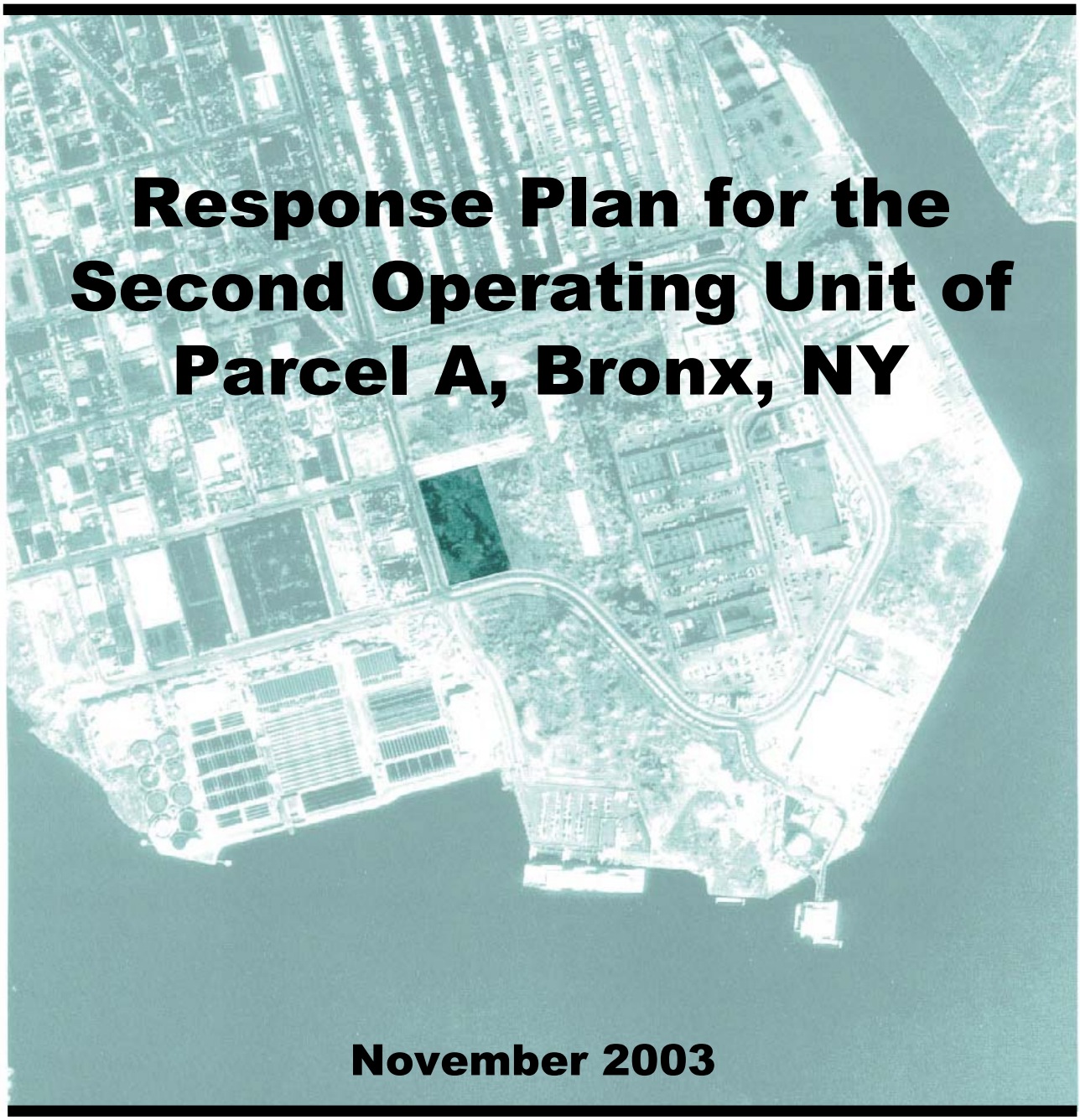
Hunts Point Food Distribution Center
Redevelopment Plan



Response Plan for the Second Operating Unit of Parcel A, Bronx, NY

November 2003

Prepared by

Lawler, Matusky & Skelly Engineers LLP
One Blue Hill Plaza • Pearl River, New York 10965

ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS

Hunts Point Cooperative Market Redevelopment Plan

Response Plan for Parcel A Second Operable Unit, Bronx, NY

Prepared by: Lawler, Matusky & Skelly Engineers LLP

November 2003 File: 781-021

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C	Temporary Piezometer Logs
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EXECUTIVE SUMMARY

Lawler, Matusky & Skelly Engineers LLP (LMS), under contract to New York City Economic Development Corporation (NYCEDC), performed a subsurface investigation at Site A Second Operable Unit (SOU) located in the Hunts Point Cooperative Market. The Scope of Work (SOW) for the investigation (dated 1999) was submitted to New York State Department of Environmental Conservation (NYSDEC) for review and approval. Following completion of the field work, an Investigative Report was prepared and submitted to NYSDEC in February 2002. The Investigative Report did not include some more recent testing that was requested by NYSDEC in an area of the Site that exhibited some questionable groundwater results. Those subsequent test results are included in this Response Plan along with an assessment and remedial action recommendations for the entire Site.

Site A SOU is located in the northwestern portion of the Hunts Point Cooperative Market (Figure 1). The recommendations indicate what areas will require detailed attention before, during, or after development. The remedy selection is based on a review of, and comparison to the following criteria stated in 6 NYCRR Part 375-1.10 (c):

A) Standards, criteria, and guidance

B) Overall protectiveness of public health and the environment

C) Short-term effectiveness

D) Long-term effectiveness

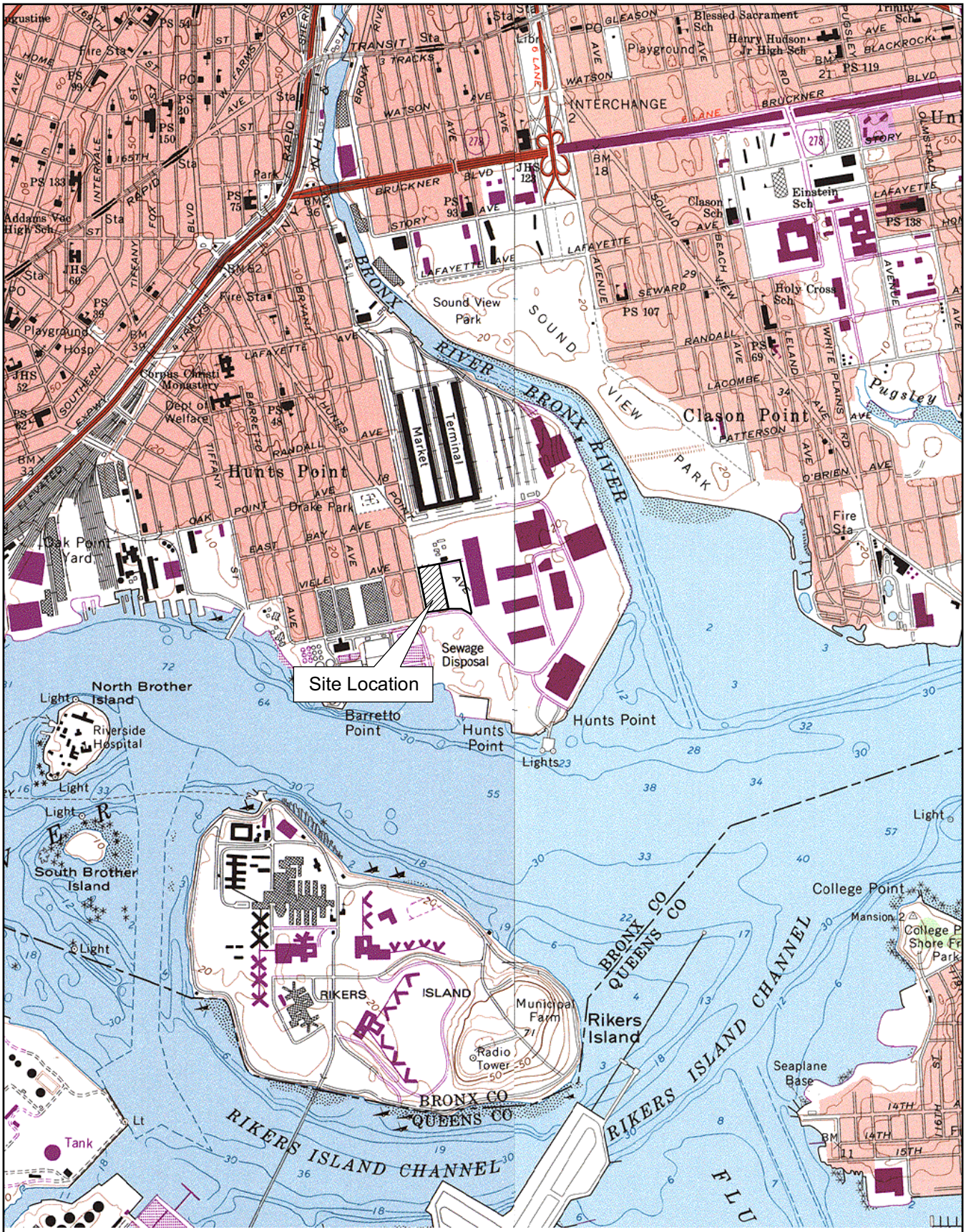
E) Reduction of toxicity, mobility, and volume with treatment

F) Feasibility

The selection has also been made based on the specific proposal for the redevelopment.

More specifically, the Response Plan (RP) has compiled information from three general sources: 1) historical background information, 2) Site investigation data, and 3) Site development plans. This information is presented here for evaluating the chosen remedy (-ies) in reference to the above criteria.

The historical information is based primarily on accounts provided by the previous operator (Consolidated Edison), historic and recent aerial photographs, as well as topographic and Sanborn Fire Insurance Maps. Composite maps were made showing existing roadways and shorelines in comparison to the location of former structures. This provided significant input and aided greatly in the preparation of the sampling investigation plan. The Site investigation information includes physical and chemical data that were collected during the intrusive portion of the project. Various



Map source: USGS 7.5 minute quadrangle series, Central Park, NY-NJ, 1966, photorevised 1988.

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Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site Location** **Site A Second Operable Unit** **Hunts Point**	**Figure 1**

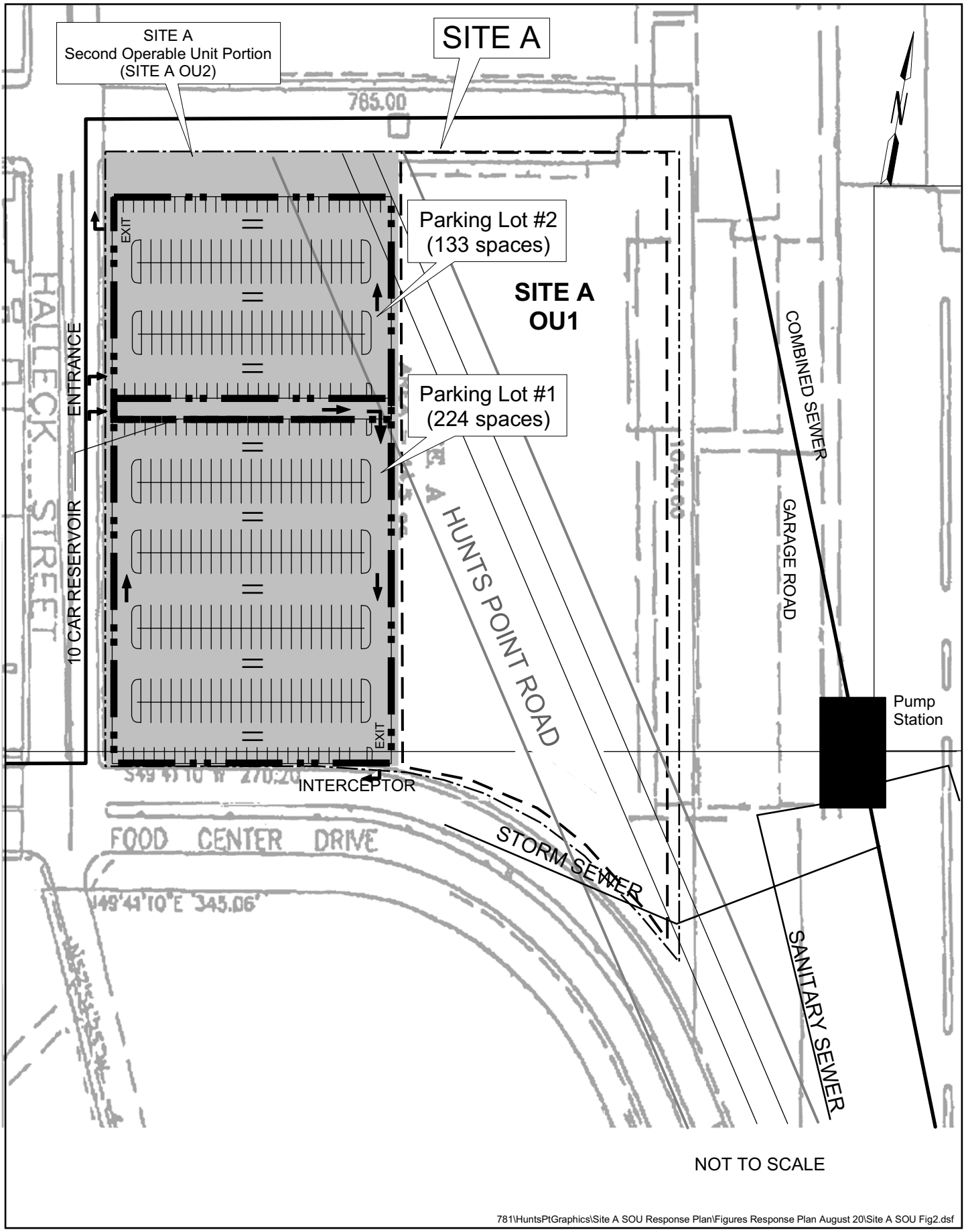
media are included in the sample data (soil, various fill material, and groundwater) and this information was initially compared to NYSDEC standards and guidance policy in order to first determine what criteria (if any) was a concern based on pre-release conditions. The data were then compared to the criteria listed above and with the desired end use and redevelopment of the property. The proposed Response Plan recommendations presented here reflect the review and use of this information.

The Hunts Point Cooperative Market is located in the South Bronx on a large peninsula that extends out into the East River and is bounded on the north by the Bronx River. The entire Market area is relatively level with some minor topographic highs and lows. Surface drainage is generally directed by underground storm drains as a majority of the land is covered with buildings or pavement. Infiltration of precipitation is limited to areas that are currently undeveloped and vegetated. The proposed redevelopment of the Site is an employee parking lot to service the Fulton Fish Market currently being constructed immediately south of this parcel. The parking lot will cover virtually the entire Site and no major structures are proposed with the exception of possible security and support areas. General grading and the importation of fill material to bring the Site up to the final grade may be performed in certain areas. Since the Site will become a parking lot, the main covering will be asphalt. If any landscaped or grass covered areas are to be included, they will receive one foot of additional cover material over the existing Site fill to prevent future contact with the existing on-Site materials. Figure 2 illustrates the proposed layout of the Site following redevelopment.

A review of the Site history and conditions was performed before preparation of the SOW. This review in combination with a physical Site inspection was used to prepare the Investigative Work Scope. Information reviewed to assess the Site history and conditions included historic Sanborn fire insurance maps, aerial photographs, historic topographic maps, and Consolidated Edison Company of New York (Con Ed) Site maps.

Overall, this parcel was part of a Con Ed coal gasification plant that was initially constructed between 1924 and 1932 and operated until the early 1960s. The plant was constructed to manufacture both oven gas and carbureted water gas as major products with coke, ammonium sulphate, coal tar, water gas tar, and light oil as by-products. Approximately 46 buildings or structures existed on the former Con Ed facility that were actively involved in gas production.

The intrusive work proposed in the investigative SOW and as performed during the actual investigation took into account the information shown on the historic maps and photos. Based on our experience at other areas of the Market and the limited available information concerning underground utilities and structures, deviations from this scope did occur during the field activities. To the extent practical, these situations were discussed with the regulatory agencies before any deviation from the scope occurred.



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Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site Redevelopment Plan** **Hunts Point**	**Figure 2**

Site A SOU is located near the northwestern end of the former coal gasification facility. Historic Con Ed maps prepared at the time the facility operated showed one storage building of steel truss construction in the far southeast corner of Site A with three associated underground storage tanks. The three tanks were all identified on the map as having a capacity of 550 gallons each; two were shown to hold gasoline and the third was unused. The remainder of the Site was free of identified surface structures. The former road bed of Hunt's Point Avenue is identified on the maps supplied by Con Ed, and traversed the Site from the northwest to the southeast, splitting the entire Site into two unequal halves. A number of existing subsurface utilities are located in this right of way area of the former road and were avoided during Site excavation activities.

The investigation included the excavation and examination of on-Site material and the collection of soil samples for chemical analysis, as well as the visual inspection and collection of groundwater samples. A total of five (5) trenches, 6 temporary piezometers, 3 deep and 13 shallow borings were installed across the Site. Sampling locations for the initial investigation were chosen based on historical data and in an effort to characterize the subsurface materials, sampling locations for subsequent investigations were chosen based on the results of the initial investigation.

The trenches were excavated in a west-east direction across the Site and were spaced in order to provide maximum coverage of the area. The trenches were installed to groundwater, a native organic clay layer that is present throughout most of the Cooperative Market site, or refusal, whichever was encountered first. Upon completion of each trench, samples were taken of the different types of materials encountered. Grab samples were collected for volatile organic compounds (VOCs) analysis, and a composite sample was collected and analyzed for semivolatile organic compounds (SVOCs), pesticides/PCBs, and target analyte list (TAL) metals. Samples were typically collected from those locations exhibiting the most obvious signs of contamination. Two groundwater samples were also collected from trenches in the areas that exhibited the most obvious signs of petroleum contamination. These samples were analyzed for the same parameters as the soil samples, with the addition of filtered metals and semivolatiles.

Upon completion of trenching activities, NYSDEC requested an additional soil and groundwater investigation (September 2001). Three (3) piezometers, three (3) deep borings and 13 shallow borings were installed in the area of the Site found to exhibit the highest relative visual level of residual coal tar and semivolatiles. The results of the groundwater portion of this sampling effort raised a question regarding the results of turbidity on a sample and therefore a supplemental sampling event was conducted. This effort included the installation of three (3) additional piezometers in the southwestern corner of the property to monitor groundwater quality (November 2002).

The Site inspection results showed that an upper layer of fill varying in composition, depth and extent exists over most of the Site. The fill consists of residual material

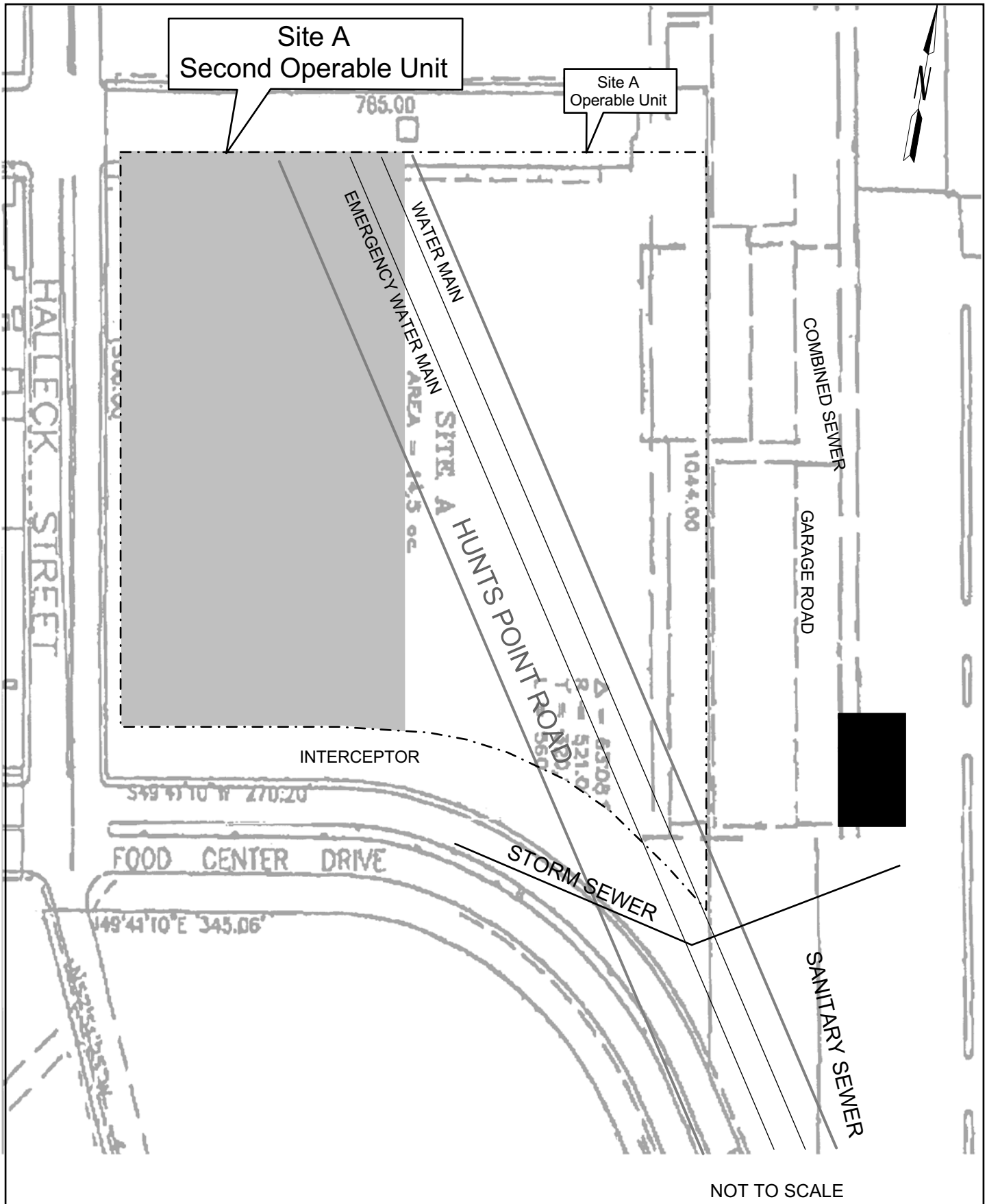
from historic Site operations, such as coal ash and coal tar, and purifier bed waste. Historic incinerator ash from New York City incinerators is present across the Site, primarily underneath the coal ash and tar materials. In some areas, the fill layer is underlain by grey, native organic clay.

The analytical data were compared to NYSDEC Technical Administrative Guidance Memorandum 4046 – Determination of Soil Cleanup Objectives and Cleanup Levels (TAGM). Analysis of the data for the soils, fill, and groundwater illustrates that exceedances of the TAGM were predominantly encountered where obvious gross contamination was present, i.e. samples of raw coal tar, and petroleum product. Volatile organic compounds were generally detected at low levels in the soils across the Site, with the exception of those samples collected from areas where coal tar was present. Semivolatile compounds, although more prevalent, were detected in the soils at levels that are consistent with degraded coal tar. Pesticides and PCBs were not detected in the majority of the soil samples submitted for analysis, and where detected, PCBs were present in trace concentrations below the unrestricted reuse level of 1 ppm. Metals were also detected in the soils submitted for analysis at generally low levels with no real indication of inorganic source contamination. The soil cleanup objectives were taken from the TAGM without calculating a background concentration, which is mentioned in the TAGM document. Based on historic industrial and commercial usage of the Site, and a general comparison to data from other industrial and commercial sites, it is not uncommon to find metals concentrations in areas formerly used for industrial purposes above TAGM cleanup objectives. There are specific isolated areas where exceedances of the TAGM are prevalent and they are associated with coal tar boils, petroleum contamination, or purifier bed wastes.

The results of the initial and supplemental investigations show that the fill material appears to be impacted in part by the former manufactured gas facility, and several significant areas across the Site are noticeably impacted. The volatiles and semi-volatiles detected at the Site, although at relatively low concentrations, appear to be ubiquitous with some isolated areas of high concentrations in the immediate locations of coal tar.

INTRODUCTION:

This Response Plan presents the findings of the subsurface investigation for Site A SOU, located in the northwestern portion of the Hunts Point Cooperative Market (Figure 3) in conjunction with the proposed action to be addressed during the development of the Site. Site A (both Operable Units) is a rectangular piece of property that covers approximately 14.5 acres with the second operable portion of the Site comprising approximately 7.5 acres. The Site is bounded on the north by the northern edge of Viele Avenue (currently abandoned street), on the south by Food Center Drive, on the west by Halleck Street**,** and on the east by what was designated in the 1951 Sanborn map as Laboratory Road (Figure 4). The first operable portion of Site A was investigated in June 1999, the investigative report was submitted in July 1999, and the Response Plan was submitted in February 2000 (Site A OU1).



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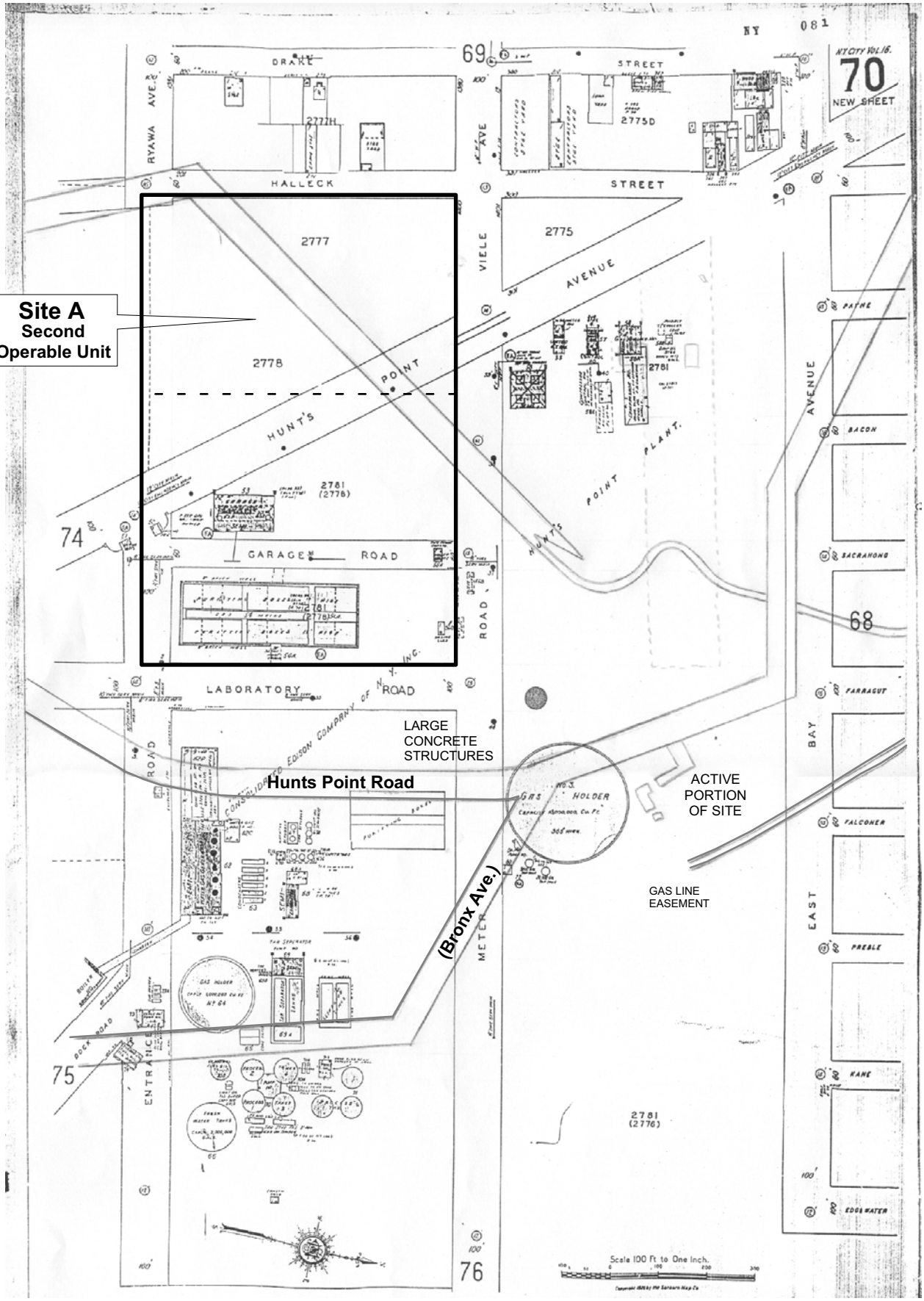
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site A Second Operable Unit** **Hunts Point**	**Figure 3**



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Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Historic Sanborn** **Site A Second Operable Unit** **Hunts Point**	**Figure 4**

A review of Site conditions and history was performed prior to preparation of the Scope of Work and this review, in addition to a physical Site inspection was used to prepare the final investigative work scope. Materials reviewed to determine Site history and physical setting included historic Sanborn fire insurance maps, historic topographic maps, and Consolidated Edison Company of New York site maps. A composite map showing conditions that were identified on these maps and photos is included as Figure 4. Historic aerial photographs were also reviewed prior to the start of field work and any conditions not shown on the historical maps were taken into consideration for the actual sampling activities (Aerial Photos 1 through 5).

There was one deviation from the approved scope of work, this change was made after discussion with the NYSDEC Project Manager and approved by that representative prior to being implemented. The change made to the scope included:

1. The community air monitoring program was not performed as dust emissions were not an issue during the Site sampling activities due to Site vegetation, material grain size and moisture.

FIELD SAMPLING ACTIVITIES

LMS began this assignment by conducting a Site inspection to identify the health and safety concerns for the Site, access limitations, layout of control areas, preparation of a Site-specific health and safety plan, and confirmation of on-Site utilities with respect to sampling locations.

A utility mark-out was requested by contacting the utility clearance hotline. A review of available utility maps and historical Site maps was performed prior to the commencement of any subsurface investigation. As was noted on the historical aerial photographs (Aerial Photos 1 through 5), and the historic Sanborn maps, the old road bed for Hunt's Point Road ran through the northeast portion of the SOU of Site A. No other underground obstructions or utilities were identified during the Site activities.

Trench Installation

Sampling consisted of the installation of five trenches across the Site in a west to east direction as illustrated in Figure 5. Trenches were installed to the water table using a tire mounted excavator operated by a 40-hour OSHA trained operator. Excavation at Site A SOU commenced on 8 August 2000 and was completed on 11 August 2000.

This form of sampling allowed for the visual inspection of the subsurface and for the collection of samples in a manner not normally available during the installation of test borings. An extensive subsurface evaluation was therefore able to be performed. The soil excavated from the trenches was scanned with a photoionization detector (PID) at regular intervals, or when an area of concern was encountered, no elevated readings were recorded at any of the trenches at Site A. Trenching activities were also described and logged by the on-site LMS geologist.

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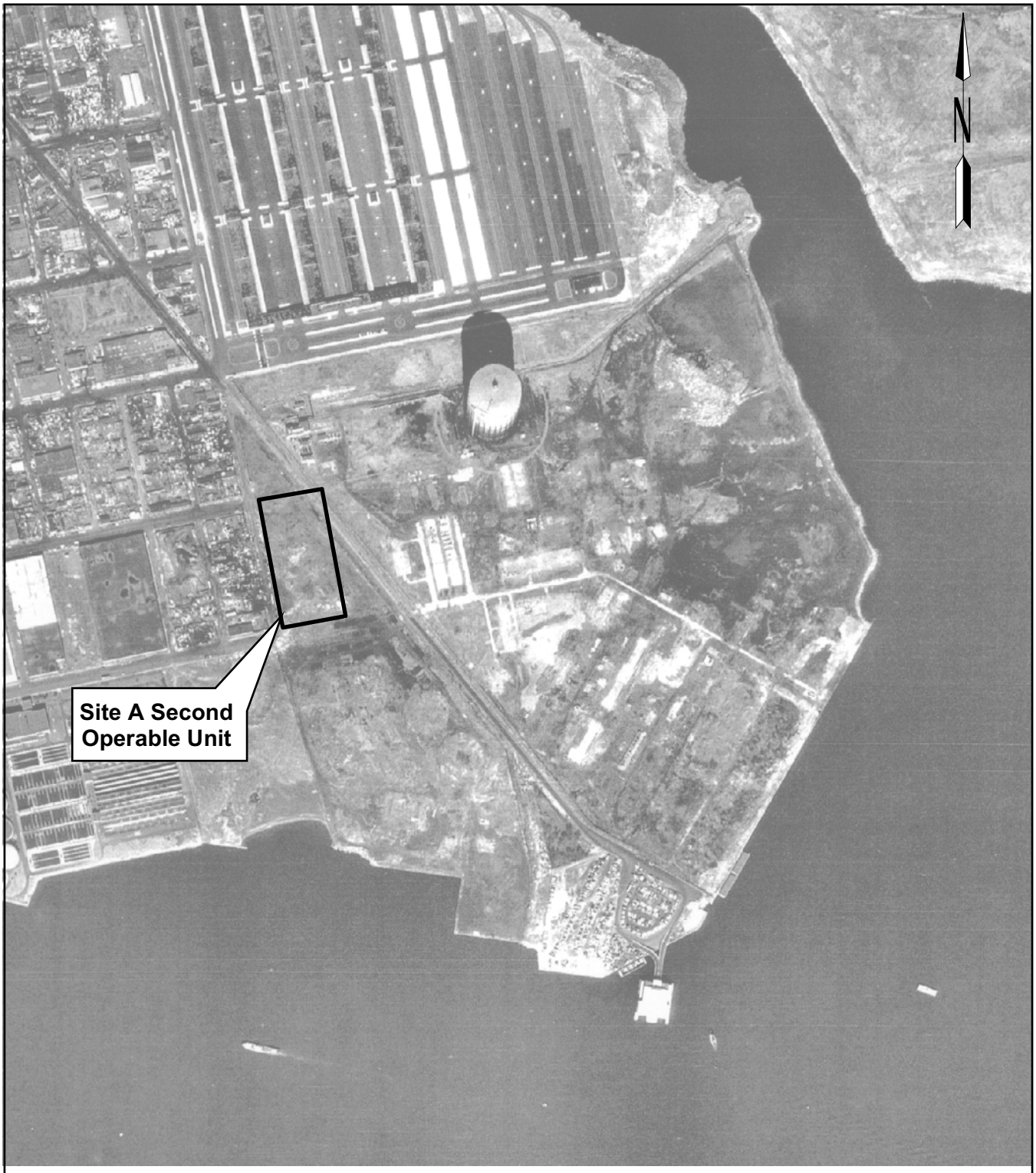
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site A - Second Operable Unit** **1954 Aerial Photograph**	**Aerial Photo 1**



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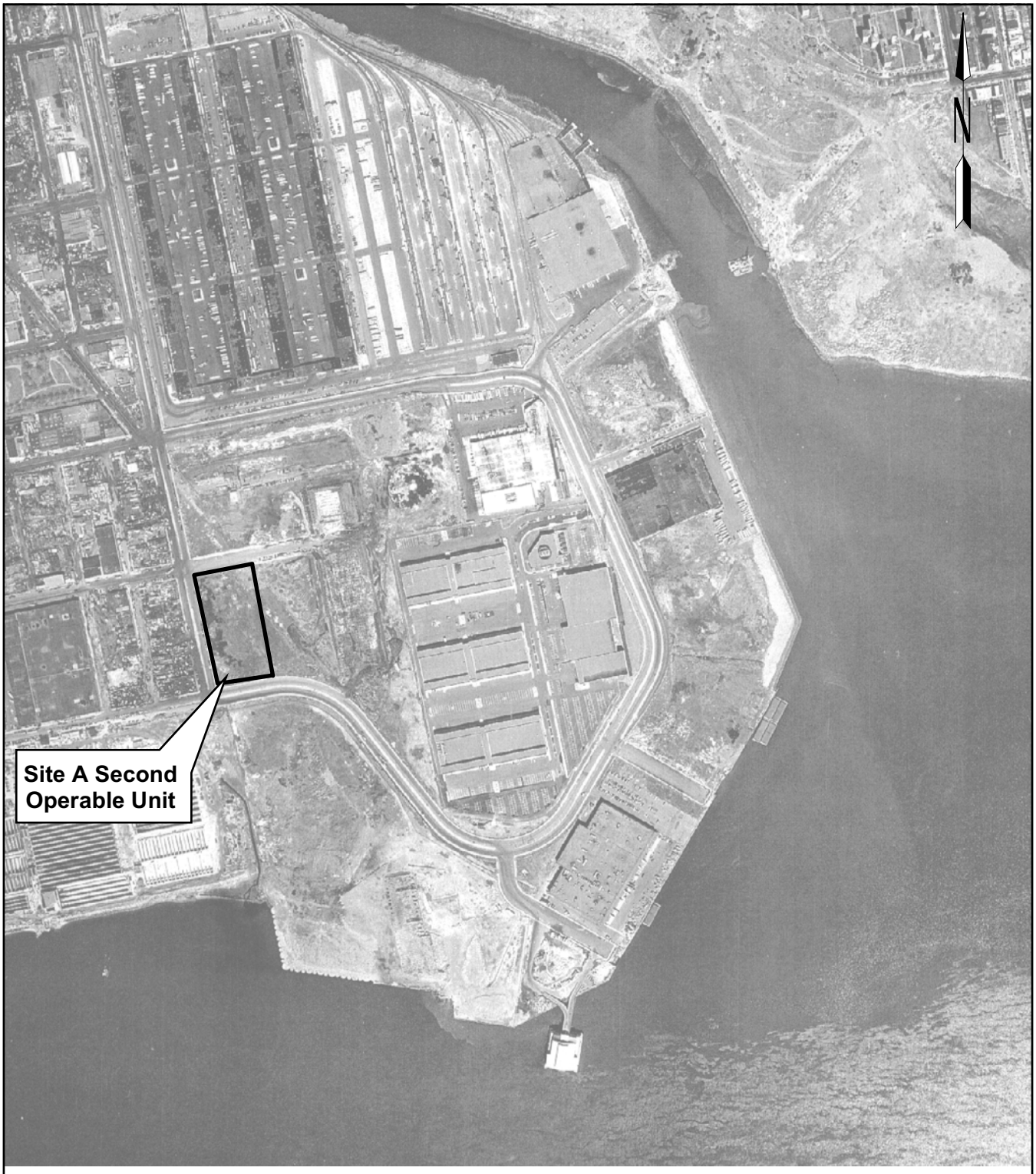
LMS **Lawler, Matusky & Skelly Engineers LLP** One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site A - Second Operable Unit** **1966 Aerial Photograph**	**Aerial Photo 2**



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LMS **Lawler, Matusky & Skelly Engineers LLP** One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site A - Second Operable Unit** **1975 Aerial Photograph**	**Aerial Photo 3**

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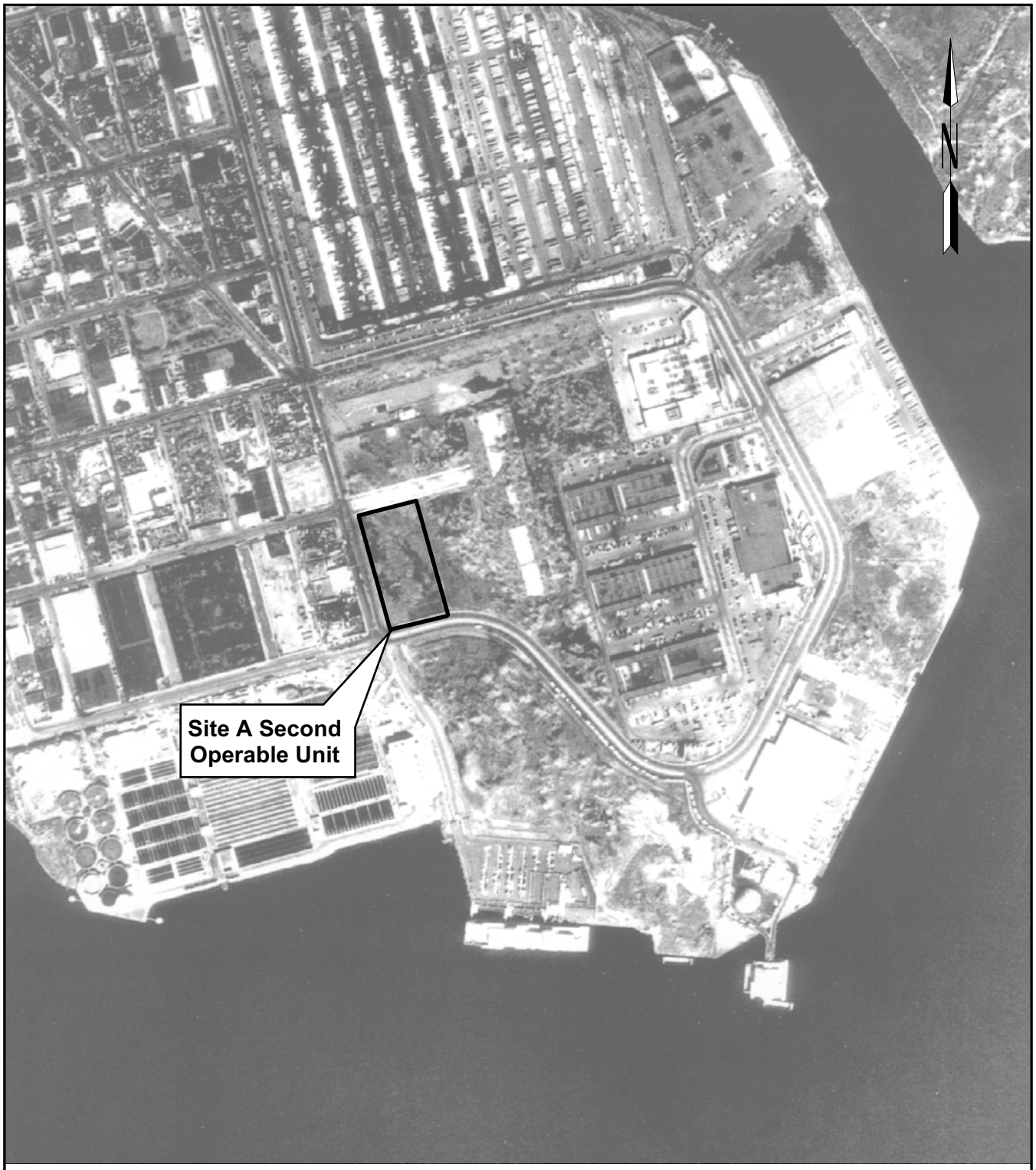
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site A - Second Operable Unit** **1984 Aerial Photograph**	**Aerial Photo 4**



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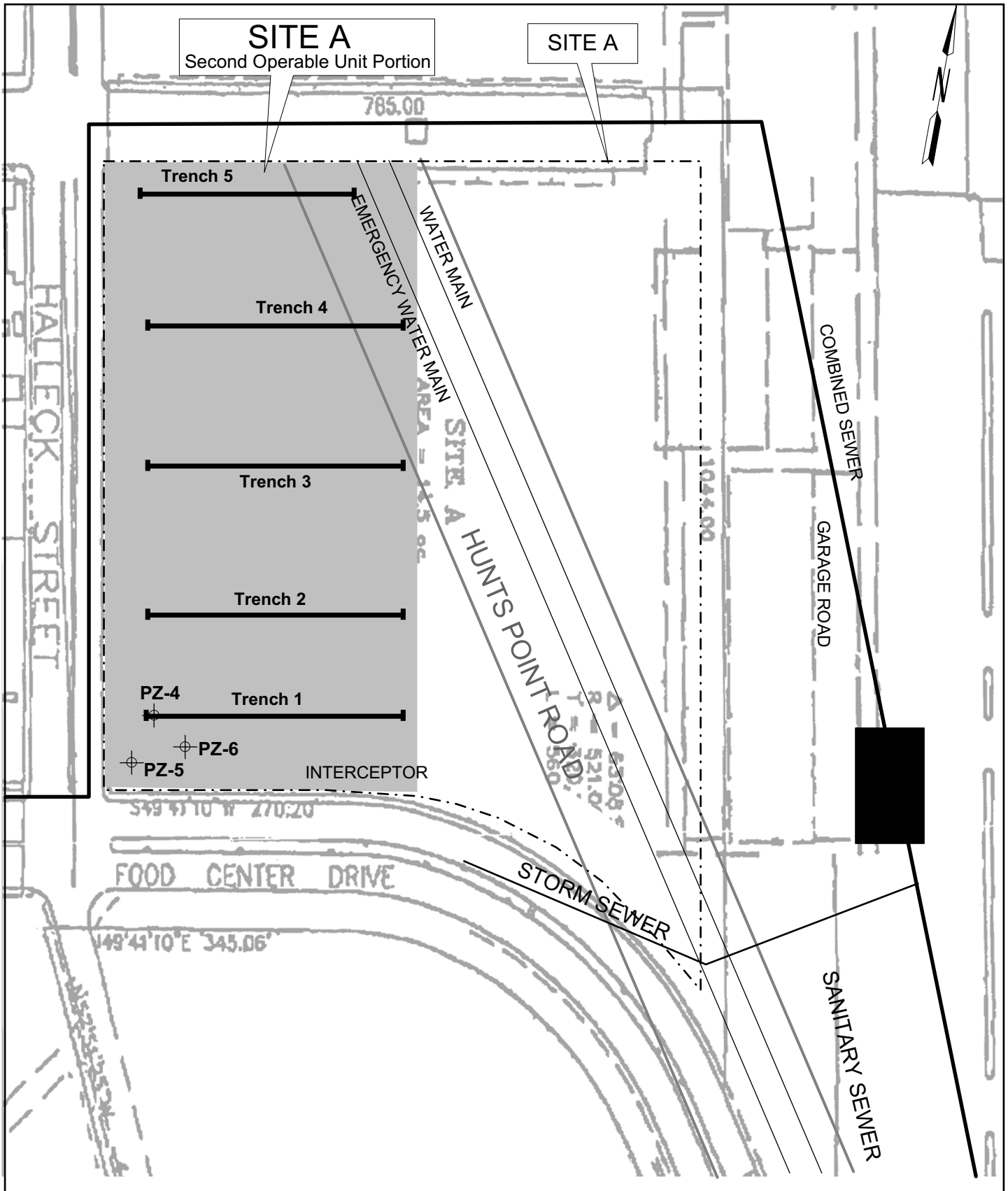
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site A - Second Operable Unit** **1994 Aerial Photograph**	**Aerial Photo 5**



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Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site A Second Operable Unit Portion** **Trench Locations** **Hunts Point**	**Figure 5**

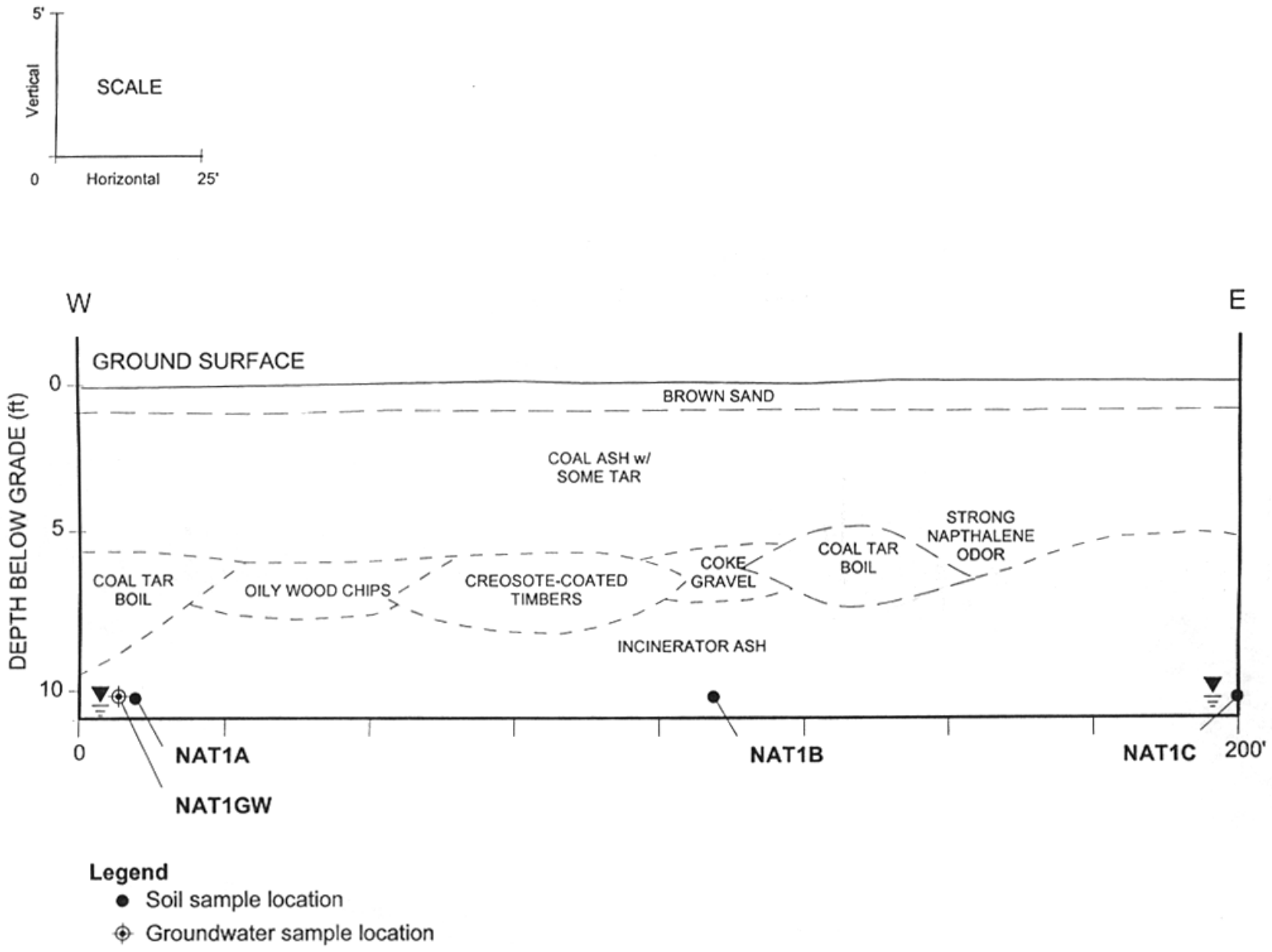
Soil samples were collected at three locations across each trench. Three grab samples were collected for target compound list volatile organics (TCL VOCs) analysis using EPA Method 8260. A composite sample was also collected from each trench and submitted for analysis of semivolatile organic compounds (SVOCs), target analyte list (TAL) metals, cyanide, and pesticides/PCBs. Two additional samples of coal tar and purifier bed waste were collected to characterize the distinct types of waste encountered on Site. Groundwater samples were collected directly from the trenches at two separate locations and submitted for analysis of TCL VOC, SVOC, Pesticide/PCB, metals and cyanide. The samples were filtered in the field for all metals using an inline filtration apparatus and then preserved prior to shipment to the laboratory. All samples were placed in the appropriate laboratory supplied containers and shipped at 4°C under chain-of-custody-protocol via overnight courier to the contract analytical laboratory.

Typically, fill material consisted of an upper layer of coal ash, which overlaid a layer of incinerator ash. The depth and thickness of these layers varied in each trench as well as from trench to trench. Purifier wastes were present predominantly on the eastern side of the Site. Automobile parts were typically encountered just below the surface at the western side of the Site and were prevalent in Trenches 2, 3 and 4. Groundwater was encountered between 9 and 11 ft below grade.

A brief description of each trench installed at the Second Operable Unit of Site A follows.

Trench 1

Trench 1 was excavated at the southwestern most end of second operable unit of Site A, 50 ft. north of the fence at the property line (Figure 5). The trench was a total of 200 ft long and averaged 11ft in depth. A cross section describing the material and depths of the trench as well as sampling locations is illustrated in Figure 6. Fill material consisted of varying amounts of coal ash and tar, which overlaid a layer of incinerator ash. Groundwater was encountered at an average depth of 11 ft below grade. Along the trench at 11 linear ft from the western end, coal tar was encountered at a depth of 6 ft. The layer of coal tar was 3 ft thick and was present along the trench for 11 ft before pinching out at 22 linear ft from the western end of the trench. At 44 ft the coal ash layer thickened up to 6 ft in thickness, and the grain size was predominantly finer. Creosote coated timbers and planks were encountered 6 ft below grade, 72 linear ft from the western end of the trench. A boil of coal tar was present between 120 and 140 linear feet from the western end of the trench. Due to the presence of the tar boil, excavating did not exceed beyond 5 ft below grade to avoid digging tar out. The tar boil ended at 140 ft and the backhoe resumed excavating to a depth of 11 ft, at which point the fill had a noticeably strong naphthalene like odor. The odor became increasingly stronger as excavating continued eastward. A layer of fine black coal ash 5 ft thick began at the end of the tar boil at 140 ft. Some coal tar was mixed in with the coal ash. Beneath the layer of coal tar was a layer of incinerator ash. No other significant evidence of soil or groundwater contamination was present in this trench



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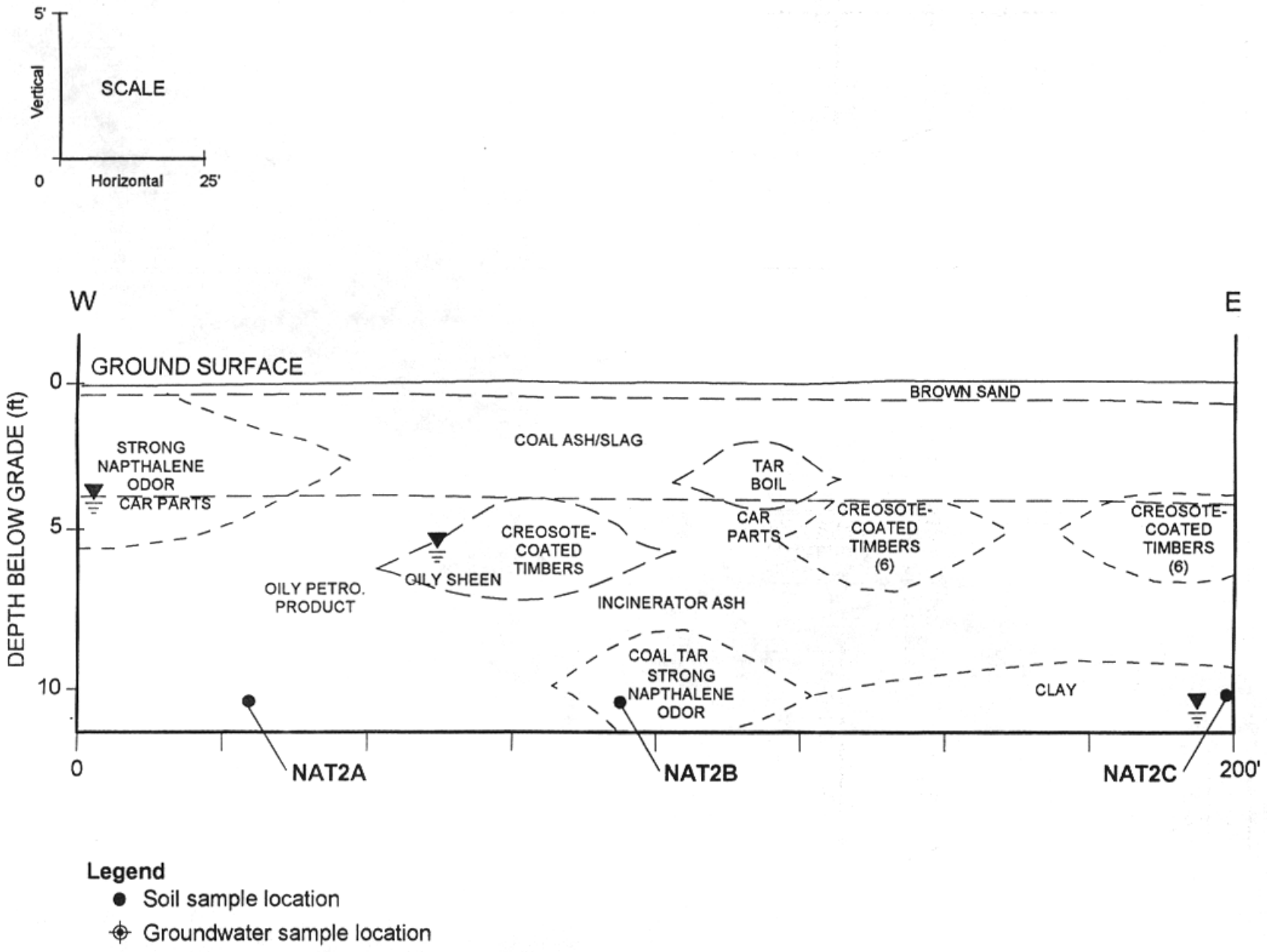
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Trench 1 Site A** **Second Operable Unit** **Hunts Point**	**Figure 6**

Trench 2

Trench 2 was excavated 100 ft north of Trench 1 (Figure 5). The trench extended a total of 200 ft and averaged in depth from 4 ft at the start of the western end of the trench to 10 ft in the middle of the trench and finished at the eastern portion of the trench at 12 ft below grade. A cross section describing the material and depths of the trench as well as sampling locations is illustrated in Figure 7. At the onset of excavating Trench 2 a very distinct naphthalene odor was encountered. Initially fill material consisted of a 2 ft layer of brown topsoil followed by a 2 ft layer of black coal ash, slag and tar. Automobile parts such as rims, tires, and car seats were dispersed throughout this portion of the trench. Due to the presence of the automobile parts, excavating of the trench did not exceed 4 ft in depth. However, perched water was encountered in the fill at a depth of 4 ft water was encountered. A sheen was present on the water. The automobile parts extended for 20 ft from the western end of the trench, at which point the excavation was extended from a depth of 4 ft to 10 ft. The fill material also changed at this location. The first 2 ft consisted of coal ash and a soft tar which exhibited a strong naphthalene odor overlying grey silt. Water was perched above the grey silt at a depth of 4ft below grade. Incinerator ash was present below the silty layer. Water located just above the incinerator ash was very oily and had sheen on it. Petroleum product was encountered 34 ft from the western end of the trench at 6ft below grade. Due to the presence of oily product excavating did not continue below a depth of 6 ft. Trenching at this depth continued until 63 linear ft from the western end of the trench. Steel plates, possibly part of a tank as well as creosote coated timbers and pipes were encountered at 75 linear ft from the western end of the trench. A viscous liquefied coal tar with a strong naphthalene odor was encountered above the water table 8 ft below grade. Small amounts of tar were oozing out of the side of the excavation above the water table at an approximate depth of 8ft below grade and accumulating over time. Automobile parts, consisting of seats, tires, mufflers, and other metallic body parts were encountered 3 ft below grade in the coal ash layer at 100 ft and extended to 113 ft from the western end of the trench. A crushed steel tank with three fill ports was encountered at 100 ft from the western end of the trench. It was difficult to estimate the former size of the tank; however it appeared to be less than 1,000 gallons. A tar boil was encountered at 3 ft below grade from 113 ft to 120 ft from the western end of the trench. Six large creosote coated timbers exhibiting a distinct naphthalene odor were removed from at 130 linear ft from the western end of the trench. A clay layer was present just below the timbers. Groundwater was situated just above this clay layer at 11 ft below grade. At 149 ft from the western end of the trench, the fill material changed abruptly to brown incinerator ash and coal slag inter-layered with black coal ash and tar above grey organic clay. Creosote coated timbers were encountered at 200 ft from the western end of the trench. A strong naphthalene odor was present from 149 ft to 200 ft from the western end of the trench. No other significant evidence of soil or groundwater contamination was present in this trench.



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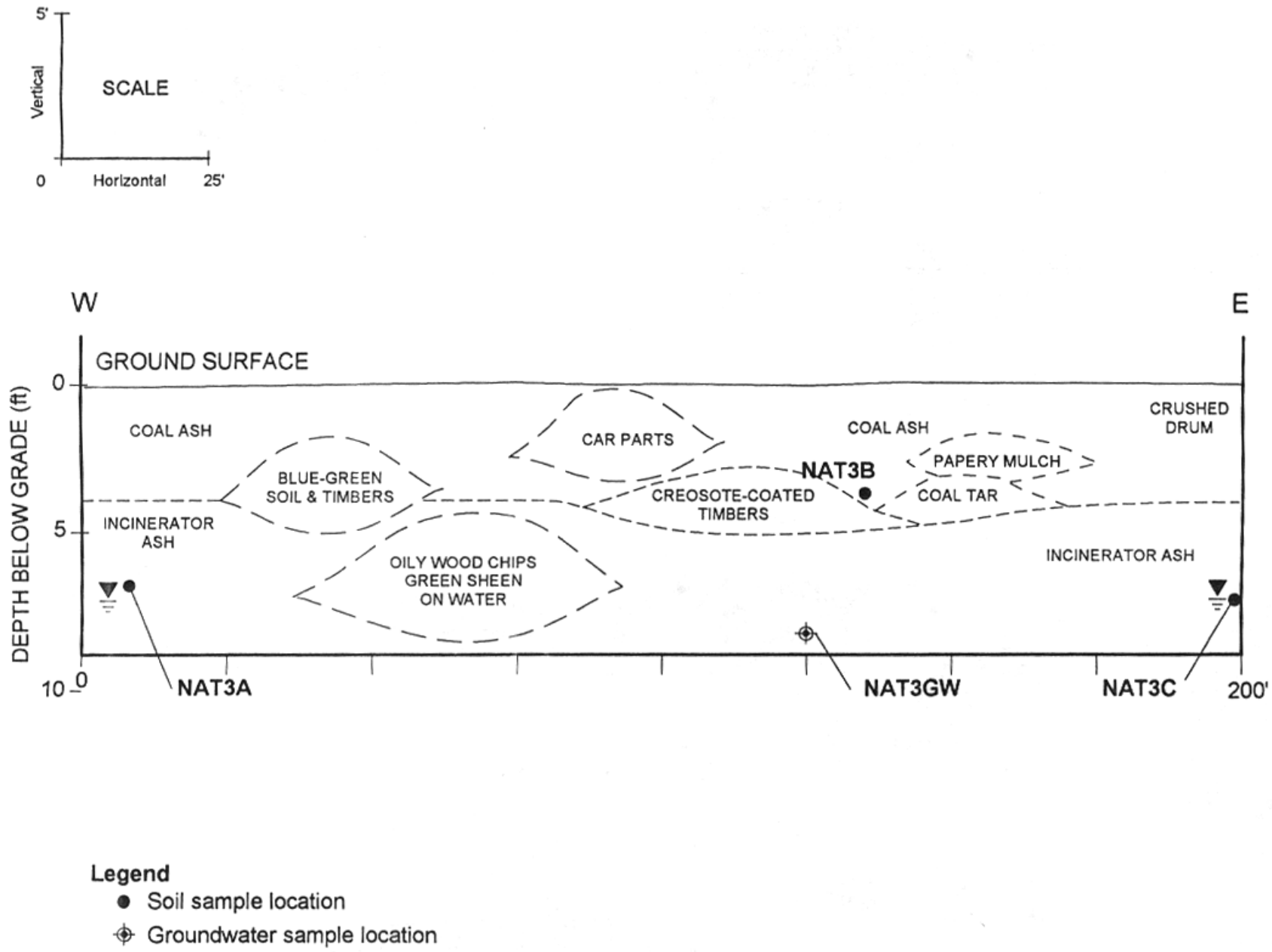
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Trench 2 Site A** **Second Operable Unit** **Hunts Point**	**Figure 7**

Trench 3

Trench 3 was excavated 100 ft north of Trench 2 (Figure 5). The trench was a total of 200 ft in length and the average depth of the trench was 9 ft below grade. A cross section describing the depths, materials and sampling locations within the trench is included as Figure 8. Fill material consisted of a brown-black coal ash layer and a lower, black incinerator ash. Grey organic clay layer was present at 9 ft below grade; excavation did not extend below the clay layer. A strong organic odor was noted and was attributed to the clay layer. Groundwater was present above the clay layer at 9 ft below grade. At the onset of excavation 6 ft below grade, a grey green silt was encountered which exhibited a more noticeable petroleum odor. The silt extended 6 linear ft along the trench. Creosote coated timbers were encountered at 27 linear ft and a distinct naphthalene odor was associated with this region of the trench. Blue-green stained soil and timbers, indicative of purifier bed wastes, were encountered between 33-36 linear ft, 4 ft below grade. Some small pipes were present in the timbers. At 49 ft from the western end of the trench, the black coal ash had a very distinct organic and naphthalene odor associated with it. At the same location 9 ft below grade oily wood chips were excavated. The wood chips also contained some incinerator ash, porcelain and glass. The water table at this location has a green sheen. Automobile parts such as tires, rims, and mufflers were encountered at 70 linear ft from the western end of the trench at a depth of 2-3 ft below grade. The automobile parts extended to 100 linear ft from the western end of the trench. Groundwater was present at 9 ft below grade, and from 49 to 100 linear feet from the western end of the trench exhibits a green oily sheen. Creosote coated timbers were encountered at 110 linear ft from the western end of the trench at depths of 4-8 feet below grade. A 6 inch diameter section of steel pipe was encountered 4 ft below grade at 122 ft from the western end of the trench. The composition of the fill material changed at this location. The first 2 ft consisted of a blend of coal tar, ash, and slag underlain by a 5 ft layer of incinerator ash. Below the incinerator ash, to a depth of 9 ft, timbers and coal tar are present. A very thin seam (less than 2 in.) of soft coal tar was encountered 4 ft below grade between 134 and 177 linear feet from the western end of the trench. Located directly above the coal tar is a 6 inch thick layer of pulp (papery material) present to the end of the trench at 200 ft. Also located at 134 ft is a 2 in diameter pipe 3 ft below grade. A groundwater sample was collected from this trench 4 ft below grade and 134 linear ft from the western end of the trench. A crushed drum was encountered at 190 linear ft from the western end of the trench. The drum was not noted to contain and contents or markings that would identify it.

Trench 4

Trench 4 was excavated 100 ft north of Trench 3 (Figure 5). The trench was a total of 200 ft long and averaged in depth from 9 ft at the western end of the trench to 11 ft at the eastern end of the trench. A cross section describing the material and depths of the trench as well as sampling locations is illustrated in Figure 9. Fill material consisted of an upper brown silty-sandy layer underlain by a layer of coal and incinerator ash. At the onset of excavation, a 2 ft layer of coal tar was encountered



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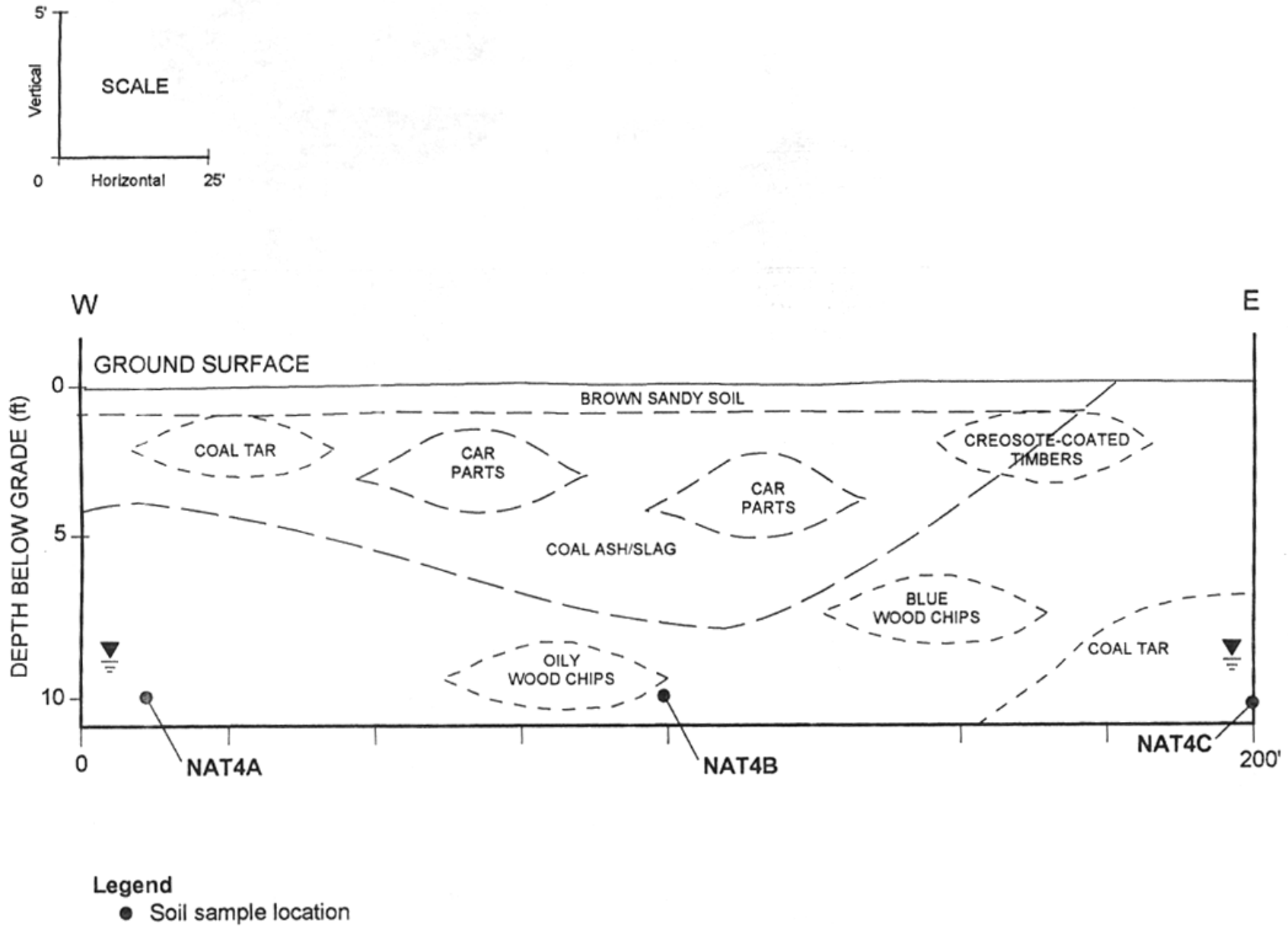
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Trench 3 Site A** **Second Operable Unit** **Hunts Point**	**Figure 8**



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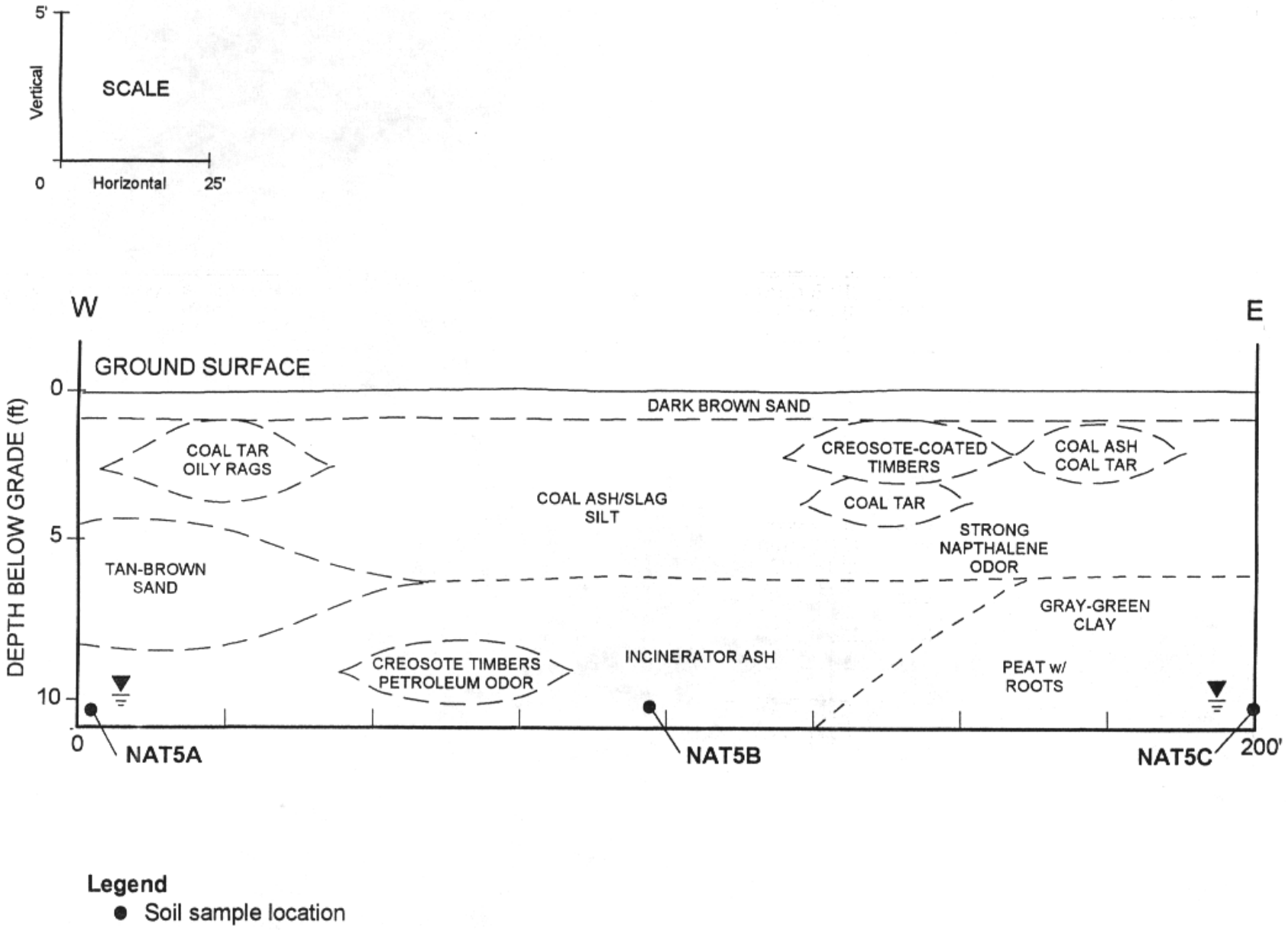
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Trench 4 Site A** **Second Operable Unit** **Hunts Point**	**Figure 9**

between 1 and 3 ft below grade. Water was perched above this tar layer. Groundwater was generally encountered between 9 and 10 ft below grade. At 24 linear ft from the western end of the trench, a 3 inch thick layer of coal tar exhibiting a naphthalene odor was encountered 2 ft below grade. Coal tar was again encountered 2 ft below grade from 42 to 50 linear ft from the western end of the trench. Automobile parts were encountered 2 ft below grade from 67 to 71 linear ft from the western end of the trench. Oily wood chips encountered from 81 to 86 linear feet from the western end of the trench at a depth of 9 ft below grade. At black to gray silty layer was encountered at 4 ft below grade from 94 to 110 linear feet from the western end of the trench. Automobile parts were encountered from 110 to 115 linear feet from the western end of the trench. At 110 linear feet from the western end of the trench, the upper layer of brown sandy soil thickened and contained little silt. The overall depth of the upper sandy layer ranged from the ground surface to 8 ft below grade. Incinerator ash is present below the sandy layer at depths from 8 to 11 feet below grade. A grey silty layer was encountered at 2 ft below grade, 116 linear feet from the western end of the trench. Tires, a crushed drum and a rug were encountered at 136 linear feet from the western end of the trench. Blue stained wood chips were encountered at 6 to 8 ft below grade from 136 to 147 linear feet from the western end of the trench. At 149 linear feet creosote coated timbers were encountered at 3 ft below grade. The upper sandy layer pinched out at 157 linear feet from the western end of the trench. The fill material from 157 to 200 linear feet from the western end of the trench was composed of coal and incinerator ash, coal slag and some glass and bricks. A layer of coal tar 6 inches thick at 10 ft below grade was encountered from 180 to 200 linear feet from the western end of the trench.

Trench 5

Trench 5 was located 150 ft north of Trench 4, 81 ft east of Halleck Street and 98 ft south of Viele Avenue. The trench extended a total of 168 ft (Figure 5). A cross section describing the material and depths of the trench as well as sampling locations is illustrated in Figure 10. Trench 5 had an average depth of 8 ft at the western end of the trench and 9 ft at the eastern end of the trench. Trench 5 had several stratigraphic layers that remained consistent throughout most of the trench. The upper layer consisted of dark brown sand containing some gravel. Below the upper sandy layer was a grey silty layer that was sandwiched between two thin coal ash layers. The lower layer consisted of coarse sand that was initially tan brown in color but changed abruptly to a grey color at 27 linear ft from the western end of the trench. Groundwater was encountered at 8 ft. Coal tar and oily rags were encountered at 1 ft below grade from 12 to 19 linear feet from the western end of the trench. Bricks and creosote coated timbers with a naphthalene odor were encountered 10 ft below grade 47 to 74 linear feet from the western end of the trench. Coal ash, some coal tar, creosote coated timbers, and some brick fragments were encountered at 1 to 2 ft below grade from 102 to 107 linear feet from the western end of the trench. A layer of grey green clay containing some shells along with some peat and meadow mat was encountered 7 ft below grade at 135 linear feet from the western end of the trench. Coal ash with some tar was encountered at 140 linear feet from the western



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LMS **Lawler, Matusky & Skelly Engineers LLP** One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Trench 5 Site A** **Second Operable Unit** **Hunts Point**	**Figure 10**

end of the trench. The middle layer of silt began to pinch out and a clay layer was present at 168 linear feet at a depth of 5 ft below grade. No other significant evidence of soil or groundwater contamination was present in this trench.

Deep Boring Installation and Sampling Procedures

Three (3) deep borings were installed at Site A SOU utilizing a truck mounted probe rig (Figure 11). Deep borings were labeled with the prefix DB followed by the boring number designation (i.e.DB-1).

The purpose of the borings was to determine whether the subsurface had been affected by the former Site activities, more specifically to determine whether dense non-aqueous phase liquid (DNAPL) was present.

Continuous soil samples were collected in 4 ft intervals from grade to the bottom depth of the boring. The borings were advanced to refusal on what is either bedrock or a layer of boulders. Samples were collected in dedicated acetate liners and upon removal from the sampling tube, each sample was closely inspected for physical characteristics including: color, material type and composition, relative grain size and distribution, presence of free moisture, potential confining characteristics, evidence of contamination, and degree and orientation of contaminated bedding. Soil descriptions were logged by the on-site geologist and are included as Attachment A. Probe equipment was decontaminated between sampling depths using cold wash techniques.

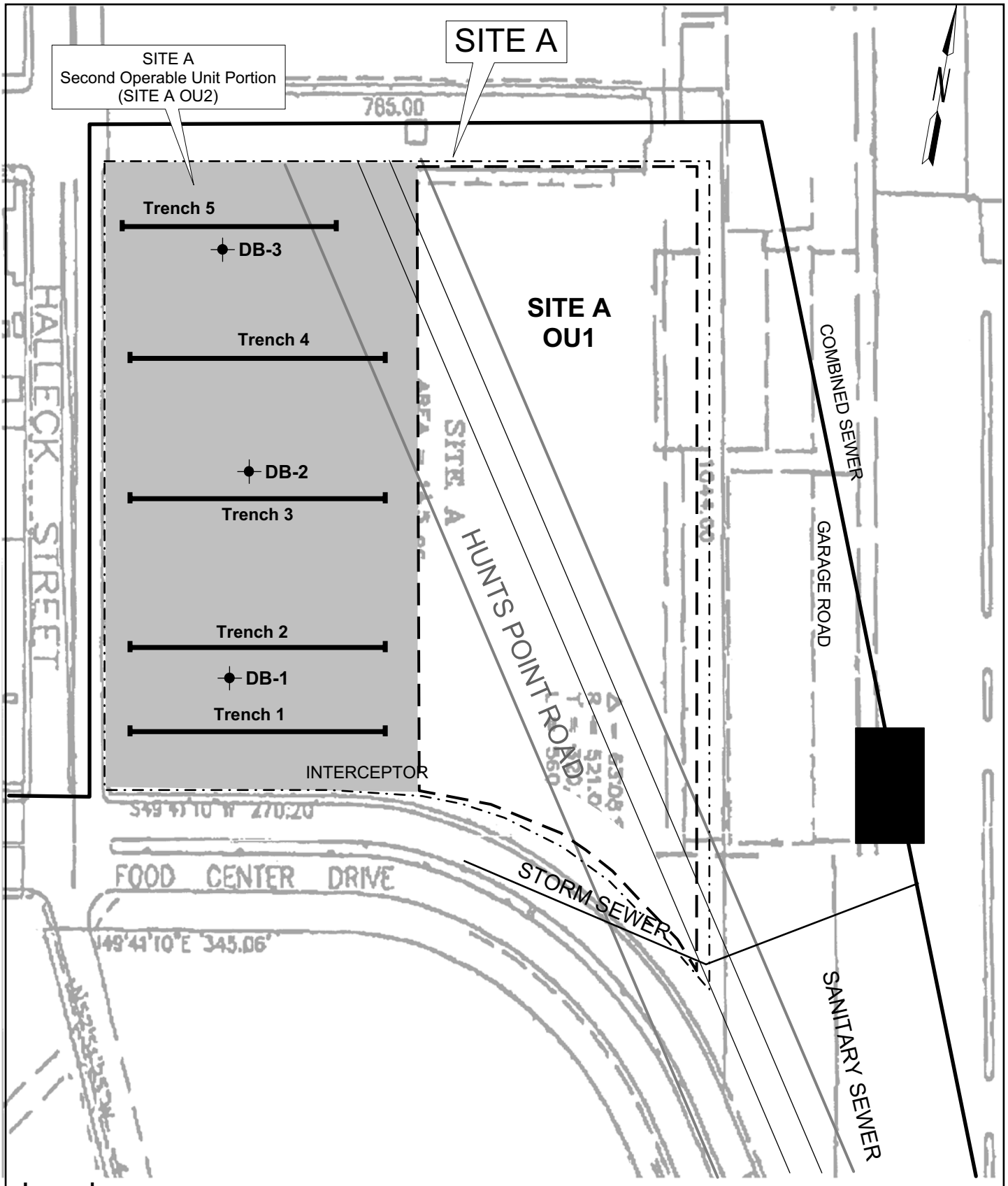
All three borings (DB-1, DB-2 and DB-3) were installed to a final depth of 40 ft below grade. DNAPL was not encountered in any of the borings

Following completion of each boring, sand and bentonite were placed in the borehole to grade. All down-hole sampling equipment, including the deck of the probe rig was decontaminated using cold wash techniques before leaving the Site.

Supplementary Investigation

Upon completion of the initial investigation at Site A SOU and upon review of the investigatory data, a supplemental investigation was proposed to further document the extent of coal tar on the Site.

An additional 13 shallow borings and 3 temporary piezometers were installed as part of the supplemental investigation. The primary purpose of the shallow borings was to delineate and determine the extent of the coal tar encountered in the trenches. The temporary piezometers were installed to further define groundwater quality on the Site.



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Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site A Second Operable Unit Portion** **Deep Boring Locations** **Hunts Point**	**Figure 11**

Shallow Boring Installation and Sampling Procedures

Thirteen (13) shallow borings were installed at Site A SOU utilizing a truck mounted probe rig (Figure 12). Shallow borings were labeled with the prefix GP followed by the boring number designation (i.e. GP-1).

The purpose of the borings was to determine the aerial and vertical extent of the coal tar encountered in the trenches.

Continuous soil samples were collected in 4 ft intervals from grade to the bottom depth of the boring. The borings were advanced to the bottom elevation of coal tar (if encountered) or the water table, whichever came first. Samples were collected in dedicated acetate liners and upon removal from the sampling tube, each sample was closely inspected for physical characteristics including: color, material type and composition, relative grain size and distribution, presence of free moisture, potential confining characteristics, evidence of contamination, and degree and orientation of contaminated bedding. Soil descriptions were logged by the on-site geologist and are included as Attachment B. Probe equipment was decontaminated between sampling depths using cold wash techniques.

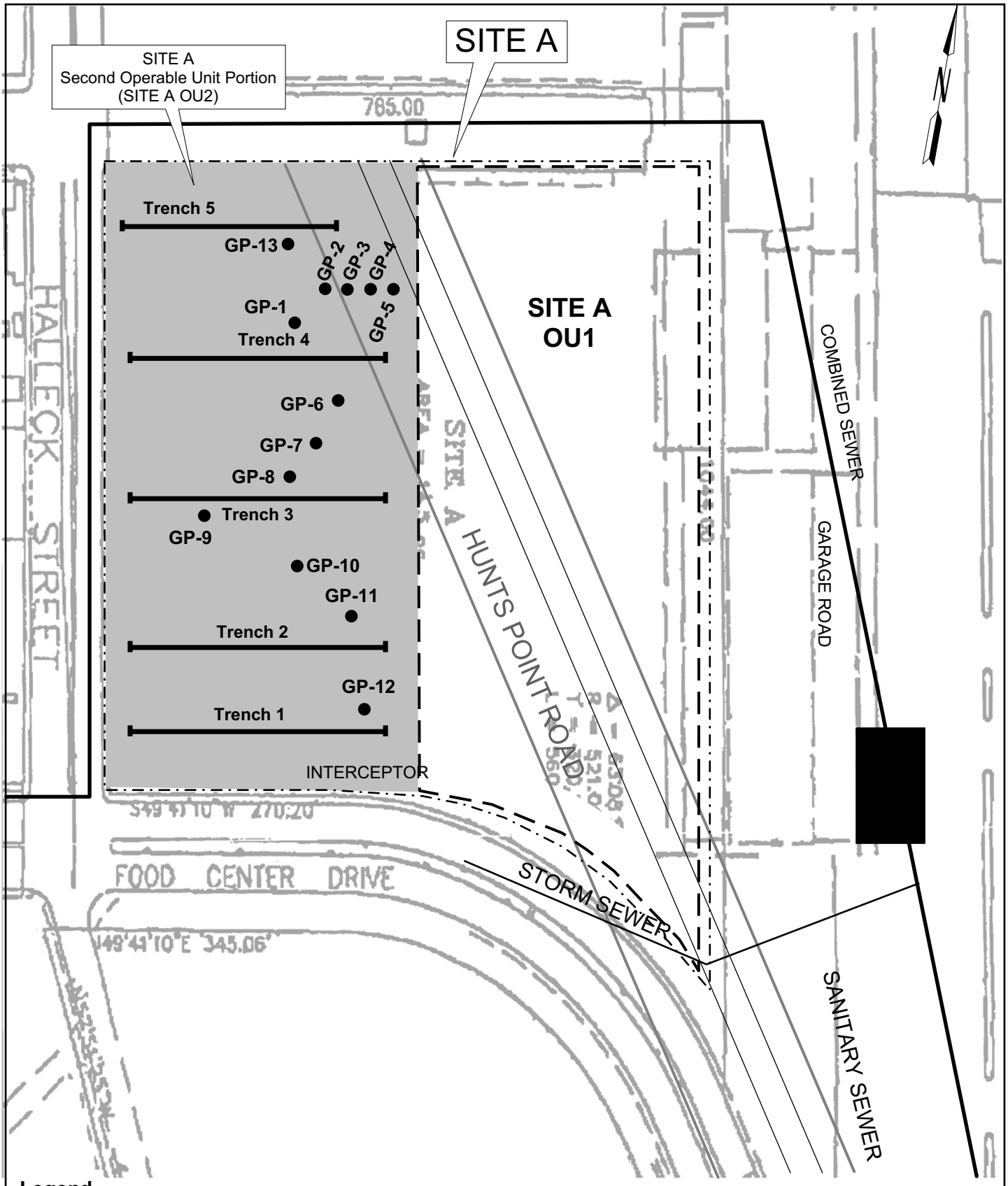
Following completion of each boring, sand and bentonite were placed in the borehole to grade. All down-hole sampling equipment, including the deck of the probe rig was decontaminated using cold wash techniques before leaving the Site.

Coal tar was encountered above the water table in 8 of the 13 borings installed and ranged in thickness from a few inches up to one foot. The findings are consistent with what was encountered during the trenching investigation, in that coal tar is predominantly present on the eastern side of the Site.

Temporary Piezometer Installation and Sampling Procedures

While groundwater was encountered in all of the trenches installed at Site A SOU; it was decided to install three (3) temporary piezometers to monitor groundwater quality at the Site (Figure 13). The piezometer locations were selected based on the subsurface conditions observed in the trenches. Piezometers were placed in an effort to further define the subsurface conditions noted in the trenches as well as to define groundwater quality on the Site. Piezometers were labeled with the prefix PZ followed by the location number designation (i.e. PZ-1).

The piezometers were installed on 25 September 2001, using a truck-mounted probe. Soil samples were collected in dedicated acetate liners in 4 ft intervals from grade to the bottom depth of each boring. Soil samples were collected into the water table to document conditions at the soil/water interface; groundwater was typically encountered at about 9 ft below grade. Upon removal of each liner, the sample was closely inspected for physical characteristics including: color, material type and composition, relative grain size and distribution, presence of free moisture, potential confining characteristics, evidence of contamination, and degree and orientation of contaminated bedding. Soil descriptions were logged by the on-site geologist and are



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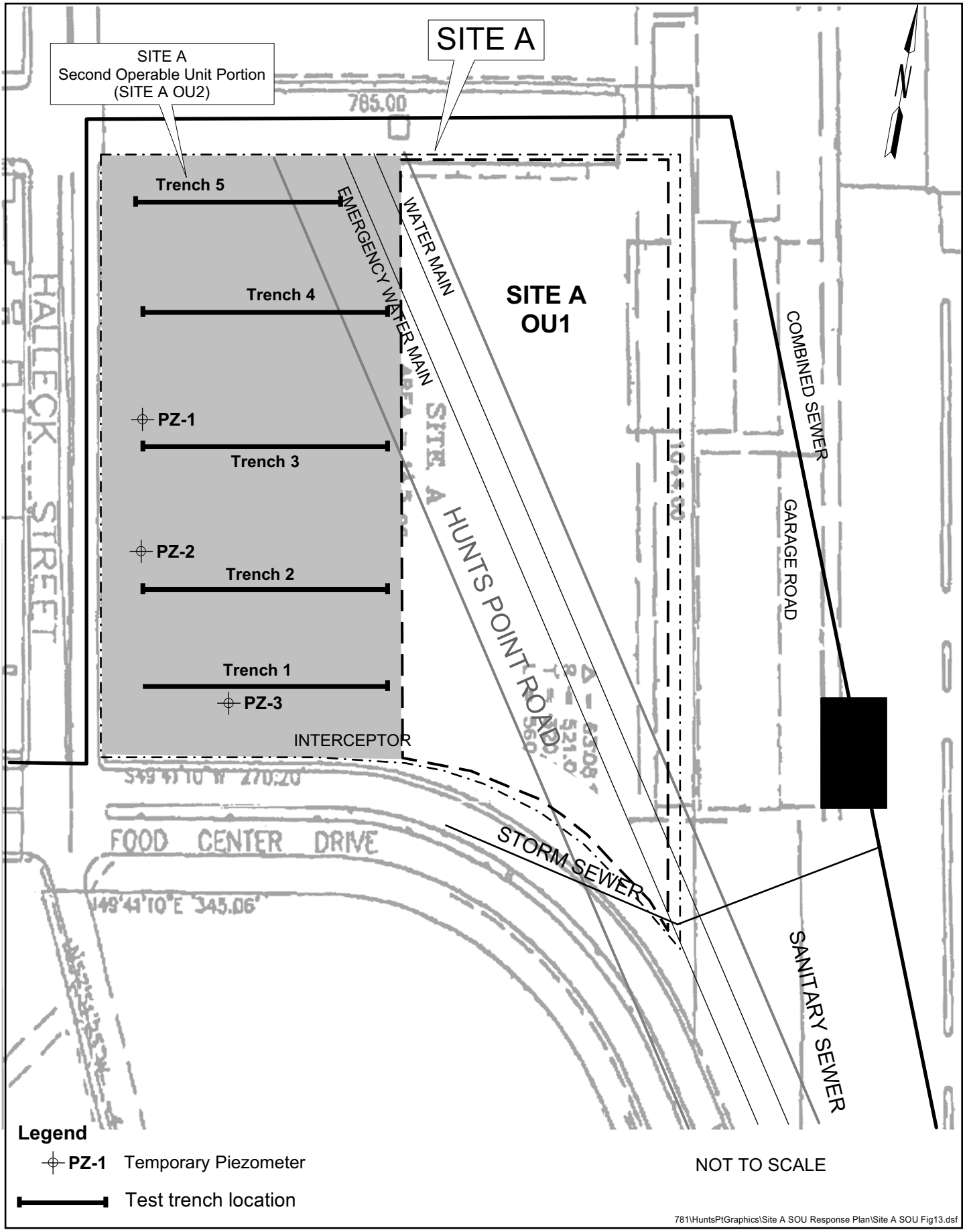
Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site A Second Operable Unit Shallow Boring Locations** **Hunts Point**	**Figure 12**



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LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site A Second Operable Unit Portion** **Temporary Piezometer Locations** **Hunts Point**	**Figure 13**

included as Attachment C. Sampling equipment was decontaminated between borings using cold wash techniques. Piezometers were installed to a depth of 5 ft below the water table and were constructed of 5 ft of 2-in inside diameter Schedule 40 PVC 0.010 slot screen and riser to grade. The piezometer was backfilled with #2 Morie sand to 2 ft above the top of the screen with a 2 ft bentonite seal, the remainder of the annulus of the boring was backfilled with cuttings from the boring to grade.

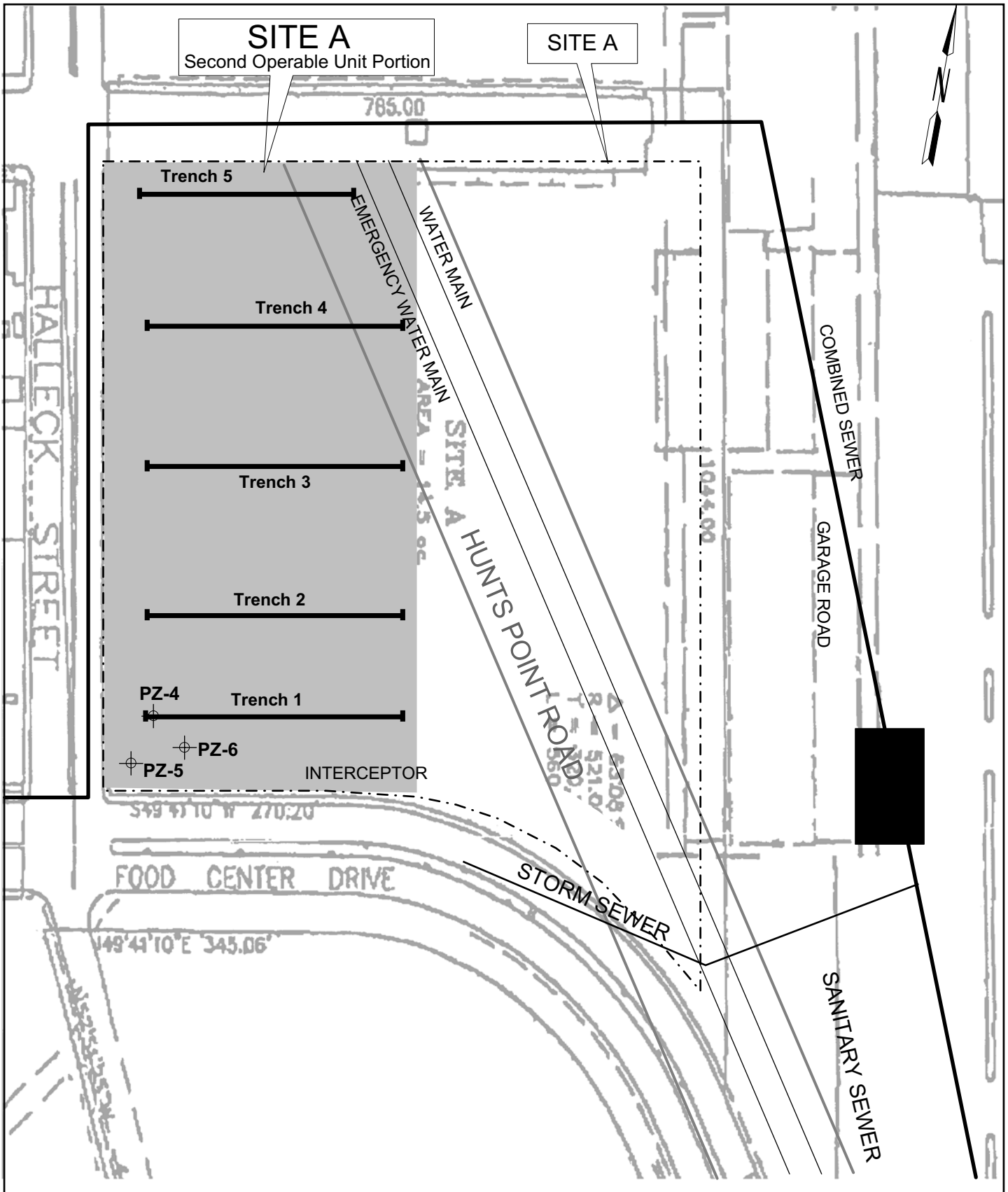
Groundwater samples were collected from the piezometers on 27 September 2001. Samples were collected and submitted under chain of custody protocol at 4°C via overnight courier for analysis of VOCs, filtered and unfiltered SVOCs, pesticides/PCBs, cyanide, and filtered and unfiltered TAL metals.

Additional Temporary Piezometers Installation and Sampling Procedures

Upon completion of the Supplemental Investigation, an additional 3 temporary piezometers were installed at the Site (Figure 14). The piezometer locations were selected based on the groundwater sampling results from the first three (3) temporary piezometers installed on 25 September 2001. Piezometers were placed in an effort to further define groundwater quality on the Site in the vicinity of the western end of Trench 1. Piezometers were labeled with the prefix PZ followed by the location number designation (i.e. PZ-4).

The piezometers were installed on 6 November 2002, using a truck-mounted probe. Soil samples were collected in dedicated acetate liners in 4 ft intervals from grade to the bottom depth of each boring. Soil samples were collected into the water table to document conditions at the soil/water interface; groundwater was typically encountered at about 9 ft below grade. Upon removal of each liner, the sample was closely inspected for physical characteristics including: color, material type and composition, relative grain size and distribution, presence of free moisture, potential confining characteristics, evidence of contamination, and degree and orientation of contaminated bedding. Soil descriptions were logged by the on-site geologist and are included as Attachment D. Sampling equipment was decontaminated between borings using cold wash techniques. Piezometers were installed to a depth of 5 ft below the water table and were constructed of 5 ft of 1.5-in inside diameter Schedule 40 PVC 0.010 slot screen and riser to grade. The piezometer was backfilled with #2 Morie sand to 2 ft above the top of the screen with a 2 ft bentonite seal, the remainder of the annulus of the boring was backfilled with cuttings from the boring to grade.

Groundwater samples were collected from the piezometers on 6 November 2002. Samples were collected and submitted under chain of custody protocol at 4°C via overnight courier for analysis of cyanide and filtered and unfiltered TAL metals.



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Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Additional Temporary Piezometer Locations** **Hunts Point**	**Figure 14**

SAMPLING RESULTS

Trench Soil Samples

A total of 17 grab samples and five composite samples were collected from the 5 trenches installed at Site A SOU (see Figures 5 through 10). Samples were collected from each trench at areas exhibiting the greatest degree of contamination. Sample results are included as Tables 1 through 5. Grab samples were submitted to the contract analytical laboratory for analysis of VOCs using EPA Method 8260. Composite samples were submitted for analysis of SVOCs using EPA Method 8270, TAL Metals, Pesticides/PCBs using EPA Methods 8081 and 8082, and cyanide. Volatile, semivolatile and pesticides/PCBs analyses results were compared to the NYSDEC TAGM (January 1994). Metals analyses results were compared to Eastern USA background and the TAGM criteria.

Soil samples were collected at set locations along each trench. Typically, the trenches were separated into three sections that allowed for the collection of three grab samples and one composite sample for each section. Each sample was labeled according to its location along the trench. As an example, Trench 1 was divided into three sections labeled A through C; the composite sample was labeled with the suffix D. The samples were finally labeled with the Site identification and the section of the trench it was collected from. For example, the sample labeled NAT1A was collected from Site A SOU, Trench 1, section A.

A description of the sampling results for each trench follows.

Trench 1

Trench 1 was 200 ft long and was divided into 3 sampling sections labeled A through C. A total of 3 grab samples and 1 composite sample were collected from Trench 1. Results are summarized below and in Table 1**.**

Volatile Organic Compounds: Concentrations of VOCs were not detected in two (2) of the three (3) samples collected. Sample NAT1C was collected from an area containing coal tar and contained concentrations of VOCs that well exceeded the recommended soil cleanup objectives.

Semivolatile Organic Compounds: Concentrations of several SVOCs were detected at levels exceeding the recommended soil cleanup objectives in sample NAT1D. The compounds detected above the recommend soil cleanup objectives were indicative of coal ash and tar and included the following: phenol, 2-methylphenol, 4-methylphenol, naphthalene, 2-methylnaphthalen, acenaphthalene, acenapthene, dimethylphthalate, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #1

LMS Sample ID	NAT1A	NAT1B	NAT1C		RECOMMENDED
Lab Sample Number	219636-05	219636-06	219636-07		SOIL CLEANUP
Sampling Date	8/10/2000	8/10/2000	8/10/2000		OBJECTIVE (a)
Matrix	SOIL	SOIL	SOIL		
Units	mg/kg	mg/kg	mg/kg [DF 5:1]		
VOLATILE ORGANIC COMPOUNDS (mg/kg)					
Chloromethane	ND	ND	ND		1
Bromomethane	ND	ND	ND		1
Trichloroflouromethane	ND	ND	ND		1
Acetone	ND	ND	0.093		0.2
Carbon Disulfide	ND	ND	ND		2.7
Methylene Chloride	ND	ND	ND		0.1
Methyl tert-butyl ether	ND	ND	ND		1
2-Butanone	ND	ND	**21**	**j**	0.3
Benzene	ND	ND	**24**	**[DF 5:1]**	0.06
Trichloroethene	ND	ND	ND		0.7
4-Methyl-2-pentanone	ND	ND	ND		1
Toluene	ND	ND	**36**	**[DF 5:1]**	1.5
Tetrachloroethene	ND	ND	ND		1.4
Ethylbenzene	ND	ND	1.7	j [DF 5:1]	5.5
Xylene (Total)	ND	ND	**52**	**[DF 5:1]**	1.2
Styrene	ND	ND	13	[DF 5:1]	1
Isopropylbenzene	ND	ND	ND		1
n-Propylbenzene	ND	ND	ND		1
1,3,5-Trimethylbenzene	ND	ND	ND		1
tert-Butylbenzene	ND	ND	ND		1
1,2,4-Trimethylbenzene	ND	ND	ND		1
sec-Butylbenzene	ND	ND	ND		1
4-Isopropyltoluene	ND	ND	ND		1
1,3-Dichlorobenzene	ND	ND	ND		1.6
n-Butylbenzene	ND	ND	ND		1
1,2,4-Trichlorobenzene	ND	ND	ND		3.4
Hexachlorobutadiene	ND	ND	ND		1
Naphthalene	ND	ND	ND		13
1,2,3-Trichlorobenzene	ND	ND	ND		1
Total VOCs	**0**	**0**	**147.793**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limi
ND - Not detected at analytical detection limi

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #1

LMS Sample ID	NAT1D		RECOMMENDED
Lab Sample Number	219636-08		
Sampling Date	8/10/2000		SOIL CLEANUP
Matrix	SOIL		OBJECTIVE (a)
Units	mg/kg [DF 100:1]		
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			
Phenol	**160**		0.03 or MDL
bis (2-Chloroethyl) Ether	ND		1
1,4-Dichlorobenzene	ND		8.5
2-Methylphenol	**52**		0.1 or MDL
4-Methylphenol	**150**		0.9
2,4-Dimethylphenol	44		NA
1,2,4-Trichlorobenzene	ND		3.4
Naphthalene	**1300**	[DF500:1]	13
2-Methylnaphthalene	**390**	[DF500:1]	36.4
Acenaphthylene	**290**		41
Acenaphthene	41		50
Dimethylphthalate	**8.1**	j	2
Dibenzofuran	**220**		6.2
Flourene	**300**		50
N-Nitrosodiphenylamine(1)	ND		1
Phenanthrene	**960**	[DF500:1]	50
Anthracene	**310**		50
Carbazole	ND		1
Flouranthene	**580**	[DF500:1]	50
Pyrene	**440**	[DF500:1]	50
Benzo (a) anthracene	**260**		0.224 or MDL
Chrysene	**210**		0.4
bis (2-Ethylhexyl) phthalate	ND		50
Di-n-octylphthalate	ND		50
Benzo (b) flouranthene	**270**		1.1
Benzo (k) flouranthene	**72**		1.1
Benzo (a) pyrene	**190**		0.061 or MDL
Indeno (1,2,3-cd) pyrene	**86**		3.2
Dibenz (a,h) anthracene	**33**	**j**	0.014 or MDL
Benzo (g,h,i) perylene	**65**		50
Total SVOCs	**6431.1**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limi
MDL - Method detection limit.
ND - Not detected at analytical detection limi
NA - Not Available

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #1

LMS Sample ID	NAT1D		RECOMMENDED SOIL CLEANUP OBJECTIVE (ppm)(a)
Lab Sample Number	219636-08		
Sampling Date	8/10/2000		
Matrix	SOIL		
Units	mg/kg		
METALS(mg/kg)			
Aluminum	4610	E	SB
Antimony	2.8	BN	SB
Arsenic	**14.9**		7.5 or SB
Barium	238		300 or SB
Beryllium	**0.43**	B	0.16 or SB
Cadmium	**1.6**	B	1 or SB
Calcium	3120		SB
Chromium	**23.4**		10 or SB
Cobalt	5.2	B	30 or SB
Copper	**160**		25 or SB
Iron	**18600**		2000 or SB
Lead	**496**	*N	SB****
Magnesium	2010	B	SB
Manganese	146	N	SB
Mercury	**4.6**		0.1
Nickel	**23.3**		13 or SB
Potassium	990	B	SB
Selenium	1.8		2 or SB
Silver	2	B	SB
Sodium	175	B	SB
Thallium	1.0 B	B	SB
Vanadium	30.8		150 or SB
Zinc	**375**	N	20 or SB
Cyanide, Total	23.2		***
Total Metals	**31054.03**		

*** - Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objective
**** - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm ir metropolitan or suburban areas or near highways
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
B - Value is less than the contract-required detection limit but greater than the instrument detection lim
SB - Site background.

E - The Report Value is estimated because of the presence of interference.

N - Spiked sample recovery not within control limits.

* - Duplicate analysis not within control limits.

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #1

LMS Sample ID	NAT1D	
Lab Sample Number	219636-08	
Sampling Date	8/10/2000	RECOMMENDED
Matrix	SOIL	SOIL CLEANUP
Units	mg/kg [DF 20:1]	OBJECTIVE (a)
PESTICIDES/PCBs (mg/kg)		
alpha-BHC	ND	0.11
delta-BHC	ND	0.3
Aldrin	ND	0.041
Heptachlor epoxide	ND	0.02
Dieldrin	ND	0.044
Endrin	ND	0.1
Endosulfan sulfate	ND	1
4,4'-DDT	ND	2.1
Methoxychlor	ND	[1]
Endrin ketone	ND	[1]
Endrin aldehyde	ND	[1]
alpha-Chlordane	ND	0.54
gamma-Chlordane	ND	0.54
Aroclor-1254	ND	1.0/10*
Aroclor-1260	ND	1.0/10*

* - Suface/Sub-surface
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
ND - Not detected at analytical detection limit

Pesticides/PCBs: Pesticides and PCBs were not detected in the sample collected from Trench 1.

Metals: Several metals were detected above the recommended soil cleanup objectives in the sample collected from Trench 1. Compounds detected above the recommended soil criteria are as follows: arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc

Trench 2

Trench 2 was 200 ft long and was divided into 3 sampling sections labeled A through C. An additional grab sample of coal tar (NAT2E) was collected for analysis of SVOCs. A total of 4 grab samples and 1 composite sample were collected from Trench 2. Results are summarized below and in Table 2**.**

Volatile Organic Compounds: Overall, concentrations of VOCs were low to non-detectable in the samples collected from Trench 2, with the exception of a few compounds. Acetone, a common laboratory contaminant, was detected above the recommended soil cleanup objectives in all 3 samples (NAT2A, NAT2B and NAT2C). Benzene, ethylbenzene, and total xylene concentrations exceeded the recommended soil criteria in samples NAT2A, NAT2B, and NAT2C. Concentrations of toluene exceeded the recommend soil cleanup objective in samples NAT2B and NAT2C. Methylene chloride was detected at a concentration exceeding the recommended soil criteria in NAT2B.

Semivolatile Organic Compounds: Concentrations of several SVOCs were detected at levels exceeding the recommended soil cleanup objectives in the composite sample NAT2D. The compounds detected above the recommend soil cleanup objectives were indicative of coal ash and tar and included the following: phenol, 4-methylphenol, naphthalene, 2-methylnaphthalen, acenaphthalene, acenapthene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo (a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a) pyrene, ideno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

The sample NAT2E exhibited concentrations of compounds expected in a coal tar sample. Compounds exceeding the recommended soil cleanup objective included the following: phenol, 2-methylphenol, 4-methylphenol, naphthalene, 2-methylnaphthalene, acenaphthalene, acenapthene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo (a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

Pesticides/PCBs: Pesticides and PCBs were not detected in sample NAT2D collected from Trench 2.

Metals: Several metals were detected above the recommended soil cleanup objectives in the sample collected from Trench 2. Compounds detected above the

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #2

LMS Sample ID	NAT2A		NAT2B		NAT2C		
Lab Sample Number	219636-01		219636-02		219636-03		
Sampling Date	8/10/2000		8/10/2000		8/10/2000		RECOMMENDED
Matrix	SOIL		SOIL		SOIL		SOIL CLEANUP
Units	mg/kg		mg/kg		mg/kg		OBJECTIVE (a)
VOLATILE ORGANIC COMPOUNDS (mg/kg)							
Chloromethane	ND		ND		ND		1
Bromomethane	ND		ND		ND		1
Trichloroflouromethane	ND		ND		ND		1
Acetone	0.016		0.008	j	0.018		0.2
Carbon Disulfide	0.002	j	0.002	j	0.002	j	2.7
Methylene Chloride	ND		0.001	j	ND		0.1
Methyl tert-butyl ether	ND		ND		ND		1
2-Butanone	ND		ND		ND		0.3
Benzene	0.015		0.015		0.002	j	0.06
Trichloroethene	ND		ND		ND		0.7
4-Methyl-2-pentanone	ND		ND		ND		1
Toluene	ND		0.004	j	0.003	j	1.5
Tetrachloroethene	ND		ND		ND		1.4
Ethylbenzene	0.014		0.13		0.085		5.5
Xylene (Total)	0.034		0.38		0.13		1.2
Styrene	0.001	j	ND		0.007	j	1
Isopropylbenzene	ND		ND		ND		1
n-Propylbenzene	ND		ND		ND		1
1,3,5-Trimethylbenzene	ND		ND		ND		1
tert-Butylbenzene	ND		ND		ND		1
1,2,4-Trimethylbenzene	ND		ND		ND		1
sec-Butylbenzene	ND		ND		ND		1
4-Isopropyltoluene	ND		ND		ND		1
1,3-Dichlorobenzene	ND		0.001	j	ND		1.6
1,4-Dichlorobenzene	ND		0.002	j	ND		1
n-Butylbenzene	ND		ND		ND		1
1,2,4-Trichlorobenzene	ND		ND		ND		3.4
Hexachlorobutadiene	ND		ND		ND		1
Naphthalene	ND		ND		ND		13
1,2,3-Trichlorobenzene	ND		ND		ND		1
Total VOCs	**0.082**		**0.543**	**0**	**0.247**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit
ND - Not detected at analytical detection limit

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #2

LMS Sample ID	NAT2D		NAT2E		RECOMMENDED
Lab Sample Number	219636-04		219636-09		
Sampling Date	8/10/2000		8/10/2000		
Matrix	SOIL		SOIL		SOIL CLEANUP
Units	mg/kg		mg/kg		OBJECTIVE (a)
	[DF 10:1]		[DF 10:1]		
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)					
Phenol	**0.71**	j	**270**		0.03 or MDL
bis (2-Chloroethyl) Ether	ND		ND		[1]
1,4-Dichlorobenzene	ND		ND		8.5
2-Methylphenol	ND		**68**		0.1 or MDL
4-Methylphenol	0.61	j	**210**		0.9
2,4-Dimethylphenol	ND		59		NA
1,2,4-Trichlorobenzene	ND		ND		3.4
Naphthalene	12		**980**	[DF200:1]	13
2-Methylnaphthalene	3.7	j	**83**		36.4
Acenaphthylene	5.6		35	j	41
Acenaphthene	4.6		10	j	50
Dibenzofuran	4.1		**120**		6.2
Flourene	9.3		**250**		50
N-Nitrosodiphenylamine(1)	ND		ND		[1]
Phenanthrene	32		**5000**	[DF200:1]	50
Anthracene	10		**2300**	[DF200:1]	50
Carbazole	ND		ND		[1]
Flouranthene	45	[DF50:1]	**6500**	[DF200:1]	50
Pyrene	**51**	[DF50:1]	**5500**	[DF200:1]	50
Benzo (a) anthracene	**26**		**3000**	[DF200:1]	0.224 or MDL
Chrysene	**24**		**2300**	[DF200:1]	0.4
bis (2-Ethylhexyl) phthalate	ND		ND		50
Di-n-octylphthalate	ND		ND		50
Benzo (b) flouranthene	**33**		**2900**	[DF200:1]	1.1
Benzo (k) flouranthene	**13**		**1000**	[DF200:1]	1.1
Benzo (a) pyrene	**28**		**2300**	[DF200:1]	0.061 or MDL
Indeno (1,2,3-cd) pyrene	**16**		**1200**	[DF200:1]	3.2
Dibenz (a,h) anthracene	**4.8**		**230**	[DF200:1]	0.014 or MDL
Benzo (g,h,i) perylene	13		**860**	j[DF200:1]	50
Total SVOCs	**336.42**		**35175**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
b - Found in associated blanks
d - Concentration recovered from diluted sample
j - Estimated concentration; compound present below quantitation limit
MDL - Method detection limit.
ND - Not detected at analytical detection limit
NA - Not Available

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #2

LMS Sample ID	NAT2D		
Lab Sample Number	219636-04		
Sampling Date	8/10/2000		RECOMMENDED SOIL
Matrix	SOIL		CLEANUP
Units	mg/kg		OBJECTIVE (ppm)(a)
METALS(mg/kg)			
Aluminum	2300	E	SB
Antimony	2.6	BN	SB
Arsenic	**17.3**		7.5 or SB
Barium	120		300 or SB
Beryllium	**0.32**	B	0.16 or SB
Cadmium	0.78	B	1 or SB
Calcium	2180		SB
Chromium	**17.9**		10 or SB
Cobalt	4.1	B	30 or SB
Copper	**283**		25 or SB
Iron	**16300**		2000 or SB
Lead	289	*N	SB****
Magnesium	926	B	SB
Manganese	110	N	SB
Mercury	**1**		0.1
Nickel	**15.6**		13 or SB
Potassium	549	B	SB
Selenium	**2.2**		2 or SB
Silver	1	B	SB
Sodium	73.7	B	SB
Thallium	ND		SB
Vanadium	48.3		150 or SB
Zinc	**149**	N	20 or SB
Cyanide, Total	8.9		***
Total Metals	**23399.7**		

*** - Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objective.
**** - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm in metropolitan or suburban areas or near highways.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit
ND - Not detected at analytical detection limit.
SB - Site background.
E - The Report Value is estimated because of the presence of interference.
N - Spiked sample recovery not within control limits.
* - Duplicate analysis not within control limits

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #2

LMS Sample ID	NAT2D	
Lab Sample Number	219636-04	
Sampling Date	8/10/2000	RECOMMENDED
Matrix	SOIL	SOIL CLEANUP
Units	mg/kg [DF 20:1]	OBJECTIVE (a)
PESTICIDES/PCBs (mg/kg)		
alpha-BHC	ND	0.11
delta-BHC	ND	0.3
Aldrin	ND	0.041
Heptachlor epoxide	ND	0.02
Dieldrin	ND	0.044
Endrin	ND	0.1
Endosulfan sulfate	ND	1
4,4'-DDT	ND	2.1
Methoxychlor	ND	1
Endrin ketone	ND	1
Endrin aldehyde	ND	1
alpha-Chlordane	ND	0.54
gamma-Chlordane	ND	0.54
Aroclor-1254	ND	1.0/10*
Aroclor-1260	ND	1.0/10*

* - Suface/Sub-surface
1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
ND - Not detected at analytical detection limit.

recommended soil criteria are as follows: arsenic, beryllium, chromium, copper, iron, mercury, nickel, selenium, and zinc

Trench 3

Trench 3 was 200 ft long and was divided into 3 sampling sections labeled A through C. A total of 3 grab samples and 1 composite sample were collected from Trench 3. Results are summarized below and in Table 3.

Volatile Organic Compounds: Overall, concentrations of VOCs were low to non-detectable in the samples collected from Trench 3, with the exception of a few compounds. Acetone, a common laboratory contaminant, was detected above the recommended soil cleanup objectives in samples NAT3A and NAT3B. Concentrations of carbon disulfide exceeded the recommended soil criteria in sample NAT3A. Benzene exceeded the recommended soil cleanup objectives in samples NAT3A and NAT3C. Concentrations of toluene and total xylenes were detected above the recommended soil cleanup objectives in samples NAT3A and NAT3B. Chlorobenzene, ethylbenzene, 1,3-dichlorobenzene, and 1,4-dichlororbenzene were detected at concentrations that exceeded the recommended soil criteria in sample NAT3A.

Semivolatile Organic Compounds: Concentrations of several SVOCs were detected at levels exceeding the recommended soil cleanup objectives in the composite sample NAT3D. The compounds detected above the recommend soil cleanup objectives were indicative of coal ash and tar and included the following: phenol, 4-methylphenol, naphthalene, 2-methylnaphthalene, acenaphthalene, acenapthene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo (a)anthracene, chrysene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

Pesticides/PCBs: Pesticides and PCBs were not detected in sample NAT3D collected from Trench 3.

Metals: Several metals were detected above the recommended soil cleanup objectives in the sample collected from Trench 3. Compounds detected above the recommended soil criteria are as follows: chromium, copper, mercury, nickel, and zinc

Trench 4

Trench 4 was 200 ft long and was divided into 3 sampling sections labeled A through C. An additional grab sample of purifier bed waste (NAT4E) was collected for analysis of metals. A total of 4 grab samples and 1 composite sample were collected from Trench 4. Results are summarized below and in Table 4.

Volatile Organic Compounds: Overall concentrations of VOCs were low to non-detectable in the samples collected from Trench 4, with the exception of a few

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #3

LMS Sample ID	NAT3A		NAT3B		NAT3C		RECOMMENDED
Lab Sample Number	219636-19		219636-20		219636-21		SOIL CLEANUP
Sampling Date	8/10/2000		8/10/2000		8/10/2000		OBJECTIVE (a)
Matrix	SOIL		SOIL		SOIL		
Units	mg/kg		mg/kg		mg/kg		
VOLATILE ORGANIC COMPOUNDS (mg/kg)							
Chloromethane	ND		ND		ND		[1]
Bromomethane	ND		ND		ND		[1]
Trichloroflouromethane	ND		ND		ND		[1]
Acetone	0.013	j	0.002	j	ND		0.2
Carbon Disulfide	0.014		0.002	j	ND		2.7
Methylene Chloride	ND		ND		ND		0.1
Methyl tert-butyl ether	ND		ND		ND		[1]
2-Butanone	ND		ND		ND		0.3
Benzene	0.016		ND		0.001	j	0.06
Trichloroethene	ND		ND		ND		0.7
4-Methyl-2-pentanone	ND		ND		ND		1
Toluene	0.005	j	0.002	j	0.0006	j	1.5
Chlorobenzene	0.2		ND		ND		1.4
Ethylbenzene	0.14		0.005	j	ND		5.5
Xylene (Total)	0.36		0.013		ND		1.2
Styrene	0.001	j	ND		ND		[1]
Isopropylbenzene	ND		ND		ND		[1]
n-Propylbenzene	ND		ND		ND		[1]
1,3,5_Trimethylbenzene	ND		ND		ND		[1]
tert-Butylbenzene	ND		ND		ND		[1]
1,2,4-Trimethylbenzene	ND		ND		ND		[1]
sec-Butylbenzene	ND		ND		ND		[1]
4-Isopropyltoluene	ND		ND		ND		[1]
1,3-Dichlorobenzene	0.27		ND		ND		1.6
1,4-Dichlorobenzene	0.042		ND		ND		[1]
1,2-Dichlorobenzene	0.005	j	ND		ND		[1]
n-Butylbenzene	ND		ND		ND		[1]
1,2,4-Trichlorobenzene	ND		ND		ND		3.4
Hexachlorobutadiene	ND		ND		ND		[1]
Naphthalene	ND		ND		ND		13
1,2,3-Trichlorobenzene	ND		ND		ND		[1]
Total VOCs	**1.066**		**0.024**		**0.0016**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppn
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 199
j - Estimated concentration; compound present below quantitation lin
ND - Not detected at analytical detection lim

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #3

LMS Sample ID	NAT3D		
Lab Sample Number	219636-22		
Sampling Date	8/10/2000		RECOMMENDED
Matrix	SOIL		SOIL CLEANUP
Units	mg/kg [DF2:1]		OBJECTIVE (a)
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			
Phenol	**0.2**	j	0.03 or MDL
bis (2-Chloroethyl) Ether	ND		1
1,4-Dichlorobenzene	ND		8.5
2-Methylphenol	ND		0.1 or MDL
4-Methylphenol	0.098	j	0.9
1,2,4-Trichlorobenzene	ND		3.4
Naphthalene	5.3		13
2-Methylnaphthalene	1.9		36.4
Acenaphthylene	4.2		41
Acenaphthene	0.9		50
Dibenzofuran	2.3		6.2
Flourene	4.8		50
N-Nitrosodiphenylamine(1)	ND		1
Phenanthrene	26	[DF50:1]	50
Anthracene	9.4	j[DF50:1]	50
Carbazole	ND		1
Flouranthene	38	[DF50:1]	50
Pyrene	33	[DF50:1]	50
Benzo (a) anthracene	**33**	j[DF50:1]	0.224 or MDL
Chrysene	**33**	j[DF50:1]	0.4
bis (2-Ethylhexyl) phthalate	33		50
Di-n-octylphthalate	33		50
Benzo (b) flouranthene	**33**	[DF50:1]	1.1
Benzo (k) flouranthene	**33**	j[DF50:1]	1.1
Benzo (a) pyrene	**33**	j[DF50:1]	0.061 or MDL
Indeno (1,2,3-cd) pyrene	**33**	j[DF50:1]	3.2
Dibenz (a,h) anthracene	**3.5**		0.014 or MDL
Benzo (g,h,i) perylene	33	j[DF50:1]	50
Total SVOCs	**426.598**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 199
j - Estimated concentration; compound present below quantitation lin
MDL - Method detection limit
ND - Not detected at analytical detection lim

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #3

LMS Sample ID	NAT3D		
Lab Sample Number	219636-22		
Sampling Date	8/10/2000		RECOMMENDED SOIL
Matrix	SOIL		CLEANUP
Units	mg/kg		OBJECTIVE (ppm)(a)
METALS(mg/kg)			
Aluminum	2830	E	SB
Antimony	1.8	BN	SB
Arsenic	11.8		7.5 or SB
Barium	137		300 or SB
Beryllium	0.28	B	0.16 or SB
Cadmium	0.92	B	1 or SB
Calcium	2190		SB
Chromium	**12.5**		10 or SB
Cobalt	4.9	B	30 or SB
Copper	**134**		25 or SB
Iron	16200		2000 or SB
Lead	317	*N	SB****
Magnesium	1400		SB
Manganese	146	N	SB
Mercury	**1.7**		0.1
Nickel	**29.8**		13 or SB
Potassium	728	B	SB
Selenium	1.1	B	2 or SB
Silver	1.6	B	SB
Sodium	105	B	SB
Thallium	ND		SB
Vanadium	36		150 or SB
Zinc	**223**	N	20 or SB
Cyanide	208		***
Total Metals	**24720.4**		

*** - Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objecti
**** - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm metropolitan or suburban areas or near highway
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 199
B - Value is less than the contract-required detection limit but greater than the instrument detection li
ND - Not detected at analytical detection limi
SB - Site background

E - The Report Value is estimated because of the presence of interference.

N - Spiked sample recovery not within control limits.

* - Duplicate analysis not within control limits.

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #3

LMS Sample ID	NAT3D	
Lab Sample Number	219636-22	
Sampling Date	8/10/000	RECOMMENDED
Matrix	SOIL	SOIL CLEANUP
Units	mg/kg [DF 10:1]	OBJECTIVE (a)
PESTICIDES/PCBs (mg/kg)		
alpha-BHC	ND	0.11
delta-BHC	ND	0.3
Aldrin	ND	0.041
Heptachlor epoxide	ND	0.02
Dieldrin	ND	0.044
Endrin	ND	0.1
Endosulfan sulfate	ND	1
4,4'-DDT	ND	2.1
Methoxychlor	ND	1
Endrin ketone	ND	1
Endrin aldehyde	ND	1
alpha-Chlordane	ND	0.54
gamma-Chlordane	ND	0.54
Aroclor-1254	ND	1.0/10*
Aroclor-1260	ND	1.0/10*

* - Suface/Sub-surface
1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppn
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 199
concentrations between the two GC columns
ND - Not detected at analytical detection limi

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #4

LMS Sample ID	NAT4A		NAT4B		NAT4C		RECOMMENDED
Lab Sample Number	2193636-15		61230002		61230003		SOIL CLEANUP
Sampling Date	8/10/2000		8/10/2000		8/10/2000		OBJECTIVE (a)
Matrix	SOIL		SOIL		SOIL		
Units	mg/kg		mg/kg		mg/kg [DF 5:1]		
VOLATILE ORGANIC COMPOUNDS (mg/kg)							
Chloromethane	ND		ND		ND		[1]
Bromomethane	ND		ND		ND		[1]
Trichloroflouromethane	ND		ND		ND		[1]
Acetone	0.026		0.002	j	0.011	j	0.2
Carbon Disulfide	0.003	j	0.002	j	ND		2.7
Methylene Chloride	ND		ND		ND		0.1
Methyl tert-butyl ether	ND		ND		ND		[1]
2-Butanone	0.003	j	ND		ND		0.3
Benzene	**0.15**	[DF5:1]	0.006	j	**9.8**	[DF125:1]	0.06
Trichloroethene	ND		ND		ND		0.7
4-Methyl-2-pentanone	ND		ND		ND		1
Toluene	0.21	[DF5:1]	0.005	j	**15**	[DF125:1]	1.5
Tetrachloroethene	ND		ND		ND		1.4
Ethylbenzene	1	[DF5:1]	0.044		**71**		5.5
Xylene (Total)	**1.6**	[DF5:1]	0.12		**26**	[DF125:1]	1.2
Styrene	0.058		0.003	j	6.3	[DF125:1]	[1]
Isopropylbenzene	ND		ND		ND		[1]
n-Propylbenzene	ND		ND		ND		[1]
1,3,5_Trimethylbenzene	ND		ND		ND		[1]
tert-Butylbenzene	ND		ND		ND		[1]
1,2,4-Trimethylbenzene	ND		ND		ND		[1]
sec-Butylbenzene	ND		ND		ND		[1]
4-Isopropyltoluene	ND		ND		ND		[1]
1,3-Dichlorobenzene	0.004	j	ND		ND		1.6
1,4-Dichlorobenzene	0.004	j	ND		ND		8.5
n-Butylbenzene	ND		ND		ND		[1]
1,2,4-Trichlorobenzene	ND		ND		ND		3.4
Hexachlorobutadiene	ND		ND		ND		[1]
Naphthalene	ND		ND		ND		13
1,2,3-Trichlorobenzene	ND		ND		ND		[1]
Total VOCs	**3.058**		**0.182**		**128.111**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994
j - Estimated concentration; compound present below quantitation limi
ND - Not detected at analytical detection limit

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #4

LMS Sample ID	NAT4D		
Lab Sample Number	219636-18		
Sampling Date	8/10/2000		RECOMMENDED
Matrix	SOIL		SOIL CLEANUP
Units	mg/kg		OBJECTIVE (a)
	DF[2:1]		
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			
Phenol	**5.8**		0.03 or MDL
bis (2-Chloroethyl) Ether	ND		1
1,4-Dichlorobenzene	ND		8.5
2-Methylphenol	**0.88**		0.1 or MDL
4-Methylphenol	**5.4**		0.9
2,4-Dimethylphenol	2100		NA
1,2,4-Trichlorobenzene	ND		3.4
Naphthalene	**150**	[DF50:1]	13
2-Methylnaphthalene	17	j[DF50:1]	36.4
Acenaphthylene	34	[DF50:1]	41
Acenaphthene	5.2		50
Dibenzofuran	**27**	[DF50:1]	6.2
Flourene	45	[DF50:1]	50
N-Nitrosodiphenylamine(1)	ND		1
Phenanthrene	**130**	[DF50:1]	50
Anthracene	**53**	[DF50:1]	50
Carbazole	ND		1
Flouranthene	**97**	[DF50:1]	50
Pyrene	**68**	[DF50:1]	50
Benzo (a) anthracene	**42**	[DF50:1]	0.224 or MDL
Chrysene	**36**	[DF50:1]	0.4
bis (2-Ethylhexyl) phthalate	ND		50
Di-n-octylphthalate	ND		50
Benzo (b) flouranthene	**41**	[DF50:1]	1.1
Benzo (k) flouranthene	**17**	j[DF50:1]	1.1
Benzo (a) pyrene	**36**	[DF50:1]	0.061 or MDL
Indeno (1,2,3-cd) pyrene	**19**	j[DF50:1]	3.2
Dibenzo (a,h) anthracene	**4**	j[DF50:1]	0.014 or MDL
Benzo (g,h,i) perylene	11	j[DF50:1]	50
Total SVOCs	**2944.28**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994
j - Estimated concentration; compound present below quantitation limi
MDL - Method detection limit.
ND - Not detected at analytical detection limit
NA - Not Available

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #4

LMS Sample ID	NAT4D		NAT4E		RECOMMENDED SOIL
Lab Sample Number	219636-18		219636-10		CLEANUP
Sampling Date	8/11/2000		8/11/2000		OBJECTIVE (ppm)(a)
Matrix	SOIL		SOIL		
Units	mg/kg		mg/kg		
METALS(mg/kg)					
Aluminum	4400	E	815	E	SB
Antimony	ND		9.9	BN	SB
Arsenic	**12.6**		**21.9**		7.5 or SB
Barium	121		53	B	300 or SB
Beryllium	**0.42**	B	0.15	B	0.16 or SB
Cadmium	**1**	B	**1.2**	B	1 or SB
Calcium	2710		540	B	SB
Chromium	**19**		**38.8**		10 or SB
Cobalt	7.3	B	13.5	B	30 or SB
Copper	**105**		**45.6**		25 or SB
Iron	**19600**		**24400**		2000 or SB
Lead	224	*N	91.6	*N	SB****
Magnesium	1800		317	B	SB
Manganese	176	N	190	N	SB
Mercury	**0.52**		**0.24**		0.1
Nickel	**47.8**		11.3	B	13 or SB
Potassium	1030		753	B	SB
Selenium	1	B	**2.7**	S	2 or SB
Silver	1.4	B	8.4		SB
Sodium	125	B	ND		SB
Thallium	ND		ND		SB
Vanadium	35.1		**32.3**		150 or SB
Zinc	**200**	N	**33.2**		20 or SB
Cyanide, Total	42.8		1310		***
Total Metals	**30659.94**		**28688.79**		

*** - Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objectiv
**** - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm metropolitan or suburban areas or near highways
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994
B - Value is less than the contract-required detection limit but greater than the instrument detection lim
ND - Not detected at analytical detection limit
N/A - Not available.
SB - Site background.

E - The Report Value is estimated because of the presence of interference.
S - The reported value was determined by the Method of Standard Additior
N - Spiked sample recovery not within control limits
* - Duplicate analysis not within control limits.

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #4

LMS Sample ID	NAT4D	
Lab Sample Number	219636-18	
Sampling Date	8/10/2000	RECOMMENDED
Matrix	SOIL	SOIL CLEANUP
Units	mg/kg [DF 10:1]	OBJECTIVE (a)
PESTICIDES/PCBs (mg/kg)		
alpha-BHC	ND	0.11
delta-BHC	ND	0.3
Aldrin	ND	0.041
Heptachlor epoxide	ND	0.02
Dieldrin	ND	0.044
Endrin	ND	0.1
Endosulfan sulfate	ND	1
4,4'-DDT	ND	2.1
Methoxychlor	ND	1
Endrin ketone	ND	1
Endrin aldehyde	ND	1
alpha-Chlordane	ND	0.54
gamma-Chlordane	ND	0.54
Aroclor-1254	ND	1.0/10*
Aroclor-1260	ND	1.0/10*

* - Suface/Sub-surface
1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994
concentrations between the two GC columns
ND - Not detected at analytical detection limit

compounds. Acetone, a common laboratory contaminant, was detected above the recommended soil cleanup objectives in all 3 samples NAT4A NAT4B, and NAT4C. Concentrations of carbon disulfide and 2-butanone exceeded the recommended soil criteria in sample NAT4A. Concentrations of benzene, toluene, ethylbenzene and total xylenes exceeded the recommended soil cleanup objectives in samples NAT4A, NTA4B, and NAT4C. Styrene was detected at a concentration that exceeded the recommended soil criteria in sample NAT4C.

Semivolatile Organic Compounds: Concentrations of several SVOCs were detected at levels exceeding the recommended soil cleanup objectives in the composite sample NAT4D. The compounds detected above the recommend soil cleanup objectives were indicative of coal ash and tar and included the following: phenol, 2-methylphenol, 4-methylphenol, naphthalene, 2-methylnaphthalene, acenaphthalene, acenapthene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i) perylene.

Pesticides/PCBs: Pesticides and PCBs were not detected in sample NAT4D collected from Trench 4.

Metals: Several metals were detected above the recommended soil cleanup objectives in the samples collected from Trench 4. Compounds detected above the recommended soil criteria in composite sample NAT4D are as follows: arsenic, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc.

Compounds detected above the recommended soil cleanup objectives in the purifier bed waste sample (NAT4E) were as follows: arsenic, cadmium, chromium, copper, iron mercury, selenium, and zinc.

Trench 5

Trench 5 was 200 ft long and was divided into 3 sampling sections labeled A through C. A total of 3 grab samples and 1 composite sample were collected from Trench 4. Results are summarized below and in Table 5.

Volatile Organic Compounds: Overall concentrations of VOCs were low to non-detectable in the samples collected from Trench 5, with the exception of a few compounds. Acetone, a common laboratory contaminant, was detected above the recommended soil cleanup objectives in all 3 samples NAT5A NAT5B, and NAT5C. Concentrations of 2-butanone exceeded the recommended soil criteria in samples NAT5B and NAT5C. Concentrations of benzene, toluene, ethylbenzene and total xylenes exceeded the recommended soil cleanup objectives in samples NAT5B.

Semivolatile Organic Compounds: Concentrations of several SVOCs were detected at levels exceeding the recommended soil cleanup objectives in the composite sample NAT5D. The compounds detected above the recommend soil cleanup objectives were indicative of coal ash and tar and included the following: phenol, 4-

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #5

LMS Sample ID	NAT5A	NAT5B	NAT5C	
Lab Sample Number	21936-11	21936-12	21936-13	
Sampling Date	8/10/2000	8/10/2000	8/10/2000	RECOMMENDED
Matrix	SOIL	SOIL	SOIL	SOIL CLEANUP
Units	mg/kg	mg/kg	mg/kg	OBJECTIVE (a)
VOLATILE ORGANIC COMPOUNDS (mg/kg)				
Chloromethane	ND	ND	ND	1
Bromomethane	ND	ND	ND	1
Trichloroflouromethane	ND	ND	ND	1
Acetone	0.008 j	0.074	0.02	0.2
Carbon Disulfide	ND	0.002 j	ND	2.7
Methylene Chloride	ND	ND	ND	0.1
Methyl tert-butyl ether	ND	ND	ND	1
2-Butanone	ND	0.015	0.003 j	0.3
Benzene	ND	**0.15**	ND	0.06
Trichloroethene	ND	ND	ND	0.7
4-Methyl-2-pentanone	ND	ND	ND	1
Toluene	ND	0.015	ND	1.5
Tetrachloroethene	ND	ND	ND	1.4
Ethylbenzene	ND	0.039	ND	5.5
Xylene (Total)	ND	0.13	ND	1.2
Styrene	ND	ND	ND	1
Isopropylbenzene	ND	ND	ND	1
n-Propylbenzene	ND	ND	ND	1
1,3,5_Trimethylbenzene	ND	ND	ND	1
tert-Butylbenzene	ND	ND	ND	1
1,2,4-Trimethylbenzene	ND	ND	ND	1
sec-Butylbenzene	ND	ND	ND	1
4-Isopropyltoluene	ND	ND	ND	1
1,3-Dichlorobenzene	ND	ND	ND	1.6
n-Butylbenzene	ND	ND	ND	1
1,2,4-Trichlorobenzene	ND	ND	ND	3.4
Hexachlorobutadiene	ND	ND	ND	1
Naphthalene	ND	ND	ND	13
1,2,3-Trichlorobenzene	ND	ND	ND	1
Total VOCs	**0.008**	**0.425**	**0.023**	

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit
ND - Not detected at analytical detection limit

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #5

LMS Sample ID	NAT5D		RECOMMENDED
Lab Sample Number	219636-14		
Sampling Date	8/10/2000		
Matrix	SOIL		SOIL CLEANUP
Units	mg/kg		OBJECTIVE (a)
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			
Phenol	**0.11**	j	0.03 or MDL
bis (2-Chloroethyl) Ether	ND		1
1,4-Dichlorobenzene	ND		8.5
2-Methylphenol	ND		0.1 or MDL
4-Methylphenol	0.049	j	0.9
1,2,4-Trichlorobenzene	ND		3.4
Naphthalene	2.2		13
4-Methylnaphthalene	0.35	j	36.4
Acenaphthylene	0.31	j	41
Acenaphthene	0.38	j	50
Dibenzofuran	0.46		6.2
Flourene	0.8		50
N-Nitrosodiphenylamine(1)	ND		1
Phenanthrene	2.6		50
Anthracene	0.74		50
Carbazole	ND		1
Flouranthene	2.4		50
Pyrene	2.1		50
Benzo (a) anthracene	**1.3**		0.224 or MDL
Chrysene	**1.2**		0.4
bis (2-Ethylhexyl) phthalate	ND		50
Di-n-octylphthalate	ND		50
Benzo (b) flouranthene	**1.3**		1.1
Benzo (k) flouranthene	0.52		1.1
Benzo (a) pyrene	**1.2**		0.061 or MDL
Indeno (1,2,3-cd) pyrene	0.78		3.2
Dibenz (a,h) anthracene	**0.24**	j	0.014 or MDL
Benzo (g,h,i) perylene	0.6		50
Total SVOCs	**19.639**		

1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit
MDL - Method detection limit.
ND - Not detected at analytical detection limit

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #5

LMS Sample ID	NAT5D		
Lab Sample Number	219636-14		
Sampling Date	8/10/2000		RECOMMENDED SOIL
Matrix	SOIL		CLEANUP
Units	mg/kg [DF 10:1]		OBJECTIVE (ppm)(a)
METALS(mg/kg)			
Aluminum	**11100**	E	SB
Antimony	ND		SB
Arsenic	**10**		7.5 or SB
Barium	133		300 or SB
Beryllium	**0.56**	B	0.16 or SB
Cadmium	ND		1 or SB
Calcium	2770		SB
Chromium	**24.2**		10 or SB
Cobalt	10.7	B	30 or SB
Copper	**113**		25 or SB
Iron	**21600**		2000 or SB
Lead	300	* N	SB****
Magnesium	**5150**		SB
Manganese	486	N	SB
Mercury	**1.2**		0.1
Nickel	**24.5**		13 or SB
Potassium	2220		SB
Selenium	ND		2 or SB
Silver	3.4	B	SB
Sodium	ND		SB
Thallium	ND		SB
Vanadium	36.1		150 or SB
Zinc	**245**	N	20 or SB
Cyanide	4.4		***
Total Metals	**44232.06**		

*** - Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objective.
**** - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm in metropolitan or suburban areas or near highways.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit
ND - Not detected at analytical detection limit.
SB - Site background.
E - The Report Value is estimated because of the presence of interference.
N - Spiked sample recovery not within control limits.
* - Duplicate analysis not within control limits.

SOIL SUMMARY
EDC Hunts Point
Site A Second Operable Unit
Trench #5

LMS Sample ID	NAT5D	
Lab Sample Number	219636-14	
Sampling Date	8/24/2000	RECOMMENDED
Matrix	SOIL	SOIL CLEANUP
Units	mg/kg [DF 10:1]	OBJECTIVE (a)
PESTICIDES/PCBs (mg/kg)		
alpha-BHC	ND	0.11
delta-BHC	ND	0.3
Aldrin	ND	0.041
Heptachlor epoxide	ND	0.02
Dieldrin	ND	0.044
Endrin	ND	0.1
Endosulfan sulfate	ND	1
4,4'-DDT	ND	2.1
Methoxychlor	ND	1
Endrin ketone	ND	1
Endrin aldehyde	ND	1
alpha-Chlordane	ND	0.54
gamma-Chlordane	ND	0.54
Aroclor-1254	ND	1.0/10*
Aroclor-1260	ND	1.0/10*

* - Suface/Sub-surface
1 - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, total pesticides < 10 ppm.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
concentrations between the two GC columns.
ND - Not detected at analytical detection limit.

methylphenol, naphthalene, 4-methylnaphthalene, acenaphthalene, acenapthene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i) perylene.

Pesticides/PCBs: Pesticides and PCBs were not detected in sample NAT5D collected from Trench 5.

Metals: Several metals were detected above the recommended soil cleanup objectives in the samples collected from Trench 5. Compounds detected above the recommended soil criteria in composite sample NAT5D are as follows: aluminum, arsenic, beryllium, chromium, copper, iron, magnesium, mercury, nickel, and zinc.

Groundwater Samples

Two (2) groundwater samples were collected from Trenches 1 and 3 (NAT1GW and NAT3GW, respectively) (see Figures 5, 6, and 8). Samples were collected with dedicated equipment and transferred to laboratory-supplied containers, labeled with the appropriate sample identification, date and time of sampling, analyses required, and sampler identification. All samples were shipped under chain of custody protocol, at 4°C via overnight courier to a NYSDOH certified laboratory. Results are compared to the New York State Ambient Water Quality Standards and Guidance Values listed in the NYSDEC Division of Water Technical and Operational Guidance Series (June 1998) and are summarized below as well as in tables 6 through 10

Trench Groundwater Samples

Two groundwater samples were collected directly from Trenches 1 and 3 at Site A SOU (see Figures 5, 6, and 8). Samples were collected from areas exhibiting the worst case scenario for ground water contamination and submitted for analysis of TCL VOCs using EPA Method 8260, filtered and unfiltered SVOCs using EPA Method 8270, filtered and unfiltered TAL metals, pesticides/PCBs using EPA Methods 8081 and 8082, and cyanide. The samples collected from the trenches are identified with the prefix NA followed by the trench number and the suffix GW (i.e. NAT1GW). Samples filtered prior to analysis are labeled the same way, with the addition of “F” after the trench number (i.e. NAT1GWF). Results are compared to the New York State Ambient Water Quality Standards and Guidance Values listed in the NYSDEC Division of Water Technical and Operational Guidance Series (June 1998) and are summarized below as well as in tables 6 through 10.

Volatile Organic Compounds: Concentrations of several VOCs were detected above the recommended water quality standards in the samples submitted for analysis (Table 6). Concentrations of toluene, ethylbenzene, styrene, total xylenes, and 1,4-dichlorobenzene were detected above the water quality standards in sample NAT1GW. Benzene was detected in samples NAT1GW and NAT3GW at concentrations above the water quality standards.

TABLE 6 (Page 1 of 1)

GROUNDWATER SUMMARY
NYCEDC HUNT'S POINT
SITE A SECOND OPERABLE UNIT
(August 2000)

LMS Sample ID	NAT1GW	NAT3GW	NYSDEC
Lab Sample ID	219633-03	219633-01	CLASS GA
Sampling Date	8/10/00	8/10/00	STANDARDS (b)
Matrix	WATER	WATER	
Units	µg/L	µg/L	µg/L
Volatile Organic Compounds (ug/L)			
Acetone	1 j	4 j	50 GV
Benzene	**3 j**	**600(10:1)**	1
Toluene	2 j	**180**	5
Chlorobenzene	ND	2 j	5
Ethylbenzene	ND	**38**	5
Styrene	ND	**30**	5
Xylene (total)	ND	**110**	5
1,3-Dichlorobenzene	ND	2 j	3*
1,4-Dichlorobenzene	ND	**10**	3*
Total VOCs[1]:	**6**	**976**	

* - Applies to each isomer individuall
1 - This value applies to the total of all organic substances listed in the New York State Groundwater Effluent Limitations table from the Division of Water Technical and Operational Guidance Series (1.1.1) with a groundwater effluent limitation less than 100 ug/l.
(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 199
GV - Guidance Value
j - Estimated concentration; compound present below quantitation lim
ND - Not detected at analytical reporting limi
Note - Numbers in bold exceed standard

Semivolatile Organic Compounds: Samples submitted for analysis of SVOCs were submitted for total and filtered analysis (Table 7). Concentrations of analytical parameters in the filtered samples were typically less than those in the unfiltered samples. Thus indicating that sediment in the water sample contained most of the parameters analyzed and that filtering the sample significantly lowered or removed the concentrations of contaminants. Concentrations of phenol and naphthalene were detected above the recommended guidance value in the filtered and unfiltered samples of NAT1GW and NAT3GW. Concentrations of 2-methylphenol, 4-methylphenol, 2,4-dimethylphenol, and acenapthene were detected above the recommended criteria in the filtered and unfiltered samples of NAT3GW. Concentrations of 2-methylnaphthalene, acenaphthylene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, and pyrene, were detected at concentrations above the recommended guidance values in the unfiltered sample NAT3GW. Concentrations of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene and ideno(1,2,3-cd)pyrene were detected above the above the recommended criteria in the unfiltered samples NAT1GW and NAT3GW.

Metals: Samples submitted for metals analysis were submitted for total and filtered analysis (Table 8). Concentrations of analytical parameters in the filtered samples were typically less than those in the unfiltered samples. Thus indicating that sediment in the water sample contained most of the parameters analyzed and that filtering the sample significantly lowered or removed the concentrations of contaminants. Antimony, arsenic, barium, chromium, cyanide, nickel, and zinc were detected at concentrations above the recommended groundwater criteria in the unfiltered samples NAT1GW and NAT3GW. Concentrations of iron, lead, manganese, and sodium were detected at concentrations above the recommended water quality criteria in both the filtered and unfiltered samples NAT1GW and NAT3GW. Copper and mercury were detected in the filtered and unfiltered samples NAT1GW and the unfiltered sample NAT3GW.

Pesticides: Pesticides were not detected in any of the groundwater samples submitted for analysis from the trenches (Table 9).

PCBs: PCBs were not detected in any of the groundwater samples submitted for analysis from the trenches (Table 10).

Temporary Piezometers Sampling Results

Three temporary piezometers were installed in order to monitor groundwater conditions at the Site (see Figure 13). The samples collected from the temporary piezometers are identified with the prefix PZ followed by the boring number (i.e. PZ-1). Samples filtered prior to analysis are labeled the same way, with the addition of "F" after the boring number (i.e. PZ-1F). Samples were submitted for analysis of TCL VOCs using EPA Method 8260, and filtered and unfiltered SVOCs using EPA Method 8270. Results are compared to the New York State Ambient Water Quality Standards and Guidance Values listed in the NYSDEC Division of Water Technical

GROUNDWATER SUMMARY
NYCEDC HUNT'S POINT
SITE A SECOND OPERABLE UNIT
(August 2000)

LMS Sample ID	NAT1GW	NAT1GWF	NAT3GW	NAT3GWF	NYSDEC
Lab Sample ID	219633-04	219633-06	219633-02	219633-07	CLASS GA
Sampling Date	8/10/00	8/10/00	8/10/00	8/10/00	STANDARDS (b)
Matrix	WATER	WATER	WATER	WATER	
Units	µg/L	µg/L	µg/L	µg/L	µg/L
Semivolatile Organic Compounds (ug/L)					
Phenol	**2 j**	**6 j**	**2900(5:1)**	**3800(5:1)**	1*
2-Methylphenol	ND	2 j	**970(5:1)**	**1300(5:1)**	50
4-Methylphenol	2 j	5 j	**2500(5:1)**	**3300(5:1)**	50
2,4-Dimethylphenol	ND	ND	**460**	**540**	1*
Naphthalene	**15**	**12**	**1900(5:1)**	**1500(5:1)**	10
2-Methylnapthalene	3 j	ND	**84 j**	43 j	50
Acenapthylene	3 j	ND	**52 j**	28 j	50
Acenapthene	ND	ND	**70 j**	**23 j**	20
Dibenzofuran	ND	ND	**82 j**	18 j	50
Fluorene	2 j	ND	**120**	20 j	50
Phenanthrene	5 j	1 j	**240**	14 j	50
Anthracene	2 j	ND	**61 j**	ND	50
Fluoranthene	8 j	ND	**130**	ND	50
Pyrene	7 j	ND	**130**	ND	50
Benzo(a)anthracene	**4 j**	ND	**46 j**	ND	0.002
Chrysene	**4 j**	ND	**35 j**	ND	0.002
Benzo(b)fluoranthene	**6 j**	ND	**36 j**	ND	0.002
Benzo(k)fluoranthene	**2 j**	ND	**15 j**	ND	0.002
Benzo(a)pyrene	5 j	ND	35 j	ND	NS
Indeno(1,2,3-cd)pyrene	**4 j**	ND	**18 j**	ND	0.002
Benzo(g,h,i)perylene	4 j	ND	14 j	ND	50
Total SVOCs[1]	**78**	**26**	**9898**	**10586**	100[1]

1 - This value applies to the total of all organic substances listed in the New York State Groundwater Effluent Limitations table from the Division of Water Technical and Operational Guidance Series (1.1.1) with a groundwater effluent limitation less than 100 ug/l.
(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
j - Estimated concentration; compound present below quantitation limit.
DL - Dilution Factor.
ND - Not detected at analytical reporting limit.
NS - No standard
Note: - Numbers in bold exceed standard.
- Sum of SVOCs only includes those with standard or guidance values.

GROUNDWATER SUMMARY
NYCEDC HUNT'S POINT
SITE A SECOND OPERABLE UNIT
(August 2000)

LMS Sample ID	NAT1GW	NAT1GWF	NAT3GW	NAT3GWF	NYSDEC
Lab Sample ID	219633-04	219633-06	219633-02	219633-07	CLASS GA
Sampling Date	8/10/00	8/10/00	8/10/00	8/10/00	STANDARDS (b)
Matrix	WATER	WATER	WATER	WATER	
Units	µg/L	µg/L	µg/L	µg/L	µg/L
METALS (µg/l)					
Aluminum	41000	2110	34200	1950	NS
Antimony	**22.1 b**	ND	**35.3 b**	ND	3
Arsenic	**110**	8.4 b	**56.9**	12.0 b	25
Barium	**2810**	279	**1610**	259 b	1000
Beryllium	**4.1 b**	0.42 b	2.7 b	ND	3 GV
Cadmium	**8.7**	ND	**9.2 b**	ND	5
Calcium	160000	148000	276000	228000	NS
Chromium	**134**	ND	**148**	2.5 b	50
Cobalt	48.6 b	8.3 b	46.1 b	19.1 b	NS
Copper	**1520**	**410**	**1700**	97.4	200
Cyanide	**1100**	N/A	**1160**	N/A	200
Iron	**83000**	**4800**	**104000**	**27100**	300
Lead	**5780**	**1100**	**2720**	**260**	25
Magnesium	23300	14500	**50700**	**38300**	35000 GV
Manganese	**1810**	**871**	**2410**	**1460**	300
Mercury	**8.4 ***	**1.5 ***	**13.8 ***	ND	0.7
Nickel	**165**	31.3 b	**238**	68.5	100
Potassium	17400	11400	12600	17400	NS
Selenium	ND	ND	ND	ND	10
Silver	**54.2**	15.9	16.8 b	8.2 b	50
Sodium	**68900**	**68900 e**	**29600**	**26900 e**	20000
Thallium	ND	ND	ND	ND	0.5 GV
Vanadium	192	17.0 b	120	16.3 b	NS
Zinc	**3450**	882	**5040**	566	2000 GV

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998
b - Value is less than the contract-required detection limit but greater than the instrument detection limit
e - Concentration exceeded the calibration range of the instrument for that specific analysis
GV - Value taken from NYSDEC Class GA Guidance Value
NS - No standard
ND - Not detected at analytical reporting limit
Note: - Numbers in bold exceed standard

GROUNDWATER SUMMARY
NYCEDC HUNT'S POINT
SITE A SECOND OPERABLE UNIT
(August 2000)

LMS Sample ID	NAT1GW	NAT3GW	
Lab Sample Number	219633-04	219633-02	NYSDEC
Sampling Date	8/10/00	8/10/00	CLASS GA
Matrix	WATER	WATER	STANDARDS (b)
Units	µg/L	µg/L	µg/L
PESTICIDES (µg/L)			
alpha-BHC	ND	ND	5
beta-BHC	ND	ND	50
delta-BHC	ND	ND	0.09
gamma-BHC (Lindane)	ND	ND	NS
Heptachlor	ND	ND	0.04
Aldrin	ND	ND	NS
Heptachlor epoxide	ND	ND	0.03
Endosulfan I	ND	ND	NS
Dieldrin	ND	ND	0.004
4,4'-DDE	ND	ND	0.2
Endrin	ND	ND	NS
Endosulfan II	ND	ND	NS
4,4'-DDD	ND	ND	0.3
Endosulfan sulfate	ND	ND	NS
4,4'-DDT	ND	ND	0.2
Methoxychlor	ND	ND	35
Endrin aldehyde	ND	ND	5
Technical Chlordane	ND	ND	0.05
Toxaphene	ND	ND	0.06

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 199
ND - Not detected at analytical reporting limi

GROUNDWATER SUMMARY
NYCEDC HUNT'S POINT
SITE A SECOND OPERABLE UNIT
(August 2000)

LMS Sample ID	NAT1GW	NAT3GW	NYSDEC
Lab Sample Number	219633-04	219633-02	CLASS GA
Sampling Date	8/10/00	8/10/00	STANDARDS (b)
Matrix	WATER	WATER	
Units	µg/L	µg/L	µg/L
PCBs (µg/L)			
Arochlor-1016	ND	ND	0.09
Arochlor-1221	ND	ND	0.09
Arochlor-1232	ND	ND	0.09
Arochlor-1242	ND	ND	0.09
Arochlor-1248	ND	ND	0.09
Arochlor-1254	ND	ND	0.09
Arochlor-1260	ND	ND	0.09

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.

ND - Not detected at analytical reporting limit

and Operational Guidance Series (June 1998) and are summarized below as well as in tables 11 and 12.

Volatile Organic Compounds: Concentrations of several VOCs were detected above the recommended water quality standards in several samples submitted for analysis (Table 11). Concentrations of naphthalene, 1, 2, 4-trimethylbenzene, ethylbenzene and total xylenes were detected above the water quality standards in samples PZ-1, PZ-2 and duplicate analysis of PZ-2. Benzene was detected at concentrations above the water quality standards in samples PZ-1, PZ-2, the duplicate analysis of PZ-2, and PZ-3. Toluene and styrene were detected in sample PZ-2 and its duplicate analysis. The compound 1, 3, 5-trimethylbenzene was detected above the water quality standard in sample PZ-2. Concentrations of n-propylbenzene, isopropylbenzene, 1, 4-dichlorobenzene, 1, 3-dichlorobenzene, and chlorobenzene were detected at concentrations exceeding the water quality standard in sample PZ-1.

Semivolatile Organic Compounds: Samples submitted for analysis of SVOCs were submitted for total and filtered analysis (Table 12). Concentrations of analytical parameters in the filtered samples were typically less than those in the unfiltered samples. Thus indicating that sediment in the water sample contained most of the parameters analyzed and that filtering the sample significantly lowered or removed the concentrations of contaminants. Concentrations of naphthalene were detected above the recommended guidance value in the filtered and unfiltered samples of PZ-1, PZ-2 and PZ-3. Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo (k)fluoranthene, and ideno(1,2,3-cd)pyrene were detected at concentrations above the recommended guidance values in the unfiltered samples PZ-1, PZ-2, the duplicate analysis of PZ-2 and PZ-3. Concentrations of 1, 3-dichlorobenzene and 1, 4-dichlorobenzene were detected above the recommended water quality criteria in the filtered and unfiltered sample PZ-1. Phenol, 4-methylphenol, 2-methylphenol, 2-methylnaphtalene, and acenaphthylene were detected above the water quality criteria in the filtered and unfiltered samples PZ-2 and its duplicate analysis. The compounds fluorene and phenanthrene were detected at concentrations above the water quality criteria in the unfiltered sample PZ-2 and its duplicate analysis. Acenapthene was detected above the recommended water quality criteria in the filtered and unfiltered samples PZ-1, PZ-2, and its duplicate analysis.

Additional Temporary Piezometers Sampling Results

Three additional temporary piezometers were installed in order to monitor groundwater conditions at the Site in the vicinity of the western end of Trench 1 (see Figure 14). The samples collected from the temporary piezometers are identified with the prefix PZ followed by the boring number (i.e. PZ-4). Samples filtered prior to analysis are labeled the same way, with the addition of “F” after the boring number (i.e. PZ-4F). Samples were submitted for analysis of cyanide and filtered and unfiltered TAL metals. Results are compared to the New York State Ambient Water Quality Standards and Guidance Values listed in the NYSDEC Division of Water

TABLE 11 (Page 1 of 1)

GROUNDWATER DATA SUMMARY

NYCEDC Hunt's Point Site A Second Operating Unit

Piezometers

(September 2001)

Lab Sample Number	204099-1	204099-2	204099-5	204099-3	204099-4	NYSDEC
LMS Sample ID	PZ-1	PZ-2	PZ-2 dup	PZ-3	TB-1	CLASS GA
Date Collected	9/27/2001	9/27/2001	9/27/2001	9/27/2001	9/27/2001	STANDARDS (b)
Matrix	Water	Water	Water	Water	Water	
Dilution Factor	1.0	1.0	1.0	1.0	1.0	
Volatile Organic Compounds (ug/L)						
Naphthalene	**200 e**	**4200 e**	**4300 e**	6.7	ND	10GV
1,2,4-Trimethylbenzene	**7.9**	**15**	**13**	ND	ND	5
1,3,5-Trimethylbenzene	2.1	**6.3**	**6.0 j**	ND	ND	5
n-Propylbenzene	**15**	ND	ND	ND	ND	5
Isopropylbenzene	**30**	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	0.77 j	ND	5
1,2,4-Trichlorobenzene	1.4	ND	ND	ND	ND	5
Benzene	**420 e**	**280 e**	**250**	**2.5**	ND	1
1,4-Dichlorobenzene	**28**	ND	ND	ND	ND	3*
1,3-Dichlorobenzene	**27**	ND	ND	ND	ND	3*
p-Isopropyltoluene	0.82 j	ND	ND	ND	ND	5
1,2 Dichlorobenzene	2.4	ND	ND	ND	ND	3*
Toluene	1.4	**120 e**	**120**	2.1	ND	5
Chlorobenzene	**22**	ND	ND	ND	ND	5
Ethylbenzene	**43**	**5.9**	**6.2 j**	ND	ND	5
Styrene	ND	**19**	**15**	ND	ND	5
Xylene (total)	**16.4**	**78**	**75**	1.64 j	ND	5
Total VOCs:	**817.42**	**4724.2**	**4779.2**	**13.71**	**ND**	100[1]

* - Applies to each isomer individually

1 - This value applies to the total of all organic substances listed in the New York State Groundwater Effluent Limitations table from the Division of Water Technical and Operational Guidance Series (1.1.1) with a groundwater effluent limitation less than 100 ug/l.

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.

GV - Guidance Value.

j - Estimated concentration; compound present below quantitation limit.

e - Concentration exceeded the calibratin range of the instrument for that specific analysis.

ND - Not detected at analytical reporting limit.

Note - Numbers in bold exceed standard.

TABLE 12 (Page 1 of 1)

GROUNDWATER DATA SUMMARY

NYCEDC Hunt's Point Site A Second Operable Unit

Piezometers

(September 2001)

Lab Sample Number	204099-1	204099-9	204099-2	204099-6	204099-5	204099-8	204099-3	204099-7	NYSDEC
LMS Sample ID	PZ-1	PZ-1 F	PZ-2	PZ-2 F	PZ-2 dup	PZ-2 dup F	PZ-3	PZ-3 F	CLASS GA
Date Collected	9/27/2001	9/27/2001	9/27/2001	9/27/2001	9/27/2001	9/27/2001	9/27/2001	9/27/2001	STANDARDS (b)
Matrix	Water	Water Dissolved	Water	Water Dissolved	Water	Water Dissolved	Water	Water Dissolved	
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Semivolatile Organic Compounds (ug/L)									
2-Methylnaphthalene	49	21	**140 e**	**150 e**	**66**	**85 e**	4.6 j	2.0 j	50
Dibenzofuran	6.1 j	2.1 j	46	43	45	28	1.8 j	ND	50
Fluorene	20	5.4 j	**53**	48	**50**	28	2.7 j	ND	50
Naphthalene	**110 e**	**100 e**	**750 e**	**890 e**	**610 e**	**530 e**	**23**	**13**	10
4-Methylphenol	ND	ND	**310 e**	**440 e**	**240 e**	**220 e**	1.8 j	ND	50
2-Methylphenol	ND	ND	**170 e**	**230 e**	**120 e**	**110 e**	1.8 j	ND	50
2,4-Dimethylphenol	ND	ND	230 e	340 e	150 e	120 e	ND	ND	NS
1,3-Dichlorobenzene	**24**	**17**	ND	ND	ND	ND	ND	ND	5
1,4-Dichlorobenzene	**26**	**18**	ND	ND	ND	ND	ND	ND	5
1,2-Dichlorobenzene	1.6 j	1.3 j	ND	ND	ND	ND	ND	ND	4.7
Anthracene	10 j	ND	23	8.4 j	20	4.0 j	2.4 j	ND	50
Acenaphthylene	2.5	ND	**72**	**78**	**66**	**53**	2.4 j	ND	50
Acenaphthene	**40**	**20**	**38**	**33**	**41**	**31**	ND	ND	20
Phenanthrene	34	3.3 j	**75**	44	**70**	28	9.4 j	1.2 j	50
Phenol	ND	ND	**250 e**	**330 e**	**170 e**	**150 e**	ND	ND	1
Fluoranthene	14	ND	37	5.5 j	33	2.7 j	9.2 j	ND	50
1,2,4-Trichlorobenzene	1.7 j	ND	ND	ND	ND	ND	ND	ND	5
Pyrene	28	ND	31	3.5 j	28	1.9 j	9.5 j	ND	50
Benzo(a)anthracene	**8.7 j**	ND	**14**	ND	**12**	ND	**5.0 j**	ND	0.002
Chrysene	**8.3 j**	ND	**11**	ND	**9.4 j**	ND	**4.7 j**	ND	0.002
bis(2-Ethylhexyl)phthalate	2.1 j	ND	1.3 j	ND	1.2 j	1.3 j	1.1 j	1.8 j	5
Benzo(b)fluoranthene	**8.1 j**	ND	**13**	ND	**9.8 j**	ND	**6.1 j**	ND	0.002
Di-n-butylphthalate	ND	ND	ND	ND	1.3 j	1.3 j	ND	1.1 j	50
Benzo(k)fluoranthene	**3.7 j**	ND	**5.1 j**	ND	**4.5 j**	ND	**2.2 j**	ND	0.002
Benzo(a)pyrene	8.6 j	ND	10 j	ND	8.5 j	ND	5.0 j	ND	NS
Indeno(1,2,3-cd)pyrene	**3.1 j**	ND	**3.8 j**	ND	**3.2 j**	ND	**2.2 j**	ND	0.002
Dibenzo(a,h)anthracene	ND	ND	1.2 j	ND	1.1 j	ND	ND	ND	50
Benzo(g,h,i)perylene	4.0 j	ND	3.9 j	ND	3.4 j	ND	3.0 j	ND	50
Total SVOCs	**413.5**	**188.1**	**2288.3**	**2643.4**	**1743.4**	**1394.2**	**96.8**	**19.1**	

1 - This value applies to the total of all organic substances listed in the New York State Groundwater Effluent Limitations table from the Division of Water Technical and Operational Guidance Series (1.1.1) with a groundwater effluent limitation less than 100 ug/l.
(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
j - Estimated concentration; compound present below quantitation limit.
e - Concentration exceeded the calibration range of the instrument for that specific analysis.
NS - No Standard.
ND - Not detected at analytical detection limit.
Note: - Numbers in bold exceed standard.
- Sum of SVOCs only includes those with standard or guidance values.

Technical and Operational Guidance Series (June 1998) and are summarized below as well as in Table 13.

Metals and cyanide: Samples submitted for metals and cyanide analyses were submitted for total and filtered analysis (Table 13). Concentrations of analytical parameters in the filtered samples were typically less than those in the unfiltered samples. Thus indicating that sediment in the water sample contained most of the parameters analyzed and that filtering the sample significantly lowered or removed the concentrations of contaminants. Antimony, arsenic, barium, cadmium, and chromium were detected at concentrations above the recommended groundwater criteria in the unfiltered samples PZ-4 and PZ-6. Concentrations of copper, iron, and lead were detected at concentrations above the recommended water quality criteria in all three (3) unfiltered samples (PZ-4, PZ-5, and PZ-6). Manganese, and sodium were detected at concentrations above the recommended water quality criteria in all three (3) samples submitted for analysis, both filtered and unfiltered. Zinc was detected at concentrations above the recommended water quality criteria in the unfiltered sample PZ-6.

CONCLUSIONS AND RECOMMENDATIONS

LMS has reviewed all of the information that has been made available for the Second Operable Unit of Site A, and following completion of the intensive trenching, boring and groundwater sampling program has made the following observations and conclusions.

The program included a visual examination of trenches that covered over 950 linear feet across the Site. During the excavation activities, soil and groundwater samples were collected for analysis from those areas that were found to exhibit the most obvious sign of contamination. In performing this type of investigation, a far more complete picture of subsurface conditions has been assembled than by other methods (drilling, probing). Additional soil and groundwater sampling was conducted by installing 3 deep and 13 shallow soil borings and 6 temporary piezometers. Soil borings were installed to determine the presence or absence of DNAPL and to further document the extent of coal tar across the Site. The temporary piezometers were installed and sampled to document groundwater quality on-Site. The results of the soil and groundwater investigation at Site A SOU revealed several distinct areas of fill and contamination across the Site.

The final recommendations are based on a comparison of the data to the specific criteria listed in Part 375, including: Standards, Criteria, and Guidance; Overall Protectiveness of Public Health and the Environment; Short-term Effectiveness; Long-term Effectiveness; Reduction of Toxicity, Mobility, and Volume with Treatment; and Feasibility. The remedy is incorporated in the development of the Site and includes the construction of an asphalt parking lot that will perform as an effective cap or barrier between the Site material and the surface. Any additional areas that are not capped (i.e. landscaping around the parking area and entrance and exits) will have an additional layer of non-regulated soil placed on it to prevent contact with any

GROUNDWATER SUMMARY
NYCEDC HUNT'S POINT
SITE A SECOND OPERABLE UNIT
(November 2002)

LMS Sample ID	PZ-4	PZ-4F	PZ-5	PZ-5F	PZ-6	PZ-6F	NYSDEC
Sampling Date	11/6/02	11/6/02	11/6/02	11/6/02	11/6/02	11/6/02	CLASS GA
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	STANDARDS (b)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
METALS (µg/l)							
Aluminum	19900 E	ND	7750 E	ND	18100	ND	NS
Antimony	**23.9 B**	ND	ND	ND	**21.8 B**	ND	3
Arsenic	**53.1 N**	ND	16.3 N	ND	**65.4**	ND	25
Barium	**2040 EN**	138 B	581 EN	100 B EN	**1250**	133 B	1000
Beryllium	1.8 B	ND	0.91 B	ND	1.8 B	ND	3 GV
Cadmium	**6.9**	ND	2.2 B	ND	**5.1**	ND	5
Calcium	71600 E	65000 E	59800 E	56200 E	61600 E	60100 E	NS
Chromium	**90 E**	ND	27.6 E	ND	**916**	ND	50
Cobalt	16.3 B	ND	6.8 B	ND	23.9	ND	NS
Copper	**1050 E**	4.2 B	**302 E**	8.4 B	**330**	ND	200
Cyanide	**377**	NA	79	NA	24	NA	200
Iron	**55700 E**	24.4 B	**21700 E**	16.4 B	**60600**	34.7 B	300
Lead	**4920 E**	4.3 B	**1010 E**	4.0 B	**2210**	3.1 B	25
Magnesium	8170 E	6150 E	6580 E	5990 E	7090	6920	35000 GV
Manganese	**633 E**	**322 E**	**679**	**471**	**777**	**472**	300
Mercury	**19.3**	ND	**1.7**	ND	**3**	ND	0.7
Nickel	60.9	ND	34.9 B	5.8 B	75.4	4.4 B	100
Potassium	9570 E	7050 E	7970	6830	9180	7580	NS
Selenium	ND	ND	4.5 B	ND	10 B	ND	10
Silver	3.1 BN	ND	ND	ND	8.7 B	ND	50
Sodium	**26700 E**	**30800 E**	**35100**	**36300**	**38100**	**45700**	20000
Thallium	ND	ND	ND	ND	ND	ND	0.5 GV
Vanadium	69.3	ND	29.8 B	ND	73.2	ND	NS
Zinc	1920 EN	37.7 EN	486	25	**2980**	26.7	2000 GV

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
GV - Value taken from NYSDEC Class GA Guidance Value.
E - Concentration exceeded the calibration range of the instrument for that specific analysis.
NS - No standard
ND - Not detected at analytical reporting limit.
Note: - Numbers in bold exceed standard.

underlying material. Geotextile fabric or other material will be placed between Site soils and imported fill in landscaped areas, to serve as a marker between the two horizons for future reference. As a precaution for future activities, there will be a specific requirement to notify NYSDEC and NYSDOH in the event that there will be work performed involving intrusive activities.

A second remedial effort will be conducted following the removal of the coal tar and purifier wastes to address the area of groundwater contamination between Trenches 2 and 3.

Two types of materials are targeted for excavation and removal:

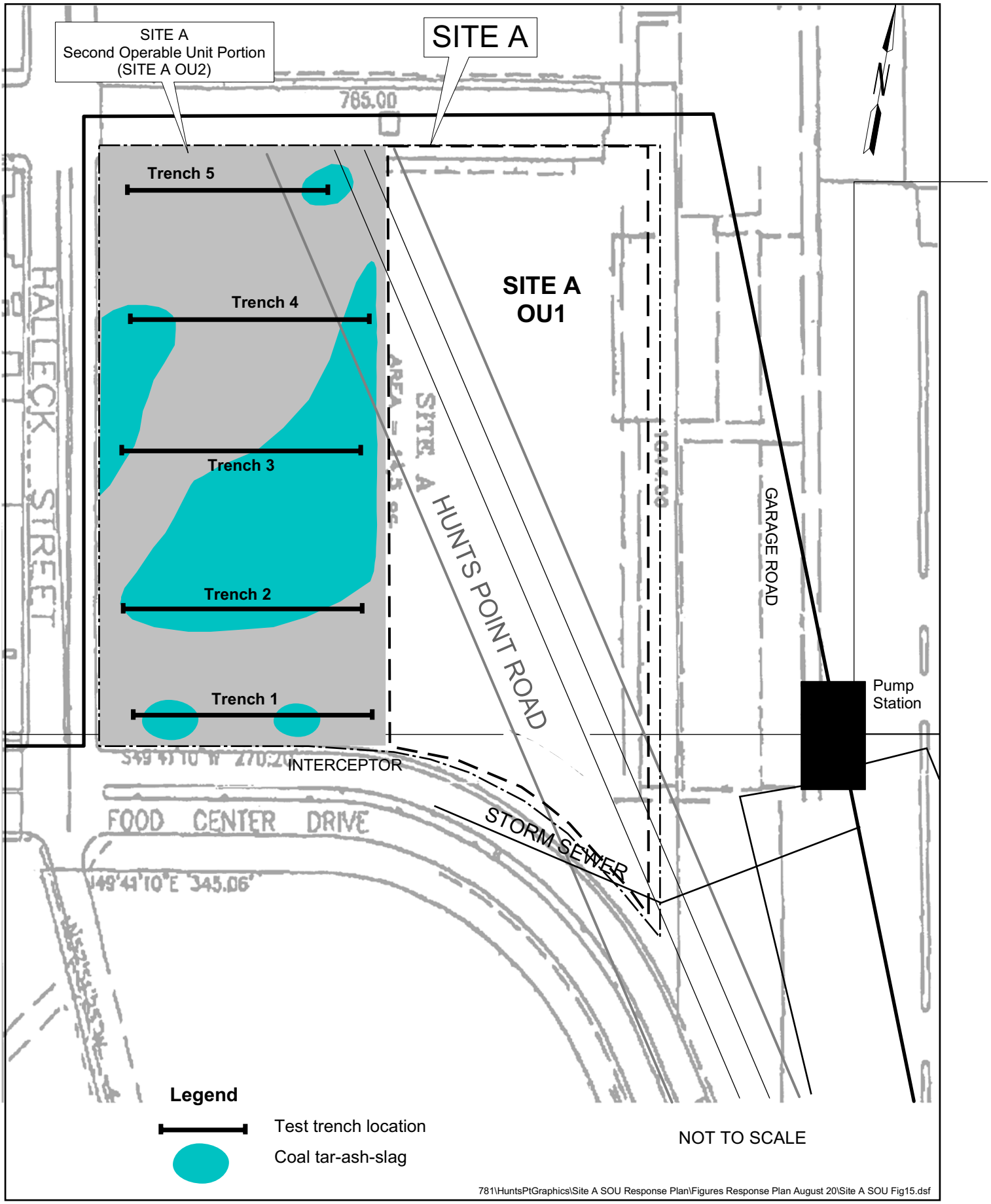
- Coal tar waste
- Purifier bed waste

Coal Tar Waste

Coal tar has been found in several areas of the Site and is generally at the surface in the form of "boils" or in deposits that are relatively shallow (up to 8 ft deep). Figure 15 shows the areas that have been identified in both trenching and probing investigations to contain significant deposits of coal tar. The determination for removal of the coal tar was made based on the need to provide a stable ground surface which, after it is covered with asphalt, will not become soft or liquefy under direct sunlight or high ambient temperatures. This specifically relates to the shallow and surficial coal tar that is present in several locations on the eastern side of the Site. Since the Site is proposed to be a parking area for employee vehicles, the surface must be able to support these vehicles. Coal tar is present in several locations as boils on the ground surface. Since these conditions have been found in shaded areas and in areas of thick vegetation, it would be reasonable to assume that the black asphalt of the proposed parking lot will absorb and radiate more heat into the shallow soil and could cause a greater appearance of tar boils should the coal tar be left in place. The removal of the coal tar does not imply that the remaining soils are geotechnically supportive; it merely addresses the fact that the coal tar can become very soft under direct sunlight and high ambient temperatures and cannot support parking lot loads. The structural aspects of the project will be determined by the Site design engineers.

The alternative remedy of capping and encapsulation of this material would be protective of Site workers, patrons, and others as exposure pathways would be removed, however, if the coal tar was allowed to remain in significant quantities it could become exposed at the surface.

Once the coal tar has been removed from the subsurface and the Site has been graded to its pre-parking lot elevation, a membrane will be placed between the soil and any open areas on the Site to further ensure that tar boils will not erupt onto the surface and to serve as a demarcation barrier for the original ground surface in any



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Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site A Second Operable Unit Coal Tar Wastes** **Hunts Point**	**Figure 15**

unpaved areas on the Site. The material that the membrane is constructed of must be approved by the design engineers prior to its installation. It is proposed by this Response Plan that a material similar to thin poly (minimum thickness being 10 mil) would be acceptable to effectively provide a barrier to prevent upward movement of any residual coal tar. Following completion of the construction, one aspect of future Site maintenance will be to periodically inspect the parking lot area for signs of previously undetected coal tar that may be extruding onto the ground surface.

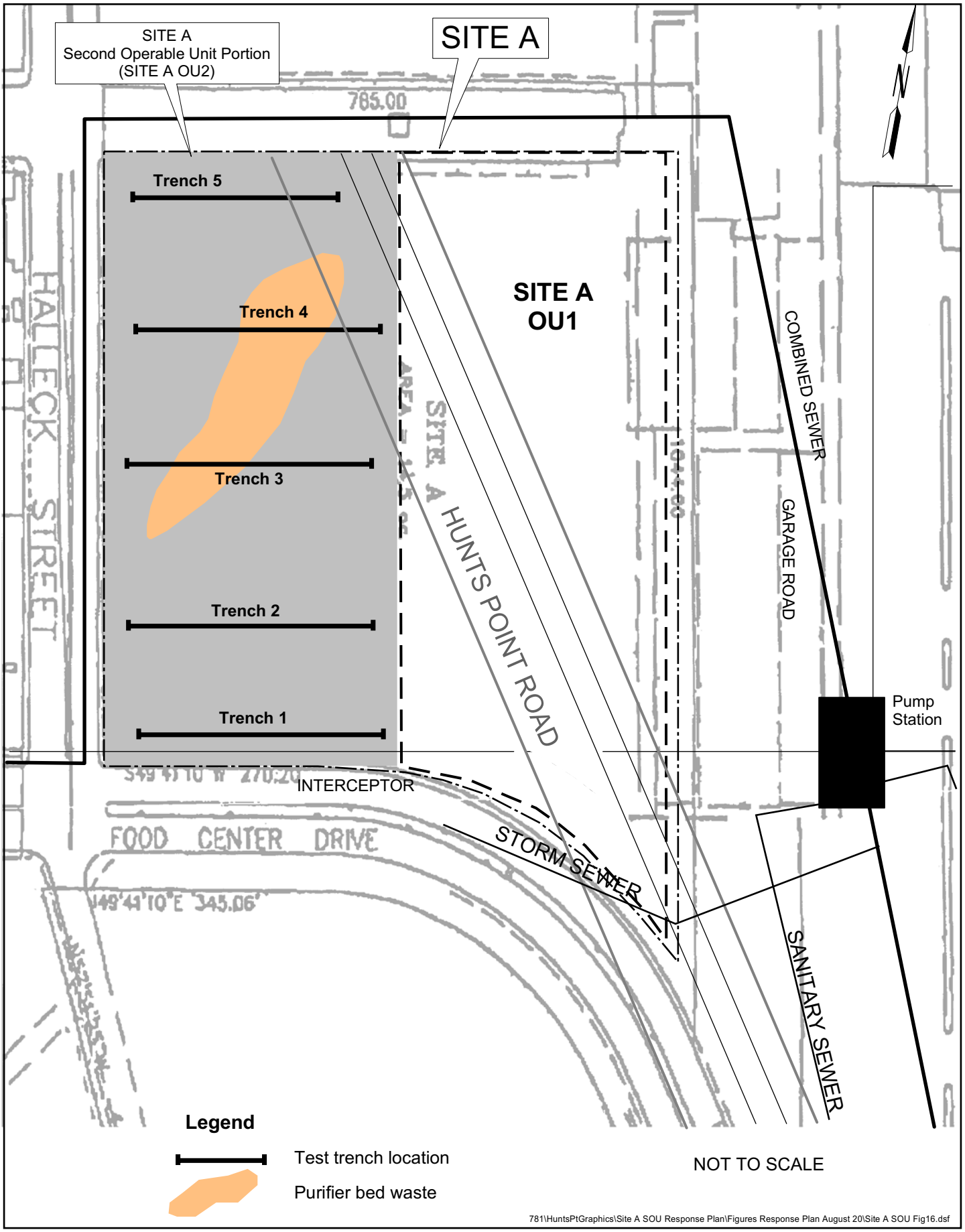
Coal tar has been identified in several areas as substantial deposits and these have been identified on the figures. There may be locations within these areas that do not contain coal tar and will not require removal. Conversely there are other areas that may be encountered during various phases of Site redevelopment that contain coal tar waste in quantities that could cause a concern or may interfere with the installation of utilities or structures. These areas will also be excavated and removed. The handling of material (stockpiling or direct loading and disposal) will be dependent upon the Contractor facilities and their requirements for classification. Sampling will be performed at a minimum for documentation of the material. NYCEDC will prepare specifications and contract qualified firms to perform the remedial removal activities. During all aspects of the removal a representative from LMS will be present to direct the Contractor in performing the work in accordance with the approved Response Plan.

End point sampling will be conducted upon completion of each excavation to document post-excavation conditions.

Purifier Waste

Removal is also the preferred remedy for the purifier waste that was identified as a shallow layer across the central and eastern portions of the Site (Figure 16). This waste is primarily composed of wood chips that were used in the filtration process of coal gasification. The main contaminants in this material are cyanide as well as other metals and some minor petroleum contamination. The primary reason for removal of this material will be to prevent exposure to workers during construction and installation of utilities. As with the coal tar, if during construction additional material is encountered, it will be first inspected by the environmental monitor who will make the determination of its removal. As the project progresses all areas where soil has been removed for off-site disposal will be documented and this information will be included in the final Engineering Report.

The removal, treatment/disposal of the coal tar and purifier wastes will be handled separately due to the types of contaminants and classification of the material. Based on the data collected from the coal tar material, it is expected that it will be allowed to be treated and disposed of as a type of petroleum contaminated material. In many cases, non-hazardous material can be handled at asphalt manufacturing and recycling facilities as an additive to asphalt or some other similar recycling use. Waste removed from other Sites within the former MGP facility, has been recycled and used to generate electricity and steam. Although the end facility cannot be



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determined at this time, it is the intent to use the waste material in the most beneficial and economical way possible. Recycling of the material provides a number of benefits; including its reuse in a commercial process, it prevents land filling for potential long-term liability, and it saves the space in landfills for material that may be less suitable for recycling. It is anticipated that provided the coal tar can be efficiently treated using a thermal component, that it will not require disposal as hazardous material in accordance with the NYSDEC Policy. Based on data for similar waste, it may require disposal as a characteristic hazardous waste if no treatment is performed.

Based on the distribution of the material that was found to contain actual coal tar, it was estimated that approximately 22,000 cubic yards of material might be excavated to effect this removal (Figure 15). The final amount will ultimately vary depending upon the condition, thickness, the relative percentage of coal tar in the surrounding soil matrix, and the amount of additional material encountered during construction. To the extent feasible, all coal tar will be removed. Following removal of the coal tar, asphalt pavement will ultimately be placed on the surface. The layer will contain a number of compounds similarly found in the tar. The surface sealing will effectively encapsulate any material or residual contamination below the surface, thus preventing exposure to patrons and workers. The encapsulation will prevent any further contact of precipitation with the fill material, preventing migration downward through the soil column. The goal of the removal will be to excavate identified coal tar material to the extent feasible, especially those deposits that are present in an amount that could liquefy and cause soft areas in the parking lot or actually erupt at the surface, in areas that impact the installation of underground utilities, and in quantities that can act as a continuing source of groundwater contamination.

The removal of the purifier waste may also be handled as a recyclable material; however concentrations of certain inorganics may require that some or all of this material be handled as a characteristic hazardous waste. If this is the case, the material may be removed to a facility that may first treat it to render it non-hazardous, and then perform a final disposal; or it may be deposited at a facility designed to handle and dispose of hazardous materials. This waste material was found primarily in the central and eastern portions of the Site. The waste material is easily identified as it exhibits a distinct blue/green color, and was found at the ground surface and up to 2ft below grade. There is an estimated volume of 5,700 cubic yards of in-situ purifier waste. This volume is also predicated on the randomness and basic mixture of the waste with surrounding soil and fill as well as the material encountered during general utility installation. As with the coal tar material, it is not the intent of the removal to excavate and remove every location where this material exists, but primarily where it is encountered in an amount that can be efficiently removed and where it would be considered to be a significant deposit. One primary reason why small deposits of this material may be encountered in random locations is that the filling was not performed in an organized manner and the waste was not found to be continuous. The potential also exists for purifier waste to be encountered in other locations between the major areas identified on Figure 16. The goal will be to remove a majority of material so that other excavations for utilities, piping, and future

underground work will not require major efforts involved in containing, handling, transporting and disposing of such wastes. Again, as with the removal of the coal tar material, there will be no avenue for exposure when the parking area is constructed. In addition, any future exposure of the waste to rain and percolating runoff will be removed after construction of the parking lot.

Groundwater Treatment

An area of volatile organics groundwater contamination exists in the central portion of the Site between Trenches 2 and 3. The area contains primarily volatile and semi-volatile organics that are common to coal tar products. The specific aromatic compounds include benzene, toluene, ethylbenzene, total xylenes and naphthalene. Concentrations in the soil and groundwater were not observed to be indicative of a widespread product plume. However, odors were prevalent throughout the area identified on Figure 15.

It is believed that the contamination originates from the disposal of the coal tar waste and that when this source is excavated and removed, the concentrations will decline. The results of the Site Investigation have determined that the contamination consists principally of volatile organics, which are found in the unsaturated soil column and shallow groundwater. The fill and shallow soil (silty sand) that are found at the Site are characteristically acceptable for in-situ remediation such as oxygen release compound (ORC). The shallow groundwater contamination makes ORC a very efficient method for removing dissolved contaminants.

The basic process of ORC involves the introduction of molecular oxygen into the area of contamination to accelerate the natural bioremediation of groundwater contaminants. ORC is composed of magnesium peroxide combined with food grade phosphate. ORC begins to release oxygen upon contact with moisture, and functions to increase and sustain the oxygen levels in the groundwater, making the environment more conducive to the naturally occurring micro-organisms that aerobically degrade petroleum contamination. The phosphate incorporated into the magnesium peroxide helps the product to operate in a time-release manner, so it will continue to increase oxygen levels for several months following application.

Once the coal tar and purifier wastes have been excavated from the areas between Trenches 2 and 3 (Figures 15 and 16), samples will be collected from the excavation to both document remaining conditions and to determine the level and type of treatment. If residual contamination is present that requires treatment, it will be applied to the exposed excavation. Required quantities of ORC will be calculated based on the initial concentrations of contaminants, the final size of the excavation, and site-specific geologic characteristics using the product manufacturer's specialized software.

A slurry method will be used to apply the ORC to the excavation. The proper calculated amount of compound will be mixed with water from the excavation in the bucket of a backhoe provided by the Contractor. Once mixed thoroughly, the slurry

will be placed back into the excavation. Upon application to the subsurface, the ORC slurry will be agitated so that it will be thoroughly distributed throughout the exposed saturated soils and fill materials at the soil/groundwater interface.

Grab groundwater samples will be collected from the open excavation immediately prior to and upon completion of ORC application. The samples will be submitted for analysis of VOCs and SVOCs.

Once application of the ORC is complete, the excavation will be backfilled with clean materials as previously defined in this document. Three piezometers will be installed on the up- and downgradient edges of each major excavation to monitor groundwater quality following the application of ORC, and will be left in place for future monitoring and as potential injection points should additional treatments be necessary.

There are a number of advantages with ORC treatment of groundwater including the following:

- The parking lot has not yet been constructed and the application can be performed without destroying existing asphalt or landscaping.
- The only by-products will be carbon dioxide and water.
- It is more cost effective than other remedial alternatives, usually half the cost of air sparging or pump and treat systems.
- It will not require treatment and discharge of groundwater.
- There is no system to construct or remove upon completion of remediation.
- In the event that residual contamination remains, additional application can be accomplished using the piezometers.
- Any carbon dioxide off-gassing that occurs will happen prior to completion of the parking lot and will not impact this construction.

Response Objectives and Plan

The proposed usage of the property includes the importation of fill material to level and grade the Site and the construction of an asphalt parking lot. This construction would not in itself require significant excavation or removal of material off-site beyond fencing, electrical service and storm drainage. After reviewing the Site data and understanding the final proposed use of the Site, LMS has taken the following factors into account:

- The Response Plan activities include removal of coal tar and the treatment of impacted groundwater to a level that will be approved by the NYSDEC and NYSDOH.

- Semivolatiles present do not pose an inhalation threat, and after being capped with both additional fill and the parking lot they will be effectively encapsulated.

- Metals present in the fill material, including cyanide, will not present an exposure threat once additional filling of the Site and capping occurs.

- Pesticides and PCBs are not an issue, as no pesticides were reported and PCB concentrations are not present above the unrestricted reuse limit of 1 ppm.

Based on the analytical results, the environmental conditions encountered on-Site, and the intended future use of the Site, in brief, LMS recommends the following:

- Removal of significant deposits of coal tar, with subsequent off-site disposal of material. It is the intent of the City to deliver this material to a treatment facility that will thermally treat it. DER-3 (TAGM 4060) outlines the allowance for coal tar waste and soil contaminated with coal tar waste to be handled as non-hazardous provided the material is removed and thermally treated. Any fuel oil saturated soils will be similarly managed.

- Removal of purifier bed wastes, with subsequent off-site disposal of material.

- Following removal of the coal tar between trenches 2 and 3, any exposed groundwater will be quickly assessed for levels of any residual contamination and will then be treated using a form of oxidation to remove the remaining BTEX.

- Prepare a Soils Management Plan (SMP) for the future development of the Site. Included in this documentation will be requirements to be met during construction for the protection of the health and safety of workers, specifications for potential disposal of additional material from any future excavations that may be performed, and proper procedures for such, as well as the management of soil to remain on-site.

- The removal of coal tar and purifier wastes will be handled as an initial action. During this removal, soils also exhibiting obvious fuel oil contamination will be removed. The identification of obvious contamination will be determined based on the following criteria; soil that is visibly stained with obvious petroleum or if field screening readings are above 10 units on either an FID or PID.

- Backfill of any areas of excavation will be performed using material that is not considered “Regulated Material” according to NYSDEC NYCRR Part 360 Solid Waste Regulations. Material may be imported from borrow sites, and NYSDEC Registered and/or permitted recycling facilities. Approximately 6,000 cubic yards of material used for the initial backfill will be

from a stockpile of material excavated from the nearby Voluntary Cleanup Project (VCP) Site E. Approximately 7,000 yards of additional material will be from a stockpile of material on the adjacent VCP Site A Operable Unit. Material from Sites E and A is similar in both physical and chemical composition to the fill found on Site A SOU. The material from Site A was sampled and results submitted to NYSDEC in August 2002 and material from Site E in December 2002. Approval was provided from NYSDEC to use material from both Sites in December 2002. At the time of this Report, the movement of material from Sites E and A to Site A SOU is complete.

- During installation of the parking lot and sub-grade utilities, any additional material that is removed as a result of this work that contains any of the wastes described above (coal tar, purifier wastes, etc) will be stockpiled, handled and removed in the same manner as the initial removal.

The sections below describe the Site conditions that led to the planned response. The response is then described with its rationale, referring to elements of the six criteria specified in 6 NYCRR 375-1.10 (c). Summaries of how the plan meets the six criteria are then provided.

Site Conditions for the Remedial Evaluations

Analysis of the analytical data for the soils, fill, and groundwater illustrates that exceedances of the TAGM were predominantly encountered where pure coal tar and purifier waste were present. Volatile organic compounds were generally detected at low levels in the soils across the Site, with the exception of those samples collected from the worst case locations. Semivolatile compounds, although more prevalent, were detected in the soils at levels that are consistent with degraded coal tar. These levels have been encountered in similar concentrations in other areas of this former MGP Site. Pesticides and PCBs were not detected in the majority of the soil samples submitted for analysis. Metals were also detected in the soils submitted for analysis at generally low levels with some exceedances. There are specific isolated areas where exceedances of the TAGM are prevalent and they are associated with coal tar boils but more predominantly with purifier bed wastes.

Groundwater monitoring points were installed to monitor groundwater quality at the Site and to determine whether a light or dense non-aqueous petroleum layer existed on-site (L/DNAPL). DNAPL was not encountered at any of the borings advanced on-site. There was a slight sheen on two of the piezometers sampled (PZ-1 and PZ-2), but no measurable product. Several exceedances of VOCs and SVOCs were detected in the groundwater samples submitted for analysis, both from the trenches and the piezometers. The sampling results from the piezometers indicated low to moderate volatile and semivolatile concentrations. Metals exceedances typically occurred in the unfiltered samples. Filtered samples had low to non-detectable metals concentrations. However, the groundwater metals data indicated that the water is rather high in analytes indicative of saline conditions. Although groundwater

fluctuations were not measured, due to the Site's proximity to the East River, it may be influenced by local tides.

The conditions that were encountered indicate that there are residual coal tar products in fill material at depths averaging 3 to 4 ft below grade located in each of the five trenches at random intervals along each trench. Trenches 2 and 3 contained the majority of coal tar found along the trenches at Site A SOU. Residual coal wastes related to historical Site activities exist in several distinct areas across the Site as illustrated in Figure 15. Coal tar wastes consisted of ash, slag and tar boils, all of which are encountered above the water table. Typically the coal tar has been extruded onto the surface as a boil, and, where encountered, ranged in thickness from several inches to several feet.

The coal tar material itself was found to contain the highest concentrations of compounds. In general, this material has been found to be mobile and regardless of chemical concentration will therefore where practical, be removed, handled and properly disposed of. A recent "draft" NYSDEC Program Policy System guidance superceding Program Policy DER – 3 (TAGM 4060) outlines the allowance for coal tar waste and soil contaminated with coal tar waste to be handled as non-hazardous provided this material is to be removed and thermally treated. The guidance allows certain activities to be exempt from 6 NYCRR Parts 370 to 374 and 376, they include:

1. Excavation and storage at the point of generation
2. Transportation to the thermal treatment facility or unit
3. Handling and storage prior to the thermal treatment at the facility
4. Thermal treatment
5. Management of the treated materials

The provisions primarily require that the Site be a former MGP site being remediated under the oversight of NYSDEC through either a Consent Order or Voluntary Cleanup Agreement. The policy does specify that significant amounts of purifier waste should not be mixed with the coal tar and therefore the wastes will be treated as two separate types of waste wherever possible.

Residual purifier bed wastes are also present, predominantly on the central to eastern side of the Site (Figure 16). These wastes consist of wood shavings with a brilliant blue-green color and are either present at the ground surface, or just below the surface to a maximum of 5 ft below grade.

Incinerator ash was encountered across the entire Site. This material is not of concern as it does not contain the levels of contaminants similar to that of the coal tar or purifier material. It was however, similar to other ash and cindery material that was

encountered in other areas of the former MGP site. The material is also consistent with historical incinerator ash encountered throughout the Metropolitan area.

Automobile parts were typically encountered just below the surface at the western side of the Site and were prevalent in Trenches 2, 3 and 4.

The current condition of the Site allows infiltration of all precipitation to pass through the soil and percolate to the groundwater. Following development of the Site and the associated construction of the parking lot, the percolation of rain water through the fill will primarily be limited to the areas with landscaping. At this point in the redevelopment of the Site, those areas are very limited or non-existent. Any "open" landscaped areas will be covered with an additional one (1) foot of material that will be considered "clean". The definition of "clean" for purposes of this remedy will be as follows: virgin material being imported from a site which contains no manmade fill, is not associated with any known petroleum spills, and is not know to have been in contact with any chemicals that would be included in NYSDEC TAGM 4046.

The bituminous cap that will be placed over the remainder of the Site will facilitate collection of all remaining precipitation. This will be directed to a stormwater system that will move water away from the Site without allowing contact with the fill.

The installation of the cap (parking lot) will also isolate the fill and prevent contact in the future from workers, patrons, or anyone present at the Site. Although the concentrations would be considered low level, there is the potential for encountering minor remaining deposits of coal tar and purifier wastes. In order to be as protective as possible for worker safety, a specification will be included in the construction documents that will address all special requirements to be addressed as a result of encountering this material. These will include at a minimum:

1. Preparing a general Health & Safety Plan in the event of an accident.

2. Preparing a Soils Management Plan to address soil excavation, movement, and re-grading. In addition to these procedures, the Contractor will also indicate his ability to properly handle and stockpile waste material if any is encountered.

3. Supplying documentation for treatment and disposal facilities in order to remove any stockpiled waste.

4. Prepare a plan which identifies locations, methods and procedures for storing waste prior to its disposal and the procedures to keep material from being mixed as it awaits disposal.

The Health and Safety and Soils Management Plans prepared by the Contractor will be submitted to NYSDEC and New York State Department of Health (NYSDOH) for review and approval prior to being implemented. The Plans will be made available to employees and visitors during Site development activities.

During all construction activities, the Contractor will be required to notify the managing engineer when intrusive work will be performed and where. This will allow an environmental monitor to inspect excavations as they progress and to direct workers to remove any of the previously described waste material for stockpiling and later disposal. Although it will be the Contractor's responsibility for timing excavation and disposal, it is anticipated that material slated to be removed and disposed of off-site will be required to be temporarily stockpiled. This will be necessary in order to perform sampling, wait for analytical results and then submit the required information to the disposal facility to gain approval.

Implementation of the Response Plan

Regarding the long-term portion of the remedy, the Site will have specific requirements that will include:

1. A Deed Restriction attached to the tenant documents and contract. The Deed Restriction will include the requirements set forth in Section X of the Voluntary Cleanup Agreement D3-0004-99-04 under which this Plan was prepared. In addition, the Deed Restriction will require that the tenant notify the Owner (City of New York) which in turn will notify NYSDEC of any intrusive work (utility, drainage additions, repairs or modifications) planned on the Site. The person or office in NYSDEC and NYSDOH listed as the contact for this notification will be provided by NYSDEC and NYSDOH upon completion of the remedy. As stated previously, both NYSDEC and NYSDOH approval of the H&S Plan must be granted prior to beginning intrusive activities.

2. In the event of intrusive work being performed on the Site that would penetrate the top foot of "clean" imported material, a Site Health and Safety and Soils Management Plans will be implemented by the "persons" or Contractor conducting the work. The Plans will serve to provide information and outline procedures used by workers to protect them from being exposed to contaminants in subsurface material. The Site Plans will be reviewed by the Owner, NYSDEC and NYSDOH prior to the initiation of work.

3. During the performance of any intrusive work, which does require the implementation of a Site Health and Safety and Soils Management Plans, care will be taken with any excess material such that it will be handled and disposed of in accordance with applicable State regulations. Procedures for this will be outlined in the previously mentioned Site Plans.

The cap material will also be required to be inspected, maintained, and kept in a condition that will preserve the post construction conditions (no human contact or infiltration of precipitation to the subsurface).

Summary of Criteria for Remedy Selection

The remedies proposed for the Site cover all of the types of material and contaminants encountered at the Site.

Standards, Criteria and Guidance:

The proposed response plan for this operable unit requires consideration of the TAGM 4046 guidance for remediation of contaminated soils. That guidance has been used to interpret Site investigation results and to formulate the response plan. Where cover material is to be placed over contaminated material, the TAGM is an element of the approval of the material.

NYSDEC is revising its TAGM 4060 for managing waste from coal gas manufacturing sites. The draft guidance will be followed in managing the wastes planned to be excavated and disposed off-site. The remedy selection criteria of NYSDEC recommend that recycling be used where feasible. The wastes being disposed of off-site will be sent to a thermal treatment unit that recovers the BTU value of the waste materials, where feasible.

NYSDEC groundwater criteria for GA waters have been cited in interpreting the groundwater quality data from the Site investigations. The Site's groundwater is not used for potable supply and is somewhat saline. Any apparent groundwater contamination will be treated with ORC according this Response Plan. Evaluations of the need for future treatment will consider the appropriate groundwater goals and NYSDEC requirements.

Federal regulations at 40 CFR 1910.120 describe the Health and Safety requirements for managing materials at contaminated sites. Those requirements will have to be followed by all remedial contractors and consultants. Response activities that have no potential for contacting contaminated materials need not follow those requirements. The response plan imposes the appropriate considerations for the safety of workers on the Site and possible future contact with the contaminated materials left beneath the Site.

Overall Protectiveness of Public Health and the Environment:

The present Site has exposed coal tar in some areas, and subsurface coal tar and purifier waste. There is evidence groundwater contamination, but the public is not exposed to groundwater in the area.

The proposed response will remove the exposed coal tar and purifier waste and most of the subsurface coal tar and purifier waste, as well as petroleum waste where visible and feasible. Groundwater will be treated where contamination is evident, and additional groundwater remediation may be required by NYSDEC. The Site will be capped with paving and approved fill to prevent future contact by the public and to minimize percolation of rainwater through any residual wastes left beneath the cap.

Removal of wastes and capping of residual contamination, with institutional controls on the Site is more protective of public health and the environment than on-site treatment of wastes by any technology.

Restrictions will be placed on the Site to notify future users of the remaining subsurface contamination. Future excavation of the materials will be prohibited unless appropriate precautions are followed.

Short Term Effectiveness:

The proposed Response Plan includes excavation of the areas where waste was identified. Other contamination will be capped. These actions will be implemented shortly after the Response Plan is approved by NYSDEC. This remedy is highly effective in that the wastes will be removed from the Site. Alternative remedies implemented on the Site would be less effective in the short term. Use of ORC on groundwater exposed in the excavations will be the fastest method to quickly treat the contamination nearest its source. If follow up remediation is required by NYSDEC, it will be safely performed since the capped Site will pose no public or environmental exposure to the groundwater.

Long Term Effectiveness:

The Response Plan includes institutional controls on the Site use and intrusion into the residual contaminated materials. No groundwater use exists in the area and will not be permitted by NYSDEC under their groundwater withdrawal permit program. The Owner's agreement to assure maintenance of the cap will assure that the Response Plan will be effective in the long term.

Reduction of Toxicity, Mobility and Volume:

The subject waste and contamination have been at the Site for many decades. Removal of the wastes will effectively achieve source control so that contaminant migration will be eliminated. The removal of waste with off-site disposal to the extent feasible will assure volume reduction of the most contaminated material found at the Site. The toxicity of the groundwater will be reduced by treatment with ORC where appropriate. Capping the Site will reduce the percolation of rainwater through the residual contamination, reducing its mobility. The proposed Response Plan will effectively reduce the toxicity, mobility and volume of contaminants at the Site to the extent feasible.

Feasibility:

The proposed response plan is extensive, but feasible. It involves known and demonstrated technologies for this Site. Excavations have been performed already in the waste materials on this Site, so removal is assuredly feasible. Other treatment technologies available for these types of wastes are not as reliably implemented as excavation with off-site disposal. Use of ORC for the groundwater is a demonstrated technology of reducing the concentrations of VOCs and SVOCs. If additional treatment is required it can be applied at the Site.

Selection Summary

The removal of the identified coal tar and purifier waste represents material that is specific in nature to a historical Site process or is a waste from a specific process. The remedial activities that will be performed include: removal of waste products (coal tar, purifier); application of oxygenation compound to exposed groundwater areas; backfill and placement of asphalt cover; submittal of final Engineering Report and obtaining NYSDEC approval; and continuation of groundwater monitoring to assess the removal action and groundwater treatment to determine if additional treatment or injection locations are necessary.

The removal of any available contaminant source areas (from coal tar, purifier waste or petroleum) is one important aspect to initiate groundwater quality improvement. Product in contact with the water table can be a continual source of immediate groundwater contamination allowing soluble compounds to enter the water table causing degradation of groundwater quality criteria. In this case the product is quite localized and has not been measured in any substantial amounts and can be handled in conjunction with, or separately from the groundwater treatment.

The application of ORC to the water table will help treat in-situ groundwater and lower dissolved concentrations. The levels of volatile organic compounds can be reduced to concentrations that will either meet groundwater standards or will be at a level that will not allow migration at a concentration that will degrade the standards off-site. The remaining remedy for the Site includes the final covering and capping of the parcel with an asphalt cap with controlled drainage.

The combination of active remedies in the form of removal, treatment and engineering controlled structures will effectively prepare the Site for its future occupancy and reuse as a viable and safe facility. At this time it is proposed that monitoring of the ORC remedial progress be performed on a monthly or quarterly basis to assess the effectiveness of the removal and to determine if additional treatments (locations) will be necessary. Progress letters describing Site activities and data will also be submitted on a monthly or quarterly basis to NYSDEC and NYCEDC until such a time that the construction has been completed. At that time the operation will be evaluated and a recommendation made regarding the period of submittal for data and information. Groundwater contaminant levels will be evaluated and compared to existing groundwater quality conditions to determine acceptable reduction levels. Following completion of the construction phase of the project but potentially during the phase of monitoring, the Engineering Report will be submitted for Department approval.

ATTACHMENT A

DEEP SOIL BORING LOGS

LMS Test Boring Log

Boring No.:	**DB-1**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 40'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"

Monitoring Instrument(s):

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					24				0-4" brown sand and ash 4-6" - concrete 6-10" - incinerator ash 10-24" - coal ash	
4-8					10				0-10" - incinerator ash, some coal ash.	
8-12					0				no recovery, water table, incinerator ash sloughed out of sampler	
12-16					8				0-8" - incinerator ash, some wood.	
16-20					44				0-2" - incinerator ash 2-44" - grey-green organic clay, micaceous, some shells, organic odor.	
20-24					38				0-38" - grey green organic clay, micaceous, some shells and peat, organic odor.	
24-28					40				0-40" - grey green organic clay some peat, little shells, micaceous	
28-32					48				0-48" - grey green organic clay, some shells, organic odor	
32-36					48				0-48" - grey green organic clay, some shells, organic odor	
36-40					48				0-48" - grey green organic clay, some shells, organic odor EOB @ 40 ft NO DNAPL ENCOUNTERED	

LMS Test Boring Log

Boring No.:	DB-2
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 40
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"

Monitoring Instrument(s):

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					30				0-14" - coal ash, some coal slag, incinerator ash 14-15" - mica flakes 15-15.5" - coal ash and slag 15.5-16.5" - brick fragment 16.5-30" - coal ash	
4-8					48				0-32" - coal ash, some wood chips, creosote odor 32-48"- grey-green organic clay, some shells, blue-green stained wood chips	
8-12					18				0-18" - blue-green wood chips (purifier bed waste)	
12-16					0				no recovery, wet incinerator ash sloughed out of sampler	
16-20					0				no recovery, wet incinerator ash sloughed out of sampler	
20-24					0				no recovery, wet incinerator ash sloughed out of sampler	
24-32					48				0-8" - coal ash and grey green clay 8-48"- grey-green organic clay, little peat, little shells, organic odor.	
32-40					48				0-48" - grey-green organic clay, little shells, organic odor.	
									EOB @ 40 ft NO DNAPL ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**DB-3**
Sheet 1 **of** 2	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 40'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					44				0-1" - brown, c. sand, little clay 1-8" - coal ash and slag 8-10" - brick fragment 10-16" - black clay and coal ash, little brick and concrete 16-17" - concrete 17-30" - coal ash and slag, little brick and concrete 30-44" - black clay, some coal ash, little brick	
4-8					46				0-8" - black coal ash 8-40" - tan-brown micaceous sand and clay. 40-46" - brown-black silt, some sand	
8-12					20				0-6" - grey-green silty clay 6-8" - brick 8-10" - black coal ash, some wood chips 10-15" - grey-green clay 15-20" - black coal ash, some glass.	
12-16					0				no recovery	
16-20					48				0-18" - black coal ash, very wet, little brick, some wood chips 18-48" - grey-green organic clay	
20-24					42				0-42" - grey-green organic clay, some peat, little shells, organic odor.	
24-28					48				0-48" - grey-green organic clay, some peat, organic odor.	

LMS Test Boring Log

Project Name: Site A Second Operating Unit	**Boring No.:** DB-3
	Sheet 2 **of** 2
	Project No.: 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 40'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
28-32					48				0-48" - grey-green organic clay, little shells, organic odor	
32-36					48				0-48" - grey-green organic clay, little shells, organic odor.	
36-40					48				0-48" - grey-green organic clay, some shells and peat, organic odor.	
									EOB @ 40 ft NO DNAPL ENCOUNTERED	

ATTACHMENT B

SHALLOW SOIL BORING LOGS

LMS Test Boring Log

Boring No.:	**GP-1**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					46				0.0-30" - coal ash, some slag, some concrete and wood, some gravel. 30-31" - concrete 31-43" - coal ash and clay, some gravel 43-46" - blue-green stained wood chips chips (purifier bed waste)	
4-8					18				0.0-17" - blue-green stained wood chips (purifier bed waste) 17-18" - timbers, some coal ash	
8-12					24"				1-12" - coal ash/slag 12-24" - incinerator ash EOB @ 12 ft NO COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-2**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					30				0-25" - coal ash, some slag, some incinerator ash, little brick, little mica 25-28" - blue-green stained wood chips 28-30" - coal ash	
4-8					14				0-7" - Incinerator ash 7-13" - coal ash and slag 13-14" - timbers	
8-12					14				H2O @ 8 ft 0-14" - incinerator ash, little porcelain, cinders EOB @ 12 ft NO COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-3**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					36				0-36" - coal ash, some incinerator ash, little mica	
4-8					36				0-6" - coal ash, some slag 6-9" - Incinerator ash 9-36" - coal ash, some slag	
8-12					30				0-2" - coal tar and coal ash 2-14" - incinerator ash, wet H2O @ 8 ft 14-15" - dark grey organic clay 15-24" - incinerator ash, little wood 24-30" - grey-green organic clay EOB @ 12 ft	

LMS Test Boring Log

Boring No.:	**GP-4**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					30				0-18" - incinerator ash 18-26" - coal ash and incinerator ash, little mica 26-30" - incinerator ash	
4-8					44				0-12" incinerator ash, little paper 12-44" - coal ash, some slag EOB @ 8 Ft NO COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-5**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/25/2001
Driller: LMS	Finish: 9/25/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					44				0-1" - timber 1-15" - coal ash, some slag, some mica 15-22" - grey clay, some gravel 22-44" - coal ash, some slag, some mica	
4-8					32				0-31" - coal ash , some slag, some mica 31-32" - incinerator ash	
8-12					24				0-24" - incinerator ash, wet	
12-16					12				0-8" - coal ash, some slag, wet 8-12" coal ash and coal tar note: there is a large tar boil adjacent to the boring on the ground surface	
16-18					2				refusal at 18ft grey-green organic clay EOB @18 ft 4 in of COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-6**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					42				0-4" - brown sand and clay 4-5" - timber 5-40" - coal ash, little mica 40-42" - coal ash, little coal tar	
4-8					38				0-35" - coal ash and slag 35-38" - coal tar, strong naphthalene odor	
8-12					22				0-2" coal tar 2-22" - coal ash, little slag	
12-16					0				no recovery, incinerator ash in spoon EOB @ 16 ft ~12 in of COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-7**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					46				0-12" - dark sand, some gravel and brick 12-13" - coal tar 13-46" - incinerator ash, coal tar, and coal ash	
4-8					24				0-18" - coal ash 18-24" - coal tar, some wood	
8-12					6				0-3" - coal ash 3-6" - coal ash, some coal tar EOB @ 12 ft ~12 in COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-8**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					16				0-4" - coal ash, micaceous 4-6" - concrete 6-15" - incinerator ash, some coal ash 15-16" - coal tar	
4-8					12				0-11" - incinerator ash 11-12" - coal tar	
8-12					14				0-14" - incinerator ash, some brick, little wood EOB @ 12 ft ~2 in COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-9**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					28				0-16" - coal ash, little slag, brick and mica 16-18" - concrete 18-21" - coal ash, little mica 21-24" - rust colored sand 24-24.5" - coal ash and mica 24.5-28" - coal tar	
4-8					12				0-12" - coal tar, some slag	
8-12					16				0-16" - coal ash, some slag, little tar and wood	
12-16					46				0-6" - coal ash, some slag 6-46" - grey green organic clay EOB @ !6 ft ~12 in COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-9**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					28				0-16" - coal ash, little slag, brick and mica 16-18" - concrete 18-21" - coal ash, little mica 21-24" - rust colored sand 24-24.5" - coal ash and mica 24.5-28" - coal tar	
4-8					12				0-12" - coal tar, some slag	
8-12					16				0-16" - coal ash, some slag, little tar and wood	
12-16					46				0-6" - coal ash, some slag 6-46" - grey green organic clay EOB @ !6 ft ~12 in COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-10**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					46				0-13" - brown sand and clay, little mica and brick 13-14" - concrete 14-46" - coal ash, some brick concrete and mica	
4-8					40				0-10" - coal tar, some slag 10-35" - coal ash, some slag 35-36" wood 36-40" - coal ash (wet), some slag	
8-12					36				0-1" - coal tar 1-36" - incinerator ash, some wood	
12-16					44				0-22" - coal ash, some slag 22-44" - grey green organic clay EOB @ 16 ft ~12 in COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-11**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					38				0-4" - incinerator ash 4-5" - concrete 5-21" - coal ash 21-23" - coal ash and tar 23-38" - coal ash, some slag	
4-8					10				0-3" - coal ash 3-7" - coal tar 7-10" - incinerator ash	
8-12					24				0-18" - coal ash, some slag 18-24" - grey green organic clay EOB @ 12 Ft ~6 in COAL TAR ENCOUNTERED	

LMS Test Boring Log

Boring No.:	**GP-12**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Remarks
0-4					16				0-16" - concrete, some sand	
4-12					0				no recovery	

LMS Test Boring Log

Boring No.:	**GP-13**
Sheet 1 **of** 1	
Project Name: Site A Second Operating Unit	**Project No.:** 781-001
Client: NYCEDC	**Date:** Start: 9/26/2001
Driller: LMS	Finish: 9/26/2001
Drilling Method: Probe Rig	**Total Depth:** 8'
Boring Location:	**Depth to Water:** 8'
Coordinates:	**Surf. Elevation**
Logged By: m.pantliano/j.morse	**Hole Diameter:** 2"
Monitoring Instrument(s):	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
0-4					44				0-13" - coal ash, some mica 13-16" - coal tar 16-20" - wood 20-44" - coal ash, little concrete and brick	
4-8					40				0-3" - dark brown sand and clay 3-6" - incinerator ash 6-40" - dark brown sand and clay, little concrete	
8-12					18				0-10" - grey green clay, little sand 10-18" - incinerator ash and coal ash some brick	
12-16					24				0-15" - coal ash, little brick 15-24" - grey green organic clay EOB @ 16 ft NO COAL TAR ENCOUNTERED	

ATTACHMENT C

TEMPORARY PIEZOMETER LOGS

LMS Test Boring Log

	Boring No.: PZ-1
	Sheet 1 **of** 1
Project Name: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT	**Project No.:** 781001
Client: NYCEDC	**Date:** Start 9/25/01
Driller: LMS ENGINEERS	Finish 9/25/01
Drilling Method: DIRECT PUSH PROBE	**Total Depth:** 16'
Boring Location: SITE A SECOND OPERATING UNIT	**Depth To Water:** 8'
Coordinates:	**Surf. Elevation:**
Logged By: J.MORSE/M.PANTLIANO	**Hole Diameter:** 2"
Monitoring Instrument(s): Hnu	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in.)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	
0-4					36				0-4" - topsoil, dark brown sand, some clay 4-16" - coal tar, some concrete, little coal slag and brick 16-18" - brown micaceous sand 18-30" - coal tar 30-36" - coal ash, some micaceous sand	
4-8					36				0-30" - brown sand and coal ash, little brick 30-36" - incinerator ash and slag	
8-12					30				0-30" - incinerator ash, some slag, wet brick fragments @ 28" wood chips @ 25"	
12-16					22				0-12" - coal slag, sulfur odor 12-16" - incinerator ash, slag, petroleum and sulfur odor, last 2 inches has sheen, some silt EOB @ 16' TEMPORARY PIEZOMETER INSTALLED - 0-14'	

LMS Test Boring Log

	Boring No.: PZ-2
	Sheet 1 **of** 1
Project Name: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT	**Project No.:** 781001
Client: NYCEDC	**Date:** Start 9/25/01
Driller: LMS ENGINEERS	Finish 9/25/01
Drilling Method: DIRECT PUSH PROBE	**Total Depth:** 16'
Boring Location: SITE A SECOND OPERATING UNIT	**Depth To Water:** 8'
Coordinates:	**Surf. Elevation:**
Logged By: J.MORSE/M.PANTLIANO	**Hole Diameter:** 2"
Monitoring Instrument(s): Hnu	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in.)	Instrument Reading	Sample Retained		Classification Of Material (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
0-4					24				0-4" - sand and clay, some glass wood, brick and gravel 4-8" - sand, some brick and glass 8-18"- dark brown-black sand, some clay, little glass and brick 18-20" - wood 20-20.5" - concrete 20.5-24" - coal ash, little tar	
4-8					12				refusal at 6 ft 0-12" - coal ash and slag, some coal tar, creosote odor, sheen on ash.	
8-12					48				0-12" - coal ash and tar, sheen on water, strong odor 12-18" - brown silty sand and some coal tar stringers 18-48" - incinerator ash, tr coal tar stringers	
12-16					24				sheen on water no coal tar or ash, no odor, 0-24" - incinerator ash, glass, gravel, porcelain, brick - black to grey in color EOB @ 16' INSTALL TEMPORARY PIEZOMETER - 0-14'	

LMS Test Boring Log

Boring No.: PZ-3

Sheet 1 **of** 1

Project Name: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

Project No.: 781001

Client: NYCEDC

Date: Start 9/25/01

Driller: LMS ENGINEERS

Finish 9/25/01

Drilling Method: DIRECT PUSH PROBE

Total Depth: 16'

Boring Location: SITE A SECOND OPERATING UNIT

Depth To Water: 8'

Coordinates:

Surf. Elevation:

Logged By: J.MORSE/M.PANTLIANO

Hole Diameter: 2"

Monitoring Instrument(s): Hnu

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in.)	Instrument Reading	Sample Retained		Classification Of Material (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
0-4					30				0-2" - dark sand and clay 2-6" - concrete 6-26" - coal ash 26-30" - incinerator ash	
4-8					24				0-24" - incinerator ash	
8-12					12				WET - incinerator ash	
12-16					12				incinerator ash EOB @ 16' INSTALL TEMPORARY PIEZOMETER - 0-14'	

MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 781-001

PROJECT NAME: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

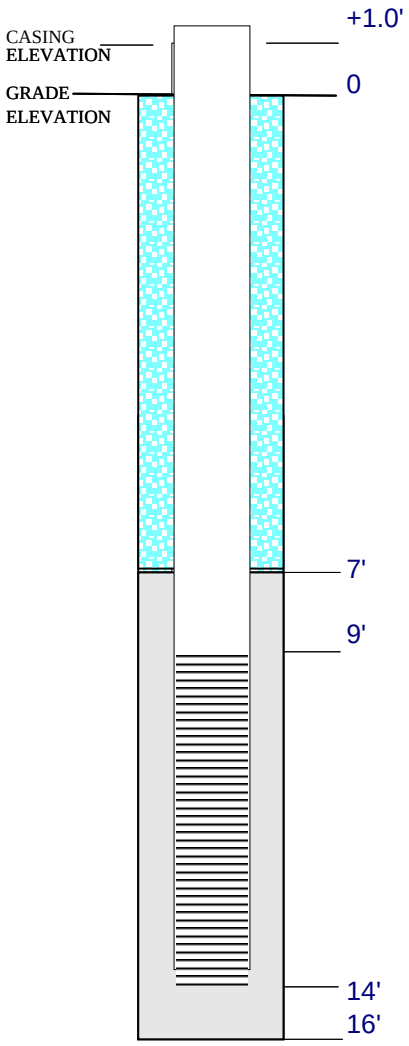
WELL No.: PZ-1

CLIENT: NYC ECONOMIC DEVELOPMENT CORP.

LOCATION: HUNTS POINT SITE A SECOND OPERATING UNIT

DATE DRILLED:	DATE DEVELOPED:	WELL CONSTRUCTION COMPLETED:
25-Sep-01		25-Sep-01

DEVELOPING METHOD:



NOT TO SCALE

INSPECTOR: J.Morse

DRILLING CONTRACTOR: LMS ENGINEERS

TYPE OF WELL: TEMPORARY PIEZOMETER

STATIC WATER LEVEL: 9.3' DATE: 9/27/2001

MEASURING POINT: TOC TOTAL DEPTH OF WELL: 14' TOTAL DEPTH OF BORING: 16'

DRILLING METHOD TYPE: DIRECT PUSH PROBE

DIAMETER: 1" CASING: PVC

SAMPLING METHOD TYPE: 48" MACRO CORE SAMPLER

DIAMETER: 1" WEIGHT:

FALL: INTERVAL: CONTINUOUS

RISER PIPE LEFT IN PLACE MATERIAL: PVC

DIAMETER: 1" LENGTH: 10' JOINT TYPE: THREADED

SCREEN MATERIAL: PVC

INTERVAL: 9-14' DIAMETER: 1"

STRATIGRAPHIC UNITS SCREENED: SLOT SIZE: 0.01

FILTER PACK GRADE:

SAND: #2MORIE GRAVEL: NATURAL:

AMOUNT: INTERVAL: 7-16'

SEAL(s)

Portland Cement	INTERVAL:	AMOUNT:
Bentonite Slurry	INTERVAL: 0-7'	AMOUNT:
Bentonite Pellets	INTERVAL:	AMOUNT:
Other:	INTERVAL:	AMOUNT:

NOTES:

LOCKING CASING: ■ YES ☐ NO KEY NO:

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP

MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 781-001

PROJECT NAME: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

WELL No.: PZ-2

CLIENT: NYC ECONOMIC DEVELOPMENT CORP.

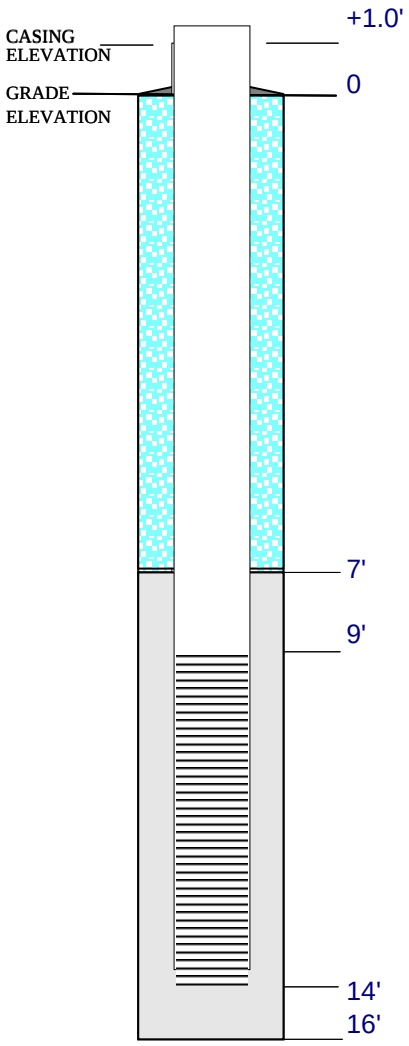
LOCATION: HUNTS POINT SITE A SECOND OPERATING UNIT

DATE DRILLED: 25-Sep-01

DATE DEVELOPED:

WELL CONSTRUCTION COMPLETED: 25-Sep-01

DEVELOPING METHOD:



NOT TO SCALE

INSPECTOR: J.Morse

DRILLING CONTRACTOR: LMS ENGINEERS

TYPE OF WELL: TEMPORARY PIEZOMETER

STATIC WATER LEVEL: 10.1' DATE: 9/27/2001

MEASURING POINT: TOC TOTAL DEPTH OF WELL: 14' TOTAL DEPTH OF BORING: 16'

DRILLING METHOD TYPE: DIRECT PUSH PROBE

DIAMETER: 1" CASING: PVC

SAMPLING METHOD TYPE: 48" MACRO CORE SAMPLER

DIAMETER: 1" WEIGHT:

FALL: INTERVAL: CONTINUOUS

RISER PIPE LEFT IN PLACE MATERIAL: PVC

DIAMETER: 1" LENGTH: 10' JOINT TYPE: THREADED

SCREEN MATERIAL: PVC

INTERVAL: 9-14' DIAMETER: 1"

STRATIGRAPHIC UNITS SCREENED: SLOT SIZE: 0.01

FILTER PACK GRADE:

SAND: #2MORIE GRAVEL: NATURAL:

AMOUNT: INTERVAL: 7-16'

SEAL(s)

NOTES:

Portland Cement INTERVAL: AMOUNT:

Bentonite Slurry INTERVAL: 0-7' AMOUNT:

Bentonite Pellets INTERVAL: AMOUNT:

Other: INTERVAL: AMOUNT:

LOCKING CASING: ■ YES ☐ NO KEY NO:

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP

MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 781-001

PROJECT NAME: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

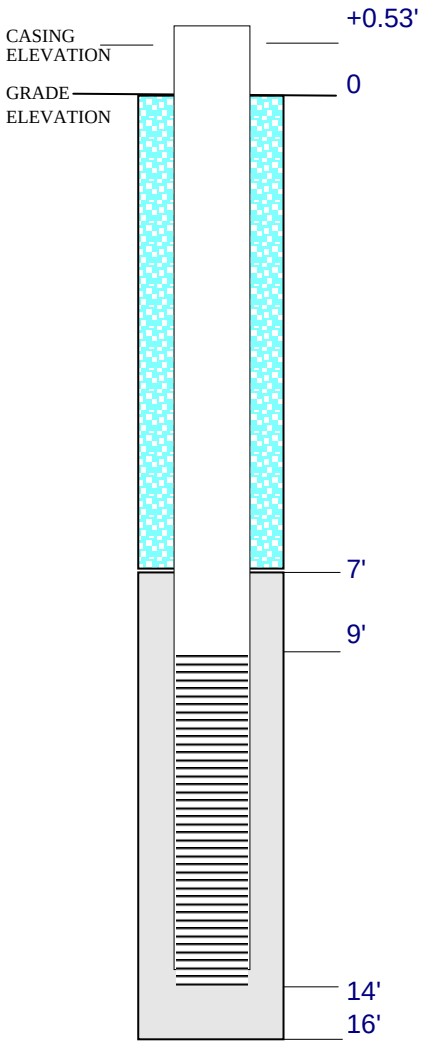
WELL No.: PZ-3

CLIENT: NYC ECONOMIC DEVELOPMENT CORP.

LOCATION: HUNTS POINT SITE A SECOND OPERATING UNIT

DATE DRILLED:	DATE DEVELOPED:	WELL CONSTRUCTION COMPLETED:
25-Sep-01		25-Sep-01

DEVELOPING METHOD:



NOT TO SCALE

INSPECTOR: J.Morse

DRILLING CONTRACTOR: LMS ENGINEERS

TYPE OF WELL: TEMPORARY PIEZOMETER

STATIC WATER LEVEL: 8.86' DATE: 9/27/2001

MEASURING POINT: TOC TOTAL DEPTH OF WELL: 14' TOTAL DEPTH OF BORING: 16'

DRILLING METHOD TYPE: DIRECT PUSH PROBE

DIAMETER: 1" CASING: PVC

SAMPLING METHOD TYPE: 48" MACRO CORE SAMPLER

DIAMETER: 1" WEIGHT:

FALL: INTERVAL: CONTINUOUS

RISER PIPE LEFT IN PLACE MATERIAL: PVC

DIAMETER: 1" LENGTH: 10' JOINT TYPE: THREADED

SCREEN MATERIAL: PVC

INTERVAL: 9-14' DIAMETER: 1"

STRATIGRAPHIC UNITS SCREENED: SLOT SIZE: 0.01

FILTER PACK GRADE:

SAND: #2MORIE GRAVEL: NATURAL:

AMOUNT: INTERVAL: 7-16'

SEAL(s)

Portland Cement	INTERVAL:	AMOUNT:
Bentonite Slurry	INTERVAL: 0-7'	AMOUNT:
Bentonite Pellets	INTERVAL:	AMOUNT:
Other:	INTERVAL:	AMOUNT:

NOTES:

LOCKING CASING: ■ YES ☐ NO KEY NO:

ATTACHMENT D

ADDITIONAL TEMPORARY PIEZOMETER LOGS

LMS Test Boring Log

Boring No.: PZ-4

Sheet 1 **of** 1

Project Name: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

Project No.: 781020

Client: NYCEDC

Date: Start 11/6/02

Driller: LMS ENGINEERS

Finish 11/6/02

Drilling Method: DIRECT PUSH PROBE

Total Depth: 16'

Boring Location: SITE A SECOND OPERATING UNIT

Depth To Water: 10'

Coordinates:

Surf. Elevation:

Logged By: J.THORNBURG/M.PANTLIANO

Hole Diameter: 2"

Monitoring Instrument(s): Hnu

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in.)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	
0-4					24				0-3" - wood humus and plastic 3-24" - black coal ash and slag	
4-8					24				0-24" - black coal ash and slag	
8-12					20				0-20" - black-brown incinerator ash and coal ash, some slag WET - at 10 ft	
12-16					32				0-6" - brown incinerator ash and slag 6-32" - grey silt, some clay, organic odor. EOB @ 16' INSTALL TEMPORARY PIEZOMETER - 0-14'	

LMS Test Boring Log

	Boring No.: PZ-5
	Sheet 1 **of** 1
Project Name: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT	**Project No.:** 781020
Client: NYCEDC	**Date:** Start 11/6/02
Driller: LMS ENGINEERS	Finish 11/6/02
Drilling Method: DIRECT PUSH PROBE	**Total Depth:** 16'
Boring Location: SITE A SECOND OPERATING UNIT	**Depth To Water:** 8'
Coordinates:	**Surf. Elevation:**
Logged By: J.THORNBURG/M.PANTLIANO	**Hole Diameter:** 2"
Monitoring Instrument(s): Hnu	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in.)	Instrument Reading	Sample Retained		Classification Of Material	Remarks
									f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%	
0-4					31				0-1" - black sand and wood 1-5" - concrete 5-31" - black coal ash, intermittent layers of concrete	
4-8					34				0-34" - black coal ash and slag, lens of brown silt and clay 28-32"	
8-12					28				WET @ 8 ft 0-22" - brown incinerator ash 22-28" - grey silt, some clay	
									EOB @ 12' INSTALL TEMPORARY PIEZOMETER - 0-12'	

LMS Test Boring Log

	Boring No.: PZ-6
	Sheet 1 **of** 1
Project Name: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT	**Project No.:** 781020
Client: NYCEDC	**Date:** Start 11/6/02
Driller: LMS ENGINEERS	Finish 11/6/02
Drilling Method: DIRECT PUSH PROBE	**Total Depth:** 16'
Boring Location: SITE A SECOND OPERATING UNIT	**Depth To Water:** 8'
Coordinates:	**Surf. Elevation:**
Logged By: J.THRONBURG/M.PANTLIANO	**Hole Diameter:** 2"
Monitoring Instrument(s): Hnu	

Depth (ft)	Blows On Sampler 0"-6"	6"-12"	12"-18"	18"-24"	Recovery (in.)	Instrument Reading	Sample Retained		Classification Of Material (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
0-4					36				0-36" - black coal ash, some slag little wood	
4-8					32				0-32" - incinerator ash and coal ash, trace wood.	
8-12					28				WET @ 8 ft 0-12" - incinerator ash	
12-16					6				incinerator ash EOB @ 16' INSTALL TEMPORARY PIEZOMETER - 0-14'	

MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 781-020

PROJECT NAME: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

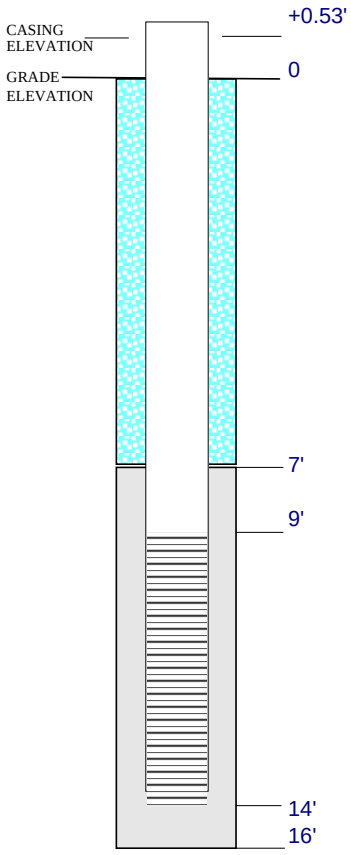
WELL No.: PZ-4

CLIENT: NYC ECONOMIC DEVELOPMENT CORP.

LOCATION: HUNTS POINT SITE A SECOND OPERATING UNIT

DATE DRILLED:	DATE DEVELOPED:	WELL CONSTRUCTION COMPLETED:
6-Nov-02		6-Nov-02

DEVELOPING METHOD:



NOT TO SCALE

INSPECTOR: J.Thornburg/M.Pantliano

DRILLING CONTRACTOR: LMS ENGINEERS

TYPE OF WELL: TEMPORARY PIEZOMETER

STATIC WATER LEVEL: 10' DATE: 11/6/2002

MEASURING POINT: TOC TOTAL DEPTH OF WELL: 14' TOTAL DEPTH OF BORING: 16'

DRILLING METHOD TYPE: DIRECT PUSH PROBE

DIAMETER: 1" CASING: PVC

SAMPLING METHOD TYPE: 48" MACRO CORE SAMPLER

DIAMETER: 1" WEIGHT:

FALL: INTERVAL: CONTINUOUS

RISER PIPE LEFT IN PLACE MATERIAL: PVC

DIAMETER: 1" LENGTH: 10' JOINT TYPE: THREADED

SCREEN MATERIAL: PVC

INTERVAL: 9-14' DIAMETER: 1"

STRATIGRAPHIC UNITS SCREENED: SLOT SIZE: 0.01

FILTER PACK GRADE:

SAND: #2MORIE GRAVEL: NATURAL:

AMOUNT: INTERVAL: 7-16'

SEAL(s)

NOTES:

Portland Cement	INTERVAL:	AMOUNT:
Bentonite Slurry	INTERVAL: 0-7'	AMOUNT:
Bentonite Pellets	INTERVAL:	AMOUNT:
Other:	INTERVAL:	AMOUNT:

LOCKING CASING: ■ YES ☐ NO KEY NO:

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP

MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 781-020

PROJECT NAME: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

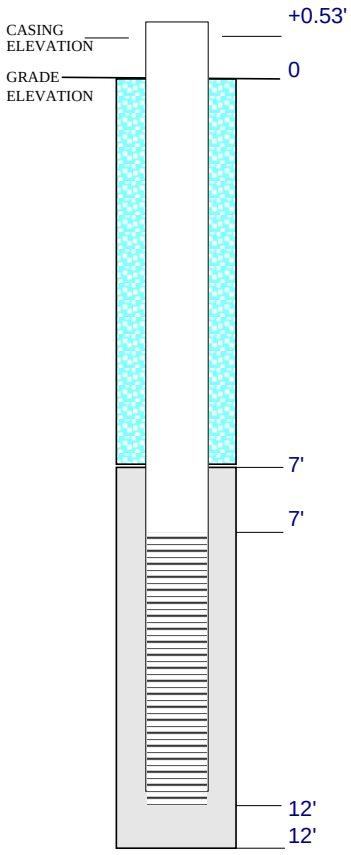
WELL No.: PZ-5

CLIENT: NYC ECONOMIC DEVELOPMENT CORP.

LOCATION: HUNTS POINT SITE A SECOND OPERATING UNIT

DATE DRILLED:	DATE DEVELOPED:	WELL CONSTRUCTION COMPLETED:
6-Nov-02		6-Nov-02

DEVELOPING METHOD:



NOT TO SCALE

INSPECTOR: J.Thornburg/M.Pantliano

DRILLING CONTRACTOR: LMS ENGINEERS

TYPE OF WELL: TEMPORARY PIEZOMETER

STATIC WATER LEVEL: 8' DATE: 11/6/2002

MEASURING POINT: TOC TOTAL DEPTH OF WELL: 12' TOTAL DEPTH OF BORING: 12'

DRILLING METHOD TYPE: DIRECT PUSH PROBE

DIAMETER: 1" CASING: PVC

SAMPLING METHOD TYPE: 48" MACRO CORE SAMPLER

DIAMETER: 1" WEIGHT:

FALL: INTERVAL: CONTINUOUS

RISER PIPE LEFT IN PLACE MATERIAL: PVC

DIAMETER: 1" LENGTH: 10' JOINT TYPE: THREADED

SCREEN MATERIAL: PVC

INTERVAL: 7-12' DIAMETER: 1"

STRATIGRAPHIC UNITS SCREENED: SLOT SIZE: 0.01

FILTER PACK GRADE:

SAND: #2MORIE GRAVEL: NATURAL:

AMOUNT: INTERVAL: 7-12'

SEAL(s)

NOTES:

Portland Cement	INTERVAL:	AMOUNT:
Bentonite Slurry	INTERVAL: 0-7'	AMOUNT:
Bentonite Pellets	INTERVAL:	AMOUNT:
Other:	INTERVAL:	AMOUNT:

LOCKING CASING: ■ YES ☐ NO KEY NO:

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP

MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 781-020

PROJECT NAME: NYCEDC HUNTS POINT SITE A SECOND OPERATING UNIT

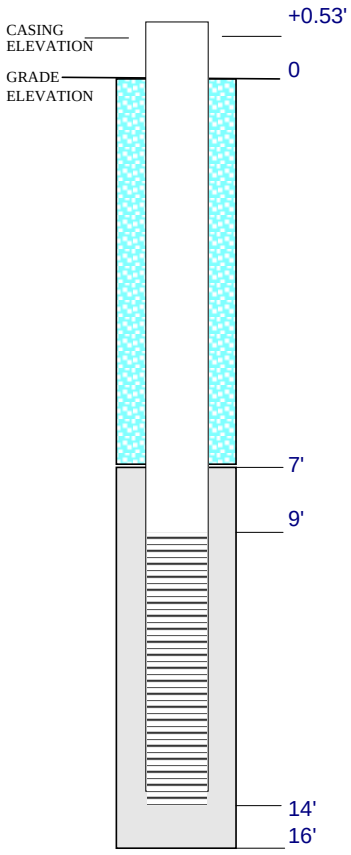
WELL No.: PZ-6

CLIENT: NYC ECONOMIC DEVELOPMENT CORP.

LOCATION: HUNTS POINT SITE A SECOND OPERATING UNIT

DATE DRILLED:	DATE DEVELOPED:	WELL CONSTRUCTION COMPLETED:
6-Nov-02		6-Nov-02

DEVELOPING METHOD:



NOT TO SCALE

INSPECTOR: J.Thornburg/M.Pantliano

DRILLING CONTRACTOR: LMS ENGINEERS

TYPE OF WELL: TEMPORARY PIEZOMETER

STATIC WATER LEVEL: 10' DATE: 11/6/2002

MEASURING POINT: TOC TOTAL DEPTH OF WELL: 14' TOTAL DEPTH OF BORING: 16'

DRILLING METHOD TYPE: DIRECT PUSH PROBE

DIAMETER: 1" CASING: PVC

SAMPLING METHOD TYPE: 48" MACRO CORE SAMPLER

DIAMETER: 1" WEIGHT:

FALL: INTERVAL: CONTINUOUS

RISER PIPE LEFT IN PLACE MATERIAL: PVC

DIAMETER: 1" LENGTH: 10' JOINT TYPE: THREADED

SCREEN MATERIAL: PVC

INTERVAL: 9-14' DIAMETER: 1"

STRATIGRAPHIC UNITS SCREENED: SLOT SIZE: 0.01

FILTER PACK GRADE:

SAND: #2MORIE GRAVEL: NATURAL:

AMOUNT: INTERVAL: 7-16'

SEAL(s)

NOTES:

	INTERVAL:	AMOUNT:
Portland Cement		
Bentonite Slurry	INTERVAL: 0-7'	AMOUNT:
Bentonite Pellets	INTERVAL:	AMOUNT:
Other:	INTERVAL:	AMOUNT:

LOCKING CASING: ■ YES ☐ NO KEY NO:

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP