Name

063219-1
NYS PE License Number

William K Beckman
Signature

May 28, 2014
Date

Paul Woodell
QEP Name

Paul Woodell
QEP Signature

May 28, 2014
Date

EXECUTIVE SUMMARY

1413 Fulton Management, LLC has prepared this plan to remediate a 10,220-square foot site located at 1413 Fulton Street in Brooklyn, New York. A Phase II Subsurface Investigation (Phase II) was completed to compile and evaluate data and information necessary to develop this Remedial Action Plan (RAP). The remedial action described in this document achieves the remedial objectives, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Site Location and Current Usage

The Site is located at 1413 Fulton Street in the Bedford Stuyvesant section in Brooklyn, New York and is identified as Lot 52 in Block 1854 on the New York City Tax Map. Figure 1 shows the Site location. The Site is bounded by Fulton Street to the south, Brooklyn Avenue to the southeast, Tompkins Avenue to the east and Marcy Avenue to the west. An aerial photo-graph showing the site boundary is shown in Figure 2. Currently, the Site is used as a medical clinic. The Site is improved with a 1-story, 10,220 square-foot building that is built out to the property lines. Although the building has one story, the ceiling height is equivalent to a two-story building. A partial second floor, referred to as the “mezzanine”, is located in the western portion of the building. The building is slab-on-grade with the exception of a small utility base-ment, located on the west side of the building. Project numbers associated with the Site include CEQR 07DCP070K, E-185 and NYCOER 14EH-N266K.

Summary of Proposed Redevelopment Plan

Layout of the proposed site development is presented in Figure 3. The current zoning designation is C2-4, which signifies a district zoned for commercial use. The proposed use is consistent with existing zoning for the property.

The development project consists of conversion of the single story building to a three story, multi-tenant, commercial building. The existing and planned building covers the entire footprint of the Site (full build-out). There is no planned grade-level open space or landscaping. The building will occupy a 10,220 square-foot footprint and will consist of a total of

22,245 square feet of commercial space. The exterior walls and floor of the existing building will be retained and the second and third floors of the new building will be added. The small utility basement will be retained in its existing form.

A series of support columns with independent column footings will be constructed throughout the building. An elevator will be constructed in the west portion of the building. Excavation through the existing floor into sub-grade material is anticipated only at the locations of column footings and the elevator vault. Column footings vary in dimension from 4 feet by 4 feet to 10 feet by 10 feet with thicknesses between 1.5 and 3.5 feet. Excavation depths for column footings range between 5 ft bg (feet below grade) and 7 ft bg. For the purpose of this RAP, Site grade is the same as the existing first floor grade and approximately the same as the exterior sidewalk along Fulton Street. The excavation depth for the elevator vault is 7 ft bg. The total excavation volume for column footings and the elevator vault is approximately 250 cubic yards or 375 tons (based on a specific weight of 1.5 tons per cubic yard). Redevelopment plans do not include importation of soil/fill material. The water table is approximately 45 ft bg and will not be encountered as part of redevelopment.

Summary of the Remedy

The proposed remedial action achieves all of the remedial action goals established for the project. The proposed remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants and uses standard methods that are well established in the industry. The proposed remedial action will consist of:

1. Conduct a Community Air Monitoring Program (CAMP) for particulates and volatile organic compounds (VOCs).
2. Establish Soil Cleanup Objectives (SCOs) for contaminants of concern. Excavation and removal of soil/fill at locations where required based on redevelopment actions. Construction-related excavation will result in removal of some soil exceeding SCOs.
3. Although not anticipated, removal of underground storage tanks and closure of petroleum spills, if any encountered, in compliance with applicable local, State and Federal laws and regulations.

4. Retain existing engineered composite cover consisting of a Site-wide concrete floor slab to prevent human exposure to residual soil/fill remaining under the Site. The existing slab varies in thickness from approximately 3 inches to 16 inches. At locations where the existing floor slab is to be cut and removed as part of redevelopment, the floor will be replaced with either: a new floor of equal or greater thickness, a support column or a concrete elevator vault.
5. As part of the general construction activities, a 50-year rated caulk will be used to seal all cracks/voids, utility penetrations, drains, etc. in the concrete floor slab. This measure will eliminate these pathways for potential future soil-vapor intrusion.
6. Although not anticipated, import of materials to be used for backfill and cover would be in compliance with this plan and in accordance with applicable 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. Appropriate segregation of excavated media onsite.
8. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a photoionization detector (PID).
9. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking and staking excavation areas.
10. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
11. Completion of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
12. Submission of a Remedial Closure Report (RCR) that describes the remedial activities, certifies that the remedial goal (prevention of human contact with Site soils) has been achieved, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAP.

REMEDIAL ACTION PLAN

1.0 SITE BACKGROUND

This Remedial Action Plan (RAP) and site-specific Construction Health and Safety Plan (CHASP) have been developed for 1413 Fulton Street located at 1413 Fulton Street in the Bedford Stuyvesant section of Brooklyn, New York (the Site). This project has been assigned project number 14EH-N266K by NYCOER. This RAP describes the remediation and/or mitigation activities to be implemented at the Site in coordination with the New York City Office of Environmental Remediation (NYCOER) for the purposes of satisfying the requirements of the Hazardous Materials E-Designation Program and obtaining a Notice To Proceed. An E-Designation for Hazardous Materials (E-185) was placed on the Site by the New York City Department of City Planning (NYCDCP) as part of the May 7, 2007, Bedford Stuyvesant South Rezoning and Text Amendment rezoning action (CEQR number 07DCP070K). The site-specific CHASP (Appendix II) addresses site-specific hazards, identifies contaminants of concern and safety requirements associated with remediation and mitigation activities in accordance with American Society for Testing and Materials (ASTM) and Occupational Safety and Health Administration (OSHA) guidelines.

1.1 Site Location and Current Usage

The Site is located at 1413 Fulton Street in the Bedford Stuyvesant section in Brooklyn, New York and is identified as Lot 52 in Block 1854 on the New York City Tax Map. Figure 1 shows the Site location. The Site is bounded by Fulton Street to the south, Brooklyn Avenue to the southeast, Tompkins Avenue to the east and Marcy Avenue to the west. An aerial photograph showing the site boundary is shown in Figure 2. Currently, the Site is used as a medical clinic. The Site is improved with a 1-story, 10,220 square-foot building that is built out to the property lines. Although the building has one story, the ceiling height is equivalent to a two-story building. A partial second floor, referred to as the “mezzanine”, is located in the western portion of the building. The building is slab-on-grade with the exception of a small utility base-

ment, located on the west side of the building. Project numbers associated with the Site include CEQR 07DCP070K, E-185 and NYCOER 14EH-N266K.

1.2 Proposed Redevelopment Plan

Layout of the proposed site development is presented in Figure 3. The current zoning designation is C2-4, which signifies a district zoned for commercial use. The proposed use is consistent with existing zoning for the property.

The development project consists of conversion of the single story building to a three story, multi-tenant, commercial building. The existing and planned building covers the entire footprint of the Site (full build-out). There is no planned grade-level open space or landscaping. The building will occupy a 10,220 square-foot footprint and will consist of a total of 22,245 square feet of commercial space. The exterior walls and floor of the existing building will be retained and the second and third floors of the new building will be added. The small utility basement will be retained in its existing form.

A series of support columns with independent column footings will be constructed throughout the building. An elevator will be constructed in the west portion of the building. Excavation through the existing floor into sub-grade material is anticipated only at the locations of column footings and the elevator vault. Column footings vary in dimension from 4 feet by 4 feet to 10 feet by 10 feet with thicknesses between 1.5 and 3.5 feet. Excavation depths for column footings range between 5 ft bg (feet below grade) and 7 ft bg. For the purpose of this RAP, Site grade is the same as the existing first floor grade and approximately the same as the exterior sidewalk along Fulton Street. The excavation depth for the elevator vault is 7 ft bg. The total excavation volume for column footings and the elevator vault is approximately 250 cubic yards or 375 tons (based on a specific weight of 1.5 tons per cubic yard). Redevelopment plans do not include importation of soil/fill material. The water table is approximately 45 ft bg and will not be encountered as part of redevelopment.

1.3 Description of Surrounding Property

Commercial land uses, consisting of retail stores, office spaces and restaurants are present along Fulton Street. Three and four-story residential buildings exist to the north of the Site along MacDonough Street as well as one block to the south along Herkimer Street.

Based on an online search of data bases including the New York City Office of Environmental Remediation (NYCOER) Searchable Property Environmental Electronic Database (SPEED) application and Google Maps, nearby potential sensitive receptors include:

- The Site, Bedford Stuyvesant Health Clinic, 1413 Fulton Street (note that the clinic will cease operation prior to redevelopment);
- Glendas Angel Day Care, 100 feet north, 50 MacDonough Street;
- Our Children Day Care, 100 feet north, 40 MacDonough Street;
- Emily's Childcare, 400 feet south, 260 Herkimer Street;
- Little Sun People, 600 feet west, 1360 Fulton Street; and
- Public School 93, 1,000 feet southwest, New York Avenue and Atlantic Avenue.

Figure 4 shows the surrounding land usage.

1.4 Environmental Investigation Reports

The following environmental work plans and reports were developed for the Site:

- *Phase I Environmental Site Assessment, 1413 Fulton Street, Brooklyn, New York,* February 2012, prepared by Leggette, Brashears & Graham, Inc.;
- *Focused Phase II Environmental Site Assessment, 1413 Fulton Street, Brooklyn, New York,* April 2012, prepared by Leggette, Brashears & Graham, Inc.;
- *Phase II Work Plan (Short Form) for 1413 Fulton Street, Block 1854, Lot 52, OER Project Number 14EH-N266K,* January 2014, prepared by Leggette, Brashears & Graham, Inc.; and
- *Remedial Investigation Report, 1413 Fulton Street, Brooklyn, New York, NYCOER Site Number 14EH-N266K,* March 2014, prepared by Leggette, Brashears & Graham, Inc.

The following work has been completed at the site as part of the 2012 Focused Phase II Environmental Site Assessment (ESA) and March 2014 Remedial Investigation:

1. conducted a Site inspection to identify Areas of Concern (AOC) and physical obstructions (i.e., structures, buildings, etc.);

2. drilled 10 soil borings across the entire project Site, and collected 16 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. due to the anticipated groundwater depth (45 feet) and limited drilling capacity (indoor drilling), groundwater was not investigated – this approach was taken with NYCOER approval;
4. installed 5 sub-slab vapor probes throughout the Site and collected 5 samples for chemical analysis;
5. collected 2 indoor-air and 1 ambient-air (outside) samples for chemical analysis.

Digital (PDF) copies of the above-referenced environmental work plans and reports have been previously submitted to NYCOER. Figure 5 shows the locations of the environmental samples collected during the March 2014 Remedial Investigation (RI). Tables 1 through 8 summarize the analytical results of the March 2014 RI.

1.5 Summary of Regulatory Correspondence

The following is a summary of pertinent regulatory correspondence related to the Site:

NYCOER Project Submittal Cover Sheet, November 2013, prepared by Leggette, Brashears & Graham, Inc., sent to NYCOER.

Digital (PDF) copies of the above-referenced regulatory correspondence have been previously submitted to NYCOER.

1.6 Findings of Environmental Investigations

1. Elevation of the property is approximately 55 feet above mean sea level and the property is relatively flat.
2. Depth to groundwater was not investigated but is likely to be approximately 45 ft bg at the Site based on reviews of published reports.
3. Groundwater flow (direction and rate) was not investigated.
4. Depth to bedrock was not investigated.
5. The stratigraphy of the site, from the surface down (below the floor slab), consists of between 0 to more than 9 feet of soil/fill material consisting of black to brown sand and silt mixed with smaller percentages of debris such as broken glass and

concrete and brick fragments. This shallow material is underlain by native soil consisting of brown fine sand and silt, which extends to the boring termination depths.

6. Analyses of soil/fill samples collected during the RI indicated several semivolatile organic compounds (SVOCs) at three boring locations, and three metals at two boring locations, that were detected at concentrations greater than the Part 375 Commercial Soil Cleanup Objectives.
7. Analyses of sub-slab vapor and indoor air samples collected during the RI indicated that, while a number of volatile organic compound (VOCs) were detected, none of the indoor air detections exceeded New York State Department of Health (NYSDOH) Guidance Values and utilization of the NYSDOH Decision Matrices resulted in a recommendation of "No Further Action" (see NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, October 2006).

For more information about the environmental investigation data, consult the reports listed in Section 1.4. Based on an evaluation of the environmental data and information, disposal of significant amounts of hazardous waste is not suspected at this site.

2.0 DESCRIPTION OF REMEDIATION

2.1 Objectives

The Site remediation and mitigation objective is:

Soil

- Prevent direct contact with contaminated soil.

Remedial and mitigation measures described herein will be conducted in accordance with applicable laws and regulations, and the site-specific CHASP. The remedy will be protective of public health and/or the environment for the intended use.

2.2 Summary of Remedial Action

The proposed plan achieves the remedial action goal established for the project. The proposed remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants and uses standard methods that are well established in the industry.

The proposed remedial action will consist of:

1. Conduct a Community Air Monitoring Program (CAMP) for particulates and volatile organic compounds (VOCs).
2. Establish Soil Cleanup Objectives (SCOs) for contaminants of concern. Excavation and removal of soil/fill at locations where required based on redevelopment actions. Construction-related excavation will result in removal of some soil exceeding SCOs.
3. Although not anticipated, removal of underground storage tanks and closure of petroleum spills, if any encountered, in compliance with applicable local, State and Federal laws and regulations.
4. Retain existing engineered composite cover consisting of a Site-wide concrete floor slab to prevent human exposure to residual soil/fill remaining under the Site. The existing slab varies in thickness from approximately 3 inches to 16 inches. At locations where the existing floor slab is to be cut and removed as part of rede-

velopment, the floor will be replaced with either: a new floor of equal or greater thickness, a support column or a concrete elevator vault.

5. As part of the general construction activities, a 50-year rated caulk will be used to seal all cracks/voids, utility penetrations, drains, etc. in the concrete floor slab. This measure will eliminate these pathways for potential future soil-vapor intrusion.
6. Although not anticipated, import of materials to be used for backfill and cover would be in compliance with this plan and in accordance with applicable 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. Appropriate segregation of excavated media onsite.
8. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a photoionization detector (PID).
9. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking and staking excavation areas.
10. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
11. Completion of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
12. Submission of a Remedial Closure Report (RCR) that describes the remedial activities, certifies that the remedial goal (prevention of human contact with Site soils) has been achieved, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAP.

2.3 Soil Cleanup Objectives and Soil/Fill Management

Based on the current and future use of the site as a commercial property, the Commercial SCOs are applicable to construction-related soil excavation under this remedial action. Thus the Commercial SCOs (Part 375, Table 375-6.8[b]) are the primary SCOs for the Site. The Soil Cleanup Objectives (SCOs) proposed for this project are listed in Table 1. 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 (SMMP) in Appendix I. The location of planned excavations is shown in Figure 5.

Based on the results of the Site Remedial Investigation Report, soil excavation for the purpose of remedial cleanup is not an element of this RAP. However, soil which is excavated as part of general construction of the building itself (column footings, elevator vault) will be screened for contaminants by a Qualified Environmental Professional (QEP). The excavated soil will be stockpiled and samples will be collected and analyzed for disposal parameters determined by the accepting facility. Onsite reuse of excavated soils will not be allowed.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be horizontally and vertically identified and surveyed. This information will be provided in the RCR.

Estimated Soil/Fill Removal Quantities

The total quantity of soil/fill expected to be excavated (derived from construction of support column footings and elevator vault) and disposed off-Site is 250 cubic yards or 375 tons (based on a specific weight of 1.5 tons per cubic yard). The proposed disposal locations for Site-derived impacted materials will be communicated to NYCOER when they are identified and prior to the start of the remedial action.

Disposal Facility	Waste Type	Estimated Quantities
Facility to be determined	Mixture of historic fill and native soils	375 tons

End-Point Sampling

Soil excavation for the sole purpose of remedial cleanup, and end-point sampling is not anticipated as part of this project. Soil excavation will be conducted at locations where redevel-

opment dictates. The soil which remains in place after redevelopment excavation will be covered by the building floor slab or by 1.5 to 3.5-foot thick column footings. The deeper soil samples collected and analyzed as part of the Site's Remedial Investigation will serve to document the typical conditions for soil which will remain after redevelopment.

If contamination which requires remediation is encountered, hotspot removal may need to be conducted and the following end point sampling procedure will be followed:

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

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

New York State Department of Health ELAP certified labs will be used for all end-point sample analyses. Labs for end-point sample analyses will be reported in the RCR. The RCR will

provide a tabular and map summary of all end-point sample results. End-point samples will be analyzed for trigger analytes (those for which SCO exceedance is identified) utilizing the following methodology:

Soil analytical methods for Full List will include:

- Volatile organic compounds by EPA Method 8260;
- Semivolatile organic compounds by EPA Method 8270;
- Pesticides/PCBs by EPA Method 8081/8082; and
- Target Analyte List metals.

If either Light Non-Aqueous Phase Liquid (LNAPL) and/or Dense Non-Aqueous Phase Liquid (DNAPL) are detected, appropriate samples will be collected for characterization and "finger print analysis" and required regulatory reporting (i.e., spills hotline) will be implemented.

Import and Reuse of Soils

Any import of soils onto the property or reuse of soils already onsite will be done in conformance with the SMMP in Appendix I. At this time, import and reuse of soils is not anticipated. If these plans change, based on architectural or engineering requirements, the plans to import or reuse materials will be communicated to the NYCOER. No onsite soil/fill will be reused at the Site without prior sampling, analyses and approval by NYCOER.

2.4 Engineering Controls

Engineering Controls were employed in the remedial action to address residual contamination remaining at the Site. The Site has one primary Engineering Control (EC) System. This is:

- A composite cover system consisting of a concrete building floor slab, concrete column footings and concrete elevator vault.

Engineered Composite Cover System

The purpose of the engineered composite cover system is to prevent direct contact with Site soils. The entire Site will be covered by the existing concrete building slab (Figure 6). In

the case of this RAP, the composite cover is the existing structures of the property as they exist today. Little modification of the existing floor slab is planned as part of redevelopment and will be limited to excavation at locations where concrete footings for upper-floor support columns and an elevator vault are to the constructed. Based on the Remedial Investigation (RI), the existing floor slab varies in thickness from approximately 3 inches to 16 inches. The excavation locations will be occupied by new floor slab, support columns or an elevator vault/shaft. The new floor slab will be equal to or greater in thickness compared to the surrounding existing floor. The existing floor slab, with redevelopment, will meet the goal of the composite cover as stated above (to prevent contact with Site soils). The composite cover system is a permanent EC for the Site.

The RI results indicated that none of the VOCs detected in the indoor air sample exceeded NYSDOH Guidance Values. Also, use of the NYSDOH Decision Matrices resulted in a recommended action of “No Further Action”. Therefore, vapor intrusion mitigation measures (vapor barrier, etc.) are not elements of this RAP.

3.0 REMEDIAL ACTION MANAGEMENT

3.1 Project Organization and Oversight

Principal personnel who will participate in the remedial action include LBG Engineering Services, P.C. (LBGES) hydrogeologists, Michael De Felice, Michael Reiff and Brian Hawe. The PE and QEP for this project are LBGES President William Beckman and Associate Paul Woodell, respectively.

3.2 Site Security

Site access will be managed by the general construction contractor.

3.3 Work Hours

The hours for operation of remedial construction will be from 8:00 a.m. to 4:00 p.m. These hours conform to the New York City Department of Buildings (NYCDOB) construction code requirements.

3.4 Construction Health and Safety Plan

The site-specific CHASP is included in Appendix II. Note that the CHASP is intended to be applicable specifically with regard to LBGES employees and subcontractors of LBGES and specifically during remedial activities (construction soil excavation). This activity will be completed in conjunction with, and possibly at the same time as, the general site construction. Employees and subcontractors of the general construction contractor will be subject to whatever health and safety plan is provided by the general contractor. LBGES will institute the CAMP portion of the CHASP during excavation activities completed as part of general construction.

The site-specific CHASP is included in Appendix II. The Site Safety Coordinator will be Michael Reiff. Remedial work completed under this RAP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and Hazardous Waste Operations Emergency Response (HAZWOPER) requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties conducting the remedial construction work will ensure that the performance of work is in compliance with the CHASP and applicable laws and regula-

tions. The CHASP pertains to remedial and invasive work to be completed at the Site until the issuance of the Notice Of Satisfaction.

All LBGES 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 excavation work zone will be trained in the provisions of the CHASP and be required to sign an CHASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks to be completed. Emergency telephone numbers will be posted at the Site 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; personal protective equipment (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 CHASP. That document will define the specific project contacts for use in case of emergency.

3.5 Community Air Monitoring Plan

During ground-intrusive construction activities inside the building, and during soil loading and transport outside the building, real-time air monitoring for VOCs and particulate levels will be conducted at various locations both inside and outside the building. Monitoring at 30-minute intervals will be conducted during all ground-intrusive activities and during the handling of contaminated or potentially contaminated media. Ground-intrusive activities include, but are not limited to, soil/fill excavation and handling or trenching for structural elements. Continuous monitoring will be conducted during the removal and loading of Site soils. In addition, to ensure worker safety all protective measures outlined in the CHASP will be implemented.

Exceedances of action levels observed during performance of the CAMP will be reported to the NYCOER Project Manager and included in the Daily Report.

VOC Monitoring, Response Levels, and Actions

Ground-intrusive activities are to be completed only on the building interior. Interior volatile organic compounds (VOC concentrations) will be monitored at a minimum of 2 interior locations, one near the work area and the second at a position farthest from the work area. In addition, exterior VOC concentrations will be monitored on the sidewalk between the building and Fulton Street, at three locations (east, west and central). VOC concentrations will be monitored on a 30-minute basis during invasive work. Continuous monitoring at multiple locations inside and outside the building would necessitate multiple equipment stations, adding excessive cost and security issues. There is little concern for VOC emissions based on the RI results. Interior and exterior concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions.

The monitoring work will be conducted 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 30-minute instantaneous concentrations will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the work area or any exterior monitoring locations exceeds 5 ppm (parts per million) above background, 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 work area or exterior monitoring locations 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 outside the building is below 5 ppm over background.
- If the organic vapor level persists above 25 ppm at the exterior monitoring locations, activities will be shutdown.

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

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored at 30-minute intervals at the same interior and exterior locations as described above, with particulate monitoring stations. The particulate monitoring will be conducted 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 will be visually assessed during all work activities.

- If the interior or exterior PM-10 particulate level is 100 mcg/m^3 (micrograms per cubic meter) greater than background (start of workday) for the instantaneous reading, or if airborne dust is observed leaving the building, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that interior PM-10 particulate levels do not exceed 150 mcg/m^3 above background and provided that no visible dust is migrating from the building.
- If, after implementation of dust suppression techniques, interior or exterior PM-10 particulate levels are greater than 150 mcg/m^3 above the background 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 interior PM-10 particulate concentration to within 150 mcg/m^3 of the background level and in preventing visible dust migration.

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

3.6 Agency Approvals

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

3.7 Site Preparation

Pre-Construction Meeting

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

Mobilization

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

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the initiation of invasive work, such as excavation, 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 conducted 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 LBGES, the owner and the contractor prior to the start of excavation or other invasive subsurface operations. Overhead utilities are not present at the Site

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 RAP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity completed under the RAP.

Dewatering

Dewatering will not be necessary at the Site.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. The locations of proposed equipment and material staging areas, stockpile areas, and other pertinent remedial management features will be onsite and inside the building. Truck inspection stations will be along Fulton Street. Specific locations for these areas will be coordinated with the general contractor.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

Truck Inspection Station

Because of limited available area between the building and Fulton Street, the outbound-truck inspection station will be at the location where the truck is loaded. Before departing, trucks 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.

3.8 Traffic Control

Drivers of trucks leaving the 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 determined when the disposal facility is selected. The truck route to the facility will be communicated to NYCOER at that time.

3.9 Demobilization

Demobilization will include:

- 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.

Investigation equipment and large equipment (e.g., soil excavators) will be cleaned of major soil debris and demobilized at the completion of all field activities. In addition, all investigation and remediation derived waste will be appropriately disposed.

3.10 Reporting and Record Keeping

Daily Reports

Daily reports providing a general summary of activities for each day of active remedial work will be e-mailed to the NYCOER 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 completed work;
- quantities of material imported and exported from the Site (if any);
- 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;
- photographs of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with NYCOER Project Manager based on planned project tasks. Daily e-mail reports are not intended to be the primary mode of communication for notification to NYCOER of emergencies (accidents, spills), requests for changes to the RAP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAP will be communicated directly to the NYCOER Project Manager by personal communication. Daily reports will be included as an Appendix in the RCR.

Record Keeping and Photo-Documentation

Job-site records will be kept for all remedial work. These records will be maintained on-Site during the project and will be available for inspection by NYCOER 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 RCR in digital format (i.e., jpeg files).

3.11 Complaint Management

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

3.12 Deviations from the Remedial Action Plan

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

- reasons for deviating from the approved RAP;
- 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.

4.0 REMEDIAL CLOSURE REPORT

A Remedial Closure Report (RCR) will be submitted to NYCOER following implementation of the remedial action defined in this RAP. The RCR will document that the remedial work required under this RAP has been completed and that it was done in compliance with this RAP. The RCR will include:

- information required by this RAP;
- as-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work completed under this remedy;
- Site Management Plan (if applicable);
- description of any changes in the remedial action from the elements provided in this RAP and associated design documents;
- account of the source area locations and characteristics of all soil/fill removed from the Site including a map showing source areas;
- account of the disposal destination of all soil/fill 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 (if any); and
- reports and supporting material will be submitted in digital form.

Remedial Closure Report Certification

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

I, William Beckman, am currently a Professional Engineer (PE) licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for 1413 Fulton Street, E-185, Project Number 14EH-N266K.

I, Paul Woodell, am a Qualified Environmental Professional (QEP). I had primary direct responsibility for implementation of the remedial program for 1413 Fulton Street, E-185, Project Number 14EH-N266K.

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

5.0 SCHEDULE

The remedial action will be completed after the start of general site construction activities (clearing the tenant space, etc.). The remedial schedule is dependent upon the construction schedule which has not yet been established and is not under LBGES control. As such, determining the total duration of the project from remedial action start-up is not possible. The table below presents the duration for the proposed remedial action tasks and reporting. Because the site construction/development schedule is not known, and some of those tasks may be intermingled with the remedial action tasks shown in the table, the duration of remedial action is not likely to be the sum of the individual task durations. When the schedule for construction/development becomes known, or if the schedule for remediation and development activities changes, it will be updated and submitted to NYCOER.

Schedule Milestone	Weeks from Remedial Action Start	Task Duration (weeks)
OER Approval of RAP	0	-
Mobilization		1
Construction Excavation (footings, etc.)		2
Floor slab restoration		1
Demobilization		0.5
Prepare/Submit Remedial Closure Report		6

TABLES

TABLE 1

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Summary of Environmental Samples
(Sample Dates February 1 and 8, 2014)

Sample ID	Sample Depth (ft below interior floor)	Matrix	Soil/Fill Appearance, Odor, PID Response	Sample Collection Flow Rate	Beginning/Ending Suma Vacuum	Location within Building	Analyses Completed				
							VOCs by EPA 8260B	VOCs by EPA TO-15	SVOCs by EPA 8270	TAL Metals by EPA 6010B, 7041, 7470A, 7740, 7841	PCBs and Pesticides by EPA 8081A, 8082
B-5	0.5 to 2.5	Native Soil	brown fine sand, none, 0.0ppm	---	---	West Central	X		X	X	X
	7 to 9	Native Soil	brown silt, none, 0.0ppm	---	---		X		X	X	X
B-6	0.5 to 2.5	Soil/Fill	brown/black fill, none, 0.0ppm	---	---	West Central	X		X	X	X
	6 to 8	Native Soil	brown fine sand, none, 0.0ppm	---	---		X		X	X	X
B-7	1 to 3	Soil/Fill	brown/black fill, none, 0.0ppm	---	---	Central	X		X	X	X
	7 to 9	Soil/Fill	brown/black fill, none, 0.0ppm	---	---		X		X	X	X
B-8	2 to 3	Soil/Fill	brown/black fill, none, 0.0ppm	---	---	East Central	X		X	X	X
	6.5 to 8.5	Native Soil	brown silt/clay, none, 0.0ppm	---	---		X		X	X	X
B-9	2 to 4	Soil/Fill	brown fill, none, 0.0ppm	---	---	East	X		X	X	X
	6 to 8	Native Soil	brown fine sand/clay, none, 0.0ppm	---	---		X		X	X	X
B-10	2 to 4	Soil/Fill	brown fill, none, 0.0ppm	---	---	South	X		X	X	X
	7 to 8	Native Soil	brown silt, none, 0.0ppm	---	---		X		X	X	X
IA-1	NA	Indoor Air	---	<0.2 liters per minute, 8 hour duration	30"Hg/11"Hg	North Central		X			
AA-1	NA	Ambient (outdoor) Air	---	<0.2 liters per minute, 8 hour duration	30"Hg/8"Hg	Southwest Exterior		X			
SS-3	just below floor slab	Soil Vapor	---	<0.2 liters per minute, 8 hour duration	25"Hg/5"Hg	West		X			
SS-4	just below floor slab	Soil Vapor	---	<0.2 liters per minute, 8 hour duration	30"Hg/14"Hg	Southeast		X			
SS-5	just below floor slab	Soil Vapor	---	<0.2 liters per minute, 8 hour duration	30"Hg/13"Hg	East		X			

VOCs Volatile Organic Compounds
SVOCs Semi-Volatile Organic Compounds
PCBs Polychlorinated Biphenyls
TAL Target Analyte List
EPA Environmental Protection Agency

TABLE 2

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Volatile Organic Compounds (VOCs) in Sub-Slab Vapor, Indoor Air and Ambient Air Samples, EPA Method TO-15
Sampled February 1, 2014

Compound	Sample Identification					NYSDOH Air Guideline Values, Applied to indoor air concentrations [1]
	SS-3 (sub-slab vapor)	SS-4 (sub-slab vapor)	SS-5 (sub-slab vapor)	IA-1 (indoor air)	AA-1 (ambient [outdoor] air)	
1,1,1-Trichloroethane	1.1	<0.55	2.8	<0.55	<0.55	
1,1,2,2-Tetrachloroethane	<0.70	<0.70	<0.70	<0.70	<0.70	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.78	<0.78	<0.78	<0.78	<0.78	
1,1,2-Trichloroethane	<0.55	<0.55	<0.55	<0.55	<0.55	
1,1-Dichloroethane	<0.41	<0.41	<0.41	<0.41	<0.41	
1,1-Dichloroethylene	<0.40	<0.40	<0.40	<0.40	<0.40	
1,2,4-Trichlorobenzene	<0.75	<0.75	<0.75	<0.75	<0.75	
1,2,4-Trimethylbenzene	0.55	2.7	3.8	0.80	1.8	
1,2-Dibromoethane	<0.78	<0.78	<0.78	<0.78	<0.78	
1,2-Dichlorobenzene	<0.61	<0.61	<0.61	<0.61	<0.61	
1,2-Dichloroethane	<0.41	<0.41	<0.41	<0.41	<0.41	
1,2-Dichloropropane	<0.47	<0.47	<0.47	<0.47	<0.47	
1,2-Dichlorotetrafluoroethane	<0.71	3.7	<0.71	<0.71	<0.71	
1,3,5-Trimethylbenzene	<0.50	0.75	1.6	<0.50	0.50	
1,3-Butadiene	3.0	<0.44	0.53	0.49	0.66	
1,3-Dichlorobenzene	<0.61	<0.61	<0.61	<0.61	<0.61	
1,4-Dichlorobenzene	<0.61	<0.61	<0.61	<0.61	<0.61	
1,4-Dioxane	<0.37	<0.37	<0.37	<0.37	<0.37	
2-Butanone	3.5	0.54	33	1.4	3.1	
2-Hexanone	<0.83	<0.83	<0.83	<0.83	<0.83	
4-Methyl-2-pentanone	2.3	<0.42	200	0.75	<0.42	
Acetone	27 B	5.6 B	220 B	11 B	33 B	
Benzene	3.1	0.55	6.0	2.0	2.3	
Benzyl chloride	<0.53	<0.53	<0.53	<0.53	<0.53	
Bromodichloromethane	<0.63	<0.63	<0.63	<0.63	<0.63	
Bromoform	<1.1	<1.1	<1.1	<1.1	<1.1	
Bromomethane	<0.39	<0.39	<0.39	<0.39	<0.39	
Carbon disulfide	2.7	<0.32	9.6	<0.32	<0.32	
Carbon tetrachloride	<0.32	<0.32	<0.32	<0.32	<0.32	
Chlorobenzene	<0.47	<0.47	<0.47	<0.47	<0.47	
Chloroethane	<0.27	<0.27	<0.27	<0.27	<0.27	
Chloroform	0.60	130	3.0	<0.50	<0.50	
Chloromethane	1.1	0.21	0.40	1.3	1.2	
cis-1,2-Dichloroethylene	<0.40	<0.40	<0.40	<0.40	<0.40	
cis-1,3-Dichloropropylene	<0.46	<0.46	<0.46	<0.46	<0.46	
Cyclohexane	2.9	<0.35	1.1	0.39	0.53	
Dibromochloromethane	<0.82	<0.82	<0.82	<0.82	<0.82	
Dichlorodifluoromethane	3.4	2.8	2.8	2.6	2.7	
Ethyl acetate	<0.37	3.8	<0.37	<0.37	6.0	
Ethyl Benzene	1.1	2.4	4.2	0.57	1.9	
Hexachlorobutadiene	<1.1	<1.1	<1.1	<1.1	<1.1	
Isopropanol	45	0.50	5.6	26	1.2	
Methyl Methacrylate	<0.42	<0.42	<0.42	<0.42	<0.42	
Methyl tert-butyl ether (MTBE)	<0.37	<0.37	0.66	<0.37	<0.37	
Methylene chloride	4.6 B	5.1 B	2.1 B	2.0 B	1.8 B	60
n-Heptane	1.9	1.0	1.5	0.83	1.7	
n-Hexane	3.7	2.4	1.6	1.6	2.1	
o-Xylene	1.1	3.4	5.3	0.66	2.4	
p- & m- Xylenes	3.8	11	12	1.8	7.6	
p-Bromofluorobenzene	9.92	9.73	9.95	9.26	9.97	
p-Ethyltoluene	0.70	2.5	3.8	0.70	1.6	
Propylene	<0.18	<0.18	<0.18	<0.18	<0.18	
Styrene	<0.43	<0.43	<0.43	<0.43	<0.43	
Tetrachloroethylene	3.8	2.3	3.1	<0.69	<0.69	100
Tetrahydrofuran	<0.30	<0.30	0.66	<0.30	<0.30	
Toluene	5.2	5.5	12	3.5	5.6	
trans-1,2-Dichloroethylene	<0.40	<0.40	<0.40	<0.40	<0.40	
trans-1,3-Dichloropropylene	<0.46	<0.46	<0.46	<0.46	<0.46	
Trichloroethylene	0.71	0.71	9.7	<0.27	<0.27	5
Trichlorofluoromethane (Freon 11)	1.9	1.9	1.6	1.5	1.5	
Vinyl acetate	<0.36	<0.36	<0.36	<0.36	<0.36	
Vinyl Chloride	<0.26	<0.26	<0.26	<0.26	<0.26	

All concentrations are in micrograms per cubic meter (ug/m3)
1) New York State Department of Health *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* **, October 2006**
Note: New York State does not regulate contaminant levels in soil vapor or sub-slab vapor.
B - Analyte found in the associated batch blank. Methylene chloride and acetone are common laboratory artifacts

TABLE 3

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Sub-Slab Vapor and Indoor Air Analysis Results
Evaluated Using the NYSDOH Decision Matrices 1 & 2, "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", October 2006
Sampled February 1, 2014

NYSDOH Decision Matrix	Volatile Organic Compound Appearing in NYSDOH Decision Matrices 1 & 2	Sub-Slab Vapor	Indoor Air
		Maximum concentration for particular compound in 3 Sub-Slab Vapor Samples	Concentration for particular compound in Indoor Air Sample
Matrix 1	Carbon Tetrachloride	< 0.32	< 0.32
		Matrix 1 Conclusion: NO FURTHER ACTION	
	Trichloroethene	9.7	< 0.27
		Matrix 1 Conclusion: NO FURTHER ACTION	
	Vinyl Chloride	< 0.26	< 0.26
		Matrix 1 Conclusion: NO FURTHER ACTION	
Matrix 2	Tetrachloroethene	3.8	< 0.69
		Matrix 2 Conclusion: NO FURTHER ACTION	
	1,1,1-Trichloroethane	2.8	< 0.55
		Matrix 2 Conclusion: NO FURTHER ACTION	
	1,1-Dichloroethene	< 0.40	< 0.40
		Matrix 2 Conclusion: NO FURTHER ACTION	
	cis-1,2-Dichloroethene	< 0.40	< 0.40
		Matrix 2 Conclusion: NO FURTHER ACTION	

1 - Sub-slab vapor and indoor air sample concentrations expressed in micrograms per cubic meter (ug/m^3)

TABLE 4

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Volatile Organic Compounds (VOCs) in Soil Samples, EPA Method 8260
Sample Date February 8, 2014

Compound	Sample Identification												Part 375 Unrestricted Use and CP-51 SCOs [2]	Part 375 Restricted Residential SCOs [3]	Part 375 Commercial SCOs [3]
	B-5		B-6		B-7		B-8		B-9		B-10				
	0.5 to 2.5 [1]	7 to 9	0.5 to 2.5	6 to 8	1 to 3	7 to 9	2 to 3	6.5 to 8.5	2 to 4	6 to 8	2 to 4	7 to 8			
	Native Soil	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Soil/Fill	Soil/Fill	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Native Soil			
1,1,1,2-Tetrachloroethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,1,1-Trichloroethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	680	100,000	500,000
1,1,2,2-Tetrachloroethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	35000	NL	NL
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,1,2-Trichloroethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,1-Dichloroethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	270	26,000	240,000
1,1-Dichloroethylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	330	100,000	500,000
1,1-Dichloropropylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,2,3-Trichlorobenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,2,3-Trichloropropane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,2,4-Trichlorobenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,2,4-Trimethylbenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	3,600	52,000	190,000
1,2-Dibromo-3-chloropropane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,2-Dibromoethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,2-Dichlorobenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	1,100	NL	500,000
1,2-Dichloroethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	20 3)	NL	30,000
1,2-Dichloropropane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,3,5-Trimethylbenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	8,400	52,000	190,000
1,3-Dichlorobenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	2,400	49,000	280,000
1,3-Dichloropropane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
1,4-Dichlorobenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	1,800	13,000	130,000
1,4-Dioxane	<50	<48	<50	<55	<55	<71	<45	<46	<57	<45	<44	<45	100	13,000	130,000
2,2-Dichloropropane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
2-Butanone	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	120	100,000	500,000
2-Chlorotoluene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
4-Chlorotoluene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Acetone	6.5 J	<2.4	8.8 J	8.8 J	8.2 J	14 J	8.2 J	<2.3	7.8 E,B,J	14 E,B	<2.2	6.9 J	50	100,000	500,000
Benzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	60	4,800	44,000
Bromobenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Bromochloromethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Bromodichloromethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Bromoform	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Bromomethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Carbon tetrachloride	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	760	2,400	22,000
Chlorobenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	1,100	100,000	500,000
Chloroethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Chloroform	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	370	49,000	350,000
Chloromethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
cis-1,2-Dichloroethylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	250	100,000	500,000
cis-1,3-Dichloropropylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Dibromochloromethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Dibromomethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Dichlorodifluoromethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Ethyl Benzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	1,000	41,000	390,000
Hexachlorobutadiene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Isopropylbenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	2300	NL	NL
Methyl tert-butyl ether (MTBE)	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	930	100,000	500,000
Methylene chloride	<2.5	4.3 J,B	3.6 J,B	3.3 J,B	2.9 J,B	3.8 J,B	2.9 J,B	4.6 J,B	<2.8	<2.3	5.1 B,J	2.5 J,B	50	100,000	500,000
Naphthalene	<2.5	<2.4	<2.5	<2.7	<2.7	10 J,B	<2.3	<2.3	34	24	<2.2	<2.3	12000	NL	NL
n-Butylbenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	12,000	NL	500,000
n-Propylbenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	3,900	100,000	500,000
o-Xylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	2.9 J	<2.3	<2.8	<2.3	<2.2	<2.3	260 (mixed)	NL	500,000 (mixed)
p- & m- Xylenes	<5.0	<4.8	5.1 J	<5.5	<5.5	7.5 J	11	<4.6	<5.7	<4.5	<4.4	<4.5	260 (mixed)	NL	500,000 (mixed)
p-Isopropyltoluene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
sec-Butylbenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	11,000	100,000	500,000
Styrene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
tert-Butylbenzene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	5,900	100,000	500,000
Tetrachloroethylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	1,300	3,500	150,000
Toluene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	700	100,000	500,000
trans-1,2-Dichloroethylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	190	100,000	500,000
trans-1,3-Dichloropropylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Trichloroethylene	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	470	21,000	200,000
Trichlorofluoromethane	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL
Vinyl Chloride	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	20	900	13000
Xylenes, Total	<7.5	<7.2	<7.5	<8.2	<8.2	<11	14	<6.8	<8.5	<6.8	<6.6	<6.8	260 (mixed)	100,000 (mixed)	500,000 (mixed)
Vinyl acetate	<2.5	<2.4	<2.5	<2.7	<2.7	<3.5	<2.3	<2.3	<2.8	<2.3	<2.2	<2.3	NL	NL	NL

All concentrations are in micrograms per kilogram (ug/kg)

1) Sample depth, feet below floor grade

2) New York State Codes, Rules and Regulations, Chapter IV, Part 375, Subpart 375-6, Table 375-6.8(a)
Remedial Program Soil Cleanup Objectives, Unrestricted Use, December 14, 2006
and CP-51 Soil Cleanup Guidance, Supplemental Soil Cleanup Objectives, Table 1, October 21, 2010

3) Part 375 Restricted Residential and Commercial Use SCOs, Table 375-6.8(b)

< Not detected at a concentration equal to or greater than the Method Detection Limit (MDL)

J - Detected below the Reporting Limit but greater than or equal to the Method Detection Limit

B - Analyte found in the associated analysis batch blank. Methylene chloride and acetone are common laboratory contaminants

E - The reported value is estimated due to its behavior during continuing calibration verification

TABLE 5

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Semi-volatile Organic Compounds (SVOCs) in Soil Samples, EPA Method 8270

Compound	Sample Identification												Part 375 Unrestricted Use and CP-51 SCOs [2]	Part 375 Restricted Residential SCOs [3]	Part 375 Commercial SCOs [3]
	B-5		B-6		B-7		B-8		B-9		B-10				
	0.5 to 2.5 [1]	7 to 9	0.5 to 2.5	6 to 8	1 to 3	7 to 9	2 to 3	6.5 to 8.5	2 to 4	6 to 8	2 to 4	7 to 8			
	Native Soil	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Soil/Fill	Soil/Fill	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Native Soil			
Acenaphthene	<67.8	<75.1	<70.0	<78.7	20,900	38,400	4,720	<75.2	10,400	<74.8	113	<76.4	20,000	100,000	500,000
Acenaphthylene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	100,000	100,000	500,000
Aniline	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	48,000	100,000	500,000
Anthracene	<67.8	<75.1	<70.0	<78.7	40,200	78,300	7,440	<75.2	23,600	<74.8	253	<76.4	100,000	100,000	500,000
Benzo(a)anthracene	84	<75.1	<70.0	<78.7	83,300	121,000	13,000	<75.2	30,600	<74.8	358	<76.4	1,000	1,300	5,600
Benzo(a)pyrene	69	<75.1	<70.0	<78.7	20,400	107,000	13,100	<75.2	25,600	<74.8	342	<76.4	1,000	1,000	1,000
Benzo(b)fluoranthene	<67.8	<75.1	<70.0	<78.7	85,200	102,000	10,100	<75.2	22,500	<74.8	218	<76.4	1,000	1,300	5,600
Benzo(g,h,i)perylene	<136	<150	<140	<157	39,000	49,000	<3480	<150	<14200	<150	<141	<153	100,000	100,000	500,000
Benzo(k)fluoranthene	74	<75.1	<70.0	<78.7	71,100	78,300	13,300	<75.2	23,800	<74.8	314	<76.4	800	13,000	56,000
Benzyl alcohol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
Benzyl butyl phthalate	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
4,6-Dinitro-2-methylphenol	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
4-Bromophenyl phenyl ether	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
4-Chloro-3-methylphenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
Bis(2-chloroethoxy)methane	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Bis(2-chloroethyl)ether	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Bis(2-chloroisopropyl)ether	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2-Chloronaphthalene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2-Chlorophenol	<67.8	<75.1	<70.0	<78.7	<7080	29,500	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
4-Chlorophenyl phenyl ether	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Chrysene	75	<75.1	<70.0	<78.7	86,700	132,000	13,700	<75.2	49,100	98	590	<76.4	1,000	13,000	56,000
Dibenzo(a,h)anthracene	<67.8	<75.1	<70.0	<78.7	<7080	32,800	<1740	<75.2	<7110	<74.8	<70.3	<76.4	330	330	560
Dibenzofuran	<67.8	<75.1	<70.0	<78.7	11,400	<6980	3,220	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Di-n-butyl phthalate	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
1,3-Dichlorobenzene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
1,4-Dichlorobenzene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
1,2-Dichlorobenzene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
3,3'-Dichlorobenzidine	<269	<299	<278	<313	<28200	<27700	<6920	<299	<28300	<297	<280	<304	NL	NL	NL
2,4-Dichlorophenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
Diethyl phthalate	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2,4-Dimethylphenol	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Dimethyl phthalate	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
4,6-Dinitro-2-methylphenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
2,4-Dinitrophenol	<269	<299	<278	<313	<28200	<27700	<6920	<299	<28300	<297	<280	<304	NL	NL	NL
2,4-Dinitrotoluene	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
2,6-Dinitrotoluene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Di-n-octyl phthalate	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Bis(2-ethylhexyl)phthalate	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Fluoranthene	233	126	244	86	182,000	252,000	29,400	<75.2	121,000	189	1,400	<76.4	100,000	100,000	500,000
Fluorene	<67.8	<75.1	<70.0	<78.7	19,000	66,200	4,980	<75.2	7,450	<74.8	85	<76.4	30,000	100,000	500,000
Hexachlorobenzene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Hexachlorobutadiene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Hexachlorocyclopentadiene	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
Hexachloroethane	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Indeno(1,2,3-cd)pyrene	<67.8	<75.1	<70.0	<78.7	42,600	54,600	2,620	<75.2	<7110	<74.8	80	<76.4	500	1,300	5,600
Isophorone	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2-Methylnaphthalene	<67.8	<75.1	<70.0	<78.7	<7080	46,300	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2-Methylphenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
4-Methylphenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
Naphthalene	<67.8	<75.1	<70.0	<78.7	10,000	69,700	3,910	<75.2	11,300	<74.8	136	<76.4	12,000	100,000	500,000
3-Nitroaniline	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
2-Nitroaniline	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2-Nitrophenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
4-Nitroaniline	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Nitrobenzene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
4-Nitrophenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
N-nitrosodi-n-propylamine	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
N-Nitrosodimethylamine	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	NL	NL	NL
N-Nitrosodiphenylamine	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
Pentachlorophenol	<136	<150	<140	<157	<14200	<14000	<3480	<150	<14200	<150	<141	<153	800	6,700	6,700
Phenanthrene	171	201	294	149	139,000	244,000	29,200	<75.2	124,000	229	1,580	<76.4	100,000	100,000	500,000
Phenol	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	330	100,000	500,000
Pyrene	112	110	89	<78.7	114,000	177,000	24,800	<75.2	101,000	162	1,190	<76.4	100,000	100,000	500,000
Pyridine	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
1,2,4-Trichlorobenzene	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2,4,6-Trichlorophenol	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL
2,4,5-Trichlorophenol	<67.8	<75.1	<70.0	<78.7	<7080	<6980	<1740	<75.2	<7110	<74.8	<70.3	<76.4	NL	NL	NL

All concentrations are in micrograms per kilogram (ug/kg)
1) Sample depth, feet below floor grade
2) New York State Codes, Rules and Regulations, Chapter IV, Part 375, Subpart 375-6, Table 375-6.8(a)
Remedial Program Soil Cleanup Objectives, Unrestricted Use, December 14, 2006
and CP-51 Soil Cleanup Guidance, Supplemental Soil Cleanup Objectives, Table 1, October 21, 2010
3) Part 375 Restricted Residential and Commercial Use SCOs, Table 375-6.8(b)
Yellow fill = exceeds Unrestricted Use SCOs
Blue fill = exceeds Commercial SCOs
< Not detected at a concentration equal to to greater than the Method Detection Limit (MDL)

TABLE 6

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Target Analyte List (TAL) Metals in Soil Samples, EPA Methods 6010B, 7041, 7470A, 7740, 7841
Sample Date February 8, 2014

Compound	Sample Identification												Part 375 Unrestricted Use and CP-51 SCOs [2]	Part 375 Restricted Residential SCOs [3]	Part 375 Commercial SCOs [3]
	B-5		B-6		B-7		B-8		B-9		B-10				
	0.5 to 2.5 [1]	7 to 9	0.5 to 2.5	6 to 8	1 to 3	7 to 9	2 to 3	6.5 to 8.5	2 to 4	6 to 8	2 to 4	7 to 8			
	Native Soil	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Soil/Fill	Soil/Fill	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Native Soil			
Aluminum	7,100	12,000	12,100	14,000	6,270	6,030	8,900	5,660	6,480	11,500	9,780	12,600	NL	NL	NL
Antimony	<0.538	<0.596	<0.555	<0.624	3.2	0.835	<0.552	<0.596	2.39	<0.593	<0.558	<0.606	NL	NL	NL
Arsenic	2.85	5.97	5.09	4.84	25.5	8.86	4.56	3.67	13.3	4.59	4.86	4.88	13	16	16
Barium	29.5	65.1	42.6	64.2	318	586	41.3	20.8	492	59.7	56.5	71.7	350	400	400
Beryllium	<0.108	<0.119	<0.111	<0.125	<0.112	<0.111	<0.110	<0.119	<0.113	<0.119	<0.112	<0.121	7.2	72	590
Cadmium	<0.323	<0.358	<0.333	<0.375	1.43	0.931	<0.331	<0.358	1.13	<0.356	<0.335	<0.364	2.5	4.3	9.3
Calcium	1,090	1,080	587	1,210	19,200	22,900	1,100	516	15,700	511	2,400	1,370	NL	NL	NL
Chromium [4] (total)	12.4	21.5	19.5	31.8	24.8	21.8	16.3	18.6	17.8	20.7	13.4	22.1	30 trivalent, 1.0 hexavalent	180 trivalent, 110 hexavalent	1,500 trivalent, 400 hexavalent
Cobalt	5.53	11.8	8.81	13	7.26	5.15	7.2	6.24	5.69	10.5	9.41	8.03	NL	NL	NL
Copper	11.3	20.8	12.3	27.8	220	67.2	12.9	12	94.3	22.1	34	18.9	50	270	270
Iron	14,400	25,300	20,800	29,100	25,600	14,900	17,000	20,500	19,200	22,200	18,500	20,800	NL	NL	NL
Lead	15.3	8.77	6.78	10.5	578	641	21.8	4.7	1,340	11.4	53.6	87.3	63	400	1,000
Magnesium	1,420	3,410	1,990	4,560	2,810	2,680	2,910	1,640	2,420	3,030	1,690	2,970	NL	NL	NL
Manganese	215	434	220	371	295	260	137	319	266	157	570	393	1,600	2,000	10,000
Nickel	8.44	17.1	11.4	19.6	21.4	14.4	25	10.5	15	16	9.68	15	30	310	310
Potassium	586	1,700	774	2,240	1,020	910	609	576	880	1,460	734	1,350	NL	NL	NL
Selenium	1.85	3.24	2.14	3.36	5.05	2.47	2.32	2.81	2.62	2.71	2.62	2.41	3.9	180	1,500
Silver	<0.538	<0.596	<0.555	<0.624	<0.562	<0.554	<0.552	<0.596	<0.564	<0.593	<0.558	<0.606	2	180	1,500
Sodium	41.3	<11.9	<11.1	13.8	367	265	<11.0	<11.9	222	<11.9	146	100	NL	NL	NL
Thallium	<1.08	<1.19	<1.11	<1.25	<1.12	<1.11	<1.10	<1.19	<1.13	<1.19	<1.12	<1.21	NL	NL	NL
Vanadium	19.7	34	28.9	47.8	25.9	20.2	20.2	24.1	24.1	32.7	29.6	30.9	NL	NL	NL
Zinc	25.2	51.7	37.7	67.3	441	364	35.3	30	587	139	45.7	52.7	109	10,000	10,000
Mercury	0.0895	<0.0358	0.0908	<0.0375	2.04	1.42	0.0623	<0.0358	0.882	0.102	0.252	0.0511	0.18	0.81	2.8

All concentrations are in milligrams per kilogram (mg/kg)

1) Sample depth, feet below floor grade

2) New York State Codes, Rules and Regulations, Chapter IV, Part 375, Subpart 375-6, Table 375-6.8(a)
Remedial Program Soil Cleanup Objectives, Unrestricted Use, December 14, 2006
and CP-51 Soil Cleanup Guidance, Supplemental Soil Cleanup Objectives, Table 1, October 21, 2010

3) Part 375 Restricted Residential and Commercial Use SCOs, Table 375-6.8(b)

4) The SCO for chromium is considered to be met if the analysis for the total spceies is below the specific SCO. Analysis results are compared to Cr(III) SCOs.

Yellow fill = exceeds Unrestricted Use SCOs

Blue fill = exceeds Commercial SCOs

< Not detected at a concentration equal to to greater than the Method Detection Limit (MDL)

TABLE 7

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Polychlorinated Biphenols (PCBs) and Pesticides in Soil Samples, EPA Methods 8081/8082
Sample Date February 8, 2014

Compound	Sample Identification												Part 375 Unrestricted Use and CP-51 SCOs [2]	Part 375 Restricted Residential SCOs [3]	Part 375 Commercial SCOs [3]
	B-5		B-6		B-7		B-8		B-9		B-10				
	0.5 to 2.5 [1]	7 to 9	0.5 to 2.5	6 to 8	1 to 3	7 to 9	2 to 3	6.5 to 8.5	2 to 4	6 to 8	2 to 4	7 to 8			
	Native Soil	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Soil/Fill	Soil/Fill	Native Soil	Soil/Fill	Native Soil	Soil/Fill	Native Soil			
Toxaphene	<89.8	<99.6	<92.8	<104	<18.8	<92.5	<92.2	<99.6	<94.3	<99.1	<93.2	<101	NL	NL	NL
Methoxychlor	<8.87	<9.84	<9.16	<10.3	<9.28	<9.14	<9.11	<9.84	<9.31	<9.79	<9.21	<10.0	100,000*	NL	NL
Heptachlor epoxide	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	77*	NL	NL
Heptachlor	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	42	2,100	15,000
gamma-BHC (Lindane)	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	100	1,300	9,200
Endrin ketone	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	NL	NL	NL
Endrin aldehyde	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	NL	NL	NL
Endrin	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	14	11,000	89,000
Endosulfan sulfate	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	2,400	24,000	200,000
Endosulfan II	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	2,400	24,000	200,000
Endosulfan I	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	2,400	24,000	200,000
Dieldrin	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	5	200	1,400
delta-BHC	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	40	100,000	500,000
Chlordane, total	<7.10	<7.87	<7.33	<8.24	<7.42	<7.31	<7.29	<7.87	<7.45	<7.83	<7.37	<8.00	94 (alpha)	4,200	24,000 (alpha)
beta-BHC	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	36	360	3,000
alpha-BHC	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	20	480	3,400
Aldrin	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	5	97	680
4,4'-DDT	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	3.3	7,900	47,000
4,4'-DDE	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	3.3	8,900	62,000
4,4'-DDD	<1.77	<1.97	<1.83	<2.06	<1.86	<1.83	<1.82	<1.97	<1.86	<1.96	<1.84	<2.00	3.3	13,000	92,000
Aroclor 1260	<18.3	<20.3	<18.9	<21.2	<19.1	<18.8	<18.8	<20.3	<19.2	<20.2	<19.0	<20.6	100 (total PCBs)	1,000 (total PCBs)	1,000 (total PCBs)
Aroclor 1254	<18.3	<20.3	<18.9	<21.2	<19.1	<18.8	<18.8	<20.3	<19.2	<20.2	<19.0	<20.6			
Aroclor 1248	<18.3	<20.3	<18.9	<21.2	<19.1	<18.8	<18.8	<20.3	<19.2	<20.2	<19.0	<20.6			
Aroclor 1242	<18.3	<20.3	<18.9	<21.2	<19.1	<18.8	<18.8	<20.3	<19.2	<20.2	<19.0	<20.6			
Aroclor 1232	<18.3	<20.3	<18.9	<21.2	<19.1	<18.8	<18.8	<20.3	<19.2	<20.2	<19.0	<20.6			
Aroclor 1221	<18.3	<20.3	<18.9	<21.2	<19.1	<18.8	<18.8	<20.3	<19.2	<20.2	<19.0	<20.6			
Aroclor 1016	<18.3	<20.3	<18.9	<21.2	<19.1	<18.8	<18.8	<20.3	<19.2	<20.2	<19.0	<20.6			
Total PCBs	<7.31	<8.11	<7.55	<8.49	<7.65	<7.53	<7.51	<8.11	<7.68	<8.07	<7.59	<8.25			

All concentrations are in micrograms per kilogram (ug/kg)
1) Sample depth, feet below floor grade
2) New York State Codes, Rules and Regulations, Chapter IV, Part 375, Subpart 375-6, Table 375-6.8(a)
Remedial Program Soil Cleanup Objectives, Unrestricted Use, December 14, 2006
and CP-51 Soil Cleanup Guidance, Supplemental Soil Cleanup Objectives, Table 1, October 21, 2010
3) Part 375 Restricted Residential and Commercial Use SCOs, Table 375-6.8(b)
< Not detected at a concentration equal to to greater than the Method Detection Limit (MDL)
*** Residential SCO on Table 1, Supplemental SCOs, CP-51**

TABLE 8

REMEDIAL ACTION PLAN
REMEDIAL INVESTIGATION REPORT SUMMARY
1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N262K

Summary of Sub-Slab Vapor, Air and Soil Samples
Exceeding Standards or Guidance Values

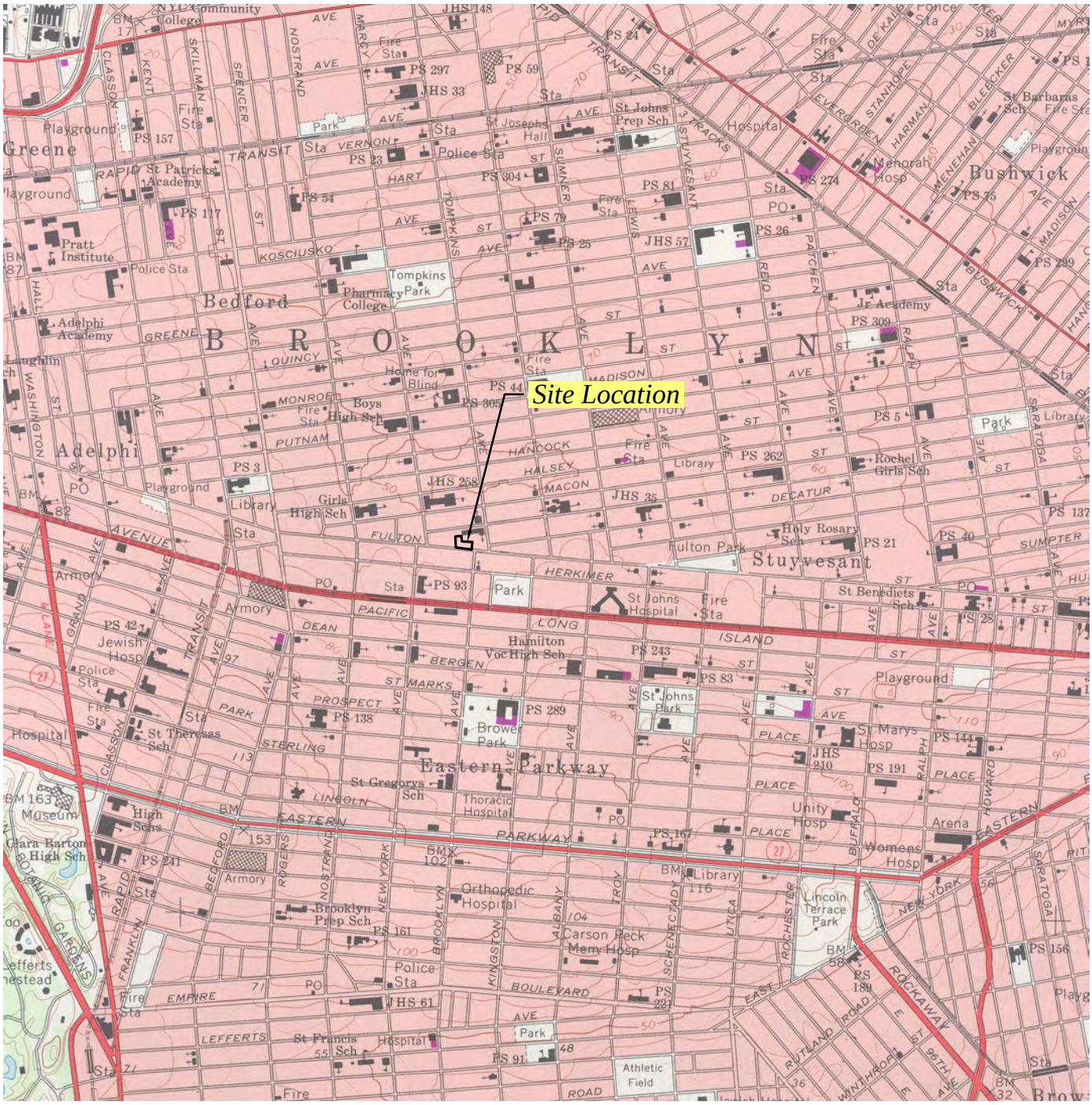
INDOOR AIR SAMPLE	
Sample Parameter	**Number of Samples Containing Constituents at Concentrations Above NYSDOH Air Guideline Values**
Volatile Organic Compounds	0 of 1

SOIL VAPOR SAMPLES	
Sample Parameter	**New York State does not regulate contaminants in soil or sub-slab vapor**
Volatile Organic Compounds	---

INDOOR AIR/SOIL VAPOR EVALUATION	
Sample Parameter	**Recommendation Based on Evaluating Air and Vapor Using the NYSDOH Decision Matirces (1 & 2)**
Volatile Organic Compounds	"No Further Action" for all 7 VOCs listed

SOIL SAMPLES		
Sample Parameters	**Number of Samples Containing Constituents at Concentrations Above Part 375 Unrestricted Use Soil Cleanup Objectives**	**Number of Samples Containing Constituents at Concentrations Above Part 375 Commercial Use Soil Cleanup Objectives**
Volatile Organic Compounds	0 of 12	0 of 12
Semi-Volatile Organic Compounds	4 of 12 from 3 soil borings (B-7, B-8, B-9)	4 of 12 from 3 soil borings (B-7, B-8, B-9)
Target Analyte List Metals	7 of 12 from 4 soil borings (B-6, B-7, B-9, B-10)	3 of 12 from 2 soil borings (B-7, B-9)
PCBs	0 of 12	0 of 12
Pesticides	0 of 12	0 of 12

FIGURES



SOURCE: USGS TOPOGRAPHIC QUADRANGLE BROOKLYN, NEW YORK (PHOTOREVISED 1979)

QUADRANGLE LOCATION

1413 FULTON STREET
BROOKLYN, NEW YORK
BLOCK 1854, LOT 52
NYCOER #14EH-N266K, E-185

SITE LOCATION MAP

DATE	REVISED

PREPARED BY:

LBG ENGINEERING SERVICES, P.C.
Professional Environmental and Civil Engineers
4 Westchester Park Drive
Suite 175
White Plains, NY 10604
(914) 694-5711

DRAWN:	RAC	CHECKED:	PW	DATE:	05/07/14	FIGURE:	1

O:\DWG\Laundry Capitol\Brooklyn\1413 Fulton Street\2014\Fig1.dwg, Layout1, 5/7/2014 4:36:05 PM, AcroPlotDWF.pc3

LEGEND

SITE BOUNDARY

0 60

SCALE IN FEET

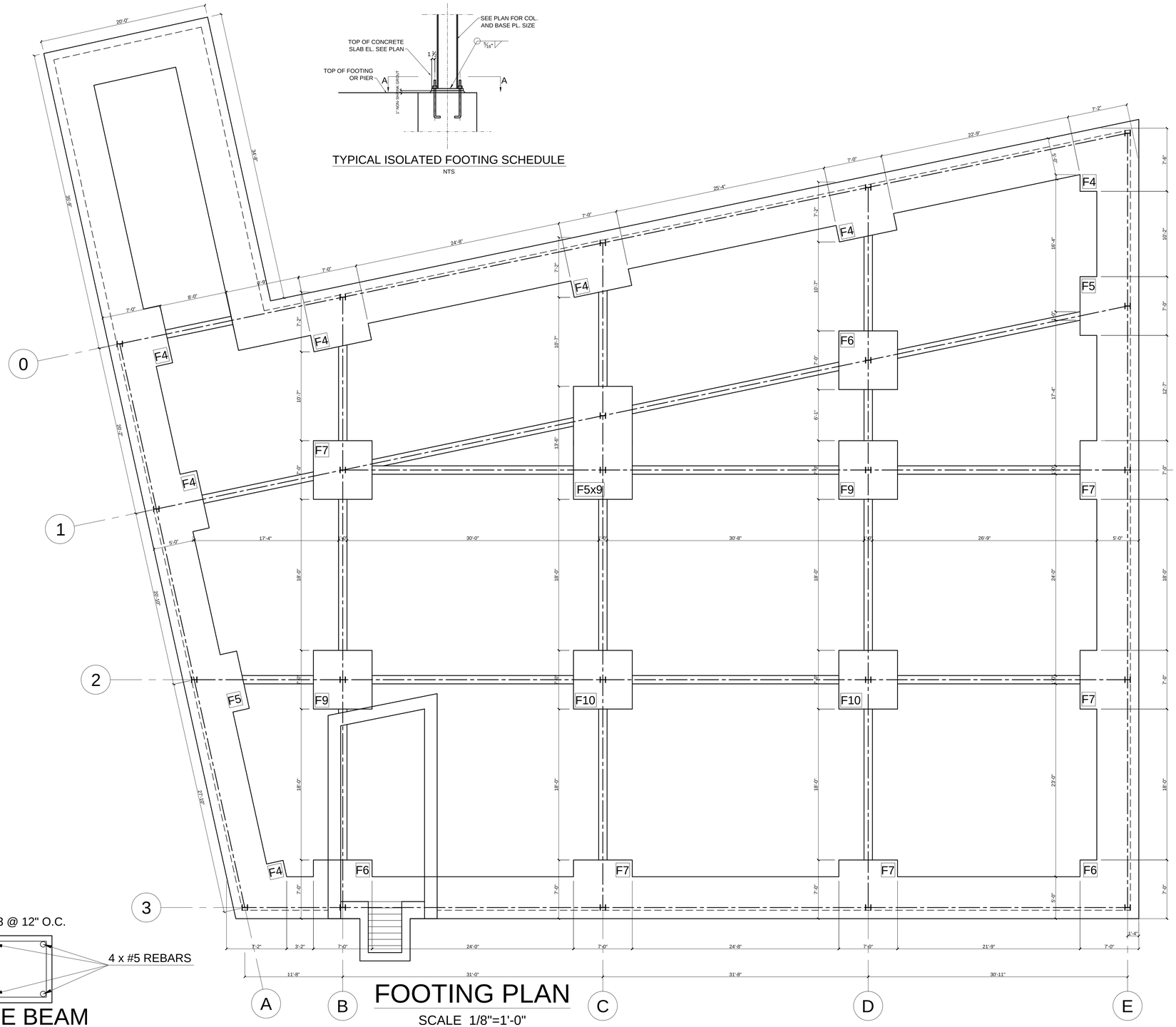
1413 FULTON STREET
BROOKLYN, NEW YORK
BLOCK 1854, LOT 52
NYCOER #14EH-N266K, E-185

AERIAL PHOTOGRAPH SHOWING SITE BOUNDARY

DATE	REVISED

PREPARED BY:
LBG ENGINEERING SERVICES, P.C.
Professional Environmental and Civil Engineers
4 Westchester Park Drive
Suite 175
White Plains, NY 10604
(914) 694-5711

DRAWN:	RAC	CHECKED:	PW	DATE:	05/07/14	FIGURE:	2



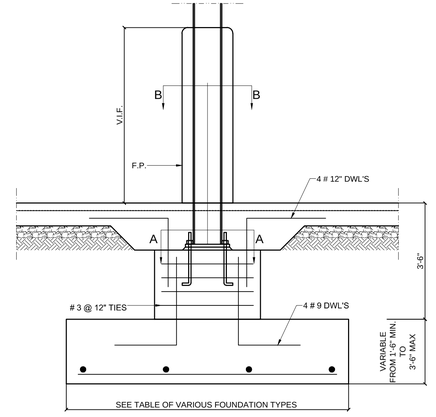
FOOTING PLAN

SCALE 1/8"=1'-0"

TYPICAL ISOLATED FOOTING SCHEDULE

NTS

SIZE AND REINFORCEMENT SCHEDULE OF CONCRETE FOOTING							
FOOTING TYPE	WIDTH	LENGTH	DEPTH	BOTTOM REINF.		TOP REINF.	
				PARALLEL TO LENGTH	PARALLEL TO WIDTH	PARALLEL TO LENGTH	PARALLEL TO WIDTH
F4	4'-0"	4'-0"	1'-6"	(5)#6	(5)#6		
F5	5'-0"	5'-0"	1'-8"	(7)#8	(7)#8		
F5.5	5'-6"	5'-6"	2'-0"	(7)#8	(7)#8		
F6	6'-0"	6'-0"	2'-3"	(8)#8	(8)#8		
F6.5	6'-6"	6'-6"	2'-3"	(9)#8	(9)#8		
F7	7'-0"	7'-0"	2'-6"	(10)#8	(10)#8		
F7.5	7'-6"	7'-6"	2'-8"	(10)#8	(10)#8		
F8	8'-0"	8'-0"	2'-10"	(11)#8	(11)#8		
F9	9'-0"	9'-0"	3'-0"	(12)#8	(12)#8	(12)#8	(12)#8
F10	10'-0"	10'-0"	3'-6"	(13)#8	(13)#8	(13)#8	(13)#8



TYPICAL ISOLATED FOOTING SCHEDULE

NOT TO SCALE

TIE BEAM

NTS

DOB JOB NO :

ARCHITECT

SHAHRIAR AFSHARI, Ph.D. , P.E.
45 MAIN STREET, ROSLYN , NY,11576
TEL : (516)-621-2085 FAX : (516)-801-1574

PROJECT

ADDRESS :
1413 FULTON STREET
BROOKLYN , NY 11216

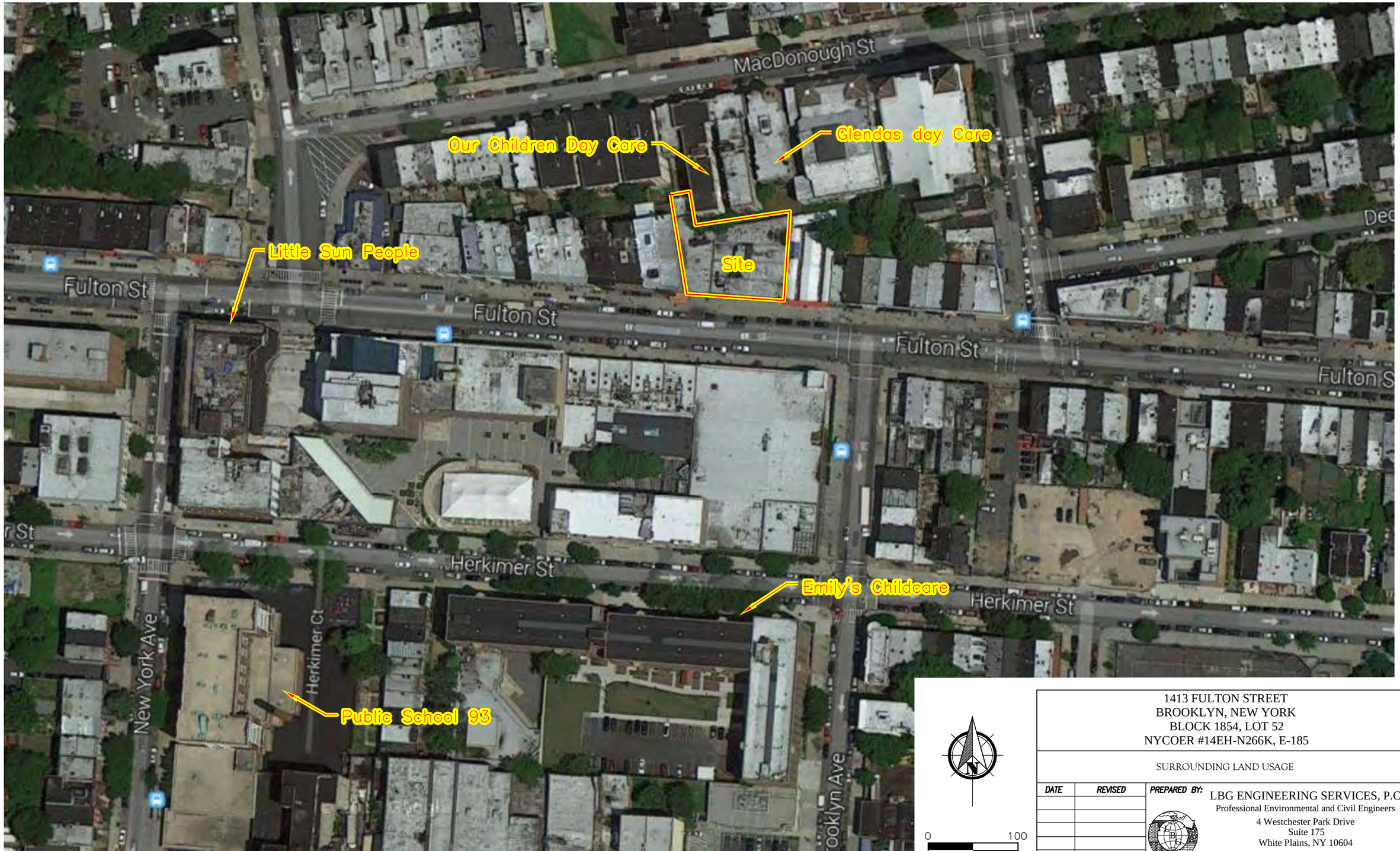
TITLE :
FOUNDATION PLAN

BLOCK : LOTS :

SEAL & SIGNATURE :

DATE : 10-10-2013
PROJECT NO :
DRAWING BY : M.J.
CHK BY : S.A.
DWG NO:
FO - 001.01
CAD FILE NO :

RAP Figure 3



0 100

SCALE IN FEET

1413 FULTON STREET
BROOKLYN, NEW YORK
BLOCK 1854, LOT 52
NYCOER #14EH-N266K, E-185

SURROUNDING LAND USAGE

DATE	REVISED

PREPARED BY:
LBG ENGINEERING SERVICES, P.C.
Professional Environmental and Civil Engineers
4 Westchester Park Drive
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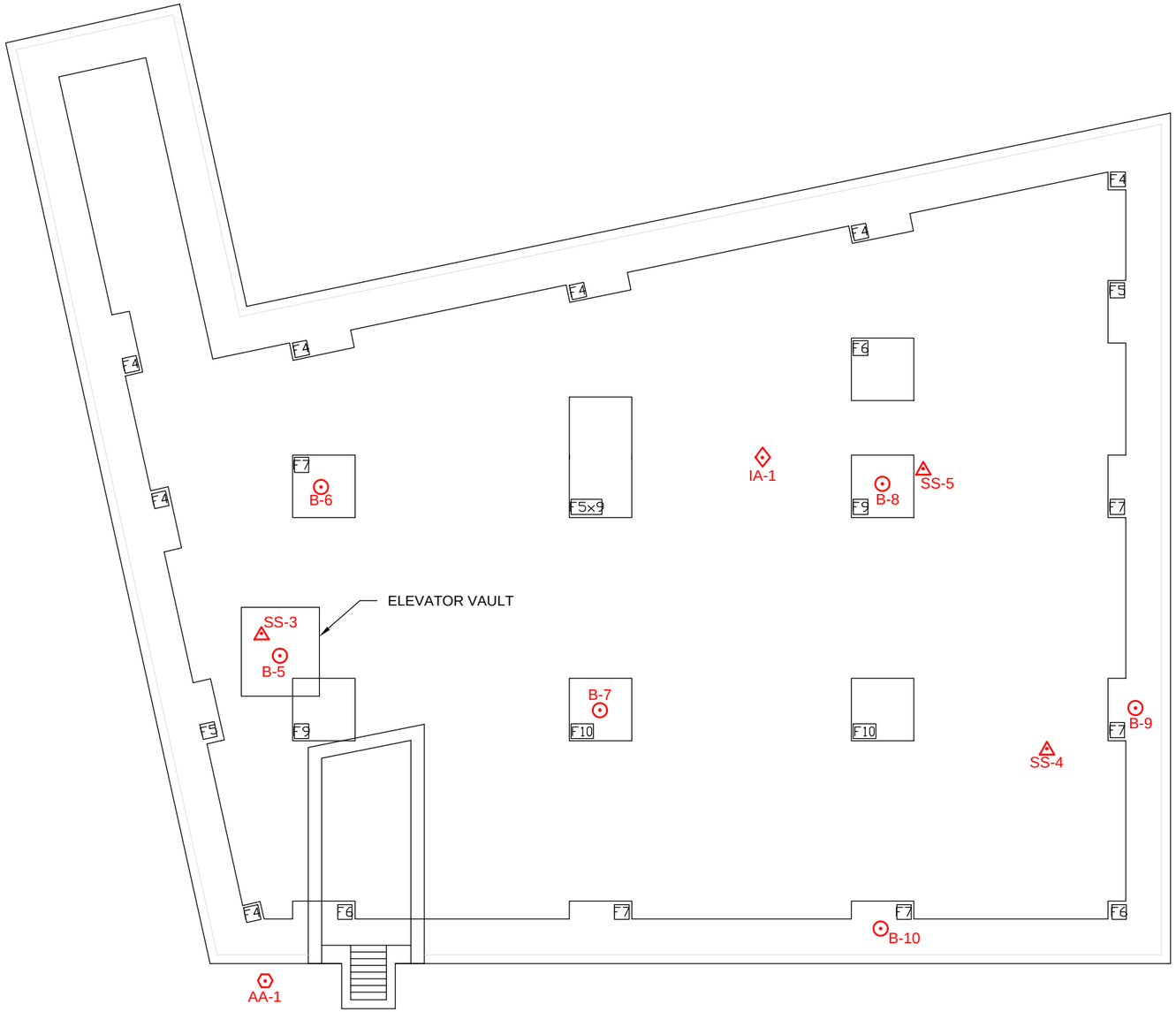
White Plains, NY 10604
(914) 694-5711

DRAWN:	RAC	CHECKED:	PW	DATE:	05/07/14	FIGURE:	4



LEGEND

- B-5 — SOIL BORING LOCATION
- SS-3 — SUB-SLAB VAPOR SAMPLE LOCATION
- IA-1 — INDOOR AIR SAMPLE LOCATION
- AA-1 — AMBIENT AIR SAMPLE LOCATION
- F10 — FUTURE COLUMN FOOTING LOCATION

NOTE:
FIGURE BASED ON ARCHITECTURAL DRAWING PROVIDED BY OTHER.

0 15
SCALE IN FEET

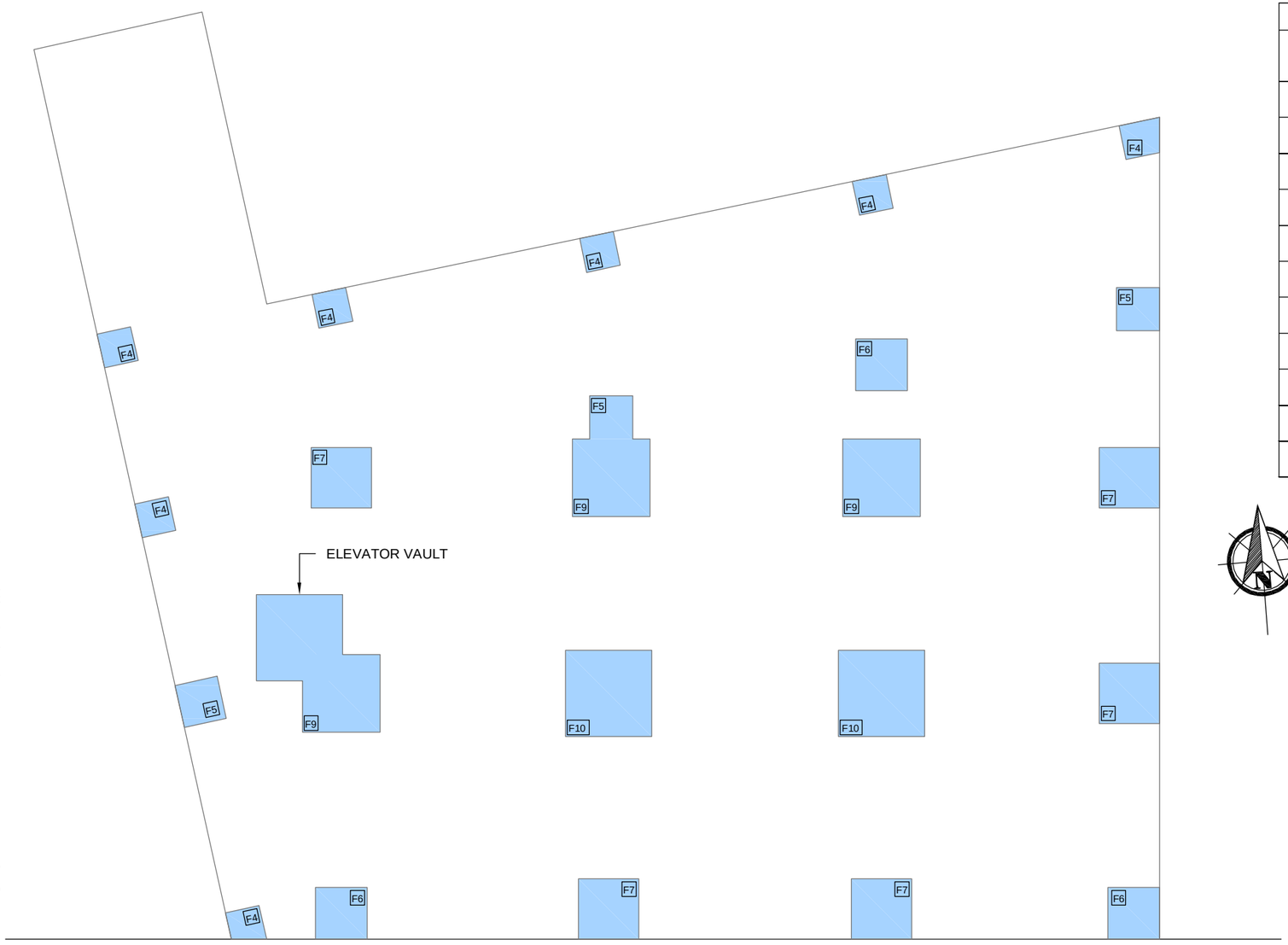
1413 FULTON STREET
BROOKLYN, NEW YORK
BLOCK 1854, LOT 52
NYCOER #14EH-N266K, E-185

SUB-SLAB VAPOR SAMPLE, AIR SAMPLE AND SOIL BORING LOCATIONS
FEBRUARY 1 AND 8, 2014

DATE	REVISED

PREPARED BY: LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Westchester Park Drive
Suite 175
White Plains, New York 10604
(914) 694-5711

DRAWN:	RAC	CHECKED:	PW	DATE:	03/24/14	FIGURE:	5

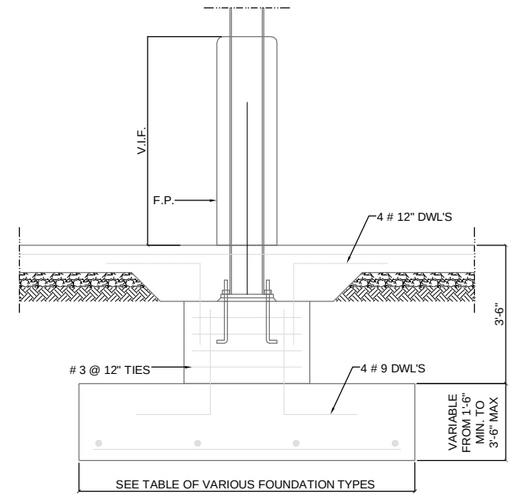


NOTE:
FIGURE BASED ON ARCHITECTURAL DRAWING PROVIDED BY OTHER.

0 15
SCALE IN FEET

SIZE AND REINFORCEMENT SCHEDULE OF CONCRETE FOOTING

FOOTING TYPE	WIDTH	LENGTH	THICKNESS	BOTTOM REINF.		TOP REINF.		EXCAVATION DEPTH
				PARALLEL TO LENGTH	PARALLEL TO WIDTH	PARALLEL TO LENGTH	PARALLEL TO WIDTH	
F4	4'-0"	4'-0"	1'-6"	(5)#6	(5)#6			5'-0"
F5	5'-0"	5'-0"	1'-8"	(7)#8	(7)#8			5'-2"
F5.5	5'-6"	5'-6"	2'-0"	(7)#8	(7)#8			5'-6"
F6	6'-0"	6'-0"	2'-3"	(8)#8	(8)#8			5'-8"
F6.5	6'-6"	6'-6"	2'-3"	(9)#8	(9)#8			5'-8"
F7	7'-0"	7'-0"	2'-6"	(10)#8	(10)#8			6'-0"
F7.5	7'-6"	7'-6"	2'-8"	(10)#8	(10)#8			6'-2"
F8	8'-0"	8'-0"	2'-10"	(11)#8	(11)#8			6'-4"
F9	9'-0"	9'-0"	3'-0"	(12)#8	(12)#8	(12)#8	(12)#8	6'-6"
F10	10'-0"	10'-0"	3'-6"	(13)#8	(13)#8	(13)#8	(13)#8	7'-0"
ELEVATOR VAULT	10'-0"	10'-0"						7'-0"



TYPICAL ISOLATED FOOTING SCHEDULE
NOT TO SCALE

APPROVED:
WILLIAM K. BECKMAN

STATE OF NEW YORK
WILLIAM KARL BECKMAN
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1413 FULTON STREET
BROOKLYN, NEW YORK
BLOCK 1854, LOT 52
NYCOER #14EH-N266K, E-185

LOCATIONS OF PLANNED EXCAVATIONS

DATE	REVISED

PREPARED BY:
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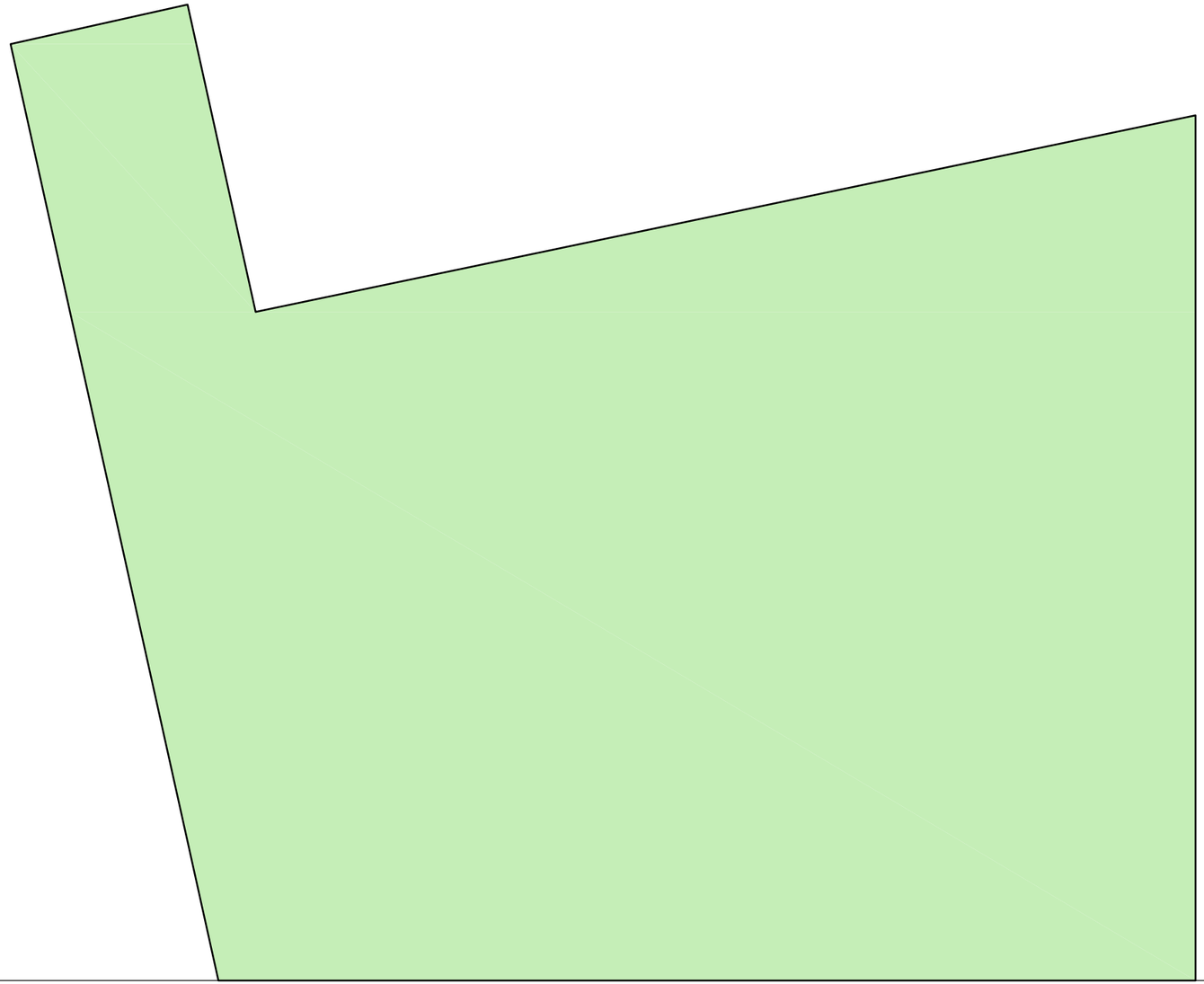
DRAWN:	RAC	CHECKED:	PW	DATE:	05/09/14	FIGURE:	6



SIDEWALK

FULTON STREET

NOTE:
FIGURE BASED ON ARCHITECTURAL DRAWING PROVIDED BY OTHER.

0 15
SCALE IN FEET

LEGEND

CONCRETE FLOOR SLAB COMPOSITE COVER - 3 INCHES TO 16 INCHES THICK - EXISTING SLAB EXCEPT AT EXCAVATION LOCATIONS WHERE SLAB WILL BE REPLACED. FLOOR SLAB WILL COVER ENTIRE SITE.

APPROVED:
WILLIAM K. BECKMAN

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WILLIAM KARL BECKMAN
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1413 FULTON STREET
BROOKLYN, NEW YORK
BLOCK 1854, LOT 52
NYCOER #14EH-N266K, E-185

SITE-WIDE ENGINEERED COMPOSITE COVER SYSTEM

DATE	REVISED

PREPARED BY:
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DRAWN:	RAC	CHECKED:	PW	DATE:	05/07/14	FIGURE:	7

APPENDIX I

SOIL/MATERIALS MANAGEMENT PLAN

APPENDIX I

SOIL/MATERIALS MANAGEMENT PLAN

This Soil/Materials Management Plan (SMMP) describes the means by which onsite soils that are excavated will be screened and characterized. Also, the SMMP describes how soil and other materials will be transported and disposed. Finally, the SMMP describes the management of material imported to the Site (if any). The intent of this Remedial Action Plan (RAP) is to institute the SMMP during ground excavation activities associated with general building construction (excavating for subgrade structures).

1.1 Soil Screening Methods

Visual, olfactory and photoionization detector (PID) soil screening and assessment will be conducted under the supervision of a Qualified Environmental Professional (QEP) and will be reported in the Remedial Closure Report (RCR). Soil screening will be conducted during invasive work completed for the remedy and development phases prior to issuance of the Notice of Satisfaction.

1.2 Stockpile Methods

Excavated soil from suspected areas of previously unidentified contamination (e.g., unknown hot spots, underground storage tanks [USTs], drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles, which will be located inside the building, will be formed only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by New York City Office of Environmental Remediation (NYCOER). 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 will be inside the building prior to loading into trucks and, therefore, run-off controls (grading, hay bales, silt fences) are not applicable.

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. Although not anticipated, if necessary, soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 Materials Excavation, Load-Out and Departure

The Professional Engineer (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 completed under this RAP;
- 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 RAP;
- 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 (from remedial activities) 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 soil trucks are loaded and depart the Site shall be inspected daily for evidence of soil tracking. Cleaning of the adjacent streets will be done 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 completed without prior NYCOER 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. Onsite queuing of trucks will not be feasible. Off-Site queuing will be minimized.

Outbound truck transport routes will be determined when facilities are selected. Truck routing will take 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 Applicant 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 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 Applicant. The letter will include as an attachment a summary of all chemical data for the material being transported.

(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 RCR.

The RCR 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 RCR.

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 completed 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 Quality Assurance/Quality Control (QA/QC) will be reported in the RCR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RCR. 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 Part 375 Restricted Residential soil cleanup objectives may be reused on-Site. "Reuse on-Site" means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to Engineering 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 RAP are followed. Site-derived soil is not anticipated to be reused on Site at this time. Any changes to this plan will be communicated to the NYCOER Project Manager.

No clearing or grubbing of the Site is planned and vegetation/organic matter is not present. No cover soil layers or landscaping berms are planned.

1.8 Demarcation

Demarcation is not an element of this SMMP.

1.9 Import of Backfill Soil from Off-Site Sources

This Section presents the requirements for imported fill materials to be used on Site as required. All imported soils will meet NYCOER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in the RAP.

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; and
- clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of New York State Department of Environmental Conservation (NYSDEC).

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAP. The RCR 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 collected 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.

RCA will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RCR. A PE/QEP is responsible to ensure that the facility is compliant with 6 NYCRR 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 (NYCDEP). The NYCDEP 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 fluids meet the City's discharge criteria. The liquids will be pretreated as necessary to meet the NYCDEP discharge criteria. If discharge to the City sewer system is not appropriate, the liquids 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 State Pollutant Discharge Elimination System (SPDES) permit issued by NYSDEC.

1.11 Storm-Water Pollution Prevention

All Site excavation activities will be conducted inside the building. As such, extensive storm-water pollution prevention activities are not warranted. Storm-water pollution prevention measures will be enacted during truck loading activities to be conducted immediately outside the building. If deemed necessary, erosion and sediment control measures including silt fences and barriers, and hay bale checks will be installed near any storm water drains which may be susceptible to sediment runoff from the loading area. Sediment control measures would be inspected once a week and after every storm event to ensure that they are operating appropriately. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYCOER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

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 NYCOER's Project Manager. Petroleum spills will be reported to the NYSDEC 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, samples of the contaminated source material and surrounding soils will be collected and analyzed, and the results reported to NYCOER. Chemical analytical testing will be conducted for Full List volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs), pesticides/PCBs, and TAL metals, 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: (a) direct load-out of soils to trucks for off-Site disposal; and (b) 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. NYCOER 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 RCR.

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 stock-piles;
- use of properly anchored tarps to cover stockpiles;
- exercise extra care during dry and high-wind periods; and
- use of gravel or RCA 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. NYCOER 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 RCR.

Other Nuisances

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

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

1.14 Import of Clean Cover

The import of soil for clean cover, or any other purpose, is not anticipated at this time. In the event that these plans change, the NYCOER will be notified. All imported soil will be uncontaminated, clean soil that meets the lesser of the appropriate NYSDEC 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs and the NYSDEC 6 NYCRR Part 375-6.8 groundwater protection SCOs.

In the event that soil import becomes necessary, the imported uncontaminated, clean soil cover would be from an approved source/facility and will be evaluated by the PE/QEP to ensure:

1. that a segregated stockpile is properly maintained at the source and would not be comingled with any other material prior to importing and grading the clean soil material at the Site;
2. that the material would not include any solid waste, including construction and demolition material, as it is prohibited;
3. that screening for evidence of contamination by visual, olfactory and PID soil screening practices prior to testing at the source as well as upon importing to the Site for grading would be completed; and
4. that a maximum five-part composite sample would be collected from the segregated stockpile at the source at a minimum frequency of one sample per 250 cubic yards and analyzed for the following Full List parameters:
    - VOCs by EPA Method 8260C (rev. 2006)
    - SVOCs by EPA Method 8270D (rev. 2007)
    - Pesticides by EPA Method 8081B (rev. 2000)
    - PCBs by EPA Method 8082A (rev. 2000)
    - TAL Metals by EPA Method 6010C (rev. 2007)

Upon receipt of the segregated stockpile analytical results collected at the source, a Clean Soil Sampling Report would be submitted to NYCOER for review/approval prior to importing. The report would include the following:

1. summary of number of samples collected and analyzed, tabulated data and comparison to the selected Site Use SCOs;

2. analytical data sheets and chain of custody documentation;
3. summary of the designated number of tons (cubic yards);
4. photographs from the segregated stockpile at the source with sample point locations identified;
5. an affidavit from the source/facility on company letterhead stating that the segregated stockpile for the designated number of tons (cubic yards) has been properly maintained at the source and complies with the requirements listed above; and
6. a copy of source/facility NYSDEC permit.

A highly visible demarcation barrier (i.e., orange geo-synthetic material or equivalent) would be installed beneath the clean soil/fill surface cover. Upon importing and grading the NYCOER approved clean soil cover for the designated number of tons (cubic yards) on top of a highly visible demarcation barrier, the following documentation would be presented in the Final Remedial Closure Report:

1. copies of purchase invoices;
2. truck transportation slips from the source to the Site;
3. confirmation of the designated number of tons (cubic yards) of NYCOER approved clean soil cover material imported and graded at the site on top of highly visible demarcation barrier;
4. Site plan depicting all areas where the NYCOER approved clean soil cover has been placed; and
5. photographs documenting the importing and grading of the NYCOER approved clean soil cover across the site with the underlying highly visible demarcation barrier (i.e., orange geo-synthetic material or equivalent).

APPENDIX II

CONSTRUCTION HEALTH AND SAFETY PLAN

APPENDIX II

CONSTRUCTION HEALTH AND SAFETY PLAN

CONSTRUCTION HEALTH AND SAFETY PLAN FOR REMEDIAL ACTION PLAN

1413 FULTON STREET
BROOKLYN, NEW YORK
NYCOER PROJECT NO. 14EH-N266K

E-Designation E-185

Prepared For:

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Prepared By:

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MAY 9, 2014

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CONSTRUCTION HEALTH AND SAFETY PLAN FOR REMEDIAL ACTION PLAN

1413 FULTON STREET BROOKLYN, NEW YORK NYCOER PROJECT NO. 14EH-N266K

E-Designation E-185

This Construction Health and Safety Plan (CHASP) is intended to provide a basic framework for the safe conduct of remedial action to be conducted at 1413 Fulton Street, Brooklyn, New York (the Site). The procedures provided herein are intended as a guide for all LBG Engineering Services, P.C. (LBGES) and subcontractor employees who will be involved in the completion of the remedial action for the project.

The primary objective of the CHASP is to establish work-safety guidelines, requirements and procedures before field activities begin and during the field activities. The following information was prepared specifically for remedial construction field operations by personnel to enforce and adhere to the established rules as specified in the CHASP. The CHASP will be provided to all personnel to aid in accomplishing the following objectives:

- monitoring the effectiveness of the CHASP as it is conducted in the field;
- following up on any necessary corrective actions;
- interacting with regulatory agencies and/or client representatives regarding modifications of health and safety actions; and
- stopping work should work-site conditions warrant such action.

All personnel will have had health and safety training in accordance with OSHA Interim Final Standard 29 CFR 1910 or as may be amended. A copy of LBGES's Corporate Safety Policy and Drug and Alcohol Policy is attached in Appendix A.

1.0 ORGANIZATION AND RESPONSIBILITIES

The organization and responsibilities for implementing safe site-investigation procedures, and specifically for the requirements contained in this manual, are described in this section.

1.1 Project Manager

The LBGES Project Manager will be responsible for the overall implementation and monitoring of the health and safety program by:

- ensuring appropriate protective equipment is available and properly used by all personnel, in accordance with the CHASP;
- ensuring personnel health and safety awareness by providing them with proper training and familiarity with procedures and contingency plans;
- ensuring all personnel are apprised of potential hazards associated with the site conditions and operations;
- supervising and monitoring the safety performance of all personnel to ensure their work practices are conducted in accordance with the CHASP;
- correcting any work practices or conditions that would expose personnel to possible injury or hazardous condition;
- communications with the onsite Health and Safety Officer (HSO);
- ensuring sufficient protective equipment is provided and used;
- promptly initiating emergency alerts; and
- communicating with the client and/or regulatory agency representatives.

1.2 Onsite Health and Safety Officer

The LBGES HSO will be onsite during remediation field activities. The HSO will be accountable for the direct supervision of personnel from the subcontractors contracted by LBGES and other LBGES personnel with regard to:

- health and safety program compliance;
- maintaining a high level of health and safety consciousness among employees at the work site; and
- reporting accidents within LBGES jurisdiction and undertaking corrective action.

1.3 Field Personnel

All LBGES and remedial subcontractor field personnel will report directly to the onsite HSO, and will be required to:

- be familiar with, and conform to, provisions of the CHASP;
- report any accidents or hazardous conditions to the onsite HSO; and
- have complete familiarity with their job requirements and the health and safety procedures involved.

1.4 Reporting of Accidents and Unsafe Conditions

If an accident occurs, the HSO and the injured person(s) are to complete an Accident Report for submittal to the Project Manager, who will forward a copy to the Principal-In-Charge who should ensure that follow-up action is taken to correct the situation that caused the accident.

1.4.1 Disciplinary Actions for Safety Related Infractions

If an infraction of the CHASP is discovered by the Project Manager or the onsite HSO, each case will be dealt with individually. The infraction will be investigated and a disciplinary meeting held with the offender. Disciplinary actions may include a performance deficiency evaluation entered into the employee's personnel file, correction of problem after the disciplinary meeting or removal of the offender from the project. Repeated infractions will not be tolerated and will be dealt with accordingly.

1.4.2 Safety Inspections

Safety inspections will be conducted periodically by the Project Manager. The Project Manager will be familiar with the CHASP before conducting an onsite visit. While onsite, the Project Manager will evaluate the effectiveness of the CHASP and offer any suggestions for improvement. Although the Project Manager is responsible for periodic safety inspections and evaluation of the CHASP, the onsite HSO is responsible for daily observation and evaluation of CHASP effectiveness.

1.4.3 Safety Meetings

Prior to the start of field activities, a meeting will be held to discuss the potential hazards at the Site, with a review of the required protective clothing and procedures observed at this Site. As needed, daily meetings will be held to discuss any changes in the hazards. A site safety briefing form will be filled out each day the HSO holds a meeting and signed by all of the attendees of the briefing.

2.0 HAZARD EVALUATION

Physical and chemical hazards may be present at the Site. The exposure limits of common chemical constituents are included in the list provided in table 1. For this project Site, the constituents of concern are semivolatile organic compounds (SVOCs) and metals in soil. These constituents would possibly be encountered and comprise the major concerns for potential impacts to personal health. The protection of personnel from exposure to these substances by inhalation, oral ingestion, dermal absorption or eye contact is included as a primary purpose of this CHASP.

The onsite HSO is responsible for determining the level of personal protection equipment required for physical and chemical hazards. The HSO will conduct a preliminary evaluation to confirm personal protective equipment requirements once the Site has been entered. When work-site conditions warrant, the onsite HSO will modify the level of protection to be

utilized. The existence of a situation more hazardous than anticipated will result in the suspension of work until the Project Manager has been notified and appropriate instructions have been provided to the field team. Preliminary evaluation and modifications to protection levels will be documented.

3.0 MONITORING REQUIREMENTS

A photoionization detector (PID) will be used to monitor ambient air quality at the excavation locations within the Site. Records of these data will be maintained by the onsite HSO. During excavation operations, air quality will be monitored, especially near the top of the excavations as samples are collected. Work operations which involve handling of potentially hazardous substances will include continuous contaminant monitoring using the PID. When deemed necessary or desirable by the onsite HSO, area monitoring will be used in potentially hazardous zones. Area monitoring will be completed as plans and conditions dictate, and in accordance with the CHASP and with the goal of accident and hazardous condition prevention in mind. These data will be documented in the Remedial Closure Report (RCR).

For this project Site, the constituents of concern are SVOCs and metals in soil. The lowest 8-hour exposure limits for common chemicals of concern (volatile organic compounds [VOCs], SVOCs, pesticides, polychlorinated biphenols [PCBs], arsenic, chromium and lead) are listed on table 1. Proper calibration and operation of air monitoring equipment is described in Appendix B.

3.1 Community Air Monitoring Plan (CAMP)

During ground-intrusive construction activities inside the building, and during soil loading and transport outside the building, real-time air monitoring for VOCs and particulate levels will be conducted at various locations inside the building. Exterior monitoring would be implemented contingent upon interior monitoring results. Monitoring at 30-minute intervals will be conducted during all ground-intrusive activities and during the handling of contaminated or potentially contaminated media. Ground-intrusive activities include, but are not limited to, soil/fill excavation and handling or trenching for structural elements.

Exceedances of action levels observed during implementation of the Community Air Monitoring Plan (CAMP) will be reported to the NYCOER Project Manager and included in the Daily Report.

Ground-intrusive activities are to be completed only on the building interior. Interior VOCs will be monitored at a minimum of 2 interior locations; one near the work area and the second at a position farthest from the work area. In addition, exterior VOCs will be monitored on the sidewalk between the building and Fulton Street, at three locations (east, west and central). VOCs will be monitored on a 30-minute basis during invasive work. Continuous monitoring at multiple locations inside and outside the building would necessitate multiple equipment stations, adding excessive cost and security issues. There is little concern for VOC emissions based on the Remedial Investigation results. Interior and exterior concentrations will be measured at the start of each workday to establish background conditions.

As there is no field-screening equipment capable of monitoring for metals or SVOCs in air, monitoring work will be completed using equipment designed to measure VOCs and dust particulates. The equipment will be calibrated at least daily for an appropriate VOC surrogate. The 30-minute instantaneous concentrations will be compared to the levels specified below.

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

3.2 Vapor Monitoring Response Plan

Real-time air monitoring for volatile compounds levels at the perimeter of the work area includes the following:

- If the ambient air concentration of total organic vapors at the work area monitoring location exceeds 5 parts per million (ppm) above background, work activities will be temporarily halted and monitoring continued. Monitoring will continue at the work area and additional monitoring locations will be added at the farthest two interior locations from the work area, and any building exits. 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 work area monitoring location persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted. Monitoring will continue at the work area and additional monitoring locations will be added at the farthest two interior locations from the work area, any building exits, and the three exterior sidewalk locations described above. An attempt will be made to identify the source of vapors, corrective actions will be taken to abate emissions, and monitoring will continue. After these steps, work activities will resume provided that the total organic vapor level outside the building is below 5 ppm over background.
- If the organic vapor level persists above 25 ppm at the exterior monitoring locations, activities will be shutdown.

3.3 Particulate Monitoring Response Plan

Particulate concentrations will be monitored at 30-minute intervals at the same interior and exterior locations as described above, with 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 interior (work zone and/or two interior locations farthest from work zone) PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (start of workday) for the instantaneous reading, or if airborne dust is observed leaving the building, then dust suppression techniques will be employed and exterior locations will be monitored. Work will continue with dust suppression techniques provided that interior and exterior PM-10 particu-

late levels do not exceed 150 mcg/m^3 above background and provided that no visible dust is migrating from the building.

- If, after implementation of dust suppression techniques, interior or exterior PM-10 particulate levels are greater than 150 mcg/m^3 above the background 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 interior PM-10 particulate concentration to within 150 mcg/m^3 of the background level and in preventing visible dust migration.

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

4.0 LEVELS OF PROTECTION

The level of protection anticipated to complete work for this remedial activity is Level D, unless otherwise upgraded. Only protective equipment deemed suitable by the onsite HSO for use at the work site will be worn. Any changes in protection levels shall be documented by the onsite HSO. Field personnel should exercise informed judgment on protective equipment requirements at active work sites or at work sites that have been repeatedly entered or occupied without apparent harm. In any case where doubt exists, the safest course of action must be taken. The protective equipment to be used by field personnel is listed below.

4.1 Level D

- hard hat;
- safety glasses or shatter-proof prescription glasses;
- boots/shoes, leather or chemical-resistant, steel toe and shank;
- coveralls; and
- chemical resistant gloves.

At a minimum, protective headgear, including protective hearing devices, eyewear and footwear will be worn at all times by personnel working around the excavation equipment.

When work-site conditions dictate, protective gloves and chemical-resistant boots shall be required for those personnel handling contaminated soils.

Typically, for VOC-related work, a sustained level of 0 to 5 ppm above background as measured with a PID provides a large safety margin for the 8-hour exposure limit.

4.2 Level C

Level C protection will be considered for sustained PID readings of 5 to 100 ppm above background in the breathing zone. This level of protection is not anticipated based on the Phase II ESI data.

- hard hat;
- boots, leather, steel toe and shank;
- outer boots, chemical resistant;
- chemical-resistant gloves (solvex);
- Tyvek or Saranex suit; and
- air purifying respirator with organic vapor cartridge and dust and mist filter.

In the event that Level C work is warranted, respirators for all remedial action personnel will be available with both particulate and organic vapor protection cartridges. The onsite HSO will direct when the protective clothing and respirators will be utilized based on the conditions encountered at the work site.

4.3 Level B

- pressure-demand, self-contained breathing apparatus;
- standby escape pack;
- chemical resistant clothing (Saranex suit);
- outer gloves (Solvex);
- inner gloves (surgical);
- outer boots (chemical resistant);
- inner boots (leather, steel shank and toe); and

- hard hat.

Level B is not anticipated but will be considered for sustained PID readings of 100 ppm or more above background in the breathing zone. In the event that the work space atmosphere contains in excess of 100 ppm of total ionizable compounds above background, colorimetric tubes or a portable gas chromatograph will be used to determine the concentrations of individual chemicals. The use of Level B equipment will be based on the specific compounds present and will include discussions with the regulatory authorities and/or the client representative.

Level A conditions will require specialized procedures to be formulated on a case-by-case basis.

5.0 SAFE WORK PRACTICES AND HYGIENE

In addition to the use of protective equipment, other procedures will be followed to minimize risk:

- all consumptive activities including eating, drinking or smoking are prohibited during the excavation, sampling and decontamination activities;
- an adequate source of potable water for emergency use will be available at the excavation sites (two liters per person per day);
- fire extinguishers will be available at the work sites for use on equipment or small fires when appropriate; and
- an adequately stocked first-aid kit will be maintained at the work site at all times during operational hours.

5.1 Heat Stress

In order to avoid heat stress several preventative measures will be observed:

- Workers will be urged to drink a 16-ounce glass of water prior to work (in the morning and after lunch). Water will be contained in a cooler, maintained at a temperature below 60°F. Workers will be encouraged to drink approximately every 20 minutes during days of extreme heat.

- In extreme hot weather, field activities will be conducted in the early mornings and late afternoons.
- Rest breaks in cool or shaded areas will be enforced as needed.
- Toilet facilities will be made available to site workers, unless transportation is readily available to nearby toilet facilities.
- Good hygiene practices will be encouraged, stressing the importance of allowing the clothing to dry during rest periods. Anyone who notices skin problems should receive medical attention immediately.
- If there are support personnel available outside the work zone, they should observe the workers in the exclusion zone to monitor signs of stress, frequency of breaks, etc.

5.2 Cold Stress and Exposure

In order to avoid cold stress, several preventative measures will be observed;

- work will not take place when the temperature falls below -20°F. (The wind chill factor should be a major consideration);
- clothing should be worn in layers, so that personnel can adapt to changing conditions and various levels of physical stress;
- if possible, breaks should be taken in a heated vehicle or building, but care should be taken to remove outer clothing during the break;
- have on hand extra inner clothing in case perspiration builds up;
- keep insulated containers of warm liquids available for breaks outside of the exclusion zone;
- be aware of the signs of frostbite and take immediate remedial measures; and
- take extra precautions around areas subject to ice buildup, such as sanding slippery surfaces.

6.0 WORK ZONE

To prevent unauthorized personnel from entering areas where there are active operations, the area enclosing the operation will be marked. Typically, projects such as this one involve observation of excavation work. Safety issues with respect to this type of work are attached in Appendix C.

7.0 DECONTAMINATION

The type of decontamination procedures used will be based on the level of protection required. Decontamination of Level D protective wear will consist of brushing heavily soiled boots to remove soils, rinsing gloves and safety glasses (and overboots, if worn) with water, and removing and storing coveralls in plastic bags before leaving the work zone, if heavily soiled or suspected of having been in contact with Site contaminants.

8.0 CONTINGENCY PLAN FOR EMERGENCIES

In the event of a safety or health emergency, appropriate corrective measures must immediately be taken to assist those who have been injured or exposed and to protect others from hazard. The onsite HSO will be notified of the incident immediately. If necessary, first aid will be rendered. A contact sheet showing the closest police station and hospital will be maintained onsite within this CHASP as Appendix D.

dmd
May 9, 2014
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TABLE

TABLE 1

Exposure Limits

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
VOLATILE ORGANIC COMPOUNDS:						
Gasoline[1/]	300	500	1,400	B	1.4	B
Benzene[1/]	0.1	1	500	12	1.2	9.24
Butane	800	B	B	2,700	1.6	10.63
Chlorobenzene	75[3/]	B	1,000	Almonds	1.3	B
1,1-Dichloroethane	100	Ca[5/]	3,000	Chloroform	5.4	11.06
1,2-Dichloroethylene	200	B	1,000	Chloroform	5.6	9.65
Ethylbenzene	100	125	800	Aromatic	0.8	8.76
Heptane	85	440	750	150	1.05	9.90
N-Hexane	50	B	1,100	Gasoline/130	1.1	10.18
Hexanes	100	510	B	Mild gasoline	B	B
Methyl ethyl ketone (MEK)	0.2[4/]	B	B	Characteristic odor	B	B
Octane	75	385	1,000	Gasoline/150	1.0	9.82
Pentane	120	610	1,500	Gasoline/1000	1.5	10.34
TBA (Tert-butyl alcohol)	100	150	1,600	Camphor	2.4	9.70
Tetrachloroethylene[1/]	Ca[5/]	Ca[5/]	150	Chloroform	B	9.32

TABLE 1

Exposure Limits
(continued)

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
Toluene	100	150	500	Sweet benzene like/2.9	1.1	8.82
1,1,2-Trichloroethane	Ca[5/]	10	100	Chloroform	6.0	11.00
Trichloroethylene	Ca[5/]	25	1,000	Chloroform	8.0	9.45
Vinyl Chloride	Ca[5/]	Ca[5/]	Not determined	Pleasant	3.6	9.99
Xylenes	100	150	900	Aromatic/1.1	0.9	8.56
SEMIVOLATILE ORGANIC COMPOUNDS:						
Acenaphthene	B	B	B	B	B	B
Acenaphthylene	B	B	B	B	B	B
Anthracene*	B	B	B	B	B	B
Benzo(a)anthracene	B	B	B	B	B	B
Benzo(a)pyrene*	B	B	B	B	B	B
Benzo(b)fluoranthene	B	B	B	None	B	B
Benzo(g,h,i)perylene	B			None		B
Benzo(k)fluoranthene	B	B	B	B	B	B
Chrysene*	B	B	B	B	B	B
Dibenz(a,h)anthracene	B	B	B	B	B	B

TABLE 1

Exposure Limits
(continued)

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
Fluoranthene	B	B	B	B	B	B
Fluorene	B	B	B	B	B	B
Indeno(1,2,3-cd)pyrene	B	B	B	B	B	B
Naphthalene	50	15	250	B	0.9 vol%	B
Phenanthrene*	B	B	B	B	B	B
Pyrene*	B	B	B	B	B	B
Coal Tar Pitch Volatiles	0.2^{+}	B	80	Varies	B	B
POLYCHLORINATED BIPHENOLS						
Aroclor (1242, 1254)	0.001	B	5	Mild hydrocarbon	B	B
PESTICIDES:						
Alpha-BHC	B	B	B	B	B	B
Beta-BHC	B	B	B	B	B	B
Delta-BHC	B	B	B	B	B	B
Gamma-BHC	B	B	B	B	B	B
Heptachlor	0.5	B	35	Camphor	B	B
Aldrin	0.25	B	25	Mild chemical	B	B

TABLE 1

Exposure Limits
(continued)

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
Heptachlor epoxide	B	B	B	Camphor	B	B
Endosulfan I	B	B	B	Sulfur dioxide	B	B
Alpha-Chlordane	0.5	B	6-60 grams	Chlorine-like	B	B
Gamma-Chlordane	0.5	B	6-60 grams	Chlorine-like	B	B
Dieldrin	0.25	B	65	Mild chemical	B	B
4,4'-DDE	B	B	B	B	B	B
Endrin	0.1	B	2	Mild chemical	B	B
Endosulfan II	B	B	B	B	B	B
4,4'-DDD	B	B	B	B	B	B
Endrin aldehyde	B	B	B	B	B	B
Endrin ketone	B	B	B	B	B	B
Endosulfan sulfate	B	B	B	B	B	B
4,4'-DDT	1	B	500	Aromatic	B	B
Methoxychlor	15	B	5,000	Slight fruity	B	B
Toxaphene	B	B	B	B	B	B
Technical Chlordane	B	B	B	B	B	B

TABLE 1

Exposure Limits
(continued)

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
METALS:						
Arsenic	0.01	B	5	B	B	B
Chromium metals [as Cr]	1	B	250	B	B	B
Chromium compounds [as CR(II)]	0.5	B	250	B	B	B
Chromium compounds [as CR(III)]	0.5	B	25	B	B	B
Lead compounds (as Pb)	0.05	B	100	B	B	B

Notes:

1/ Potential occupational carcinogen.
2/ Alachlor manufacturer established internal exposure guideline of 10 ppb for 8-hour TWA.
3/ OSHA guideline, NIOSH questions the adequacy of 75 ppm.
4/ Ceiling REL, should not be exceeded at any time.
5/ NIOSH recommends occupational exposures to carcinogens to be limited to the lowest feasible concentration.
B = No published value.
* See Coal Tar Pitch Volatiles.
+Benzene-extractable fraction.
(a) The more stringent of either: (1) Occupational Safety and Health Administration (OSHA) 1989 Permissible Exposure Limit (PEL), (2) American Conference Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), or (3) National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs), time-weighted average concentrations for up to a 10-hour work day.
(b) Short Term Exposure Limit - 15 minute exposure.
(c) Immediately dangerous to life and health.
(d) Lower Explosive Limit.

FORMS

SITE SAFETY BRIEFING

Job Name: Remedial Action
Date: Spring 2014
Site Location: 1413 Fulton Street, Brooklyn, New York

SAFETY ISSUES (Circle appropriate information)

Tasks: Soil Excavations

Protective Clothing/Equipment: Level D, Level C, Level B, Level A

Potential Chemical Hazards: SVOCs, metals

Physical Hazards: Car Traffic, Construction Equipment, Excavations, Dust

Control Methods: Cones, Restricted Access, Traffic Control Personnel

Other: _____

Hospital Name/Address: Interfaith Medical Center
1545 Atlantic Avenue
Brooklyn, New York
(718) 613-4000

ATTENDEES

Print Name:	Sign Name:
_____	_____
_____	_____
_____	_____
_____	_____

Meeting conducted by: _____

_____

AIR MONITORING

General Information

Name(s): _____ Background Level: _____

Date: _____ Weather Conditions: _____

Time: _____ _____

Project: Remedial Action
1413 Fulton Street
Brooklyn, New York

Equipment Calibration

PID _____ Dust Meter _____

Wind Direction	Time	Work Location	PID Reading (ppm)			Particulate Reading (mg/m3)		
			Upwind	Work Zone	Downwind	Upwind	Work Zone	Downwind

PLAN ACCEPTANCE FORM

CONSTRUCTION HEALTH & SAFETY PLAN

INSTRUCTIONS: This form is to be completed by each LBG Engineering Services, P.C. employee and subcontractors to work on the subject project work site. The form must be returned to the LBGES HSO prior to site activities.

Client/Project: Remedial Action
1413 Fulton Street, Brooklyn, New York

Date: _____

I represent that I have read and understand the contents of the above Plan and agree to conduct my work in accordance with it.

_____	_____
Signed	Signed
_____	_____
Print Name	Print Name
_____	_____
Date	Date
_____	_____
Signed	Signed
_____	_____
Print Name	Print Name
_____	_____
Date	Date

APPENDIX A

LBGES SAFETY POLICY
AND
GENERAL DRUG AND ALCOHOL POLICY

LBG ENGINEERING SERVICES, P.C.
SAFETY POLICY

Job safety is a common-sense part of everyone's life, but requires constant alertness to possible dangers. When we work on industrial sites, LBGES employees are expected to observe the safety rules of our Client hosts.

You are the first line of defense for your own personal safety. In the field, appropriate clothing should be worn at all times. Where appropriate, work shoes with hard toes and/or ankle protection should be worn at all times. **Sneakers/tennis shoes should never be worn in the field, regardless of the circumstances.**

LBGES provides hard hats that should be worn around any drilling operations and in any other "hard hat zones". Where required, safety glasses, goggles, protective gloves, respirators, and other safety clothing or equipment should be worn and disposed of as specified by the Project Safety Officer.

Periodically, LBGES provides special safety seminars which satisfy the OSHA requirements for work on hazardous waste sites. In-house safety training is conducted on an ongoing basis and as dictated by case-by-case needs. There is a Corporate Safety Officer in the Shelton, Connecticut headquarters and a designated Safety Officer in each regional office to whom questions and problems relating to job safety should be referred.

LBG ENGINEERING SERVICES, P.C.
GENERAL DRUG AND ALCOHOL POLICY

In any company, certain common-sense rules of conduct and performance must be established for the employees to follow in order to avoid any misunderstanding and to protect the rights of all concerned. Breaches of acceptable conduct which include, but are not limited to, abusive language, insubordination, intoxication, moral turpitude, or substance abuse/possession can lead to disciplinary action or to dismissal.

While performing any service for LBGES or LBGES's clients, employees, agents, and subcontractors of LBGES shall not: (1) be under the influence of alcohol or any controlled substance; (2) use, possess, distribute, or sell illicit or unprescribed controlled drugs, drug paraphernalia, or alcoholic beverages; or (3) misuse legitimate prescription drugs.

LBGES may remove from active project status any of its employees any time there is a reasonable basis for suspicion of alcohol/drug use, possession, or impairment involving such employee, and at any time an incident occurs where drug or alcohol use could have been a contributing factor. In such cases, employee may only be considered for return to work after LBGES certifies as a result of a for-cause test, conducted immediately following removal, that said employee is in compliance with this policy.

LBGES reserves the right to require drug and alcohol testing for its employees, either for its own purposes or at the direction of Clients. Such testing may take place periodically, or for specific projects. The testing will be in compliance with Department of Transportation drug testing regulations.

APPENDIX B

AIR MONITORING EQUIPMENT OPERATION

LBG ENGINEERING SERVICES, P.C.
AIR MONITORING EQUIPMENT OPERATION

Instrument Calibration

All applicable instruments will be calibrated daily before use. Readings will be recorded on the Air Monitoring form.

Background Readings

Before any field activities commence, the background levels of the site must be read and noted. Daily background readings must be conducted away from areas of potential contamination to obtain accurate results.

Air Monitoring Frequency

All site readings must be noted on the Air Monitoring form along with the date, time, background level, weather conditions, wind direction and speed, and the location where the background level was recorded.

OVM 580B Photoionization Detector Calibration

- Turn the OVM on by pressing the ON/OFF switch.
- With the OVM running, press the MODE/STORE switch and then press the -/CRSR switch when the OVM reads if "logging is desired".
- Keep pressing the -/CRSR switch until OVM will display "reset to calibrate".
- Enter the calibration mode by pressing the RESET switch. The OVM will then display "restore backup + = Yes".
- Press the -/INC switch and the OVM will display "zero gas reset when ready".
- Connect zero gas to OVM and press RESET switch. The OVM will display "Model 580B zeroing".
- After the OVM calibrates the zero gas, it will display "span gas reset when ready".
- Connect span gas to OVM and press RESET switch.

- When OVM displays "reset to calibrate", the OVM has calibrated the span gas.
- To exit calibration mode, press MODE/STORE switch.

MiniRAE 2000 Photoionization Detector Calibration

- Press [MODE] to turn on. Wait for startup to finish
- To calibrate, from "Ready" or "0.0 ppm", press and hold [N/-] and [MODE] for 3 seconds.
- "Calibration/select gas?" press [Y/+]
- "Fresh Air Cal?" press [Y/+], unit zeros in about 15 seconds, press [N/-]
- "Span Cal?" press [Y/+], unit will tell when to apply Span Gas (typically isobutylene) from Tedlar bag. Calibration takes about 30 seconds. Reading should be very near the Span Gas concentration (e.g., 100 ppm). Unit will tell when to turn gas off.
- Press [MODE] twice to return to Survey Mode.

Thermo MIE Mod. PDR-1000AN Dust Monitor Calibration

- Press [ON/OFF] to turn unit on. To zero-calibrate unit, press [ENTER]. Note unit must be in a dust-free environment (e.g., a very clean office) to zero-calibrate.
- Unit will display "ZEROING" then "CALIBRATION: OK".
- To start measurement run press [ENTER].

APPENDIX C

PROJECT WORK ZONE CONSIDERATIONS

LBG ENGINEERING SERVICES, P.C.
PROJECT WORK ZONE CONSIDERATIONS

1.0 EXCAVATION SAFETY

To establish and monitor safe procedures for excavation operations that protect employees from the hazards of cave-in's, from materials that could fall or roll into an excavation, from collapse of adjacent structures, or from other hazards that may be present.

1.1 Responsibilities

The Project Manager shall require the excavation contractor to be duly qualified and to comply with the requirements of 29 CFR 1926 Subpart P. While also a remedial action, excavation at the Site is primarily part of the general construction activity. The excavation contractor will be subcontracted and will be under the direction of the general contractor. The general contractor and excavation contractor will ensure that a designated Competent Person will control all of the excavation and trenching activities in accordance with OSHA standards.

LBGES shall verify that:

- A designated Competent Person is available at the project site;
- The Competent Person and other site workers supplied by the general and excavation contractors have received required training;
- The Competent Person performs the required responsibilities; and
- Procedures described in this program are followed including employee/contractor training, personal protective equipment, site inspections, tests, and record keeping.

1.2 Requirements

General

- The Competent Person shall be the one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- A professional engineer, who is registered in New York State, shall design/approve site-specific protective systems when required for excavations at or greater than twenty feet in depth, or when the excavation is closer to an above or below grade structure than the depth being excavated.
- Employees and/or contractors who work in or around excavations must be trained according to their work.

Excavation Safety Training

- All personnel involved in excavation work must be trained in accordance with the requirements of this program.
- Training must be provided before the employee/contractor is assigned duties.
- Retraining shall be provided the lesser of every three years or as necessary to maintain knowledge or skills to safely work within or in the vicinity of excavations.

Site Worker Training

Personnel who conduct work within or in the vicinity of excavations must receive training prior to beginning work at the site. The training must include:

- Requirements of the OSHA Excavations Standard
- Work practices

- Hazards relating to excavation work
- Methods of protection for excavation hazards
- Use of Personal Protective Equipment
- Procedures regarding hazardous atmospheres
- Emergency and non-entry rescue procedures

Competent Person Training

In addition to site worker training, the Competent Person must also receive training to include:

- Methods of evaluating the site and conducting inspections according to this program.
- Evaluation and selection of protection methods.
- Ensuring compliance with this program.
- Requirements under additional applicable programs such as Confined Space and Fall Protection.

Site Inspection

- The Competent Person shall conduct daily inspections of excavations, adjacent areas, and protective systems for evidence of a situation that could result in possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions.
- An inspection shall be conducted by the Competent Person prior to the start of work and as needed throughout the shift. Inspections shall also be made after each hazard-changing event (e.g., rainstorm).
- Where the Competent Person finds evidence of a situation that could result in a possible cave-in, failure of protective systems, hazardous atmosphere, or other hazardous conditions, exposed employees shall be

removed from the hazardous area until precautions have been taken to assure their safety.

- The Competent Person shall maintain a written log of all inspections conducted. This log shall include the date, work site location, results of the inspection, and a summary of any action taken to correct existing hazards.

Protection Systems

- Each employee in an excavation shall be protected from cave-ins by using either an adequate sloping and benching system or an adequate support or protective system, except for the following conditions:
  - excavations made in stable rock; or
  - excavations less than five feet in depth where examination of the ground by a Competent Person provides no indication of a potential cave-in.
- Protective systems shall be capable of resisting all loads that could be reasonably expected to be applied to the system.
- The protective systems shall be selected and constructed by the Competent Person (a professional engineer is required for certain situations) and meet the requirements under OSHA 29 CFR 1926.652.

2.0 EQUIPMENT SAFETY

2.1 Basic Requirements

Employees will not proceed with work on, or in the proximity of, hazardous equipment until they have been properly trained and have received a safety briefing. If excavation is to be done at a hazardous substance site, the site-specific safety plan must be reviewed onsite and discussed in the safety briefing.

Potential hazards (e.g., overhead or underground power, oil, or gas lines in the immediate vicinity of the work area) must be removed, avoided by relocating the work site, or adequately barricaded to eliminate the hazard.

The use of unsafe or defective equipment is not permitted. Equipment must be inspected regularly and, if found to be defective, must be immediately removed from use and either repaired or replaced.

Employees will be familiar with the location of first-aid kits and fire extinguishers. Telephone numbers for emergency assistance must be prominently posted and kept current.

2.2 Housekeeping

Good housekeeping conditions should be observed in and around the work area. Suitable storage places should be provided for all materials and supplies.

Work surfaces, platforms, stairways, walkways, scaffolding, and accessways will be kept free of obstructions. All debris will be collected and stored in piles or containers for removal and disposal.

2.3 Lighting

In addition to providing required or recommended illumination intensities of at least 5-foot candles, consideration should be given to the selection and placement of lighting equipment. Proper lighting should provide minimum glare, eliminate harsh shadows, and provide adequate illumination to perform work efficiently and safely.

Light bulbs should be of the heavy duty, outdoor, nonshattering type.

All lighting circuits, including drop cords, should be grounded and have ground fault interrupters. Lighting circuits will be inspected periodically, and defective wiring or fixtures will be removed from service.

2.4 Flammable Liquids

All highly flammable liquids should be stored and handled only in approved containers. Portable containers must be the approved red safety containers equipped with flame arresters and self-closing lids.

Approved hand pumps will be used to dispense gasoline from barrels. Gasoline must not be used for degreasing or to start fires. Also, gasoline containers should be clearly labeled, and storage areas should be posted with "No Smoking" signs. Fire extinguishers should be installed in all areas that contain flammable liquids.

2.5 Public Safety

Work areas will be regulated so that the public will be protected from injury or accident. Adequate danger signs, barriers, etc., will be placed to effectively warn the public of hazards as well as to restrict access to dangerous areas.

2.6 Equipment Operation

Excavators and Associated Equipment

Labels clearly indicating the function and direction of control levers should be posted. An emergency safety power shutoff device should be installed within reach of the operator on all units. The device should be clearly labeled or otherwise made readily identifiable and checked daily to ensure that it is operable. The power unit should be operated only by authorized and qualified personnel.

Equipment will be shut down during manual lubrication and while repairs or adjustments are being made. Equipment such as internal combustion engines will not be refueled while running. Where practical, the gasoline tank should be positioned or shielded to avoid accidental spillage of fuel on the engine or exhaust manifold during refueling operations. Hazardous gears and moving parts also should be shielded to prevent accidental contact.

A dry chemical or carbon dioxide fire extinguisher, rated 5 pounds or larger, should be carried on the unit and removed to a position within 25 feet of the work site

during drilling operations. Extinguishers will be inspected and tagged at least once every 3 months.

Engine exhaust systems should be equipped with spark arresters when operated in areas where sparks constitute a fire hazard. Engine exhausts will be directed outside through flexible conduits or the entire interior space will be force ventilated during engine operation.

Overhead and Underground Utilities

Special precaution must be taken when using excavation equipment on a site within the vicinity of electrical power lines and other utilities. Electricity can shock, burn, and cause death.

Overhead and underground utilities should be located, noted, and emphasized on all excavation plans and assignment sheets. When overhead electrical power lines exist at or near a work site, all wires should be considered dangerous.

A check should be made for sagging power lines before a site is entered. Power lines should not be lifted to gain entrance. The appropriate utility company should be contacted and a request should be made that it lift or raise and cut off power to the lines.

The area around the excavation equipment should be inspected before starting work in the vicinity of power lines. The minimum distance from any point on the excavation equipment to the nearest power line should be determined when the bucket is extended. The bucket should not be extended and the excavator should not be operated if this distance is less than 20 feet.

The existence of underground utilities, such as electric power, gas, petroleum, telephone, sewer, and water lines, should always be suspected. These underground electric lines are as dangerous as overhead lines, so a utility locating service should always be contacted.

There are generally two types of utility locating services. One is a "free" service that is paid for by companies with underground pipes, lines, etc., to protect the

public and to prevent costly repairs. However, these services have access only to drawings for primary pipes or lines, typically on public property or right-of-way easements, but not to drawings showing supply or feeder lines from a primary system to the interior of a property. Therefore, they are not required, and in fact hesitate, to locate interior lines. Sites can be cleared for excavation by such services, but full knowledge of the supply line locations may not be determined.

A second type of locating service is provided by a paid subcontractor who physically sweeps or clears interior locations using locating equipment. Locating costs can be minimized by obtaining all available maps, drawings, and employee interview information before contracting with the locating company. This is especially important at large industrial plants or military bases, which can have an intricate network of underground utilities. It is important that every location be cleared, even those for hand-auger borings.

If a sign warning of underground utilities is located on a site boundary, it should not be assumed that underground utilities are located on or near the boundary or property line under the sign; they may be a considerable distance from the sign. The utility company should be contacted to check it out.

The owners of utility lines or the nearest underground utility location service should always be contacted before excavation is started. However, remember that some services provide information on utilities going to, but not within, a site. Metal detectors or other locating equipment may be necessary to determine the presence of shallow (surface) utilities onsite. The utility personnel should mark or flag the location of the underground lines and determine what specific precautions must be taken to ensure safety.

APPENDIX D

CONTACT SHEET AND MAP TO HOSPITAL

CONTACT SHEET

Project:	Remedial Action
Location:	1413 Fulton Street Brooklyn, New York
Client Contact:	Oren Sauberman, 1413 Fulton Management, L.L.C.
Consultant:	LBG ENGINEERING SERVICES, P.C. (914) 694-5711 (914) 694-5744 (fax)
Field Supervisor (HSO):	Michael Reiff, Brian Hawe
Project Manager:	Paul Woodell
Principal-in-Charge:	William Beckman
Local Police Headquarters:	Brooklyn 79th Precinct 263 Tompkins Avenue Brooklyn, New York (718) 636-6611
Local Hospital:	Interfaith Medical Center 1545 Atlantic Avenue Brooklyn, New York (718) 613-4000

Directions to the Hospital

Interfaith Medical Center
1545 Atlantic Avenue
Brooklyn, New York
(718) 613-4000

Total Distance: 1.0 mile

Approximate Travel Time: 5 minutes

- East on Fulton Street, 0.6 mile
- Right on Schenectady Avenue, 0.1 mile
- Right on Atlantic Avenue, 0.2 mile
- Medical Center on the right

Driving Directions to Interfaith Medical Center