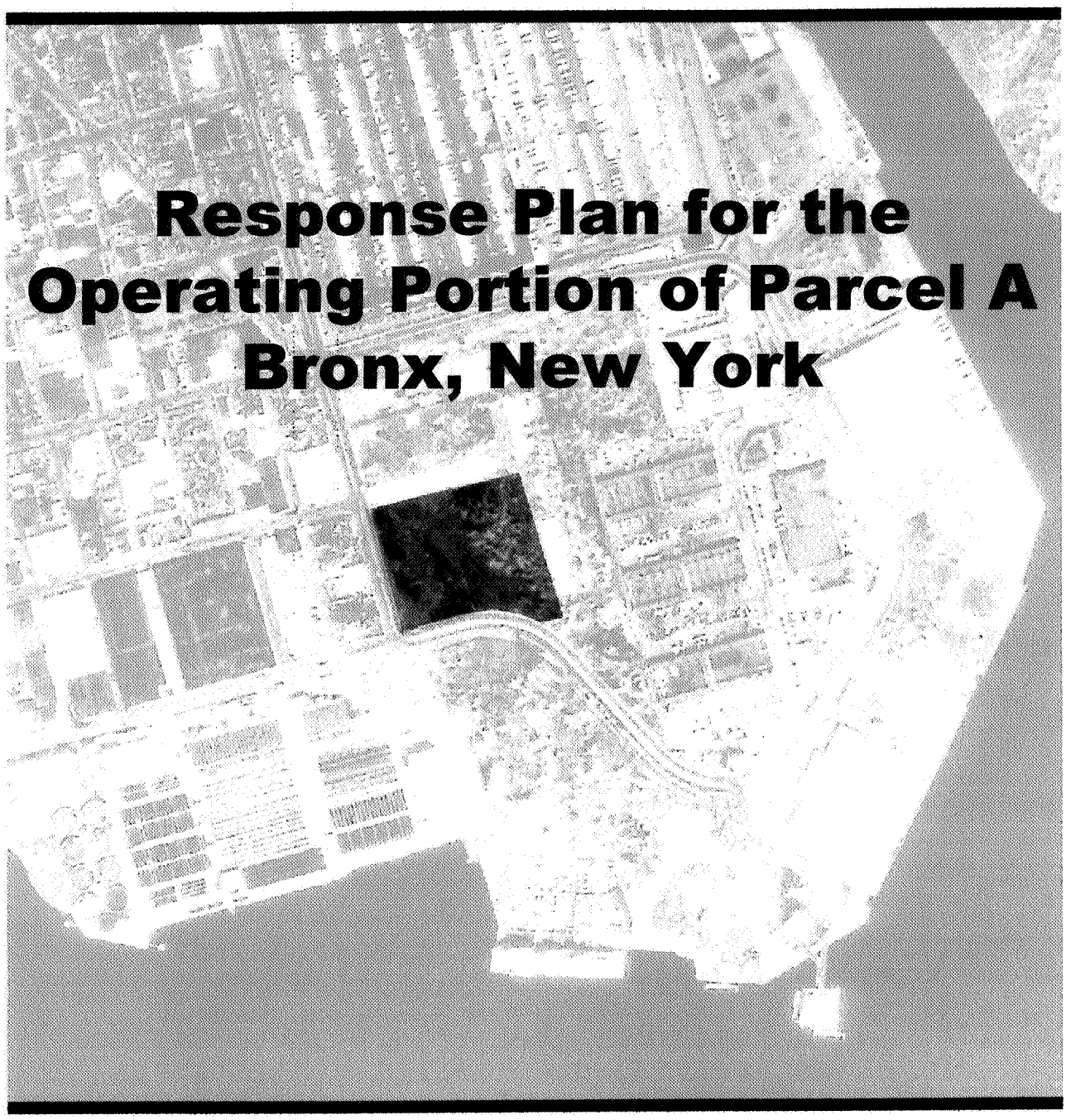
# Hunts Point Cooperative Market
# Redevelopment Plan



## Response Plan for the Operating Portion of Parcel A Bronx, New York

*Prepared by*

**July 2000**

**Lawler, Matusky & Skelly Engineers LLP**
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ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS

# Hunts Point Cooperative Market Redevelopment Plan

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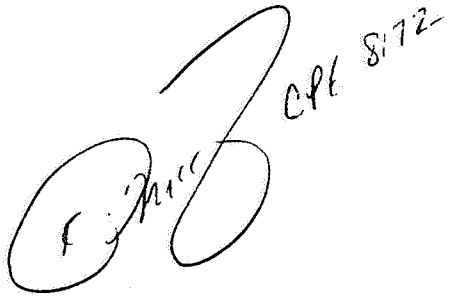
**Prepared by: Lawler, Matusky & Skelly Engineers LLP** **JULY 2000**

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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 program based on the New York State Department Department of Environmental Conservation (NYSDEC) approved Scope of Work (dated June 1999) entitled, Investigative Scope of Work for Operating Unit Portion of Parcel A, Bronx, NY (SOW).

This report presents the findings, assessment, and remedial action recommendations for the initial Operable Unit (OU1) of Parcel A located in the northwestern portion of the Hunts Point Cooperative (Figure 1) to determine areas of the OU that will require detailed attention before, during, or after development. The remedy selected is based on a review 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

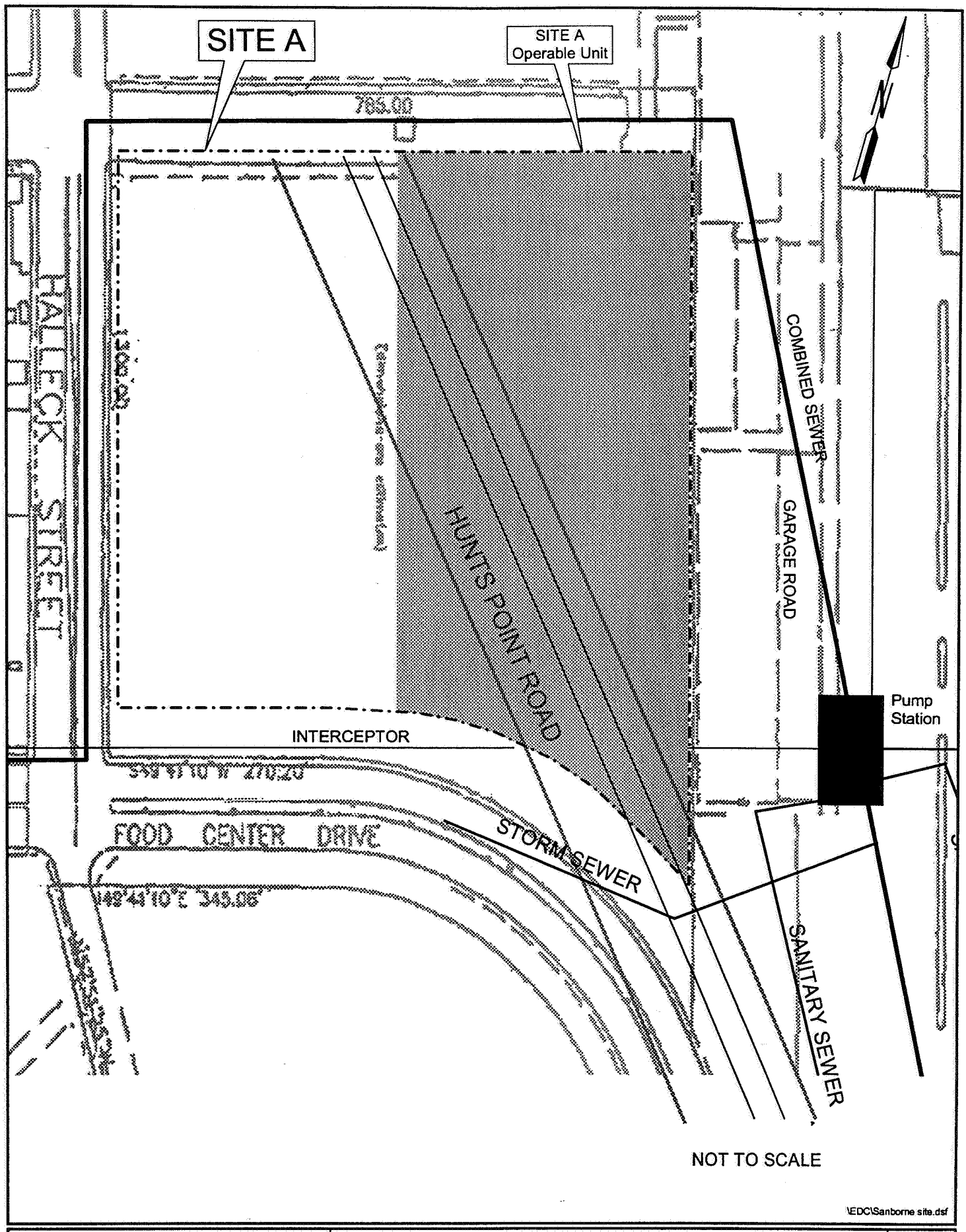
D) Long-term effectiveness

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

F) Feasibility

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 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 shorlines 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 media are included in the sample data (soil, fill, and groundwater) and this information was initially compared to NYSDEC standards and guidance policy in order to first determine what criteria (if any) were a concern based on prerelease conditions. The data were then compared to the criteria listed above and with the desired end use and redevelopment of the

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

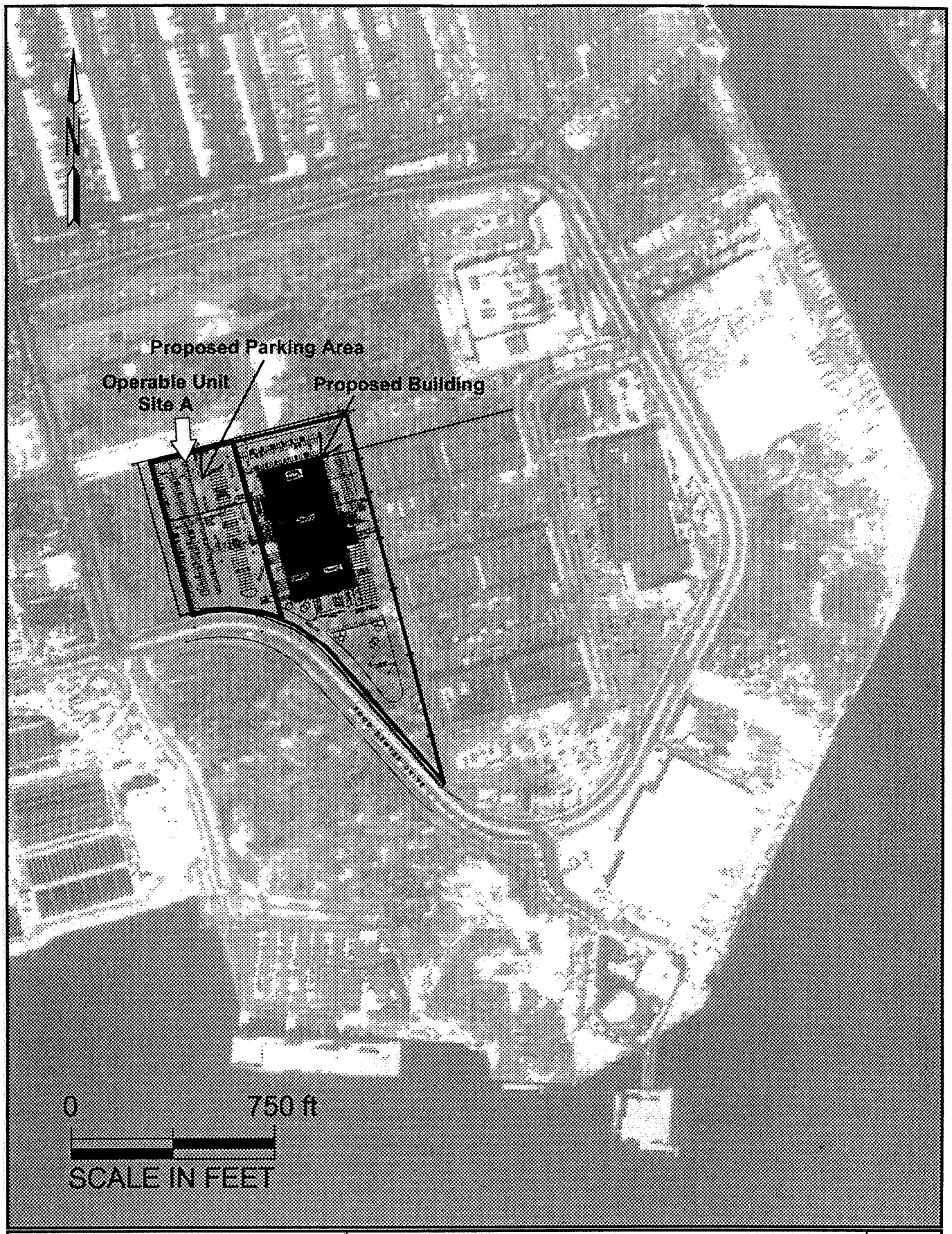
property. The proposed Response Plan recommedations presented here reflect the review and use of this information.

The market is located in the south Bronx on a large peninsula that extends out onto 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 buidings or pavement. Infiltration of precipitaion is limited to areas which are currently undeveloped and vegetated. The proposed redevelopment of the site includes general grading of the site and the importation of fill material to bring the site up to the final grade. Following the completion of grading the property is proposed to be covered with asphalt and used as a parking area. Figure 2 shows the parking lot on Area A and the associated building on the adjacent site. Several very small areas are shown to be used for grassy medians and dividers. These will be treated individually by adding one foot of clean acceptable cover over the remaining subsurface soils.

A review of site conditions and history was performed prior to preparation of the SOW. This review in combination with a physical site inspection was used to prepare the investigative workscope. Information reviewed to determine site history and physical setting 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 gassification 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 carburetted 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 site which were actively involved in gas production.

The Site is located in the northwestern end of the former coal gassificiation facility. Historic Con Ed operation maps prepared during the existence of the facility showed one storage building of steel truss construction in the far southeast corner of the Site 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. It is assumed that this was a small refueling depot. According to all operation, Sanborn maps, and aerial photos, the remainder of the site was free of identified surface structures. The former road bed of Hunt's Point Avenue is shown on operation maps and cuts across the site from the northwest to the southeast, splitting the entire OU into two unequal halves (Figure 1). A number of existing subsurface utilities are located in this right of way area of the former road and were

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| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Site A Operating Unit Development Plan**<br>781004aerial-a.dsf | **Figure 2** |

avoided during site excavation activities. They included underground combinded sewer barrels, force mains and water lines. Figure 3 shows Site A and its respective location within the former coal gassification facility. The figure also shows the structures which were historically documented by Con Edison as existing on the site, as well as adjacent facility structures.

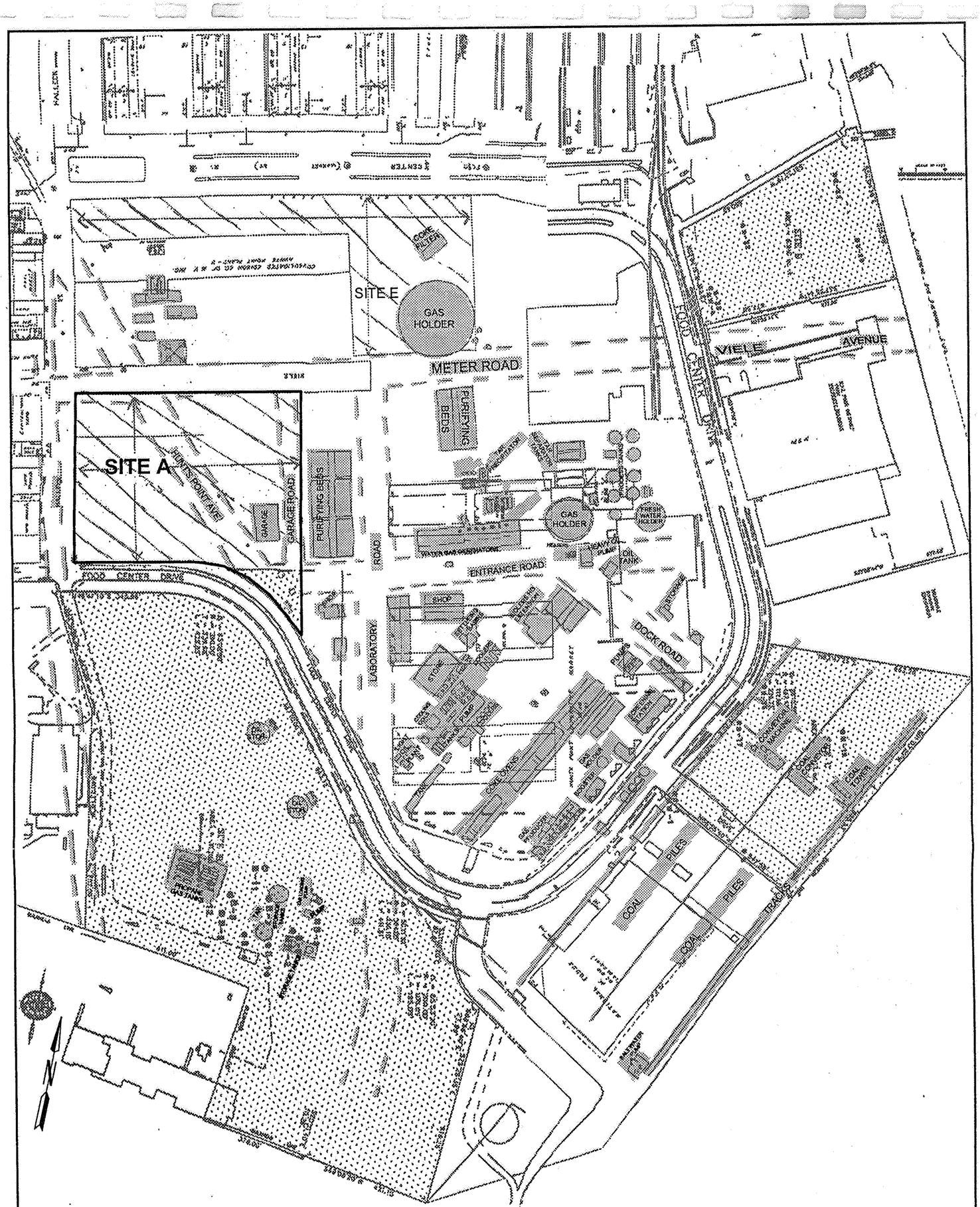
Currently Site A is vacant and has had all former buildings and structures razed. The environmental status for the site is best characterized by the most recent investigation. There are no known outstanding orders, violations or environmental actions pending for the site. No registered tanks or storage areas are listed in current records for the site and the fomerly identified tanks are believed to have been removed at some time in the past. The entire area identified as Site A (both operating and non operating units) is surrounded by an 8 ft high chain link and barbed wire fence.

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 trenches were excavated in an east-west direction across the site and were spaced in order to provide maximum coverage of the area (Figure 4).

Each trench was extended to the water table. Generally, the material which made up the composite was considered to be that which was most obviously contaminated with petroleum, coal tar compounds or fill material that appeared industrial in nature. The soil/fill samples were submitted to the contract analytical laboratory and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticide/PCBs, and target analyte list (TAL) metals and cyanide. Two groundwater samples were also collected from trenches in the areas which 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.

Upon completion of trenching activities, a deep boring was installed in the area of the site found to exhibit the highest relative visual level of residual coal tar and semivolatiles. This was in the downgradient portion of the site adjacent to the western end of Trench 2. The boring was extended to the bedrock surface in order to visually record the presence or absence of dense non-aqueous phase liquid (DNAPL).

The results of all of the excavation, inspection, sampling, analysis and data evaluation revealed that an upper layer of fill material that varies in thickness and composition is present across the site. In many areas the fill includes a shallow layer of soil and vegetation. Across the site and

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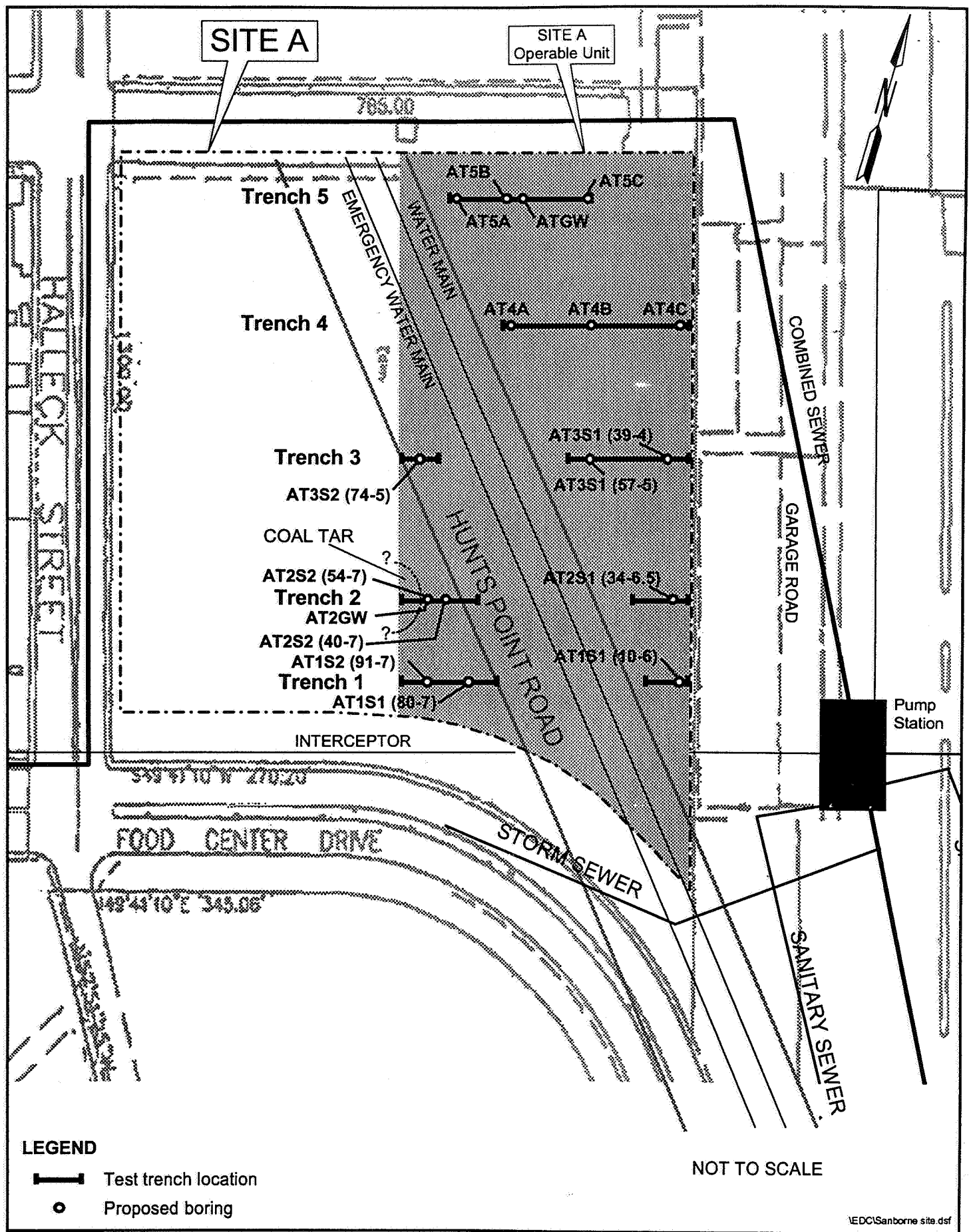
| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Site Features**<br>Hunts Point | Pigure 3 |

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| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Operable Unit A Trenching Diagram**<br>Hunts Point | Figure 4 |

beneath the fill is a layer of native clay and silt that appears to have a relatively high natural organic content and is very cohesive. Numerous areas contain concrete foundations from historic buildings and structures. The fill consists of mixed soils, structural materials, and remnants of the incineration waste (coal slag) and coal tar residuals. The surface of the site at the time of the investigation was heavily vegetated. Potential routes and types of exposure are evaluated in the remedy selection portion of this report.

The analytical soils data were initially compared to NYSDEC Technical Administrative Guidance Memorandum 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels (TAGM) as a reference point. Analyses of shallow fill material across the site showed that VOCs, PCBs, and pesticides were not present in any sample other than at trace levels, and no samples were found to contain concentrations exceeding the TAGM cleanup criteria. SVOCs were found in every sample above several of the TAGM criteria however, total SVOC concentrations were relatively low and ranged between approximately 12 and 75 mg/kg. Several metals were found in each of the samples to be above the recommended cleanup objective specified in the NYSDEC TAGM. The majority of these were generally within the eastern background range also included in the TAGM. The TAGM also includes a provision for most inorganics to be related to site background (SB) and although no background was specifically calculated for this site, the majority of the results would be considered within a reasonable range for an area such as this portion of the Bronx whose history has been primarily industrial.

Groundwater conditions at the site exhibited no evidence of dense or light non-aqueous phase liquid (DNAPL or LNAPL), or obvious contamination at any significant depth. Even using the shallow groundwater samples and comparing those to the most stringent standard (Class GA Drinking Water Standards (DWS)), it is evident that only very low concentrations of select semivolatiles are present (only 1 VOC; tert-Butylbenzene was reported at 1ppb above the DWS). Concentrations of sodium indicate that the groundwater may be affected by coastal saline conditions (21.6 and 102 mg/l). Samples collected from the two locations that were indicative of worst case conditions did not show significant exceedances in Class GA standards for the other inorganics.

The results of the investigation showed that although fill material is present, and appears to be in part from the former gas manufacturing facility, there are only small isolated areas that contain noticeable contamination. The semi-volatile contamination that was identified appears to be relatively low level and ubiquitous.

## INTRODUCTION:

This Response Plan presents the findings of the subsurface investigation for the initial Operable Unit (OU 1) of Parcel A 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 is rectangular in shape and covers approximately 14.5 acres with the OU 1 area conmprising approximately 7 acres. The Site is bounded on the north by the northern edge of Viele Avenue, on the south by Food Center Drive, on the west by Halleck Street, and the east by what was designated in the 1951 Sanborn as Laboratory Road (Figure 1).

Historic Sanborn and topographic maps were used to prepare a composite showing existing conditions in relation to the historic setting (Figure 3). Historic aerial photograhs (Aerial Photos 1 through 5) were also reviewed and incorporated into the composite diagram of the site. Prior to the start of investigative field work any conditions not shown on the Sanborns were taken into consideration for the actual sampling activities. The major feature noted on the historical aerial photos and Sanborn maps was the old road bed for Hunt's Point Avenue, which has been identified as containing numerous sewer and water mains.

## FIELD SAMPLING ACTIVITIES

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

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 center portion of the OU of Site A. A New York City Department of Environmental Protection (NYCDEP) main sewer line and water mains are still present in this area. Therefore during excavation activities this area was avoided.

### Trench Installation

Sampling consisted of the installation of five trenches across the site in an east to west direction in the area of the OU as illustrated in Figure 3. Trenches were installed to the water table using a tire mounted excavator operated by a 40-hour OSHA trained operator. Excavation at Area A commenced on 21 June 1999 and was completed on 30 June 1999.

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


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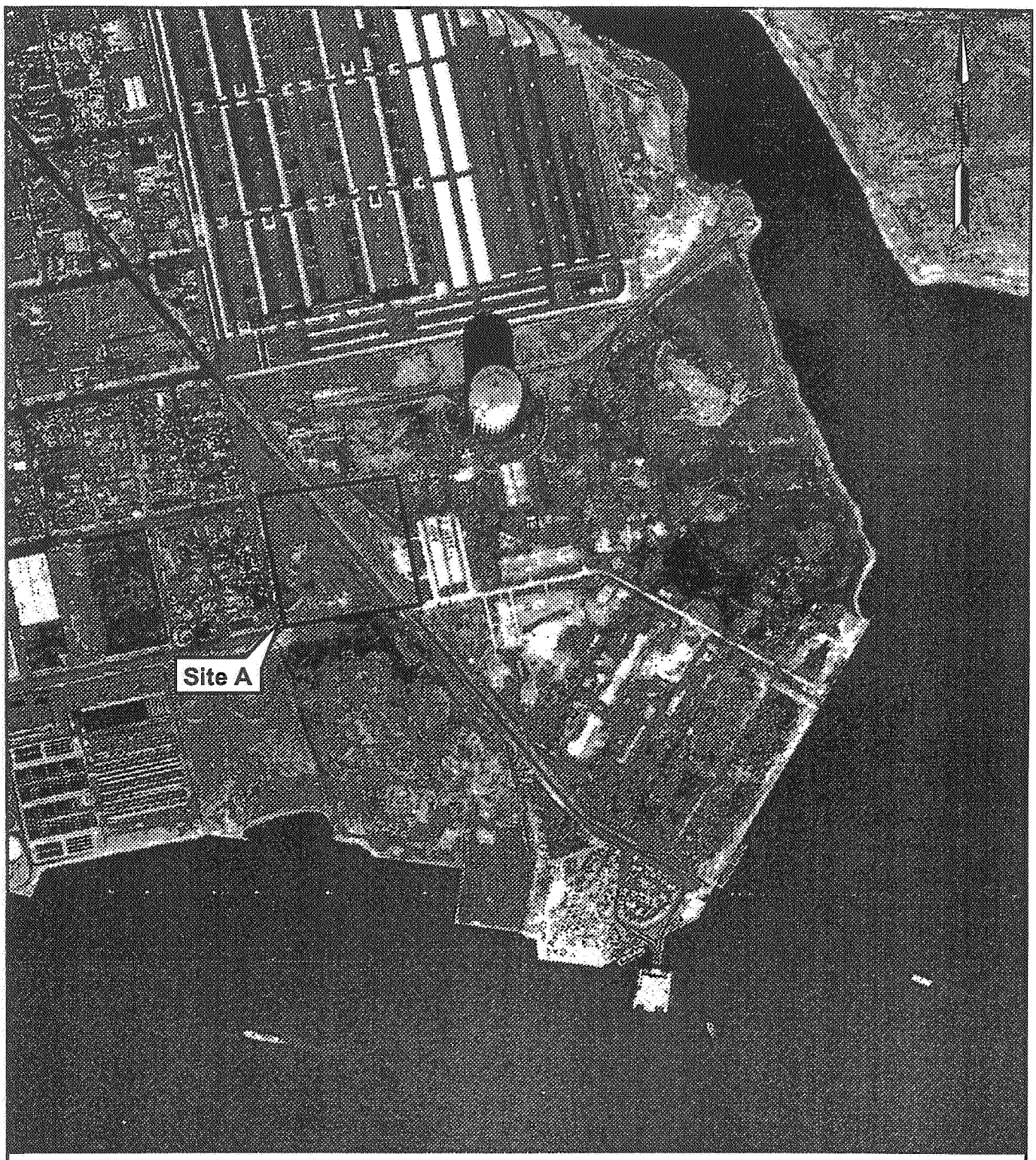
| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Hunts Point Site A -<br>1954 Aerial Photograph** | **Aerial Photo 1** |

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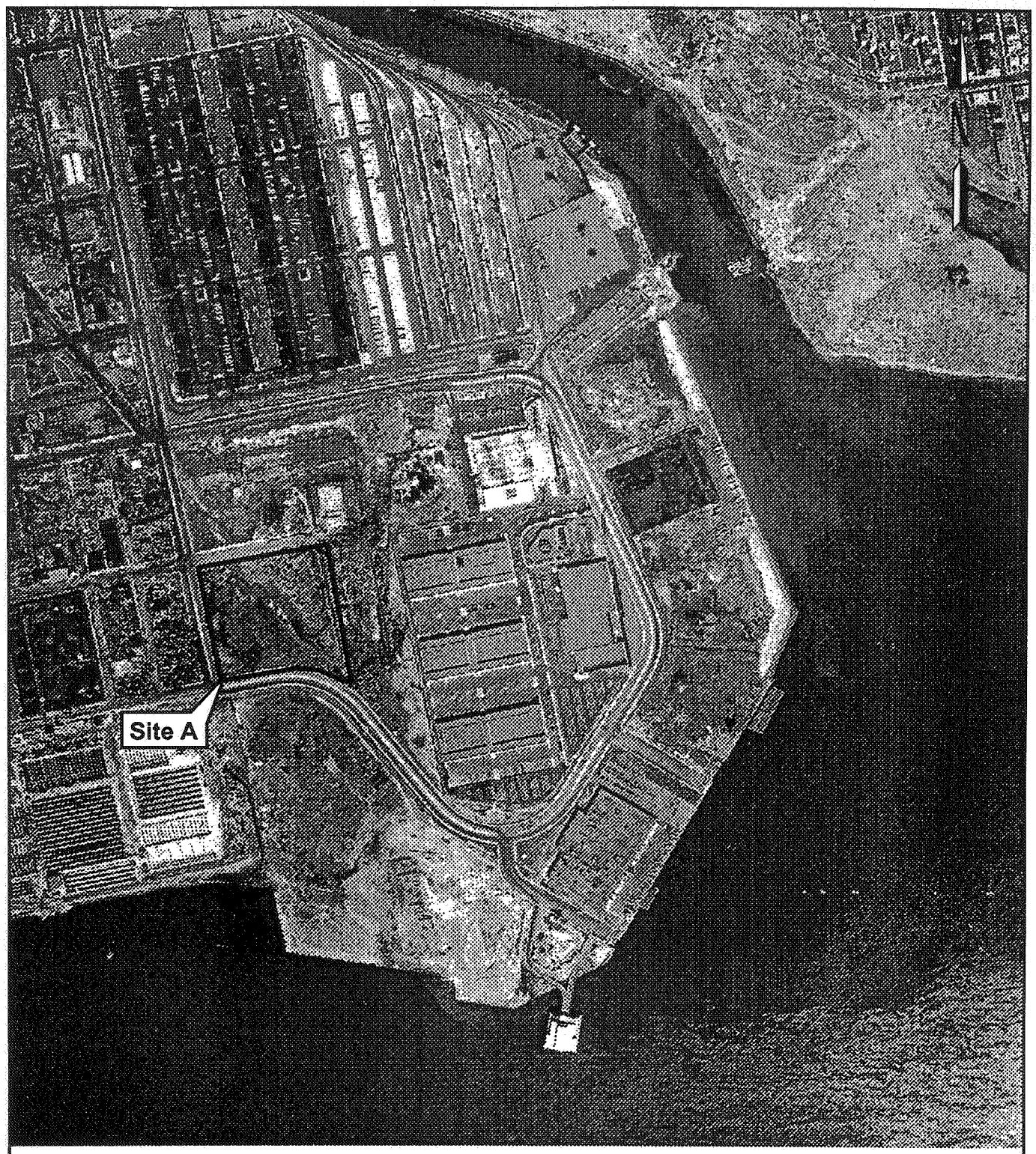


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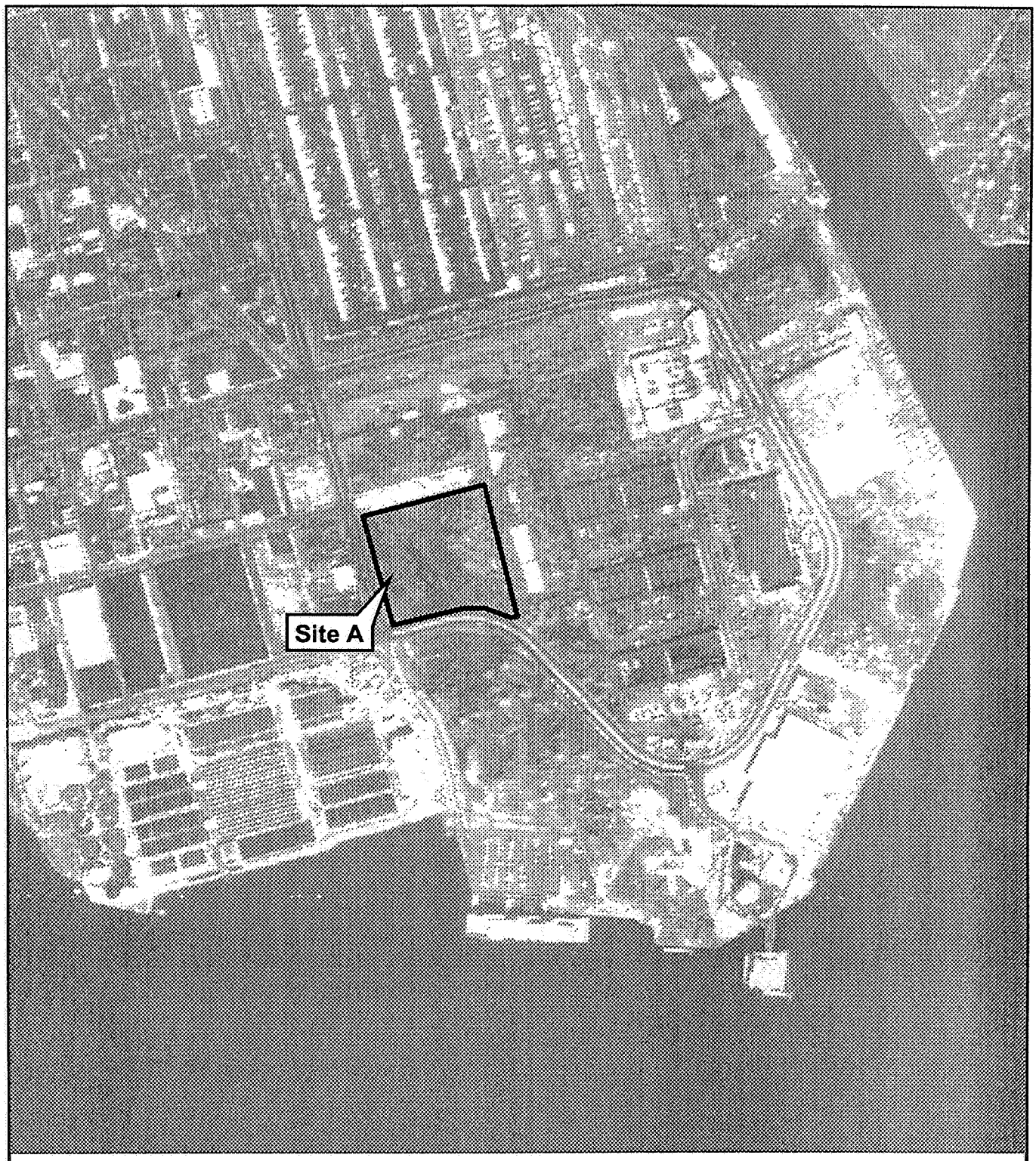


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the installation of test borings. An extensive subsurface evaluation was therefore able to be performed. The soil excavated from the trenches was scanned with a photoionization detector (PID) at regular intervals, or when an area of concern was encountered; 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. Following completion of the excavation for each trench, a determination was made that allowed for the collection of material and compositing of this material into a sample.

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. Groundwater samples were collected from 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.

There were few deviations from the approved scope of work, any changes made in the field were discussed and approved by the NYSDEC site representative prior to being implemented. During the excavation it was noted that the method for trenching produced no visible particulate emisions and as a result NYSDEC approved of modifications to the Work Plan which included removing the requirement for the continual particulate air monitoring program and the filtering of groundwater samples for metals analysis only. Based on site conditions and the lack of any significant source of semivilatile contamination, it was decided that only one of the two proposed deep borings needed to be installed.

Typically, the western half of the OU of Area A exhibited a greater amount of fill material than the eastern half. A layer of natural, organic clay was present across a majority of the site and groundwater was typically encountered just above this clay layer. As the clay layer forms a natural confining layer and it had a significant thickness (at least several feet), it was decided not to excavate through this layer. A brief description of each trench installed at Site A follows.

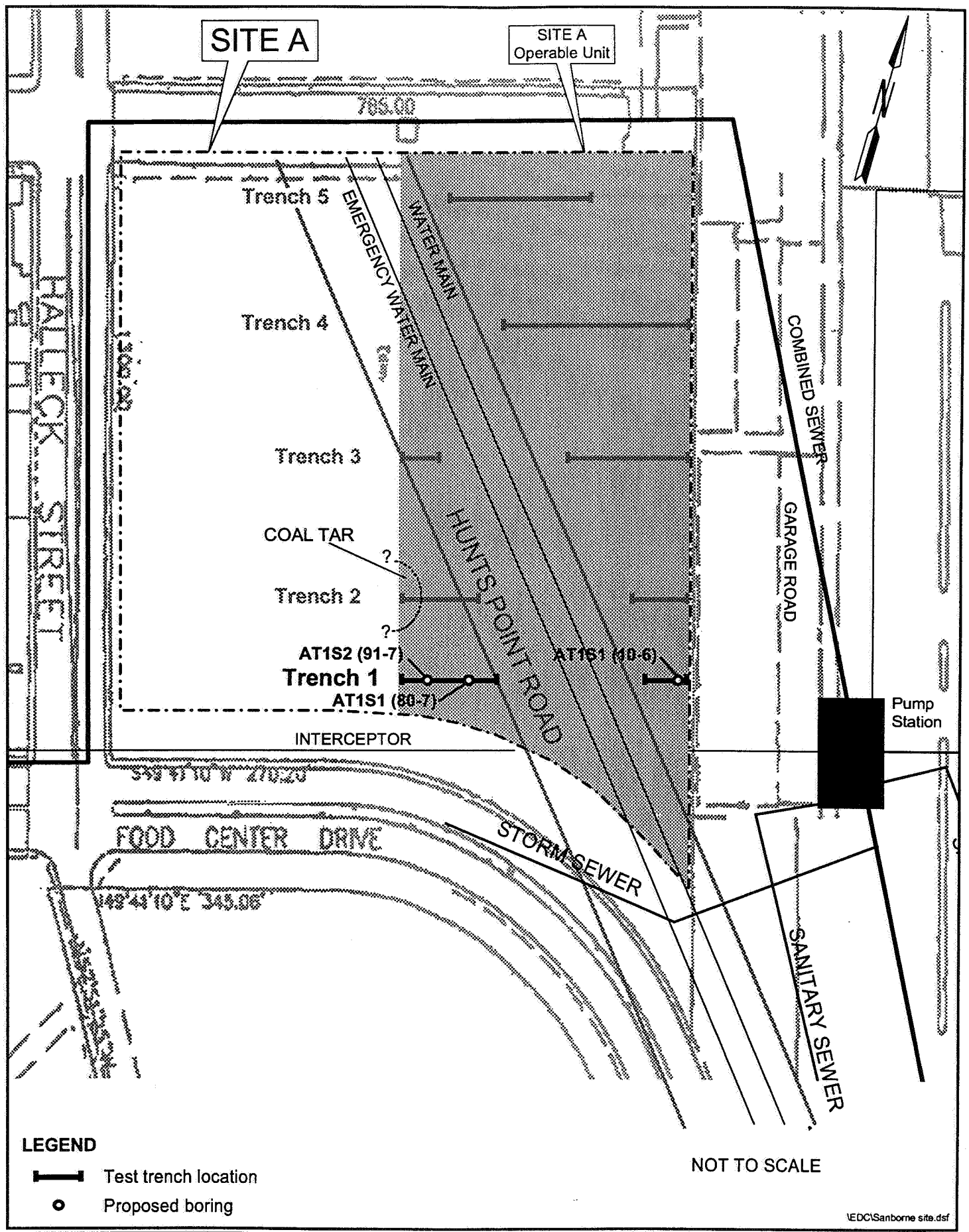
## Trench 1

Trench 1 was installed at the southernmost end of the OU of Area A, approximately 20 feet north of the fence line along Food Center Drive (Figure 5). The trench was a total of 162 feet in length and the average depth across the trench was 7.5 feet below grade. A cross section describing the materials and depths of the trench as well as sampling locations is illustrated in Figure 6. Typically the fill material consisted of coal slag in a silty matrix with the slag and fill material exhibiting a strong naphthalene odor at the western end of the trench, thinning out at the eastern end. A concrete pad was excavated at approximately 20 linear feet from the eastern end of the trench, just before the start of the old roadbed. The clay layer was encountered at approximately 10 feet below grade and groundwater was present just above the clay. No significant evidence of soil or groundwater contamination was present in this trench.

## Trench 2

Trench 2 was installed approximately 75 feet north of Trench 2 and was a total of 150 feet in length (Figure 7). The average depth of the trench was approximately 15 feet below grade. A cross section describing the material and depths of the excavation as well as sampling locations is included as Figure 8. The fill material was more prominent in the western end of the trench and thinned out toward the east. Fill material in the western end of the trench consisted of wood pilings mixed with black silty coal ash and slag with a strong naphthalene odor. The fill material gradually changed to incinerated household garbage and ash about 60 linear feet from the western end of the trench and extended to the old roadbed. The fill material at the eastern end of the trench consisted of brown silty sand and black cinders but exhibited no odor. The clay layer was continuous throughout the trench and was encountered at about 10 feet below grade. Groundwater was encountered just above the clay layer.

The trench was left open for a number of days when the temperature consistently exceeded 95 degrees before it was backfilled. Upon a site inspection with the NYSDEC representative prior to groundwater sampling at this trench, it was noted that a small amount of the fill material in the extreme western end of the trench found to consist of mostly black coal ash and tar had oozed out from being exposed to the direct sunlight and was seeping out of the sides of the trench into the excavation. A groundwater sample was collected from the trench near this location of the coal tar seep. The seep was located approximately 4 feet below grade and was about a foot in thickness. It was decided to excavate further into the trench to see what the condition of the layer was below the subsurface. The material in the new excavation at the same depth as the liquefied material consisted of solid coal tar and ash. This leads to the conclusion

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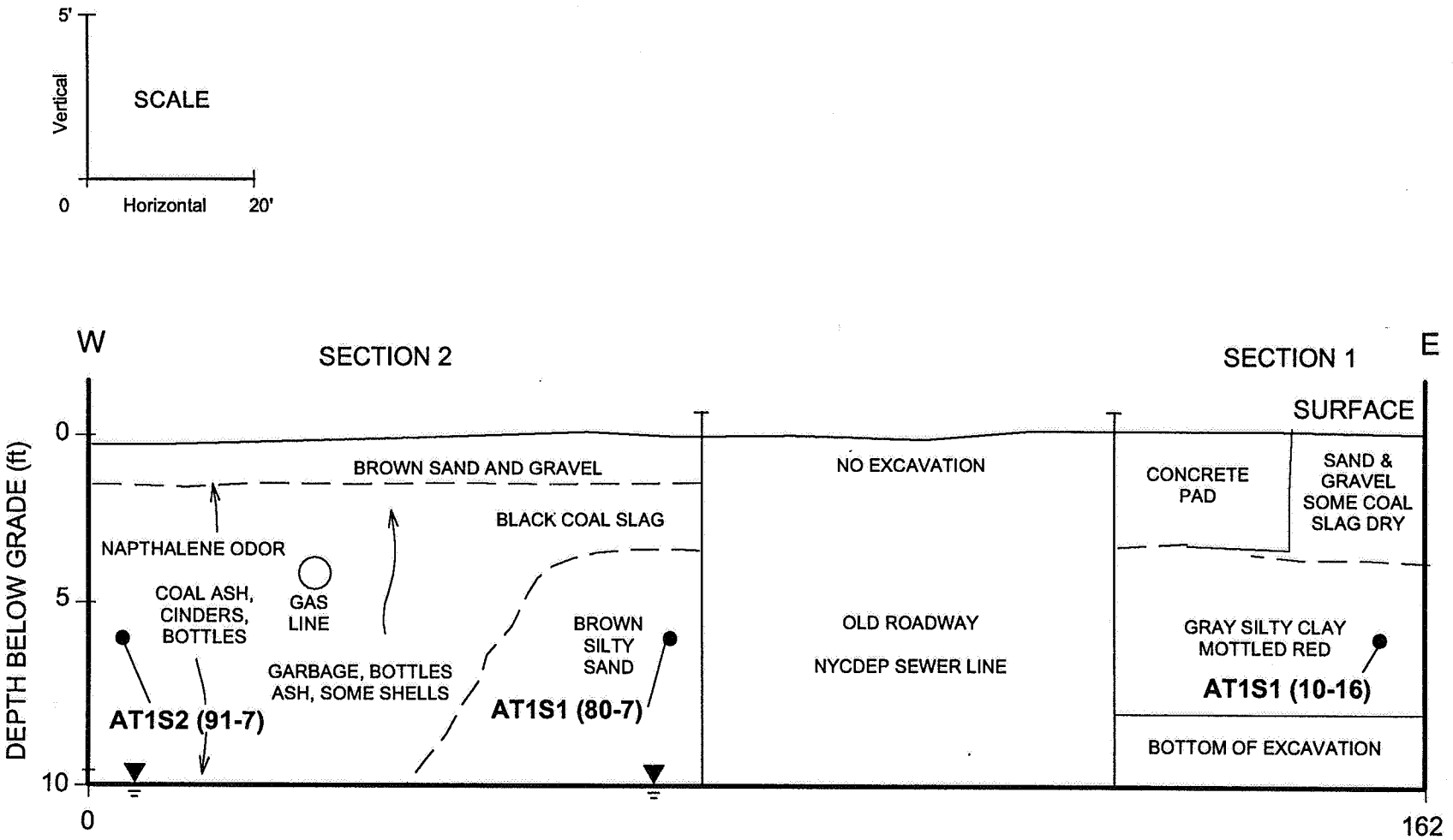


**Legend**

● Soil sample location

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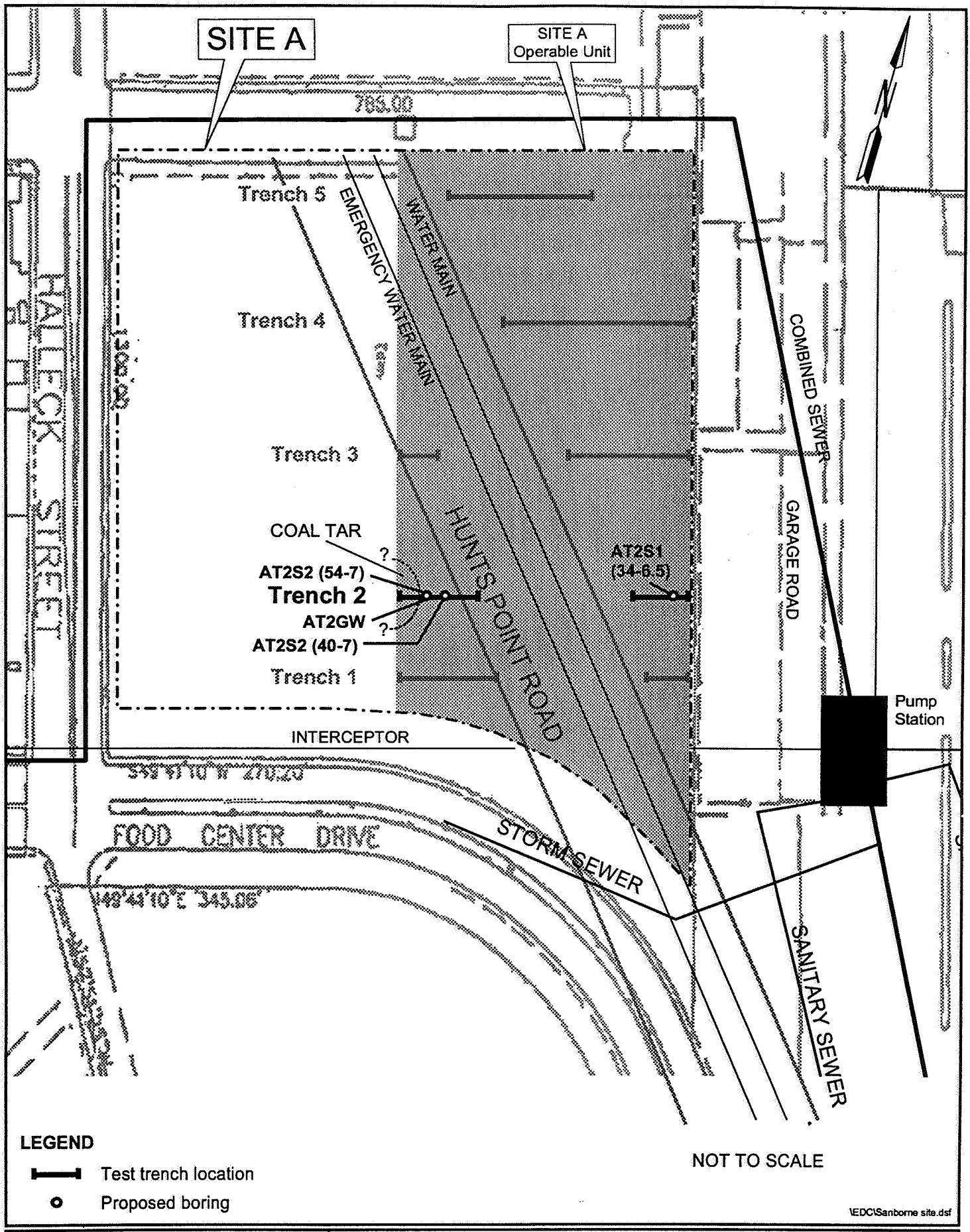


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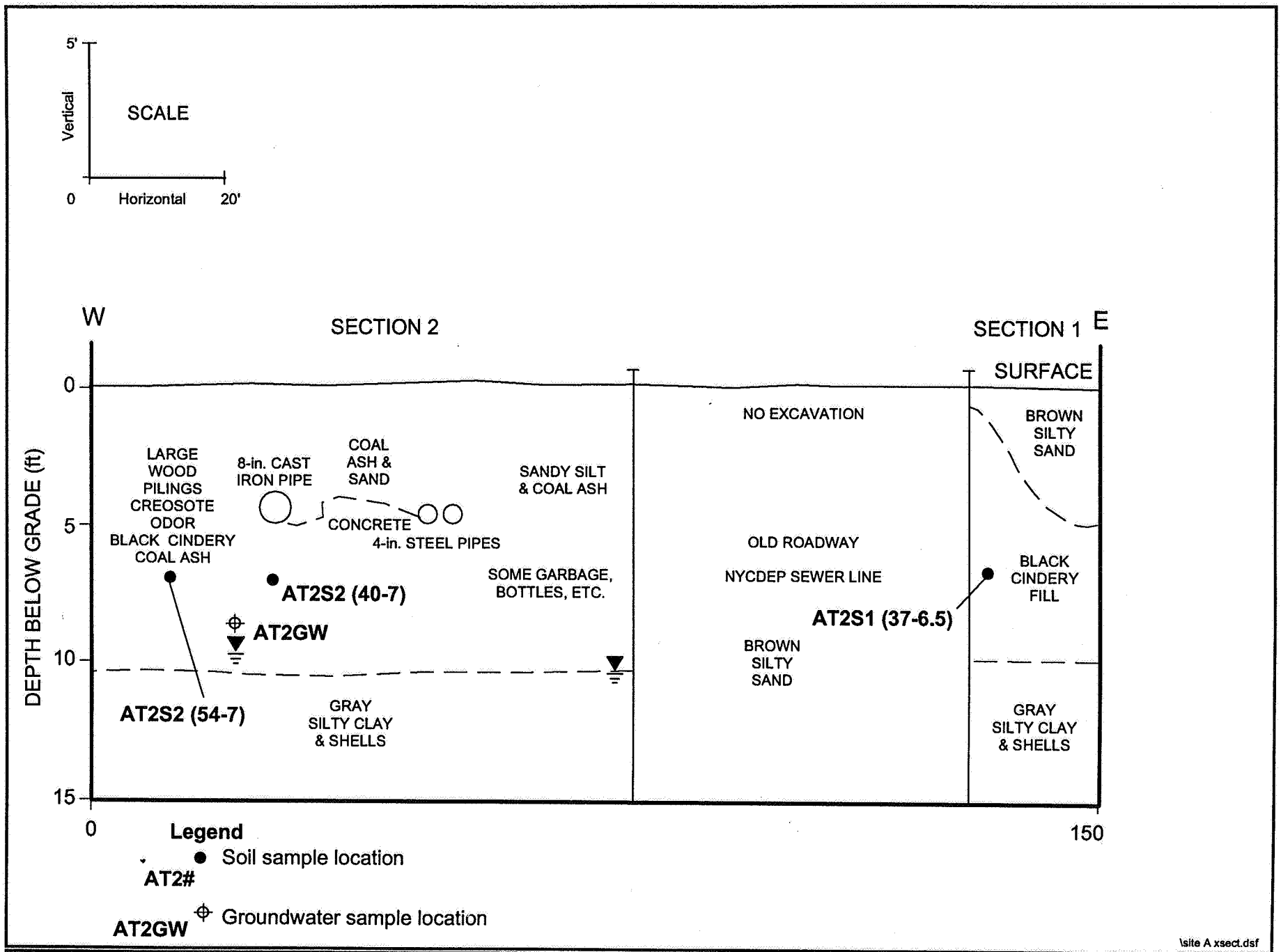


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**Site A Trench 2**

**Hunts Point**

**Figure 8**

that the material encountered does not become mobile unless it is exposed to extreme high temperatures, as was the case when the trench was left open.

**Trench 3**

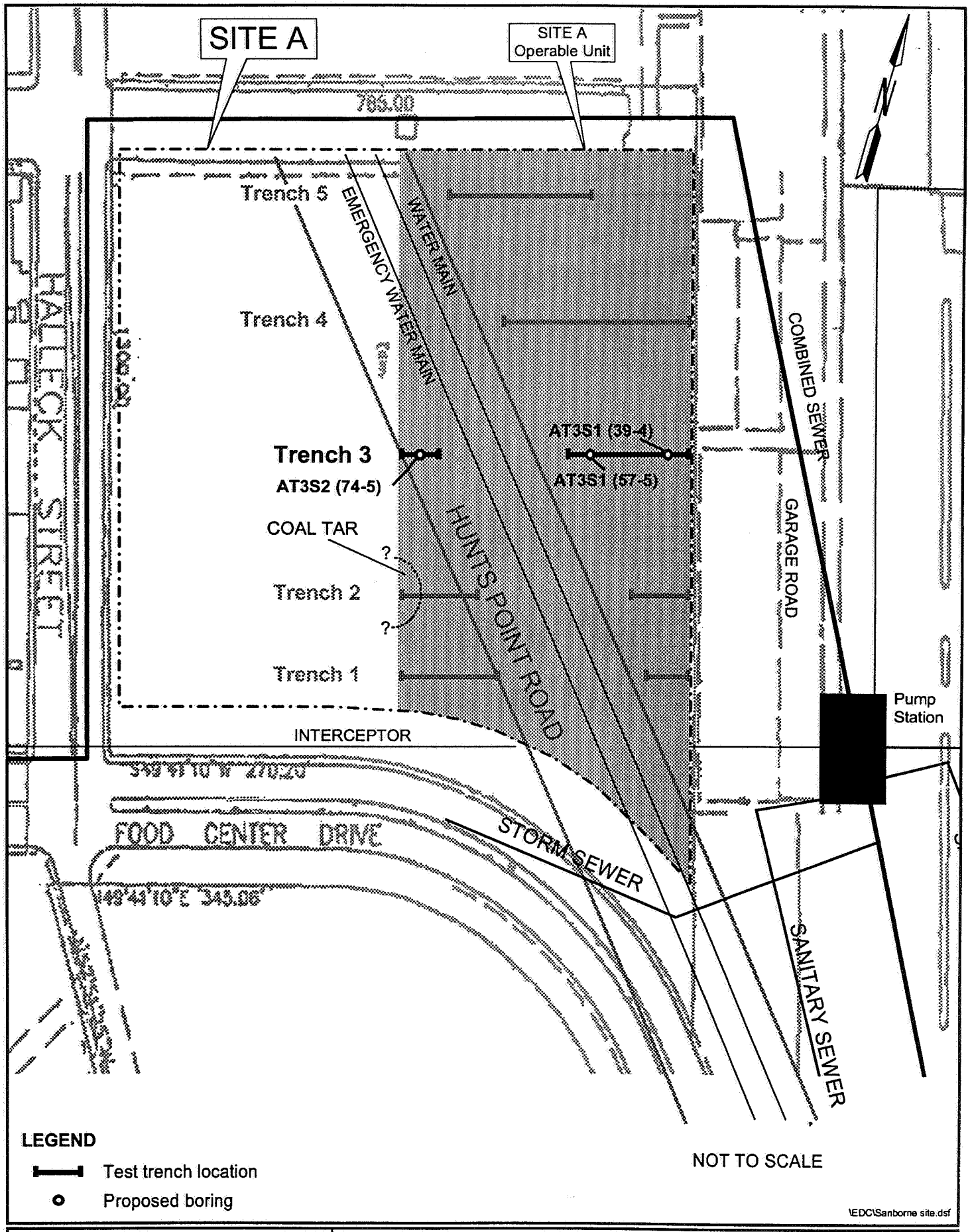
Trench 3 was installed approximately 125 feet north of Trench 2 and was a total of 180 feet in length (Figure 9). The average depth of the trench was approximately 10 feet below grade. A cross section of the trench with a description of subsurface materials and sampling locations is included as Figure 10. Fill material was about 10 feet in thickness in the western portion of the trench, thinning out to 5 feet in thickness in the eastern portion of the trench. Fill material typically consisted of black, sooty coal ash and slag with miscellaneous garbage and glass. A layer of crushed shells was encountered just above the organic clay layer at about 5 feet below grade. The clay layer was encountered throughout the trench at 10 feet below grade. Groundwater was encountered just above the clay layer in the zone of crushed shells. No evidence of soil or groundwater contamination was visible in this trench.

**Trench 4**

Trench 4 was installed approximately 125 feet north of Trench 3 and was a total of 190 feet in length (Figure 11). A cross section describing the types and depths of materials encountered in the trench, as well as sampling locations is included as Figure 12. The average depth of the trench was 5 feet below grade. Trench 4 was installed in an area of heavy vegetation. The vegetation extended to about 166 linear feet from the eastern end of the trench. The associated soil deposits extended to about 2 feet below grade. Fill material in this trench was encountered just below the surface deposits and extended to about 3 feet below grade, consisting of rusty brown to black loose coal slag. Below the coal slag, a layer of loose, cindery incinerator ash with miscellaneous garbage, glass and wood was present to 5 feet below grade. The fill material ended abruptly at about 187 linear feet from the eastern end of the trench where rusty brown silt, cobbles and concrete fill for the former Hunt's Point Avenue road bed was encountered. The organic clay layer was encountered at approximately 5 feet below grade throughout the excavation. Groundwater was encountered just above the clay layer in the fill material and exhibited no sheen or other evidence of contamination.

**Trench 5**

Trench 5 was installed approximately 150 feet north of Trench 4 and was a total of 80 feet in length (Figure 13). A cross section describing the depths and types of materials encountered, as well as sampling locations is included as Figure 14. The average depth of the trench was

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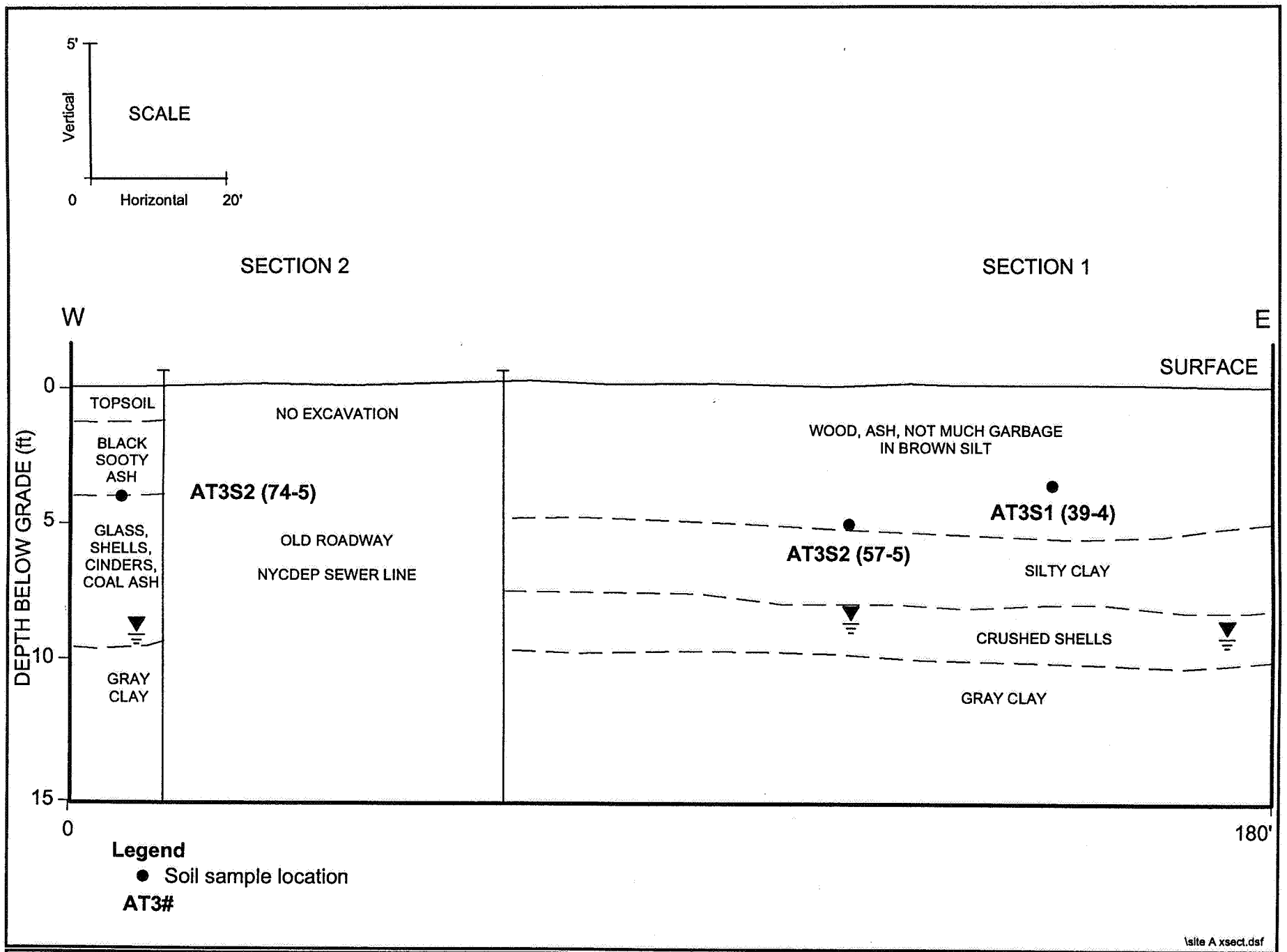


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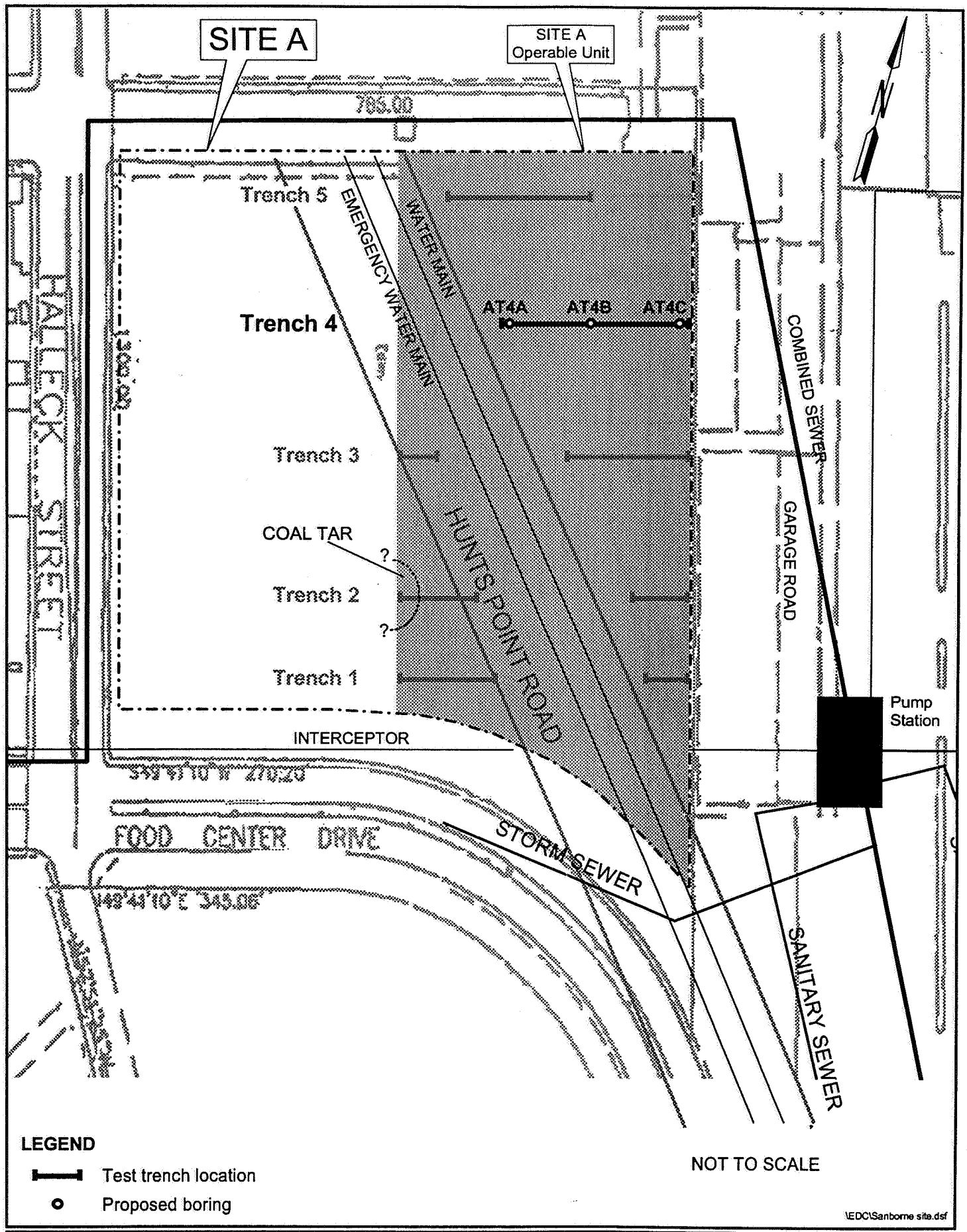
**Site A Trench 3**

**Figure 10**

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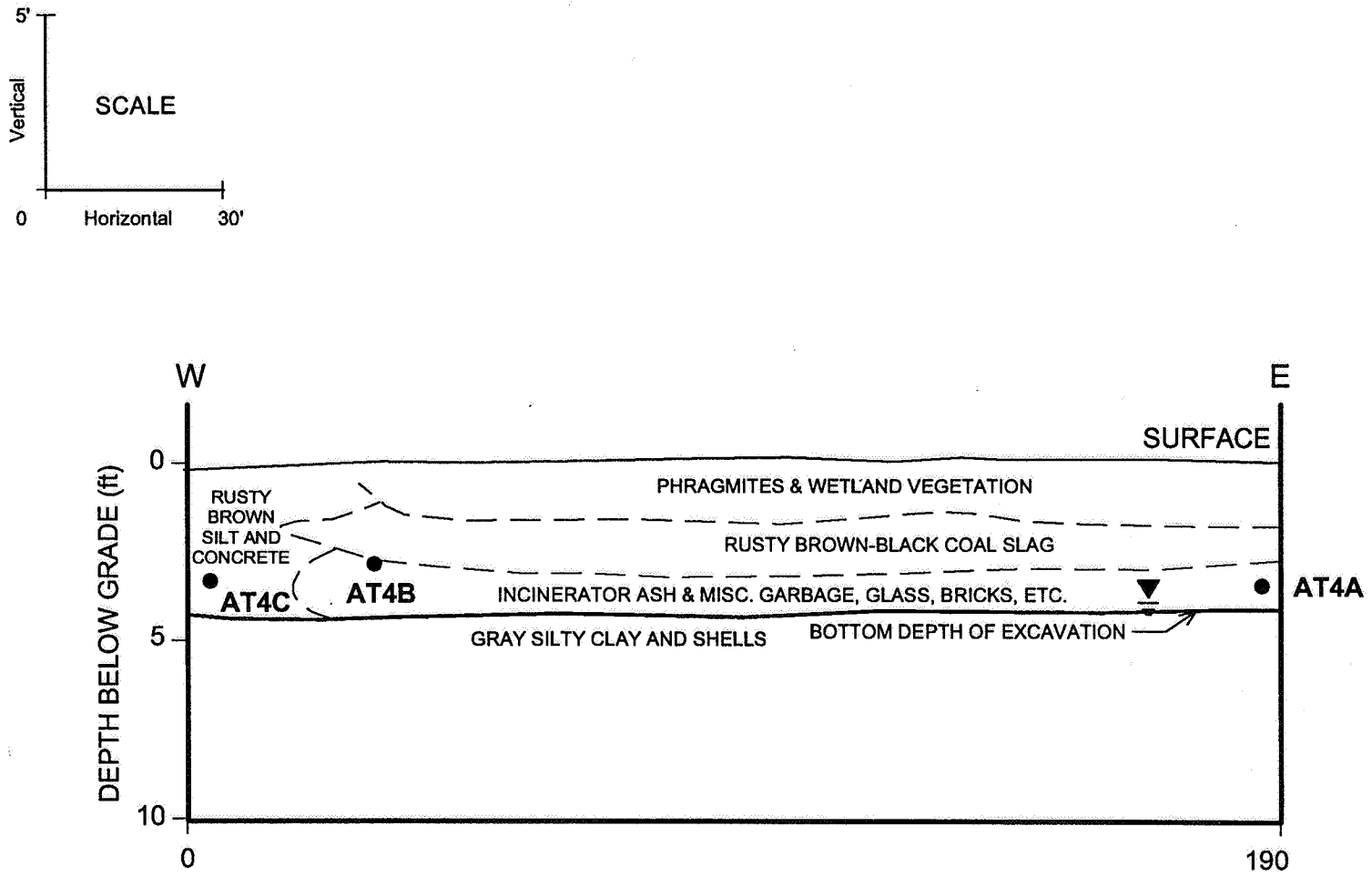


**Legend**

- Soil sample location

**AT4#**

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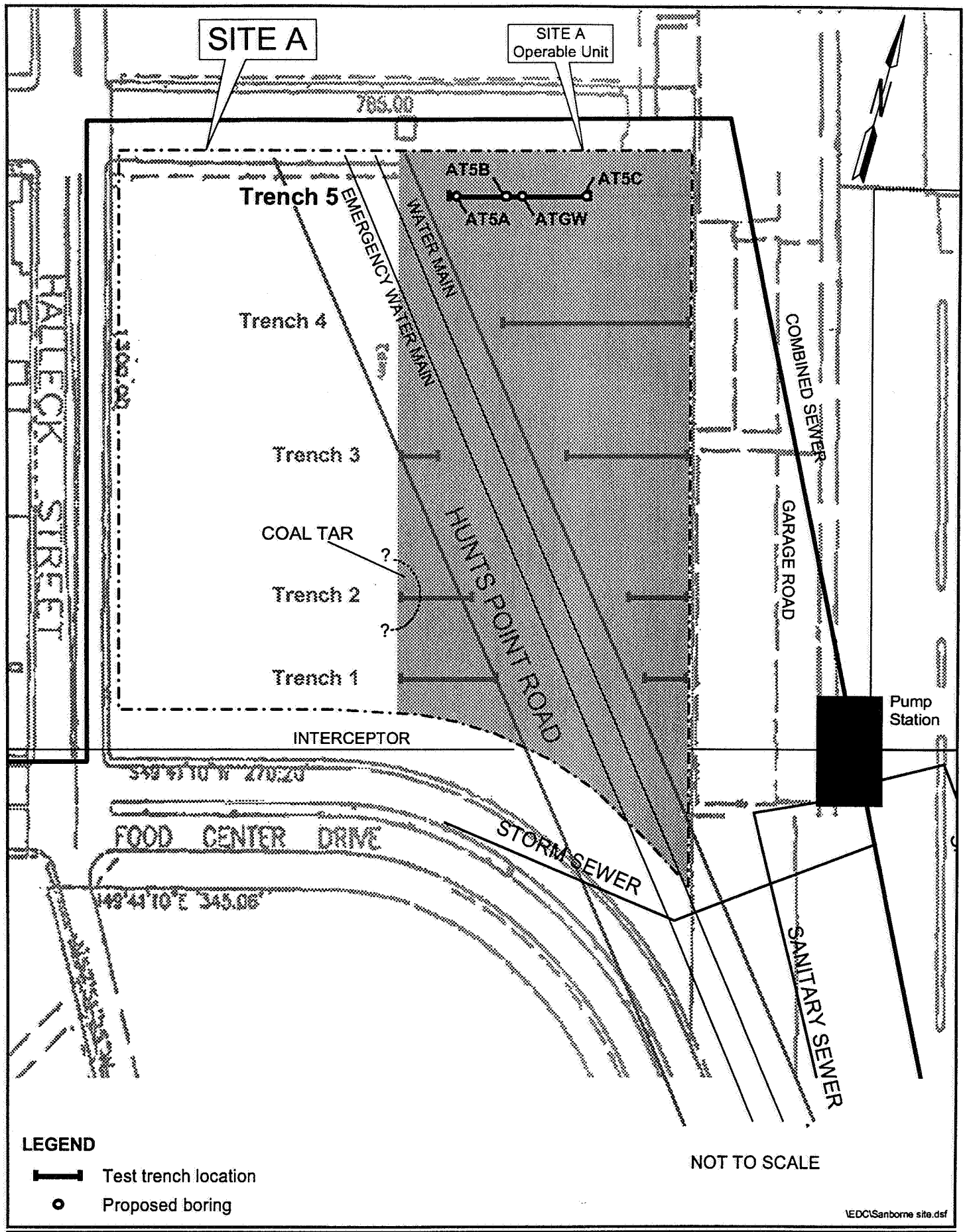
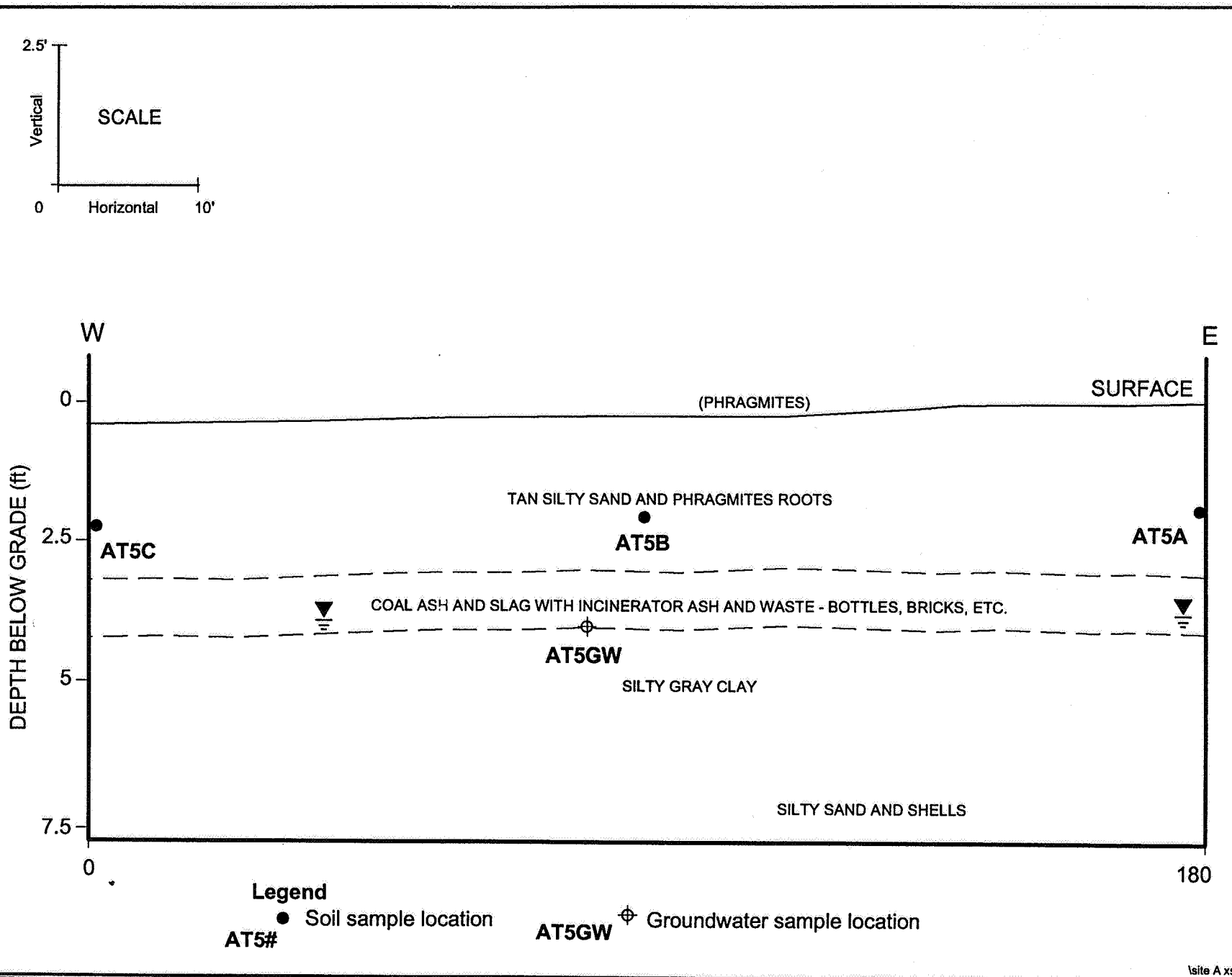
| | | |
|---|---|---|
| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Site A Trench 4** | **Figure 12** |




| | | |
|---|---|---|
| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Operable Unit A Trench 5**<br>Hunts Point | Figure 13 |




\site A xsect.dsf

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**Site A Trench 5**

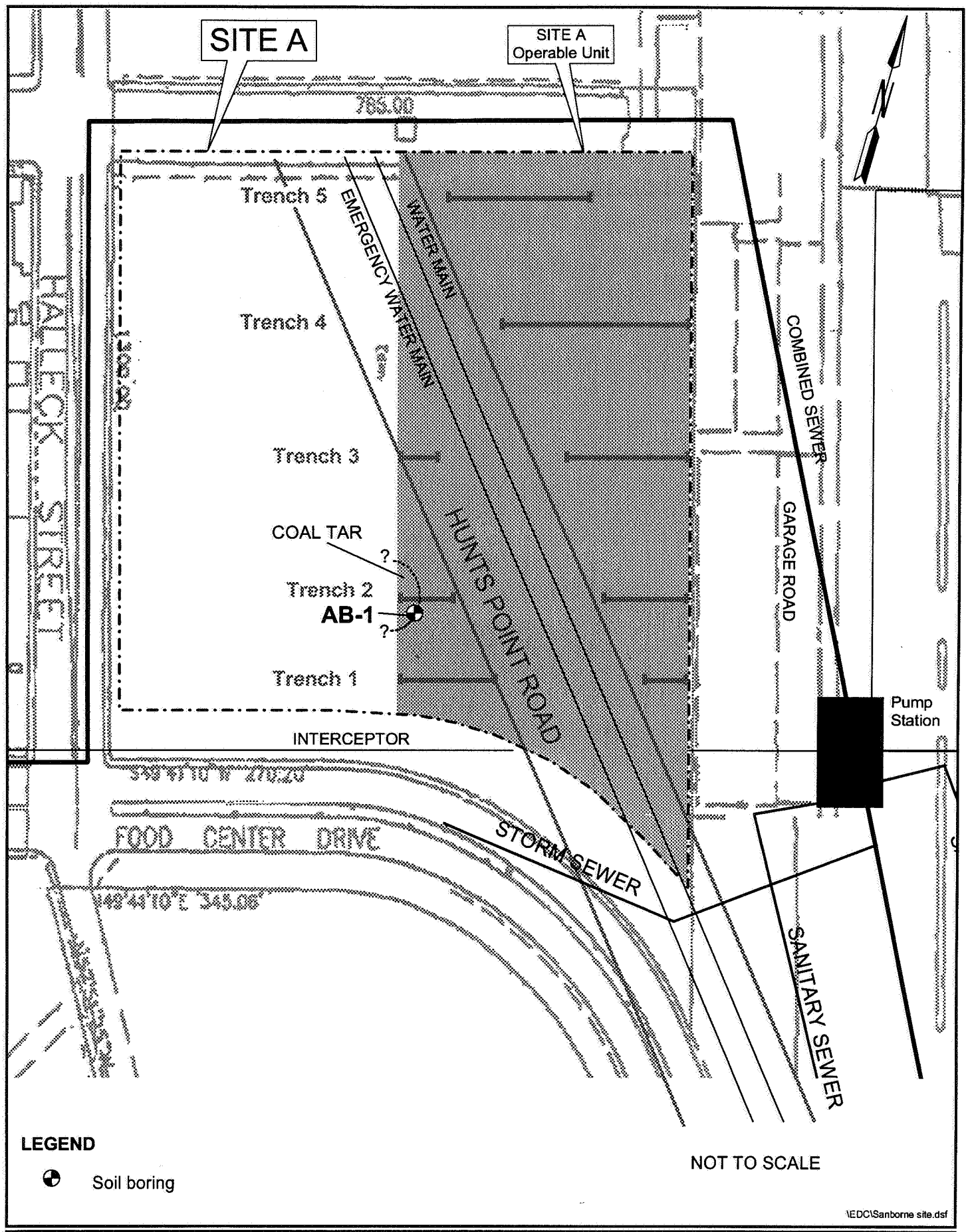
**Figure 14**

approximately 5 feet below grade. Various debris materials were also present in the area surrounding the trench consisting of automobile parts, tires, concrete, glass and metal. Trench 5 was also installed in an area of heavy vegetation. The area and associated soil deposits extended to about 3 feet below grade along the entire length of the trench. A layer of fill material consisting of coal ash and slag with incinerator ash and miscellaneous garbage was encountered below the surface material and just above the clay layer. An upper layer of grey organic clay was encountered at about 4.5 feet below grade and was approximately 2 feet in thickness. A layer of silty sand and shells, approximately 2 feet in thickness was encountered just below the clay layer, and was underlain by the same organic clay found above. Groundwater was encountered in the fill material just above the clay layer as well as in the silty sand and shells layer just below the top clay layer. At approximately 10 feet from the western end of the trench, a large piece of concrete was encountered. When the concrete was lifted out of the trench, an organic petroleum type of odor was observed emanating from the trench. No readings were recorded on the PID, nor was a sheen observed on the groundwater. The area was limited to about 5 square feet. A groundwater sample was collected from this area of the trench. No other evidence of soil or groundwater contamination was observed in Trench 5.

During the trenching activities, a number of buried utilities were encountered that were not believed to be associated with known or marked underground utilities. These included some that appeared to be typical steel or iron pipes buried at relatively shallow depths that closely resemble typical buried utilities. One such pipe was however not located on any utility maps but was followed using standard markout equipment and its termination point was a Con Ed manhole in Food Center Drive.

**Soil Boring Installation**

As part of the field sampling task for Area A, one (1) soil boring was installed, labeled AB-1, in the southwestern portion of the site adjacent to the coal tar found in Trench 2 in July 1999 (Figure 15). Two borings were initially proposed in the original scope of work, however after observing site conditions, it was decided by the NYSDEC site representative that based on those observations, one boring would be sufficient for the site. The boring was installed using a truck mounted drill rig utilizing air rotary techniques. The purpose of the boring was to determine whether the subsurface had been affected by former site activities, more specifically to determine whether dense non-aqueous phase liquid (DNAPL) was present.




| | | |
|---|---|---|
| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Soil Boring Location**<br>**Hunts Point** | **Figure 15** |

Continuous split spoon samples were collected from grade to the bottom depth of the boring. Upon removal of each split spoon, 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. Split spoon descriptions were logged by the on-site geologist and are included as Attachment A. A representative portion of all split spoon samples collected was archived in glass jars. Split spoons were decontaminated between sampling depths using cold wash techniques. The boring was advanced to refusal, which was encountered at 34 feet below grade. It was obvious that the material encountered at this depth was competent bedrock, so the boring was terminated at 34 feet below grade. Bedrock at the site consists of grey micaceous schist. No DNAPL or sign of contamination from the facility was encountered in this boring. Groundwater was encountered at 10 feet below grade. Following completion of the boring, a mixture of Type 1 Portland cement and bentonite was pumped into the borehole to grade. All downhole sampling equipment, including the deck of the drill rig was steam cleaned before leaving the site.

**Sampling Results**

**Soil Samples**

A total of 15 grab samples and five composite samples were collected at Area A. Samples were collected from each trench at areas exhibiting the highest degree of contamination (see Figure 4). 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. Sample results are included as Tables 1 through 5. 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.

Samples collected from Trench 1 contained very low to non-detectable levels of VOCs, none of which exceeded the recommended soil cleanup criteria (Table 1). Semivolatile compounds were also detected at very low to non-detectable concentrations, although the following exceeded the soil cleanup criteria in the composite sample: benzo(a)anthracene, chrysene, benzo(k)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene. The following metals exceeded the recommended soil cleanup criteria in the composite sample: arsenic, chromium, copper, iron, mercury, nickel, selenium, and zinc. Pesticides and PCBs were detected at very low to

non-detectable levels no compounds exceeded the recommended soil cleanup objectives.

Samples collected from Trench 2 contained very low to non-detectable levels of VOCs, none of which exceeded the recommended soil cleanup objectives (Table 2). Semivolatile compounds were detected at very low to non-detectable concentrations, although the following compounds exceeded the recommended soil cleanup criteria: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene. The following metals exceeded the recommended soil cleanup objectives in the composite sample: arsenic, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc. Pesticides and PCBs were detected at very low to non-detectable levels. No compounds exceeded the recommended soil cleanup objectives.

Trench 3 soil samples contained very low to non-detectable concentrations of VOCs, none of which exceeded the recommended soil cleanup criteria (Table 3). The following semivolatile compounds were detected at concentrations that exceeded the recommended soil cleanup objectives in the composite sample: benzo(a)anthracene, chrysene; benzo(b) fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene. The following metals were detected above the recommended soil cleanup objectives in the composite sample: cadmium, chromium, copper, iron, mercury, nickel, selenium and zinc. Pesticides and PCBs were detected at very low to non-detectable levels. No compounds exceeded the recommended soil cleanup objectives.

Volatile compounds were detected at very low to non-detectable concentrations in the samples collected from Trench 4 (Table 4). The following semivolatile compounds were detected at concentrations that exceeded the recommended soil cleanup objectives in the composite sample: benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo(a,h)anthracene. The following metals were detected above the recommended soil cleanup objectives in the composite sample: barium, chromium, copper, iron, mercury, nickel, and zinc. Pesticides and PCBs were not detected in the composite sample from Trench 4.

Volatile compounds were detected at very low to non-detectable concentrations in the samples collected from Trench 5 (Table 5). Acetone was detected above the recommended soil cleanup criteria, but that compound was also found in associated method blanks and is a common laboratory contaminant and is not be considered indicative of site conditions. The following semivolatile compounds were detected at concentrations that exceeded the recommended soil cleanup objectives in the composite sample: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene. The

TABLE 1 (Page 1 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #1

| SDG Number | 61162 | 61162 | 61162 | |
|---|---|---|---|---|
| LMS Sample ID | AT1S110-6 | AT1S180-7 | AT1S291-7 | |
| Lab Sample Number | 61162004 | 61162002 | 61162006 | |
| Sampling Date | 6/22/99 | 6/22/99 | 6/22/99 | RECOMMENDED |
| Matrix | SOIL | SOIL | SOIL | SOIL CLEANUP |
| Units | mg/kg | mg/kg | mg/kg | OBJECTIVE (a) |
| **VOLATILE ORGANIC COMPOUNDS (mg/kg)** | | | | |
| Chloromethane | ND | 0.002 j | ND | 1 |
| Bromomethane | ND | ND | ND | 1 |
| Trichloroflouromethane | ND | ND | ND | 1 |
| Acetone | 0.005 jb | 0.037 b | 0.072 b | 0.2 |
| Carbon Disulfide | ND | ND | 0.001 j | 2.7 |
| Methylene Chloride | 0.012 | 0.008 | 0.004 j | 0.1 |
| Methyl tert-butyl ether | ND | 0.007 | ND | 1 |
| 2-Butanone | ND | 0.01 | 0.013 | 0.3 |
| Benzene | ND | ND | ND | 0.06 |
| Trichloroethene | ND | ND | ND | 0.7 |
| 4-Methyl-2-pentanone | ND | 0.002 j | ND | 1 |
| Toluene | ND | ND | ND | 1.5 |
| Tetrachloroethene | ND | ND | ND | 1.4 |
| Ethylbenzene | ND | ND | ND | 5.5 |
| Xylene (Total) | ND | ND | 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 |

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
ND - Not detected at analytical detection limit

TABLE 1 (Page 2 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #1

| SDG Number | 61162 | |
|---|---|---|
| LMS Sample ID | AT1S2C1 | |
| Lab Sample Number | 61162010 | |
| Sampling Date | 6/22/99 | RECOMMENDED |
| Matrix | SOIL | SOIL CLEANUP |
| Units | mg/kg | OBJECTIVE (a) |
| **SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)** | | |
| Phenol | ND | 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 | ND | 0.9 |
| 1,2,4-Trichlorobenzene | ND | 3.4 |
| Naphlalene | 0.13 j | 13 |
| 2-Methylnaphthalene | 0.042 j | 36.4 |
| Acenaphthylene | 0.39 j | 41 |
| Acenaphthene | 0.071 j | 50 |
| Dibenzofuran | 0.088 j | 6.2 |
| Flourene | 0.13 j | 50 |
| N-Nitrosodiphenylamine(1) | ND | 1 |
| Phenanthrene | 0.94 | 50 |
| Anthracene | 0.4 | 50 |
| Carbazole | 0.07 j | 1 |
| Flouranthene | 2.9 | 50 |
| Pyrene | 2.8 | 50 |
| Benzo (a) anthracene | **1.8** | 0.224 or MDL |
| Chrysene | **1.6** | 0.4 |
| bis (2-Ethylhexyl) phthalate | 0.042 j | 50 |
| Di-n-octylphthalate | ND | 50 |
| Benzo (b) flouranthene | **2.3** | 1.1 |
| Benzo (k) flouranthene | 0.77 | 1.1 |
| Benzo (a) pyrene | **2.1** | 0.061 or MDL |
| Indeno (1,2,3-cd) pyrene | 1 | 3.2 |
| Dibenzo (a,h) anthracene | **0.31 j** | 0.014 or MDL |
| Benzo (g,h,i) perylene | 1.1 | 50 |

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

TABLE 1 (Page 3 of 4)
**SOIL SUMMARY**
EDC Hunts Point
Site A - Trench #1

| SDG Number | 61162 | |
|---|---|---|
| LMS Sample ID | AT1S2C1 | |
| Lab Sample Number | 61162010 | |
| Sampling Date | 6/22/99 | RECOMMENDED SOIL |
| Matrix | SOIL | CLEANUP |
| Units | mg/kg | OBJECTIVE (ppm)(a) |
| **METALS(mg/kg)** | | |
| Aluminum | 6260 | SB |
| Antimony | 0.33 B | SB |
| Arsenic | **9** | 7.5 or SB |
| Barium | 114 | 300 or SB |
| Beryllium | ND | 0.16 or SB |
| Cadmium | 0.82 | 1 or SB |
| Calcium | 3000 | SB |
| Chromium | **16.6** | 10 or SB |
| Cobalt | 7.5 | 30 or SB |
| Copper | **141** | 25 or SB |
| Iron | **11500** | 2000 or SB |
| Lead | 162 | SB**** |
| Magnesium | 5170 | SB |
| Manganese | 219 | SB |
| Mercury | **0.37** | 0.1 |
| Nickel | **34.2** | 13 or SB |
| Potassium | 14.1 | SB |
| Selenium | **5.5** | 2 or SB |
| Silver | 2.1 B | SB |
| Sodium | ND | SB |
| Thallium | ND | SB |
| Vanadium | 22.3 | 150 or SB |
| Zinc | **183** | 20 or SB |
| Cyanide | 0.21 B | *** |

*** - 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.
N/A - Not available.
SB - Site background.

TABLE 1 (Page 4 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #1

| SDG Number | 61162 | |
|---|---|---|
| LMS Sample ID | AT1S2C1 | |
| Lab Sample Number | 6E+07 | |
| Sampling Date | #### | RECOMMENDED |
| Matrix | SOIL | SOIL CLEANUP |
| Units | mg/kg | OBJECTIVE (a) |
| **PESTICIDES/PCBs (mg/kg)** | | |
| alpha-BHC | ND | 0.11 |
| delta-BHC | 0.0022 p | 0.3 |
| Aldrin | ND | 0.041 |
| Heptachlor epoxide | 0.00058 p | 0.02 |
| Dieldrin | ND | 0.044 |
| Endrin | 0.0019 p | 0.1 |
| Endosulfan sulfate | 0.00099 p | 1 |
| 4,4'-DDT | ND | 2.1 |
| Methoxychlor | 0.0068 p | 1 |
| Endrin ketone | 0.0082 p | 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.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range
ND - Not detected at analytical detection limit.
N/A - Not available.

TABLE 2 (Page 1 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #2

| SDG Number | 61162 | 61162 | 61162 | |
|---|---|---|---|---|
| LMS Sample ID | AT2S137-6.5 | AT2S240-7 | AT2S254-7 | |
| Lab Sample Number | 61162003 | 61162007 | 61162001 | |
| Sampling Date | 6/22/99 | 6/22/99 | 6/22/99 | 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 | 0.021 b | 0.08 b | 0.014 b | 0.2 |
| Carbon Disulfide | ND | ND | ND | 2.7 |
| Methylene Chloride | 0.048 b | 0.01 | 0.015 | 0.1 |
| Methyl tert-butyl ether | ND | ND | ND | 1 |
| 2-Butanone | ND | 0.022 | ND | 0.3 |
| Benzene | ND | ND | ND | 0.06 |
| Trichloroethene | ND | ND | ND | 0.7 |
| 4-Methyl-2-pentanone | ND | ND | ND | 1 |
| Toluene | ND | ND | ND | 1.5 |
| Tetrachloroethene | ND | ND | ND | 1.4 |
| Ethylbenzene | ND | ND | ND | 5.5 |
| Xylene (Total) | 0.002 j | ND | 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 |

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
ND - Not detected at analytical detection limit

TABLE 2 (Page 2 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #2

| | | |
|---|---|---|
| **SDG Number** | **61162** | |
| **LMS Sample ID** | **AT2S2C1** | |
| **Lab Sample Number** | **6E+07** | |
| **Sampling Date** | **6/22/99** | **RECOMMENDED** |
| **Matrix** | **SOIL** | **SOIL CLEANUP** |
| **Units** | **mg/kg** | **OBJECTIVE (a)** |
| **SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)** | | |
| Phenol | ND | 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 | 0.042 j | 0.9 |
| 1,2,4-Trichlorobenzene | ND | 3.4 |
| Naphlalene | 0.93 | 13 |
| 2-Methylnaphthalene | 0.46 | 36.4 |
| Acenaphthylene | 1.3 | 41 |
| Acenaphthene | 0.26 j | 50 |
| Dibenzofuran | 0.22 j | 6.2 |
| Flourene | 0.91 | 50 |
| N-Nitrosodiphenylamine(1) | ND | 1 |
| Phenanthrene | 7.2 d | 50 |
| Anthracene | 2.2 | 50 |
| Carbazole | 0.3 j | 1 |
| Flouranthene | 11 d | 50 |
| Pyrene | 15 d | 50 |
| Benzo (a) anthracene | **5.9 d** | 0.224 or MDL |
| Chrysene | **5.5 d** | 0.4 |
| bis (2-Ethylhexyl) phthalate | 0.087 j | 50 |
| Di-n-octylphthalate | ND | 50 |
| Benzo (b) flouranthene | **7.4 d** | 1.1 |
| Benzo (k) flouranthene | **2.8** | 1.1 |
| Benzo (a) pyrene | **7.1 d** | 0.061 or MDL |
| Indeno (1,2,3-cd) pyrene | **4.3** | 3.2 |
| Dibenzo (a,h) anthracene | **1** | 0.014 or MDL |
| Benzo (g,h,i) perylene | 6.1 | 50 |

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

TABLE 2 (Page 3 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #2

| SDG Number | 61162 | |
|---|---|---|
| LMS Sample ID | AT2S2C1 | |
| Lab Sample Number | 61162011 | |
| Sampling Date | 6/22/99 | RECOMMENDED SOIL |
| Matrix | SOIL | CLEANUP |
| Units | mg/kg | OBJECTIVE (ppm)(a) |
| **METALS(mg/kg)** | | |
| Aluminum | 9120 | SB |
| Antimony | ND | SB |
| Arsenic | **22** | 7.5 or SB |
| Barium | 160 | 300 or SB |
| Beryllium | ND | 0.16 or SB |
| Cadmium | **4.6** | 1 or SB |
| Calcium | 12200 | SB |
| Chromium | **28.1** | 10 or SB |
| Cobalt | 15.3 | 30 or SB |
| Copper | **119** | 25 or SB |
| Iron | **64400** | 2000 or SB |
| Lead | 145 | SB**** |
| Magnesium | 3610 | SB |
| Manganese | 995 | SB |
| Mercury | **1.2** | 0.1 |
| Nickel | **51.1** | 13 or SB |
| Potassium | 37.2 | SB |
| Selenium | **28** | 2 or SB |
| Silver | 8.8 | SB |
| Sodium | ND | SB |
| Thallium | ND | SB |
| Vanadium | 30.9 | 150 or SB |
| Zinc | **457** | 20 or SB |
| Cyanide | ND | *** |

*** - 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.

N/A - Not available.

SB - Site background.

TABLE 2 (Page 4 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #2

| SDG Number | 61162 | |
|---|---|---|
| LMS Sample ID | AT2S2C1 | |
| Lab Sample Number | 6.1E+07 | |
| Sampling Date | 6/22/99 | RECOMMENDED |
| Matrix | SOIL | SOIL CLEANUP |
| Units | mg/kg | OBJECTIVE (a) |
| **PESTICIDES/PCBs (mg/kg)** | | |
| alpha-BHC | ND | 0.11 |
| delta-BHC | 0.0018 p | 0.3 |
| Aldrin | 0.00064 p | 0.041 |
| Heptachlor epoxide | 0.0017 p | 0.02 |
| Dieldrin | ND | 0.044 |
| Endrin | 0.0043 p | 0.1 |
| Endosulfan sulfate | ND | 1 |
| 4,4'-DDT | 0.011 | 2.1 |
| Methoxychlor | 0.014 p | 1 |
| Endrin ketone | ND | 1 |
| Endrin aldehyde | ND | 1 |
| alpha-Chlordane | 0.0035 | 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.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range
ND - Not detected at analytical detection limit.
N/A - Not available.

TABLE 3 (Page 1 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #3

| SDG Number | 61162 | 61162 | 61162 | |
|---|---|---|---|---|
| LMS Sample ID | AT3S139-4 | AT3S257-5 | AT3S274-5 | |
| Lab Sample Number | 61162008 | 61162005 | 61162009 | |
| Sampling Date | 6/22/99 | 6/22/99 | 6/22/99 | 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 | 0.001 j | 1 |
| Acetone | 0.011 b | 0.045 b | 0.019 b | 0.2 |
| Carbon Disulfide | ND | ND | 0.002 j | 2.7 |
| Methylene Chloride | 0.034 | 0.003 j | 0.098 b | 0.1 |
| Methyl tert-butyl ether | ND | ND | ND | 1 |
| 2-Butanone | ND | 0.011 | ND | 0.3 |
| Benzene | ND | ND | ND | 0.06 |
| Trichloroethene | ND | ND | ND | 0.7 |
| 4-Methyl-2-pentanone | ND | ND | ND | 1 |
| Toluene | ND | ND | ND | 1.5 |
| Tetrachloroethene | 0.001 j | ND | ND | 1.4 |
| Ethylbenzene | ND | ND | ND | 5.5 |
| Xylene (Total) | 0.003 j | ND | 0.002 j | 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 | 0.002 j | 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 |

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

ND - Not detected at analytical detection limit

TABLE 3 (Page 2 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #3

| SDG Number | 61162 | 61162 | |
|---|---|---|---|
| LMS Sample ID | AT3S139-4 | AT3S259-5 | |
| Lab Sample Number | 61162008 | 61162012 | |
| Sampling Date | 6/22/99 | 6/22/99 | RECOMMENDED |
| Matrix | SOIL | SOIL | SOIL CLEANUP |
| Units | mg/kg | mg/kg | OBJECTIVE (a) |
| **SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)** | | | |
| Phenol | ND | ND | 0.03 or MDL |
| bis (2-Chloroethyl) Ether | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 8.5 |
| 2-Methylphenol | ND | ND | 0.1 or MDL |
| 4-Methylphenol | ND | ND | 0.9 |
| 1,2,4-Trichlorobenzene | ND | ND | 3.4 |
| Naphlalene | 0.061 j | 0.048 j | 13 |
| 2-Methylnaphthalene | ND | ND | 36.4 |
| Acenaphthylene | 0.15 j | 0.064 j | 41 |
| Acenaphthene | 0.081 j | 0.085 j | 50 |
| Dibenzofuran | 0.043 j | 0.072 j | 6.2 |
| Flourene | 0.096 j | 0.096 j | 50 |
| N-Nitrosodiphenylamine(1) | ND | ND | 1 |
| Phenanthrene | 1.1 | 0.88 | 50 |
| Anthracene | 0.29 j | 0.25 j | 50 |
| Carbazole | 0.063 j | 0.078 j | 1 |
| Flouranthene | 2 | 1.3 | 50 |
| Pyrene | 2.1 | 1.3 | 50 |
| Benzo (a) anthracene | **1.1** | **0.61** | 0.224 or MDL |
| Chrysene | **0.98** | **0.56** | 0.4 |
| bis (2-Ethylhexyl) phthalate | 0.054 j | 0.042 j | 50 |
| Di-n-octylphthalate | ND | ND | 50 |
| Benzo (b) flouranthene | **1.2** | 0.61 | 1.1 |
| Benzo (k) flouranthene | 0.3 j | 0.19 j | 1.1 |
| Benzo (a) pyrene | **1.1** | **0.54** | 0.061 or MDL |
| Indeno (1,2,3-cd) pyrene | 0.46 | 0.24 j | 3.2 |
| Dibenzo (a,h) anthracene | **0.14 j** | **0.078 j** | 0.014 or MDL |
| Benzo (g,h,i) perylene | 0.55 | 0.3 j | 50 |

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

TABLE 3 (Page 3 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #3

| SDG Number | 61162 | 61162 | |
|---|---|---|---|
| LMS Sample ID | AT3S139-4 | AT3S259-5 | |
| Lab Sample Number | 61162008 | 61162012 | |
| Sampling Date | 6/22/99 | 6/22/99 | RECOMMENDED SOIL |
| Matrix | SOIL | SOIL | CLEANUP |
| Units | mg/kg | mg/kg | OBJECTIVE (ppm)(a) |
| **METALS(mg/kg)** | | | |
| Aluminum | 3030 | 12000 | SB |
| Antimony | 0.81B | ND | SB |
| Arsenic | 6.2 | 4.4 | 7.5 or SB |
| Barium | 223 | 119 | 300 or SB |
| Beryllium | ND | ND | 0.16 or SB |
| Cadmium | 0.85 | **1.4** | 1 or SB |
| Calcium | 3970 | 4150 | SB |
| Chromium | 5.8 | **24.2** | 10 or SB |
| Cobalt | 7.7 | 17.3 | 30 or SB |
| Copper | **148** | **39.9** | 25 or SB |
| Iron | **15200** | **18800** | 2000 or SB |
| Lead | 961 | 77.7 | SB**** |
| Magnesium | 1280 | 4510 | SB |
| Manganese | 645 | 432 | SB |
| Mercury | **0.85** | 0.10 B | 0.1 |
| Nickel | **16.2** | **44.7** | 13 or SB |
| Potassium | 433 | 35.5 | SB |
| Selenium | **5.2** | **7.4** | 2 or SB |
| Silver | 2.4 B | 2.4 B | SB |
| Sodium | 147 | ND | SB |
| Thallium | 1.4 | ND | SB |
| Vanadium | 13.2 | 32.6 | 150 or SB |
| Zinc | **167** | **223** | 20 or SB |
| Cyanide | 2.7 | ND | *** |

*** - 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.

N/A - Not available.

SB - Site background.

TABLE 3 (Page 4 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #3

| | | |
|---|---|---|
| **SDG Number** | **61162** | |
| **LMS Sample ID** | **AT3S259-5** | |
| **Lab Sample Number** | **61162012** | |
| **Sampling Date** | **6/22/99** | **RECOMMENDED** |
| **Matrix** | **SOIL** | **SOIL CLEANUP** |
| **Units** | **mg/kg** | **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 | 0.0016 p | 1 |
| 4,4'-DDT | ND | 2.1 |
| Methoxychlor | ND | 1 |
| Endrin ketone | 0.00084 p | 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.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range
ND - Not detected at analytical detection limit.
N/A - Not available.

TABLE 4 (Page 1 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #4

| SDG Number | 61230 | 61230 | 61230 | |
|---|---|---|---|---|
| LMS Sample ID | AT4A | AT4B | AT4C | |
| Lab Sample Number | 61230001 | 61230002 | 61230003 | |
| Sampling Date | 6/30/99 | 6/30/99 | 6/30/99 | 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 | 0.003 j b | 0.004 j b | 0.14 b | 0.2 |
| Carbon Disulfide | ND | ND | 0.002 j | 2.7 |
| Methylene Chloride | 0.005 j | 0.009 | 0.024 | 0.1 |
| Methyl tert-butyl ether | ND | ND | ND | 1 |
| 2-Butanone | ND | ND | 0.026 | 0.3 |
| Benzene | ND | ND | ND | 0.06 |
| Trichloroethene | ND | ND | ND | 0.7 |
| 4-Methyl-2-pentanone | ND | ND | ND | 1 |
| Toluene | ND | ND | ND | 1.5 |
| Tetrachloroethene | 0.021 | 0.02 | 0.034 | 1.4 |
| Ethylbenzene | ND | ND | ND | 5.5 |
| Xylene (Total) | ND | ND | 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 | 0.002 j | ND | ND | 13 |
| 1,2,3-Trichlorobenzene | 0.001 j | ND | ND | 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.
b - Found in associated blanks
d - Concentration recovered from diluted sample
j - Estimated concentration; compound present below quantitation limit
ND - Not detected at analytical detection limit

TABLE 4 (Page 2 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #4

| | | |
|---|---|---|
| **SDG Number** | **61230** | |
| **LMS Sample ID** | **AT4D comp.** | |
| **Lab Sample Number** | **61230004** | |
| **Sampling Date** | **6/30/99** | **RECOMMENDED** |
| **Matrix** | **SOIL** | **SOIL CLEANUP** |
| **Units** | **mg/kg** | **OBJECTIVE (a)** |
| **SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)** | | |
| Phenol | ND | 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 | ND | 0.9 |
| 1,2,4-Trichlorobenzene | ND | 3.4 |
| Naphlalene | 0.093 j | 13 |
| 2-Methylnaphthalene | 0.048 j | 36.4 |
| Acenaphthylene | 0.2 j | 41 |
| Acenaphthene | ND | 50 |
| Dibenzofuran | ND | 6.2 |
| Flourene | 0.061 j | 50 |
| N-Nitrosodiphenylamine(1) | ND | 1 |
| Phenanthrene | 0.45 | 50 |
| Anthracene | 0.12 j | 50 |
| Carbazole | ND | 1 |
| Flouranthene | 0.71 | 50 |
| Pyrene | 1.2 | 50 |
| Benzo (a) anthracene | **0.6** | 0.224 or MDL |
| Chrysene | **0.69** | 0.4 |
| bis (2-Ethylhexyl) phthalate | ND | 50 |
| Di-n-octylphthalate | ND | 50 |
| Benzo (b) flouranthene | 0.9 | 1.1 |
| Benzo (k) flouranthene | 0.26 j | 1.1 |
| Benzo (a) pyrene | **0.84** | 0.061 or MDL |
| Indeno (1,2,3-cd) pyrene | 0.25 j | 3.2 |
| Dibenzo (a,h) anthracene | **0.094 j** | 0.014 or MDL |
| Benzo (g,h,i) perylene | 0.3 j | 50 |

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

M DL - Method detection limit.

ND - Not detected at analytical detection limit

TABLE 4 (Page 3 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #4

| | | |
|---|---|---|
| **SDG Number** | **61230** | |
| **LMS Sample ID** | **AT4D** | |
| **Lab Sample Number** | **61230004** | |
| **Sampling Date** | **6/30/99** | **RECOMMENDED SOIL** |
| **Matrix** | **SOIL** | **CLEANUP** |
| **Units** | **mg/kg** | **OBJECTIVE (ppm)(a)** |
| **METALS(mg/kg)** | | |
| Aluminum | 9130 | SB |
| Antimony | 0.26 B | SB |
| Arsenic | 5.5 | 7.5 or SB |
| Barium | **468** | 300 or SB |
| Beryllium | ND | 0.16 or SB |
| Cadmium | 0.82 | 1 or SB |
| Calcium | 3510 | SB |
| Chromium | **25.5** | 10 or SB |
| Cobalt | ND | 30 or SB |
| Copper | **77.3** | 25 or SB |
| Iron | **18900** | 2000 or SB |
| Lead | 269 | SB**** |
| Magnesium | 3260 | SB |
| Manganese | 376 | SB |
| Mercury | **0.28** | 0.1 |
| Nickel | **25.6** | 13 or SB |
| Potassium | 3170 | SB |
| Selenium | 0.94 B | 2 or SB |
| Silver | 2.0 B | SB |
| Sodium | 1050 | SB |
| Thallium | 0.64 B | SB |
| Vanadium | 28 | 150 or SB |
| Zinc | **195** | 20 or SB |
| Cyanide | 1.8 | *** |

*** - 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.

N/A - Not available.

SB - Site background.

TABLE 4 (Page 4 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #4

| | | |
|---|---|---|
| **SDG Number** | **61230** | |
| **LMS Sample ID** | **AT4D** | |
| **Lab Sample Number** | **61230004** | |
| **Sampling Date** | **6/30/99** | **RECOMMENDED** |
| **Matrix** | **SOIL** | **SOIL CLEANUP** |
| **Units** | **mg/kg** | **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.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range
ND - Not detected at analytical detection limit.
N/A - Not available.

TABLE 5 (Page 1 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #5

| SDG Number | 61230 | 61230 | 61230 | |
|---|---|---|---|---|
| LMS Sample ID | AT5A | AT5B | AT5C | |
| Lab Sample Number | 61230005 | 61230006 | 61230007 | |
| Sampling Date | 6/30/99 | 6/30/99 | 6/30/99 | 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 | 0.002 j | ND | 0.001 j | 1 |
| Acetone | **0.29 d b** | **0.68 b** | 0.12 b | 0.2 |
| Carbon Disulfide | 0.004 j | 0.015 j | ND | 2.7 |
| Methylene Chloride | 0.077 | 0.045 | 0.041 | 0.1 |
| Methyl tert-butyl ether | ND | ND | ND | 1 |
| 2-Butanone | 0.22 | 0.2 | 0.01 | 0.3 |
| Benzene | ND | 0.007 j | ND | 0.06 |
| Trichloroethene | ND | ND | ND | 0.7 |
| 4-Methyl-2-pentanone | ND | ND | ND | 1 |
| Toluene | ND | ND | ND | 1.5 |
| Tetrachloroethene | 0.18 | 0.12 | 0.077 | 1.4 |
| Ethylbenzene | ND | 0.008 j | ND | 5.5 |
| Xylene (Total) | 0.003 j | 0.017 j | 0.001 j | 1.2 |
| Styrene | ND | ND | ND | 1 |
| Isopropylbenzene | ND | 0.008 j | ND | 1 |
| n-Propylbenzene | ND | 0.007 j | ND | 1 |
| 1,3,5_Trimethylbenzene | ND | ND | ND | 1 |
| tert-Butylbenzene | ND | ND | ND | 1 |
| 1,2,4-Trimethylbenzene | 0.002 j | 0.023 j | ND | 1 |
| sec-Butylbenzene | ND | ND | ND | 1 |
| 4-Isopropyltoluene | ND | 0.008 j | 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 | 0.006 j b | ND | 13 |
| 1,2,3-Trichlorobenzene | ND | ND | ND | 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.

b - Found in associated blanks

d - Concentration recovered from diluted sample

j - Estimated concentration; compound present below quantitation limit

ND - Not detected at analytical detection limit

TABLE 5 (Page 2 of 4)

# SOIL SUMMARY

EDC Hunts Point
Site A - Trench #5

| | | |
|---|---|---|
| **SDG Number** | **61230** | |
| **LMS Sample ID** | **AT5D comp.** | |
| **Lab Sample Number** | **61230008** | |
| **Sampling Date** | **6/30/99** | **RECOMMENDED** |
| **Matrix** | **SOIL** | **SOIL CLEANUP** |
| **Units** | **mg/kg** | **OBJECTIVE (a)** |
| **SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)** | | |
| Phenol | ND | 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 | 0.058 j | 0.9 |
| 1,2,4-Trichlorobenzene | ND | 3.4 |
| Naphlalene | 0.33 j | 13 |
| 2-Methylnaphthalene | 0.24 j | 36.4 |
| Acenaphthylene | 0.069 j | 41 |
| Acenaphthene | 0.84 | 50 |
| Dibenzofuran | 0.28 j | 6.2 |
| Flourene | 0.98 | 50 |
| N-Nitrosodiphenylamine(1) | ND | 1 |
| Phenanthrene | 11 d | 50 |
| Anthracene | 2 | 50 |
| Carbazole | 0.4 j | 1 |
| Flouranthene | 6.3 | 50 |
| Pyrene | 10 d | 50 |
| Benzo (a) anthracene | **4.2** | 0.224 or MDL |
| Chrysene | **4.8** | 0.4 |
| bis (2-Ethylhexyl) phthalate | 0.066 j | 50 |
| Di-n-octylphthalate | ND | 50 |
| Benzo (b) flouranthene | **4** | 1.1 |
| Benzo (k) flouranthene | 0.92 | 1.1 |
| Benzo (a) pyrene | **3.5** | 0.061 or MDL |
| Indeno (1,2,3-cd) pyrene | 0.97 | 3.2 |
| Dibenzo (a,h) anthracene | **0.41 j** | 0.014 or MDL |
| Benzo (g,h,i) perylene | 1.1 | 50 |

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

TABLE 5 (Page 3 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #5

| SDG Number | 61230 | |
|---|---|---|
| LMS Sample ID | AT5D comp. | |
| Lab Sample Number | 61230008 | |
| Sampling Date | 6/30/99 | RECOMMENDED SOIL |
| Matrix | SOIL | CLEANUP |
| Units | mg/kg | OBJECTIVE (ppm)(a) |
| **METALS(mg/kg)** | | |
| Aluminum | 5220 | SB |
| Antimony | 5.2 | SB |
| Arsenic | **13.2** | 7.5 or SB |
| Barium | **2600** | 300 or SB |
| Beryllium | **0.30 B** | 0.16 or SB |
| Cadmium | **1.4** | 1 or SB |
| Calcium | 8100 | SB |
| Chromium | **24.8** | 10 or SB |
| Cobalt | ND | 30 or SB |
| Copper | **185** | 25 or SB |
| Iron | **14500** | 2000 or SB |
| Lead | 1850 | SB**** |
| Magnesium | 1190 | SB |
| Manganese | 249 | SB |
| Mercury | **0.7** | 0.1 |
| Nickel | **22** | 13 or SB |
| Potassium | 1000 | SB |
| Selenium | **2.3 B** | 2 or SB |
| Silver | 1.9 B | SB |
| Sodium | 805 | SB |
| Thallium | ND | SB |
| Vanadium | 21.6 | 150 or SB |
| Zinc | **911** | 20 or SB |
| Cyanide | 1.7 | *** |

*** - 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.

N/A - Not available.

SB - Site background.

TABLE 5 (Page 4 of 4)

# SOIL SUMMARY

EDC Hunts Point

Site A - Trench #5

| SDG Number | 61230 | |
|---|---|---|
| LMS Sample ID | AT5D comp. | |
| Lab Sample Number | 61230008 | |
| Sampling Date | 6/30/99 | RECOMMENDED |
| Matrix | SOIL | SOIL CLEANUP |
| Units | mg/kg | 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 | 0.011 p | 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.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range
ND - Not detected at analytical detection limit.
N/A - Not available.

following metals were detected above the recommended soil cleanup objectives in the composite sample: arsenic, barium, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc. Pesticides and PCBs were not detected above the recommended soil cleanup criteria in the composite sample from Trench 5.

**Groundwater Samples**

Two groundwater samples were collected at Area A from Trenches 2 and 5 (AT2GW and AT5GW, respectively)(see Figure 4). Samples were submitted for analysis of VOCs, SVOCs, Pesticides/PCBs, cyanide, and filtered TAL Metals. Sample results were compared to NYSDEC Class GA Standards and are included as Tables 6 and 7.

The groundwater sample collected from Trench 2 contained low to non-detectable concentrations of volatile compounds. The following semivolatile compounds exceeded the NYSDEC Class GA Standards in the groundwater sample AT2GW: naphthalene, phenanthrene, fluoranthene, pyrene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and ideno(1,2,3-cd)pyrene. The following metals were detected above the Class GA standards in the groundwater sample AT2GW: antimony, iron, manganese, and sodium. No PCBs or pesticides were detected in the groundwater sample collected from Trench 2.

Volatile compounds were detected at low to non-detectable levels in the sample collected from Trench 5, with the exception of the compound tert-Butylbenzene, which was detected above the Class GA Standard. Semivolatile compounds were detected at non-detectable concentrations, and the following compounds exceeded the Class GA Standards: chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene. The following metals were detected above the Class GA Standards in groundwater sample AT5GW: iron, magnesium, manganese, and sodium. Pesticides and PCBs were not detected in the groundwater sample collected from Trench 5.

**Additional Well Installation and Sampling**

Following the initial Investigation Report, two additional shallow groundwater monitoring wells were installed in the vicinity of the west end of Trench #2. The wells were installed in an area of the trench where residual coal tar waste was encountered and the main objective was to determine if in fact there was free phase product in the area. Samples were also to be taken from each well and analyzed for semi-volatiles, which were the prime contaminants found in the coal tar. A groundwater

TABLE 6 (Page 1 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point
Site A - Trench #2

| | | |
|---|---|---|
| **SDG Number** | **61246** | |
| **LMS Sample ID** | **AT2GW** | |
| **Lab Sample Number** | **61246001** | |
| **Sampling Date** | **7/1/99** | **NYSDEC** |
| **Matrix** | **AQUEOUS** | **CLASS GA** |
| **Units** | **ug/l** | **STANDARDS (b)** |
| **VOLATILE ORGANIC COMPOUNDS (ug/l)** | | |
| Chloromethane | ND | 5 |
| Bromomethane | ND | 5 |
| Trichloroflouromethane | ND | 5 |
| Acetone | 19 | 50 |
| Carbon Disulfide | ND | 50 |
| Methylene Chloride | ND | 5 |
| Methyl tert-butyl ether | 12 | N/A |
| 2-Butanone | ND | N/A |
| Benzene | ND | 0.7 |
| Trichloroethene | ND | 5 |
| 4-Methyl-2-pentanone | ND | N/A |
| Toluene | ND | 5 |
| Tetrachloroethene | ND | 5 |
| Ethylbenzene | ND | 5 |
| Xylene (Total) | ND | 5 |
| Styrene | ND | 5 |
| Isopropylbenzene | ND | 5 |
| n-Propylbenzene | ND | 5 |
| 1,3,5-Trimethylbenzene | ND | 5 |
| tert-Butylbenzene | ND | 5 |
| 1,2,4-Trimethylbenzene | ND | 5 |
| sec-Butylbenzene | ND | 5 |
| 4-Isopropyltoluene | ND | 5 |
| 1,3-Dichlorobenzene | ND | 3 |
| n-Butylbenzene | ND | 5 |
| 1,2,4-Trichlorobenzene | ND | 5 |
| Hexachlorobutadiene | ND | 0.5 |
| Naphthalene | ND | 10 |
| 1,2,3-Trichlorobenzene | ND | 5 |

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
b - Found in associated blanks
d - Concentration recovered from diluted sample
j - Estimated concentration; compound present below quantitation limit
N/A - Not available.
ND - Not detected at analytical detection limit

TABLE 6 (Page 2 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point

Site A - Trench #2

| | | |
|---|---|---|
| **SDG Number** | **61246** | |
| **LMS Sample ID** | **AT2GW** | |
| **Lab Sample Number** | **61246001** | |
| **Sampling Date** | **7/1/99** | **NYSDEC** |
| **Matrix** | **AQUEOUS** | **CLASS GA** |
| **Units** | **ug/l** | **STANDARDS (b)** |
| **SEMIVOLATILE ORGANIC COMPOUNDS (ug/l)** | | |
| Phenol | ND | 1 |
| bis (2-Chloroethyl) Ether | ND | 1 |
| 1,4-Dichlorobenzene | ND | 3 |
| 2-Methylphenol | ND | 1 |
| 4-Methylphenol | ND | 1 |
| 1,2,4-Trichlorobenzene | ND | 5 |
| Naphlalene | **14 j** | 10 |
| 2-Methylnaphthalene | ND | N/A |
| Acenaphthylene | 19 j | N/A |
| Acenaphthene | ND | 20 |
| Dibenzofuran | 2 j | N/A |
| Flourene | 7 j | 50 |
| N-Nitrosodiphenylamine(1) | ND | 50 |
| Phenanthrene | **68** | 50 |
| Anthracene | 16 j | 50 |
| Carbazole | 3 j | N/A |
| Flouranthene | **130** | 50 |
| Pyrene | **230** | 50 |
| Benzo (a) anthracene | 71 | N/A |
| Chrysene | **78** | 0.002 |
| bis (2-Ethylhexyl) phthalate | ND | 5 |
| Di-n-octylphthalate | ND | 50 |
| Benzo (b) flouranthene | **110** | 0.002 |
| Benzo (k) flouranthene | **48** | 0.002 |
| Benzo (a) pyrene | **100** | ND |
| Indeno (1,2,3-cd) pyrene | **62** | 0.002 |
| Dibenzo (a,h) anthracene | 13 j | N/A |
| Benzo (g,h,i) perylene | 80 | N/A |

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

b - Found in associated blanks

d - Concentration recovered from diluted sample

j - Estimated concentration; compound present below quantitation limit

N/A - Not available.

ND - Not detected at analytical detection limit

TABLE 6 (Page 3 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point

Site A - Trench #2

| SDG Number | 61246 | |
|---|---|---|
| LMS Sample ID | AT2GW | |
| Lab Sample Number | 61246001 | |
| Sampling Date | 7/1/99 | NYSDEC |
| Matrix | AQUEOUS | CLASS GA |
| Units | ug/l | STANDARDS (b) |
| **METALS(ug/l)** | | |
| Aluminum | ND | 100 |
| Antimony | **14.3 B** | 3 |
| Arsenic | ND | 25 |
| Barium | 213 | 1000 |
| Beryllium | ND | 3 |
| Cadmium | ND | 5 |
| Calcium | 156000 | N/A |
| Chromium | ND | 50 |
| Cobalt | ND | 5 |
| Copper | 25.3 B | 200 |
| Iron | **1460** | 300 |
| Lead | ND | 25 |
| Magnesium | 15300 | 35000 |
| Manganese | **2410** | 300 |
| Mercury | ND | 0.7 |
| Nickel | 4.2 B | 100 |
| Potassium | 10900 | N/A |
| Selenium | ND | 10 |
| Silver | ND | 50 |
| Sodium | **21600** | 20000 |
| Thallium | ND | 0.5 |
| Vanadium | 6.3 B | 14 |
| Zinc | 28.1 B | 2000 |
| Cyanide | 143 | 200 |

(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

ND - Not detected at analytical detection limit.

N/A - Not available.

TABLE 6 (Page 4 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point

Site A - Trench #2

| | | |
|---|---|---|
| **SDG Number** | **61246** | |
| **LMS Sample ID** | **AT2GW** | |
| **Lab Sample Number** | **61246001** | |
| **Sampling Date** | **7/1/99** | **NYSDEC** |
| **Matrix** | **AQUEOUS** | **CLASS GA** |
| **Units** | **ug/l** | **STANDARDS (b)** |
| **PESTICIDES/PCBs (ug/l)** | | |
| alpha-BHC | ND | N/A |
| delta-BHC | ND | N/A |
| Aldrin | ND | ND |
| Heptachlor epoxide | ND | 0.03 |
| Dieldrin | ND | 0.004 |
| Endrin | ND | ND |
| Endosulfan sulfate | ND | 0.009 |
| 4,4'-DDT | ND | 0.2 |
| Methoxychlor | ND | 35 |
| Endrin ketone | ND | 5 |
| Endrin aldehyde | ND | 5 |
| alpha-Chlordane | ND | 0.05 |
| gamma-Chlordane | ND | 0.05 |
| Aroclor-1254 | ND | N/A |
| Aroclor-1260 | ND | N/A |

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range
ND - Not detected at analytical detection limit.
N/A - Not available.

TABLE 7 (1 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point

Site A - Trench #5

| | | |
|---|---|---|
| **SDG Number** | **61246** | |
| **LMS Sample ID** | **AT5GW** | |
| **Lab Sample Number** | **61246002** | |
| **Sampling Date** | **7/1/99** | **NYSDEC** |
| **Matrix** | **AQUEOUS** | **CLASS GA** |
| **Units** | **ug/l** | **STANDARDS (b)** |
| **VOLATILE ORGANIC COMPOUNDS (ug/l)** | | |
| Chloromethane | ND | 5 |
| Bromomethane | ND | 5 |
| Trichloroflouromethane | ND | 5 |
| Acetone | ND | 50 |
| Carbon Disulfide | ND | 50 |
| Methylene Chloride | ND | 5 |
| Methyl tert-butyl ether | ND | N/A |
| 2-Butanone | ND | N/A |
| Benzene | ND | 0.7 |
| Trichloroethene | ND | 5 |
| 4-Methyl-2-pentanone | ND | N/A |
| Toluene | ND | 5 |
| Tetrachloroethene | ND | 5 |
| Ethylbenzene | ND | 5 |
| Xylene (Total) | 10 | 5 |
| Styrene | ND | 5 |
| Isopropylbenzene | ND | 5 |
| n-Propylbenzene | ND | 5 |
| 1,3,5-Trimethylbenzene | 4 j | 5 |
| tert-Butyibenzene | **6** | 5 |
| 1,2,4-Trimethylbenzene | ND | 5 |
| sec-Butylbenzene | ND | 5 |
| 4-Isopropyltoluene | ND | 5 |
| 1,3-Dichlorobenzene | ND | 3 |
| n-Butylbenzene | ND | 5 |
| 1,2,4-Trichlorobenzene | ND | 5 |
| Hexachlorobutadiene | ND | 0.5 |
| Naphthalene | ND | 10 |
| 1,2,3-Trichlorobenzene | ND | 5 |

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

b - Found in associated blanks

d - Concentration recovered from diluted sample

j - Estimated concentration; compound present below quantitation limit

N/A - Not available.

ND - Not detected at analytical detection limit

TABLE 7 (2 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point

Site A - Trench #5

| | | |
|---|---|---|
| **SDG Number** | **61246** | |
| **LMS Sample ID** | **AT5GW** | |
| **Lab Sample Number** | **61246002** | |
| **Sampling Date** | **7/1/99** | **NYSDEC** |
| **Matrix** | **AQUEOUS** | **CLASS GA** |
| **Units** | **ug/l** | **STANDARDS (b)** |
| **SEMIVOLATILE ORGANIC COMPOUNDS (ug/l)** | | |
| Phenol | ND | 1 |
| bis (2-Chloroethyl) Ether | ND | 1 |
| 1,4-Dichlorobenzene | ND | 3 |
| 2-Methylphenol | ND | 1 |
| 4-Methylphenol | ND | 1 |
| 1,2,4-Trichlorobenzene | ND | 5 |
| Naphlalene | 1 j | 10 |
| 2-Methylnaphthalene | ND | N/A |
| Acenaphthylene | ND | N/A |
| Acenaphthene | ND | 20 |
| Dibenzofuran | ND | N/A |
| Flourene | ND | 50 |
| N-Nitrosodiphenylamine(1) | ND | 50 |
| Phenanthrene | 9 j | 50 |
| Anthracene | 2 j | 50 |
| Carbazole | ND | N/A |
| Flouranthene | 16 | 50 |
| Pyrene | 21 | 50 |
| Benzo (a) anthracene | 11 | N/A |
| Chrysene | **10** | 0.002 |
| bis (2-Ethylhexyl) phthalate | 4 j | 5 |
| Di-n-octylphthalate | ND | 50 |
| Benzo (b) flouranthene | **13** | 0.002 |
| Benzo (k) flouranthene | **8 j** | 0.002 |
| Benzo (a) pyrene | **12** | ND |
| Indeno (1,2,3-cd) pyrene | **8 j** | 0.002 |
| Dibenzo (a,h) anthracene | ND | N/A |
| Benzo (g,h,i) perylene | 8 j | N/A |

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

b - Found in associated blanks

d - Concentration recovered from diluted sample

j - Estimated concentration; compound present below quantitation limit

N/A - Not available.

ND - Not detected at analytical detection limit

TABLE 7 (3 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point

Site A - Trench #5

| SDG Number | 61246 | |
|---|---|---|
| LMS Sample ID | AT5GW | |
| Lab Sample Number | 61246002 | |
| Sampling Date | 7/1/99 | NYSDEC |
| Matrix | AQUEOUS | CLASS GA |
| Units | ug/l | STANDARDS (b) |
| **METALS(ug/l)** | | |
| Aluminum | 83.3 B | 100 |
| Antimony | 2.8 B | 3 |
| Arsenic | 6.8 B | 25 |
| Barium | 210 | 1000 |
| Beryllium | ND | 3 |
| Cadmium | ND | 5 |
| Calcium | 180000 | N/A |
| Chromium | 2.7 B | 50 |
| Cobalt | ND | 5 |
| Copper | 9.3 B | 200 |
| Iron | **345** | 300 |
| Lead | ND | 25 |
| Magnesium | **38300** | 35000 |
| Manganese | **1570** | 300 |
| Mercury | ND | 0.7 |
| Nickel | 6.6 B | 100 |
| Potassium | 18900 | N/A |
| Selenium | 5.2 B | 10 |
| Silver | 5.8 B | 50 |
| Sodium | **102000** | 20000 |
| Thallium | ND | 0.5 |
| Vanadium | 13.8 B | 14 |
| Zinc | 22.5 B | 2000 |
| Cyanide | 112 | 200 |

(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

ND - Not detected at analytical detection limit.

N/A - Not available.

TABLE 7 (4 of 4)

# GROUNDWATER SUMMARY

EDC Hunts Point

Site A - Trench #5

| SDG Number | 61246 | |
|---|---|---|
| LMS Sample ID | AT5GW | |
| Lab Sample Number | 61246002 | |
| Sampling Date | 7/1/99 | NYSDEC |
| Matrix | AQUEOUS | CLASS GA |
| Units | ug/l | STANDARDS (b) |
| **PESTICIDES/PCBs (ug/l)** | | |
| alpha-BHC | ND | N/A |
| delta-BHC | ND | N/A |
| Aldrin | ND | ND |
| Heptachlor epoxide | ND | 0.03 |
| Dieldrin | ND | 0.004 |
| Endrin | ND | ND |
| Endosulfan sulfate | ND | 0.009 |
| 4,4'-DDT | ND | 0.2 |
| Methoxychlor | ND | 35 |
| Endrin ketone | ND | 5 |
| Endrin aldehyde | ND | 5 |
| alpha-Chlordane | ND | 0.05 |
| gamma-Chlordane | ND | 0.05 |
| Aroclor-1254 | ND | N/A |
| Aroclor-1260 | ND | N/A |

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range
ND - Not detected at analytical detection limit.
N/A - Not available.

sample collected from this area in the trench showed the presence of specific semi-volatile compounds. Each well was sampled for semi-volatiles in filtered and unfiltered samples in order to assess the actual presence of dissolved SVOCs vs those compounds associated with particulates.

The results showed that from the two (2) unfiltered monitoring well samples (Table 8) very low level semi-volatile compounds were detected. MW-1A was found to contain only unknown semi-volatile compounds (3-7 micrograms/liter) and bis(2)phthalate. MW-2A contained single digit concentrations (between 6 and 1 microgram/liter) of unknown compounds and napthalene respectively. The unfiltered samples were also found to contain similar low level concentrations (1-6 micrograms/liter) of; phenanthrene, flouranthene, pyrene, benzo(a) anthracene, unknowns, and napthalene.

**Conclusions and Remedy Selection**

LMS has reviewed all of the information that has been made available for the Operating Unit of Site A, and following completion of the intensive trenching and sampling program has made the following observations, conclusions, and recommendations. The 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; Feasibility. The remedy being the development of the Site to include a singular asphalt cap that will serve as a parking lot for a building being constructed on the adjacent property.

*Standards, Criteria, and Guidance:*

Soil data was compared to the existing NYSDEC TAGM for the TCL compounds and although several criteria are several part per million above the recommended soil cleanup criteria, these compounds are relatively immobile and were believed to have been encountered in general fill material across the site. The single digit concentrations are ubiquitous and are consistent with fill including timbers and coal waste, a number of these compounds are also typically found in road base materials.

*Overall Protectiveness of Public Health and the Environment:*

The current condition of the Site allows infiltration of all precipitation to pass through the soil and percolate to the groundwater. Currently the groundwater is in a condition that might be considered saline and

TABLE 8
GROUNDWATER MONITORING WELL DATA

| LMS Sample ID<br>Sampling Date<br>Matrix<br>Units | MW-1A<br>3/22/00<br>WATER<br>µg/L | MW-1AD<br>3/22/00<br>WATER<br>µg/L | MW-2A<br>3/22/00<br>WATER<br>µg/L | MW-2AD<br>3/22/00<br>WATER<br>µg/L | NYSDEC<br>CLASS GA<br>STANDARDS (b)<br>µg/L |
|---|---|---|---|---|---|
| **SEMIVOLATILE ORGANIC COMPOUNDS (µg/L)** | | | | | |
| Phenol | ND | ND | ND | ND | 1 |
| 2-Methylphenol | ND | ND | ND | ND | 1 |
| 4-Methylphenol | ND | ND | ND | ND | 1 |
| 2, 4-Dimethylphenol | ND | ND | ND | ND | 50 |
| Naphlalene | ND | ND | 2 j | 1 j | 10 |
| 2-Methylnaphthalene | ND | ND | ND | ND | N/A |
| Acenaphthylene | ND | ND | ND | ND | N/A |
| Acenaphthene | ND | ND | ND | ND | 20 |
| Dibenzofuran | ND | ND | ND | ND | N/A |
| Flourene | ND | ND | ND | ND | 50 |
| Phenanthrene | 1 j | ND | 5 j | ND | 50 |
| Anthracene | ND | ND | 1 j | ND | 50 |
| Flouranthene | 2 j | ND | 6 j | ND | 50 |
| Pyrene | 2 j | ND | 6 j | ND | 50 |
| Benzo (a) anthracene | 1 j | ND | 3 j | ND | N/A |
| Chrysene | ND | ND | 3 j | ND | .002 |
| bis (2-Ethylhexyl) phthalate | 1 j | 3 j | 3 j | ND | 5 |
| Benzo (b) flouranthene | ND | ND | 3 j | ND | .002 |
| Benzo (k) flouranthene | ND | ND | 1 j | ND | .002 |
| Benzo (a) pyrene | ND | ND | 2 j | ND | ND |
| Indeno (1,2,3-cd) pyrene | ND | ND | 1 j | ND | .002 |
| Unknowns | 3-7 j | 2-3 j | 3-8 j | 6 j | |

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not available.
ND - Not detected at analytical detection limit.

+Disk No.: \\Lms-srvr1\data\HazWaste\JOBS\700\781-001\Site A\groundwatersvoc.xls\SVOCs\6/30/00\12:59 PM

unusable in any form as a potable water source. The asphalt cap which will be installed across the site will be made of similar compounds that are found in the fill material. This material will effectively cover and seal the fill material beneath it and prevent further percolation of precipitation. All runoff will be directed and channeled into storm drains. Following completion of the cap there should not be any additional percolation of rainwater down through the fill material.

The installation of the cap will also totally isolate the fill and prevent contact in the future from workers or anyone present at the site. Although the concentrations would be considered low level, care should be taken and notice given to workers during the construction of storm drainage, and underground utilities. It would be during this period that the only real potential for direct exposure would be evident. Prior to initializing construction below grade, the contractor should review the data and incorporate potential exposure routes into a plan that should be presented to workers.

*Short-term and Long-term Effectiveness:*

The proposed remedy and development is effective both for the short and long term use because the capping material that will seal the site is composed of a group of compounds similar and in some cases identical in nature to what exists in the fill material. These compounds are widely accepted across the country as some of the standard ingredients for roadbase material. The development of the site including this parking area is considered a very long term plan and following its construction there are no known plans for removing this structure or modifying it.

In order to effect the long-term portion of the remedy the Site will have specific restrictions which require notification of the owner (City of New York) for any intrusive work (utility, drainage). The cap material will also be required to be maintained and kept in a condition that will maintain the same conditions (no contact and infiltration).

*Reduction of Toxicity, Mobility, Volume with Treatment:*

The recommended capping remedy will physically reduce potential for any exposure to all residual material including any levels of chemicals that are considered toxic. The contaminants found in the soil were primarily semi-volatiles and several metals. Since removal is not a proposed remedy, the actual volume of impacted material will remain in-place and be unchanged. Treatment that will occur will continue to be naturally occurring oxidation and biodegredation.

The presence of the cap as a large and single unit across the site will act as a significant barrier to vertical migration of residual contaminants. The

configuration of the site during the investigation included an open surface with vegetation. Precipitation will in the future be contained and directed into an engineered storm drainage system rather than infiltrating through the ground. As a result of the investigation it was apparent that the main avenue for allowing movement of anything through the soil column was percolation of water and this will be stopped completely with an asphalt cap. Semi-volatile organics and metals are not generally mobile with anything other than percolation of rainwater and removing this will effectively contain all of the compounds and elements in their current location and depth.

The proposed redevelopment and capping is the effective remedy for the site. A consideration of TAGM values was given to certain areas and prior to construction the final utility, grading, drainage, and paving plans will be reviewed and if necessary, additional engineering controls will be recommended in areas where construction will encounter questionable material.

One area adjacent to Trench 2 had additional confirmatory groundwater sampling and analysis performed. That sampling consisted of the installation and sampling of two (2) groundwater monitoring wells Figure 17. No product was encountered in the monitoring well of during its installation or sampling. The groundwater samples results showed trace levels of several semi-volatile compounds that were found at levels just above detection limits. Based on this LMS would recommend that the wells be closed (grouted up or pulled out of the ground) prior to final capping.

The program included a visual examination of trenches that covered over 850 linear feet across the site (this includes some distance where the old Hunts Point Road was avoided due to existing utilities). During the excavation activities, samples were collected for analysis from those areas that were found to exhibit the most obvious sign of contamination. The conditions that were encountered in one small area of one Trench, #2 indicate that there are residual coal tar products at depths averaging 3 to 4 ft below grade. The remainder of the fill consisted of mixed garbage, slag, coal and incinerated ash, soil, sand and gravel were generally found above the water table.

Trench excavations also identified underground abandoned and/or utilities that are present in the southern portion of the site.

A review of the analytical data for soils, fill and groundwater clearly indicates that even in areas where the fill contains small amounts of solidified coal tar , volatile organics are virtually non-existent and not in levels that exceed the TAGM. Semivolatile compounds, although more prevalent, were still identified at relatively low levels that are consistent

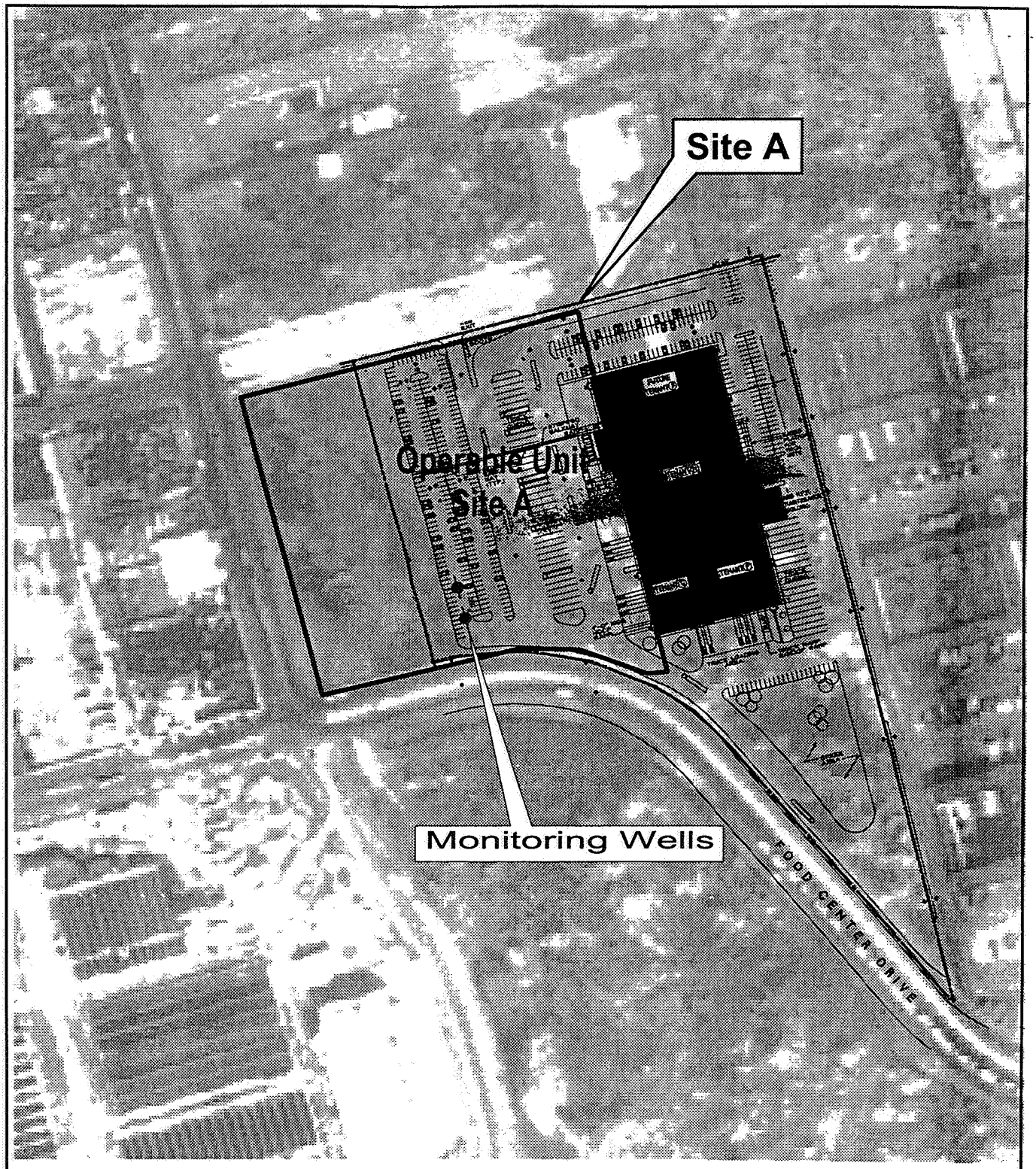
with extremely weathered fill of this type. No PCBs or pesticides were found that would require further review. Metals concentrations were also consistent with concentrations that may be found in urban fill material. One sample from Trench 3 contained cyanide which may be the result of some small scale filling from material associated with purifier beds.

After a thorough examination, groundwater was found to be free of either a light or dense Non Aqueous Phase Petroleum Layer. Some minor semivolatile contamination was presented in the laboratory data. The data also indicated that the water was rather high in analytes indicative of saline groundwater. Although groundwater fluctuations were not measured, it may be tidally influenced as well. Based on the semivolatile concentrations in Trench 2, a pair of monitoring wells will be installed in the western end. These will be sampled, and groundwater filtered in order to determine the level of dissolved semivolatiles.

The development plan shown on Figure 17 shows the site and planned parking lot. The entire area included in Site A is to be covered with a bituminous pavement cap. This will effectively remove any potential for infiltration in comparison with the existing conditions. The removal of percolating water will immobilize any residual metals and semivolatiles. Final design drawings are being prepared and it is intended for the asphalt to be placed over the site in a solid layer 6in. thick with and underlayment of processed gravel. It should be noted that a significant number of the semivolatile compounds which are proposed to remain under the cap are also typical constituents of asphalt.

Several small areas across the paved area will have landscaped or grassy medians. These areas will constitute less than 1% of the entire parcel. In these locations a minimum of 1 ft of clean material will be brought in and placed upon the surface over any existing fill. The definition of "clean" for purposes of this Response Plan will constitute soils brought in from a reputable contractor from a site designated as a supply source for virgin backfill or soil. It will not include soil excavated from and urban construction project or will not contain debris or any man made fill. An example would be "bank run" sand and gravel, silt or clay.

The site drainage plan when completed will contain storm drainage conduits and catch basins. These will be solid and will not by design allow infiltration of water into the surrounding soil. During the construction phase, the contractor will excavate and remove all soil from these and any other utilities and will either reuse the soil on site in the grading plan or will stockpile the soil in a clear location that is underlayed with protective poly. During the excavation any additional soil will be placed in this staging area and soil needed for grading will be removed accordingly. Upon completion of the grading, any remaining soil will be sampled for the parameters in the trenching portion of this Response Plan in addition to characteristic

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| | | |
|---|---|---|
| LMS Lawler, Matusky & Skelly Engineers LLP<br>One Blue Hill Plaza • Pearl River, New York 10965<br>ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS | **Proposed Development Plan of Operating Unit**<br>**Hunts Point** | **Figure 17** |

hazardous waste parameters listed in CFR 40 Part 261.20 Subpart C. Following analysis the material will be disposed of in accordance with all applicable City, State, and Federal regulations. If the grading plan requires the importation of additional material then this will afford a greater separation between the cap and remaining fill. This remedy will remove potential for any exposure (dermal, inhalation, or ingestion) of underlying fill and the residual organic and inorganic compounds present in it.

The only remaining potential for exposure is during the actual construction when excavation of utilities and grading will be performed. In order to prevent worker exposure the contractor will be required to review this Response Plan and prepare documentation to address this concern and follow these procedures during construction. This documentation may include the following: Soil Handling and Excavation Plan, Site Specific Health & Safety Plan, and Soil Disposal Plan.

The future use of the Site will require notification to the Owner for any intrusive repairs or modifications that may result in the contact or disturbance of the material under the cap. If work is to be performed it will be documented and supplied to NYSDEC.

**ATTACHMENT A**

# LMS Test Boring Log

| | |
|---|---|
| **Project Name:** Hunt's Point EDC | **Boring No.:** AB-1 |
| **Client:** Economic Development Corp | **Sheet** 1 **of** 2 |
| **Driller:** Summit Drilling, Inc. | **Project No.:** 781-001 |
| **Drilling Method:** Air Rotary | **Date:** Start 7/7/99 |
| **Boring Location:** Site A | Finish 7/7/99 |
| **Coordinates:** | **Total Depth:** 34' |
| **Logged By:** J. Morse | **Depth To Water:** 8' |
| **Monitoring Instrument(s):** HNu | **Surf. Elevation:** |
| | **Hole Diameter:** 8" |

| Depth (ft) | Blows On Sampler 0"-6" | 6"-12" | 12"-18" | 18"-24" | Recovery (ft) | Instrument Reading | Sample Retained | Moisture Content | Classification Of Material | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 0-2 | 2 | 10 | 8 | 8 | 6" | - | Y | DRY | Black silty coal ash, trace concrete, FILL. | |
| 2-4 | 19 | 13 | 4 | 4 | 6" | - | Y | DRY | Brown-black silty ash fill - some coal slag FILL. | |
| 4-6 | 6 | 6 | 4 | 5 | 0" | - | Y | DRY | NO RECOVERY. Piece of coal slag in shoe. | |
| 6-8 | 7 | 7 | 8 | 9 | 2" | - | Y | DRY | Very little recovery - black cindery coal ash. | |
| 8-10 | 6 | 8 | 8 | 2 | 2" | - | Y | WET | Very little recovery - black cindery coal ash - wet at tip of shoe. | |
| 10-12 | 5 | 3 | 2 | 2 | 6" | - | Y | WET | 0.0-4.0" - Black-grey tight silt.<br>4.0-6.0" - Black ash FILL, incinerator ash, pieces of porcelain, wood. | |
| 12-14 | 4 | 3 | 2 | 3 | 3" | - | Y | WET | Ash fill over black-grey silty clay. | |
| 14-16 | 2 | 2 | 3 | 6 | 2" | - | Y | WET | Grey silty micaceous sand. | |
| 16-18 | 7 | 4 | 4 | 4 | 18" | - | Y | WET | 0.0-10.0" - Grey silty micaceous sand and shells.<br>10.0-18.0" - Tight grey clay with meadow mat. | |
| 18-20 | 2 | 2 | 1 | 1 | 0" | - | Y | WET | Trace shells, large piece of rock in shoe | |
| 20-22 | W | O | H | | 18" | - | Y | WET | Tight grey sandy clay, meadowmat throughout - meadowmat is light brown, fibrous. | |
| 22-24 | 4 | 6 | 6 | 6 | 24" | - | Y | WET | Very tight silty grey clay and wood fibers, strong methane odor. | |

Classification Of Material

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

# LMS Test Boring Log

| | |
|---|---|
| **Project Name:** Hunt's Point EDC | **Boring No.:** AB-1 |
| **Client:** Economic Development Corp | **Sheet** 2 **of** 2 |
| **Driller:** Summit Drilling, Inc. | **Project No.:** 781-001 |
| **Drilling Method:** Air Rotary | **Date:** Start 7/7/99 |
| **Boring Location:** Site A | Finish 7/7/99 |
| **Coordinates:** | **Total Depth:** 34' |
| **Logged By:** J. Morse | **Depth To Water:** 8' |
| **Monitoring Instrument(s):** HNu | **Surf. Elevation:** |
| | **Hole Diameter:** 8" |

| Depth (ft) | Blows On Sampler 0"-6" | 6"-12" | 12"-18" | 18"-24" | Recovery (ft) | Instrument Reading | Sample Retained | Moisture Content | Classification Of Material | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10% | |
| 24-26 | 6 | 7 | 7 | 8 | 24" | - | Y | WET | Very tight grey silty clay and meadowmat. | |
| 26-28 | 8 | 7 | 9 | 6 | 24" | - | Y | WET | Very tight, grey silty clay and meadowmat, trace fine gravel | |
| 28-30 | 10 | 19 | 19 | 20 | 24" | - | Y | WET | Tight grey clay trace meadowmat, getting more sandy, trace f gravel. | |
| 30-32 | 12 | 25 | 63 | 33 | 24" | - | Y | WET | 0.0-2.0" - Brown peat.<br>2.0-10.0" - Soupy, grey silt and shells.<br>10.0-15.0" - Grey, tight, silty sand, weathered schist.<br>15.0-24.0" - Tight grey sandy silt. | |
| 32-34 | 50 | 100/6 | | | 6" | - | Y | WET | Red-gold, micaceous sand, fine grained, weathered micaceous biotite schist, at end of spoon and in shoe.<br>Weathered bedrock - EOB at 34 ft. | |