Hunts Point Food Distribution Center
E OU-3 Extension &
Viele Avenue Extension

Site Investigation Report
Bronx, New York

Final

Prepared for:

New York City Economic Development Corporation

110 William Street, New York, New York 10038

Prepared by:

HDR | ONE COMPANY *Many Solutions*℠

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1.0 INTRODUCTION

1.1 Purpose

Henningson, Durham & Richardson Architecture and Engineering P.C. in association with HDR Engineering, Inc. (HDR), has prepared this Site Investigation Report (SIR) at the request of the New York City Economic Development Corporation (NYCEDC) for the parcel known as the Site E OU-3 Extension and Viele Avenue Extension (Site) (refer to Figure 1) located within the Hunts Point Food Distribution Center (HPFDC) in the Bronx, New York. The Site is identified as part of Block 2781, Lot 500; Block 2775, Lot 279; and Block 2778, Lot 100 and encompasses approximately 102,000 square feet or 2.34 acres. The Site is bounded on the north by a New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) parcel known as Site E OU-3; on the south by NYSDEC VCP Site A OU-2, a parking lot serving the new Fulton Fish Market and the Meat Market lease hold; to the east by NYSDEC VCP Site E OU-2; and to the west by Halleck Street (refer to Figure 2). The property is currently owned by the City of New York and managed by the NYCEDC.

Between March 10 and March 19, 2010, HDR completed a geophysical investigation and a subsurface Site Investigation (SI) on the Site E OU-3 Extension and Viele Avenue Extension. The SI was completed to assess, to the extent feasible within the existing scope and budget, contamination that may exist due to historic use of the Site. In addition to identifying areas potentially impacted by historic use, the investigation also evaluated general fill conditions and Site groundwater. This information is intended to assist NYCEDC in future planning and determinations of Site end use, necessary for redevelopment.

1.2 History

The SI was based on historic information and aerial photographs (see Appendix A) showing that the area was formerly occupied by a Manufactured Gas Plant (MGP). The MGP site was operated by Consolidated Edison Company of New York, Inc. (Con Edison) from 1926 to approximately 1960. The land was subsequently sold to the City of New York. The facility occupied 206.4 acres, bounded on the north by East Bay Avenue, on the east by the Bronx River, on the south by the East River, and on the west by Halleck Street. Plant operations included the manufacturing, storage, and distribution of coal gas.

At the peak of gas production, the plant consisted of approximately 46 structures (refer to Figure 3). Other than buildings, the main structural units included a 15-million cubic foot waterless gas holder, a 1-million cubic foot relief holder, a 2-million gallon fresh water storage tank, and two 1-million gallon oil storage tanks. The facility stopped production in the early 1960s. Review of historical maps and aerial photographs show that all of the major above ground structures were demolished by 1966 with the exception of the 15-million cubic foot waterless gas holder. By 1975, the waterless gas holder had been demolished and the former MGP site was undergoing redevelopment.

Between 1966 and 1975, the western portion of the Site was developed as Viele Avenue (refer to Figure 4). Viele Avenue has been demapped but the Site E OU-3 Extension and Viele Avenue Extension still contain multiple utilities including a drainage easement (refer to Figure 2) leading to a combined sewer overflow (CSO) located on the southern edge of the Hunts Point Peninsula. Between 1975 and 1984, concrete foundations were installed along the eastern boundary of the Site. The foundations were intended for the development and relocation of a fish market that was operating in lower Manhattan. The relocation plans were never realized and in 2005 the Fulton Fish Market was relocated to a parcel in the southern end of the Hunts Point peninsula. Several of the foundations were used by the Nebraskaland development as an expansion of the current Meat Market Cooperative. The remaining slabs are unused.

2.0 PHASE II SITE INVESTGATION WORK

HDR designed the Phase II investigative scope to incorporate a geophysical survey, soil probing, test pitting and groundwater testing to assess potential impacts from the former MGP and Site fill materials. Both soil and groundwater samples were collected for laboratory analyses.

HDR subcontracted Diversified Geophysics of New Hyde Park, New York to complete a geophysical survey and Aquifer Drilling and Testing (ADT) of New Hyde Park, New York to advance 20 soil borings and four test pits, including installation of six temporary groundwater sampling points (refer to Figure 5).

2.1 Soil Investigation

On March 10, 2010, HDR commenced field activities with the location of Site utilities by Diversified Geophysics. Each borehole location was cleared for drilling using electromagnetic and ground penetrating radar instruments, including the borings installed through the abandoned foundation slab. Diversified Geophysics also attempted to confirm the location of utilities shown on the Viele Avenue Investigation Area Survey (see Appendix B).

On March 16, 2010, ADT mobilized a Geoprobe® 6610 track mounted direct-push rig to advance 20 soil borings (B-1 through B-20). Samples were collected continuously in dedicated acetate liners from the ground surface to the depth of a native clay confining layer, approximately 20 feet below grade or refusal, whichever was encountered first.

Upon collection, each sample was field screened by a geologist for organic vapors using a properly calibrated [100 parts per million (ppm) of isobutylene] photo-ionization detector (PID). A combustible gas indicator (CGI) was used to screen subsurface soils for methane and hydrogen sulfide (H_2S) gas. Detailed logs where then prepared for each sample and included: material type, composition, color, grain size and distribution, water content, and visual or olfactory evidence of contamination, as well as any other distinctive characteristics. The completed logs are included as Appendix C. Soil samples submitted for laboratory analysis were selected based upon visual or olfactory evidence of impacts and/or elevated readings noted on field instruments. In areas where no

evidence of potential impact was noted, a sample was retained from directly above the water table.

Sample locations were distributed across the Site to provide information for future planning and design efforts for the entire Site. The Site is divided by a fence into two sections: the former Viele Avenue and the eastern portion which is vegetated and partially covered by an abandoned concrete foundation slab.

Seven borings (B-1 through B-7) and four test pits (TP-1 through TP-4) were advanced in the eastern vegetated portion of the Site. Borings B-1, B-2, B-3, B-6 and B-7 were advanced through vegetation and debris located at the surface. In the areas of borings B-4 and B-5, the concrete slab had to be cored prior to advancing the borings. In general, the soils encountered consisted of fill materials underlain by a native clay or sandy gravels and then native clay. The fill material consisted mostly of compacted silt, containing some sand and fine gravels, and traces of brick, wood, ash, coal dust, concrete, glass, metal, plastic and styrofoam materials. Fill materials had a slight odor, believed to be from the decomposing wood, ash and coal dust found in the sample. A PID reading of 14.6 ppm was observed in boring B-5 at a depth of 7 to 8 feet. A sample was retained from this depth for laboratory analysis. This was the only boring in this portion of the Site where a reading above background was noted. The sandy gravel contained no debris and was found across the middle portion of the project area beneath the fill materials. The native clay unit contained plant and seashell fragments. All of the borings in the vegetated portion of the Site were terminated in the clay layer. Figure 6 shows a cross section of the Site.

In addition to the borings, four test pits were advanced in the area surrounding the concrete foundations on March 15, 2010. A detailed log was prepared for each test pit and included: material type, composition, color, grain size and distribution, and visual or olfactory evidence of contamination, as well as any other distinctive characteristics. The test pit logs are included in this report as Appendix D. Each test pit was advanced to a depth of approximately 10 feet. The materials encountered in each test pit were very similar. The surface materials consisted of either topsoil or metal and rubber tire debris. The topsoil or debris was underlain by fill described as a yellow to brown coarse to fine sand, underlain by a brown very fine sand and silt layer. Groundwater was encountered at 4 to 5 feet below the surface, roughly two feet below the concrete pad. While advancing the test pits along the foundation slabs an odor similar to coal tar was noted. There was, however, no sign in the excavation of any source of the contamination, nor were any readings recorded on the meters above background. An inspection of the groundwater in the excavation did not reveal any sheen or other sign of impact from MGP material. Small isolated pockets of MGP material have been identified on other development sites within Hunts Point and it is believed that this may be the case in this area. An example of this was the very small sign of coal tar noted at 7ft in boring B-11, on a layer of concrete (this boring is discussed in detail below). Once completed, the test pits were backfilled with the excavated materials from the same location.

The former Viele Avenue portion of the Site consists of asphalt paving with concrete sidewalks. Thirteen of the 20 borings were installed in this portion of the Site (B-8

through B-20). In general, the soils encountered were similar to those encountered in the vegetated portion of the Site. Fill materials were described as compacted silt, containing some sand and fine gravels, and traces of brick, wood, ash, coal dust, concrete, glass, metal, plastic and styrofoam materials. The gravel and clay were also similar to those described in the vegetated portion of the Site (refer to Figure 6). All of the borings in the Viele Avenue portion of the Site were terminated in clay; with the exception of B18 and B20 which were only advanced to ten feet and borings B-11 and B-19 which were terminated at seven feet below the surface due to refusal. A PID reading slightly above background, 4.6 ppm, was measured in boring B-16 in the 5 to 10 foot sample. A sample was retained for laboratory analysis from 8 to 9 feet. This was the only boring in this portion of the Site where a reading above background was measured.

While installing boring B-11, a small amount of coal tar, a byproduct of the MGP process, was observed on the sampler at a depth of 7 feet, where the boring met refusal. The boring was relocated approximately 5 feet to the west from the original location in an attempt to avoid the obstruction and collect a representative sample. There was no evidence of coal tar in the second location. HDR returned to this area during the final day of drilling to delineate any coal tar that may be present. Borings B-18, B-19 and B-20 were installed surrounding the original B-11 location. Borings B-18 and B-20 were advanced to a depth of 10 feet with no evidence of coal tar. Boring B-19 met refusal at 7 feet similar to the original B-11 location. A sample was collected for laboratory analyses from 6 to 7 feet in an attempt to characterize the fill materials directly above the obstruction, but no coal tar was observed.

A total of 11 soil samples were retained for laboratory analyses. All 11 samples were collected, transferred to the laboratory in laboratory-provided glassware and sent under Chain of Custody (COC) protocol to Mitkem Laboratories of Warwick, Rhode Island, a division Spectrum Analytical Inc. (Mitkem). Mitkem is a New York State Department of Health (NYSDOH)-certified laboratory. Mitkem analyzed the soil samples for the following parameters:

- Volatile Organic Compounds (VOCs) following the United States Environmental Protection Agency's (USEPA) Method 8260,
- Semi Volatile Organic Compounds (SVOCs) via USEPA Method 8270,
- Resource Conservation and Recovery Act (RCRA) metals plus mercury and cyanide (Cn) via USEPA Method 6010 plus 9010 (Cn),
- Polychlorinated Biphenyls (PCBs) via USEPA Method 8082, and
- Total Petroleum Hydrocarbon (TPH) via USEPA Method 8015.

After soil sampling was completed at each location, the boring was backfilled using excess cuttings and/or bentonite pellets. If borings were located in paved areas, the surface was replaced and restored with compatible materials.

2.2 Groundwater Investigation

Soil borings B-1, B-5, B-8, B-11, B-13 and B-16 were completed as temporary groundwater sampling points. The purpose of the monitoring points was to measure depth to groundwater, collect groundwater samples, and to obtain information on groundwater quality. Locations of the six points are shown on Figure 5.

Upon reaching the completion depth of each boring, the sampling point was installed. Each point consisted of a 15- to 20-foot long section of 1-inch diameter, slotted schedule 40 polyvinyl chloride (PVC) screen. The wells were distributed across the Site in order to characterize Site-wide groundwater quality. Additionally, monitoring points were installed in borings B-5 and B-16 where PID readings were observed above background. Once the monitoring point installation was complete, the temporary points were developed by evacuating groundwater through dedicated tubing using a peristaltic pump until a reduction in turbidity was observed. All samples were collected using a peristaltic pump through dedicated sample tubing. Due to the high silt content of the soils, it was noted that the groundwater samples collected from borings B-5, B-11 and B-13 had a high turbidity.

Groundwater samples were collected directly into laboratory-provided glassware and sent under COC protocol to Mitkem for analyses. Samples were analyzed for the following parameters:

- VOCs following the USEPA Method 8260,
- SVOCs via USEPA Method 8270,
- RCRA metals plus Cn via USEPA Method 6010 plus mercury and 9010 (Cn),
- PCBs via USEPA Method 8082, and
- TPH via USEPA Method 8015.

There were no odors or visual evidence of impact to groundwater noted during purging or sampling. Depth to groundwater varied across the Site and was measured between 4.5 and 10 feet below the existing ground surface. The clay horizon noted throughout the Site has also been observed throughout Hunts Point and is considered a confining layer. This condition of relatively shallow clay with a groundwater table that varies over a fairly wide range has been noted in other Hunts Point development sites. The clay may be a component in the fluctuating groundwater contours in the area. Much of the area in Hunts Point is paved, and it prevents movement of groundwater in a downward direction resulting in horizontal groundwater movement along the clay surface.

After groundwater sampling was completed at each location, the monitoring points were removed and the holes were backfilled using excess cuttings and/or bentonite pellets. If borings/temporary sampling points were located in paved areas, the surface was replaced and restored with compatible materials.

3.0 SAMPLING RESULTS

All detected compounds are summarized in Tables 1 through 3 in the attached tables section of this report. A copy of the full laboratory data packages is included as Appendix E.

3.1 Soil Investigation

All soil sample results were compared to the NYSDEC 6 NYCRR Subpart 375-6 Restricted Use Soil Clean-up Objectives, December 14, 2006 (SCOs) for Restricted Residential and Commercial properties.

None of the VOC compounds detected exceeded the Restricted Residential or Commercial SCOs. All of the compounds detected were at least an order of magnitude below the SCOs, including sample B-19, which was collected above the obstruction where coal tar was noted in the adjacent boring.

SVOCs were detected above either the Restricted Residential or Commercial SCOs in 8 of the 11 samples collected (B-1, B-3, B-5, B-7, B-12, B-16, B-17 and B-19). The sample analysis revealed several SVOCs, primarily poly-aromatic hydrocarbons (PAHs) compounds, at concentrations of the same or one order of magnitude above the SCOs. TPH ranged from 16 to 11,000 ppm and was above detection limits in all 11 samples.

PCBs were detected in four of the samples collected (B-1, B-3, B-7 and B-19). All detected concentrations were at least one order of magnitude below the Restricted Residential and Commercial SCOs.

Metals detected were primarily below the SCOs with the following exceptions: Arsenic, in samples B-3 and B-19, was detected above the SCOs and both of the exceedances were within the same order of magnitude as the SCOs; the barium concentration slightly exceeded the SCOs in sample B-17; lead concentrations exceeded the Restricted Residential SCOs in samples B-12 and B-17, however, the concentrations were below the Commercial SCOs; and mercury concentrations exceeded the Restricted Residential SCO but were below the Commercial SCOs in samples B-3 and B-19.

3.2 Groundwater Investigation

All groundwater sample results were compared to the June 1998 Division of Water Technical & Operational Guidance Series (1.1.1): Ambient Water Quality Standards & Guidance Values and Groundwater Effluent limitations for a GA water body (TOGS). A summary of the compounds detected is provided in Table 3.

Analytical results of the six groundwater samples collected showed VOC concentrations above the standards in five of the samples collected. There were no VOCs detected above the standard in sample B-13. Concentrations exceeding the standards were

typically the same or one order of magnitude above the standard, with the exception of naphthalene in boring B-5, which was two orders of magnitude above the standard. Other compounds detected with concentrations above the standards included 1,2,4-trimethylbenzene, 1,3,5 trimethlybenzene, n-propylbenzene, benzene, ethylbenzene, and xylenes.

SVOC concentrations were reported above the standards in three of the six of the samples collected (B-1, B-3, and B-5). Samples B-1 and B-3 contained benzo[a]anthracene at concentrations that are four orders of magnitude above the standard. Benzo[b]fluoranthene was also detected at concentrations that are four orders of magnitude above the standard in sample B-1. All other compounds detected above the standard were from sample B-5. Concentrations of SVOCs in sample B-5 were primarily the same or one order of magnitude above the standard with the exception of PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and chrysene) which were all five orders of magnitude above the standard. TPH concentrations were below the detection limits in two of the samples (B-8 and B-16). Where detected, TPH concentrations ranged from 790 to 4300 ppm.

There were no PCBs detected in any of the six samples. Metals concentrations exceeded the standard in all six samples. Detected metals concentrations were primarily the same or one order of magnitude above the standard with the exception of the lead in boring B-1, which was detected two orders of magnitude above the standard.

4.0 CONCLUSION AND RECOMMENDATIONS

In order to assess potential impacts to the subsurface from historic site features and to assess subsurface soil conditions, 20 soil borings including six temporary groundwater sampling points were advanced on the E OU-3 Extension and Viele Avenue Extension Site. The entire horizon from grade to 20 ft was sampled and inspected while advancing the borings and test pits. Borings and test pits were also physically inspected for visible signs of MGP impacts and waste. Additionally, 11 soil samples, and 6 groundwater samples were collected from the borings.

Boring logs and samples indicate that historic fill containing brick, concrete, coal, ash, cinders, wood and debris is present across the entire Site comprising the shallow soils. In a number of locations, the historic fill stretched from the surface to the confining clay layer (approximately 15 feet below the existing surface). In the central portion of the site, a native but thin sediment layer was noted beneath the surficial fill and above the clay. The gray clay was found beneath the entire site. The depth to the clay ranged from 10 to 15 feet below grade but it was consistently below the water table. There was no analysis of the physical properties of the clay; however, it is believed to be a hydraulic barrier between the shallow water table and groundwater beneath the clay. Groundwater in the shallow material is considered perched and dependent upon its ability to move horizontally, could become mounded as is noted in several borings. The groundwater within the site is not expected to be impacted by tidal influences that may exist closer to the bank of the Bronx River.

Although the Site is located on the footprint the former MGP site, no MGP waste (coal tar) was encountered with the exception of a small amount of coal tar noted on top of a concrete obstruction in boring B-11. Additional borings were installed surrounding the area in an attempt to delineate the waste and no other coal tar or coal tar impacted materials were observed. Analytical results of the soil and groundwater samples did not indicate the presence of MGP waste. The analytical data was typical of historic fill materials that are present throughout Hunts Point.

While there is no specific requirements for remediation or removal of material exceeding SCOs, data was compared to NYSDEC SCOs for Restricted Residential and Commercial Sites. During any future construction or redevelopment activities, regardless of analytical results, Site soils contain residual fill material associated with the Site's former use as an MGP. These fill materials include coal, cinders and ash; therefore, any excess soil will require disposal as industrial waste and cannot be recycled as construction and demolition debris. Material can be reused on-Site under the current version of NYCRR Part 360 Solid and Hazardous Material Regulations but excess would be a regulated solid waste and should be managed according to NYCRR Part 360 (as noted above).

HDR recommends that all redevelopment activities be implemented in compliance with a Site Management Plan (SMP). The SMP should address procedures for material excavation, handling, and disposal of all materials classified as historic fill and/or industrial waste. The objective of the plan is to provide environmental requirements for the management of subsurface soils/fill, the importation of fill materials, and the long-term maintenance/replacement of a barrier cover system.

During redevelopment, excavation in the area of boring B-11 should proceed with caution. A small amount of coal tar was noted and refusal was encountered at seven feet. Any small amounts of residual coal tar possibly trapped below the small structure should be handled in accordance with the SMP and disposed of at a properly permitted facility.

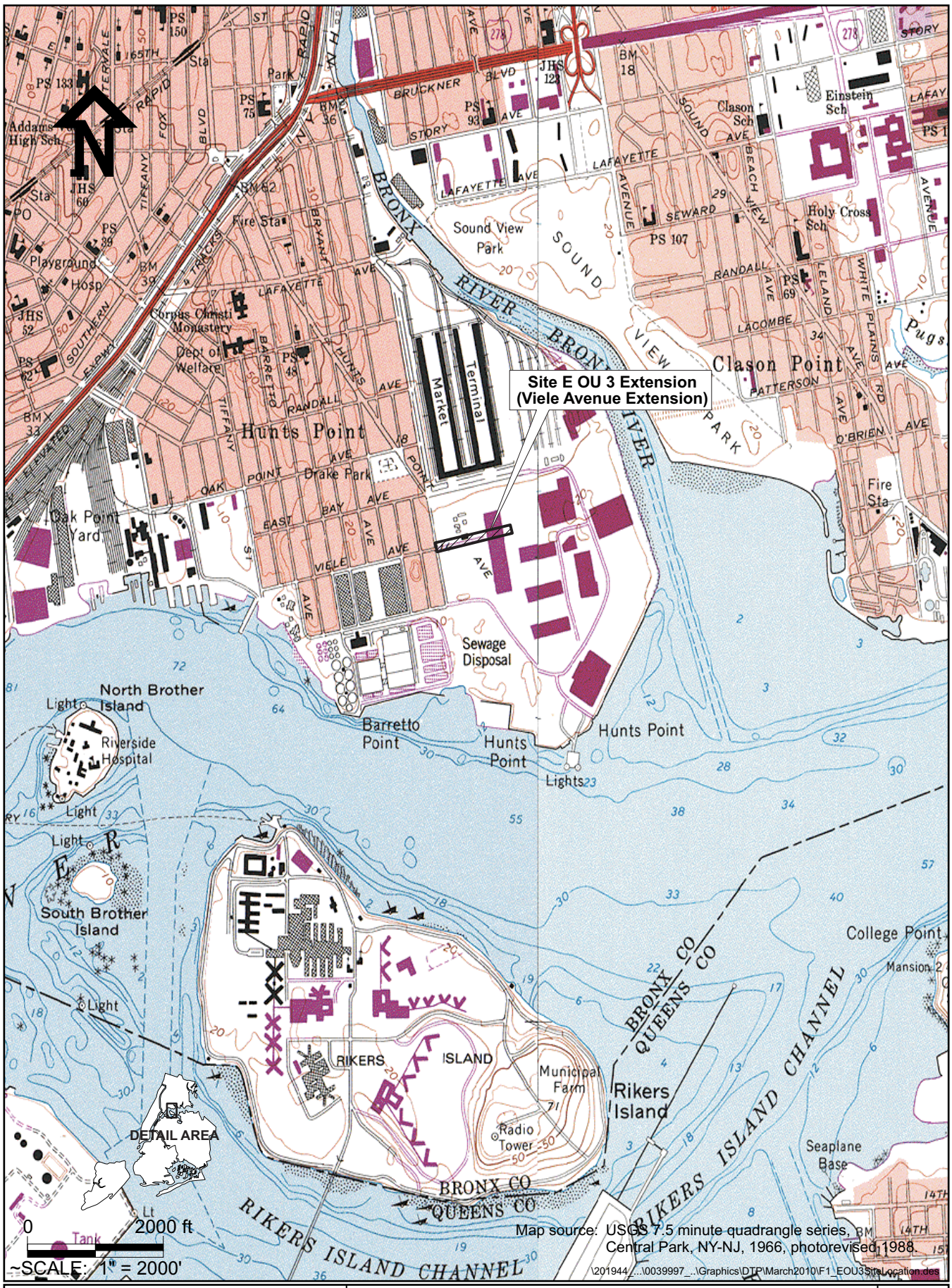
HDR also recommends a Site-Specific Health and Safety Plan (SSHASP) be prepared to provide information for site workers during redevelopment activities including the fill material present and the concentrations of Site contaminants. The SSHASP will discuss possible exposure concerns and should include procedures to be followed if waste material is encountered.

No reportable conditions were identified on the Site. However, it is possible that small isolated areas of MGP waste (coal tar/purifier) or petroleum impacted material may be encountered during rehabilitation and redevelopment excavations. If impacted soil is encountered, the soils should be segregated from non-impacted soils to prevent mixing and impacts to larger volumes of material. Additionally, while there were no methane or H_2S readings above background during intrusive activities, excavations into the organic silts and clays on-Site should be monitored.

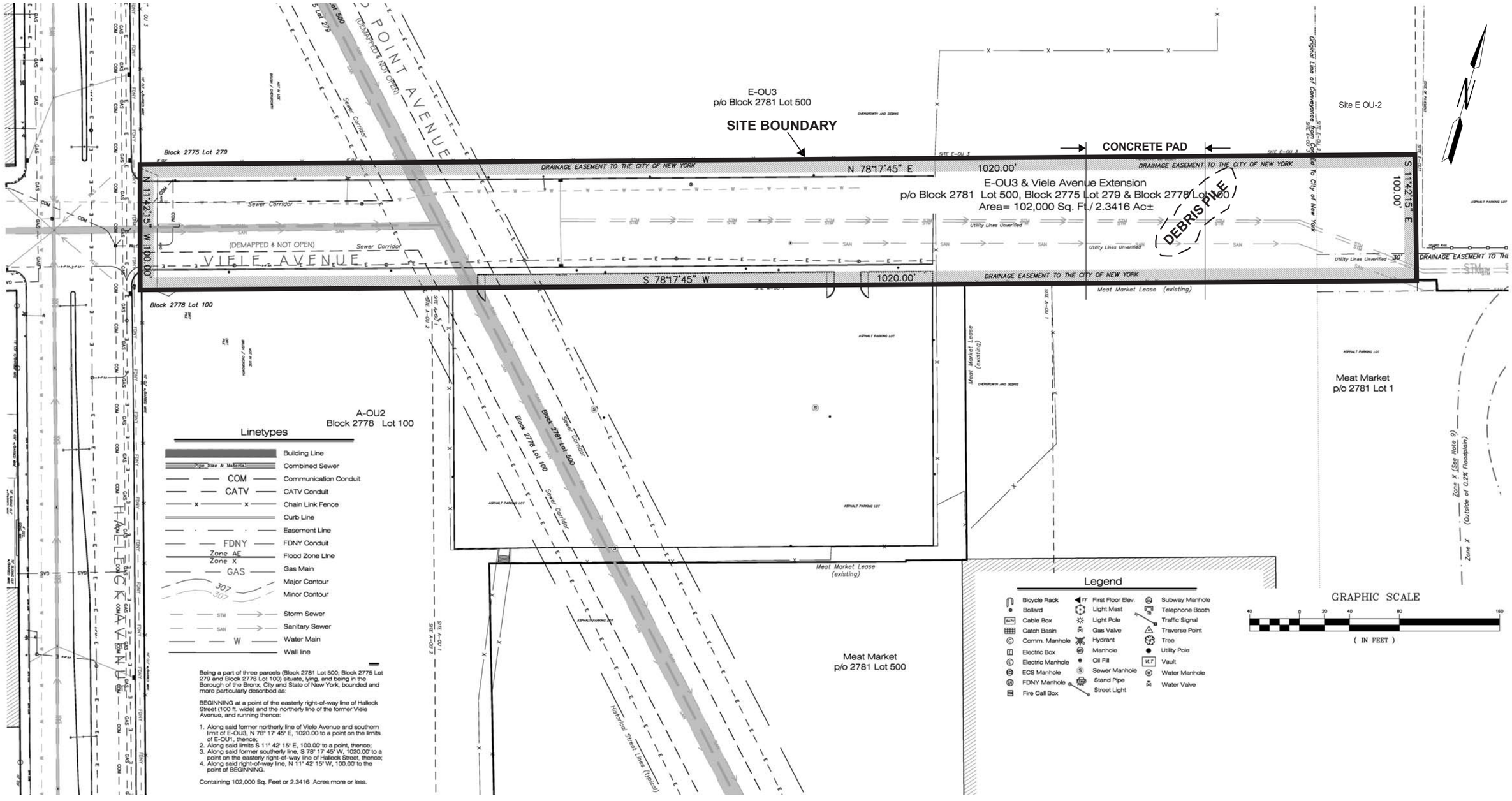
Based upon the observation of the samples collected and analytical data, material disturbed as part of the rehabilitation and redevelopment should be acceptable for reuse on Site under NYCRR Part 360 1-15 (b)(7)(8). Material that is removed from the Site should be handled and disposed of in accordance with applicable state and federal regulations and the SMP.

It is assumed that Site redevelopment will include the construction of a building and related infrastructure. Based on the history of the Site and surrounding area as an MGP, there is a potential for vapor migration from historic fill and groundwater contamination identified on the site and the vicinity. The Site was identified to have naphthalene above the drinking water standard and naphthalene has also been identified in other parcels within the former MGP. HDR recommends a vapor barrier and passive venting system, at a minimum, be considered a standard method for mitigating any potential underground vapors that may be present on-Site or on nearby parcels. It is recommended that it be incorporated into the design of any buildings developed on the Site. In addition to the sub slab vapor barrier and passive venting system, a Site-wide cover system is recommended to reduce the potential for human contact to historic fill material and contaminants remaining in subsurface soils. This type of engineering cover system has been constructed at other Hunts Point development sites and was approved by NYSDEC and NYSDOH under the Brownfields Cleanup Program (BCP) and VCP.

Figures



HDR Henningson, Durham & Richardson Architecture and Engineering, P.C. One Blue Hill Plaza Pearl River, NY 10965	**Site Location** **E OU-3 and Viele Avenue Extension Site • Bronx, New York**	**Figure 1**



Map Source: Investigation Area Survey, October 24, 2009
Mercator Land Surveying, LLC
Prepared for New York City Economic Development Corp.

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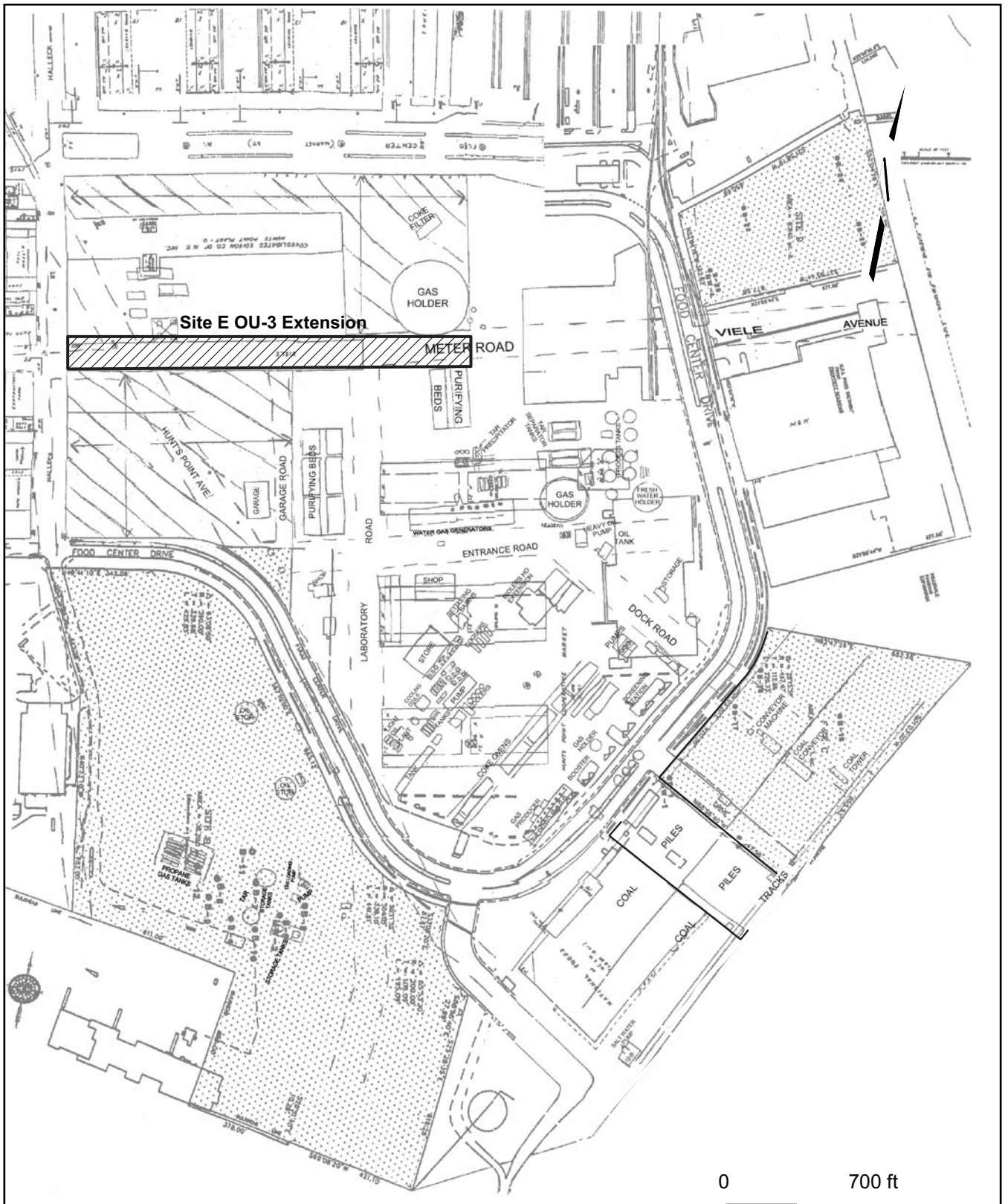
One Blue Hill Plaza
Pearl River, NY 10965

Site Plan

E OU-3 and Viele Avenue Extension Site • Bronx, New York

Figure 2



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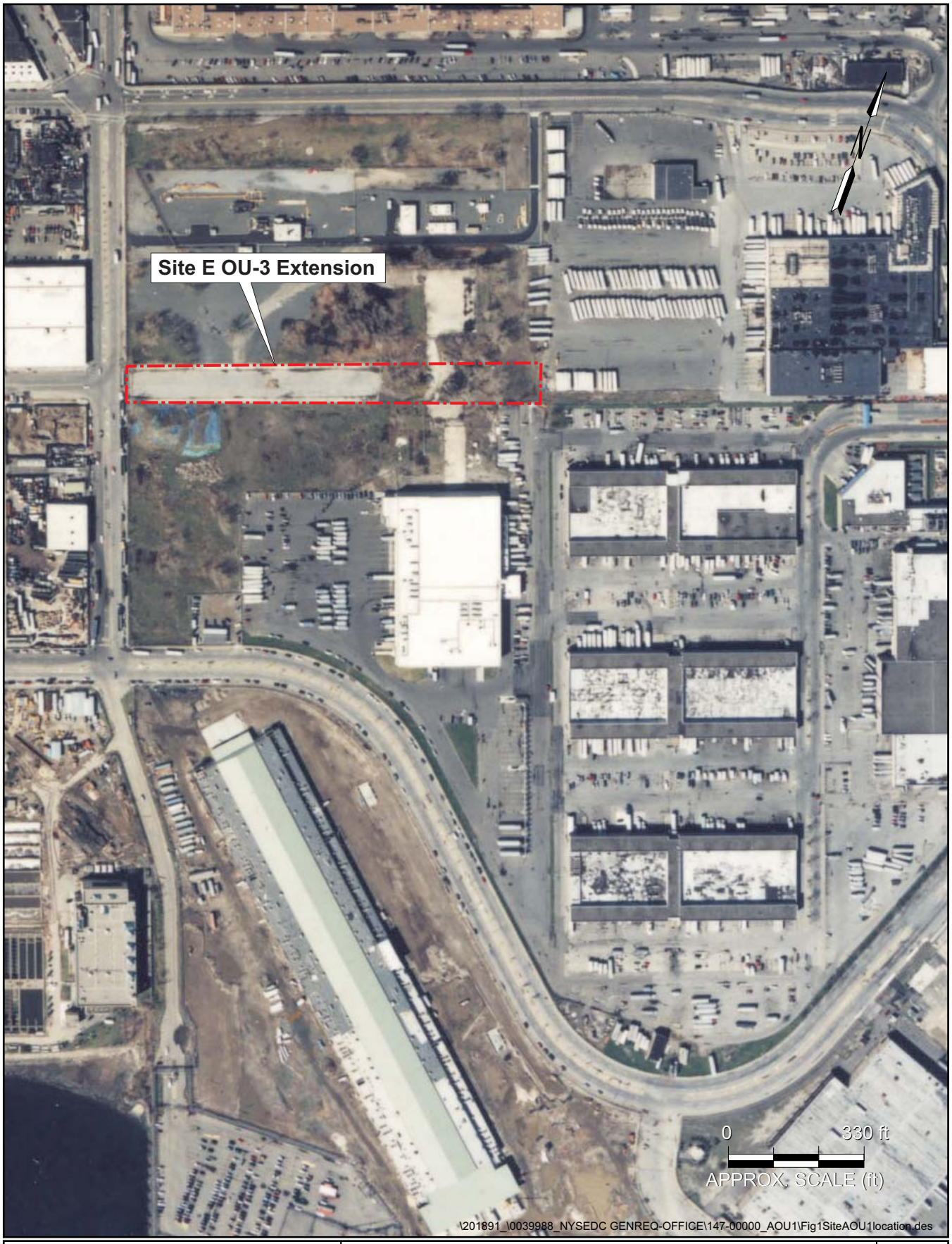
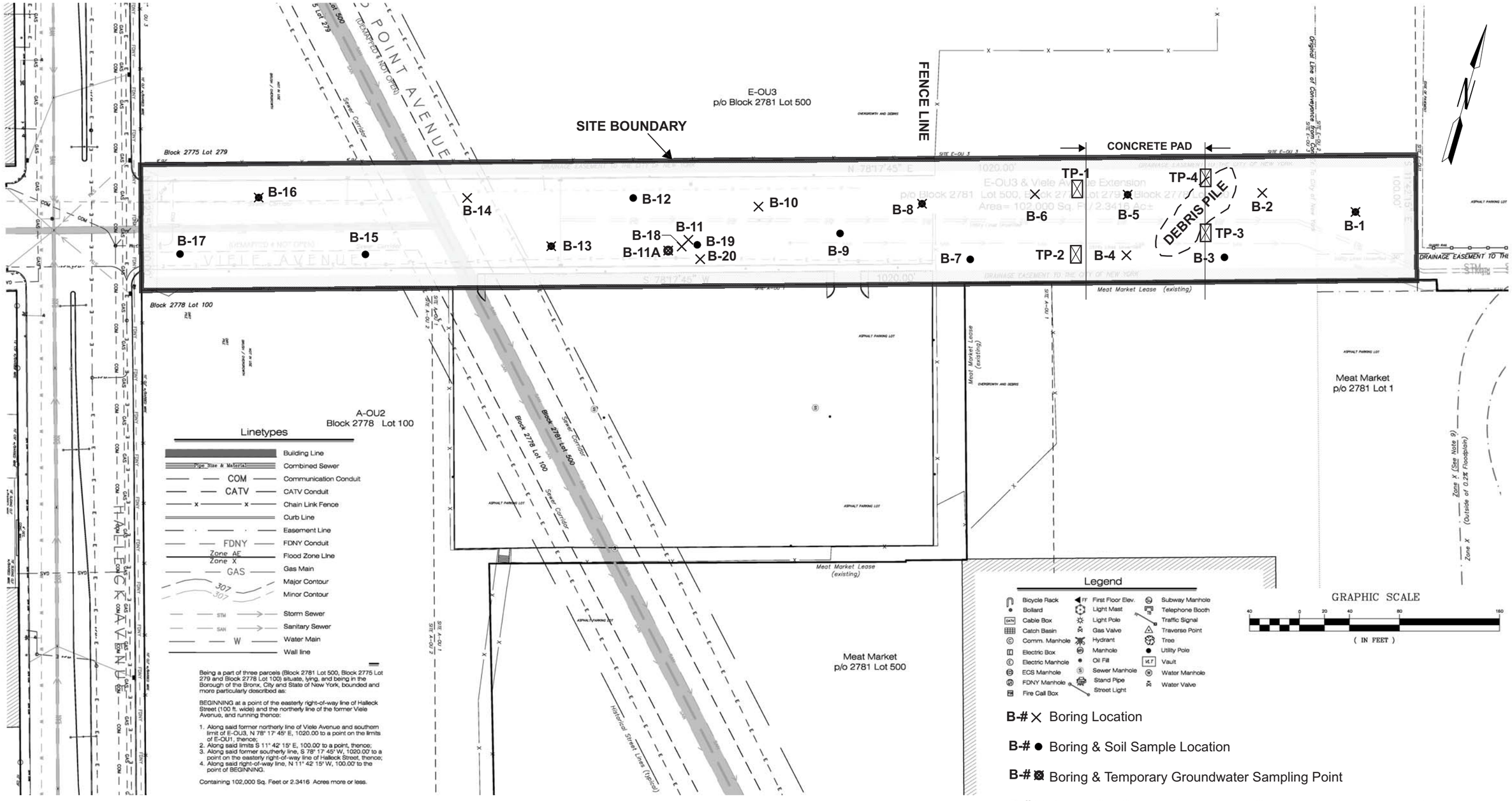
HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C. One Blue Hill Plaza Pearl River, NY 10965	**Historic Structures** **E OU-3 and Viele Avenue Extension Site • Bronx, New York**	**Figure 3**



HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C. One Blue Hill Plaza Pearl River, NY 10965	**Site Aerial Photograph** **E OU-3 and Viele Avenue Extension Site • Bronx, New York**	**Figure 4**



Being a part of three parcels (Block 2781 Lot 500, Block 2775 Lot 279 and Block 2778 Lot 100) situate, lying, and being in the Borough of the Bronx, City and State of New York, bounded and more particularly described as:

BEGINNING at a point of the easterly right-of-way line of Halleck Street (100 ft. wide) and the northerly line of the former Viele Avenue, and running thence:

1. Along said former northerly line of Viele Avenue and southern limit of E-OU3, N 78° 17' 45" E, 1020.00 to a point on the limits of E-OU1, thence;
2. Along said limits S 11° 42' 15" E, 100.00 to a point, thence;
3. Along said former southerly line, S 78° 17' 45" W, 1020.00' to a point on the easterly right-of-way line of Halleck Street, thence;
4. Along said right-of-way line, N 11° 42' 15" W, 100.00' to the point of BEGINNING.

Containing 102,000 Sq. Feet or 2.3416 Acres more or less.

Map Source: Investigation Area Survey, October 24, 2009
Mercator Land Surveying, LLC
Prepared for New York City Economic Development Corp.

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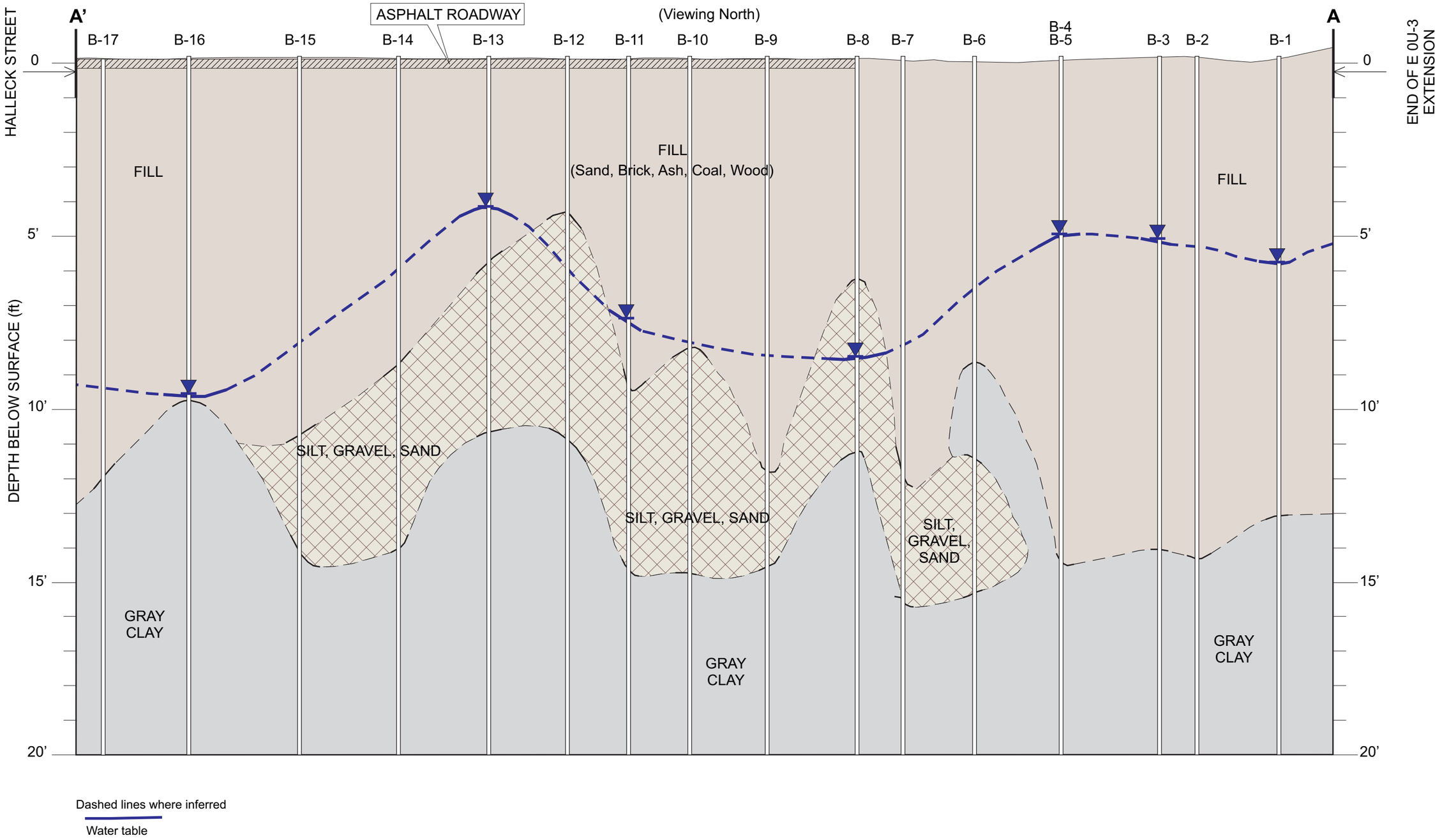
Site Features, Boring and Test Pit Locations
E OU-3 and Viele Avenue Extension Site • Bronx, New York

Figure 5



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Cross Section A-A'

E OU-3 and Viele Avenue Extension Site • Bronx, New York

Figure 6

Tables

Table 1
Volatile Organic Compounds Detected in Soil
E OU-3 Extension/Viele Avenue Extension Phase II Investigation

		SUBPART 375-6 Soil Cleanup Objectives		B1			B3			B5			B5			B7			B9			B12		
Sample Id				5'			5'			8'			8'			5'			9'			9'		
Sample Depth				J0486-02			J0486-05			J0486-09			J0486-09			J0486-07			J0486-17			J0486-28		
Lab Id				3/16/2010			3/16/2010			3/17/2010			3/17/2010			3/16/2010			3/19/2010			3/18/2010		
Date Colletced																								
Dilution Factor (DF)				1			1			1			1			1			1			1		
ANALYTE	CAS#	Restricted Residential SCOs	Commercial SCOs	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier
Volatile Organic Compounds																								
1,2,4-Trichlorobenzene	120-82-1	NS	NS	ND	0.0055	U	**0.017**	0.028	**J**	**0.0039**	0.0061	**J**	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
1,2-Dichlorobenzene	95-50-1	100	500	**0.002**	0.0055	**BJ**	**0.015**	0.028	**J**	**0.0036**	0.0061	**BJ**	ND	0.390	U	ND	0.380	U	**0.0015**	0.0063	**BJ**	**0.0018**	0.0079	**BJ**
1,4-Dichlorobenzene	106-46-7	13	130	**0.0016**	0.0055	**BJ**	**0.011**	0.028	**BJ**	**0.0028**	0.0061	**BJ**	ND	0.390	U	ND	0.380	U	**0.0023**	0.0063	**BJ**	**0.0017**	0.0079	**BJ**
2-Butanone	78-93-3	100	500	ND	0.0055	U	**0.016**	0.028	**J**	ND	0.0061	U	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
Acetone	67-64-1	100	500	**0.043**	0.0055		**0.13**	0.028		**0.033**	0.0061		ND	0.390	U	ND	0.380	U	**0.027**	0.0063		**0.0023**	0.0079	U
Benzene	71-43-2	4.8	44	ND	0.0055	U	**0.013**	0.028	**J**	ND	0.0061	U	ND	0.390	U	ND	0.380	U	**0.0084**	0.0063		ND	0.0079	U
Carbon disulfide	75-15-0	NS	NS	ND	0.0055	U	**0.0064**	0.028	**J**	ND	0.0061	U	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
Chlorobenzene	108-90-7	100	500	**0.0023**	0.0055	**BJ**	**0.017**	0.028	**BJ**	**0.0041**	0.0061	**BJ**	ND	0.390	U	ND	0.380	U	**0.0019**	0.0063	**BJ**	**0.0022**	0.0079	**BJ**
Chloroethane	75-00-3	NS	NS	ND	0.0055	U	ND	0.028	U	ND	0.0061	U	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
Ethylbenzene	100-41-4	41	390	ND	0.0055	U	**0.011**	0.028	**J**	**0.013**	0.0061		ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
M&p-Xylenes*	1330-20-7	100	500	ND	0.0055	U	**0.018**	0.028	**J**	**0.0075**	0.0061		ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
Methylene chloride	75-09-2	100	500	**0.005**	0.0055	**BJ**	**0.027**	0.028	**BJ**	**0.0047**	0.0061	**BJ**	ND	0.390	U	ND	0.380	U	**0.0066**	0.0063		**0.0067**	0.0079	**BJ**
Naphthalene		100	500	**0.0016**	0.0055	**BJ**	**0.32**	0.028	**B**	**0.82**	0.0061	**BE**	**6.8**	0.390		**2.5**	0.380		**0.0037**	0.0063	**J**	ND	0.0079	U
O-Xylene*	95-47-6	100	500	ND	0.0055	U	**0.037**	0.028		**0.0051**	0.0061	**J**	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
Toluene	108-88-3	100	500	ND	0.0055	U	**0.011**	0.028	**J**	ND	0.0061	U	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
1,2,4 Trimethylbenzene	95-63-6	52	190	ND	0.0055	U	**0.046**	0.028		**0.0093**	0.0061		**0.086**	0.390	**J**	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
1,3,5 Trimethylbenzene	108-67-8	52	190	ND	0.0055	U	**0.012**	0.028	**J**	**0.0048**	0.0061	**J**	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
Isopropylbenzene	98-82-8	NS	NS	ND	0.0055	U	**0.023**	0.028	**J**	**0.0044**	0.0061	**J**	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
N-Propylbenzene	103-65-1	100	500	ND	0.0055	U	ND	0.028	U	**0.0056**	0.0061	**J**	ND	0.390	U	ND	0.380	U	ND	0.0063	U	ND	0.0079	U
Total VOC Concentrations				**0.0555**			**0.7304**			**0.9218**			**6.886**			**2.5**			**0.0514**			**0.0147**		

Notes:

All data and SCOs are in mg/kg (ppm)

*BCP SCO values for M&P-xylenes and O-xylene are for total xylenes.

ND - not detected. .

J - estimated concentration

B - analyte also detected in method blank. mg/kg - milligrams per kilogram.

NS - no standard (cleanup objective) established.

Bold result indicates detected concentration.

Color of box corresponds to the SCO concentration that was exceeded.

Table 1
Volatile Organic Compounds Detected in Soil
E OU-3 Extension/Viele Avenue Extension Phase II Investigation

		SUBPART 375-6 Soil Cleanup Objectives		B13			B15			B16			B17		
Sample Id				9'			10'			9'			9'		
Sample Depth				J0486-25			J0486-14			J0486-22			J0486-12		
Lab Id				3/18/2010			3/17/2010			3/18/2010			3/17/2010		
Date Colleted															
Dilution Factor (DF)				1			1			1			1		
ANALYTE	CAS#	Restricted Residential SCOs	Commercial SCOs	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier
Volatile Organic Compounds															
1,2,4-Trichlorobenzene	120-82-1	NS	NS	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
1,2-Dichlorobenzene	95-50-1	100	500	**0.0012**	0.0054	**BJ**	**0.0023**	0.0047	**BJ**	**0.0014**	0.0054	**BJ**	**0.0012**	0.0055	**BJ**
1,4-Dichlorobenzene	106-46-7	13	130	ND	0.0054	U	**0.0021**	0.0047	**BJ**	**0.0012**	0.0054	**BJ**	**0.0021**	0.0055	**BJ**
2-Butanone	78-93-3	100	500	ND	0.0054	U	ND	0.0047	U	**0.0077**	0.0054		ND	0.0055	U
Acetone	67-64-1	100	500	**0.029**	0.0054		ND	0.0047	U	**0.064**	0.0054		ND	0.0055	U
Benzene	71-43-2	4.8	44	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
Carbon disulfide	75-15-0	NS	NS	ND	0.0054	U	ND	0.0047	U	**0.0012**	0.0054	**J**	ND	0.0055	U
Chlorobenzene	108-90-7	100	500	ND	0.0054	U	**0.0029**	0.0047	**BJ**	**0.0016**	0.0054	**BJ**	**0.0017**	0.0055	**BJ**
Chloroethane	75-00-3	NS	NS	ND	0.0054	U	ND	0.0047	U	ND	0.0054	BJ	ND	0.0055	U
Ethylbenzene	100-41-4	41	390	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
M&p-Xylenes*	1330-20-7	100	500	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
Methylene chloride	75-09-2	100	500	**0.0056**	0.0054	**B**	ND	0.0047	U	**0.0032**	0.0054	**BJ**	**0.0044**	0.0055	**J**
Naphthalene		100	500	ND	0.0054	U	**0.0034**	0.0047	**BJ**	**0.0029**	0.0054	**BJ**	ND	0.0055	U
O-Xylene*	95-47-6	100	500	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
Toluene	108-88-3	100	500	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
1,2,4 Trimethylbenzene	95-63-6	52	190	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
1,3,5 Trimethylbenzene	108-67-8	52	190	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
Isopropylbenzene	98-82-8	NS	NS	ND	0.0054	U	ND	0.0047	U	**0.0022**	0.0054	**J**	ND	0.0055	U
N-Propylbenzene	103-65-1	100	500	ND	0.0054	U	ND	0.0047	U	ND	0.0054	U	ND	0.0055	U
Total VOC Concentrations				**0.0358**			**0.0107**			**0.0854**			**0.0094**		

Notes:

All data and SCOs are in mg/kg (ppm)

*BCP SCO values for M&P-xylenes and O-xylene are for total xylenes.

ND - not detected. .

J - estimated concentration

B - analyte also detected in method blank. mg/kg - milligrams per kilogr

NS - no standard (cleanup objective) established.

Bold result indicates detected concentration.

Color of box corresponds to the SCO concentration that was exceeded

Table 2
Semi-Volatile Organic, Metals and PCB Compounds Detected in Soil
E OU-3 Extension/Viele Avenue Extension Phase II Investigation

		SUBPART 375-6 Soil Cleanup Objectives		B1			B1			B3			B3			B5			B5			B7		
Sample Id				4-5'			4-5'			4-5'			4-5'			7-8'			7-8'			5-6'		
Sample Depth				J0486-01			J0486-01			J0486-04			J0486-04			J0486-08			J0486-08			J0486-06		
Lab Id				3/16/2010			3/16/2010			3/16/2010			3/16/2010			3/17/2010			3/17/2010			3/16/2010		
Date Collected																								
Dilution Factor (DF)				1			10			10			40			1			4			1		
ANALYTE	**CAS#**	**Restricted Residential SCOs**	**Commercial SCOs**	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier
Semi-Volatile Organic Compounds																								
2-Methylnaphthalene	91-57-6	NS	NS	**0.94**	0.22		**0.88**	2.20	**J**	**2.1**	2.00		**2**	7.80	**J**	**1.2**	0.19		**1.1**	0.77		**6.8**	0.21	**E**
2-Methylphenol	95-48-7	100	500	ND	0.22	U	ND	2.20	U	ND	2.00	U	ND	7.80	U	ND	0.19	U	ND	0.77	U	**0.029**	0.21	**J**
4- Methylphenol		100	500	**0.43**	0.22	**J**	ND	2.20	U	ND	2.00	U	ND	7.80	U	ND	0.19	U	ND	0.77	U	**0.063**	0.21	**J**
Acenaphthene	83-32-9	100	500	**3.8**	0.22	**E**	**3.9**	2.20		**3.6**	2.00		**3.6**	7.80	**J**	**4.2**	0.19	**E**	**4**	0.77		**9.1**	0.21	**E**
Acenaphthylene	208-96-8	100	500	**3**	0.22		**3.3**	2.20		**12**	2.00		**11**	7.80		**0.95**	0.19		**0.93**	0.77		**6.4**	0.21	**E**
Anthracene	120-12-7	100	500	**3.4**	0.22		**4**	2.20		**17**	2.00		**16**	7.80		**1.9**	0.19		**2**	0.77		**14**	0.21	**E**
Benzo[a]anthracene	56-55-3	1	5.6	**7.9**	0.22	**E**	**6.5**	2.20		**29**	2.00		**28**	7.80		**3.2**	0.19	**E**	**3**	0.77		**21**	0.21	**E**
Benzo[a]pyrene	50-32-8	1	1	**8.1**	0.22	**E**	**7.4**	2.20		**26**	2.00		**25**	7.80		**2.9**	0.19		**2.7**	0.77		**14**	0.21	**E**
Benzo[b]fluoranthene	205-99-2	1	5.6	**5.4**	0.22	**E**	**5.9**	2.20		**20**	2.00		**26**	7.80		**2.4**	0.19		**2**	0.77		**8.1**	0.21	**E**
Benzo[g,h,i]perylene	191-24-2	100	500	**3**	0.22		**3.2**	2.20		**11**	2.00		**14**	7.80		**1.2**	0.19		**1.1**	0.77		**6**	0.21	**E**
Benzo[k]fluoranthene	207-08-9	3.9	56	**3.3**	0.22		**5.1**	2.20		**14**	2.00		**11**	7.80		**1.9**	0.19		**2.2**	0.77		**5.6**	0.21	**E**
Bis(2-Ethylhexyl)phthalate	117-81-7	NS	NS	**18**	0.22	**E**	**31**	2.20		ND	2.00	U	ND	7.80	U	ND	0.19	U	ND	0.77	U	ND	0.21	U
Carbazole	86-74-8	NS	NS	**0.56**	0.22		**0.59**	2.20	**J**	**2.6**	2.00		**2.6**	7.80	**J**	**0.82**	0.19		**0.79**	0.77		**6.7**	0.21	**E**
Chrysene	218-01-9	3.9	56	**3.6**	0.22	U	**8.3**	2.20		**20**	2.00		**26**	7.80		**2.6**	0.19		**3**	0.77		**8.6**	0.21	**E**
Dibenzo[a,h]Anthracene	53-70-3	0.33	0.56	**2.7**	0.22		**1.3**	2.20	**J**	**5.3**	2.00		**4.9**	7.80	**J**	**0.62**	0.19		**0.44**	0.77	**J**	**7.1**	0.21	**E**
Dibenzofuran	132-64-9	59	350	**1.6**	0.22		**1.6**	2.20	**J**	**3.3**	2.00		**3.1**	7.80	**J**	**2.1**	0.19		**2**	0.77		**6.8**	0.21	**E**
Fluoranthene	206-44-0	100	500	**10**	0.22	**E**	**14**	2.20		**48**	2.00	**E**	**55**	7.80		**6.7**	0.19	**E**	**7.2**	0.77		**36**	0.21	**E**
Fluorene	86-73-7	100	500	**2.6**	0.22		**2.8**	2.20		**10**	2.00		**9.9**	7.80		**2.5**	0.19		**2.5**	0.77		**16**	0.21	**E**
Indeno[1,2,3-cd]pyrene	193-39-5	0.5	5.6	**3.5**	0.22		**2.9**	2.20		**9.8**	2.00		**13**	7.80		**1.1**	0.19		**1.1**	0.77		**5.3**	0.21	**E**
Naphthalene	91-20-3	100	500	**0.56**	0.22		**0.61**	2.20	**J**	**2.9**	2.00		**3**	7.80	**J**	**3**	0.19		**3**	0.77		**8.7**	0.21	**E**
Phenanthrene	85-01-8	100	500	**6.9**	0.22	**E**	**8.5**	2.20		**37**	2.00	**E**	**39**	7.80		**7.1**	0.19	**E**	**7.6**	0.77		**52**	0.21	**E**
Phenol	108-95-2	100	500	**0.03**	0.22	**J**	ND	2.20	U	ND	2.00	U	ND	7.80	U	ND	0.19	U	ND	0.77	U	**0.054**	0.21	**J**
Pyrene	129-00-0	100	500	**9.7**	0.22		**13**	2.20		**43**	2.00	**E**	**48**	7.80		**5.7**	0.19	**E**	**5.8**	0.77		**26**	0.21	**E**
Total SVOCs				99.02			124.78			316.60			341.10			52.09			52.46			264.35		
Metals																								
Arsenic	7440-38-2	16	16	**6.8**		*				**18.4**		*				**4.2**		*				**9.8**		*
Barium	7440-39-3	400	400	**143**		*E				**118**		*E				**142**		*E				**198**		*E
Cadmium	7440-43-9	4.3	9.3	**1.1**		*				**2.4**		*				**0.49**		*				**0.84**		*
Chromium	7440-47-3	180	1500	**25.2**		*				**20**		*				**25.5**		*				**20.4**		*
Lead	7439-92-1	400	1000	**368**		*NE				**252**		*NE				**101**		*NE				**310**		N*E
Mercury	7439-97-6	0.81	2.8	**0.72**						**1.4**						**0.3**						**0.4**		
Selenium	7782-49-2	180	1500	**0.51**		**U**				**0.77**		**B**				0.96		U				0.61		U
Silver	7440-22-4	180	1500	**0.052**		**U**				**0.064**		U				0.098		U				0.063		U
Cyanide				**0.83**		**B**				**3.9**						**8.7**						5.4		
Polychlorinated Biphenyls																								
Aroclor-1254		NS	NS	**0.15**	0.045					**0.15**	0.039					ND	0.039	U				**0.057**	0.042	
Aroclor-1260		NS	NS	ND	0.045	U				ND	0.039	U				ND	0.039	U				ND	0.042	U
Total PCBs		1	1	0.15						0.15						0.000						0.057		
				DF 1						**DF 1**			**DF 50**			**DF 5**						**DF 5**		
Other																								
Total Petroleum Hydrocarbons		NS	NS	**1100**	81					**1100**	81		**11,000***			**840**	70					**1600**	75	

Notes:

All data and SCOs are in mg/kg (ppm)
ND - not detected. .
J - estimated concentration
E - compound concentration exceeded the calibration range
* - for inorganics relative percent difference for duplicate analyses is outside of control limit
N - for inorganics the matrix spike recovery falls outside of control limits
NS - no standard (cleanup objective) established.
Bold result indicates detected concentration.
Color of box corresponds to the SCO concentration that was exceeded.

Table 2
Semi-Volatile Organic, Metals and PCB Compounds Detected in Soil
E OU-3 Extension/Viele Avenue Extension Phase II Investigation

		SUBPART 375-6 Soil Cleanup Objectives		B7			B9			B12			B12			B13		
Sample Id				B7			B9			B12			B12			B13		
Sample Depth				5-6'			8-9'			8-9'			8-9'			8-9'		
Lab Id				J0486-06			J0486-16			J0486-27			J0486-27			J0486-24		
Date Colletced				3/16/2010			3/19/2010			3/18/2010			3/18/2010			3/18/2010		
Dilution Factor (DF)				40			1			1			4			1		
ANALYTE	CAS#	Restricted Residential SCOs	Commercial SCOs	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier
Semi-Volatile Organic Compounds																		
2-Methylnaphthalene	91-57-6	NS	NS	**9.2**	8.2		**0.064**	0.20	**J**	**0.16**	0.20	**J**	**0.17**	0.79	**J**	ND	0.19	U
2-Methylphenol	95-48-7	100	500	ND	8.2	U	ND	0.20	U	ND	0.20	U	ND	0.79	U	ND	0.19	U
4- Methylphenol		100	500	ND	8.2	U	ND	0.20	U	ND	0.20	U	ND	0.79	U	ND	0.19	U
Acenaphthene	83-32-9	100	500	**12**	8.2		**0.035**	0.20	**J**	**0.48**	0.20		**0.45**	0.79	**J**	ND	0.19	U
Acenaphthylene	208-96-8	100	500	**11**	8.2		**0.028**	0.20	**J**	**0.84**	0.20		**0.84**	0.79		**0.028**	0.19	**J**
Anthracene	120-12-7	100	500	**23**	8.2		**0.049**	0.20	**J**	**1.6**	0.20		**1.7**	0.79	U	**0.038**	0.19	**J**
Benzo[a]anthracene	56-55-3	1	5.6	**24**	8.2		**0.1**	0.20	**J**	**3.3**	0.20	**E**	**3.2**	0.79		**0.089**	0.19	**J**
Benzo[a]pyrene	50-32-8	1	1	**16**	8.2		**0.11**	0.20	**J**	**2.9**	0.20		**2.6**	0.79		**0.085**	0.19	**J**
Benzo[b]fluoranthene	205-99-2	1	5.6	**14**	8.2		**0.077**	0.20	**J**	**2.4**	0.20		**1.9**	0.79		**0.059**	0.19	**J**
Benzo[g,h,i]perylene	191-24-2	100	500	**6.6**	8.2	**J**	**0.054**	0.20	**J**	**1.2**	0.20		**1.1**	0.79	U	**0.041**	0.19	**J**
Benzo[k]fluoranthene	207-08-9	3.9	56	**9.1**	8.2		**0.098**	0.20	**J**	**1.6**	0.20		**2.5**	0.79		**0.061**	0.19	**J**
Bis(2-Ethylhexyl)phthalate	117-81-7	NS	NS	ND	8.2	U	ND	0.20	U	ND	0.20	U	ND	0.79	U	ND	0.19	U
Carbazole	86-74-8	NS	NS	**4.7**	8.2	**J**	ND	0.20	U	**0.27**	0.20		**0.26**	0.79	**J**	ND	0.19	U
Chrysene	218-01-9	3.9	56	**20**	8.2		**0.11**	0.20	**J**	**2.3**	0.20		**2.6**	0.79		**0.081**	0.19	**J**
Dibenzo[a,h]Anthracene	53-70-3	0.33	0.56	**2.8**	8.2	**J**	**0.026**	0.20	**J**	**0.55**	0.20		**0.41**	0.79	**J**	ND	0.19	U
Dibenzofuran	132-64-9	59	350	**9.6**	8.2		ND	0.20	U	**0.34**	0.20		**0.32**	0.79	**J**	ND	0.19	U
Fluoranthene	206-44-0	100	500	**51**	8.2		**0.26**	0.20		**6.1**	0.20	**E**	**6.6**	0.79		**0.14**	0.19	**J**
Fluorene	86-73-7	100	500	**26**	8.2		**0.04**	0.20	**J**	**0.99**	0.20		**0.96**	0.79		**0.019**	0.19	**J**
Indeno[1,2,3-cd]pyrene	193-39-5	0.5	5.6	**6.8**	8.2	**J**	**0.057**	0.20	**J**	**1.3**	0.20		**1.1**	0.79		**0.036**	0.19	**J**
Naphthalene	91-20-3	100	500	**15**	8.2		**0.51**	0.20		**0.17**	0.20	**J**	ND	0.79	U	ND	0.19	U
Phenanthrene	85-01-8	100	500	**67**	8.2		**0.18**	0.20	**J**	**5**	0.20	**E**	**5.1**	0.79		**0.11**	0.19	**J**
Phenol	108-95-2	100	500	ND	8.2	U	ND	0.20	U	ND	0.20	U	ND	0.79	U	ND	0.19	U
Pyrene	129-00-0	100	500	**47**	8.2		**0.22**	0.20		**5.1**	0.20	**E**	**5.3**	0.79	U	**0.15**	0.19	**J**
Total SVOCs							2.02			36.60			37.11			0.94		
Metals																		
Arsenic	7440-38-2	16	16				**2.1**		*	**9.3**		*				**3.3**		*
Barium	7440-39-3	400	400				**92.6**			**159**						**86.5**		
Cadmium	7440-43-9	4.3	9.3				**0.18**		**B**	**0.45**						**0.27**		
Chromium	7440-47-3	180	1500				**28.3**			**16.8**						**22.6**		
Lead	7439-92-1	400	1000				**19.9**		**E**	**412**		E				**68.5**		**E**
Mercury	7439-97-6	0.81	2.8				**0.05**		***N**	**0.69**		*N				**0.19**		***N**
Selenium	7782-49-2	180	1500				**2.4**			**3.1**						**2.1**		
Silver	7440-22-4	180	1500				**0.11**		**B**	**0.47**		B				**0.18**		**B**
Cyanide							0.15		U	**0.18**		U				0.15		U
Polychlorinated Biphenyls																		
Aroclor-1254		NS	NS				ND	0.039	U	ND	0.039	U				ND	0.038	U
Aroclor-1260		NS	NS				ND	0.039	U	ND	0.039	U				ND	0.038	U
Total PCBs		1	1				0.000			0.000						0.000		
										DF 5								
Other																		
Total Petroleum Hydrocarbons		NS	NS				**65**	14		**170**	72					**30**	14	

Notes:

All data and SCOs are in mg/kg (ppm)
ND - not detected. .
J - estimated concentration
E - compound concentration exceeded the calibration range
* - for inorganics relative percent difference for duplicate analyses is outside of control l
N - for inorganics the matrix spike recovery falls outside of control limits
NS - no standard (cleanup objective) established.
Bold result indicates detected concentration.
Color of box corresponds to the SCO concentration that was exceeded.

Table 2
Semi-Volatile Organic, Metals and PCB Compounds Detected in Soil
E OU-3 Extension/Viele Avenue Extension Phase II Investigation

		SUBPART 375-6 Soil Cleanup Objectives		B15			B16			B16			B17			B19			B19		
Sample Id				9-10'			8-9'			8-9'			8-9'			6-7'			6-7'		
Sample Depth				J0486-13			J0486-21			J0486-21			J0486-11			J0486-20			J0486-20		
Lab Id				3/17/2010			3/18/2010			3/18/2010			3/17/2010			3/19/2010			3/19/2010		
Date Colletced				1			1			2			1			10			40		
Dilution Factor (DF)																					
ANALYTE	**CAS#**	**Restricted Residential SCOs**	**Commercial SCOs**	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier
Semi-Volatile Organic Compounds																					
2-Methylnaphthalene	91-57-6	NS	NS	ND	0.18	U	**0.022**	0.19	**J**	ND	0.38	U	ND	0.23	U	**1**	1.90	**J**	**0.89**	7.70	**J**
2-Methylphenol	95-48-7	100	500	ND	0.18	U	ND	0.19	U	ND	0.38	U	ND	0.23	U	ND	1.90	U	ND	7.70	U
4- Methylphenol		100	500	ND	0.18	U	ND	0.19	U	ND	0.38	U	ND	0.23	U	ND	1.90	U	ND	7.70	U
Acenaphthene	83-32-9	100	500	ND	0.18	U	**0.062**	0.19	**J**	**0.059**	0.38	**J**	**0.065**	0.23	**J**	**2.5**	1.90		**2.7**	7.70	**J**
Acenaphthylene	208-96-8	100	500	**0.027**	0.18	**J**	**0.39**	0.19		**0.37**	0.38	**J**	**0.13**	0.23	**J**	**14**	1.90		**16**	7.70	
Anthracene	120-12-7	100	500	**0.019**	0.18	**J**	**0.44**	0.19		**0.46**	0.38		**0.22**	0.23	**J**	**22**	1.90		**27**	7.70	
Benzo[a]anthracene	56-55-3	1	5.6	**0.063**	0.18	**J**	**2.9**	0.19		**2.4**	0.38		**1**	0.23		**45**	1.90	**E**	**42**	7.70	
Benzo[a]pyrene	50-32-8	1	1	**0.077**	0.18	**J**	**3**	0.19		**1.8**	0.38		**0.84**	0.23		**41**	1.90	**E**	**35**	7.70	
Benzo[b]fluoranthene	205-99-2	1	5.6	**0.043**	0.18	**J**	**1.6**	0.19		**1.6**	0.38		**0.76**	0.23		**26**	1.90		**27**	7.70	
Benzo[g,h,i]perylene	191-24-2	100	500	**0.039**	0.18	**J**	**1.2**	0.19		**0.82**	0.38		**0.5**	0.23		**11**	1.90		**16**	7.70	U
Benzo[k]fluoranthene	207-08-9	3.9	56	**0.079**	0.18	**J**	**1.3**	0.19		**1.4**	0.38		**0.62**	0.23		**18**	1.90		**28**	7.70	
Bis(2-Ethylhexyl)phthalate	117-81-7	NS	NS	ND	0.18	U	ND	0.19	U	ND	0.38	U	ND	0.23	U	ND	1.90	U	ND	7.70	U
Carbazole	86-74-8	NS	NS	ND	0.18	U	**0.081**	0.19	**J**	**0.077**	0.38	**J**	**0.064**	0.23	**J**	**3.4**	1.90		**3.5**	7.70	**J**
Chrysene	218-01-9	3.9	56	**0.076**	0.18	**J**	**1.8**	0.19		**2.2**	0.38		**0.79**	0.23		**23**	1.90		**41**	7.70	
Dibenzo[a,h]Anthracene	53-70-3	0.33	0.56	ND	0.18	U	**0.3**	0.19		**0.51**	0.38		**0.23**	0.23	**J**	**5.3**	1.90		**7.5**	7.70	**J**
Dibenzofuran	132-64-9	59	350	ND	0.18	U	**0.023**	0.19	**J**	ND	0.38	U	**0.033**	0.23	**J**	**4.5**	1.90		**4.5**	7.70	**J**
Fluoranthene	206-44-0	100	500	**0.11**	0.18	**J**	**3.8**	0.19	**E**	**3.7**	0.38		**1.4**	0.23		**66**	1.90	**E**	**93**	7.70	
Fluorene	86-73-7	100	500	ND	0.18	U	**0.096**	0.19	**J**	**0.092**	0.38	**J**	**0.064**	0.23	**J**	**14**	1.90		**14**	7.70	
Indeno[1,2,3-cd]pyrene	193-39-5	0.5	5.6	**0.042**	0.18	**J**	**1**	0.19		**0.86**	0.38		**0.43**	0.23		**13**	1.90		**14**	7.70	
Naphthalene	91-20-3	100	500	ND	0.18	U	ND	0.19	U	ND	0.38	U	**0.037**	0.23	**J**	**1**	1.90	**J**	**1**	7.70	**J**
Phenanthrene	85-01-8	100	500	**0.061**	0.18	**J**	**1.7**	0.19		**1.7**	0.38		**0.81**	0.23		**41**	1.90	**E**	**48**	7.70	
Phenol	108-95-2	100	500	ND	0.18	U	ND	0.19	U	ND	0.38	U	ND	0.23	U	ND	1.90	U	ND	7.70	U
Pyrene	129-00-0	100	500	**0.11**	0.18	**J**	**4.7**	0.19	**E**	**4.3**	0.38		**1.3**	0.23		**57**	1.90	**E**	**74**	7.70	
	Total SVOCs			0.75			24.41			22.35			9.29			408.70			495.09		
Metals																					
Arsenic	7440-38-2	16	16	**1.2**		*	**10.8**		*				**11.7**		*	**30.6**		*			
Barium	7440-39-3	400	400	**36.3**		***E**	**129**						**409**		***E**	**114**					
Cadmium	7440-43-9	4.3	9.3	**0.093**		***B**	**1.3**						**1.2**		*	**2**					
Chromium	7440-47-3	180	1500	**9.6**		*	**11.4**						**17.8**		*	**41.8**					
Lead	7439-92-1	400	1000	**13.9**		***NE**	**233**		**E**				**678**		***NE**	**296**		**E**			
Mercury	7439-97-6	0.81	2.8	**0.066**			**0.15**		***N**				**0.64**			**1.1**		***N**			
Selenium	7782-49-2	180	1500	0.49		U	**1.5**						0.78		U	**6.2**					
Silver	7440-22-4	180	1500	0.051		U	**0.23**		**B**				0.078		U	**0.42**		**B**			
Cyanide				0.13		U	0.15		U				**0.65**		**B**	0.16		U			
Polychlorinated Biphenyls																					
Aroclor-1254		NS	NS	ND	0.036	U	ND	0.038	U				ND	0.047	U	ND	0.038	U			
Aroclor-1260		NS	NS	ND	0.036	U	ND	0.038	U				ND	0.047	U	**0.052**	0.038				
	Total PCBs	1	1	0.000			0.000						0.000			0.052					
							10									**DF 50**					
Other																					
Total Petroleum Hydrocarbons		NS	NS	**16**	13		**680**	140					**130**	17		**5,300**	710				

Notes:

All data and SCOs are in mg/kg (ppm)
ND - not detected. .
J - estimated concentration
E - compound concentration exceeded the calibration range
* - for inorganics relative percent difference for duplicate analyses is outside of control l
N - for inorganics the matrix spike recovery falls outside of control limits
NS - no standard (cleanup objective) established.
Bold result indicates detected concentration.
Color of box corresponds to the SCO concentration that was exceeded.

Table 3
Volatile Organic, Semi-Volatile Organic, Metals and PCB Compounds Detected in Groundwater
E OU-3 Extension/Viele Avenue Extension Phase II Investigation

	Sample Name:	B1			B5			B5			B8			B11			B13			B16		
	Lab Sample ID:	J0486-03			J0486-10			J0486-10			J0486-18			J0486-15			J0486-26			J0486-23		
	Date Collected	3/16/2010			3/17/2010			3/17/2010			3/19/2010			3/19/2010			3/18/2010			3/18/2010		
	Dilution Factor (DF)	1			1			VOC 20/SVOC 8			1			1			1			1		
ANALYTE	**NYS CLASS GA**																					
Volatile Organic Compounds	**AWQS/GV**	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier	Result	RL	Qualifier
1,2,4-Trimethylbenzene	5	ND	5.0	U	**26**	5.0		**25**	100	J	ND	5.0	U	**1.5**	5.0	J	ND	5.0	U	ND	5.0	U
1,3,5-Trimethylbenzene	5	ND	5.0	U	**8.6**	5.0		ND	100	U	ND	5.0	U	ND	5.0	U	ND	5.0	U	ND	5.0	U
4-Isopropyltoluene	5	ND	5.0	U	**1.3**	5.0	J	ND	100	U	ND	5.0	U	ND	5.0	U	ND	5.0	U	ND	5.0	U
Acetone	50	ND	5.0	U	ND	5.0	U	ND	100	U	ND	5.0	U	ND	5.0	U	**7.3**	5.0		ND	5.0	U
Benzene	1	**1.1**	5.0	J	**1.1**	5.0	J	ND	100	U	**2.4**	5.0	J	**36**	5.0		ND	5.0	U	ND	5.0	U
Chloromethane	5	ND	5.0	U	ND	5.0	U	ND	100	U	ND	5.0	U	**ND**	5.0	U	ND	5.0	U	**1**	5.0	J
Ethylbenzene	5	ND	5.0	U	**17**	5.0		ND	100	U	ND	5.0	U	**5.3**	5.0		ND	5.0	U	ND	5.0	U
Isopropylbenzene	5	ND	5.0	U	**1.9**	5.0	J	ND	100	U	ND	5.0	U	**43**	5.0		ND	5.0	U	ND	5.0	U
M&p-Xylenes	5	ND	5.0	U	**19**	5.0		**25**	100	J	ND	5.0	U	**3.2**	5.0	J	ND	5.0	U	ND	5.0	U
Methyl-t-butyl ether	10	**1.7**	5.0	J	ND	5.0	U	ND	100	U	**6.3**	5.0		**1.4**	5.0	J	**1.7**	5.0	J	ND	5.0	U
N-Butylbenzene	5	ND	5.0	U	**1**	**5.0**	J	ND	100	U	ND	5.0	U	**3.1**	5.0	J	ND	5.0	U	ND	5.0	U
N-Propylbenzene	5	ND	5.0	U	**3.7**	**5.0**	J	ND	100	U	ND	5.0	U	**30**	5.0		ND	5.0	U	ND	5.0	U
Naphthalene	10	ND	5.0	U	**680**	5.0	E	**1600**	100		**3.2**	5.0	J	**21**	5.0		**1.9**	5.0	J	ND	5.0	U
O-Xylene	5	ND	5.0	U	**11**	5.0		ND	100	U	ND	5.0	U	**2.9**	5.0	J	ND	5.0	U	ND	5.0	U
Sec-Butylbenzene	5	ND	5.0	U	ND	5.0	U	ND	100	U	ND	5.0	U	**1.3**	5.0	J	ND	5.0	U	ND	5.0	U
Toluene	5	ND	5.0	U	**3.7**	5.0	J	ND	100	U	ND	5.0	U	**1.1**	5.0	J	ND	5.0	U	ND	5.0	U
Total VOCs		2.8			774.3			1650			11.9			149.8			10.9			1.0		
Semi-Volatile Organic Compounds									8													
1,2,4-Trichlorobenzene	5	ND	10	U	ND	10	U	ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
2,4-Dimethylphenol	1	ND	10	U	**4.3**	10	J	ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
2-Methylnaphthalene	NS	ND	10	U	**170**	10	E	**200**	80		ND	10	U	**11**	10		ND	10	U	ND	10	U
2-Methylphenol	1	ND	10	U	**9**	10	J	ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
4-Methylphenol	1	ND	10	U	**27**	10		**33**	80	J	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Acenaphthene	20	**2.9**	10	J	**200**	10	E	**170**	80		ND	10	U	**6**	10	J	ND	10	U	ND	10	U
Acenaphthylene	NS	ND	10	U	**5.1**	10	J	ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Anthracene	50	ND	10	U	**33**	10		**39**	80		ND	10	U	ND	10	U	ND	10	U	ND	10	U
Benzo[a]anthracene	0.002	**1**	10	J	**24**	10		**25**	80	J	**1.2**	10	J	ND	10	U	ND	10	U	ND	10	U
Benzo[a]pyrene	ND	ND	10	U	**15**	10		**17**	80	J	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Benzo[b]fluoranthene	0.002	**1.7**	10	J	**24**	10		**25**	80	J	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Benzo[g,h,i]perylene	NS	2.9	10	J	**9.2**	10	J	ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Benzo[k]fluoranthene	0.002	ND	10	U	**19**	10		**19**	80	J	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Bis(2-Ethylhexyl)phthalate	5	ND	10	U	ND	10	U	ND	80	U	**2.6**	10	J	ND	10	U	ND	10	U	ND	10	U
Carbazole	NS	ND	10	U	**34**	10		**44**	80	J	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Chrysene	0.002	ND	10	U	**27**	10		**29**	80	J	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Dibenzo[a,h]Anthracene	NS	ND	10	U	**1.2**	10	J	ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Dibenzofuran	NS	ND	10	U	**86**	10		ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Fluoranthene	50	**2.5**	10	J	**92**	10		**120**	80		**2.9**	10	J	ND	10	U	ND	10	U	ND	10	U
Fluorene	50	**1.1**	10	J	**100**	10		**110**	80		ND	10	U	**3**	10	J	ND	10	U	ND	10	U
Indeno[1,2,3-cd]pyrene	0.002	**1.8**	10	J	**8.1**	10	J	ND	80	U	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Naphthalene	10	ND	10	U	**580**	10	**E**	**970**	80		**1.8**	10	J	**6.7**	10	J	ND	10	U	ND	10	U
Phenanthrene	50	**2.2**	10	J	**180**	10	E	**220**	80		**3.1**	10	J	**5**	10	J	ND	10	U	ND	10	U
Phenol	1	ND	10	U	**14**	10		**17**	80	J	ND	10	U	ND	10	U	ND	10	U	ND	10	U
Pyrene	50	**2.4**	10	J	**110**	10		**75**	80	J	**2.7**	10	J	ND	10	U	ND	10	U	ND	10	U
Total SVOCs		18.5			1771.9			2113			14.3			31.7			0			0		
Metals																						
Arsenic	25	**58.7**						**9.3**		B	**12.2**		B	**15**		B	**45.5**			**5.4**		B
Barium	1000	**2440**						**615**			**602**			**492**			**160**		B	**366**		
Cadmium	5	**14.9**						**1.9**		B	**0.61**		B	**0.92**		B	0.5		U	**0.75**		B
Chromium	50	**253**						**145**			**29.6**			**58.1**			**8.7**		B	**8.7**		B
Lead	25	**8330**						**556**			**331**			**451**			**60.3**			**423**		
Mercury	0.7	**4.4**						**0.42**			**0.83**			**0.058**		B	0.056		U	**2**		
Selenium	10	10		U				10		U	**10.3**		B	10		U	10		U	**21.4**		B
Silver	50	2.4		U				**4.4**		B	2.4		U	2.4		U	2.4		U	2.4		U
Cyanide	200	**333**						**102**			**282**			**332**			**474**			**32.1**		
Polychlorinated Biphenyls																						
Aroclor-1016	0.09	ND	1	U	ND	1	U				ND	1	U	ND	1	U	ND	1	U	ND	1	U
Aroclor-1221	0.09	ND	1	U	ND	1	U				ND	1	U	ND	1	U	ND	1	U	ND	1	U
Aroclor-1232	0.09	ND	1	U	ND	1	U				ND	1	U	ND	1	U	ND	1	U	ND	1	U
Aroclor-1242	0.09	ND	1	U	ND	1	U				ND	1	U	ND	1	U	ND	1	U	ND	1	U
Aroclor-1248	0.09	ND	1	U	ND	1	U				ND	1	U	ND	1	U	ND	1	U	ND	1	U
Aroclor-1254	0.09	ND	1	U	ND	1	U				ND	1	U	ND	1	U	ND	1	U	ND	1	U
Aroclor-1260	0.09	ND	1	U	ND	1	U				ND	1	U	ND	1	U	ND	1	U	ND	1	U
Total PCBs		0			0						0			0			0			0		
Other																						
Total Petroleum Hydrocarbons	NS	**4300**	35		**2900**	1800					ND	35	U	**2700**	1800		**790**	35		ND	35	U

Notes:

All data and standards/guidance values are reported in ug/L (ppb)

ND - not detected.

AWQS/GV - ambient water quality standard or guidance value.

NS - no standard or guidance value established.

ug/L - micrograms per liter.

J - estimated concentration.

E - The compound concentration exceeded the calibration range.

B - A trace concentration below the reportting limit and equal to or above the detection limit.

U - Not detected.

Bold - concentration reported

Highlighted - concentration reported exceeds respective standard or guidance value.

Photographs

Photograph 1: Geophysical Survey

Photograph 2: Abandoned Concrete Foundation Slab

Photograph 3: Test Pit (along west edge of concrete slab)

Photograph 4: Drilling Boring B18.

Photograph 5: Large Debris Pile

APPENDIX A
Historic Photographs

HDR
Henningson, Durham & Richardson
Architecture and Engineering, P.C.
One Blue Hill Plaza
Pearl River, NY 10965

1954 Aerial Photograph

E OU-3 and Viele Avenue Extension Site • Bronx, New York

Aerial Photo 1

\aerialPhotos1954-1994.des

HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C. One Blue Hill Plaza Pearl River, NY 10965	**1966 Aerial Photograph** **E OU-3 and Viele Avenue Extension Site • Bronx, New York**	**Aerial Photo 2**

\aerialPhotos1954-1994.des

HDR
Henningson, Durham & Richardson
Architecture and Engineering, P.C.
One Blue Hill Plaza
Pearl River, NY 10965

1975 Aerial Photograph

E OU-3 and Viele Avenue Extension Site • Bronx, New York

Aerial Photo 3

HDR
Henningson, Durham & Richardson
Architecture and Engineering, P.C.
One Blue Hill Plaza
Pearl River, NY 10965

1984 Aerial Photograph

E OU-3 and Viele Avenue Extension Site • Bronx, New York

Aerial Photo 4

\aerialPhotos1954-1994.des

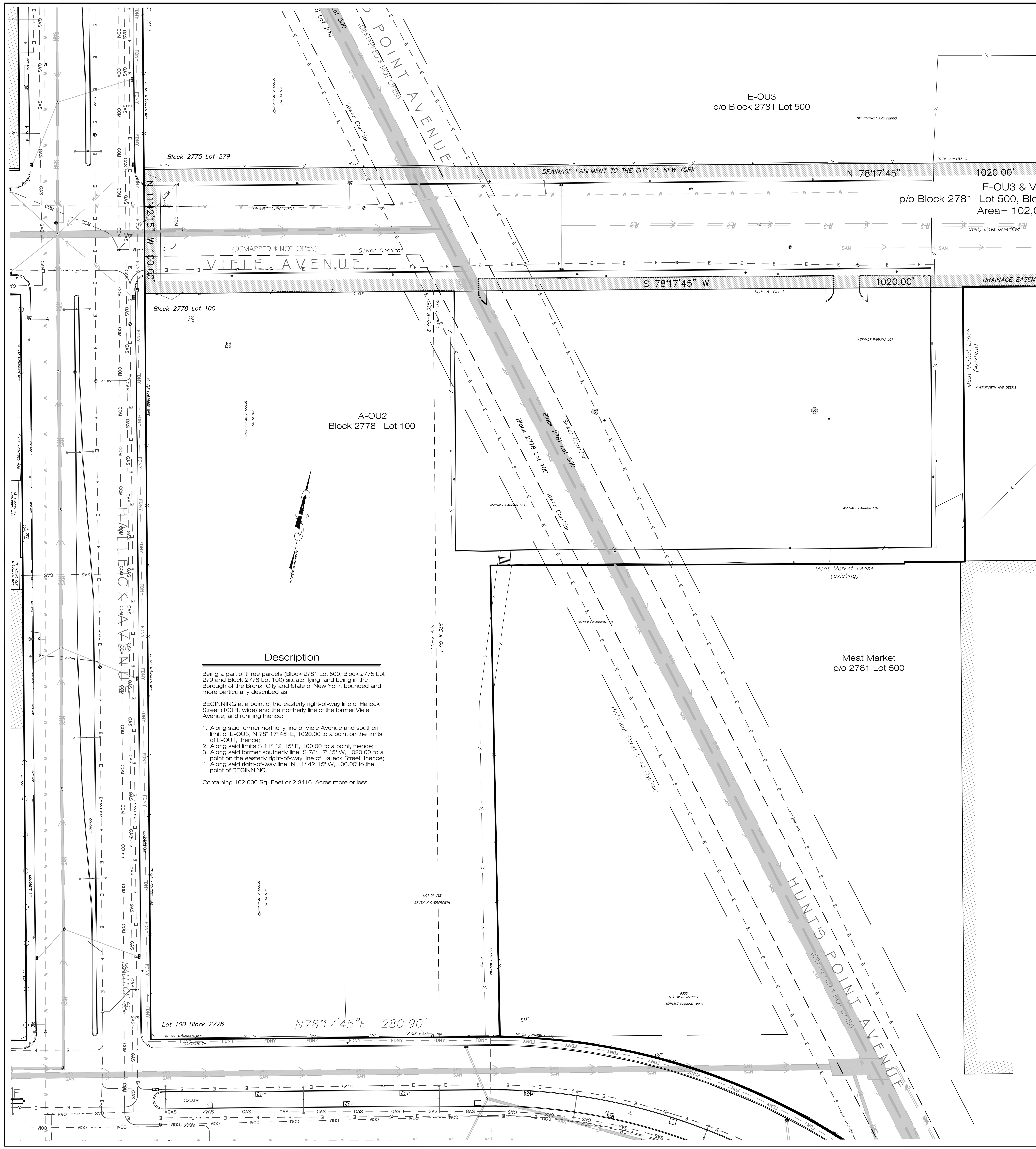
HDR
Henningson, Durham & Richardson
Architecture and Engineering, P.C.
One Blue Hill Plaza
Pearl River, NY 10965

1994 Aerial Photograph

E OU-3 and Viele Avenue Extension Site • Bronx, New York

Aerial Photo 5

APPENDIX B
E OU-3 EXTENSION & Viele Avenue Extension Investigation Area Survey



Description

Being a part of three parcels (Block 2781 Lot 500, Block 2775 Lot 279 and Block 2778 Lot 100) situate, lying, and being in the Borough of the Bronx, City and State of New York, bounded and more particularly described as:

BEGINNING at a point of the easterly right-of-way line of Halleck Street (100 ft. wide) and the northerly line of the former Viele Avenue, and running thence:

1. Along said former northerly line of Viele Avenue and southern limit of E-OU3, N 78° 17' 45" E, 1020.00 to a point on the limits of E-OU1, thence;
2. Along said limits S 11° 42' 15" E, 100.00' to a point, thence;
3. Along said former southerly line, S 78° 17' 45" W, 1020.00' to a point on the easterly right-of-way line of Halleck Street, thence;
4. Along said right-of-way line, N 11° 42' 15" W, 100.00' to the point of BEGINNING.

Containing 102,000 Sq. Feet or 2.3416 Acres more or less.

Abbreviations

Aband.	Abandonded	RCP	Reinforced Concrete Pipe
BC	Bottom Curb	SFC	Steel Faced Curb
INLET	Street Inlet	STM	Storm
CL	Center Line	TC	Top Curb
CSP	Corrugate Steel Pipe	TRAV	Traverse Point
COND.	Conduit	TYP	Typical
COM	Communication	UTIL	Utility
DC	Depressed Curb	VLT	Vault
DIP	Ductile Iron Pipe	WV	Water Valve
ELEV	Elevation		

Linetypes

Building Line
Combined Sewer
Communication Conduit
CATV Conduit
Chain Link Fence
Curb Line
Easement Line
FDNY Conduit
Flood Zone Line
Gas Main
Major Contour
Minor Contour
Storm Sewer
Sanitary Sewer
Water Main
Wall line

Legend

Bicycle Rack, Bollard, Cable Box, Catch Basin, Comm. Manhole, Electric Box, Electric Manhole, ECS Manhole, FDNY Manhole, Fire Call Box, First Floor Elev., Light Mast, Light Pole, Gas Valve, Hydrant, Manhole, Oil Fill, Sewer Manhole, Stand Pipe, Street Light, Subway Manhole, Telephone Booth, Traffic Signal, Traverse Point, Tree, Utility Pole, Vault, Water Manhole, Water Valve

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

General Notes

This survey is based upon a combination of field investigations and surveys conducted by Mercator Land Surveying on October 23, 2009 by and/or under the direction supervision of the undersigned licensed surveyor.

1. North arrow, bearings, and coordinates based upon the North American Datum of 1983 (1996 adjustment). The projection is New York – East (3101)/New Jersey (2900). Geoid03 was used to determine separation between ellipsoid height and orthometric height.
2. Project control was determined using Leica dual-frequency GPS receivers. The reference monuments were NJI2 (PID #AJ3348), J340 (PID# KU1006). NYQN (PID #DI0616), SHK5 (PID #DI0880) and LAMT (PID#AJ4872).
3. The vertical datum is the Bronx Highway Datum (BHD), being 2.608 feet above mean sea level at Sandy Hook (NGVD29).
4. All units shown on this map are US standard survey feet.
5. Mercator Land Surveying, LLC prepared this survey based upon the title reports prepared by others and research conducted by Mercator Land Surveying.
6. Reference is made to the following maps and documents:
   a. Final Section Map, Section 4 & 5, 1914. Filed in The Office of Borough President of The Bronx: Map "Section 5." Prepared by John Drake, Asst. Engineer, April 1936. Revised September 4, 1998.
   b. Agreement dated July 15, 1996 between Consolidated Edison Company of New York and the City of New York. Recorded with the City of New York Board of Estimate: Register No. 6537, Vol. 140.
   c. "Map Discontinuing and Closing the Street System within the Territory Bounded by Halleck Street, Edgewater Road, Lafayette Avenue, Bronx River and East Bay Avenue," March 29, 196. Filed in the Office of Borough President of The Bronx, Topographic Bureau: Map No. 11627.
   d. "Map Showing the Changes to Lines and Grades in Halleck Street at Hunt's Point Avenue." March 2, 1962. Filed in the Office of Borough President of The Bronx, Topographic Bureau: Map No. 11659.
   e. "Map Discontinuing and Closing the Hunt's Point Avenue from Halleck Street to Farragut Street & Viele Avenue . . ." Undated. Filed in the Office of Borough President of The Bronx, Topographic Bureau: Map No. 11772.
   f. "Map Showing Elimination of Hunt's Point Avenue From Farragut Street to Halleck Street and Ryawa Avenue . . . " April 27, 1966. Amendment to Section 5, Plan No. 11770. (Source not known; amendment never adopted.)
   g. "Map Showing The Establishment of Food Center Drive . . ." June 20, 2008. Filed in the Office of Borough President of The Bronx, Topographic Bureau: Map No. 13120.
   h. "Map Showing Consolidated Edison Company, NY. Property Record Department, Location Hunt's Point Regulating Station. June 6, 1972.
   i. "Map Showing Consolidated Edison Company of New York, Inc., Borough Of The Bronx, N.Y." Hunt's Point Key Map (Insurance Map No. 5-25). Nov. 1964. Insurance map surveyed by B. Wainwright.
   j. Letters patent from the State of New York to the City of New York. October 8, 1883. Recorded November 13, 1883 in Liber 422, CP 356.
7. The survey is hereby certified to:
   a. **The New York City Economic Development Corporation, its successor and/or assigns.**
8. There were no streams or natural watercourses visible at the time of the survey on this site.
9. The Property In Question (PIQ) is located in Flood Hazard Zone X, (base flood determined) as depicted on FIRM Community-Panel No 360497 0084F, 0111F & 0092F, September 5, 2007.

MERCATOR
land surveying, llc
175 West 93rd Street
New York, NY
10025-9339
(646) 837-0780 Phone
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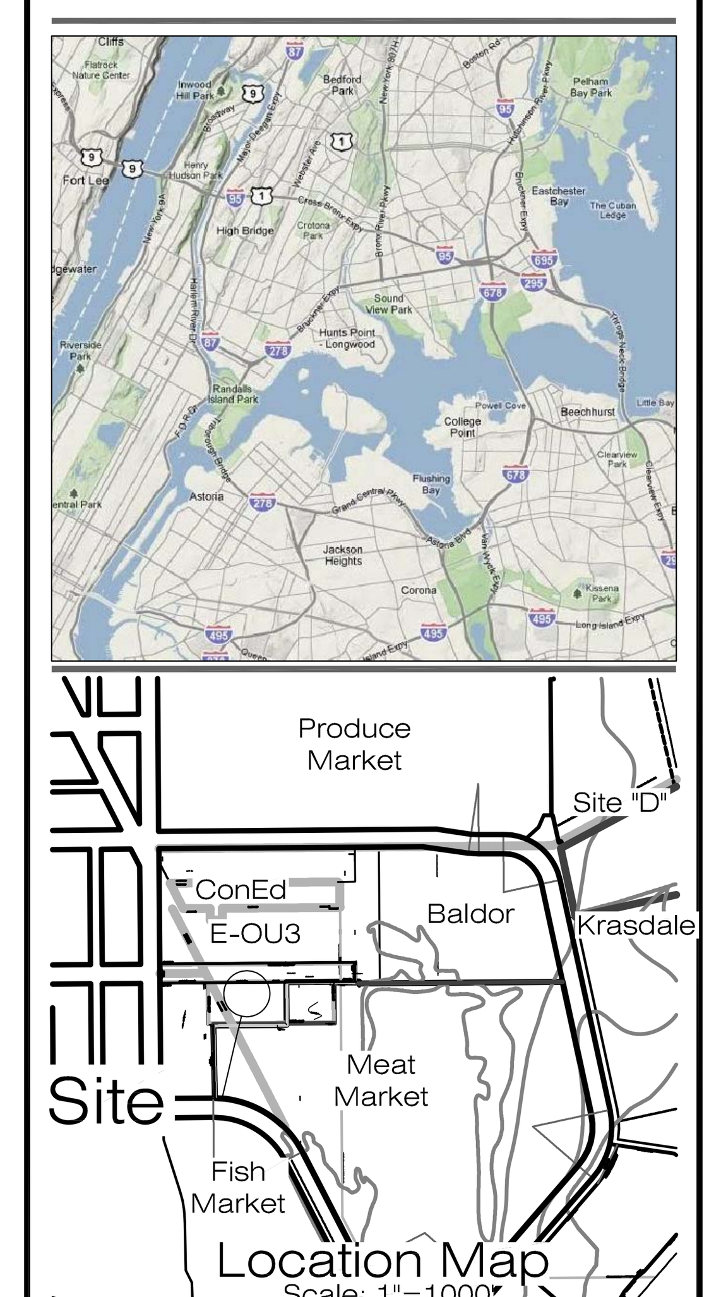
NYS COA#0002514

ISSUES OF DRAWINGS

No.	Date	Description
A	11/30/09	Interim Issue of Drawing
B	12/30/09	Revised Eastern Limits
C	2/18/10	Add hatching and annotation

SUBSEQUENT REVISIONS
1



Location Map
Scale: 1"=1000'

Prepared For:
New York City Economic Development Corp.
110 William Street, New York, NY 10038
NYCEDC Contract #28770003-03

Project

EOU3
Viele Avenue Extension

Investigation Area Survey
part of Block 2781 Lot 500

Bronx County, State of New York

Date of Survey: Oct 24, 2009 Scale: 1" = 40' / 1:480

Seal & Signature

J. R. Lemuel Morrison
NY Lic Surveyor #50404

Date:	2/18/10
Project No:	08J144
Drawn:	DL
Checked:	RLM
DWG No	V-144-23.C

CADD File: V-08J144-23(EOU3Ext).dwg

Xref: v-08J114-01(topo).dwg & V-08J144-02(bndry).dwg

APPENDIX C
Boring Logs

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-1
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION **DATE** 3/16/2010 **DRILLER NAME / COMPANY** A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI **HDR FIELD INSPECTOR** T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0	B-1 4-5 ft B-1 5 ft	0-5	0.0	Wet at 5 ft	Light	21	0-4 in TOPSOIL 4-10 in FILL - Concrete, wood, dark brown silt 10-21 in FILL - Dark brown silt, some fine sand, brick, coal, glass, plastic	Sample collected at 4 5 ft for SVOC, PCB, TPH, 5 ft for Metals, Hg, Cyanide, VOC	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Wet	Light	45	0-20 in FILL - Dark brown silt, some fine sand, brick, coal, glass, plastic 20-38 in FILL - Yellow brown fine to medium SILTY SAND, tr. clay. 38-45 in FILL - Dense gray silt and fine GRAVEL, trace fine to medium sand, glass		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	32	0-30 in Black SILT and fine GRAVEL, some fine to medium sand 30-32 in Gray CLAY, trace silt and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	41	0-41 in Gray CLAY, trace silt and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.8 CO = 0
20							**Groundwater:** Initial Sampling SWL= 4.63 Sample time at: 1040 Sample SWL = 4.71		
25							Well installed to 20 ft		
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-2
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION | **DATE** 3/16/2010 | **DRILLER NAME / COMPANY** A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI | **HDR FIELD INSPECTOR** T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Dry	None	43	0-6 in TOPSOIL 6-43 in FILL - Dark brown silt, some coarse to medium sand, brick, glass, styrofoam, wood		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Moist	Light	55	0-55 in FILL - Dark brown silt, some coarse to medium sand, trace fine gravel, some brick, wood, coal	Burnt odor	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	41	0-41 in Black SILT and fine GRAVEL, some fine to medium sand, trace clay		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	36	0-36 in Gray CLAY, trace silt and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-3
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION **DATE** 3/16/2010 **DRILLER NAME / COMPANY** A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI **HDR FIELD INSPECTOR** T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0	B-3 4-5 ft B-3 5 ft	0-5	2.6	Moist	Light	44	0-6 in TOPSOIL 6-44 in FILL - Black silt, some wood, brick, ash, coal, trace fine to coarse sand and clay	Sample collected at 4-5 ft for SVOC, PCB, TPH, 5 ft for Metals, Hg, Cyanide, VOC	LEL = 0 H2S= 0 O_2 = 20.8 CO = 0
5		5-10	0.0	Wet at 5 ft	Light	53	0-53 in FILL - Black silt, some wood, brick, ash, coal, trace fine to coarse sand and clay		LEL = 0 H2S= 0 O_2 = 20.8 CO = 0
10		10-15	0.0	Wet	Light	38	0-30 in Dark gray to black SILT and fine GRAVEL, some medium to coarse sand 30-38 Gray CLAY, trace silt and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	30	0-30 in Gray clay, trace silt and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-4
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/17/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Moist	Light	36	0-16 in CONCRETE 16-19 in FILL - Brown medium to coarse sand, some silt 19-36 FILL - Black silt, trace fine sand, brick, ash, gravel	Burnt odor	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Wet at 8 ft	Light	14	0-14 in FILL - Black clayey silt, some brick, ash, concrete, trace fine gravel		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	Light	10	0-10 in FILL - Black clayey silt, some brick, ash, fine gravel, concrete		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	Light	21	0-21 in Gray CLAY, trace fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-5
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/17/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Moist	Light	60	0-36 in CONCRETE 0-48 in FILL - Light brown fine to coarse sand, some silt, 48-60 in FILL - Dark brown to black silt, some wood, ash, coal fragments		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-5 7-8 ft B-5 8 ft	5-10	14.6	Wet at 8 ft	Light	52	0-52 in FILL - Dark brown to black silt, some wood, ash, coal fragments, trace fine gravel	Sample collected at 7-8 ft for SVOC, PCB, TPH, 8 ft for Metals, Hg, Cyanide, VOC	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	2.1	Wet	Light	33	0-28 in Light brown medium to coarse SAND, little fine gravel, trace clay 28-33 in Black medium to coarse SAND and fine GRAVEL, some silt		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	14	0-14 in Gray CLAY, trace fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20							**Groundwater:** Initial Sampling SWL= 4.89 Sample time at: Sample SWL = 4.86	Note: Water sample was turbid	
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

ONE COMPANY *Many Solutions*

ENGINEERS FIELD BORING LOG

Boring No. B-6
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION **DATE** 3/16/2010 **DRILLER NAME / COMPANY** A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI **HDR FIELD INSPECTOR** T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.1	Dry	Light	38	0-6 in TOPSOIL 6-10 in FILL - Light brown medium to coarse sand, some silt 10-38 in FILL - Black silt and fine GRAVEL, some medium to coarse sand, ash, brick		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Wet at 6 ft	Light	50	0-38 in FILL - Black silt and fine gravel, some medium to coarse sand, ash, brick, wood, coal 38-50 in Gray CLAY, trace fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	Light	49	0-16 in Gray CLAY, trace fine sand and organics (seashells) 16-49 in Black SILT and fine GRAVEL, trace fine sand and clay		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	Light	48	0-48 in Gray CLAY, trace fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-7
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/16/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.6	Moist	Light	46	0-6 in TOPSOIL 6-46 in FILL - Brown grading to gray silt, some fine to coarse sand, brick, ash, wood, glass		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-7 5-6 ft B-7 5 ft	5-10	1.4	Wet at 7 ft	Light	33	0-33 in FILL - Gray to black silt, some fine to coarse sand, brick, ash, trace wood and glass	Sample collected at 5-6 ft for SVOC, PCB, TPH, 5 ft for Metals, Hg, Cyanide, VOC	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.4	Wet	Light	36	0-26 in FILL - Black silt and fine gravel, trace medium to coarse sand 26-30 in FILL - concrete 0-36 in Black SILT and fine GRAVEL, trace medium to coarse sand		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	49	0-18 in Black SILT and fine GRAVEL, trace medium to coarse sand 18-49 in Gray CLAY, trace silt and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-8
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION **DATE** 3/19/2010 **DRILLER NAME / COMPANY** A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI **HDR FIELD INSPECTOR** T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Moist	Light	52	0-6 in ASPHALT 6-11 in CONCRETE 11-52 in FILL - Black to dark brown silt and medium to coarse sand, some fine gravel, brick, wood, ash		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Wet at 9 ft	Light	14	0-8 in FILL - Black to brown silt and medium to coarse sand, some fine gravel, brick, wood, ash 8-12 in FILL - Gray fine to medium silty sand, trace coarse sand 12-14 in Brown fine to medium GRAVEL, some silt, trace fine to medium sand	Sample collected at 8-9 ft for SVOC, PCB, TPH, 9 ft for Metals, Hg, Cyanide, VOC	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	31	0-8 in Brown fine to medium GRAVEL, some silt, trace fine to medium sand 8-31 in Gray CLAY, trace silt, fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	60	0-60 in Gray CLAY, trace silt, fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20							**Groundwater:** Initial Sampling SWL= 8.63 Sample time at: 1300 Sample SWL = 8.68	Well set to 14 ft	
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*®

ENGINEERS FIELD BORING LOG

Boring No. B-9
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/19/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	1.2	Moist	Light	29	0-6 in ASPHALT 6-11 in CONCRETE 11-29 in FILL - Black silt and fine gravel, some medium to coarse sand, wood, brick, ash		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-9 8-9 ft B-9 9 ft	5-10	2.9	Wet at 10 ft	Light	36	0-36 in FILL - Black silt and fine gravel, some fine to medium sand, trace brick, ash, coal	Sample collected at 8-9 ft for SVOC, PCB, TPH, 9 ft for Metals, Hg, Cyanide, VOC	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	49	0-36 in FILL - Black silt and f gravel, some fine to med sand, trace brick, ash, coal 36-42 in FILL - Crushed schist cobble 42-49 in FILL - Gray silt and fine sand, trace wood and fine gravel		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	60	0-60 in gray CLAY, trace fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*

ENGINEERS FIELD BORING LOG

Boring No. B-10
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/19/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Moist	None	48	0-6 in ASPHALT 6-11 in CONCRETE 11-48 in FILL - Dark brown silt, some fine gravel, medium to coarse sand, trace brick, ash		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Wet at 10 ft	Organic Odor	36	0-26 in FILL - Yellow brown fine to med sandy silt, some clay, trace fine gravel 26-31 in Light gray SILT 31-36 in Gray fine to medium GRAVEL, some silt	Marsh-like odor	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	29	0-29 in Gray fine GRAVEL, some silt, trace fine to coarse sand		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	3	Gray CLAY, trace fine sand and organics (seashells)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

ENGINEERS FIELD BORING LOG

Boring No. B-11 & B11A
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION **DATE** 3/19/2010 **DRILLER NAME / COMPANY** A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI **HDR FIELD INSPECTOR** T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Moist	Light	41	0-6 in ASPHALT 6-11 in CONCRETE 11-41 in FILL - Black silt and fine to medium sand, trace fine gravel and brick		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Moist	Light	21	0-21 in FILL - Black silt, some fine to medium sand, trace fine gravel At 7ft moved boring to B-11A Location and continued logging	Coal tar seen on sampler at 7 ft at refusal, no soil recovered, moved boring 5 ft to avoid obstruction	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	34	0-34 in FILL - Black silt, some fine to medium sand, trace fine gravel		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	39	0-39 in Gray/mottled brown CLAY, trace fine sand and silt, plant rootlets		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20							**Groundwater:** Initial Sampling SWL= 7.53 Sample time at: 1000 Sample SWL = 7.46	Water was turbid during sampling	
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-12
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION **DATE** 3/19/2010 **DRILLER NAME / COMPANY** A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI **HDR FIELD INSPECTOR** T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.4	Moist	Light	34	0-6 in ASPHALT 6-11 in CONCRETE 11-34 in FILL - Dark gray silt, some fine to coarse sand, trace fine gravel and gray clay		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-12 8-9 ft B-12 9 ft	5-10	2.6	Mosit	Light	36	0-36 in FILL - Dark gray silt, some fine to coarse sand, trace fine gravel and gray clay	Sample collected at 8-9 ft for SVOC, PCB, TPH, 9 ft for Metals, Hg, Cyanide, VOC	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	Light	39	0-10 in Dark gray SILT and fine GRAVEL, trace medium to coarse sand 10-39 in Gray CLAY, trace fine sand and silt	Organic odor (marsh-like)	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	Light	55	0-55 in Gray CLAY, trace fine sand and silt	Organic odor (marsh-like)	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-13
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/18/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Dry	Light	33	0-6 in ASPHALT 6-11 in CONCRETE 10-33 in FILL - Brown silt, some fine gravel, trace fine to coarse sand		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-13 8-9 ft B-13 9 ft	5-10	1.7	Moist	light	46	0-46 in FILL - Brown silt, some fine gravel, trace fine to coarse sand	Sample collected at 8-9 ft for SVOC, PCB, TPH, 9 ft for Metals, Hg, Cyanide, VOC Wet at 10 ft	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	Light	58	0-43 in Gray CLAYEY SILT and fine GRAVEL, trace fine to medium sand 43-28 in Gray CLAY and SILT, some organics (rootlets and marsh mat)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	Light	60	0-60 in Gray CLAY, trace fine sand and silt, organics (plant material)	Organic odor (marshlike)	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20							**Groundwater:** Initial Sampling SWL= 4.46 Sample time at: 1330 Sample SWL = 13.61	Well set to 14 ft Water was slightly turbid	
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-14
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/18/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Dry	None	36	0-6 in ASPHALT 6-18 in CONCRETE 18-36 in FILL - Dark brown silt and fine to coarse sand, trace fine gravel and clay		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Moist	None	40	0-29 in FILL - Yellow brown fine to medium silty sand, trace fine gravel, miceaceous 29-36 in FILL - Crushed schist cobble 36-40 in FILL - Crushed gniess cobble	Wet at 10 ft	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	23	0-12 in FILL - Yellow brown fine to medium silty sand, trace fine gravel, micaceous 12-14 in Gray CLAYEY SILT 14-23 in Gray fine GRAVEL and coarse SAND, some silt, trace fine sand		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	19	0-16 in Fine GRAVEL, trace silt 16-18 in Gray CLAY, trace fine sand and silt		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-15
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/17/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Dry	None	40	0-6 in ASPHALT 6-30 in FILL - Brick, concrete, wood, silt, trace coal 30-40 in FILL - Light brown medium to coarse sand, trace fine sand and silt		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-15 9-10 ft B-13 10 ft	5-10	0.0	Moist	None	18	0-18 in FILL - Light brown medium to coarse sand, trace coal and coal dust	Sample collected at 9-10 ft for SVOC, PCB, TPH, 10 ft for Metals, Hg, Cyanide, VOC Wet at 10 ft	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	None	10	0-8 in FILL - Light brown medium to coarse sand, trace coal and coal dust 8-10 in Gray medium to coarse SAND, some fine gravel and fine sand and silt		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	51	0-51 in Gray CLAY, trace fine sand, some organics (plant matter)		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-16
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/18/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	1.5	Dry	Light	14	0-6 in ASPHALT 6-14 in FILL - Black silt, some brick, concrete, wood, ash, trace fine sand		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-16 8-9 ft B-16 9 ft	5-10	4.6	Moist	Light	23	0-23 in FILL - Black silt, some brick, concrete, wood, ash, trace fine sand	Sample collected at 8-9 ft for SVOC, PCB, TPH, 9 ft for Metals, Hg, Cyanide, VOC Wet at 10 ft	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	Light	39	0-39 in Gray grading to mottled black-gray CLAY, trace fine sand, silt and organics (plant matter)	Organic odor (marshlike)	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	Light	16	0-16 in Gray CLAY trace fine sand, silt and organics (plant matter and seashells)	Organic odor (marshlike)	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20							**Groundwater:** Initial Sampling SWL= 9.86 Sample time at: 945 Sample SWL = 9.87	Well installed to 15 ft	
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-17
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/17/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Dry	Light	55	0-4 in ASPHALT 4-55 in FILL - concrete, brick, rock fragments, black silt, some fine to coarse sand, trace clay and fine gravel		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-17 8-9 ft B-17 8 ft	5-10	1.4	Moist	Slight	49	0-49 in FILL - Dark brown silt, rock, concrete, brick, little fine to coarse sand, trace clay	Sample collected at 8-9 ft for SVOC, PCB, TPH, 8 ft for Metals, Hg, Cyanide, VOC Wet at 10 ft	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10		10-15	0.0	Wet	Light	16	0-16 in FILL - Black fine gravel and silt, trace fine sand, some wood	Organic odor (marshlike)	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
15		15-20	0.0	Wet	None	14	0-14 in Gray CLAY, trace fine sand		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-18
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/19/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Moist	Light	31	0-6 in ASPHALT 6-11 in CONCRETE 11-31 in FILL - Black silt and medium to coarse sand, some brick, ash, clay		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Moist	Light	42	0-42 in FILL - Black silt and medium to coarse sand, some brick, ash, clay		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10									
15							Boring completed to approximate depth of coal tar seen in B-11		
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

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ENGINEERS FIELD BORING LOG

Boring No. B-19
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/19/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	1.3	Moist	Light	23	0-6 in ASPHALT 6-11 in CONCRETE 11-23 in FILL - cinders, some silt, ash, fine gravel		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5	B-19 6-7 ft B-19 7 ft	5-10	2.6	Moist	Light	15	0-14 in FILL- cinders, some silt, ash, fine gravel Refusal at 7', Concrete in sampler shoe	Sample collected at 6-7 ft for SVOC, PCB, TPH, 7 ft for Metals, Hg, Cyanide, VOC Wet at 10 ft	LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10									
15							Boring completed to approximate depth of coal tar seen in B-11		
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

HDR | ONE COMPANY *Many Solutions*

ENGINEERS FIELD BORING LOG

Boring No. B-20
SURFACE ELEV
DATUM
SHEET 1 **OF** 1

PROJECT NAME NYCEDC E OU-3 Extension Phase II

BORING LOCATION
DATE 3/19/2010
DRILLER NAME / COMPANY A. Babel / ADT
MONITORING INSTRUMENTATION PID, V Rae CGI
HDR FIELD INSPECTOR T. Goehring

Depth (ft.)	Sample No.	Sample Depth (ft)	Two Inch Geoprobe Sample: PID (IU*)	Moisture	Odor	Recovery (inches)	Sample Description (Inches)	Remarks	CGI
0		0-5	0.0	Moist	Light	31	0-6 in ASPHALT 6-11 in CONCRETE 11-31 in FILL - cinders, some silt and coarse sand, trace ash		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
5		5-10	0.0	Moist	Light	42	0-42 in FILL - Dark brown silt, some cinders, trace fine sand		LEL = 0 H2S= 0 O_2 = 20.9 CO = 0
10									
15							Boring completed to approximate depth of coal tar seen in B-11		
20									
25									
30									
35									
40									
45									
50									

NOTES:

Proportions
And - Equal
Sandy - 31 - 49%
Some - 13 - 30%
Trace - 1 - 12%

IU - Instrument Units
PID calibrated to 100 ppm isobutylene

APPENDIX D
Test Pit Logs

HDR

Test Pit Log

Crew: TG	
Sheet 1 of 1	
Project Name: E OU-3 Extension	**Name: TP1**
Client: NYCEDC	**Date:** Start 3/15/2010
Excavator Type: Backhoe	Finish 3/15/2010
Operator:	**Final Depth** 10'
Test Pit Location: Northwest edge of concrete pad	**Depth to Water:** 4'
Coordinates:	**Surf. Elevation**
Logged By: T Goehring	**Hole Diameter:**
Monitoring Instrument: PID, CGI	
Photograph #	**Photo #(s)**

Depth (Ft)	Instrument(s) Reading PID	FID	% LEL	Description
0-1	0		0	0-1 ft Topsoil
1-2'	0		0	1-2 ft Yellow brown coarse to fine SAND, some fine gravel and cobbles and silt, trace clay
2-10'	0		0	2-10 ft Light brown very fine to fine SAND and SILT, trace clay

Additional Notes

Strong odor noted on soil, no sheen seen on groundwater, no PID readings

HDR	Test Pit Log	Crew: TG	
		Sheet 1	of 1
Project Name: E OU-3 Extension		Name: TP2	
Client: NYCEDC		Date: Start	3/15/2010
Excavator Type: Backhoe		Finish	3/15/2010
Operator:		Final Depth	10'
Test Pit Location: Southwest east edge of concrete pad		Depth to Water:	4'
Coordinates:		Surf. Elevation	
Logged By: T Goehring		Hole Diameter:	
Monitoring Instrument: PID, CGI			
Photograph #	Photo #(s)		

Depth (Ft)	Instrument(s) Reading PID	FID	% LEL	Description
0-1	0		0	0-1 ft Topsoil
1-3.5'	0		0	1-3.5 ft Yellow brown coarse to fine SAND, some fine gravel and cobbles and silt, trace clay
3.5-10'	0		0	3.5-10 ft Light brown very fine to fine SAND and SILT, trace clay

Additional Notes

Strong odor noted on soil, no sheen seen on groundwater, no PID readings

HDR

Test Pit Log

Crew: TG	
Sheet 1 of 1	
Project Name: E OU-3 Extension	**Name: TP3**
Client: NYCEDC	**Date:** Start 3/15/2010
Excavator Type: Backhoe	Finish 3/15/2010
Operator:	**Final Depth** 10'
Test Pit Location: Southeast east edge of concrete pad	**Depth to Water:** 4'
Coordinates:	**Surf. Elevation**
Logged By: T Goehring	**Hole Diameter:**
Monitoring Instrument: PID, CGI	
Photograph #	**Photo #(s)**

Depth (Ft)	Instrument(s) Reading PID	FID	% LEL	Description
0-1	0		0	0-1 ft Topsoil
1-2.5'	0		0	1-2.5 ft Yellow brown coarse to fine SAND, some fine gravel and cobbles and silt, trace clay
2.5-10'	0		0	2-10 ft Light brown very fine to fine SAND and SILT, trace clay

Additional Notes

Strong odor noted on soil, no sheen seen on groundwater, no PID readings

HDR

Test Pit Log

Crew: TG	
Sheet 1 of 1	
Project Name: E OU-3 Extension	**Name: TP4**
Client: NYCEDC	**Date:** Start 3/15/2010
Excavator Type: Backhoe	Finish 3/15/2010
Operator:	**Final Depth** 10'
Test Pit Location:Northeast east edge of concrete pad	**Depth to Water:** 4'
Coordinates:	**Surf. Elevation**
Logged By: T Goehring	**Hole Diameter:**
Monitoring Instrument: PID, CGI	
Photograph #	**Photo #(s)**

Depth (Ft)	Instrument(s) Reading PID	FID	% LEL	Description
0-2	0		0	0-2 ft Debris
2-3.5'	0		0	2-3.5 ft Yellow brown coarse to fine SAND, some fine gravel and cobbles and silt, trace clay
3.5-10'	0		0	3.5-10 ft Light brown very fine to fine SAND and SILT, trace clay

Additional Notes

Strong odor noted on soil, no sheen seen on groundwater, no PID readings