

**PHASE II ENVIRONMENTAL SITE INVESTIGATION
OF**

**PROPOSED EAST NEW YORK FAMILY ACADEMY (P.S. 819K) ADDITION
BLOCK 4328, PORTION OF LOT 15
2057 LINDEN BOULEVARD
BROOKLYN, NEW YORK 11207**

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TABLE OF CONTENTS

Section	Page
EXECUTIVE SUMMARY	1
1.0 INTRODUCTION	4
1.1 Purpose	4
1.2 Recognized Environmental Conditions (RECs), Vapor Encroachment Conditions (VECs), and Environmental Concerns	4
2.0 DESCRIPTION OF PHASE II ESI FIELD ACTIVITIES	6
2.1 Geophysical Survey	6
2.2 Asbestos Clearance	7
2.3 Soil Vapor Sampling.....	7
2.4 Ambient Air Sampling	9
2.5 Soil Investigation	9
2.6 Groundwater Investigation.....	12
2.7 Free Phase Product	13
2.8 Preliminary Waste Characterization	14
3.0 SITE DESCRIPTION AND PHYSICAL CHARACTERISTICS	15
3.1 Topography.....	15
3.2 Geology.....	15
3.3 Hydrology	15
4.0 DISCUSSION OF FINDINGS	17
4.1 Applicable Regulatory Standards.....	17
4.1.1 <i>Soil Vapor Sampling Guidelines</i>	17
4.1.2 <i>Ambient Air Sampling Guidelines</i>	17
4.1.3 <i>Soil Cleanup Objectives (SCOs) and Supplemental Soil Cleanup Objectives (SSCOs)</i>	17
4.1.4 <i>Groundwater Quality Standards and Guidance Values</i>	18
4.1.5 <i>Hazardous Waste Characterization</i>	18
4.2 Geophysical Survey Findings.....	18
4.3 Soil Vapor Sampling Findings.....	19
4.3 Ambient Air Sampling Findings	20
4.4 Soil Sampling Findings.....	20
4.4.1 <i>Volatile Organic Compounds (VOC) in Soil</i>	20
4.4.2 <i>Semivolatile Organic Compounds (SVOC) in Soil</i>	21
4.4.3 <i>TAL Metals in Soil</i>	21
4.4.4 <i>Pesticide, Herbicide, and PCB Compounds in Soil</i>	21
4.4.5 <i>Total Petroleum Hydrocarbons (TPH), Hexavalent Chromium, and Cyanide in Soil</i>	22
4.4.6 <i>Toxicity Characteristic Leaching Procedure (TCLP) - Lead</i>	22
4.5 Groundwater Sampling Findings	22
4.5.1 <i>Volatile Organic Compounds (VOC) in Groundwater</i>	23
4.5.2 <i>Semivolatile Organic Compounds (SVOC) in Groundwater</i>	23
4.5.3 <i>TAL Metals (Dissolved and Total) and Cyanide in Groundwater</i>	24
4.5.4 <i>Pesticide, Herbicide, and PCB Compounds in Groundwater</i>	24
4.5.5 <i>NYCDEP Sewer Discharge Parameters</i>	25
4.6 Pre-Design Waste Characterization Sampling Findings	25
4.6.1 <i>Pre-Design Characterization Sampling Results</i>	25
4.6.2 <i>Investigation Derived Waste Management and Disposal</i>	25
4.7 Summary of Findings.....	25

5.0 CONCLUSIONS AND RECOMMENDATIONS.....27
6.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS.....29
7.0 REFERENCES.....30

LIST OF FIGURES

- Figure 1 - Site Location Map**
- Figure 2 - Sample Location Plan**

LIST OF TABLES

- Table I - Summary of Soil Vapor Sampling Field Data**
- Table II - Soil Vapor Analyte List**
- Table III - Summary of Ambient Air Sampling Field Data**
- Table IV - Summary of PID Screening and Soil Sample Analytical Plan**
- Table V - Groundwater Sample Analytical Plan**
- Table VI - Summary of Detected VOC Concentrations Greater Than AGVs and/or Background Concentrations in Soil Vapor**
- Table VII – Summary of Detected Metals Concentrations Greater than Unrestricted Use SCOs**
- Table VIII – Summary of Total Petroleum Hydrocarbons (TPH) Concentrations in Soil**
- Table IX – Detected SVOC Concentrations in Groundwater above State Criteria**
- Table X – Detected Filtered and Total Metals Concentrations in Groundwater above State Criteria**

- Table 1A - Soil Vapor Sampling Results for Selected VOC Compounds**
- Table 1B - Ambient Air Sampling Results for Selected VOC Compounds**
- Table 2 – Volatile Organic Compounds Detected in Soil**
- Table 3 – Semivolatile Organic Compounds Detected in Soil**
- Table 4 – TAL Metals and Total Petroleum Hydrocarbons (GRO/DRO) Detected in Soil**
- Table 5 – Pesticide, Herbicide, and PCB Compounds Detected in Soil**
- Table 6 – Volatile Organic Compounds Detected in Groundwater**
- Table 7 – Semivolatile Organic Compounds Detected in Groundwater**
- Table 8 – TAL Metals (Dissolved and Total) and TPH (GRO/DRO) Detected in Groundwater**
- Table 9 – Pesticide, Herbicide, and PCB Compounds Detected in Groundwater**
- Table 10 – NYCDEP Dewatering Effluent Discharge Limits Evaluation**
- Table 11 – Toxicity Characteristic Leaching Procedure Results in Soil**

APPENDICES

APPENDIX A..... SITE INVESTIGATION PHOTOGRAPHS
APPENDIX B.....GEOPHYSICAL SURVEY REPORT
APPENDIX C..... ASBESTOS INSPECTION REPORT

PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT
PROPOSED EAST NEW YORK FAMILY ACADEMY (P.S. 819K) ADDITION
2057 LINDEN BOULEVARD, BROOKLYN, NY 11207
TAX BLOCK 4328, LOT 15

APPENDIX D LABORATORY ANALYTICAL DATA REPORTS
APPENDIX E SOIL BORING LOGS
APPENDIX F GROUNDWATER SAMPLE COLLECTION LOGS
APPENDIX G SUPPORTING DOCUMENTS
APPENDIX H REMEDIATION COST ESTIMATE

EXECUTIVE SUMMARY

At the request of New York City School Construction Authority (NYCSCA), STV Incorporated (STV) conducted a Phase II Environmental Site Investigation (ESI) for the proposed addition to the East New York Family Academy, also known as Public School 819K, located at 2057 Linden Boulevard, Brooklyn, New York 11207 (Block 4328, Portion of Lot 15) (hereafter referred to as the “Site”).

The Site is located in an area that is primarily characterized by residential properties, low-rise commercial structures, Linden Park, J.H.S. 166K, P.S. 36K, and the New York City Housing Authority Linden Houses and Boulevard Houses. Historically, the Site was vacant land prior to the 1950’s followed by a Young Men’s and Young Women’s Hebrew Association facility until the present school building was constructed.

The Site property consists of an approximately 56,000 square-foot (sf) lot developed with a two-story school building constructed in 1953 and an asphalt covered playground area that contains six (6) “Transportable Classroom Units” (TCU), each approximately 1,125 sf in size, located along the eastern, southern, and western perimeter of the playground area. NYCSCA is considering adding additional capacity to the school by removing the TCUs and constructing an addition to the south of the existing school building.

STV previously performed a Phase I Environmental Site Assessment (ESA) of the Site for the NYCSCA. The Phase I ESA report dated April 21, 2016 identified Recognized Environmental Conditions (RECs) and/or Vapor Encroachment Conditions (VECs) associated with a 5,000-gallon fuel oil underground storage tank (UST) located in a subterranean vault, and the potential for a UST or historic fill of unknown origin in the area occupied by the TCUs. Off-site RECs include two nearby active dry cleaners and the historical presence of several dry cleaners, an auto repair station, and a former metal etching facility which was listed as a State Inactive Hazardous Waste Disposal site and Brownfield Cleanup Program site. Additionally, nearby sites are listed in regulatory databases for the generation of hazardous waste, historical drycleaners, a historic auto station, and two documented open petroleum spills. The Phase I ESA Report also identified environmental concerns including the presence of suspect asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyl (PCB)-containing materials.

The purpose of the Phase II ESI was twofold: 1) to determine if the RECs, VECs, and environmental concerns identified in the Phase I ESA Report require special consideration and/or affect the suitability of the Site for the proposed development and for use as a public school facility; and 2) preliminarily characterize the environmental condition of the soil anticipated to be excavated for construction.

Phase II ESI activities were performed on May 4 and 7, 2016, and consisted of a geophysical survey and the collection and analysis of four (4) subsurface soil vapor samples, one (1) ambient air sample, ten (10) soil samples, and five (5) groundwater samples.

The findings of the Phase II ESI indicate the following:

- Fill material underlies the Site to a depth of approximately 5 ft bgs.
- USTs or other significant subsurface anomalies were not identified at the accessible portions of the Site. Six (6) TCUs are located on-Site and the potential exists for a suspect UST to be present underneath the TCUs.

- Two (2) chlorinated solvents [tetrachloroethylene (PCE) and trichloroethylene (TCE)] were detected in soil vapor at concentrations exceeding their New York State Department of Health (NYSDOH) Air Guideline Values (AGVs) in two (2) samples and background comparison criteria in three samples. One (1) petroleum-related compound (naphthalene) was detected at a concentration exceeding background comparison criteria in one (1) sample. The detected VOCs in soil vapor are attributed to off-site sources.
- Soil sample laboratory results indicate that no pesticides, herbicides, or PCBs were detected at or above their respective laboratory method reporting limits in any samples. Several SVOCs and one (1) VOC were detected at concentrations above the laboratory method reporting limit but well below their respective New York State Department of Environmental Conservation (NYSDEC) Part 375 Unrestricted Use Soil Cleanup Objective (SCOs). One (1) metal (lead) was detected at concentrations exceeding its respective Unrestricted Use SCO in two (2) samples. Mercury was also detected a concentration exceeding its Unrestricted Use SCO in one (1) sample. These metals detections are likely attributable to the historic fill material at the Site.
- A review of the soil sampling analytical results indicated that two (2) soil samples had the potential to exhibit the toxicity characteristic for lead; therefore, Toxicity Characteristics Leaching Procedure (TCLP) analyses was run on the samples. Lead was not detected at a concentration exceeding the toxicity characteristic for lead. TPH (GRO) was not detected above the laboratory method reporting limits in any of the samples. TPH (DRO) was detected in sample SB-5 (Comp) at 13.9 mg/Kg. Hexavalent chromium and chrysene were not detected at or above their respective laboratory method reporting limits in any samples.
- Groundwater sample laboratory results indicate that no pesticides, herbicides, or PCBs were detected at or above their respective laboratory method reporting limits in any of the samples. Two (2) VOCs (chloroform and PCE) were detected in one (1) groundwater sample above their respective laboratory method reporting limits but below their respective Ambient Water Quality Standards (AWQS). Four (4) semi-volatile organic compounds (SVOCs) [benzo(a) anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene] were detected at concentrations exceeding their respective AWQS in one sample. Dissolved concentrations of one (1) metal (manganese) were detected in two (2) groundwater samples at concentrations exceeding the applicable AWQS. The elevated concentrations of SVOCs and metals in groundwater are attributed to sediment entrained in the samples or background conditions.
- The laboratory results indicate that all constituent concentrations are below the NYCDEP Sewer Discharge Parameters.
- Based upon the results of preliminary waste characterization sampling the soil would be classified as Non-Hazardous Excavated Material (NHEM).

To address the RECs, VECs, and environmental concerns that require special consideration and/or affect the suitability of the Site for the proposed development and use as a school facility, STV recommends the following:

- A soil vapor barrier and a sub-slab depressurization system (SSDS) should be integrated into the new school design including the integration with any proposed damp-proofing or water proofing components to prevent potential soil vapor intrusion into the new school building.

PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT
PROPOSED EAST NEW YORK FAMILY ACADEMY (P.S. 819K) ADDITION
2057 LINDEN BOULEVARD, BROOKLYN, NY 11207
TAX BLOCK 4328, LOT 15

- All material excavated during construction activities should be properly characterized and disposed, including collection and analysis of additional samples as required by the contractor-selected disposal facilities.
- After the proposed new building and grounds are constructed, any exposed soil (landscaped areas) must be covered with at least two feet of environmentally clean fill.
- Any suspect USTs encountered, along with associated petroleum-impacted soil, should be removed and handled in accordance with applicable regulations, and transported to an off-site disposal facility that is permitted to accept this material.
- Suspect ACM, LBP, and/or PCB-containing materials encountered during construction should be properly identified and managed.

1.0 INTRODUCTION

1.1 Purpose

At the request of New York City School Construction Authority (NYCSCA), STV Incorporated (STV) conducted a Phase II Environmental Site Investigation (ESI) for the proposed addition to the East New York Family Academy, also known as Public School 819K, located at 2057 Linden Boulevard, Brooklyn, New York 11207 (Block 4328, Portion of Lot 15) (hereafter referred to as the “Site”). The Site is located in an area that is primarily characterized by residential properties, low-rise commercial structures, Linden Park, J.H.S. 166K, P.S. 36K, and the New York City Housing Authority Linden Houses and Boulevard Houses.

The Site property consists of an approximately 56,000 square-foot (sf) lot developed with a two-story school building constructed in 1953 and an asphalt covered playground area that contains six (6) “Transportable Classroom Units” (TCU), each approximately 1,125 sf in size, located along the eastern, southern, and western perimeter of the playground area. NYCSCA is considering adding additional capacity to the school by removing the TCUs and constructing an addition to the south of the existing school building.

Historically, the Site was vacant land prior to the 1950’s followed by a Young Men’s and Young Women’s Hebrew Association facility until the present school building was constructed. The City of New York has owned the property since at least 1923. *Figure 1* presents a Site Location Map.

NYCSCA performed a Test Fit / Sketch Study (issued on May 9, 2016) to determine whether or not the Site could accommodate an addition. The proposed conceptual design scheme is a new, stand-alone, four-story building with a basement and with a total gross area of approximately 36,250 sf. Copies of the Test Fit /Sketch Study are included in *Appendix F*.

This Phase II ESI was performed as a follow up to the Phase I Environmental Site Assessment (ESA) prepared by STV, dated April 21, 2016. Its purpose is to determine if there are any Recognized Environmental Conditions (RECs), Vapor Encroachment Conditions (VECs) or environmental concerns identified on the Site or adjacent areas that require special considerations and/or may have affected the suitability of the Site for the proposed development and for use as a public school facility (see Section 1.2). The analytical data collected during this study will also assist in preliminarily characterizing the soil anticipated to be excavated for construction of the proposed addition. To accomplish these objectives, Phase II ESI field activities were performed on May 4 and 7, 2016. The investigation consisted of a geophysical survey; the advancement of soil borings; installation of temporary soil vapor probes; groundwater monitoring wells, and the collection and analysis of soil vapor, ambient air, soil, and groundwater samples.

1.2 Recognized Environmental Conditions (RECs), Vapor Encroachment Conditions (VECs), and Environmental Concerns

The Phase I ESA of the Site identified on-site and off-site RECs/VECs and environmental concerns as follows:

On-Site RECs/CRECs/VECs:

- The historic and current presence of one (1) 5,000-gallon No. 4 fuel oil underground storage tank (UST) located in a subterranean vault in the walkway area in between the school building and the playground area is considered a REC/VEC with respect to the Site.
- The potential for a UST or historic fill of unknown origin in the area occupied by the TCUs is considered a REC/VEC with respect to the Site.

Off-Site RECs/CRECs/VECs:

- Two (2) facilities with open spills (580 Hegeman Avenue and 1935 Linden Boulevard) are located in close proximity and in hydraulically cross-gradient positions with respect to the Site and are considered RECs/VECs.
- Two (2) nearby active dry cleaners with on-site operations (663 Stanley Avenue and 693 Stanley Avenue) and several historical dry cleaners (2029 Linden Boulevard, 771 Miller Avenue, 741 Riverdale Avenue, and 825 Van Sicken Avenue) are located in close proximity to the Site. These active and historical dry cleaner facilities are also identified in one or more of the following databases: Resource Conservation and Recovery Act Small Quantity Generator (RCRA-SQG), RCRA Conditionally Exempt Small Quantity Generator (RCRA-CESQG), RCRA Non-Generators / No Longer Reporting (RCRA-NonGen / NLR), and New York Manifest (NY Manifest). These facilities are considered RECs/VECs based on the presumed storage and regular use of solvents.
- One (1) historical auto repair station (646 Hegeman Avenue) is considered a REC/VEC based on its proximity to the Site and hydraulically up-gradient position with respect to the Site.
- One (1) facility that was formerly utilized as a metal etching company (491 Wortman Avenue) is located to the east of the Site. This facility is also identified as an inactive hazardous waste disposal site and is in the Brownfield Cleanup Program because soil, groundwater, and soil vapor are impacted by chlorinated volatile organic compounds (VOCs) and petroleum-related compounds. This property is considered a REC/VEC based on its proximity to the Site and hydraulically cross-gradient position with respect to the Site.

Environmental Concerns

The Phase I ESA has revealed the following environmental concerns associated with the Site:

- Suspect asbestos-containing material (ACM) consisting of floor tiles, ceiling tiles, cove base mastic, wallboard, wall plaster, and textured ceiling paint exists throughout the school building and TCUs.
- Based on the age of the school building (circa 1953), there is the potential for the presence of suspect lead-based paint (LBP) identified on interior and exterior painted surfaces.
- Fluorescent lighting fixtures and window caulking identified throughout the school building and TCUs may contain polychlorinated biphenyls (PCBs).

2.0 DESCRIPTION OF PHASE II ESI FIELD ACTIVITIES

Phase II ESI field activities were performed on May 4 and 7, 2016 and included the following:

- Geophysical survey of the Site to clear a 20-foot by 20-foot maximum area around each boring area for the purpose of identifying subsurface utilities or other obstructions prior to drilling and survey of accessible portions of the Site to determine the presence or absence of buried structures or USTs;
- Collection of four (4) subsurface soil vapor samples and one (1) ambient air sample for volatile organic compounds (VOCs) analysis;
- Advancement of five (5) soil borings and collection of ten (10) soil samples for organic and inorganic analyses; and
- Installation of five (5) temporary 2-inch diameter, slotted, polyvinyl chloride (PVC) groundwater monitoring wells. Collection of five (5) groundwater samples for organic and inorganic analyses, and analysis of one (1) groundwater sample for the New York City Department of Environmental Protection (NYCDEP) Sewer Discharge Parameters.

A Site Plan showing the sampling locations, Site features, tax block and lot numbers, identified RECs/VECs and anticipated groundwater flow direction is provided as *Figure 2*. Representative photographs of field investigation activities including the condition of the Site prior to and following the investigation are included in *Appendix A*.

The Phase II ESI was conducted in accordance with STV's Phase II ESI Scope of Work dated April 21, 2016, with the following exceptions:

- Soil vapor samples were to be collected from borings SB-1 through SB-5. A subsurface soil vapor sample was not collected from boring SB-3 because the Summa® canister malfunctioned upon deployment.
- Based on PID screening, no apparent impacted soils were encountered and therefore one (1) soil sample (grab and composited) was to be collected from the 5 to 7 ft below ground surface (bgs) interval in each respective boring. However, two (2) soil samples were collected from each respective boring location from depths most likely to be affected by the proposed construction (cellar excavation). The first soil sample was collected from the 1 to 5 ft bgs interval and analyzed the fill material. The second sample was collected from native material that was that was directly above the water table within the capillary fringe.

2.1 Geophysical Survey

The geophysical survey was performed on May 4, 2016, by Diversified Geophysics Inc. (DGI), of Mineola, New York, to locate, trace, and mark the presence of any subsurface utilities, documented or undocumented structures and/or subsurface anomalies (i.e., USTs and associated ancillary piping, suspect drywells, subsurface piping and utility lines, buried structures, etc.) and to verify that the proposed sample locations were clear of subsurface structures and utilities. The geophysical survey equipment consisted of a Sensors and Software 250 MHz Noggin^{Plus} SmartCart® ground penetrating radar (GPR) unit and a radio frequency

(RF) transmitter and receiver. The survey was comprised of a series of single-line GPR traverses, and multiple RF traces. A copy of the geophysical survey report is attached as *Appendix B*.

2.2 Asbestos Clearance

Prior to mobilizing to the Site, STV marked the proposed boring locations to allow for asbestos clearance. New York State Department of Labor (NYSDOL) Inspector Roman Fishman performed the project monitoring and air sample collection under the supervision of ATC Group Services LLC (ATC), of New York, New York, on May 3, 2016. A copy of the Pre-Probe Asbestos Inspection report for the Site is attached as *Appendix C*.

2.3 Soil Vapor Sampling

A soil vapor survey was conducted as part of the Phase II ESI to evaluate the potential for vapor intrusion at the Site. Four (4) soil vapor samples (sample IDs: SV-1, SV-2, SV-4, and SV-5) were collected for laboratory analysis.

The soil vapor sampling program was completed on May 7, 2016 in conformance with the applicable procedures described in ASTM E 2600-10 “Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions” and the October 2006 New York State Department of Health (NYSDOH) “Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York” (NYSDOH Vapor Intrusion Guidance Document) protocols. Aquifer Drilling & Testing, Inc. (ADT) of New Hyde Park, New York, was retained as a subcontractor by STV for drilling services. *Figure 2* shows the locations of the soil vapor survey points advanced at the Site as part of the Phase II ESI. The rationale for each soil vapor sample is as follows:

- SV-1 – located in the northeast portion of Site in the vicinity of the existing school’s 5,000-gallon fuel oil UST;
- SV-2 – located in the southeast portion of the Site in a hydraulically down-gradient position with respect to the existing school’s 5,000-gallon fuel oil UST;
- SV-3 – located in the southwest portion of the Site. No soil vapor sample was collected from this location because the Summa® canister malfunctioned upon deployment.
- SV-4 – located in the northwest portion of the Site in the vicinity of the underground portion of the UST vent pipe;
- SV-5 – located in the approximate center of the Site near the northern end of four TCUs.

The soil vapor samples were collected using a jack hammer driven direct-drive system (i.e., Geoprobe). Soil vapor points were installed by advancing a 0.75-inch diameter hollow probe rod fitted with an expendable 6-inch diameter stainless steel screened drive point to a depth of 5 feet ft bgs. Dedicated Teflon tubing with threaded fittings was then connected to the probe. The hollow probe rod was then removed and an air tight seal was created at the surface using hydrated bentonite.

The adequacy of each seal was tested using a 5-gallon bucket placed over the borehole and sealed from the ambient air also using hydrated bentonite. Helium tracer gas was then pumped into the bucket. The above

grade end of the tubing, which is the sample collection point, was then attached to a helium gas detector. The adequacy of the seal was verified by direct helium readings of less than 10 percent. Each of the temporary soil vapor probes were then purged using a photo-ionization detector (PID) to evacuate three (3) volumes of soil vapor. PID readings during purging ranged from 0 to 3 parts per million (ppm). After purging, each probe was connected by means of Teflon tubing to a laboratory-supplied individually certified-clean, 6-liter Summa® canister equipped with a 0.1 liter per minute (L/min) flow regulator and the samples were collected over a one hour time period. Immediately after opening each soil vapor Summa® canister, the initial vacuum (inches of mercury) was noted at all the locations as shown on *Table I*. After one hour, final vacuum readings (inches of mercury) were noted and the Summa® canisters were closed. Upon completion, the soil vapor points were backfilled to near grade surface with the drill cuttings and then the ground surface was restored to its original condition.

During sampling, there were no activities being performed in the immediate vicinity which would interfere with the soil vapor sampling.

Table I
Summary of Soil Vapor Sampling Field Data

Sample ID	Vacuum at Start (inches Hg)	Vacuum at Completion (inches Hg)
SV-1	29	2.5
SV-2	30+	7.5
SV-4	27	1
SV-5	28	2.5

The four (4) soil vapor samples were analyzed for the following volatile organic compounds (VOCs) by USEPA Method TO-15 to evaluate soil vapor conditions at the Site:

Table II
Soil Vapor Analyte List

Benzene	1,1-Dichloroethene	Toluene
Carbon Tetrachloride	cis-1,2-Dichloroethene	1,1,1-Trichloroethane
Chlorobenzene	trans-1,2-Dichloroethene	Trichloroethene (TCE)
Chloroethane	1,2-Dichloropropane	1,2,4-Trimethylbenzene
Chloromethane	Ethylbenzene	1,3,5-Trimethylbenzene
1,2-Dichlorobenzene	Methyl tert-butyl Ether (MTBE)	Vinyl Chloride
1,3-Dichlorobenzene	Methylene Chloride	<i>m,p</i> -Xylenes
1,1-Dichloroethane	Naphthalene	<i>o</i> -Xylene
1,2-Dichloroethane	Tetrachloroethene (PCE)	

After collection, the Summa® canisters were properly labeled and transported via courier under standard chain-of-custody procedures to York Analytical Laboratories (York) of Stratford, Connecticut. York is a NYSDOH Environmental Laboratory Approval Program (ELAP) certified analytical laboratory for air quality sample analyses (ELAP # NY10854). In accordance with the NYSDOH Vapor Intrusion Guidance Document, detection limits of 0.25 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) were achieved for vinyl chloride, TCE, and carbon tetrachloride, and detection limits of less than 1.0 $\mu\text{g}/\text{m}^3$ were achieved for all other

analytical results. A summary of the analytical results is provided in *Table IA* and a copy of the analytical laboratory results is attached in *Appendix D*.

2.4 Ambient Air Sampling

One (1) ambient air quality sample was collected from the asphalt covered playground area (sample ID: Ambient). *Figure 2* shows the location of the ambient air sample. The ambient air sample was collected at a height of approximately 3-5 feet to simulate a typical breathing zone. The ambient air quality sample was collected using an individually certified-clean 6-liter capacity Summa® canister, equipped with a 0.0125 L/min flow regulator and the sample was collected over an eight (8) hour time period.

Immediately after opening the ambient air Summa® canister, the initial vacuum (inches of mercury) was noted as shown on *Table III*. After eight (8) hours, final vacuum reading (inches of mercury) was noted and the Summa® canister was closed. During sampling, there were no activities being performed in the immediate vicinity which would interfere with the ambient air sampling.

Table III
Summary of Ambient Air Sampling Field Data

Sample ID	Vacuum at Start (inches Hg)	Vacuum at Completion (inches Hg)
Ambient	27.5	4

The ambient air sample was analyzed for the same 26 VOCs outlined in *Table II* above with the same detection limits specified for the soil vapor samples. A summary of the analytical results is provided in *Table IB* and a copy of the analytical laboratory results is attached in *Appendix D*.

2.5 Soil Investigation

A soil sampling program was conducted as part of the Phase II ESI. Soil samples were collected to assess current environmental conditions and to characterize subsurface soil at the Site. *Figure 2* shows the locations of the soil borings advanced at the Site as part of the Phase II ESI. All soil sampling was conducted in accordance with the procedures set forth in the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010.

The subsurface soil sampling program was performed on May 7, 2016. ADT was retained as a subcontractor by STV for drilling services. Direct push drilling methods, utilizing a track mounted direct drive rig, were used to retrieve soil samples. Soil samples were collected and screened for evidence of field contamination continuously from the ground surface to the boring completion depth in 5-foot long, 2-inch diameter macro-core samplers lined with acetate sleeves. A description of the soils retained in each Geoprobe sample core was logged by STV's on-site environmental scientist and the soils were screened in the field for the presence of VOCs with a PID. Upon completion, each boring was backfilled to near ground surface with the drill cuttings and then the ground surface was restored to its original condition (i.e., asphalt). Soil boring logs, including the PID responses for each sample, are provided in *Appendix E*.

Borings were advanced throughout the Site to identify subsurface contamination that may be encountered

during building construction. Borings were advanced to a maximum termination depth of 18 ft bgs. Groundwater was encountered in each of the respective borings at approximately 13 ft bgs.

The following criteria were applied in selecting soil samples for laboratory analysis:

- Based on PID screening, no apparent impacted soils were encountered; therefore, two (2) soil samples were collected from each respective boring from zones most likely to be affected by the proposed construction (cellar excavation). The first soil sample was collected from the 1- to 5 ft bgs interval and analyzed the fill material. The second sample was collected from native material that was that was directly above the water table within the capillary fringe. Grab samples were collected for analysis of VOCs and composite samples were collected for analysis of the remaining parameters.

Each of the ten (10) soil samples were analyzed for the following parameters:

- Target Compound List (TCL) and CP-51-Listed VOCs plus tentatively identified compounds (TICs)
- TCL and CP-51-Listed semi-volatile organic compounds (SVOCs) plus TICs
- TAL Metals (less Al, Ca, Fe, K, Mg, and Na)

One (1) composited soil sample from each respective boring was also analyzed for the following parameters:

- TCL Pesticides and Herbicides
- TCL PCBs
- Cyanide
- Total Petroleum Hydrocarbons (TPH), Diesel Range Organics/Gasoline Range Organics (DRO/GRO)
- Hexavalent Chromium

The following table provides a summary of the soil sampling program:

PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT
 PROPOSED EAST NEW YORK FAMILY ACADEMY (P.S. 819K) ADDITION
 2057 LINDEN BOULEVARD, BROOKLYN, NY 11207
 TAX BLOCK 4328, LOT 15

Table IV
Summary of PID Screening Results and Soil Sample Analytical Plan

Soil Boring Number	Boring Depth (ft bgs)	Sample Interval Selected for Analysis (ft bgs)	PID (ppm)	TCL and CP-51 VOCs +TICs	TCL and CP-51 SVOCs +TICs	TAL Metals*	TCL Pest / Herb	TCL PCBs	TPH DRO	TPH GRO	Cyanide	Cr ⁺⁶	TCLP Lead	
SB-1	18	4.5	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		3 - 5	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	X	
		10	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		5 - 10	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		3 - 10 (Comp)	0.0	NA	NA	NA	NA	X	X	X	X	X	X	NA
SB-2	18	4.5	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		1 - 5	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		10	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		5 - 10	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		1 - 10 (Comp)	0.0	NA	NA	NA	NA	X	X	X	X	X	X	NA
SB-3	18	4.5	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		1 - 5	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		10	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		5 - 10	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		1 - 10 (Comp)	0.0	NA	NA	NA	NA	X	X	X	X	X	X	NA
SB-4	18	4.5	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		1 - 5	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	X
		10	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		5 - 10	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		1 - 10 (Comp)	0.0	NA	NA	NA	NA	X	X	X	X	X	X	NA
SB-5	18	4.5	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		1 - 5	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		10	0.0	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		5 - 10	0.0	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA
		1 - 10 (Comp)	0.0	NA	NA	NA	NA	X	X	X	X	X	X	NA
DUP-050716**	--	--	0.0	X	X	X	NA	NA	NA	NA	NA	NA	NA	

Notes:

Samples listed with a single depth (e.g., 4.5) indicate discrete grab samples taken for VOC analysis whereas samples listed with a depth range (e.g., 5-10) indicate composite samples taken for SVOC and metals analyses. Samples listed with 'Comp' were analyzed for the remaining parameters.

X = Sample analysis performed.

ppm = parts per million (absence of PID readings indicate no detection)

* - Minus aluminum, calcium, iron, magnesium, potassium, and sodium

** Dup-050716 is a duplicate sample of grab sample SB-3(10) and composite sample SB-3(5-10).

NA = Not analyzed

TICs – Tentatively Identified Compounds

The samples were collected and containerized in accordance with NYSDEC/USEPA protocols. Each container was properly labeled, preserved, and placed in a cooler for transport via courier to York. York is a NYSDOH ELAP-certified analytical laboratory, whose current certification has been verified by STV. Standard chain-of-custody procedures were followed. A summary of the analytical results is provided in *Tables 2 to 5* and a copy of the analytical laboratory results is attached in *Appendix D*.

2.6 Groundwater Investigation

A groundwater sampling program was conducted as part of the Phase II ESI. Groundwater samples were collected to assess the current environmental conditions of groundwater within the proposed Site. *Figure 2* shows the location of the groundwater samples collected as part of the Phase II ESI.

The groundwater sampling program was completed May 7, 2016. ADT was retained as a subcontractor by STV for drilling services. To characterize groundwater quality at the Site, soil borings SB-1 through SB-5 were converted to temporary groundwater monitoring points (SB-1GW through SB-5GW).

Groundwater monitoring points SB-1(GW) through SB-5(GW) were each constructed with a 2-inch inside diameter, flush-threaded Schedule 40 polyvinyl chloride (PVC) well casing with a 10-foot screened interval that intersected the groundwater table. Groundwater was encountered at a depth of approximately 13 ft bgs. The screened interval consisted of 0.01-inch-wide slotted PVC casing. PVC riser completed each of the wells from the top of the screened interval to just below the ground surface. The annular space in each well was backfilled with #2 size well gravel from the base of the boring to approximately 2-ft above the screened interval. A bentonite well seal was placed within the remaining annular space from the top of the sand pack to just below surface grade.

Prior to collecting groundwater samples, the monitoring points were purged of approximately three volumes of water using a peristaltic pump fitted with dedicated, disposable polyethylene tubing and a check valve. During purging, field parameters [turbidity, pH, temperature, conductivity, redox potential, total dissolved solids (TDS), and dissolved oxygen] were monitored using a Horiba U-5000 Water Quality Meter with a flow-through cell. Sample locations were purged until groundwater turbidity reached a minimum [e.g., less than 50 Nephelometric Turbidity Units (NTUs)] and other parameters stabilized. There were no visual or olfactory indications of contamination observed in the groundwater samples collected. The monitored parameters were recorded on Groundwater Sampling Logs provided in *Appendix F*.

The table below provides a summary of the groundwater sample analytical plan:

Table V
Groundwater Sample Analytical Plan

Sample ID	Depth to Water (ft bgs)	Screened Interval (ft bgs)	Field Observations	TCL and CP-51 VOCs +TICs	TCL and CP-51 SVOCs +TICs	TAL Metals*	TCL Pest / Herb	TCL PCBs	TPH DRO	TPH GRO	Cyanide	Cr ⁺⁶	NYCDEP Sewer Discharge Parameters
SB-1(GW)	13.20	10 -18	No sheen/odor	X	X	X	X	X	X	X	X	X	X
SB-2(GW)	12.85	10-18	No sheen/odor	X	X	X	X	X	X	X	X	X	NA
SB-3(GW)	12.90	10-18	No sheen/odor	X	X	X	X	X	X	X	X	X	NA
SB-4(GW)	13.40	10-18	No sheen/odor	X	X	X	X	X	X	X	X	X	NA
SB-5(GW)	12.45	10-18	No sheen/odor	X	X	X	X	X	X	X	X	X	NA
DUP-GW**	13.20	10-18	No sheen/odor	X	NA	NA	NA	NA	NA	NA	NA	NA	NA
TB-050716	--	--	--	X	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

* - Minus aluminum, calcium, iron, magnesium, potassium, and sodium (total and dissolved)

** Dup-GW is a duplicate sample of SB-1(GW).

NA = Not analyzed

Groundwater samples were analyzed for TCL and CP-51 listed VOCs, TCL and CP-51 listed SVOCs, TCL PCBs, TCL pesticides and herbicides, laboratory filtered and unfiltered TAL Metals (less aluminum, calcium, iron, potassium, magnesium and sodium), cyanide, TPH DRO/GRO and hexavalent chromium. Additionally, groundwater sample SB-1(GW) was analyzed for the NYCDEP Sewer Discharge Parameters. One (1) trip blank was collected for quality assurance/quality control (QA/QC) purposes. The groundwater samples were collected and containerized in accordance with NYSDEC/USEPA protocols. Each container was properly labeled, preserved, and placed in a cooler for transport via courier to York. York is a NYSDOH ELAP-certified analytical laboratory, whose current certification has been verified by STV. Standard chain-of-custody procedures were followed. Subsequent to collecting the groundwater samples, the PVC well casings were withdrawn from their respective borings and the borings were backfilled to ground surface with bentonite well seal followed by an asphalt patch.

2.7 Free Phase Product

No free phase product was encountered in any of the soil borings or in the groundwater sample.

2.8 Preliminary Waste Characterization

The objective of this investigation is to provide a preliminary evaluation of the material characteristics for disposal purposes. This investigation is not a substitute for waste characterization sampling required by a specific disposal facility. Completing a site-specific waste characterization for excavated/removed material is the responsibility of the construction contractor.

Pre-design waste characterization sampling was accomplished through the soil investigation described above in Section 2.5.

3.0 SITE DESCRIPTION AND PHYSICAL CHARACTERISTICS

The Site property consists of an approximately 56,000 square-foot (sf) lot developed with a two-story school building (P.S. 819K) constructed in 1953 and an asphalt covered playground area. The Site is defined as the area south of the existing school building where the six (6) “Transportable Classroom Units” (TCU) and playground are located. For the purpose of this Phase II ESI report, the existing school building is not considered part of the Site.

3.1 Topography

According to the United States Geological Survey (USGS) 7.5-Minute Quadrangle Maps, Brooklyn, NY, dated 2013 and Jamaica, NY, dated 2013, the elevation of the Site is approximately 18 ft above mean sea level (amsl). The topography of the immediate Site area was observed to be sloping to the southeast. A copy of the topographic map is presented in *Appendix A*.

3.2 Geology

Kings County is comprised of consolidated bedrock overlain by unconsolidated sediments of gravel, sand, silt, and clay. The bedrock is crystalline and dips gently to the southeast. Depth to bedrock within the vicinity of the Site is approximately 568 ft bgs (as per “Ground-Water Resources of Kings and Queens Counties, Long Island, New York, by Herbert Buxton and Peter Schernoff, dated 1999). The unconsolidated deposit of Upper Cretaceous and Pleistocene age lie directly above the bedrock and generally follow the direction of the bedrock dip. The Pleistocene unconsolidated deposits, such as till forming the terminal moraines, or outwash from meltwaters, were deposited by glaciers. In the vicinity (northeast) of the Site is the end of the Harbor Hill Terminal moraine that consists of glacial till (i.e., unsorted sand, clay, gravel and boulders). Outwash deposits of stratified and sorted coarse sand and gravel are present southeast of the Site and Kings County in general. Outwash deposits are products of fluvial erosion of the moraine.

Phase II ESI soil boring results reveal that the Site is underlain by fill material consisting of silt, sand, and gravel, ranging in thickness from 1 to 5 ft bgs. Underlying the fill material, native, medium-grained sands were encountered. Bedrock was not encountered at the maximum soil boring depth of 18 ft bgs. Soil boring logs are provided in *Appendix E*.

3.3 Hydrology

Generally, groundwater contour lines mimic the surface topography and groundwater flow direction is perpendicular to these contour lines flowing from higher to lower elevation. Based on a review of the USGS topographic map and nearby topographic features, groundwater is inferred to flow to the southeast.

Based on water level measurements taken May 7, 2016 from temporary monitoring wells SB-1(GW) through SB-5(GW), groundwater was encountered at approximately 13 ft bgs at the Site. Estimated groundwater levels and/or flow direction(s) may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations. The groundwater in the vicinity of the Site is not known to be used for human consumption, as potable water in the area is derived from upstate reservoirs managed by New York City; the Site area is serviced by the City water supply.

PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT
PROPOSED EAST NEW YORK FAMILY ACADEMY (P.S. 819K) ADDITION
2057 LINDEN BOULEVARD, BROOKLYN, NY 11207
TAX BLOCK 4328, LOT 15

The nearest surface water body is Hendrix Creek, located approximately 2,900 ft southeast of the Site. Stormwater is collected from catch basins located on the surrounding streets and is conveyed into the New York City Department of Environmental Protection (NYCDEP) combined storm/sanitary sewer system.

4.0 DISCUSSION OF FINDINGS

This section presents a discussion of the findings of the Phase II ESI including geophysical survey results, and soil vapor, soil and groundwater sampling results. A summary of the laboratory analytical results is presented in *Tables 1 - 11*. The complete laboratory analytical data packages and the soil and groundwater sample collection logs are included in *Appendices D, E, and F*, respectively.

4.1 Applicable Regulatory Standards

This subsection identifies the USEPA, NYSDEC, NYSDOH and NYCDEP regulatory standards and guidelines used to evaluate the results of the soil vapor, subsurface soil, and groundwater sampling. The standards and guidelines used to evaluate the specific data are described individually below.

4.1.1 Soil Vapor Sampling Guidelines

The analytical results for the soil vapor samples were compared to the NYSDOH Air Guideline Values (AGVs) presented in the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006 (“NYSDOH Vapor Intrusion Guidance Document”), the NYSDOH’s Tetrachloroethene (Perc) in Indoor and Outdoor Air September 2013 Fact Sheet (“NYSDOH Perc Fact Sheet”) and the NYSDOH’s Trichloroethene (TCE) in Indoor and Outdoor Air August 2015 Fact Sheet (“NYSDOH TCE Fact Sheet”). Additionally, the soil vapor sample results were compared to background levels of VOCs in indoor air presented in Appendix C of the NYSDOH Vapor Intrusion Guidance Document, including Upper Fence Limit indoor air values from “Table C-1. NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes,” 90th Percentile indoor air values from “Table C-2. EPA 2001: Building Assessment and Survey Evaluation (BASE) Database, Summa® canister method,” and the 95th Percentile Indoor Air Values from “Table C-5, Health Effects Institute (HEI) 2005: Relationship of Indoor, Outdoor and Personal Air.” The results of the analyses of the soil vapor samples were also compared to Matrices 1 and 2 in the NYSDOH Vapor Intrusion Guidance Document. In addition, the results were compared to the 95th Percentile Concentrations in Existing Residences published in Appendix X7 of ASTM E 2600-08 “Standard Practice for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions.”

4.1.2 Ambient Air Sampling Guidelines

Analytical results for the ambient air samples were compared to the NYSDOH AGVs, the NYSDOH Perc Fact Sheet, and the NYSDOH TCE Fact Sheet. Additionally, the ambient air sample results were compared to the nearest NYSDEC ambient air monitoring station (P.S. 274K at 2800 Bushwick Avenue), which is located approximately 3.18 miles northwest of the Site and to background levels of VOCs in indoor air presented in Appendix C of the NYSDOH Vapor Intrusion Guidance Document, including Upper Fence Limit outdoor air values from “Table C-1, NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes”; 90th Percentile outdoor air values from “Table C-2, EPA 2001: Building Assessment and Survey Evaluation (BASE) Database, Summa® canister method”; and the 95th Percentile Outdoor Air Values from “Table C-5, HEI 2005: Relationship of Indoor, Outdoor and Personal Air.”

4.1.3 Soil Cleanup Objectives (SCOs) and Supplemental Soil Cleanup Objectives (SSCOs)

The Unrestricted Use SCOs and the Restricted-Residential SCOs found in 6 NYCRR 375-6, Remedial Program Soil Cleanup Objectives are the appropriate standards for use in evaluating the results of the

analyses of the Phase II ESI soil samples. Soil which is free of contaminants above Unrestricted Use SCOs is suitable for “unrestricted use” which is the land use category without imposed restrictions, such as environmental easements or other land use controls. The Restricted Residential Use category is the appropriate use category for day or child care facilities and elementary or secondary schools with some restrictions (i.e., a site management plan is required, vegetable gardens are prohibited).

Additionally, the Supplemental Soil Cleanup Objectives (SSCOs) outlined in Table 1 of the Commissioner Policy 51 (CP-51), “Soil Cleanup Guidance”, dated October 21, 2010 were used to evaluate soils data. CP-51 replaced the Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels (January 24, 1994); the Petroleum Site Inactivation and Closure Memorandum (February 23, 1998); and Sections III and IV of Spill Technology and Remediation Series (STARS) #1 (August 1992). The specific compounds listed in Table 1 of CP-51 had been included in former TAGM 4046 but were not included in 6 NYCRR 375-6.

4.1.4 Groundwater Quality Standards and Guidance Values

Analytical results for groundwater were compared to New York State Class GA groundwater standards and guidance values published in the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, “Ambient Water Quality Standards and Guidance Values.” Ambient water quality standards (AWQS) are enforceable regulatory limits. Where ambient water quality standards do not exist, ambient water quality guidance values were used to evaluate the ground water results.

Analytical results for groundwater were also compared to the daily limits set forth in the NYCDEP Bureau of Wastewater Treatment “Limitations for Effluent to Sanitary or Combined Sewers.”

4.1.5 Hazardous Waste Characterization

Lead was detected in sample SB-1 (3-5) at 128 milligrams per kilogram (mg/Kg) and in sample SB-4 (1-5) at 103 mg/Kg versus the Unrestricted Use SCO of 63 mg/Kg. Follow-up TCLP analyses for lead in samples SB-1 (3-5) and SB-4 (1-5) were below the USEPA TCLP regulatory level of 5 mg/Kg. The analytical data for the TCLP – Lead analysis is summarized in *Table 11*, and the analytical data report is provided in *Appendix D*.

4.2 Geophysical Survey Findings

The geophysical survey was conducted on the Site and included the assessment of whether the proposed soil vapor and soil boring locations conflicted with subsurface structures or utilities, and determining the location and extent of subsurface anomalies (i.e., USTs and associated ancillary piping, suspect drywells, subsurface piping and utility lines, buried structures, etc.). The geophysical survey revealed active electric, communications, a water main, and a sanitary sewer line. The presence of these subsurface utilities did not impact the investigation. No other structures or subsurface anomalies were detected.

All the proposed boring locations were cleared and marked out by DGI. The geophysical survey did not assess the areas underneath the TCUs. No other limitations were encountered during the survey. A copy of the geophysical survey report is attached as *Appendix B*.

4.3 Soil Vapor Sampling Findings

A review of the soil vapor sample analytical results indicates that 12 of the 26 VOCs analyzed utilizing USEPA Method TO-15 for the parameters listed in *Table II* were detected in one or more of the samples. These compounds include 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, chloromethane, ethylbenzene, methylene chloride, naphthalene, o-xylene, m,p-xylenes, PCE, toluene, and TCE.

A summary of the analytical results for VOCs in soil vapor is summarized in *Table I*. The complete analytical report is presented in *Appendix D*. A summary of the detected compounds at a concentration greater than anticipated background levels and/or the AGV is provided below:

Table VI
Summary of Detected VOCs Concentrations Greater Than AGVs and/or Background Concentrations in Soil Vapor

Sample ID	NYS DOH AGV $\mu\text{g}/\text{m}^3$	NYSDOH Fuel Oil 2003 Upper Fence Limit $\mu\text{g}/\text{m}^3$	USEPA BASE Data 90 th Percentile $\mu\text{g}/\text{m}^3$	HEI RIOPA 2005 95 th Percentile $\mu\text{g}/\text{m}^3$	ASTM E2600-08 Table X7.1 95 th Percentile $\mu\text{g}/\text{m}^3$	SV-1 Soil Vapor $\mu\text{g}/\text{m}^3$	SV-2 Soil Vapor $\mu\text{g}/\text{m}^3$	SV-4 Soil Vapor $\mu\text{g}/\text{m}^3$	SV-5 Soil Vapor $\mu\text{g}/\text{m}^3$
Units						$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
Location		Indoor	Indoor	Indoor	Indoor				
Naphthalene	--	--	5.1	--	2.1	<1.9	<1.9	7.4	<1.9
Tetrachloroethylene (PCE)	30	2.5	15.9	6.01	4.9-6.8	140	54	20	14
Trichloroethylene (TCE)	2	0.5	4.2	1.36	0.70-1.4	4.3	4.6	1.8	<0.24

Notes:

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

-- = Not Available

NA = Not analyzed

Bold and Shaded - Analyte concentration exceeds maximum background concentrations and AGVs.

Bold - Indicates the analyte concentration exceeds maximum background concentrations.

2003 Upper Fence Limit - Per Appendix C of the Final NYSDOH Guidance document.

BASE - building assessment and survey evaluation

HEI RIOPA - Health Effect Institute: Relationship of Indoor, Outdoor and Personal Air

PCE and TCE were detected at concentrations that exceeded their range of NYSDOH published indoor air background concentrations and their respective NYSDOH AGVs in samples SV-1 and SV-2. Both of these sample locations were located along the eastern side of the Site in the northwest and northeast corners, respectively. PCE was also detected at a concentration that slightly exceeded the range of expected background concentrations in sample SV-4, located at the southwest corner of the Site.

One (1) other compound (naphthalene) was also detected at a concentration that slightly exceeded the range of expected background concentrations in sample SV-4.

The soil vapor sampling results for TCE were compared to Matrix 1 of the NYSDOH Soil Vapor Intrusion Guidance Document. The concentrations for TCE reported by the laboratory ranged from <0.12 to 4.6 microgram per cubic meter ($\mu\text{g}/\text{m}^3$). Based on Matrix 1, a sub-slab vapor concentration of TCE less than 5 $\mu\text{g}/\text{m}^3$ requires no further action or taking reasonable and practical actions to identify source(s) and reduce exposure, depending on the corresponding indoor air concentration.

The soil vapor sampling results for PCE were compared to Matrix 2 of the NYSDOH Soil Vapor Intrusion Guidance Document. The concentrations for PCE reported by the laboratory ranged from 14 to 140 $\mu\text{g}/\text{m}^3$. Based on Matrix 2, a sub-slab vapor concentration of PCE between 100 and 1,000 $\mu\text{g}/\text{m}^3$ requires monitoring, and/or mitigation, depending on the corresponding indoor air concentration.

Based on prior Site use and the absence of detections in soil, the soil vapor detections are attributed to off-site sources (i.e., the presence of active dry cleaners, historical dry cleaners, an auto repair station, and a former metal etching facility which was listed as a State Inactive Hazardous Waste Disposal site and Brownfield Cleanup Program site).

4.3 Ambient Air Sampling Findings

A review of the ambient air sample analytical results indicates that six (6) of the 26 VOCs analyzed utilizing USEPA Method TO-15 for the parameters listed in *Table II* were detected at or above the laboratory method reporting limit. These compounds include benzene, chloromethane, methylene chloride, m,p-xylenes, PCE, and toluene. Methylene chloride was detected at a concentration (22 $\mu\text{g}/\text{m}^3$) that exceeded the range of NYSDOH published outdoor air background concentrations but not the corresponding AGV (60 $\mu\text{g}/\text{m}^3$).

A summary of the analytical results is presented in *Table IB*. The complete analytical data report is presented in *Appendix D*.

4.4 Soil Sampling Findings

The results of the analyses of the soil samples are presented in *Table 2* through *Table 5* and *Table 11*. The complete analytical data report is presented in *Appendix D*. It should be noted that the result for one (1) VOC compound (acetone) was qualified by the laboratory due to its behavior during initial calibration and calibration verification. These qualifications are not expected to affect data usability. A review of the soil analytical results is presented below.

4.4.1 Volatile Organic Compounds (VOC) in Soil

A review of the soil sample analytical results indicates that acetone was detected above the laboratory method reporting limit but less than the NYSDEC Part 375 Unrestricted Use and Restricted Residential SCOs in one or more samples. No other VOCs were detected at or above their respective laboratory method reporting limits in any of the soil samples. The analytical data summary tables of VOCs detected in soil are presented in *Table 2*, and the analytical data report is provided in *Appendix D*.

4.4.2 Semivolatile Organic Compounds (SVOC) in Soil

A review of the soil sample analytical results indicates that 13 SVOCs [anthracene, benzo(a) anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, carbazole, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene] were detected slightly above the laboratory method reporting limit but well below their respective Unrestricted Use SCOs in the composite soil sample SB-1 (3-5). No SVOCs were detected at or above the laboratory method reporting limit in any of the other composite soil samples. The analytical data summary tables of SVOCs in soil are presented in *Table 3*, and the analytical data report is provided in *Appendix D*.

4.4.3 TAL Metals in Soil

The results of the analysis of the soil samples indicate that 12 of the 16 target analyte list (TAL) metals analyzed were detected in one (1) or more samples. Two (2) of the 16 metals analyzed were detected at concentrations greater than Unrestricted Use SCOs. A summary of the detected compounds at concentrations greater than Unrestricted Use SCOs is provided below:

Table VII
Summary of Detected Metals Concentrations Greater than Unrestricted Use SCOs

Sample ID	NYSDEC Part 375 Unrestricted Use SCO (mg/Kg)	SB-1 (3-5)	SB-4 (1-5)
Units		mg/Kg	mg/Kg
Lead	63	128	103
Mercury	0.18	0.642	0.0515

Notes:

mg/Kg = milligrams per kilogram

Bold and Shaded - Analyte concentration exceeds NYSDEC Part 375 Unrestricted Use SCO.

Shown in table are samples only which exhibited metals at concentrations above Unrestricted Use SCOs.

Lead was detected in sample SB-1 (3-5) at 128 milligrams per kilogram (mg/Kg) and in sample SB-4 (1-5) at 103 mg/Kg versus the Unrestricted Use SCO of 63 mg/Kg. Mercury was detected above the Unrestricted Use SCO (0.18 mg/Kg) in sample SB-1 (3-5) at 0.642 mg/Kg. These detections are likely attributable to the historic fill material at the Site. The analytical data summary tables of metals in soil are presented in *Table 4*, and the analytical data report is provided in *Appendix D*.

4.4.4 Pesticide, Herbicide, and PCB Compounds in Soil

A review of the soil sample analytical results indicates that no pesticides, herbicides, or PCBs were detected at or above the laboratory method reporting limit in any of the soil samples. The analytical data summary tables of pesticides, herbicides, and PCB compounds in soil are presented in *Table 5*, and the analytical data report is provided in *Appendix D*.

4.4.5 Total Petroleum Hydrocarbons (TPH), Hexavalent Chromium, and Cyanide in Soil

A review of the soil sampling analytical results indicates that no TPH GRO, hexavalent chromium, or cyanide were detected at or above the laboratory method reporting limit in soil samples SB-1 (Comp), SB-2 (Comp), SB-3 (Comp), SB-4 (Comp), and SB-5 (Comp).

TPH DRO was detected in sample SB-5 (Comp) at 13.9 mg/Kg and was not detected at or above the laboratory method reporting limit in soil samples SB-1 (Comp), SB-2 (Comp), SB-3 (Comp), and SB-4 (Comp). A summary of the detected concentrations is provided below:

**Table VIII
 Summary of Total Petroleum Hydrocarbons (TPH) Concentrations in Soil**

Sample ID	Sample Depth	SB-5 (Comp)
Units	(ft bgs)	mg/Kg
TPH GRO	1 - 10	> 30
TPH DRO	1 - 10	13.9

Notes:
 mg/Kg = milligrams per kilogram

There are no applicable regulatory comparison criteria for TPH. TPH results provide information on soil disposal options for soil excavated for new school construction, since disposal facilities in the New York City metropolitan area typically require TPH analyses prior to accepting soil for disposal. The TPH results will not impact potential soil disposal options. The analytical data summary tables of TPH (GRO and DRO), hexavalent chromium, and cyanide in soil are presented in *Table 4*, and the analytical data report is provided in *Appendix D*.

4.4.6 Toxicity Characteristic Leaching Procedure (TCLP) - Lead

A review of the soil sampling analytical results indicates that the TCLP analyses for lead in samples SB-1 (3-5) and SB-4 (1-5) were below the USEPA TCLP regulatory level of 5 mg/Kg. The analytical data for the TCLP – Lead analysis is summarized in *Table 11*, and the analytical data report is provided in *Appendix D*.

4.5 Groundwater Sampling Findings

The depth to groundwater beneath the Site measured during the Phase II ESI was approximately 13 ft bgs. The results of the analyses of the groundwater samples are presented in *Tables 6 - 10*. The complete

analytical data report is presented in *Appendix D*. It should be noted that three compounds (hexavalent chromium, nitrate, and nitrite) were qualified by the laboratory due to the analyses being conducted outside of the USEPA recommended holding times. Additionally, the holding time for pH was exceeded for the NYCDEP dewatering effluent discharge limits. These qualifications are not expected to affect data usability. A review of the ground water analytical results is presented below. Groundwater sampling logs are provided in *Appendix F*.

4.5.1 Volatile Organic Compounds (VOC) in Groundwater

A review of the groundwater analytical results indicates that two (2) VOCs were detected at concentrations greater than the laboratory method reporting limit in one or more samples. These include chloroform and PCE. Neither of these compounds were detected at concentrations exceeding their respective AWQS. The analytical data summary table of VOCs detected in groundwater is presented in *Table 6* and the analytical data report is provided in *Appendix D*.

4.5.2 Semivolatile Organic Compounds (SVOC) in Groundwater

A review of the groundwater analytical results indicates that no SVOCs were detected at or above the laboratory method reporting limit in groundwater samples SB-1(GW), SB-2(GW), and SB-5(GW). Phenanthrene was detected in sample SB-3(GW) at a concentration above the laboratory method reporting limit but below the applicable AWQS. A summary of SVOCs detected in groundwater at concentrations exceeding the AWQS is provided below:

Table IX
Detected SVOC Concentrations in Groundwater Above State Criteria

Sample ID	NYSDEC AWQS*	SB-1(GW)	SB-2(GW)	SB-3(GW)	SB-4(GW)	SB-5(GW)	DUP(GW)
Sample Date		05/07/16	05/07/16	05/07/16	05/07/16	05/07/16	05/07/16
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Benzo(a)anthracene	0.002	ND	ND	ND	0.0632	ND	ND
Benzo(b)fluoranthene	0.002	ND	ND	ND	0.0632	ND	ND
Benzo(k)fluoranthene	0.002	ND	ND	ND	0.0632	ND	ND
Chrysene	0.002	ND	ND	ND	0.0632	ND	ND

* = Class GA Guidance Value

µg/L = micrograms per liter (ppb)

Bold = Indicates exceedance of NYSDEC AWQS

ND = Analyte not detected

Dup-GW is a duplicate sample of SB-1(GW).

Four (4) SVOCs [benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene] were detected in sample SB-4(GW) at concentrations exceeding their respective AWQS. These detections are likely attributable to the proximity to the 5,000-gallon No. 4 fuel oil UST located in a subterranean vault in the walkway area in between the school building and the playground area. The analytical data summary table of SVOCs detected in groundwater is presented in *Table 7* and the analytical data report is provided in *Appendix D*.

4.5.3 TAL Metals (Dissolved and Total) and Cyanide in Groundwater

The laboratory results indicate that no dissolved metals were detected in groundwater samples SB-1(GW), SB-4(GW), or SB-5(GW) at concentrations exceeding their applicable AWQS. Dissolved (filtered) metals (barium, copper, and zinc) were detected at concentrations above their respective laboratory method reporting limits but below their respective AWQS in all five (5) groundwater samples. Dissolved concentrations of manganese were detected in groundwater samples SB-2(GW) and SB-3(GW) at concentrations exceeding the applicable AWQS. A summary of TAL metals (dissolved and total) detected in groundwater at concentrations exceeding the AWQS is provided below.

Table X
Detected Filtered and Total Metals Concentrations in Groundwater Above State Criteria

Sample ID	NYSDEC AWQS*	SB-1(GW)	SB-2(GW)	SB-3(GW)	SB-4(GW)	SB-5(GW)
Sample Date		05/07/16	05/07/16	05/07/16	05/07/16	05/07/16
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Manganese (Dissolved)	300	250	475	313	203	264
Manganese (Total)	300	365	484	270	236	464

* = Class GA Guidance Value
 µg/L = micrograms per liter (ppb)
Bold = Indicates exceedance of NYSDEC AWQS or
 NA = Not analyzed
 ND = Analyte not detected

One (1) total metal (manganese) was detected in groundwater samples SB-1(GW), SB-2(GW), and SB-5(GW) at concentrations exceeding the applicable AWQS. The higher concentration of total metals is attributed to suspended sediment in the sample.

Hexavalent chromium, cyanide, and mercury were not detected at or above the laboratory method reporting limit in any of the groundwater samples. The analytical data is summarized in *Table 8* and the analytical data report is provided in *Appendix D*.

4.5.4 Pesticide, Herbicide, and PCB Compounds in Groundwater

A review of the groundwater sample analytical results indicates that no pesticides, herbicides, or PCBs were detected at or above the laboratory method reporting limit in any of the groundwater samples. The analytical

data summary tables of pesticides, herbicides, and PCBs in groundwater are presented in *Table 9*, and the analytical data report is provided in *Appendix D*.

4.5.5 NYCDEP Sewer Discharge Parameters

A review of the groundwater sample analytical results indicates that the Site groundwater did not exceed any of the NYCDEP Sewer Discharge Parameters. The analytical data is summarized in *Table 10* and the analytical data report is provided in *Appendix D*.

4.6 Pre-Design Waste Characterization Sampling Findings

4.6.1 Pre-Design Characterization Sampling Results

Based on a preliminary characterization of the soil quality in this investigation, the soils meet the definition of non-hazardous excavated material. No TPH GRO, hexavalent chromium, or cyanide were detected at or above the laboratory method reporting limit in soil samples SB-1 (Comp), SB-2 (Comp), SB-3 (Comp), SB-4 (Comp), and SB-5 (Comp). TPH DRO was detected in sample SB-5 (Comp) at 13.9 mg/Kg and was not detected at or above the laboratory method reporting limit in soil samples SB-1 (Comp), SB-2 (Comp), SB-3 (Comp), and SB-4 (Comp). A review of the soil sampling analytical results indicates that the TCLP analyses for lead in samples SB-1 (3-5) and SB-4 (1-5) were below the USEPA TCLP regulatory level of 5 mg/Kg. A detailed summary of the analytical results for waste characterization sampling is presented in *Tables 2 – 5 and 11*.

4.6.2 Investigation Derived Waste Management and Disposal

Excess soil was returned to its original boring location (to within 12-inches of the ground surface), as prescribed under NYSDEC DER-10, Article 3.3(e)(1)(ii) and 6 NYCRR Parts 360, 364, and 370. Soil borings were completed to ground surface using hydrated bentonite powder or chips and completed to match the existing conditions (i.e., asphalt).

4.7 Summary of Findings

STV performed a Phase II ESI consisting of a geophysical survey, advancement of five (5) soil borings, and collection of soil vapor, ambient air, soil, and groundwater samples for laboratory analysis from the Site. The results of the Phase II ESI indicate the following:

- The geophysical survey did not reveal any USTs or buried anomalies with the exception of utilities.
- The Site is underlain by fill material consisting of silt, sand, and gravel, ranging in thickness from 1 to 5 ft bgs. Underlying the fill material, native, medium-grained sands were encountered. Bedrock was not encountered at the maximum soil boring depth of 18 ft bgs. The depth to groundwater beneath the Site measured during the Phase II ESI was approximately 13 ft bgs. Groundwater at the Site is expected to flow in a southeasterly direction.
- Soil vapor results indicate the presence of PCE and TCE at levels that exceeded the range of NYSDOH published indoor air background concentrations and their respective AGVs in samples

SV-1 and SV-2. Both of these sample locations are located along the eastern side of the Site property. PCE was also detected in sample SV-4 at a concentration that slightly exceeded the range of expected background concentrations but not the AGV. Naphthalene was also detected at a concentration that slightly exceeded the range of expected background concentrations in sample SV-4. Nine (9) other compounds (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, chloromethane, ethylbenzene, methylene chloride, o-xylene, m,p-xylenes, and toluene) were also detected at concentrations above their respective laboratory method reporting limits but below the range of NYSDOH criteria. These detections are attributable to off-site sources (i.e., the presence of active dry cleaners, historical dry cleaners, an auto repair station, and a former metal etching facility which was listed as a State Inactive Hazardous Waste Disposal site and Brownfield Cleanup Program site).

- Soil sample laboratory results indicate that no pesticides, herbicides, or PCBs were detected at or above their respective laboratory method reporting limits in any samples. One VOC (acetone) was detected in one or more samples at concentrations above the laboratory method reporting limit but well below the NYSDEC Part 375 Unrestricted Use SCO. Thirteen (13) SVOCs [anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, carbazole, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene] were detected above their respective laboratory method reporting limits in sample SB-1(3-5) but well below their NYSDEC Part 375 Unrestricted Use SCOs. One (1) metal (lead) was detected at concentrations exceeding its respective Unrestricted Use SCO in samples SB-1(3-5) and SB-4(1-5). Mercury was also detected in sample SB-1(3-5) at a concentration exceeding its Unrestricted Use SCO. These metals detections are likely attributable to the historic fill material at the Site.
- TCLP analyses for lead in samples SB-1 (3-5) and SB-4 (1-5) were below the USEPA TCLP regulatory level of 5 mg/Kg.
- TPH (GRO) was not detected above the laboratory method reporting limits in any of the samples. TPH (DRO) was detected in sample SB-5 (Comp) at 13.9 mg/Kg. There are no regulatory comparison criteria for TPH.
- Groundwater sample laboratory results indicate that no pesticides, herbicides, or PCBs were detected at or above their respective laboratory method reporting limits in any of the samples. Two (2) VOCs (chloroform and PCE) were detected in sample SB-3(GW) above their respective laboratory method reporting limits but below their respective AWQS. Four (4) SVOCs [benzo(a) anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene] were detected at concentrations exceeding their respective AWQS in sample SB-4(GW). These four SVOCs are also carcinogenic PAHs. Dissolved and total concentrations of one (1) metal (manganese) were detected in groundwater samples SB-2(GW) and SB-3(GW) at concentrations exceeding the applicable AWQS.
- The laboratory results indicate that all constituent concentrations are below the NYCDEP Sewer Discharge Parameters.
- Based upon the results of preliminary waste characterization sampling the soil would be classified as Non-Hazardous Excavated Material (NHEM).

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the Phase II ESI, STV concludes the following:

- Fill material underlies the Site to a depth of approximately 5 ft bgs.
- USTs or other significant subsurface anomalies were not identified at the accessible portions of the Site. Six (6) TCUs are located on-Site and the potential exists for a suspect UST to be present underneath the TCUs.
- Two (2) chlorinated solvents (PCE and TCE) were detected in soil vapor at concentrations exceeding their NYSDOH AGV in two (2) samples and background comparison criteria in three samples. One (1) petroleum-related compound (naphthalene) was detected at a concentration exceeding background comparison criteria in one (1) sample. The detected VOCs in soil vapor are attributed to off-site sources.
- Soil sample laboratory results indicate that no pesticides, herbicides, or PCBs were detected at or above their respective laboratory method reporting limits in any samples. Several SVOCs and one (1) VOC were detected at concentrations above the laboratory method reporting limit but well below their respective NYSDEC Part 375 Unrestricted Use SCOs. One (1) metal (lead) was detected at concentrations exceeding its respective Unrestricted Use SCO in two (2) samples. Mercury was also detected at a concentration exceeding its Unrestricted Use SCO in one (1) sample. These metals detections are likely attributable to the historic fill material at the Site.
- A review of the soil sampling analytical results indicated that two (2) soil samples had the potential to exhibit the toxicity characteristic for lead; therefore, TCLP analysis was run on the samples. Lead was not detected at a concentration exceeding the toxicity characteristic for lead. TPH (GRO) was not detected above the laboratory method reporting limits in any of the samples. TPH (DRO) was detected in sample SB-5 (Comp) at 13.9 mg/Kg. Hexavalent chromium and chrysene were not detected at or above their respective laboratory method reporting limits in any samples.
- Groundwater sample laboratory results indicate that no pesticides, herbicides, or PCBs were detected at or above their respective laboratory method reporting limits in any of the samples. Two (2) VOCs (chloroform and PCE) were detected in one (1) groundwater sample above their respective laboratory method reporting limits but below their respective AWQS. Four (4) SVOCs [benzo(a) anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene] were detected at concentrations exceeding their respective AWQS in one (1) groundwater sample. Dissolved concentrations of one (1) metal (manganese) were detected in two (2) groundwater samples at concentrations exceeding the applicable AWQS. The elevated concentrations of SVOCs and metals in groundwater are attributed to sediment entrained in the samples or background conditions.
- The laboratory results indicate that all other constituent concentrations are below the NYCDEP Sewer Discharge Parameters.
- Based upon the results of preliminary waste characterization sampling the soil would be classified as Non-Hazardous Excavated Material (NHEM).

Based on the results of the Phase II ESI, the following remedial actions and/or engineering controls are required to render the Site suitable for development as a public school facility:

- A soil vapor barrier and a sub-slab depressurization system (SSDS) should be integrated into the new school design including the integration with any proposed damp-proofing or water proofing components to prevent potential soil vapor intrusion into the new school building.
- All material excavated during construction activities should be properly characterized and disposed, including collection and analysis of additional samples as required by the contractor-selected disposal facilities.
- After the proposed new building and grounds are constructed, any exposed soil (landscaped areas) must be covered with at least two feet of environmentally clean fill.
- Any suspect USTs encountered, along with associated petroleum-impacted soil, should be removed and handled in accordance with applicable regulations, and transported to an off-site disposal facility that is permitted to accept this material.
- Suspect ACM, LBP, and/or PCB-containing materials encountered during construction should be properly identified and managed.

A detailed description of the recommended remediation and engineering controls including a remediation cost estimate is included in *Appendix H*.

6.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

STV Incorporated has performed a Phase II Environmental Site Investigation for the proposed addition to the East New York Family Academy, also known as Public School 819K, located at 2057 Linden Boulevard, Brooklyn, New York 11207 to evaluate the feasibility of constructing an addition to the existing school building. The scope of the Phase II ESI was consistent with the scope of work dated April 21, 2016 as stated in Section 2.0.



Prepared By:

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Reviewed By:

Christine L. Vilardi, P.G., R.E.P.
QC Officer



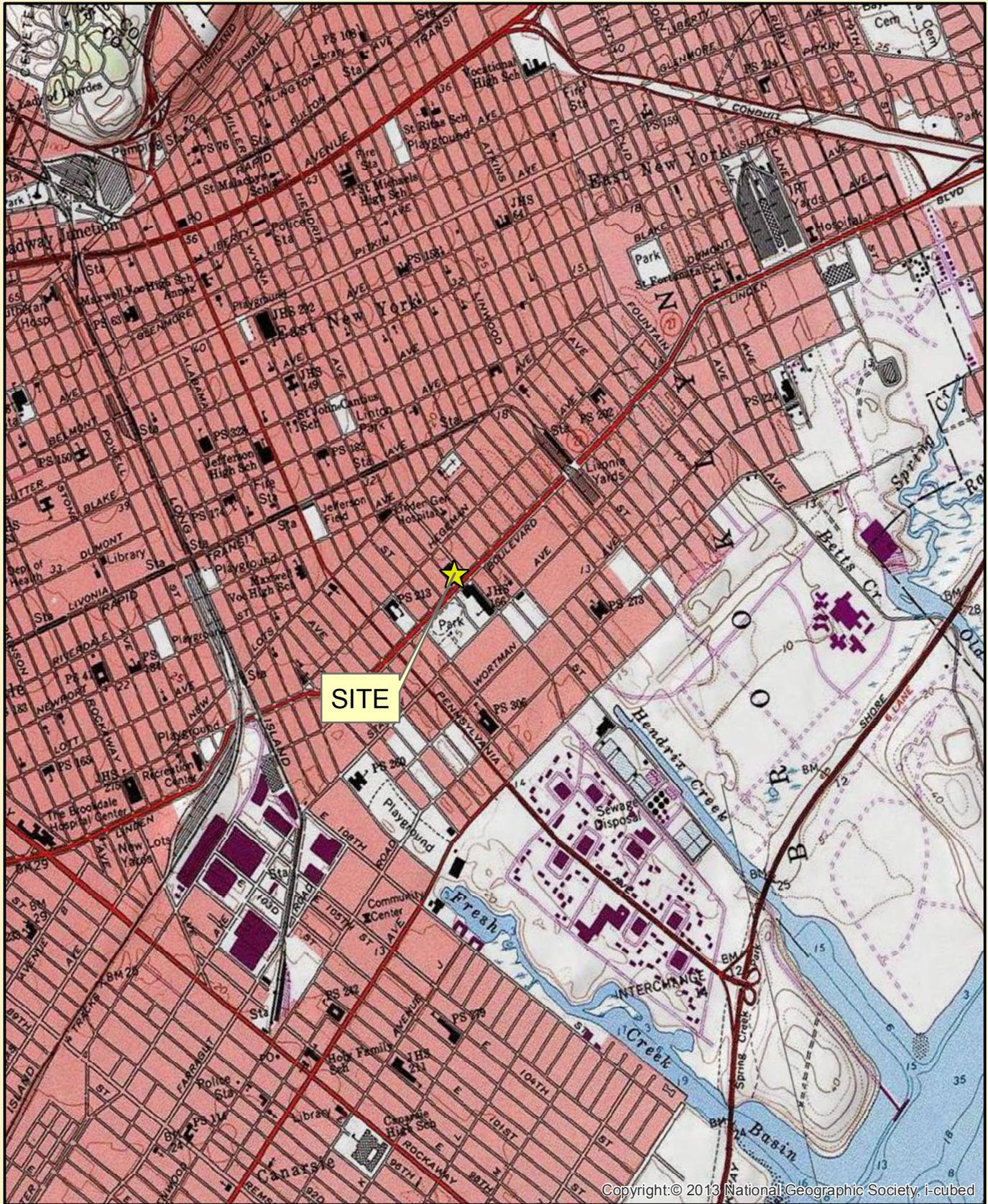
Reviewed By:

Peter Helseth, PE
Senior Project Manager

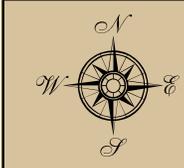
7.0 REFERENCES

- 6 NYCRR § 375, effective December 14, 2006; New York State Department of Environmental Conservation Rules and Regulations, Remedial Program Requirements.
- 6 NYCRR Chapter X § 700 – 706; New York State Department of Environmental Conservation Water Quality Regulations, Surface Water and Ground Water Classifications and Standards.
- ASTM E 2600-10 “Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions”.
- ASTM Standards Related to the Phase II Environmental Site Assessment Process, 2nd Edition.
- Groundwater in Bronx, New York, and Richmond Counties with Summary Data on Kings and Queens Counties New York City, New York (1958) USGS Bulletin GW-32, by Nathaniel Perlmutter and Theodore Arnow.
- NYCSCA, Test Fit / Sketch Study, East New York Family Academy - Brooklyn, 2057 Linden Boulevard, Brooklyn, New York, dated May 9, 2016.
- NYSDEC, CP-51/Soil Cleanup Guidance; October 21, 2010.
- NYSDEC, DER-10 Technical Guidance for Site Investigation and Remediation; May 3, 2010.
- NYSDOH, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York; October 2006.
- NYSDOH, Tetrachloroethane (PERC) in Indoor and Outdoor Air, Fact Sheet, September, 2013.
- NYSDOH, Trichloroethene (TCE) in Indoor and Outdoor Air, Fact Sheet, August, 2015.
- STV Inc., 2016. Phase I Environmental Site Assessment Report, East New York Family Academy (P.S. 819K) Addition, 2057 Linden Boulevard, Brooklyn, New York, dated April 21, 2016.
- USGS, 1997. Water Table Altitude in Kings and Queens Counties, New York, in March 1997. USGS Fact Sheet FS 134-97.

FIGURES



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Appendix A
Site Location Map

P.S. 819K Addition
2057 Linden Boulevard
Brooklyn, NY 11207
Block 4328, Lot 15



SCALE 1:24,000
 USGS TOPOGRAPHIC MAP, 7.5 MINUTE SERIES

Prepared by: STV Inc.
 Prepared for: NYC School Construction Authority IEH



PRESUMED
GROUNDWATER
FLOW DIRECTION



SV-1/SB-1/SB-1(GW)

SV-5/SB-5/SB-5(GW)

UST FILL
PORT

TCUs Honeygram, (I
Almark Pharm

SV-4/SB-4/SB-4(GW)

SV-2/SB-2/SB-2(GW)

SB-3/SB-3(GW)

LEGEND



SOIL, GROUNDWATER AND VAPOR SAMPLE LOCATION

SOURCE: OASIS MAP



225 PARK AVENUE SOUTH, N.Y., N.Y. 10003

2057 LINDEN BOULEVARD
BROOKLYN, NY 11207
BLOCK 4328, LOT 15

SCHOOL CONSTRUCTION AUTHORITY

FIGURE 2
SITE PLAN WITH SAMPLE LOCATIONS

DATE:
APRIL 2016

SCALE:
NTS

SHEET NO:
1 OF 1

TABLES

Table 1A

Soil Vapor Sampling Results for Selected Volatile Organic Compounds
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID	SV1-050717 Soil Vapor		SV2-050717 Soil Vapor		SV4-050717 Soil Vapor		SV5-050717 Soil Vapor		NYSDOH AGV	NYSDOH Fuel Oil 2003 Upper Fence Limit (Indoor)	USEPA BASE Data 90th Percentile (Indoor)	HEI RIOPA 2005 95th Percentile Value (Indoor)	ASTM Select VOCs in Existing Residences 95th Percentile Value (Indoor)
	5/7/16	5/7/16	5/7/16	5/7/16	5/7/16	5/7/16	5/7/16	5/7/16					
Sample Date	5/7/16		5/7/16		5/7/16		5/7/16						
Sample Depth (feet bgs)	4-5		4-5		4-5		4-5						
Units	$\mu\text{g}/\text{m}^3$	Q	$\mu\text{g}/\text{m}^3$	Q	$\mu\text{g}/\text{m}^3$	Q	$\mu\text{g}/\text{m}^3$	Q	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
Chlorobenzene	<0.83		<0.81		<0.82		<0.84		--	0.4	<0.9	--	--
1,1,1-Trichloroethane	<0.98		<0.96		<0.98		<0.99		--	2.5	20.6	--	7.6-17
1,1-Dichloroethane	<0.73		<0.72		<0.72		<0.74		--	0.4	<0.7	--	--
1,1-Dichloroethene	<0.71		<0.70		<0.71		<0.72		--	0.4	<1.4	--	--
1,2,4-Trimethylbenzene	1.4	D	<0.87		6.9	D	<0.89		--	9.8	9.5	--	--
1,2-Dichlorobenzene	<1.1		<1.1		<1.1		<1.1		--	0.5	<1.2	--	--
1,2-Dichloroethane	<0.73		<0.72		<0.72		<0.74		--	0.5	<0.9	--	--
1,2-Dichloropropane	<0.83		<0.82		<0.83		<0.84		--	0.4	<1.6	--	--
1,3,5-Trimethylbenzene	<0.88		<0.87		1.4	D	0.98	D	--	3.9	3.7	--	--
1,3-Dichlorobenzene	<1.1		<1.1		<1.1		<1.1		--	0.5	<2.4	--	--
Benzene	1.2	D	0.73	D	0.91	D	1.5	D	--	13	9.4	10	13
Carbon tetrachloride	<0.28		<0.28		<0.28		<0.29		--	1.3	<1.3	1.1	--
Chloroethane	<0.47		<0.47		<0.47		<0.48		--	0.4	<1.1	--	--
Chloromethane	2.0	D	<0.37		<0.37		2.4	D	--	4.2	3.7	--	--
cis-1,2-Dichloroethylene	<0.71		<0.70		<0.71		<0.72		--	0.4	<1.9	--	--
Ethylbenzene	1.4	D	<0.77		1.1	D	0.87	D	--	6.4	5.7	7.62	13
Methyl tert-butyl ether (MTBE)	<0.65		<0.64		<0.64		<0.66		--	14	11.5	36	--
Methylene chloride	4.3	D	5.8	D	2.9	D	12	D	60	16	10	7.5	--
Napthalene	<1.9		<1.9		7.4	D	<1.9		--	--	5.1	--	2.1
o-Xylene	2.5	D	<0.77		1.8	D	1.1	D	--	7.1	7.9	7.24	6.9
m,p-Xylene	6.7	D	1.8	D	4.8	D	2.9	D	--	11	22.2	22.2	22
Tetrachloroethylene (PCE)	140	D	54	D	20	D	14	D	30	2.5	15.9	6.01	4.9-6.8
Toluene	3.1	D	1.3	D	3.0	D	5.3	D	--	57	43.0	39.8	29-49
trans-1,2-Dichloroethene	<0.71		<0.70		<0.71		<0.24		--	--	--	--	--
Trichloroethylene (TCE)	4.3	D	4.6	D	1.8	D	<0.24		2	0.5	4.2	1.36	0.70-1.4
Vinyl Chloride	<0.12		<0.11		<0.11		<0.12		--	0.4	<1.9	--	0.1

NOTES:

 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

-- = Not Available

< = Less than

Q is the Qualifier Column

D = The result reported is from a dilution of the sample due to levels of target compounds found

Bold and Shaded - Analyte concentration exceeds maximum background concentrations and AGVs, if applicable.**Bold - Indicates the analyte concentration exceeds maximum background concentrations.**

AGV = Air Guideline Value

Indoor Limits ($\mu\text{g}/\text{m}^3$) - As per Appendix C of the Final NYSDOH Guidance document.

BASE - Building Assessment and Survey Evaluation

HEI RIOPA - Health Effect Institute: Relationship of Indoor, Outdoor and Personal Air

Table 1B

**Ambient Air Sampling Results for Selected Volatile Organic Compounds
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773**

Sample ID	Ambient Air		NYSDOH AGV	NYSDEC Ambient Air Monitoring Station - PS 274 Brooklyn(1)	NYSDOH Fuel Oil 2003 Upper Fence Limit (Outdoor)	USEPA BASE Data 90th Percentile (Outdoor)	HEI RIOPA 2005 95th Percentile Value (Outdoor)
Sample Date	5/7/16						
Units	$\mu\text{g}/\text{m}^3$	Q	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
Chlorobenzene	<0.46		--	0.017	--	<0.8	--
1,1,1-Trichloroethane	<0.55		--	0.013	0.6	2.6	--
1,1-Dichloroethane	<0.40		--	0.008	--	<0.6	--
1,1-Dichloroethene	<0.40		--	0.006	0.4	<1.4	--
1,2,4-Trimethylbenzene	<0.49		--	0.266	1.9	5.8	--
1,2-Dichlorobenzene	<0.60		--	0.017	0.4	<1.2	--
1,2-Dichloroethane	<0.40		--	--	0.4	<0.8	--
1,2-Dichloropropane	<0.46		--	0.011	0.4	<1.6	--
1,3,5-Trimethylbenzene	<0.49		--	0.102	0.7	2.7	--
1,3-Dichlorobenzene	<0.60		--	0.05	0.4	<2.2	--
Benzene	0.80		--	0.833	4.8	6.6	5.16
Carbon tetrachloride	<0.16		--	0.099	1.2	0.7	1
Chloroethane	<0.26		--	0.028	0.4	<1.2	--
Chloromethane	1.7		--	0.626	4.3	3.7	--
cis-1,2-Dichloroethane	<0.40		--	0.005	0.4	<1.8	--
Ethylbenzene	<0.43		--	0.182	1	3.5	3.04
Methyl tert-butyl ether (MTBE)	<0.36		--	0.007	--	6.2	22.1
Methylene chloride	22		60	0.498	1.6	6.1	2.46
Napthalene	<1.0		--	--	--	4.9	--
o-Xylene	<0.43		--	0.237	1.2	4.6	3.23
m,p-Xylene	0.91		--	0.758	1	12.8	10
Tetrachloroethene (PCE)	1.5		30	0.196	0.7	6.5	3.17
Toluene	1.7		--	1.23	5.1	33.7	19.6
trans-1,2-Dichloroethene	<0.40		--	--	--	--	--
Trichloroethene (TCE)	<0.13		2	0.022	0.4	1.3	0.79
Vinyl Chloride	<0.064			0.011	0.4	<1.8	--

NOTES:

 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

-- = Not Available

> = Less than

Q is the Qualifier Column

Bold and Shaded - Analyte concentration exceeds maximum background concentrations of all criteria levels and AGVs.**Bold - Indicates the analyte concentration exceeds maximum background concentrations of all criteria levels.**

AGV = Air Guideline Value

Indoor Limits ($\mu\text{g}/\text{m}^3$) - As per Appendix C of the Final NYSDOH Guidance document.

BASE - Building Assessment and Survey Evaluation

HEI RIOPA - Health Effect Institute: Relationship of Indoor, Outdoor and Personal Air

(1) = Maximum 2015 values

Table 2

Volatile Organic Compounds Detected in Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives (mg/Kg)	SB-1 (4.5) 5/7/2016 Soil mg/Kg dry		SB-1 (10) 5/7/2016 Soil mg/Kg dry		SB-2 (4.5) 5/7/2016 Soil mg/Kg dry		SB-2 (10) 5/7/2016 Soil mg/Kg dry	
				Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,1,1,2-Tetrachloroethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,1,2,2-Tetrachloroethane	--	--	35	<0.0024		<0.0024		<0.0024		<0.0031	
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,1,2-Trichloroethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Isopropylbenzene	--	--	100	<0.0024		<0.0024		<0.0024		<0.0031	
1,1-Dichloroethane	0.27	26	--	<0.0024		<0.0024		<0.0024		<0.0031	
n-Propylbenzene	3.9	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,1-Dichloroethene	0.33	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2,3-Trichlorobenzene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2,3-Trichloropropane	--	--	80	<0.0024		<0.0024		<0.0024		<0.0031	
p-Isopropyltoluene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2,4-Trimethylbenzene	3.6	52	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,3,5-Trimethylbenzene	8.4	52	--	<0.0024		<0.0024		<0.0024		<0.0031	
n-Butylbenzene	12	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
sec-Butylbenzene	11	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
tert-Butylbenzene	5.9	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2,4-Trichlorobenzene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2-Dibromo-3-chloropropane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2-Dibromoethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2-Dichlorobenzene	1.1	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,3-Dichlorobenzene	2.4	49	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,4-Dichlorobenzene	1.8	13	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2-Dichloroethane	0.02	3.1	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,2-Dichloropropane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
1,4-Dioxane	0.1	13	--	<0.047		<0.048		<0.047		<0.062	
2-Butanone (methyl ethyl ketone)	0.12	100	100	<0.0024		<0.0024		<0.0024		<0.0031	
2-Hexanone	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
4-Methyl-2-pentanone	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Acetone	0.05	100	--	0.011	CCV-E, SCAL-E	<0.0048		0.0099	CCV-E, SCAL-E	0.012	J, CCV-E, SCAL-E
Acrolein	--	--	--	<0.0047		<0.0048		<0.0047		<0.0062	
Acrylonitrile	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Benzene	0.06	4.8	--	<0.0024		<0.0024		<0.0024		<0.0031	
Bromochloromethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Bromodichloromethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Bromoform	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Bromomethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Carbon disulfide	--	--	100	<0.0024		<0.0024		<0.0024		<0.0031	
Carbon tetrachloride	0.76	2.4	--	<0.0024		<0.0024		<0.0024		<0.0031	
Chlorobenzene	1.1	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
Chloroethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Chloroform	0.37	49	--	<0.0024		<0.0024		<0.0024		<0.0031	
Chloromethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
cis-1,2-Dichloroethylene	0.25	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
cis-1,3-Dichloropropylene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Cyclohexane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Dibromochloromethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Dibromomethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Dichlorodifluoromethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Ethyl Benzene	1	41	--	<0.0024		<0.0024		<0.0024		<0.0031	
Hexachlorobutadiene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Methyl acetate	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Methyl tert-butyl ether (MTBE)	0.93	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
Methylcyclohexane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Methylene chloride	0.05	100	--	<0.0047		<0.0048		<0.0047		<0.0062	
o-Xylene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
p- & m- Xylenes	--	--	--	<0.0047		<0.0048		<0.0047		<0.0062	
Styrene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
tert-Butyl alcohol (TBA)	--	--	--	<0.0047		<0.0048		<0.0047		<0.0062	
Tetrachloroethylene	1.3	19	--	<0.0024		<0.0024		<0.0024		<0.0031	
Toluene	0.7	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
trans-1,2-Dichloroethene	0.19	100	--	<0.0024		<0.0024		<0.0024		<0.0031	
trans-1,3-Dichloropropylene	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Trichloroethylene	0.47	21	--	<0.0024		<0.0024		<0.0024		<0.0031	
Trichlorofluoromethane	--	--	--	<0.0024		<0.0024		<0.0024		<0.0031	
Vinyl Chloride	0.02	0.9	--	<0.0024		<0.0024		<0.0024		<0.0031	
Xylenes, Total	0.26	100	--	<0.0071		<0.0072		<0.0071		<0.0092	

NOTES:

Samples collected for VOC analysis were discrete grab samples collected from the designated depth bgs.

DUP-050716 is a duplicate sample of grab sample SB-3 (10).

mg/Kg = milligrams per kilogram or parts per million (ppm)

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows:

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

J = Detected below the Reporting Limit but above the Method Detection Limit; therefore the result is an estimated concentration.

SCAL-E = The value reported is estimated. The value is estimated due to its behavior during initial calibration.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO

Bold and Shaded - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCO

Underlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)

Table 2

Volatile Organic Compounds Detected in Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives (mg/Kg)	SB-3 (4.5) 5/7/2016 Soil mg/Kg dry		SB-3 (10) 5/7/2016 Soil mg/Kg dry		SB-4 (4.5) 5/7/2016 Soil mg/Kg dry		SB-4 (10) 5/7/2016 Soil mg/Kg dry	
				Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,1,1,2-Tetrachloroethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,1,2,2-Tetrachloroethane	--	--	35	<0.0026		<0.0026		<0.0023		<0.0025	
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,1,2-Trichloroethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Isopropylbenzene	--	--	100	<0.0026		<0.0026		<0.0023		<0.0025	
1,1-Dichloroethane	0.27	26	--	<0.0026		<0.0026		<0.0023		<0.0025	
n-Propylbenzene	3.9	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,1-Dichloroethene	0.33	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2,3-Trichlorobenzene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2,3-Trichloropropane	--	--	80	<0.0026		<0.0026		<0.0023		<0.0025	
p-Isopropyltoluene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2,4-Trimethylbenzene	3.6	52	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,3,5-Trimethylbenzene	8.4	52	--	<0.0026		<0.0026		<0.0023		<0.0025	
n-Butylbenzene	12	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
sec-Butylbenzene	11	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
tert-Butylbenzene	5.9	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2,4-Trichlorobenzene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2-Dibromo-3-chloropropane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2-Dibromoethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2-Dichlorobenzene	1.1	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,3-Dichlorobenzene	2.4	49	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,4-Dichlorobenzene	1.8	13	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2-Dichloroethane	0.02	3.1	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,2-Dichloropropane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
1,4-Dioxane	0.1	13	--	<0.052		<0.051		<0.046		<0.051	
2-Butanone (methyl ethyl ketone)	0.12	100	100	<0.0026		<0.0026		<0.0023		<0.0025	
2-Hexanone	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
4-Methyl-2-pentanone	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Acetone	0.05	100	--	<0.0052		0.0096	J, CCV-E, SCAL-E	0.006	J, CCV-E, SCAL-E	0.0087	J, CCV-E, SCAL-E
Acrolein	--	--	--	<0.0052		<0.0051		<0.0046		<0.0051	
Acrylonitrile	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Benzene	0.06	4.8	--	<0.0026		<0.0026		<0.0023		<0.0025	
Bromochloromethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Bromodichloromethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Bromoform	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Bromomethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Carbon disulfide	--	--	100	<0.0026		<0.0026		<0.0023		<0.0025	
Carbon tetrachloride	0.76	2.4	--	<0.0026		<0.0026		<0.0023		<0.0025	
Chlorobenzene	1.1	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
Chloroethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Chloroform	0.37	49	--	<0.0026		<0.0026		<0.0023		<0.0025	
Chloromethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
cis-1,2-Dichloroethylene	0.25	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
cis-1,3-Dichloropropylene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Cyclohexane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Dibromochloromethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Dibromomethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Dichlorodifluoromethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Ethyl Benzene	1	41	--	<0.0026		<0.0026		<0.0023		<0.0025	
Hexachlorobutadiene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Methyl acetate	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Methyl tert-butyl ether (MTBE)	0.93	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
Methylcyclohexane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Methylene chloride	0.05	100	--	<0.0052		<0.0051		<0.0046		<0.0051	
o-Xylene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
p- & m- Xylenes	--	--	--	<0.0052		<0.0051		<0.0046		<0.0051	
Styrene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
tert-Butyl alcohol (TBA)	--	--	--	<0.0052		<0.0051		<0.0046		<0.0051	
Tetrachloroethylene	1.3	19	--	<0.0026		<0.0026		<0.0023		<0.0025	
Toluene	0.7	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
trans-1,2-Dichloroethene	0.19	100	--	<0.0026		<0.0026		<0.0023		<0.0025	
trans-1,3-Dichloropropylene	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Trichloroethylene	0.47	21	--	<0.0026		<0.0026		<0.0023		<0.0025	
Trichlorofluoromethane	--	--	--	<0.0026		<0.0026		<0.0023		<0.0025	
Vinyl Chloride	0.02	0.9	--	<0.0026		<0.0026		<0.0023		<0.0025	
Xylenes, Total	0.26	100	--	<0.0079		<0.0077		<0.007		<0.0076	

NOTES:

Samples collected for VOC analysis were discrete grab samples collected from the designated depth bgs.

DUP-050716 is a duplicate sample of grab sample SB-3 (10).

mg/Kg = milligrams per kilogram or parts per million (ppm)

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows:

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

J = Detected below the Reporting Limit but above the Method Detection Limit; therefore the result is an estimated concern

SCAL-E = The value reported is estimated. The value is estimated due to its behavior during initial calibration.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO

Bold and Shaded - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCO

Underlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)

Table 2

Volatile Organic Compounds Detected in Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
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NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives (mg/Kg)	SB-5 (4.5) 5/7/2016 Soil mg/Kg dry		SB-5 (10) 5/7/2016 Soil mg/Kg dry		DUP-050716 5/7/2016 Soil mg/Kg dry	
				Result	Q	Result	Q	Result	Q
				Compound					
1,1,1-Trichloroethane	0.68	100	--	<0.0021		<0.0023		<0.0025	
1,1,1,2-Tetrachloroethane	--	--	--	<0.0021		<0.0023		<0.0025	
1,1,2,2-Tetrachloroethane	--	--	35	<0.0021		<0.0023		<0.0025	
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	--	<0.0021		<0.0023		<0.0025	
1,1,2-Trichloroethane	--	--	--	<0.0021		<0.0023		<0.0025	
Isopropylbenzene	--	--	100	<0.0021		<0.0023		<0.0025	
1,1-Dichloroethane	0.27	26	--	<0.0021		<0.0023		<0.0025	
n-Propylbenzene	3.9	100	--	<0.0021		<0.0023		<0.0025	
1,1-Dichloroethene	0.33	100	--	<0.0021		<0.0023		<0.0025	
1,2,3-Trichlorobenzene	--	--	--	<0.0021		<0.0023		<0.0025	
1,2,3-Trichloropropane	--	--	80	<0.0021		<0.0023		<0.0025	
p-Isopropyltoluene	--	--	--	<0.0021		<0.0023		<0.0025	
1,2,4-Trimethylbenzene	3.6	52	--	<0.0021		<0.0023		<0.0025	
1,3,5-Trimethylbenzene	8.4	52	--	<0.0021		<0.0023		<0.0025	
n-Butylbenzene	12	--	--	<0.0021		<0.0023		<0.0025	
sec-Butylbenzene	11	100	--	<0.0021		<0.0023		<0.0025	
tert-Butylbenzene	5.9	100	--	<0.0021		<0.0023		<0.0025	
1,2,4-Trichlorobenzene	--	--	--	<0.0021		<0.0023		<0.0025	
1,2-Dibromo-3-chloropropane	--	--	--	<0.0021		<0.0023		<0.0025	
1,2-Dibromoethane	--	--	--	<0.0021		<0.0023		<0.0025	
1,2-Dichlorobenzene	1.1	100	--	<0.0021		<0.0023		<0.0025	
1,3-Dichlorobenzene	2.4	49	--	<0.0021		<0.0023		<0.0025	
1,4-Dichlorobenzene	1.8	13	--	<0.0021		<0.0023		<0.0025	
1,2-Dichloroethane	0.02	3.1	--	<0.0021		<0.0023		<0.0025	
1,2-Dichloropropane	--	--	--	<0.0021		<0.0023		<0.0025	
1,4-Dioxane	0.1	13	--	<0.042		<0.047		<0.051	
2-Butanone (methyl ethyl ketone)	0.12	100	100	<0.0021		<0.0023		<0.0025	
2-Hexanone	--	--	--	<0.0021		<0.0023		<0.0025	
4-Methyl-2-pentanone	--	--	--	<0.0021		<0.0023		<0.0025	
Acetone	0.05	100	--	<0.0042	CCV-E, SCAL-E	0.009	J, CCV-E, SCAL-E	<0.0051	
Acrolein	--	--	--	<0.0042		<0.0047		<0.0051	
Acrylonitrile	--	--	--	<0.0021		<0.0023		<0.0025	
Benzene	0.06	4.8	--	<0.0021		<0.0023		<0.0025	
Bromochloromethane	--	--	--	<0.0021		<0.0023		<0.0025	
Bromodichloromethane	--	--	--	<0.0021		<0.0023		<0.0025	
Bromoforn	--	--	--	<0.0021		<0.0023		<0.0025	
Bromomethane	--	--	--	<0.0021		<0.0023		<0.0025	
Carbon disulfide	--	--	100	<0.0021		<0.0023		<0.0025	
Carbon tetrachloride	0.76	2.4	--	<0.0021		<0.0023		<0.0025	
Chlorobenzene	1.1	100	--	<0.0021		<0.0023		<0.0025	
Chloroethane	--	--	--	<0.0021		<0.0023		<0.0025	
Chloroform	0.37	49	--	<0.0021		<0.0023		<0.0025	
Chloromethane	--	--	--	<0.0021		<0.0023		<0.0025	
cis-1,2-Dichloroethylene	0.25	100	--	<0.0021		<0.0023		<0.0025	
cis-1,3-Dichloropropylene	--	--	--	<0.0021		<0.0023		<0.0025	
Cyclohexane	--	--	--	<0.0021		<0.0023		<0.0025	
Dibromochloromethane	--	--	--	<0.0021		<0.0023		<0.0025	
Dibromomethane	--	--	--	<0.0021		<0.0023		<0.0025	
Dichlorodifluoromethane	--	--	--	<0.0021		<0.0023		<0.0025	
Ethyl Benzene	1	41	--	<0.0021		<0.0023		<0.0025	
Hexachlorobutadiene	--	--	--	<0.0021		<0.0023		<0.0025	
Methyl acetate	--	--	--	<0.0021		<0.0023		<0.0025	
Methyl tert-butyl ether (MTBE)	0.93	100	--	<0.0021		<0.0023		<0.0025	
Methylcyclohexane	--	--	--	<0.0021		<0.0023		<0.0025	
Methylene chloride	0.05	100	--	<0.0042		<0.0047		<0.0051	
o-Xylene	--	--	--	<0.0021		<0.0023		<0.0025	
p- & m- Xylenes	--	--	--	<0.0042		<0.0047		<0.0051	
Styrene	--	--	--	<0.0021		<0.0023		<0.0025	
tert-Butyl alcohol (TBA)	--	--	--	<0.0042		<0.0047		<0.0051	
Tetrachloroethylene	1.3	19	--	<0.0021		<0.0023		<0.0025	
Toluene	0.7	100	--	<0.0021		<0.0023		<0.0025	
trans-1,2-Dichloroethene	0.19	100	--	<0.0021		<0.0023		<0.0025	
trans-1,3-Dichloropropylene	--	--	--	<0.0021		<0.0023		<0.0025	
Trichloroethylene	0.47	21	--	<0.0021		<0.0023		<0.0025	
Trichlorofluoromethane	--	--	--	<0.0021		<0.0023		<0.0025	
Vinyl Chloride	0.02	0.9	--	<0.0021		<0.0023		<0.0025	
Xylenes, Total	0.26	100	--	<0.0063		<0.007		<0.0076	

NOTES:

Samples collected for VOC analysis were discrete grab samples collected from the designated depth bgs.

DUP-050716 is a duplicate sample of grab sample SB-3 (10).

mg/Kg = milligrams per kilogram or parts per million (ppm)

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows:

CCV-E = The value reported is estimated. The value is estimated due to its behavior during continuing calibration verifex

J = Detected below the Reporting Limit but above the Method Detection Limit; therefore the result is an estimated concern

SCAL-E = The value reported is estimated. The value is estimated due to its behavior during initial calibration.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO

Bold and Shaded - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCO

Underlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)

Table 3

Semivolatile Organic Compounds Detected in Soil
Proposed East New York Family Academy Addition (819K)
2037 Linden Boulevard
Brooklyn, New York 11207
NYSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential	SB-1 (3-5) 5/7/2016 Soil mg/Kg dry		SB-1 (5-10) 5/7/2016 Soil mg/Kg dry		SB-2 (1-5) 5/7/2016 Soil mg/Kg dry		SB-2 (5-10) 5/7/2016 Soil mg/Kg dry		SB-3 (1-5) 5/7/2016 Soil mg/Kg dry		SB-3 (5-10) 5/7/2016 Soil mg/Kg dry	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Acenaphthylene	100	100	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Acetophenone	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Aniline	--	--	100	<0.189	--	<0.178	--	<0.182	--	<0.174	--	<0.182	--	<0.179	--
Anthracene	100	100	--	0.101	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Atrazine	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzaldehyde	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzidine	--	--	--	<0.189	--	<0.178	--	<0.182	--	<0.174	--	<0.182	--	<0.179	--
Benzo(a)anthracene	1	1	--	0.327	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzo(a)pyrene	1	1	--	0.0952	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzo(b)fluoranthene	1	1	--	0.358	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzo(g,h,i)perylene	100	100	--	0.155	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzoic acid	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzo(k)fluoranthene	0.8	3.9	--	0.262	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzyl alcohol	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Benzyl butyl phthalate	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
4-Bromophenyl phenyl ether	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Caprolactam	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
Carbazole	--	--	--	0.0597	J	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
4-Chloro-3-methylphenol	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
4-Chloroaniline	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Bis(2-chloroethoxy)methane	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Bis(2-chloroethyl)ether	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Bis(2-chloroisopropyl)ether	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2-Chloronaphthalene	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2-Chlorophenol	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
4-Chlorophenyl phenyl ether	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Chrysene	1	3.9	--	0.421	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Dibenzo(a,h)anthracene	0.33	0.33	--	0.0778	J	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Dibenzofuran	7	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Di-n-butyl phthalate	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
1,2-Diphenylhydrazine	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
1,4-Dichlorobenzene	1.8	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
1,3-Dichlorobenzene	2.4	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
1,2-Dichlorobenzene	1.1	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
3,3'-Dichlorobenzidine	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2,4-Dichlorophenol	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Diethyl phthalate	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2,4-Dimethylphenol	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Dimethyl phthalate	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
4,6-Dinitro-2-methylphenol	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
2,4-Dinitrophenol	--	--	100	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
2,4-Dinitrotoluene	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2,6-Dinitrotoluene	--	--	1.03	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Di-n-octyl phthalate	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Bis(2-ethylhexyl)phthalate	--	--	50	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Fluoranthene	100	100	--	0.821	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Fluorene	30	100	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Hexachlorobenzene	0.33	--	0.41	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Hexachlorobutadiene	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Hexachlorocyclopentadiene	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Hexachloroethane	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	0.156	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Isophorone	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2-Methylnaphthalene	--	--	0.41	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2-Methylphenol	0.33	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
3,5,4'-Methylphenols	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Naphthalene	12	100	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
4-Nitroaniline	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
2-Nitroaniline	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
3-Nitroaniline	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
Nitrobenzene	--	--	3.7	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2-Nitrophenol	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
4-Nitrophenol	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
N-nitrosodimethylamine	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
N-nitroso-di-n-propylamine	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
N-Nitrosodiphenylamine	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Pentachlorophenol	0.8	6.7	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Phenanthrene	100	100	--	0.511	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Phenol	0.33	100	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
Pyrene	100	100	--	0.667	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
1,1'-Biphenyl	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
1,2,4,5-Tetrachlorobenzene	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
1,2,4-Trichlorobenzene	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2,3,4,6-Tetrachlorophenol	--	--	--	<0.0945	--	<0.0887	--	<0.0907	--	<0.0871	--	<0.0908	--	<0.0896	--
2,4,6-Trichlorophenol	--	--	--	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--
2,4,5-Trichlorophenol	--	--	100	<0.0474	--	<0.0444	--	<0.0454	--	<0.0437	--	<0.0455	--	<0.0449	--

NOTES:

DUP-050716 is a duplicate sample of composite sample SB-3 (5-10).

mg/Kg = milligrams per kilogram or parts per million (ppm)

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows:

J = Detected below the Reporting Limit but above the Method Detection Limit; therefore the result is an estimated concentration

BOLD - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO

Underlined - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCOUnderlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)

Table 3
 Semivolatile Organic Compounds Detected in Soil
 Proposed East New York Family Academy Addition (819K)
 2037 Linden Boulevard
 Brooklyn, New York 11207
 NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential	SB-4 (1-5) 5/7/2016 Soil mg/Kg dry		SB-4 (5-10) 5/7/2016 Soil mg/Kg dry		SB-5 (1-5) 5/7/2016 Soil mg/Kg dry		SB-5 (5-10) 5/7/2016 Soil mg/Kg dry		DUP-050716 5/7/2016 Soil mg/Kg dry	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Acenaphthylene	100	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Acetophenone	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Aniline	--	--	100	<0.185	--	<0.175	--	<0.187	--	<0.218	--	<0.181	--
Anthracene	100	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Atrazine	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzaldehyde	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzidine	--	--	--	<0.185	--	<0.175	--	<0.187	--	<0.218	--	<0.181	--
Benzo(a)anthracene	1	1	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzo(a)pyrene	1	1	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzo(b)fluoranthene	1	1	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzo(g,h,i)perylene	100	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzoic acid	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzofluoranthene	0.8	3.9	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzyl alcohol	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Benzyl butyl phthalate	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
4-Bromophenyl phenyl ether	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Caprolactam	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
Carbazole	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
4-Chloro-3-methylphenol	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
4-Chloroaniline	--	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Bis(2-chloroethoxy)methane	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Bis(2-chloroethyl)ether	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Bis(2-chloroisopropyl)ether	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2-Chloronaphthalene	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2-Chlorophenol	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
4-Chlorophenyl phenyl ether	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Chrysene	1	3.9	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Dibenzo(a,h)anthracene	0.33	0.33	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Dibenzofuran	7	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Di-n-butyl phthalate	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
1,2-Diphenylhydrazine	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
1,4-Dichlorobenzene	1.8	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
1,3-Dichlorobenzene	2.4	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
1,2-Dichlorobenzene	1.1	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
3,3'-Dichlorobenzidine	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2,4-Dichlorophenol	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Diethyl phthalate	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2,4-Dimethylphenol	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Dimethyl phthalate	--	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
4,6-Dinitro-2-methylphenol	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
2,4-Dinitrophenol	--	100	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
2,4-Dinitrotoluene	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2,6-Dinitrotoluene	--	--	1.03	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Di-n-octyl phthalate	--	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Bis(2-ethylhexyl)phthalate	--	--	50	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Fluoranthene	100	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Fluorene	30	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Hexachlorobenzene	0.33	--	0.41	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Hexachlorobutadiene	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Hexachlorocyclopentadiene	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Hexachlorohexane	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Isophorone	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2-Methylnaphthalene	--	--	0.41	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2-Methylphenol	0.33	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
3,4-Methylphenols	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Naphthalene	12	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
4-Nitroaniline	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
2-Nitroaniline	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
3-Nitroaniline	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
Nitrobenzene	--	--	3.7	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2-Nitrophenol	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
4-Nitrophenol	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
N-nitrosodimethylamine	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
N-nitroso-di-n-propylamine	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
N-Nitrosodiphenylamine	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Pentachlorophenol	0.8	6.7	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Phenanthrene	100	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Phenol	0.33	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
Pyrene	100	100	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
1,1'-Biphenyl	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
1,2,4,5-Tetrachlorobenzene	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
1,2,4-Trichlorobenzene	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2,3,4,6-Tetrachlorophenol	--	--	--	<0.0926	--	<0.0874	--	<0.0934	--	<0.109	--	<0.0906	--
2,4,6-Trichlorophenol	--	--	--	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--
2,4,5-Trichlorophenol	--	--	100	<0.0464	--	<0.0438	--	<0.0468	--	<0.0545	--	<0.0454	--

NOTES:
 DUP-050716 is a duplicate sample of composite sample SB-3 (5-10).
 mg/Kg = milligrams per kilogram or parts per million (ppm)
 -- = indicates that no regulatory criteria has been established for this analyte
 > = Less than
 Q is the Qualifier Column with definitions as follows:
 J = Detected below the Reporting Limit but above the Method Detection Limit, therefore the result is an estimate
Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO
Bold and Shaded - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCO
Underlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)

Table 4

TAL Metals and Total Petroleum Hydrocarbons (GRO/DRO) Detected in Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential (mg/Kg)	Eastern USA Background Concentrations (mg/Kg)	SB-1 (3.5) 5/7/2016 Soil mg/Kg dry		SB-1 (5-10) 5/7/2016 Soil mg/Kg dry		SB-2 (1-5) 5/7/2016 Soil mg/Kg dry		SB-2 (5-10) 5/7/2016 Soil mg/Kg dry	
					Result	Q	Result	Q	Result	Q	Result	Q
Metals, Target Analyte												
Antimony	--	--	--	--	<0.567		<0.532		<0.544		<0.522	
Arsenic	13	16	--	3 - 12	4.49		1.06		4.65		<1.04	
Barium	350	400	--	15 - 600	83.5		11.1		25.6		9.29	
Beryllium	7.2	72	--	0 - 1.75	0.223		<0.106		0.125		<0.104	
Cadmium	2.5	4.3	--	0.1 - 1.0	<0.340		<0.319		<0.326		<0.313	
Chromium (total)	30	180	--	--	14.3		7.54		12.7		5.80	
Cobalt	--	--	30	2.5-60	6.57		3.52		4.03		3.21	
Copper	50	270	--	1.5 - 50	25.7		6.43		7.61		5.78	
Lead	63	400	--	200 - 500	128		2.24		21.3		2.09	
Manganese	1,600	2,000	--	50 - 50,000	363		182		227		189	
Nickel	30	310	--	0.5 - 25	13.0		7.91		6.90		8.48	
Selenium	3.9	180	--	0.1 - 3.9	2.27		<1.06		<1.09		<1.04	
Silver	2	180	--	--	<0.567		<0.532		<0.544		<0.522	
Thallium	--	--	--	--	<1.13		<1.06		<1.09		<1.04	
Vanadium	--	--	100	1 - 300	26.0		11.8		16.9		10.4	
Zinc	109	10,000	--	9 - 50	97.9		11.0		14.8		10.6	
Mercury by 7470/7471												
Mercury	0.18	0.81	--	0.001 - 0.2	0.642		<0.0319		0.0993		<0.0313	
Cyanide, Total												
Cyanide, Total	27	27	--	--	NA		NA		NA		NA	
Chromium, Hexavalent												
Chromium, Hexavalent	1	110	--	--	NA		NA		NA		NA	
Total Petroleum Hydrocarbons (GRO)												
Total Petroleum Hydrocarbons-GRO	--	--	--	--	NA		NA		NA		NA	
Total Petroleum Hydrocarbons (DRO)												
Total Petroleum Hydrocarbons-DRO	--	--	--	--	NA		NA		NA		NA	

NOTES:

DUP-050716 is a duplicate sample of composite sample SB-3 (5-10).

mg/Kg = milligrams per kilogram or parts per million (ppm)

NA = Not analyzed

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows: No qualifiers.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO**Bold and Shaded** - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCOUnderlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)*Italicized* - Concentration exceeds Eastern USA background concentrations for metals

Table 4

TAL Metals and Total Petroleum Hydrocarbons (GRO/DRO) Detected in Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential (mg/Kg)	Eastern USA Background Concentrations (mg/Kg)	SB-3 (1-5) 5/7/2016 Soil mg/Kg dry		SB-3 (5-10) 5/7/2016 Soil mg/Kg dry		SB-4 (1-5) 5/7/2016 Soil mg/Kg dry		SB-4 (5-10) 5/7/2016 Soil mg/Kg dry	
					Result	Q	Result	Q	Result	Q	Result	Q
Metals, Target Analyte												
Antimony	--	--	--	--	<0.544		<0.537		<0.555		<0.524	
Arsenic	13	16	--	3 - 12	2.68		<1.07		3.89		<1.05	
Barium	350	400	--	15 - 600	44.7		13.6		41.5		19.1	
Beryllium	7.2	72	--	0 - 1.75	0.140		<0.107		<0.111		<0.105	
Cadmium	2.5	4.3	--	0.1 - 1.0	<0.327		<0.322		<0.333		<0.314	
Chromium (total)	30	180	--	--	14.2		7.48		14.4		6.44	
Cobalt	--	--	30	2.5-60	5.84		3.41		6.12		3.13	
Copper	50	270	--	1.5 - 50	16.4		7.41		11.0		6.25	
Lead	63	400	--	200 - 500	31.1		2.35		103		2.06	
Manganese	1,600	2,000	--	50 - 50,000	452		182		276		461	
Nickel	30	310	--	0.5 - 25	30.2		11.0		11.0		8.51	
Selenium	3.9	180	--	0.1 - 3.9	2.17		<1.07		2.09		<1.05	
Silver	2	180	--	--	<0.544		<0.537		<0.555		<0.524	
Thallium	--	--	--	--	<1.09		<1.07		<1.11		<1.05	
Vanadium	--	--	100	1 - 300	20.7		10.3		20.6		9.94	
Zinc	109	10,000	--	9 - 50	65.1		14.4		26.3		11.4	
Mercury by 7470/7471												
Mercury	0.18	0.81	--	0.001 - 0.2	0.0818		<0.0322		0.0515		<0.0314	
Cyanide, Total												
Cyanide, Total	27	27	--	--	NA		NA		NA		NA	
Chromium, Hexavalent												
Chromium, Hexavalent	1	110	--	--	NA		NA		NA		NA	
Total Petroleum Hydrocarbons (GRO)												
Total Petroleum Hydrocarbons-GRO	--	--	--	--	NA		NA		NA		NA	
Total Petroleum Hydrocarbons (DRO)												
Total Petroleum Hydrocarbons-DRO	--	--	--	--	NA		NA		NA		NA	

NOTES:

DUP-050716 is a duplicate sample of composite sample SB-3 (5-10).

mg/Kg = milligrams per kilogram or parts per million (ppm)

NA = Not analyzed

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows: No qualifiers.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO**Bold and Shaded** - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCOUnderlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)*Italicized* - Concentration exceeds Eastern USA background concentrations for metals

Table 4

TAL Metals and Total Petroleum Hydrocarbons (GRO/DRO) Detected in Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential (mg/Kg)	Eastern USA Background Concentrations (mg/Kg)	SB-5 (1-5) 5/7/2016 Soil mg/Kg dry		SB-5 (5-10) 5/7/2016 Soil mg/Kg dry		DUP-050716 5/7/2016 Soil mg/Kg dry		SB-1 (Comp) 5/7/2016 Soil mg/Kg dry	
					Result	Q	Result	Q	Result	Q	Result	Q
Metals, Target Analyte												
Antimony	--	--	--	--	<0.560		<0.652		<0.543			NA
Arsenic	13	16	--	3 - 12	2.36		<1.30		2.67			NA
Barium	350	400	--	15 - 600	36.8		13.2		33.5			NA
Beryllium	7.2	72	--	0 - 1.75	0.121		<0.130		0.150			NA
Cadmium	2.5	4.3	--	0.1 - 1.0	<0.336		<0.391		<0.326			NA
Chromium (total)	30	180	--	--	14.9		6.71		22.0			NA
Cobalt	--	--	30	2.5-60	4.45		3.52		6.10			NA
Copper	50	270	--	1.5 - 50	7.21		7.29		8.46			NA
Lead	63	400	--	200 - 500	5.06		2.22		4.17			NA
Manganese	1,600	2,000	--	50 - 50,000	258		314		279			NA
Nickel	30	310	--	0.5 - 25	8.89		9.90		14.4			NA
Selenium	3.9	180	--	0.1 - 3.9	1.69		<1.30		2.36			NA
Silver	2	180	--	--	<0.560		<0.652		<0.543			NA
Thallium	--	--	--	--	<1.12		<1.30		<1.09			NA
Vanadium	--	--	100	1 - 300	18.9		10.4		28.0			NA
Zinc	109	10,000	--	9- 50	19.4		12.7		25.7			NA
Mercury by 1470/1471												
Mercury	0.18	0.81	--	0.001 - 0.2	0.0600		<0.0391		<0.0326			NA
Cyanide, Total												
Cyanide, Total	27	27	--	--	NA		NA		NA			<0.525
Chromium, Hexavalent												
Chromium, Hexavalent	1	110	--	--	NA		NA		NA			<0.368
Total Petroleum Hydrocarbons (GRO)												
Total Petroleum Hydrocarbons-GRO	--	--	--	--	NA		NA		NA			<35.5
Total Petroleum Hydrocarbons (DRO)												
Total Petroleum Hydrocarbons-DRO	--	--	--	--	NA		NA		NA			<3.57

NOTES:

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> = Less than

Q is the Qualifier Column with definitions as follows: No qualifiers.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO**Bold and Shaded** - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCOUnderlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)*Italicized* - Concentration exceeds Eastern USA background concentrations for metals

Table 4

TAL Metals and Total Petroleum Hydrocarbons (GRO/DRO) Detected in Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential (mg/Kg)	Eastern USA Background Concentrations (mg/Kg)	SB-2 (Comp) 5/7/2016 Soil mg/Kg dry		SB-3 (Comp) 5/7/2016 Soil mg/Kg dry		SB-4 (Comp) 5/7/2016 Soil mg/Kg dry		SB-5 (Comp) 5/7/2016 Soil mg/Kg dry	
					Result	Q	Result	Q	Result	Q	Result	Q
Metals, Target Analyte												
Antimony	--	--	--	--	NA		NA		NA		NA	
Arsenic	13	16	--	3 - 12	NA		NA		NA		NA	
Barium	350	400	--	15 - 600	NA		NA		NA		NA	
Beryllium	7.2	72	--	0 - 1.75	NA		NA		NA		NA	
Cadmium	2.5	4.3	--	0.1 - 1.0	NA		NA		NA		NA	
Chromium (total)	30	180	--	--	NA		NA		NA		NA	
Cobalt	--	--	30	2.5-60	NA		NA		NA		NA	
Copper	50	270	--	1.5 - 50	NA		NA		NA		NA	
Lead	63	400	--	200 - 500	NA		NA		NA		NA	
Manganese	1,600	2,000	--	50 - 50,000	NA		NA		NA		NA	
Nickel	30	310	--	0.5 - 25	NA		NA		NA		NA	
Selenium	3.9	180	--	0.1 - 3.9	NA		NA		NA		NA	
Silver	2	180	--	--	NA		NA		NA		NA	
Thallium	--	--	--	--	NA		NA		NA		NA	
Vanadium	--	--	100	1 - 300	NA		NA		NA		NA	
Zinc	109	10,000	--	9 - 50	NA		NA		NA		NA	
Mercury by 7470/7471												
Mercury	0.18	0.81	--	0.001 - 0.2	NA		NA		NA		NA	
Cyanide, Total												
Cyanide, Total	27	27	--	--	<0.532		<0.523		<0.516		<0.583	
Chromium, Hexavalent												
Chromium, Hexavalent	1	110	--	--	<0.373		<0.366		<0.361		<0.408	
Total Petroleum Hydrocarbons (GRO)												
Total Petroleum Hydrocarbons-GRO	--	--	--	--	<34.0		<33.6		<39.0		<30.0	
Total Petroleum Hydrocarbons (DRO)												
Total Petroleum Hydrocarbons-DRO	--	--	--	--	<3.62		<3.55		<3.51		13.9	

NOTES:

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> = Less than

Q is the Qualifier Column with definitions as follows: No qualifiers.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO**Bold and Shaded** - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCOUnderlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)*Italicized* - Concentration exceeds Eastern USA background concentrations for metals

Table 5

Pesticide, Herbicide, and PCB Compounds Detected in Soil
 Proposed East New York Family Academy Addition (819K)
 2057 Linden Boulevard
 Brooklyn, New York 11207
 NYSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential (mg/Kg)	SB-1 (Comp) 5/7/2016 Soil mg/Kg dry		SB-2 (Comp) 5/7/2016 Soil mg/Kg dry		SB-3 (Comp) 5/7/2016 Soil mg/Kg dry	
				Result	Q	Result	Q	Result	Q
Pesticides, Target List									
4,4-DDD	0.0033	13	--	<0.00173		<0.00176		<0.00172	
4,4-DDE	0.0033	8.9	--	<0.00173		<0.00176		<0.00172	
4,4-DDT	0.0033	7.9	--	<0.00173		<0.00176		<0.00172	
Aldrin	0.005	0.097	--	<0.00173		<0.00176		<0.00172	
alpha-BHC	0.02	0.48	--	<0.00173		<0.00176		<0.00172	
alpha-Chlordane	0.094	4.2	--	<0.00173		<0.00176		<0.00172	
beta-BHC	0.036	0.36	--	<0.00173		<0.00176		<0.00172	
Chlordane	0.094	4.2	--	<0.0693		<0.0702		<0.069	
delta-BHC	0.04	100	--	<0.00173		<0.00176		<0.00172	
Dieldrin	0.005	0.2	--	<0.00173		<0.00176		<0.00172	
Endosulfan I	2.4	24	--	<0.00173		<0.00176		<0.00172	
Endosulfan II	2.4	24	--	<0.00173		<0.00176		<0.00172	
Endosulfan Sulfate	2.4	24	--	<0.00173		<0.00176		<0.00172	
Endrin	0.014	11	--	<0.00173		<0.00176		<0.00172	
Endrin Aldehyde	--	--	--	<0.00173		<0.00176		<0.00172	
Endrin Ketone	--	--	--	<0.00173		<0.00176		<0.00172	
gamma-BHC	--	--	--	<0.00173		<0.00176		<0.00172	
gamma-Chlordane	--	--	0.54	<0.00173		<0.00176		<0.00172	
Heptachlor	0.042	2.1	--	<0.00173		<0.00176		<0.00172	
Heptachlor Epoxide	--	--	0.077	<0.00173		<0.00176		<0.00172	
Methoxychlor	--	--	100	<0.00866		<0.00878		<0.00862	
Toxaphene	--	--	--	<0.0877		<0.0889		<0.0873	
Herbicides, Target List									
2,4,5-T	--	--	100	<0.021		<0.0213		<0.0209	
2,4,5-TP (Silvex)	3.8	100	--	<0.021		<0.0213		<0.0209	
2,4-D	--	--	100	<0.021		<0.0213		<0.0209	
PCBs									
Aroclor 1016	--	--	--	<0.0175		<0.0177		<0.0174	
Aroclor 1221	--	--	--	<0.0175		<0.0177		<0.0174	
Aroclor 1232	--	--	--	<0.0175		<0.0177		<0.0174	
Aroclor 1242	--	--	--	<0.0175		<0.0177		<0.0174	
Aroclor 1248	--	--	--	<0.0175		<0.0177		<0.0174	
Aroclor 1254	--	--	--	<0.0175		<0.0177		<0.0174	
Aroclor 1260	--	--	--	<0.0175		<0.0177		<0.0174	
Total PCBs	0.1	1	--	<0.0175		<0.0177		<0.0174	

NOTES:

mg/Kg = milligrams per kilogram or parts per million (ppm)

NA = Not analyzed

-- = Indicates that no regulatory criteria has been established for this analyte

Q is the Qualifier Column with definitions as follows: No qualifiers.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO

Bold and Shaded - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCO

Underlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)

Table 5

Pesticide, Herbicide, and PCB Compounds Detected in Soil
 Proposed East New York Family Academy Addition (819K)
 2057 Linden Boulevard
 Brooklyn, New York 11207
 NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID (feet bgs) Sampling Date Matrix Units	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (mg/Kg)	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (mg/Kg)	NYSDEC CP-51 Table 1 Supplemental Soil Cleanup Objectives Residential (mg/Kg)	SB-4 (Comp) 5/7/2016 Soil mg/Kg dry		SB-5 (Comp) 5/7/2016 Soil mg/Kg dry	
				Result	Q	Result	Q
Pesticides, Target List							
4,4-DDD	0.0033	13	--	<0.0017		<0.00193	
4,4-DDE	0.0033	8.9	--	<0.0017		<0.00193	
4,4-DDT	0.0033	7.9	--	<0.0017		<0.00193	
Aldrin	0.005	0.097	--	<0.0017		<0.00193	
alpha-BHC	0.02	0.48	--	<0.0017		<0.00193	
alpha-Chlordane	0.094	4.2	--	<0.0017		<0.00193	
beta-BHC	0.036	0.36	--	<0.0017		<0.00193	
Chlordane	0.094	4.2	--	<0.0682		<0.077	
delta-BHC	0.04	100	--	<0.0017		<0.00193	
Dieldrin	0.005	0.2	--	<0.0017		<0.00193	
Endosulfan I	2.4	24	--	<0.0017		<0.00193	
Endosulfan II	2.4	24	--	<0.0017		<0.00193	
Endosulfan Sulfate	2.4	24	--	<0.0017		<0.00193	
Endrin	0.014	11	--	<0.0017		<0.00193	
Endrin Aldehyde	--	--	--	<0.0017		<0.00193	
Endrin Ketone	--	--	--	<0.0017		<0.00193	
gamma-BHC	--	--	--	<0.0017		<0.00193	
gamma-Chlordane	--	--	0.54	<0.0017		<0.00193	
Heptachlor	0.042	2.1	--	<0.0017		<0.00193	
Heptachlor Epoxide	--	--	0.077	<0.0017		<0.00193	
Methoxychlor	--	--	100	<0.00852		<0.00963	
Toxaphene	--	--	--	<0.0862		<0.0974	
Herbicides, Target List							
2,4,5-T	--	--	100	<0.0207		<0.0233	
2,4,5-TP (Silvex)	3.8	100	--	<0.0207		<0.0233	
2,4-D	--	--	100	<0.0207		<0.0233	
PCBs							
Aroclor 1016	--	--	--	<0.0172		<0.0194	
Aroclor 1221	--	--	--	<0.0172		<0.0194	
Aroclor 1232	--	--	--	<0.0172		<0.0194	
Aroclor 1242	--	--	--	<0.0172		<0.0194	
Aroclor 1248	--	--	--	<0.0172		<0.0194	
Aroclor 1254	--	--	--	<0.0172		<0.0194	
Aroclor 1260	--	--	--	<0.0172		<0.0194	
Total PCBs	0.1	1	--	<0.0172		<0.0194	

NOTES:

mg/Kg = milligrams per kilogram or parts per million (ppm)

NA = Not analyzed

-- = Indicates that no regulatory criteria has been established for this analyte

Q is the Qualifier Column with definitions as follows: No qualifiers.

Bold - Concentration exceeds the NYSDEC Part 375 Unrestricted Use SCO

Bold and Shaded - Concentration exceeds the NYSDEC Part 375 Restricted Residential SCO

Underlined - Concentration exceeds the NYSDEC CP-51 Table 1 Supplemental SCO (Residential)

Table 6

Volatile Organic Compounds Detected in Groundwater
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID Matrix Units	NYSDEC Ambient Water Quality Standards and Guidance Values Class GA Groundwater µg/L	SB-1 (GW)-050716 5/7/2016 Groundwater µg/L		SB-2 (GW)-050716 5/7/2016 Groundwater µg/L		SB-3 (GW)-050716 5/7/2016 Groundwater µg/L		SB-4 (GW)-050716 5/7/2016 Groundwater µg/L		SB-5 (GW)-050716 5/7/2016 Groundwater µg/L		DUP-GW-050716 5/7/2016 Groundwater µg/L		TB-050716 5/7/2016 Trip Blank µg/L	
		Result	Q	Result	Q	Result	Q								
1,1,1-Trichloroethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,1,1,2-Tetrachloroethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,1,2,2-Tetrachloroethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,1,2-Trichloro-1,2,2-trifluoroethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,1,2-Trichloroethane	1	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Isopropylbenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,1-Dichloroethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
n-Propylbenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,1-Dichloroethylene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2,3-Trichlorobenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2,3-Trichloropropane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
p-Isopropyltoluene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2,4-Trimethylbenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,3,5-Trimethylbenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
n-Butylbenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
sec-Butylbenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
tert-Butylbenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2,4-Trichlorobenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2-Dibromo-3-chloropropane	0.04	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2-Dibromoethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2-Dichlorobenzene	3	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,3-Dichlorobenzene	3	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,4-Dichlorobenzene	3	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2-Dichloroethane	0.6	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,2-Dichloropropane	1	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
1,4-Dioxane	--	<40		<40		<40		<40		<40		<40		<40	
2-Butanone	50	<0.80		<0.80		<0.80		<0.80		<0.80		<0.80		<0.80	
2-Hexanone	50	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
4-Methyl-2-pentanone	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Acetone	50	<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0	
Acrolein	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Acrylonitrile	0.07	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Benzene	1	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Bromochloromethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Bromodichloromethane	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Bromoform	50	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Bromomethane	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Carbon disulfide	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Carbon tetrachloride	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Chlorobenzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Chloroethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Chloroform	7	0.82		1.3		<0.20		0.45	J	1.8		0.77		<0.20	
Chloromethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
cis-1,2-Dichloroethylene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
cis-1,3-Dichloropropylene	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Cyclohexane	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Dibromochloromethane	50	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Dibromomethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Dichlorodifluoromethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Ethyl Benzene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Hexachlorobutadiene	0.5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Methyl acetate	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Methyl tert-butyl ether (MTBE)	10	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Methylcyclohexane	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Methylene chloride	5	<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0	
o-Xylene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
p- & m- Xylenes	5	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
Styrene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
tert-Butyl alcohol (TBA)	--	<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0	
Tetrachloroethylene	5	0.31	J	<0.20		0.25	J	<0.20		0.40	J	0.3	J	<1.0	
Toluene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
trans-1,2-Dichloroethylene	--	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
trans-1,3-Dichloropropylene	0.4	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Trichloroethylene	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Trichlorofluoromethane	5	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Vinyl Chloride	2	<0.20		<0.20		<0.20		<0.20		<0.20		<0.20		<0.20	
Xylenes, Total	5	<0.60		<0.60		<0.60		<0.60		<0.60		<0.60		<0.60	

NOTES:

DUP-GW-050716 is a duplicate sample of groundwater sample SB-1 (GW).

TB-050716 is a trip blank sample for QA/QC purposes.

µg/L = micrograms per liter or parts per billion (ppb)

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows:

J = Detected below the Reporting Limit but above the Method Detection Limit; therefore the result is an estimated concentration

Bold and Shaded - Concentration exceeds the NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values

Table 7

Semivolatile Organic Compounds Detected in Groundwater
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID Sampling Date Matrix	NYSDEC Ambient Water Quality Standards and Guidance Values Class GA Groundwater µg/L	SB-1 (GW)-050716		SB-2 (GW)-050716		SB-3 (GW)-050716		SB-4 (GW)-050716		SB-5 (GW)-050716	
		5/7/2016		5/7/2016		5/7/2016		5/7/2016		5/7/2016	
		Groundwater µg/L		Groundwater µg/L		Groundwater µg/L		Groundwater µg/L		Groundwater µg/L	
Units	Compound	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
	Acenaphthene	20	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Acenaphthylene	--	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Acetophenone	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	Aniline	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	Anthracene	50	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Atrazine	7.5	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Benzaldehyde	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	Benzidine	5	<10.5	<10.5		<10.5		<10.5		<10.5	
	Benzo(a)anthracene	0.002	<0.0541	<0.0541		<0.0526		0.0632		<0.0541	
	Benzo(a)pyrene	0.002	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Benzo(b)fluoranthene	0.002	<0.0541	<0.0541		<0.0526		0.0632		<0.0541	
	Benzo(g,h)perylene	--	<0.0541	<0.0541		<0.0526		0.0526		<0.0541	
	Benzoic acid	--	<27.0	<27.0		<26.3		<26.3		<27.0	
	Benzo(k)fluoranthene	0.002	<0.0541	<0.0541		<0.0526		0.0632		<0.0541	
	Benzyl butyl phthalate	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	4-Bromophenyl phenyl ether	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	Caprolactam	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	Carbazole	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	4-Chloro-3-methylphenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	4-Chloroaniline	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	Bis(2-chloroethoxy)methane	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	Bis(2-chloroethyl)ether	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	Bis(2-chloroisopropyl)ether	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	2-Chloronaphthalene	10	<2.70	<2.70		<2.63		<2.63		<2.70	
	2-Chlorophenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	4-Chlorophenyl phenyl ether	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	Chrysene	0.002	<0.0541	<0.0541		<0.0526		0.0632		<0.0541	
	Dibenz(a,h)anthracene	--	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Dibenzofuran	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	Di-n-butyl phthalate	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	1,2-Diphenylhydrazine	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	1,2-Dichlorobenzene	3	<2.70	<2.70		<2.63		<2.63		<2.70	
	1,4-Dichlorobenzene	3	<2.70	<2.70		<2.63		<2.63		<2.70	
	1,3-Dichlorobenzene	3	<2.70	<2.70		<2.63		<2.63		<2.70	
	3,3'-Dichlorobenzidine	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,4-Dichlorophenol	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	Diethyl phthalate	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,4-Dimethylphenol	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	Dimethyl phthalate	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	4,6-Dinitro-2-methylphenol	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,4-Dinitrophenol	10	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,4-Dinitrotoluene	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,6-Dinitrotoluene	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	Di-n-octyl phthalate	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	Bis(2-ethylhexyl)phthalate	5	<0.541	<0.541		<0.526		<0.526		<0.541	
	Fluoranthene	50	<0.0541	<0.0541		0.0526		0.168		<0.0541	
	Fluorene	50	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Hexachlorobenzene	0.04	<0.0216	<0.0216		<0.0211		<0.0211		<0.0216	
	Hexachlorobutadiene	0.5	<0.541	<0.541		<0.526		<0.526		<0.541	
	Hexachlorocyclopentadiene	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	Hexachloroethane	5	<0.541	<0.541		<0.526		<0.526		<0.541	
	Indeno(1,2,3-cd)pyrene	0.002	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	Isophorone	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	2-Methylnaphthalene	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	2-Methylphenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	3- & 4-Methylphenols	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	Naphthalene	10	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	4-Nitroaniline	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	2-Nitroaniline	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	3-Nitroaniline	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	Nitrobenzene	0.4	<0.270	<0.270		<0.263		<0.263		<0.270	
	2-Nitrophenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	4-Nitrophenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	N-nitrosodimethylamine	--	<0.0541	<0.0541		<0.0526		<0.0526		<0.0541	
	N-nitroso-di-n-propylamine	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	N-Nitrosodiphenylamine	50	<2.70	<2.70		<2.63		<2.63		<2.70	
	Pentachlorophenol	1	<0.270	<0.270		<0.263		<0.263		<0.270	
	Phenanthrene	50	<0.0541	<0.0541		0.200		0.242		<0.0541	
	Phenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	Pyrene	50	<0.0541	<0.0541		<0.0526		0.126		<0.0541	
	1,1'-Biphenyl	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	1,2,4,5-Tetrachlorobenzene	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	1,2,4-Trichlorobenzene	5	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,3,4,6-Tetrachlorophenol	--	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,4,5-Trichlorophenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	
	2,4,6-Trichlorophenol	1	<2.70	<2.70		<2.63		<2.63		<2.70	

NOTES:

µg/L = micrograms per liter or parts per billion (ppb)

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Bold and Shaded - Concentration exceeds the NYSDEC TOGS 1:1.1 Ambient Water Quality Standards and Guidance Values

Table 8

TAL Metals (Dissolved and Total) and TPH (GRO/DRO) Detected in Groundwater
 Proposed East New York Family Academy Addition (819K)
 2057 Linden Boulevard
 Brooklyn, New York 11207
 NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID Sampling Date Matrix Units	NYSDEC Ambient Water Quality Standards and Guidance Values Class GA Groundwater µg/L	SB-1 (GW)-050716 5/7/2016 Groundwater µg/L		SB-2 (GW)-050716 5/7/2016 Groundwater µg/L		SB-3 (GW)-050716 5/7/2016 Groundwater µg/L		SB-4 (GW)-050716 5/7/2016 Groundwater µg/L		SB-5 (GW)-050716 5/7/2016 Groundwater µg/L	
		Result	Q								
Target Analyte List Metals - Dissolved											
Antimony	3	<6		<6		<6		<6		<6	
Arsenic	25	<4		<4		<4		<4		<4	
Barium	1,000	51		145		68		61		75	
Beryllium	3	<1		<1		<1		<1		<1	
Cadmium	5	<3		<3		<3		<3		<3	
Chromium (total)	50	<6		<6		<6		<6		<6	
Cobalt	--	<6		<6		<6		<6		<6	
Copper	200	12		10		7		6		4	
Lead	25	<3		<3		<3		<3		<3	
Manganese	300	250		475		313		203		264	
Nickel	100	<6		<6		<6		<6		<6	
Selenium	10	<11		<11		<11		<11		<11	
Silver	50	<6		<6		<6		<6		<6	
Thallium	0.5	<6		<6		<6		<6		<6	
Vanadium	--	<11		<11		<11		<11		<11	
Zinc	2,000	16		41		14		16		<11	
Target Analyte List Metals - Total											
Antimony	3	<6		<6		<6		<6		<6	
Arsenic	25	<4		<4		<4		<4		<4	
Barium	1,000	69		147		71		59		87	
Beryllium	3	<1		<1		<1		<1		<1	
Cadmium	5	<3		<3		<3		<3		<3	
Chromium (total)	50	7		<6		<6		<6		7	
Cobalt	--	<6		<6		<6		<6		<6	
Copper	200	13		8		8		6		8	
Lead	25	3		<3		<3		<3		<3	
Manganese	300	365		484		270		236		464	
Nickel	100	<6		<6		<6		<6		<6	
Selenium	10	<11		<11		<11		<11		<11	
Silver	50	<6		<6		<6		<6		<6	
Thallium	0.5	<6		<6		<6		<6		<6	
Vanadium	--	<11		<11		<11		<11		<11	
Zinc	2,000	20		16		17		15		16	
Mercury by 7473 - Dissolved											
Mercury	0.7	<0.2		<0.2		<0.2		<0.2		<0.2	
Mercury by 7473 - Total											
Mercury	0.7	<0.2		<0.2		<0.2		<0.2		<0.2	
Cyanide, Total											
Cyanide, Total	200	<10		<10		<10		<10		<10	
Chromium, Hexavalent											
Chromium, Hexavalent	50	<10	HT-01								
Total Petroleum Hydrocarbons (GRO)											
Total Petroleum Hydrocarbons-GRO	--	<400		<400		<400		<400		<400	
Total Petroleum Hydrocarbons (DRO)											
Total Petroleum Hydrocarbons-DRO	--	<69.5		<71.4		<71.4		<97.8		<67.7	

NOTES:

µg/L = micrograms per liter or parts per billion (ppb)

NA = Not analyzed

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows:

HT-01 = This result was reported from an analysis conducted outside of the EPA recommended holding time.

Bold and Shaded - Concentration exceeds the NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values

Table 9

Pesticide, Herbicide, and PCB Compounds Detected in Groundwater
 Proposed East New York Family Academy Addition (819K)
 2057 Linden Boulevard
 Brooklyn, New York 11207
 NYCSCA Job No. K-819-64199 LLW No. 104773

Sample ID Sampling Date Matrix Units	NYSDEC Ambient Water Quality Standards and Guidance Values Class GA Groundwater µg/L	SB-1 (GW)-050716 5/7/2016 Groundwater µg/L		SB-2 (GW)-050716 5/7/2016 Groundwater µg/L		SB-3 (GW)-050716 5/7/2016 Groundwater µg/L		SB-4 (GW)-050716 5/7/2016 Groundwater µg/L		SB-5 (GW)-050716 5/7/2016 Groundwater µg/L	
		Result	Q								
Pesticides, Target List											
4,4-DDD	0.3	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
4,4-DDE	0.2	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
4,4-DDT	0.2	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Aldrin	--	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
alpha-BHC	0.01	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
beta-BHC	0.04	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Chlordane	0.05	<0.0444		<0.0444		<0.0516		<0.0457		<0.0444	
delta-BHC	0.04	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Dieldrin	0.004	<0.00222		<0.00222		<0.00258		<0.00229		<0.00222	
Endosulfan I	--	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Endosulfan II	--	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Endosulfan Sulfate	--	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Endrin	--	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Endrin Aldehyde	5	<0.0111		<0.0111		<0.0129		<0.0114		<0.0111	
Endrin Ketone	5	<0.0111		<0.0111		<0.0129		<0.0114		<0.0111	
gamma-BHC	0.05	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Heptachlor	0.04	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Heptachlor Epoxide	0.03	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Methoxychlor	35	<0.00444		<0.00444		<0.00516		<0.00457		<0.00444	
Toxaphene	0.06	<0.111		<0.111		<0.129		<0.114		<0.111	
Herbicides, Target List											
2,4,5-T	35	<5.00		<5.00		<5.00		<5.00		<5.00	
2,4,5-TP (Silvex)	0.26	<5.00		<5.00		<5.00		<5.00		<5.00	
2,4-D	50	<5.00		<5.00		<5.00		<5.00		<5.00	
PCBs											
Aroclor 1016	--	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	
Aroclor 1221	--	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	
Aroclor 1232	--	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	
Aroclor 1242	--	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	
Aroclor 1248	--	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	
Aroclor 1254	--	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	
Aroclor 1260	--	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	
Total PCBs	0.09	<0.0556		<0.0556		<0.0645		<0.0571		<0.0556	

NOTES:

µg/L = micrograms per liter or parts per billion (ppb)

NA = Not analyzed

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows: No qualifiers.

Bold and Shaded - Concentration exceeds the NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values

Table 10

**NYCDEP Dewatering Effluent Discharge Limits Evaluation
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773**

Sample ID Sampling Date Matrix	NYCDEP Dewatering Effluent Discharge Limits	Units	SB-1 GW-050716 5/7/2016 Groundwater	
			Result	Q
Compound				
1,1,1-Trichloroethane	--	µg/L	<1.2	
1,4-Dichlorobenzene	--	µg/L	<1.2	
Benzene	134	µg/L	<1.3	
Carbon tetrachloride	--	µg/L	<1.4	
Chloroform	--	µg/L	<1.1	
Ethyl Benzene	380	µg/L	<1.2	
Methyl tert-butyl ether (MTBE)	50	µg/L	<0.53	
o-Xylene	--	µg/L	<1.1	
p- & m- Xylenes	--	µg/L	<2.3	
Tetrachloroethylene	20	µg/L	<3.3	
Toluene	74	µg/L	<0.81	
Xylenes, Total	74	µg/L	<3.4	
Naphthalene	47	µg/L	<2.85	
1,2,4-Trichlorobenzene	--	µg/L	<2.96	
Aroclor 1016	--	µg/L	<0.0696	
Aroclor 1221	--	µg/L	<0.0696	
Aroclor 1232	--	µg/L	<0.0696	
Aroclor 1242	--	µg/L	<0.0696	
Aroclor 1248	--	µg/L	<0.0652	
Aroclor 1254	--	µg/L	<0.0652	
Aroclor 1260	--	µg/L	<0.0652	
Total PCBs	1	µg/L	<0.0652	
Cadmium	0.69	mg/L	<0.00278	
Copper	5	mg/L	0.0130	
Lead	2	mg/L	0.00381	
Nickel	3	mg/L	0.00767	
Zinc	5	mg/L	0.0270	
Mercury	0.05	mg/L	<0.00009500	
Flashpoint	> 140	°F	> 200	
Total Solids	--	mg/L	545	
Chloride	--	mg/L	155	
Nitrate as N	--	mg/L	2.56	HT-01
Nitrite as N	--	mg/L	<0.00400	HT-01
Non-Polar Material	50	mg/L	<0.500	
Phenols, total	--	mg/L	<0.0500	
Total Suspended Solids	350	mg/L	91.5	
pH	--	pH units	6.8	HT-pH
Total Kjeldahl Nitrogen	--	mg/L	0.760	
Carbonaceous BOD (5-Day)	--	mg/L	<3.0	
Total Nitrogen	--	mg/L	3.32	
Chromium, Hexavalent	5	mg/L	<0.00600	HT-01

NOTES:

mg/L = milligrams per liter or parts per million (ppm)

µg/L = micrograms per liter or parts per billion (ppb)

-- = Indicates that no regulatory criteria has been established for this analyte

> = Less than

Q is the Qualifier Column with definitions as follows:

HT-01 = This result was reported from an analysis conducted outside of the EPA recommended holding time.

HT-pH = Holding time exceeded. Samples for pH must be measured in the field or within 15 minutes of sample collection.

Shaded = Concentration exceeds the NYCDEP Dewatering Effluent Discharge Limits

Table 11

**Toxicity Characteristic Leaching Procedure (TCLP) Results for Soil
Proposed East New York Family Academy Addition (819K)
2057 Linden Boulevard
Brooklyn, New York 11207
NYCSCA Job No. K-819-64199 LLW No. 104773**

Sample ID (Depth Below Ground Surface) Sampling Date Matrix Units	USEPA TCLP Regulatory Level (mg/L)	SB-1 (3-5)		SB-4 (1-5)	
		Soil mg/L dry	Q	Soil mg/L dry	Q
Compound		Result		Result	
Lead	5	0.252		0.011	

NOTES:

mg/L = milligrams per liter or parts per million (ppm)

-- = Indicates that no regulatory criteria has been established for this analyte

< = Less than

Q is the Qualifier Column with definitions as follows: No qualifiers

Bold - Concentration exceeds the USEPA TCLP Regulatory Level.