CONFIDENTIAL AND PRIVILEGED

PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT
OF

FORMER METRO NORTH PROPERTY
3001 CONCOURSE VILLAGE EAST
BRONX, NEW YORK 10451

SCA LLW NO.: 27566
SCA CONTRACT NO.: 0018612
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NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY

Prepared by:

URS

URS Corporation
201 Willowbrook Boulevard
Wayne, New Jersey 07470
Phone: (973) 785-0700
Fax: (973) 785-0023
K.D. Seborowski

Prepared for:

NYC SCA
30-30 Thomson Avenue
Long Island City, NY 11101-3045
Phone: (718) 472-8620
Fax: (718) 472-8500
Attn: Srinivas Kanaparthi

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EXECUTIVE SUMMARY

The New York City School Construction Authority (NYCSCA) requested that URS Corporation (URS) conduct a Phase II Environmental Site Investigation (ESI) associated with the proposed new school site located at 3001 Concourse Village East, Bronx, New York (hereafter referred to as the "Site"). One lot comprises the Site and is identified as Block 2443, Lot 78 on the Bronx tax assessor's map. This property was a former rail yard. The Site is currently vacant. There are no existing buildings on the property to be demolished for construction of a New York City Public School.

The Phase II ESI was completed to assess Recognized Environmental Conditions (RECs) identified during the Phase I Environmental Site Assessment (ESA), completed by URS and dated July 20, 2001. The Site was a rail yard from approximately 1891 until 1977. The Site also contained a machine shop, carpenter shop, paint area, offices, shops and storage areas. Subsequent to 1977, historical records depict the absence of the buildings or tracks comprising the rail yard at the Site. The past use of the Site is considered a REC. Pipe insulation was found at the Site during the Phase I ESA inspection and should be considered asbestos containing material (ACM).

The surrounding properties have been used for commercial and residential purposes. One filling station is located approximately a quarter mile to the west of the Site. This site is considered a potential REC because the filling station has been at this location since 1935. The former Morgan Steam Laundry located to the west of the Site is considered a REC because it has been depicted in the historical records since 1935 and the cleaning products that may have been used there could have impacted the environment. A former manufactured gas plant (MGP) was located northwest of the Site from approximately 1891 to about 1954. The MGP is a REC because the handling, storage, and use of petroleum feedstock and manufacturing byproducts could have impacted the environment.

URS performed a geophysical survey to determine the location of a suspected underground storage tank (UST) and underground utilities at selected subsurface sampling locations, and the presence or absence of track rails beneath the surface materials covering the Site. Surface soil samples were collected from 0 to 6 inches below ground surface (bgs) at 11 locations. Ten test pits were excavated to characterize the contents of two large debris mounds, the subsurface soils, and to investigate for the presence of the suspected UST. The test pits were also used to determine if the track rails had been removed or left in place and covered with fill.

Borings were advanced at 10 locations to depths ranging from 2 feet to 15.7 feet bgs using a direct push Geoprobe® to evaluate subsurface soil conditions. Eleven soil samples were collected at seven of the ten locations utilizing this method. In areas where borehole drilling was terminated at a shallow depth due to refusal, test pits were excavated.

Groundwater quality screening was performed at the perimeter and in the center of the Site by collecting groundwater samples at five locations. Three temporary piezometers were installed in a triangular arrangement at the eastern, northwestern and southwestern boundaries of the Site to determine the apparent direction of groundwater flow. A location survey of the piezometers was performed and referenced to an arbitrary datum established at the Site.

The findings of the Phase II ESI are as follows:

- Surface soil across the Site contains semi-volatile organic compounds (SVOCs) primarily the polynuclear aromatic hydrocarbon (PAH) fraction, at concentrations that are 5 to 10 times the New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs). The surficial soils also contain metals such as arsenic, cadmium, mercury and zinc at concentrations 3 to 5 times the Eastern USA Background Levels.

- Subsurface soils, primarily in the northwest portion of the Site contain volatile organic compounds (VOCs) and SVOCs at concentrations that are in some cases an order of magnitude greater than the RSCOs. Rail road ties have also been buried at the Site.

- Groundwater contamination by VOCs occurs primarily in the northwest section of the Site in association with the organic contamination reported for the subsurface soils.

For the Site to be suitable for construction of a New York City public school facility, the following conceptual site remediation scope is recommended.

- The removal of approximately 30,000 cubic yards of construction and demolition (C&D) type debris present in three mounds stockpiled at the Site.

- The excavation and disposal of approximately 28,700 cubic yards of petroleum contaminated regulated waste containing VOCs, SVOCs and metals. The material is present in the northwest section of the Site in an area measuring approximately 250 feet by 300 feet to an estimated depth of 10 feet, and at the southern boundary of the Site in an area measuring approximately 75 feet by 50 feet to an estimated depth of 5 feet.

- The installation of a clean soil cap, a minimum of 12 inches thick, over approximately 6 acres of the Site not otherwise covered by Site structures.

- The remediation of groundwater contaminated by VOCs by the removal of source material from the Site and the removal of visibly contaminated groundwater and free product.

- As an added safeguard, the installation of an impermeable barrier system beneath the foundation of Site structures to eliminate the potential accumulation or interior migration of residual organic vapors from the groundwater.

- A contingency to install a vertical sheet pile wall in the northwest area of the Site if an off-site source is confirmed during remedial activities that could potentially recontaminate the Site.

1.0 INTRODUCTION

1.1 Purpose

The New York City School Construction Authority (NYCSCA) requested that URS conduct a Phase II Environmental Site Investigation (ESI) associated with the proposed new school site located at 3001 Concourse Village East, Bronx, New York (hereafter referred to as the "Site"). One lot comprises the Site and is identified as Block 2443, Lot 78, on the Bronx tax assessor's map. The Site is currently vacant. There are no existing buildings on the property to be demolished for construction of a New York City Public School.

The RECs associated with the Site were identified by URS in the Phase I ESA Report, dated July 20, 2001. The Phase I site reconnaissance was performed on July 11, 2001. The Site is the only property visited, and was completely accessible for inspection.

1.2 On-Site Recognized Environmental Conditions

The Phase I ESA Report identified RECs and provided recommendations for further environmental site assessment to better define areas of potential environmental liability associated with the Site. There were no site access limitations during the Phase I site inspection.

1.2.1 Block 2443, Lot 78 (Former Metro North Property)

- According to the fire insurance maps, the Site was a rail yard prior to 1891 and contained a machine shop, carpenter shop, paint area, offices, shops and storage areas until approximately 1977. Subsequent to 1977, no buildings or railroad tracks are depicted in the historical records of the Site.
- Pipe insulation was observed at the Site during the site reconaissance and should be considered suspected ACM.
- Currently the Site is vacant and contains two large and one small debris mounds which indicate historical dumping.
- During the Site inspection, an area was observed which suggested the subsurface presence of an UST.

1.3 Adjacent or Nearby Properties of Environmental Concern

During the Phase I ESA, off-site properties of potential environmental concern were identified during a review of the regulatory databases. The information contained in the databases indicated conditions at these properties which could have resulted in releases of petroleum products to the environment. The determination of whether or not releases from these properties could migrate to, and potentially impact the Site, was based on the location of these properties relative to the Site and the anticipated direction of groundwater flow. The direction of groundwater flow during the preparation of the Phase I ESA was inferred from the topography of the area.

During the Phase II ESI, the apparent direction of groundwater flow to the southeast was determined by groundwater measurements recorded from three piezometers installed at the Site. Based on the direction of groundwater flow beneath the Site, two off-site properties identified as RECs in the Phase I ESA have been determined to be hydraulically crossgradient relative to the Site and one property has been determined to be hydraulically downgradient of the Site. These properties were identified in the Leaking Underground Storage Tank (LUST) database. The crossgradient properties are located northeast of the Site at 364 East 155th Street and 304 East 156th Street, Bronx, New York. The downgradient property is located east of the Site at the intersection of Morris Avenue and Park Avenue, Bronx, New York. Because it has been determined that these properties are located hydraulically crossgradient or downgradient of the Site, they are not considered to be RECs and are not discussed in this report.

The Phase I ESA findings indicated three off-site RECs (identified below) that could potentially impact the Site.

1.3.1 Block 2458, Lot 13 (West Filling Station)

- This filling station is identified in the historical fire insurance maps since 1935. This site is located one-quarter mile west of the Site at 702 Grand Concourse. Releases of petroleum product from this property may have impacted the Site.

1.3.2 Block 2458, Lot 16 (Morgan Steam Laundry)

- The former Morgan Steam Laundry is located west of the Site at 700 Grand Concourse, and has been identified in the historical fire insurance maps since 1935. The type of cleaning products used at this facility may have impacted the Site.

1.3.3 Block 2443, Lot 71 (Former Manufactured Gas Plant)

- A former MGP is located northwest of the Site. The MGP is depicted on historical fire insurance maps from approximately 1891 to about 1954. The handling, storage and use of petroleum feedstock and manufacturing byproducts may have impacted the Site.

2.0 SITE SETTING

Previous investigations at the Site by URS included a Phase I site reconnaissance completed on July 11, 2001. There were no structures present at the Site for URS to inspect the interior of, or perform ACM and paint chip sample collection. All of the lot was accessible for inspection.

2.1 Current Facility Description

One lot comprises the Site. The Site is located in the southern portion of the Bronx, New York. The Site is located in a topographic depression. The properties to the west and east are approximately 30 feet higher in elevation than the Site. The New York and Harlem Railroad right-of-way is located along the eastern boundary of the Site at the same elevation as the Site. The properties immediately to the north are public schools, constructed on a concrete deck approximately 20 feet above grade. The properties to the south are at approximately the same elevation as the Site. Land uses in the area are primarily residential and commercial.

A Site Location Map for the property is presented in Figure 1, and a Site Features Map is presented in Figure 2. The apparent groundwater flow direction is to the southeast.

There are no structures currently on the Site. Metro North is currently using the southern portion of the Site for storage. Historically, the Site was used for rail yard operations and dumping.

2.1.1 Block 2443, Lot Number 78 (Former Metro North Property)

The Site is located at 3001 Concourse Village East on Block 2443, Lot 78, the Bronx, New York. The Site is currently a vacant lot located in a topographic depression.

At the time of the site inspection, Metro North was using the southern portion of the Site for storage of small sections of rail track, plastic used to wrap electrical conduit, gravel and other miscellaneous new material. Workers at the Site stated that the stored materials were being removed. The area used by Metro North is relatively flat and the soil was brown to black sand with one-inch diameter gravel. This area is clear of brush and weeds.

Two large and one small debris mounds were observed at the Site. The mounds ranged in height from approximately 4 to 12 feet above ground surface. These debris mounds have been present at the Site for many years as evidenced by 30-foot tall trees protruding from the mounds in some areas. Recent placement of debris was evident in areas of the Site and consisted of roadway millings, concrete, railroad ties, and metal. Other miscellaneous debris and trash was observed throughout the Site.

An arrangement of pipe with an attached valve resembling a pressure valve assembly was observed extending above the ground surface in the center of the property. Although no apparent use was determined, it appeared to resemble a pressure valve assembly for water or steam. The base pipe associated with the valve was insulated. This insulation may be ACM. The estimated linear feet of the insulating material is three feet around an eight-inch pipe. Laying upon the ground near the pressure valve was two-inch diameter, pliable, black plastic tubing labeled Metro North. The beginning or end of this tubing was not observed. Debris of this type of tubing was noted on the surface throughout the Site.

To the west of the Site, attached to the perimeter wall, are two pipelines. The usage of these pipelines could not be ascertained. Also attached to this wall are several electrical conduits and meters. These utilities appeared to be derelict and inoperable.

In the approximate center of the Site, a twelve-foot by twelve-foot concrete pad was observed. The concrete pad was deteriorating and in poor condition. To the west of this pad, concrete debris and a storage tank were observed. The estimated size of the storage tank is 3,000-gallons. The storage tank had been cut open, probably as a result of the original removal activities. No evidence of product was observed in the storage tank or in the general area. The source of the storage tank could not be ascertained.

Polyvinyl chloride (PVC) piping was observed at several locations attached to the concrete decking at the north side of the Site. The PVC piping was covered with heated insulating wrap. At the time of the Phase II ESI, a strong sewage odor was noted in this area.

A break in the fencing along the northern property boundary was observed. The area of the break was overgrown with vegetation up to 12 feet high.

A section of railroad track embedded in concrete was observed in the west central section of the Site. The embedded track was approximately 40 feet in length trending north to south.

2.2 Site Physical Characteristics

The Site is a vacant lot located in a topographic depression. According to the United States Geological Survey (USGS) 7.5-Minute Quadrangle Map, Central Park, New York-New Jersey, dated 1965, (photorevised 1979), the elevation of the Site is approximately 20 feet above mean sea level. The properties to the west and east are approximately 30 feet higher in elevation than the Site. The properties immediately to the north are constructed on a concrete deck. The properties to the south are at approximately the same elevation as the Site.

The area of the Site used by Metro North is relatively flat and the soil was brown to black sand with one-inch diameter gravel. This area is clear of brush and weeds. Subsurface soils from the borings advanced at the Site were mostly brown silty sand and gravel, with typical construction and demolition (C & D) type materials, such as brick, concrete and wood.

Two large and one small debris mounds exist at the Site. The debris mounds ranged in height from approximately 4 to 12 feet above ground surface. These mounds have been present at the Site for many years as evidenced by 30-foot tall trees protruding from the mounds. Soils from the test pits excavated within the debris mounds were mostly brown silty sand and gravel, with typical C & D type materials, such as brick, concrete and wood.

According to the USGS topographic contour maps (Central Park, 1979), shallow groundwater flow from the adjacent area is expected to be toward the Site from the east and west. Groundwater was encountered at depths ranging from 6 feet to 11.5 feet bgs. Groundwater elevation measurements were recorded in the piezometers installed at the Site. The apparent groundwater flow direction is to the southeast. The first waterbearing unit below the Site is the fill material overlying the Site.

Typical soil for this area is urban fill.

3.0 DESCRIPTION OF PHASE II FIELD ACTIVITIES

To address the identified RECs associated with the Site, URS completed a focused subsurface investigation on August 1, 2, 3 and 6, 2001, which included the following efforts:

- Surficial Soil Sampling - Eleven locations, designated SF-1 through SF-11, were sampled and analyzed for semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), herbicides, and Target Analyte List (TAL) metals.

- Test Pit Sampling - Seven locations, designated TP-1 through TP-7, were originally planned for test pit excavation. Three additional test pits were excavated: two test pits, designated SB-11 and SB-17, were excavated where Geoprobe® drilling of soil borings encountered refusal at shallow depth; and, one additional test pit, designated TP-9, was excavated to better define subsurface conditions in the center of the Site. One or two soil samples were collected from each test pit and analyzed for volatile organic compounds (VOCs), SVOCs, pesticides, PCBs, herbicides, and TAL metals.

- Subsurface Borings - Ten borings were advanced using direct push methods with the Geoprobe®. Three of these borings (PZ-1, PZ-2, and PZ-3) were completed as temporary piezometer installations. Three borings (SB-1, SB-2, and SB-7) encountered refusal during Geoprobe® drilling and these locations were subsequently investigated by test pit excavation. Due to the close proximity of borings SB-2 and SB-7, one test pit was excavated to evaluate subsurface conditions in the area of the two borings. Soil samples were collected and analyzed for VOCs, SVOCs, and TAL metals at the seven completed borings.

- Groundwater samples were collected at the locations of the three temporary piezometers, at soil boring location SB-3 and test pit location SB-17. Groundwater samples were analyzed for VOCs.

The scope and methods used for the various field activities are documented below, and in the supporting information included in Appendix A.

3.1 Geophysical Survey

A geophysical survey was performed at the Site by NAEVA Geophysics, Inc. (NAEVA), of Tappan, New York. A URS environmental scientist was present and coordinated the work performed by NAEVA. The objectives of the geophysical survey were to: verify the absence of underground utilities and railroad tracks at the locations of the soil boring/temporary piezometer locations; verify the presence or absence of subsurface anomalies at the Site; and, determine the presence or absence of a suspected UST. This was accomplished using a complement of surface geophysical methods, including a magnetometer, an electromagnetic conductivity survey, utility locating instruments, and ground penetrating radar. The geophysical survey areas are shown on Figure 3. The survey results were also used to establish soil and groundwater sampling locations. Anomalies and/or utilities were marked out on the ground with spray paint and field stakes.

The geophysical survey did not identify the footprint of the former buildings previously existing at the Site. The geophysical survey did not indicate the presence of the UST. Other geophysical findings included: the location of piping from the pressure valve to the south, where it terminated under the southern debris mound; underground piping near the southern property boundary; and, the location of a sewer line on the eastern side of the property trending in a northwest/southeast direction with two

manholes. The diameter of the sewer line could not be determined from the geophysical survey. The locations of these features are depicted on Figure 3.

3.2 Soil Gas Survey

A soil gas survey was not performed.

3.3 Test Pit Excavations and Soil Sampling

Seven locations were originally planned for test pit excavation and soil sampling. Two additional test pits were excavated where Geoprobe® drilling of soil borings encountered refusal at relatively shallow depth. One additional test pit was also excavated approximately 50 feet southeast of boring SB-2 where refusal had been encountered at a relatively shallow depth. Test pit soil samples were analyzed for VOCs, SVOCs, pesticides, PCBs, herbicides, and TAL metals.

The backhoe and operator for this task were provided by the drilling subcontractor, Aquifer Drilling and Testing, Inc. (ADT) of New Hyde Park, New York. The excavation process consisted of the backhoe removing layers of soil in approximately 1-2 foot lifts. Periodic PID readings for the presence of volatile organic vapors and measurement for the presence of methane were taken on the soil in the bucket which was then added to a stockpile next to the excavation. The material was inspected and the description recorded on a test pit log. Ten test pits, to an average depth of seven feet, were excavated and one or two soil samples were collected from each test pit for a total of 10 samples. Samples for laboratory analysis were collected from the area of greatest visual/instrumental observation of contamination or, if no contamination was evident, from approximately one foot below the surface of the Site.

The two debris mounds were investigated by the excavation of test pits TP-1, TP-2, TP-3, TP-5, TP-6, and TP-7. Encountered materials consisted of dry, fine to coarse sand, gravel, and cobbles, with C&D type fill material consisting of concrete, brick, cinders, ash, slag, glass, wood and other debris, such as tires, plastic, piping and other metal, and railroad ties. Test pit TP-3 also contained metal plates, rebar, and steel piping. Test pit TP-6 contained some silty sand just below natural grade that exhibited gray/black staining and emitted a petroleum odor. However, no evidence of organic vapors were detected. A measurement of 16 parts per million (ppm) methane was recorded at TP-5.

Test pit TP-4 was excavated in the area of the suspected UST. The geophysical survey did not suggest the subsurface presence of a UST, and its absence was confirmed during excavation. Excavated materials consisted of coarse to fine sand with gravel, cobbles and some boulders. A zone of black stained silty sand was encountered at a depth of 3 feet bgs. The material exhibited a faint odor but no PID readings were measured. Bedrock (schist) was encountered at 5.5 feet bgs.

Test pits designated as SB-11 and SB-17 were excavated at the original boring locations of SB-1 and SB-7, respectively, where Geoprobe® drilling encountered refusal (2 feet to 4 feet bgs). Test pit SB-11 encountered C&D type fill material as well as buried railroad ties. Bedrock was encountered at approximately 4 feet bgs.

Test pit SB-17 was excavated to a depth of 8 feet bgs. Buried railroad ties and a strong odor of creosote were detected at this location. Groundwater was encountered at approximately 7 feet bgs. There was a slight sheen on the water. A groundwater sample was collected and analyzed for VOCs.

Test pit TP-9 was excavated approximately 50 feet southeast of boring SB-2. The test pit excavation was terminated at approximately 4 feet bgs when bedrock was encountered.

Figure 4, Phase II Sampling Location Plan, depicts the locations of the test pit sampling locations.

3.4 Surficial and Subsurface Soils Investigation

A surficial and subsurface soil sampling program was conducted as part of this Phase II ESI. Soil samples were collected to assess and delineate RECs identified during the Phase I ESA.

3.4.1 Surficial Soil Sampling

As part of this Phase II ESI, a surficial soil sampling program was conducted across the Site. Eleven locations were sampled from 0 to 6 inches bgs and the samples submitted for laboratory analysis of SVOCs, pesticides, PCBs, herbicides, and TAL metals. In general, the field locations did not indicate evidence of visual contamination or provide PID readings of volatile organic vapors. Exceptions included surficial soil sample locations SF-5 and SF-6 where PID readings of 0.9 ppm and 1.4 ppm, respectively, were recorded.

Surficial materials were generally comprised of dry, silty sand with gravel and C&D type fill material consisting of cinders, ash, slag, brick, glass and wood.

Sample SF-2 was collected in an area where evidence of a spill of oil or anti-freeze (empty container nearby) may have occurred. Surficial soil sampling locations are depicted in Figure 4, Phase II Sampling Location Plan.

Soil samples were collected using dedicated stainless steel sampling trowels or tablespoons, and were homogenized in place, prior to filling of pre-cleaned, laboratory supplied, glass sample containers.

3.4.2 Subsurface Soil Sampling

As part of this Phase II ESI, a subsurface soil sampling program was completed on August 2 and 3, 2001. ADT of New Hyde Park, New York was the drilling subcontractor. A Geoprobe® utilizing a 4 foot long macro core with disposable inner sleeve was used to collect the soil samples. Figure 4, Phase II Sampling Location Plan, depicts soil boring locations.

A description of the soils retained in each Geoprobe® core sampler was logged by an environmental scientist, and the soils monitored in the field for the presence of volatile organic compounds with a PID. The soils were also screened with a methane monitor for the presence of methane gas. The noted responses are shown on Table 1.

Ten soil borings were drilled. Three of these (PZ-1, PZ-2, and PZ-3) were completed as temporary piezometer installations. Three borings (SB-1, SB-2, and SB-7) encountered refusal during drilling and were subsequently investigated by test pit excavation as described in Section 3.3. Soil samples were collected and analyzed for VOCs, SVOCs, and TAL metals at the seven completed borings; groundwater samples were collected at the three temporary piezometer installations and at boring SB-3. The groundwater samples were analyzed for VOCs only.

The following provides a description of the findings at each soil boring location investigated as part of the Phase II ESI.

PZ-1

Boring PZ-1 was advanced to a depth of 15.7 feet bgs. Groundwater was encountered at approximately 11 feet bgs. Soil consisted of silty sand and fill, including black ash and cinders to a depth of approximately 14 feet bgs where native soil consisting of gray clay and sandy silt was encountered. Soil samples were collected from 2.5 feet to 3.5 feet bgs, and 12.5 feet to 13.5 feet bgs. A groundwater sample was collected at this location. There was no visual or instrumental evidence of contamination associated with the soil or groundwater at this location.

PZ-2

Boring PZ-2 was advanced to a depth of 12 feet bgs. Groundwater was encountered at approximately 6 feet bgs. Soil consisted of silty sand and fill, including bricks, concrete, black ash and cinders to a depth of approximately 10 feet bgs. Native soil consisting of brown silty sand was encountered beneath the fill. There was a detectable petroleum odor associated with the recovered soils throughout the length of the boring; PID readings ranged from 7 ppm to 110 ppm. Soil samples were collected from 3 feet to 4 feet bgs and 10 feet to 11 feet bgs. A groundwater sample was collected at this location. Evidence of hydrocarbon contamination included staining, odor, and a sheen on the soil just below the water table.

PZ-3

Boring PZ-3 was advanced to a depth of 12 feet bgs. Groundwater was encountered at approximately 7 feet bgs. Soil consisted of silty sand and fill, including bricks, concrete, black ash and cinders to a depth of approximately 7.5 feet bgs. Native soil consisting of orange-brown silty sand was encountered beneath the fill. Soil samples were collected from 4 feet to 5 feet bgs and 11 feet to 12 feet bgs. A groundwater sample was collected at this location. There was no visual evidence of contamination. However, PID readings ranging from less than 1 ppm to 14 ppm were recorded.

SB-1

Boring SB-1 was advanced to a depth of 4 feet bgs where bedrock refusal was encountered. The SB-1 location was subsequently investigated by test pit SB-11.

SB-2

Boring SB-2 was advanced to a depth of 4 feet bgs where bedrock refusal was encountered. The SB-2 location was subsequently investigated by test pit TP-4.

SB-3

Boring SB-3 was advanced to a depth of 12 feet bgs. Groundwater was encountered at approximately 7 feet bgs. Soil consisted of silty sand and fill, including bricks, concrete, black ash and cinders to a depth of approximately 3 feet bgs. Native soil consisting of gray sandy silt and clay was encountered beneath the fill. Soil samples were collected from 1.5 feet to 2.5 feet bgs, and 6 feet to 7 feet bgs. A groundwater sample was collected at this location. There was no visual or instrumental evidence of contamination.

SB-4

Boring SB-4 was advanced to a depth of 12 feet bgs. Groundwater was encountered at approximately 7 feet bgs. Soil consisted of silty sand and fill, including bricks, concrete, black ash and cinders to a depth of approximately 7 feet bgs. Native soil consisting of sand, sandy silt, and clay was encountered beneath the fill. A soil sample was collected from 6 feet to 7 feet bgs. There was a strong petroleum odor and hydrocarbon staining from approximately 6 feet bgs to the bottom of the boring.

SB-5

Boring SB-5 was advanced to a depth of 8 feet bgs. Groundwater was encountered at approximately 7 feet bgs. Soil consisted of silty sand and fill, including bricks, concrete, black ash, cinders and wood to a depth of approximately 4 feet bgs. Native soil consisting of sandy silt and clay was encountered beneath the fill. A soil sample was collected from 4 feet to 5 feet bgs with the exception of a creosote odor from buried railroad ties that were encountered at a depth of approximately 1 foot bgs, no other evidence of contamination was detected.

SB-6

Boring SB-6 was advanced to a depth of 8 feet bgs. Groundwater was encountered at approximately 6 feet bgs. Soil consisted of silty sand and fill, including bricks, concrete, black ash and cinders and wood to a depth of approximately 6.5 feet bgs. Native soil consisting of clay was encountered beneath the fill. A soil sample was collected from 5 feet to 6 feet bgs. There was a strong petroleum odor and staining from approximately 6 feet bgs to the bottom of the boring.

SB-7

Boring SB-7 was advanced to a depth of 2 feet bgs where bedrock refusal was encountered. The SB-7 location was subsequently investigated by the excavation of test pit SB-17.

The soil sampling analytical program is summarized in Table 1.

Soil samples were selected for analysis based on the following rationale:

- If no apparent impacted soils were identified, one sample was to be collected from about 1 to 2 feet bgs;
- If impacted soils were identified, one sample was to be collected from the most impacted zone (based on field screening techniques), and a second sample was to be collected from a depth of ten feet below the initial sample depth, or from the first apparent clean soils encountered, whichever depth was greater; or
- If no apparent clean soils were encountered, one sample was to be collected from the most impacted zone (based on field screening techniques), and a second sample was to be collected from the soils directly above the water table within the capillary fringe.
- If there was evidence of fill material, an additional soil sample was to be collected from the fill layer.

Three field duplicate samples were collected, and three rinsate blanks were collected for a total of six field QC samples.

Geoprobe® equipment was decontaminated by scrubbing with a nonphosphate detergent (i.e., Alconox) and rinsing with fresh water prior to use at each soil boring to minimize the possibility of cross-contamination between drilling locations.

Upon completion of drilling, each boring not used for piezometer installation was backfilled to near grade with the drill cuttings.

Table 1 Soil Sample Analytical Plan

Sample Identification	Sample Interval Depth (ft bgs)	Boring Depth (ft bgs)	OVM/PID Levels (ppm)	TCL VOCs	TCL SVOCs	Pesticides	PCBs	Herbicides	RCRA Metals
TP-1	8 ft	9 ft	BG	X	X	X	X	X	X
TP-2	8 ft	10 ft	BG	X	X	X	X	X	X
TP-3	12-13 ft	12 ft	BG	X	X	X	X	X	X
TP-4	3-4 ft	5.5 ft	BG	X	X	X	X	X	X
TP-5	9-10 ft	11 ft	BG	X	X	X	X	X	X
TP-6	5.5-6.5 ft	8 ft	BG	X	X	X	X	X	X
TP-7	7-8 ft	12 ft	BG	X	X	X	X	X	X
TP-8	3-4 ft	5.5 ft	BG	X	X	X	X	X	X
PZ1-1	2.5-3.5	15.7 ft	1.9	X	X	NC	NC	NC	X
PZ1-2	12.5-13.5	15.7 ft	.6	X	X	NC	NC	NC	X
PZ2-1	3-4	12 ft	48	X	X	NC	NC	NC	X
PZ2-2	10-11	12 ft	7.0	X	X	NC	NC	NC	X
PZ3-1	4-5	12 ft	2.6	X	X	NC	NC	NC	X
PZ3-2	11-12	12 ft	BG	X	X	NC	NC	NC	X
SB3-1	1.5-2.5 ft	12 ft	BG	X	X	NC	NC	NC	X
SB3-2	6-7 ft	12 ft	BG	X	X	NC	NC	NC	X
SB4-1	6-7	12 ft	BG	X	X	NC	NC	NC	X
SB5-1	4-5	8 ft	BG	X	X	NC	NC	NC	X
SB6-1	5-6	8 ft	BG	X	X	NC	NC	NC	X
(TP) SB17-1	2-3	8 ft	BG	X	X	X	X	X	X
(TP) SB17-2	6-7	8 ft	BG	X	X	X	X	X	X
(TP) SB11-1	2-3	4 ft	BG	X	X	X	X	X	X
SB8-1	5-6	8 ft	BG	X	X	NC	NC	NC	X
Surficial-1	0-0.5	0.5 ft	BG	NC	X	X	X	X	X

Sample Identification	Sample Interval Depth (ft bgs)	Boring Depth (ft bgs)	OVA/PID Levels (ppm)	TCL VOCs	TCL SVOCs	Pesticides	PCBs	Herbicides	RCRA Metals
Surficial-2	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-3	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-4	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-5	0-0.5	0.5 ft	.9	NC	X	X	X	X	X
Surficial-6	0-0.5	0.5 ft	1.4	NC	X	X	X	X	X
Surficial-7	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-8	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-9	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-10	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-11	0-0.5	0.5 ft	BG	NC	X	X	X	X	X
Surficial-12	0-0.5	0.5 ft	1.4	NC	X	X	X	X	X
FB-Surficial	NA	NA	NA	NC	X	X	X	X	X
FB-2	NA	NA	NA	X	X	X	X	X	X
FB-3	NA	NA	NA	X	X	NC	NC	NC	X

Note: BG = Background; NC = Not Collected; NA = Not Applicable

3.5 Groundwater Investigation

3.5.1 Groundwater Sampling Program

As part of this Phase II ESI, a groundwater screening investigation was completed to assess groundwater quality at the Site on August 2, 3, and 6, 2001. Figure 4, Phase II Sampling Location Plan, presents groundwater sampling locations.

Five groundwater samples were collected; four groundwater samples (PZ-1, PZ-2, PZ-3, and SB-3) were collected by installing temporary piezometers, then purging a minimum of three well volumes using dedicated polyethylene tubing and a peristaltic pump; a fifth location, test pit SB-17, was sampled by lowering a dedicated bailer down into the test pit to collect the water, which was then poured directly into the sample container. These groundwater samples were submitted for laboratory analysis for VOCs only, because they represent the contaminants of greatest concern. Two trip blanks for VOC analysis were also collected for QC purposes.

The groundwater samples were collected at depths ranging from 6 feet to 12 feet bgs. The groundwater sampling analytical program is summarized in Table 2.

Table 2 Groundwater Sample Analytical Plan

Sample Identification	Sample Interval Depth (ft bgs)	Boring Depth (ft bgs)	TCL VOC
PZ-1	9 ft	15.7 ft	X
PZ-2	6 ft	12 ft	X
PZ-3	12 ft	12 ft	X
SB-3	8 ft	12 ft	X
SB-17	7 ft	8 ft	X
TB-1	N/A	N/A	X
TB-2	N/A	N/A	X

Note: N/A = Not Applicable

3.5.2 Piezometer Installation and Construction

Borings used for piezometer installation were advanced with a Geoprobe®, using two-inch inside diameter probe rods. Piezometer construction consisted of two-inch diameter, threaded PVC casing with 10 feet of schedule 40 PVC pipe and 0.010 slot PVC screen. Screens were set straddling the water table, generally seven feet in and three feet out.

Prior to the start of drilling, downhole equipment and well materials were decontaminated through the use of manual scrubbing with a non-phosphate detergent (i.e., Alconox). All equipment and materials were visually inspected prior to the start of work.

Piezometer development was conducted using dedicated polyethylene tubing and a peristaltic pump. Piezometer development and purging was conducted until the pumped water was visibly free of suspended materials.

3.5.3 Piezometer Sampling

Each piezometer was sampled utilizing the following practices:

The groundwater sample was collected using a peristaltic pump with clean, dedicated polyethylene tubing advanced within the piezometer. A minimum of three (3) well volumes of water were purged from the piezometer prior to sampling. The samples were collected from the tubing and dispensed directly into the appropriate sample bottle.

3.5.4 Groundwater Flow Direction

The piezometers were also utilized to determine the direction of groundwater flow. The apparent groundwater flow direction is depicted on Figure 4.

3.6 Surface Water and Sediment Sampling

As part of this Phase II ESI, no surface water and sediment samples were collected.

3.7 Asbestos Containing Materials (ACM) Survey

As part of this Phase II ESI, URS did not conduct an ACM survey since this item is specifically excluded from URS' contract with the NYCSCA.

3.8 Lead-Based Paint Survey (LBP)

As part of this Phase II ESI, URS did not conduct a survey to assess the potential presence of LBP at the Site.

3.9 Investigation Derived Waste (IDW) Characterization and Disposal

There was no IDW generated during the intrusive sampling operations conducted at the Site.

3.10 Air Sampling

As part of this Phase II ESI, URS did not collect any air samples.

3.11 Site Survey

As part of this Phase II ESI, a site survey was conducted to establish a vertical data relative to the position of the piezometers. The relative vertical position of the piezometers were referenced to an arbitrary datum established at the Site.

3.12 Additional Sampling

Methane sampling was conducted during soil sampling activities.

4.0 DISCUSSION OF PHASE II FINDINGS

This section discusses the Phase II analytical data and findings. Tabulated detected compounds in the various environmental media sampled are presented in Appendix B. The complete analytical data reports are included in Appendix C for environmental samples.

4.1 Applicable Regulatory Standards and Guidelines

This subsection discusses the NYSDEC regulatory standards and guidelines used to interpret the soil and groundwater analytical results. New York State has not promulgated soil standards, but soil guidance values (SGVs) have been established under various NYSDEC regulatory programs. The particular standards and guidelines used to evaluate the data are described individually below.

4.1.1 Soil Guidance Values (SGVs)

Soils analytical results were compared to the Recommended Soil Cleanup Objectives (RSCOs), published in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, "Determination of Soil Cleanup Objectives and Cleanup Levels," January 1994. The RSCOs were used for assessment of soils potentially impacted by former activities on the Site other than storage of virgin petroleum products and analyzed for the Target Compound List (TCL) VOCs, SVOCs, pesticides, PCBs, herbicides, and TAL metals. Eastern USA Background Concentrations of metals (from TAGM HWR-94-4046) were used to assess the metals concentrations in soils.

4.1.2 Ambient Groundwater Quality Standards and Guidance Values

Groundwater data were compared to New York State Ambient Water Quality Standards and Guidance Values, as set forth in the NYSDEC Division of Water Technical Operational Guidance Series (TOGS) number 1.1.1, "Ambient Water Quality Standards and Guidance Values," June 1998. Ambient water quality standards are enforceable standards as set forth in the regulations. Where ambient water quality standards do not exist, ambient water quality guidance values were used for comparison to the groundwater results.

4.2 Soil Gas Sampling Findings

There were no soil gas sampling activities.

4.3 Test Pit Soil Sampling Findings

Ten test pits were excavated and soil samples collected for laboratory analysis to evaluate the environmental condition of: the two large debris mounds located in the southern (TP-1, TP-2, and TP-3) and northern (TP-5, TP-6, and TP-7) sections of the Site; the central section of the Site where a UST was suspected to exist (TP-4); where soil borings encountered refusal at relatively shallow depth (SB-11 and SB-17); and southeast of boring SB-2 (TP-9) to determine the environmental condition in this area of the

Site. Sampling locations are depicted on Figure 4. Soil samples collected from test pit excavations for laboratory analysis were analyzed for VOCs, SVOCs, TAL metals, herbicides, pesticides and PCBs. Analytical data summary tables are provided in Appendix B. Complete laboratory reports are provided in Appendix C. Figure 5 depicts total VOC and SVOC concentrations by test pit sample location. Note: Test pit soil sample designated TP-8 is a duplicate of the soil sample collected from TP-4. There was no test pit designated TP-8 at the Site.

Southern Debris Mound

No evidence of contamination was observed during excavation and field inspection of the materials comprising the debris mound from test pits TP-1, TP-2, and TP-3. Therefore, soil samples for laboratory analysis were collected from the materials underlying the debris mound.

The analytical results of the three soil samples collected from the materials beneath the southern debris mound indicated the absence of any VOCs at concentrations that exceeded the RSCOs. Trace concentrations of acetone and methylene chloride were reported for these samples. However, these compounds were also detected in the associated Quality Assurance/Quality Control (QA/QC) samples and are common artifacts resulting from the collection, storage and laboratory analyses of samples. The presence of these compounds in the soil sample analytical results is considered to be a laboratory artifact and is not representative of Site conditions.

The analytical results for each of the three soil samples reported the presence of a number of SVOCs. Most of the SVOCs were reported at concentrations below the RSCOs. However, certain SVOCs, primarily the polynuclear aromatic hydrocarbon (PAH) fraction, were reported at concentrations that exceeded the RSCOs. These compounds and the range in reported concentrations for the three soil samples analyzed include: benzo(a)pyrene from 950 micrograms per kilogram (µg/kg) to 4,800 µg/kg; chrysene from 1,100 µg/kg to 5,100 µg/kg; benzo(k)fluoranthene from 1,700 µg/kg to 3,100 µg/kg; benzo(a)pyrene from 1,000 µg/kg to 4,500 µg/kg; and dibenzo(a,h)anthracene from 46 µg/kg to 260 µg/kg. Benzo(b)fluoranthene was detected in one soil sample at a concentration of 4,100 µg/kg.

Each of the three soil samples was analyzed for herbicides, pesticides and PCBs. These compounds were not reported in any of the samples at concentrations that exceeded the RSCOs.

Each of the three soil samples was analyzed for TAL metals. The analytical results were compared to the Eastern USA Background Levels. The metals Cadmium (Cd), Copper (Cu), Mercury (Hg) and Zinc (Zn) were reported at concentrations that exceeded the criteria in all three soil samples. Lead (Pb) and Magnesium (Mg) exceeded the criteria in two of the three soil samples; and, Barium (Ba) and Calcium (Ca) exceeded the criteria in one sample only. The exceedances were approximately 2 times the concentration of the applicable criteria.

Northern Debris Mound

No evidence of contamination was observed during excavation and field inspection of the materials comprising the debris mound from test pits TP-5, TP-6, and TP-7. Therefore, soil samples for laboratory analysis were collected from the materials underlying the debris mound.

The analytical results of the three soil samples collected from the materials beneath the northern debris mound indicated the absence of any VOCs at concentrations that exceeded the RSCOs. Trace concentrations of acetone and methylene chloride were reported for these samples. However, as

previously discussed, these compounds are laboratory artifacts and are not representative of Site conditions.

The analytical results for each of the three soil samples reported the presence of a number of SVOCs, most of which were reported at concentrations below the RSCOs. Only benzo(a)pyrene, at a concentration of 120 µg/kg in the soil samples collected from TP-6 and TP-7, exceeded the RSCO.

Each of the three soil samples was analyzed for herbicides, pesticides and PCBs. These compounds were not reported in any of the samples at concentrations that exceeded the RSCOs.

Each of the three soil samples was analyzed for TAL metals. Only Hg at TP-6, Mg at TP-5 and TP-7 and Zn at TP-5, TP-6 and TP-7 were reported at concentrations that exceeded the Eastern USA Background Levels. The exceedances were approximately 2 to 3 times the applicable criteria.

Central Section of the Site

Three test pits were excavated in the central section of the Site. TP-4 was excavated to investigate the area of a suspected UST. Two other test pits, SB-17 and TP-9, were excavated to the northwest and southeast, respectively of the TP-4 location due to borehole refusal at the SB-17 location and to define subsurface conditions at the TP-9 location. Soil samples for laboratory analysis were collected at the TP-4 and SB-17 locations only. Bedrock was encountered 4 feet bgs at TP-9, precluding sample collection.

With the exception of the laboratory artifacts (acetone and methylene chloride), no VOCs were reported at concentrations that exceeded the RSCOs.

Although several SVOCs were detected in the soil samples, only compounds comprising the PAH fraction were reported at concentrations that exceeded the RSCOs. For the soil sample collected at TP-4 these compounds included benzo(a)anthracene at 1,400 µg/kg, chrysene at 1,600 µg/kg, benzo(b)fluoranthene at 1,100 µg/kg, benzo(k)fluoranthene at 1,800 µg/kg, benzo(a)pyrene at 1,500 µg/kg and dibenzo(a,h)anthracene at 68 µg/kg. At the SB-17 location, where excavation revealed the presence of buried railroad ties which exhibited a strong creosote odor and a sheen on the groundwater in the bottom of the excavation, the maximum reported exceedances of the criteria included benzo(a)anthracene at 2,500 µg/kg, chrysene at 3,300 µg/kg, benzo(b)fluoranthene at 2,900 µg/kg, benzo(k)fluoranthene at 4,000 µg/kg, benzo(a)pyrene at 2,500 µg/kg, and dibenzo(a,h)anthracene at 110 µg/kg.

Each of the soil samples was analyzed for herbicides, pesticides and PCBs. These compounds were not reported in any of the samples at concentrations that exceeded the RSCOs.

Each of the soil samples was analyzed for TAL metals. The soil sample collected from TP-4 reported the presence of Cu, Mg, Hg and Zn at concentrations that exceeded the Eastern USA Background Levels. Of the two soil samples collected at test pit SB-17 the shallow sample was the more contaminated. The soil sample collected from the 2 feet to 3 feet bgs interval reported the presence of Arsenic (As), Cd, Cu, Pb, Mg, Hg and Zn at concentrations that exceeded the Eastern USA Background Levels whereas only Zn exceeded the criteria for the soil sample collected from the 6 feet to 7 feet bgs interval. The exceedances were approximately 2 times the applicable criteria.

Southern Boundary of the Site

Test pit SB-11 was excavated along the southern boundary of the Site where soil boring SB-1 encountered refusal at a relatively shallow depth precluding investigation of subsurface conditions. As described in Section 3.3, the test pit excavated at this location encountered buried railroad ties.

The analytical results of the soil sample collected at SB-11 indicated the presence of the VOCs toluene and xylenes at trace concentrations substantially below the RSCOs.

Although several SVOCs were detected in the soil sample, only the PAHs benzo(a)anthracene at 800 µg/kg, chrysene at 890 µg/kg, benzo(a)pyrene at 760 µg/kg and dibenzo(a,h)anthracene at 55 µg/kg exceeded the RSCOs.

Analysis of the soil sample for herbicides, pesticides and PCBs indicated the absence of these compounds at concentrations that exceeded the RSCOs.

Analysis of the soil sample for TAL metals reported the presence of eight metals at concentrations that exceeded the Eastern USA Background Levels. These metals were As, Cd, Cu, Pb, Mg, Hg, Nickel (Ni) and Zn. The exceedances ranged from approximately 2 to 5 times the applicable criteria.

4.4 Surficial and Subsurface Soils Sampling Findings

As part of the Phase II ESI, surficial and subsurface soils were investigated to determine the environmental condition. Surficial soil samples were collected at 11 locations and analyzed for SVOCs, herbicides, pesticides, PCBs and TAL metals. Subsurface soil samples from the soil borings were analyzed for VOCs, SVOCs and TAL metals. Analytical data summary tables are provided in Appendix B. Complete laboratory reports are provided in Appendix C. Sample locations are depicted on Figure 4. Figure 6 and Figure 7 depict the total SVOC concentrations and the total VOC and SVOC concentrations by surficial and subsurface sample location, respectively.

4.4.1 Results of Surficial Soil Sampling

Eleven soil sampling locations were distributed across the Site to evaluate the environmental condition of the surficial soils.

The results of the surficial soil samples indicated the presence of SVOCs throughout the Site. Most of the SVOCs detected were reported at concentrations below the RSCOs. However, all of the surficial soil sampling locations contained PAHs at concentrations that exceeded the RSCOs. The compounds and range in concentrations reported in the surficial soils are: benzo(a)anthracene 570 µg/kg to 15,000 µg/kg; chrysene 700 µg/kg to 17,000 µg/kg; benzo(b)fluoranthene 1,100 µg/kg to 13,000 µg/kg; benzo(k)fluoranthene 1,200 µg/kg to 13,000 µg/kg; benzo(a)pyrene 680 µg/kg to 15,000 µg/kg; and, dibenzo(a,h)anthracene 44 µg/kg to 400 µg/kg. The surficial soil sampling locations exhibiting the highest concentrations of PAH compounds are SF-10 and SF-11. These sampling locations are situated in the southern section of the Site between the southern property boundary and southern debris mound.

The surficial soil samples were analyzed for pesticides, herbicides and PCBs. The analytical results of these soil samples reported the presence of trace concentrations of the pesticides 4,4 DDD and 4,4 DDT

as well as the PCB Aroclor 1260. However, the concentrations of these compounds were substantially below the RSCOs and no compounds were reported at concentrations that exceeded the RSCOs.

All surficial soil sampling locations reported concentrations of metals at concentrations that exceeded the Eastern USA Background Levels at concentrations ranging from 2 to 3 times the applicable criteria. The surficial soil sampling locations and reported exceedances are as follows.

SF-1	Ca, Hg and Zn
SF-2	Ba, Cd, Cu, Mg, Hg, Ni and Zn
SF-3	Ba, Ca, Cd, Mg, Hg and Zn
SF-4	As, Cd, Cu, Pb, Mg, Hg, Ni and Zn
SF-5	As, Cu, Mg, Hg and Zn
SF-6	As, Cu, Mg, Hg and Zn
SF-7	As, Cd, Cu, Mg, Hg and Zn
SF-8	Ca, Cu, Mg, Hg and Zn
SF-9	Mg and Zn
SF-10	As, Cd, Cu, Pb, Mg, Hg and Zn
SF-11	As, Cd, Cu, Pb, Hg and Zn

4.4.2 Subsurface Soils Sampling Findings

Ten soil borings were drilled to evaluate subsurface environmental conditions beneath the Site. Five borings (PZ-1, PZ-2, PZ-3, SB-3, and SB-1) were positioned along the boundaries of the Site to evaluate both soil and groundwater quality at the Site perimeter. Three borings (SB-4, SB-5, and SB-6) were positioned in the northwest section of the Site where buildings formerly associated with rail yard operations were located. Boring SB-2 was located in the central section of the Site where a UST was suspected to exist and to better define the extent of subsurface contamination in this area of the Site.

Perimeter Soil Boring Samples

Borings PZ-1, PZ-2, PZ-3, SB-1, and SB-3 were positioned along the boundaries of the Site. No soil samples for laboratory analysis were collected at boring location SB-1 due to refusal during drilling. This location was subsequently investigated by test pit excavation (see Section 4.3).

With the exception of boring PZ-2, the results of the analytical testing of the perimeter soil boring samples did not indicate the presence of VOCs at concentrations exceeding the RSCOs. However, both visual and instrumental evidence of soil contamination was observed at boring location PZ-2. The presence of this contamination is substantiated by the analytical results reported for the soil sample collected from 3 feet to 4 feet bgs. These results report the presence of benzene at 6,000 µg/kg, toluene at 110,000 µg/kg, ethylbenzene at 170,000 µg/kg and total xylenes at 1,500,000 µg/kg. These concentrations are substantially above the RSCOs. The soil sample collected at this location from 10 feet to 11 feet bgs was in compliance with the RSCOs indicating the vertical extent of VOC contamination had been delineated.

Samples collected from the perimeter soil borings were analyzed for SVOCs. All samples analyzed reported the presence of low levels of SVOCs. The most significant levels of SVOCs reported at concentrations that exceeded the RSCOs were associated with the subsurface soils at boring PZ-2. The analytical results for the soil sample collected from 3 feet to 4 feet bgs indicated the presence of naphthalene at 72,000 µg/kg, 2-methylnaphthalene at 57,000 µg/kg, benzo(a) anthracene at 4,300 µg/kg, chrysene at 4,600 µg/kg, benzo(b)fluoranthene at 2,700 µg/kg, benzo(k)fluoranthene at 2,400 µg/kg, and benzo(a)pyrene at 4,300 µg/kg. These concentrations are substantially above the RSCOs. However, the results of the soil sample collected at this location from 10 feet to 11 feet bgs were in compliance with the RSCOs indicating the vertical extent of SVOC contamination had been delineated.

Soil samples collected from perimeter borings PZ-1, PZ-3, and SB-3 also contained certain PAH compounds at concentrations that exceeded the RSCOs. The analytical results of the soil sample collected from a depth of 2.5 feet to 3.5 feet bgs at boring PZ-1 reported the presence of benzo(a)anthracene, chrysene and benzo(a)pyrene at concentrations slightly in excess of the RSCOs. However, the analytical results of the soil sample collected at this location from 12.5 feet to 13.5 feet bgs were in compliance with the RSCOs indicating the vertical extent of SVOC contamination had been delineated.

The analytical results of the soil samples collected from a depth of 4 feet to 5 feet bgs at boring PZ-3 reported the presence of benzo(a)anthracene, chrysene, benzo(k)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene at concentrations slightly in excess of the RSCOs. However, the analytical results of the soil sample collected at this location from 11 feet to 12 feet bgs were in compliance with the RSCOs indicating the vertical extent of SVOC contamination had been delineated.

Two soil samples were collected for laboratory analysis at boring SB-3: one sample from 1.5 feet to 2.5 feet bgs; and, one sample from 6 feet to 7 feet bgs. The analytical results of these samples reported the presence of low concentrations of SVOCs in both soil samples. In general, the SVOC concentrations were greater in the deeper soil sample indicating an increase in contamination concentration with depth at this location. With the exception of benzo(a)pyrene, which was reported at a concentration in excess of the RSCO for the soil sample collected from 6 feet to 7 feet bgs, the SVOC analysis of these samples indicated compliance with the RSCOs.

The analytical results of the perimeter boring soil samples reported the presence of certain TAL metals in the subsurface soils at concentrations that exceeded the Eastern USA Background Levels. The analytical results also indicated that the metals exceedances occur at a higher frequency and concentration in the near surface soils rather than with soil samples occurring at depth. At location PZ-1, two soil samples one from 2.5 feet to 3.5 feet bgs and one from 12.5 feet to 13.5 feet bgs were collected. The metals Cu, Hg, and Zn were reported in the shallow sample at concentrations that exceeded the criteria whereas only Mg and Zn exceeded the criteria in the soil sample collected at depth. At location PZ-2 two soil samples one from 3 feet to 4 feet bgs and one from 10 feet to 11 feet bgs were collected. The metals Cd, Cu, Pb, Mg, Hg and Zn were reported in the shallow sample at concentrations that exceeded the criteria whereas only Zn exceeded the criteria in the soil sample collected at depth. At location PZ-3, two soil samples one from 4 feet to 5 feet bgs and one from 11 feet to 12 feet bgs were collected. The metals As, Cu, Mg, Hg and Zn were reported in the shallow sample at concentrations that exceeded the criteria whereas only Mg exceeded the criteria in the soil sample collected at depth. At boring SB-3, two soil samples one from 1.5 feet to 2.5 feet bgs and one from 6 feet to 7 feet bgs were collected. The metals Cu, Pb, Mg, Hg and Zn were reported in the shallow sample at concentrations that exceeded the criteria whereas only Cu, Hg, and Zn exceeded the criteria in the soil sample collected at depth. The exceedances ranged from 2 to 5 times the applicable criteria.

Former Buildings Soil Borings Samples

Three soil borings SB-4, SB-5, and SB-6 were drilled in the northwest section of the Site where buildings formerly associated with rail yard operations were located. As previously discussed in Section 3.4.2, evidence of suspected contamination detected during drilling included petroleum odors and soil staining at borings SB-4 and SB-6 and a creosote odor and the presence of buried railroad ties at boring SB-5.

One soil sample for laboratory analysis was collected at each boring location. The analytical results of the soil boring samples did not indicate the presence of VOCs at concentrations that exceeded the RSCOs.

The analytical results reported the presence of SVOCs in the four soil samples collected from this area of the Site. However, only the soil sample and the duplicate soil sample collected at boring SB-6 reported the presence of SVOCs at concentrations that exceeded the RSCOs. At boring SB-6, the soil sample and duplicate soil sample were collected at a depth of 5 feet to 6 feet bgs. The analytical results of the soil sample indicated the presence of benzo(a)anthracene at 2,800 µg/kg, chrysene at 3,300 µg/kg, benzo(b)fluoranthene at 4,000 µg/kg, benzo(k)fluoranthene at 3,500 µg/kg, benzo(a)pyrene at 3,500 µg/kg and dibenzo(a,h)anthracene at 170 µg/kg. These concentrations exceeded the RSCOs. The results of the duplicate soil sample were very similar indicating the same compound excedances at approximately the same reported concentrations.

The analytical results for the metals analysis of these soil samples indicated the presence of certain TAL metals at concentrations that exceeded the Eastern USA Background Levels. The sample from boring SB-4 reported Ca, Mg and Zn; the sample from boring SB-5 reported Mg; the sample from boring SB-6 reported As, Chromium (Cr), Cu, Pb, Hg and Zn; and, the duplicate sample collected from boring SB-6 reported As, Cd, Cu, Pb, Hg, Ni and Zn.

4.5 Groundwater Sampling Findings

Five groundwater samples were collected to evaluate groundwater quality at the Site. The samples were collected from piezometers PZ-1, PZ-2, and PZ-3 positioned along the eastern property boundary, in the northwest corner of the Site and along the southern Site boundary, respectively, from SB-3 positioned located along the northern Site and from test pit SB-17 where buried rail road ties exhibiting a strong creosote odor and a sheen on the groundwater were observed. The groundwater samples were analyzed for VOCs. Sampling locations are depicted on Figure 4. Analytical data summary tables are provided in Appendix B. Complete laboratory reports are provided in Appendix C. The total VOC concentrations by sample location are depicted on Figure 8.

The apparent direction of groundwater flow beneath the Site, based on an evaluation of groundwater measurements recorded in piezometers PZ-1, PZ-2, and PZ-3 is toward the southeast. Therefore, groundwater quality data from sampling locations PZ-2, PZ-3, and SB-3 provide an indication of groundwater quality migrating onto the Site, that from sampling location PZ-1 provides an indication of groundwater quality migrating from the Site and that from sampling location SB-17 provides an indication of on-site groundwater quality data.

The highest concentrations of VOC contamination are reported in the northwest corner of the Site at piezometer location PZ-2. The analytical results of the groundwater sample collected at this location report high concentrations of benzene at 17,000 micrograms per liter (µg/l), toluene at 180 µg/l, ethylbenzene at 370 µg/l and total xylenes at 1,580 µg/l. In addition, the chlorinated VOC 1,1,2-trichlorethane was reported at 12 µg/l. The high concentrations of these compounds in the groundwater at

this location are attributable to the soil contamination in this area of the Site. During drilling at this sample location, the soils exhibited a petroleum odor as well as PID measurements of volatile organic vapors that ranged from 7 ppm to 110 ppm. However, although there appears to be a direct correlation between the soil contamination and underlying groundwater contamination at this on-site location, PZ-2 is at an upgradient location. Therefore the possibility of off-site contamination contributing to the contamination on-site cannot be ruled out.

The analysis of the groundwater sample collected at PZ-3 reported a low concentration (5.5 µg/l) of benzene. Although no visual evidence of soil contamination was observed during drilling at this location, PID measurements of volatile organic vapors ranging from 1 ppm to 14 ppm were recorded. Because PZ-3 is positioned near the western property boundary, at a location upgradient to groundwater flow beneath the Site, it cannot be determined if the benzene reported in the groundwater is due to an on-site source or the migration of contaminated groundwater onto the Site. PZ-1 is positioned along the eastern boundary of the Site and provides an assessment of groundwater quality migrating from the Site. The analytical results report the presence of three chlorinated VOCs in the groundwater at this location. Only two of these compounds, vinyl chloride (7.7 µg/l) and cis1,2-dichloroethene (25 µg/l) exceeded the groundwater criteria. The analysis of the groundwater sample collected along the northern property boundary (SB-3) and at test pit SB-17 where buried railroad ties exhibiting a creosote odor and a sheen on the water table indicated the absence of VOCs at concentrations that exceeded the groundwater criteria.

4.6 Surface Water and Sediment Sampling Findings

There were no surface water or sediment sampling activities.

4.7 Containerized Chemicals

There were no containerized chemicals found at the Site.

4.8 Asbestos Results

The investigation of ACM is specifically excluded from URS' contract with the NYCSCA. Therefore, no sampling of ACM was performed as part of the Phase II ESI. However, URS observed insulation wrapping on a three foot long section of 8-inch diameter pipe associated with a pressure valve assembly located in the center of the Site. This insulation is presumed to be ACM.

4.9 Lead-Based Paint Analytical Results

No structures are currently located at the Site for which an assessment of lead-based paint would have been required. Therefore, no sampling of lead-based paint was conducted.

4.10 Air Sampling Findings

There were no air sampling activities.

4.11 Additional Sampling Findings

Methane monitoring was conducted during soil sampling activities with the exception of one methane reading of 16 ppm recorded during the excavation of material at TP-5, no measurements of methane were detected.

4.12 Overall Findings Table

Table 3 Environmental Due Diligence Results Check List

Environmental Due Diligence Results Check List Former Metro North Property			
Did the investigation identify contamination:	**Yes**	**No**	**Unknown**
On the site that would be subject to regulatory oversight or potential responsible party liability?	X		
On the site or off-site that would represent an impact to a future school facility?	X		
On the site or off-site that would represent an impact to future site development (construction) activities?	X		
On the site that has impacted groundwater beneath the site?	X		
Additional questions:			
Will regulatory agencies require groundwater remediation at the site?		X	
Will ongoing environmental monitoring be necessary at the site?		X	

5.0 RECOMMENDED REMEDIATION AND COST ESTIMATES

Based on a review of the analytical results from the Phase II ESI completed by URS, the following recommendations for Site remediation and estimated costs are presented.

5.1 Petroleum Contaminated Soil Removal, Disposal and Restoration Cost

Two areas of subsurface contamination were identified at the Site. One area is located in the northwest section of the Site and the other is located along the southern property boundary. Each area is discussed individually.

The field observations and analytical results of soil and groundwater samples indicate the presence of an area of subsurface contamination encompassing the northwest portion of the Site (see Figure 9). This area measures approximately 250 feet by 300 feet and extends to an estimated depth of approximately 10 feet. This assessment is based on the presence of contamination observed during the drilling of borings PZ-2, SB-4, SB-5, and SB-6, the excavation of test pit SB-17 and the analytical data reported for the soil samples collected at these locations. Field observations made during the investigation of this area identified the presence of buried railroad ties which exhibited the characteristic creosote-like odor, petroleum contaminated soils which exhibited odors, measurement of volatile organic vapors at concentrations of 110 ppm and sheens on the encountered groundwater. The analytical results of soil samples collected in the area indicated high concentrations of VOCs, SVOCs and TAL metals. The highest concentrations of VOCs in the soil are located in the northwest corner of the Site at boring location PZ-2. Based on the absence of these high VOC concentrations at borings SB-4 and SB-5 and test pit TP-5, it is estimated that these benzene contaminated soils occupy an area measuring approximately 75 feet by 75 feet by 10 feet in depth or approximately 2,100 cubic yards. In addition, very high levels of VOCs were reported for the groundwater collected at PZ-2. The benzene contaminated soils at this location are providing a source for the high levels of groundwater contamination in this area of Site. The levels of VOCs also provide a source of organic vapors. These factors provide a risk to both the environment and human health and impact redevelopment of this area of the Site unless the materials are removed.

The historical data reviewed for the vicinity of the Site identified the location of a filling station upgradient of the Site and a former MGP facility located adjacent to the northwest section of the Site. Although the soil contamination identified in the northwest section of the Site correlates with the concentrations of groundwater contamination observed in this area, it is possible that this portion of the Site is being impacted from off-site sources of contamination associated with the aforementioned facilities. This evaluation is based on the high concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX) reported for the Site soils which could result from an off-site gasoline spill that has reached the groundwater and migrated to the Site. BTEX compounds are also present at high concentrations in MGP residuals and byproducts as are SVOCs, specifically naphthalene and 2-methylnaphthalene. Consequently, there is a possibility that the contamination identified in this area of the Site may result from contamination that has migrated to or continues to migrate to the Site from one or both of these off-site sources. The total volume of material requiring removal from the northwest portion of the Site is estimated to be approximately 28,000 cubic yards.

The field observations and analytical results of soil samples indicate the presence of an area of subsurface contamination along the southern property boundary of the Site (see Figure 9). This area is estimated to

measure approximately 50 feet by 75 feet and extends to an estimated depth of approximately 5 feet. Field observations during investigation of this area identified the presence of buried railroad ties. The analytical results of the soil samples collected indicated the presence of SVOCs and TAL Metals. Bedrock was encountered at approximately 4 feet below grade in this area. Therefore, it is anticipated that redevelopment of this area would encounter these materials due to the shallow depth of burial. Consequently, it is recommended that these materials be removed prior to redevelopment. The volume of this material is estimated to be approximately 700 cubic yards.

The cost for remediation of 28,700 cubic yards of petroleum contaminated soil from these two areas of the Site is estimated to be $2,696,000. This cost is comprised of the components identified in Table 4. The remediation cost includes costs for the disposal of potentially hazardous soil, if subsequent testing prior to excavation determines the material to be hazardous.

Table 4 Petroleum Contaminated Soil Removal, Disposal and Restoration Cost

Former Metro North Property				
Item	Unit	Quantity	Rate	Total
Mobilization	LS	1	$25,000	$25,000
Health and Safety	LS	1	$25,000	$25,000
Excavation	CY	28,700	$20.00	$574,000
Transportation and Disposal	CY	28,700	$60.00	$1,722,000
Backfill	CY	28,700	$10.00	$287,000
Hazardous Material Disposal	CY	2,100	$30.00	$63,000
Petroleum Contaminated Soil Removal, Disposal and Restoration Subtotal				$2,696,000

5.2 C&D Material Removal and Disposal Cost

There are two large debris mounds located in the northern and southern sections of the Site and a smaller debris mound situated north of the southern debris mound (see Figure 9) comprised of fine to course sand, gravel and cobbles with C&D type fill material consisting of concrete, brick, cinders ash, slag, glass, wood, trees, plastic, pipe, rebar and metal plates. This material is unsuitable for reuse at the Site and will require removal from the Site prior to redevelopment. The volume of this material is estimated to be approximately 30,000 cubic yards. The cost for this task is estimated to be $1,375,000. This cost is comprised of the components identified in Table 5.

Table 5 C&D Material Removal and Disposal Cost

Former Metro North Property				
Item	Unit	Quantity	Rate	Total
Mobilization	LS	1	$15,000	$15,000
Health and Safety	LS	1	$10,000	$10,000
Material Loading	CY	30,000	$5.00	$150,000
Transportation and Disposal	CY	30,000	$40.00	$1,200,000
C&D Material Removal and Disposal Subtotal				$1,375,000

5.3 Groundwater Remediation Cost

Based on the Phase II findings, URS does not propose active remediation of the groundwater contamination. Groundwater contamination occurs primarily in the northwest section of the Site associated with the presence of significant levels of VOC and SVOC soil contamination. Removal of these soils removes the source of the groundwater contamination. Therefore, rather than implement groundwater remediation, URS proposes contaminated soil removal, as described in Section 5.1, and contaminated groundwater extraction during construction to remove visibly contaminated groundwater and free product. URS proposes a contingency to install a vertical sheet pile wall in the northwest section of the Site if an off-site source is confirmed during remedial activities that could potentially recontaminate the Site. URS proposes the collection of groundwater samples using Hydropunch® collection techniques subsequent to remediation to demonstrate the improvement of groundwater quality and the effectiveness of the on-site source removal program. The cost for this task is estimated to be $600,625. This cost is comprised of the components identified in Table 6.

Table 6 Groundwater Remediation Cost

Former Metro North Property				
Item	Unit	Quantity	Rate	Total
Mobilization	LS	1	$15,000	$15,000
Health and Safety	LS	1	$10,000	$10,000
Sheet Pile Barrier Wall	LS	13,625	$25.00	$340,625
Groundwater Extraction/Disposal	Gal	200,000	$1.00	$200,000
Groundwater Sampling and Analysis	LS	1	$35,000	$35,000
Groundwater Remediation Subtotal				$600,625

5.4 Installation of Impermeable Barrier System Cost

Based on the Phase II findings, the following recommendations are made with respect to installing an impermeable barrier on the Site.

The findings of the Phase II ESI indicate soil and groundwater contamination by organic compounds. This area of contamination impacts the northwest portion of the Site. The excavation and removal of these contaminated materials resolves the on-site sources of this contamination. However, there is a potential for the migration of off-site organic contamination to impact the property. Therefore, a contingency safeguard is recommended that includes the installation of an impermeable vapor barrier system beneath the footprint of the new building. The vapor barrier system would consist of a 52,000 square foot geomembrane with a geocomposite drainage layer, barrier protection layer and associated piping. The cost for the installation of the impermeable barrier system is estimated to be $181,720. The cost is comprised of the components identified in Table 7.

Table 7 Installation of Impermeable Barrier System Cost

Former Metro North Property				
Item	Unit	Quantity	Rate	Total
Mobilization	LS	1	$10,000	$10,000
Health and Safety	LS	1	$10,000	$10,000
40 mil LLDPE Geomembrane	SF	52,000	$0.50	$26,000
Geocomposite Drainage Layer	SF	52,000	$0.40	$20,800
Barrier Protection Layer	CY	1,925	$16.00	$30,800
6-inch Gas Collection Piping	LF	520	$51.00	$26,520
8-inch Gas Collection Header	LS	520	$60.00	$31,200
6-inch Gas Valves and Vaults	Each	4	$3,000	$12,000
8-inch Gas Valves and Vaults	Each	4	$3,600	$14,400
Installation of Impermeable Barrier System Subtotal				$181,720

5.5 Soil Cover Placement and Cost

Based on the Phase II findings, the analytical results of the surficial soil samples collected across the Site indicate the presence of PAHs and TAL metals at levels that would require remediation during development as a new school complex either by removal or capping. URS recommends that those areas of the Site not covered by the structures constructed or other areas capped by the placement of impervious materials such as concrete sidewalks or macadam roads and parking areas be covered with a minimum 12-inch thick layer of clean fill. Based on the conceptual design of the anticipated school, it is estimated that approximately 6 acres of the Site will require a soil cover. The cost for this task is estimated to be $170,800. This cost is comprised of the components identified in Table 8.

Table 8 Soil Cover Placement Cost

Former Metro North Property				
Item	Unit	Quantity	Rate	Total
Mobilization	LS	1	$10,000	$10,000
Health and Safety	LS	1	$10,000	$10,000
Site Clearing	Acre	6	$4,000	$24,000
Site Grading	Acre	6	$5,000	$30,000
Soil Cover Placement	CY	9,680	$10.00	$96,800
Soil Cover Placement Subtotal				$170,800

5.6 Total Remediation Cost

The total cost estimate for the recommended remediation tasks identified above is presented in Table 9.

Table 9 Total Remediation Cost

Section	Activity	Total
5.1	Petroleum Contaminated Soil Removal, Disposal and Restoration Cost	$2,696,000
5.2	C&D Material Removal and Disposal Cost	$1,375,000
5.3	Groundwater Remediation Cost	$600,625
5.4	Installation of Impermeable Barrier System Cost	$181,720
5.5	Soil Cover Placement Cost	$170,800
Recommended Remediation Subtotal		$5,024,145
Engineering Design, Specs, Drawings, Data Evaluation, and Reporting Labor Expenses (20% of Remediation Subtotal)		$1,004,829
Subtotal Projected Costs		$6,028,974
25% Contingency on all costs		$1,507,245
Estimated Remediation Total		$7,536,219

6.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

URS has performed a Phase II Environmental Site Investigation of the Former Metro North Property (the "Site"), located at 3001 Concourse Village East in Bronx, New York. The scope of the Phase II ESI was consistent with the ASTM Standard Practice E 1527-97 and of the NYCSCA.

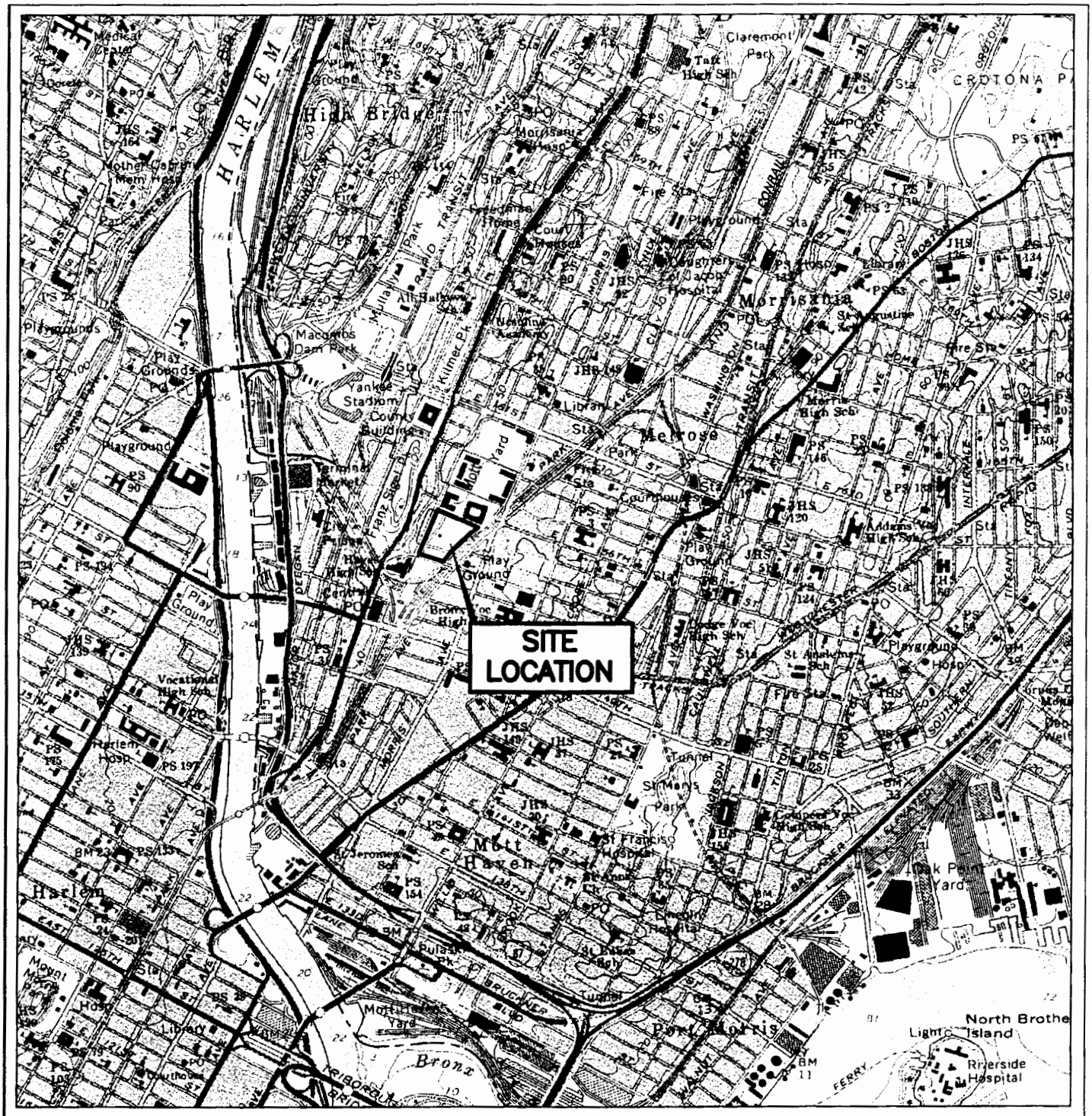
URS

K.D. Seborowski
Project Manager

Edith Hollister
Environmental Scientist

Brendan Coffey, P.E.
Principal Environmental Engineer

Figures



URS

WAYNE, NEW JERSEY

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MAP SOURCE:

U.S.G.S. 7.5 MINUTE SERIES QUADRANGLE OF CENTRAL PARK, N.Y.–N.J., DATED 1965, PHOTOREVISED 1979.

FIGURE 1 – SITE LOCATION MAP

SITE:	FORMER METRO NORTH 3001 CONCOURSE VILLAGE EAST BRONX, NY 10451
CLIENT:	SCHOOL CONSTRUCTION AUTHORITY
PROJECT #:	47-01E04046.00/00018
SCALE:	AS SHOWN

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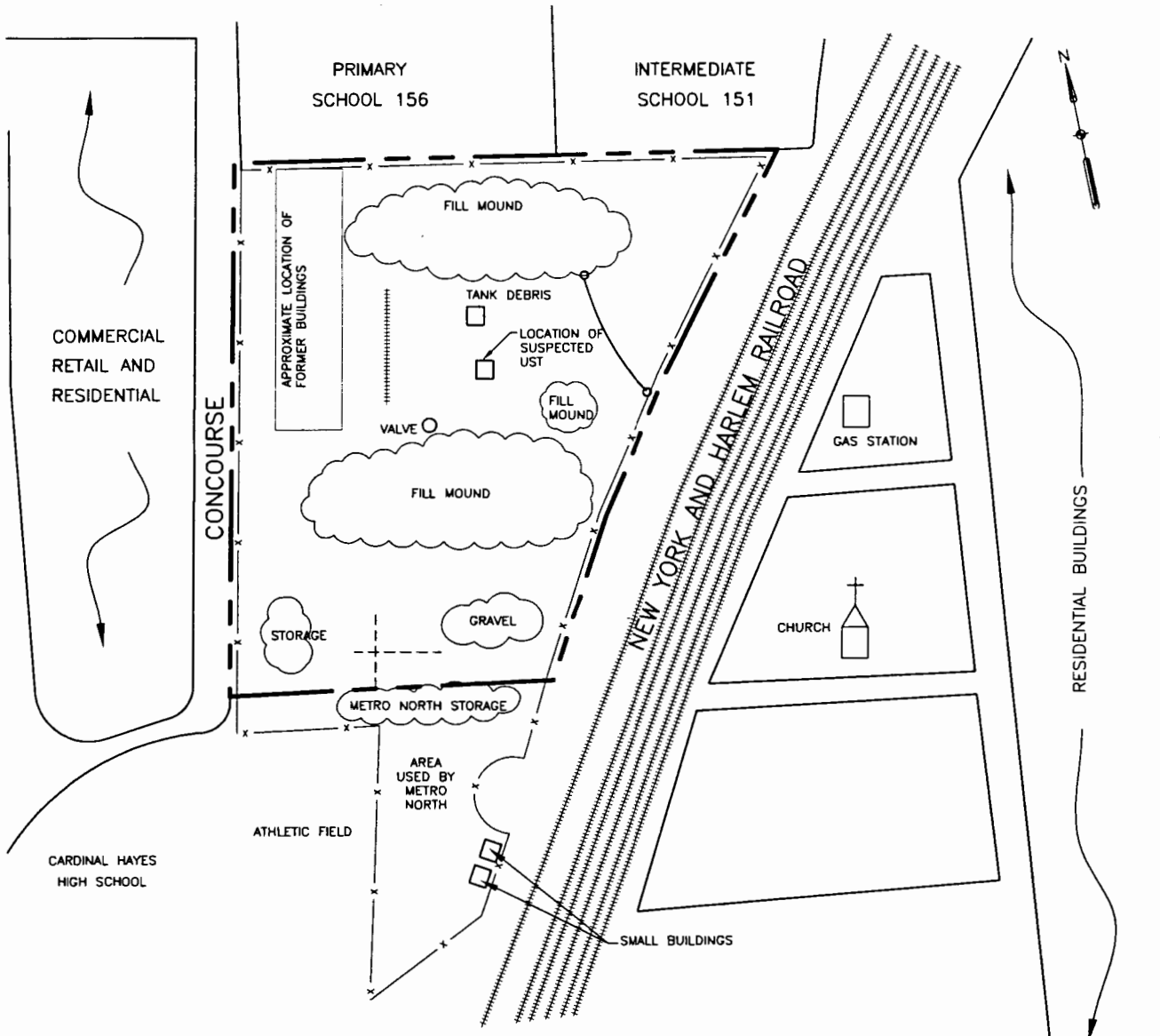

LEGEND

- PROPERTY LINE
- UNDERGROUND SEWER LINE WITH MANHOLES
- SUSPECTED LOCATION OF UNDERGROUND UTILITIES INFERRED FROM GEOPHYSICAL SURVEY
- SECTION OF RAILROAD TRACK EMBEDDED IN CONCRETE

SITE FEATURES MAP

0 100 200 400

SCALE (FEET)

CLIENT: SCHOOL CONSTRUCTION AUTHORITY	URS WAYNE, NEW JERSEY
SITE: FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451	
PROJECT #: 47-01E04046.00/00018	SCALE: AS SHOWN DRAWN BY: J.L.
	FIGURE 2

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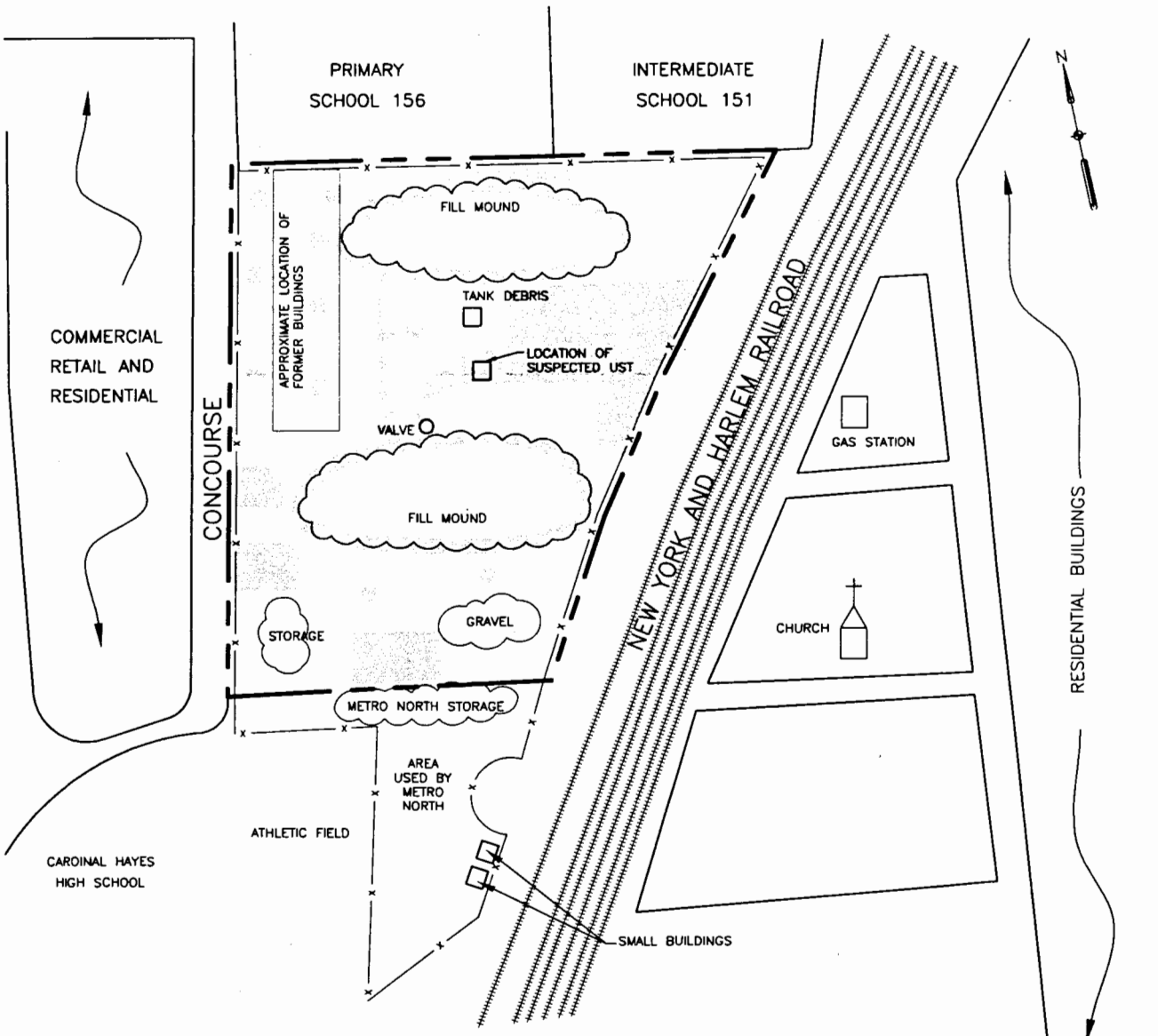

LEGEND

PROPERTY LINE

ZONE OF GEOPHYSICAL INVESTIGATION

GEOPHYSICAL SURVEY LOCATION MAP

0 100 200 400

SCALE (FEET)

CLIENT:	SCHOOL CONSTRUCTION AUTHORITY
SITE:	FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451
PROJECT #:	47-01E04046.00/00018

URS
WAYNE, NEW JERSEY

SCALE: AS SHOWN
DRAWN BY: J.L.

FIGURE 3

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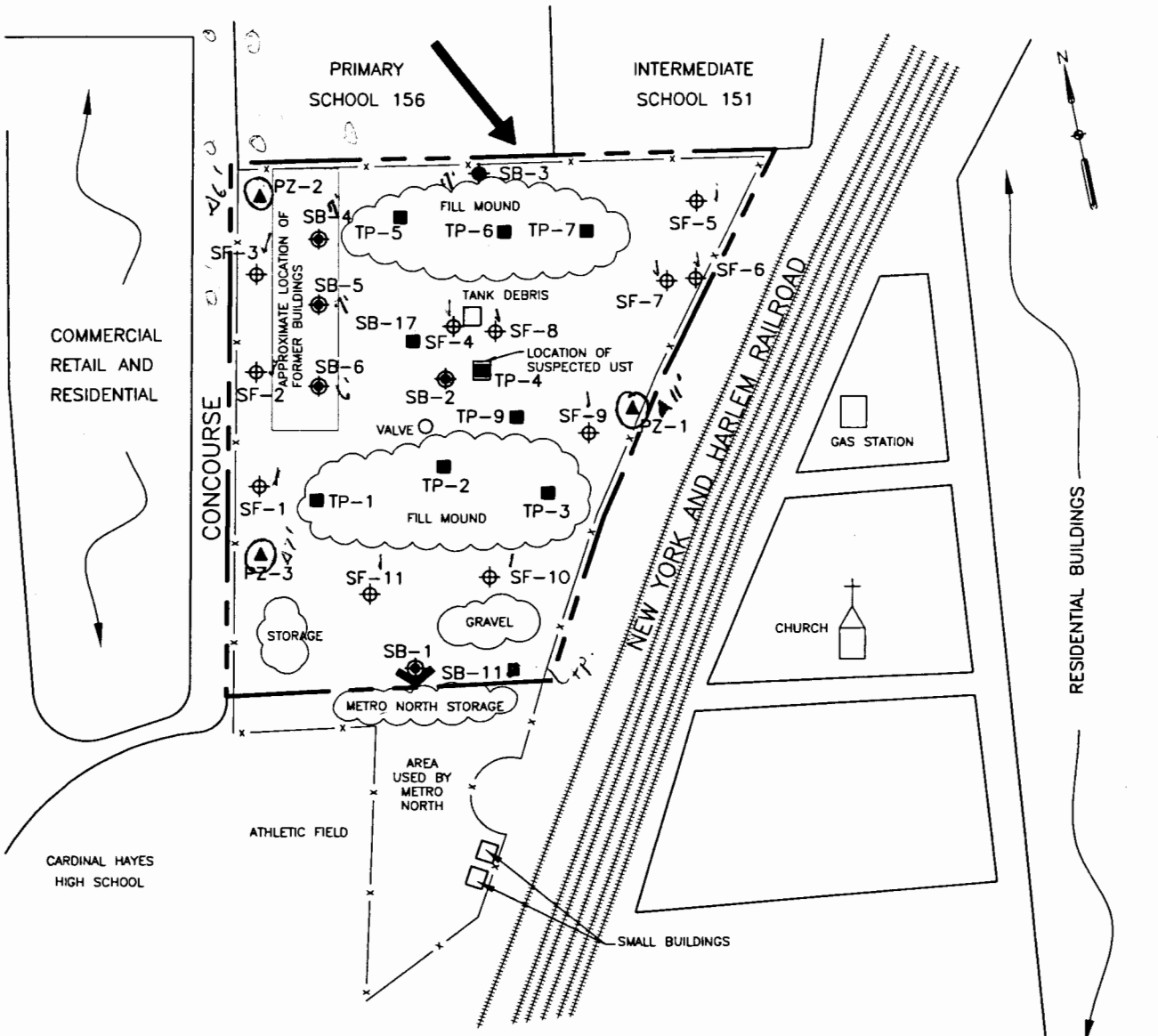

LEGEND

- PROPERTY LINE
- SOIL AND GROUNDWATER SAMPLE LOCATION
- SURFACE SOIL SAMPLE LOCATION
- SUBSURFACE SOIL SAMPLE LOCATION
- TEMPORARY PIEZOMETER LOCATION
- TEST PIT LOCATION
- DIRECTION OF GROUNDWATER FLOW

PHASE II SAMPLING LOCATION PLAN

0 100 200 400

SCALE (FEET)

CLIENT:	SCHOOL CONSTRUCTION AUTHORITY
SITE:	FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451
PROJECT #:	47-01E04046.00/00018

URS
WAYNE, NEW JERSEY

SCALE: AS SHOWN
DRAWN BY: J.L.

FIGURE 4

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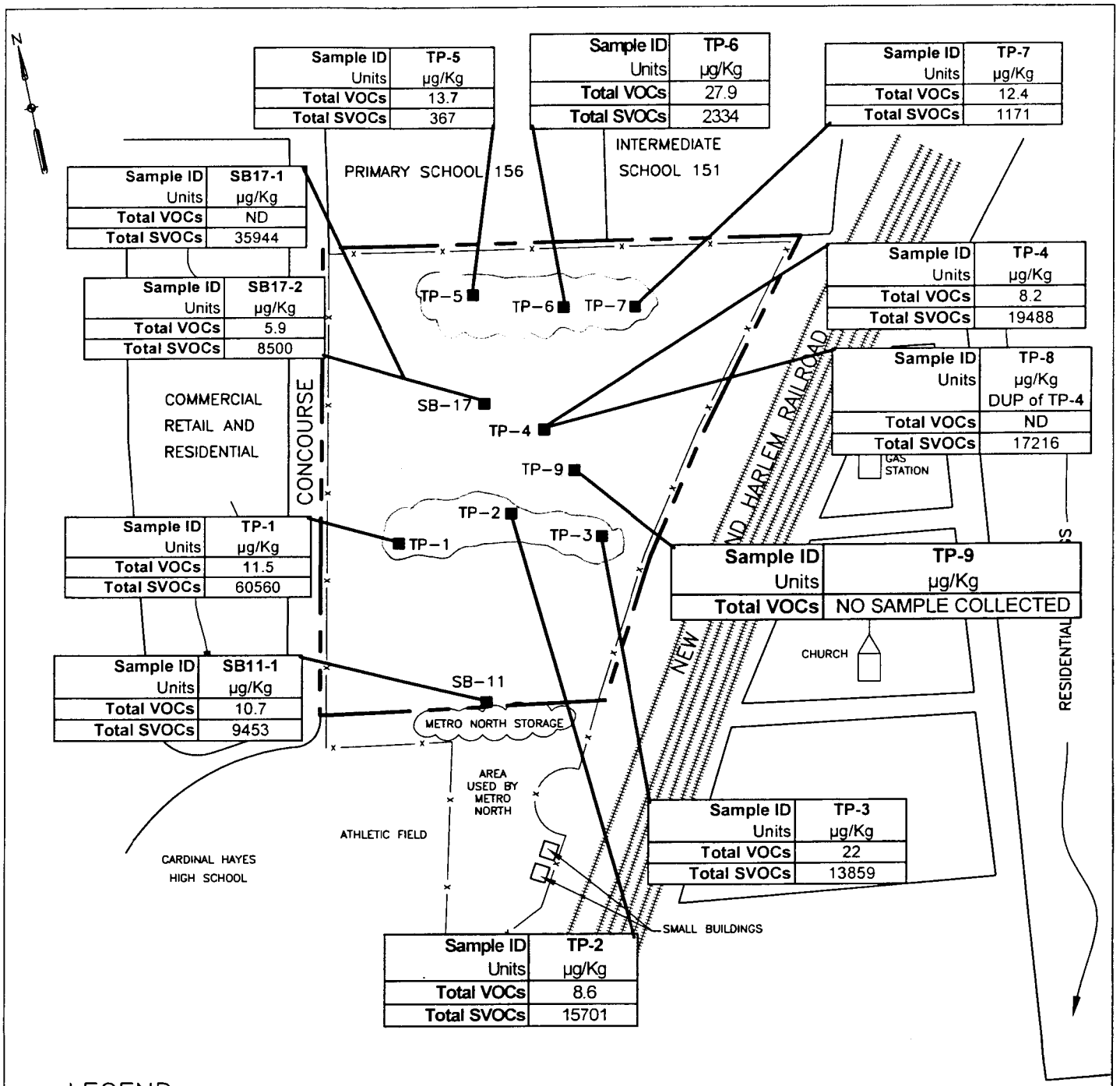

LEGEND

- PROPERTY LINE
- FENCE LINE
- TP-1 TEST PIT LOCATION
- ND NOT DETECTED

TEST PIT ANALYTICAL RESULTS TOTAL VOCs AND SVOCs

0 100 200 400

SCALE (FEET)

CLIENT:	SCHOOL CONSTRUCTION AUTHORITY
SITE:	FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451
PROJECT #:	47-01E04046.00/00018

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SCALE: AS SHOWN
DRAWN BY: J.L.

FIGURE 5

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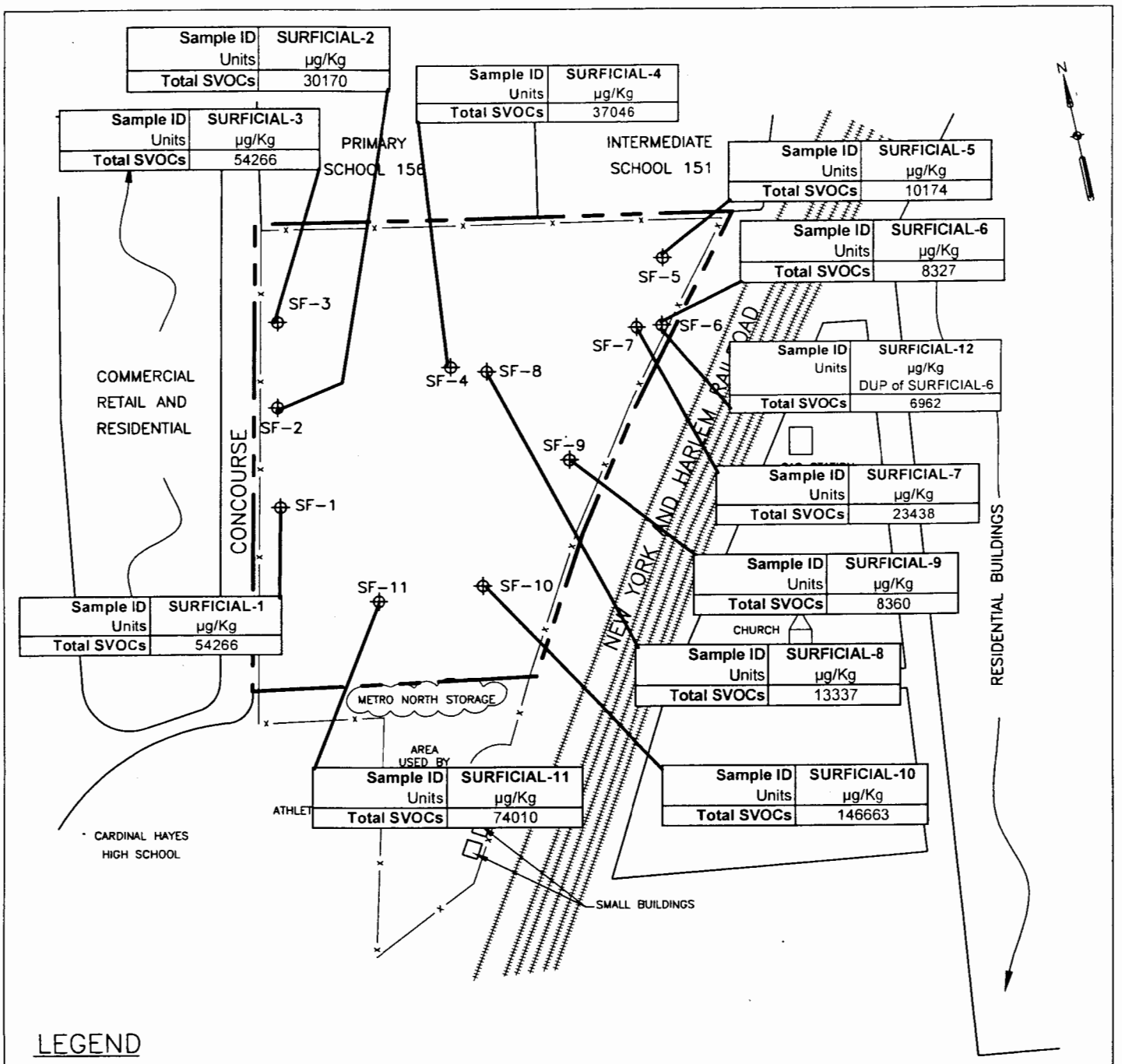

LEGEND

- PROPERTY LINE
- FENCE LINE
- SF-1 ⊕ SURFICIAL SAMPLE LOCATION

SURFICIAL SOIL ANALYTICAL RESULTS TOTAL SVOCs

0 100 200 400

SCALE (FEET)

CLIENT:	SCHOOL CONSTRUCTION AUTHORITY
SITE:	FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451
PROJECT #:	47-01E04046.00/00018

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SCALE: AS SHOWN
DRAWN BY: J.L.

FIGURE 6

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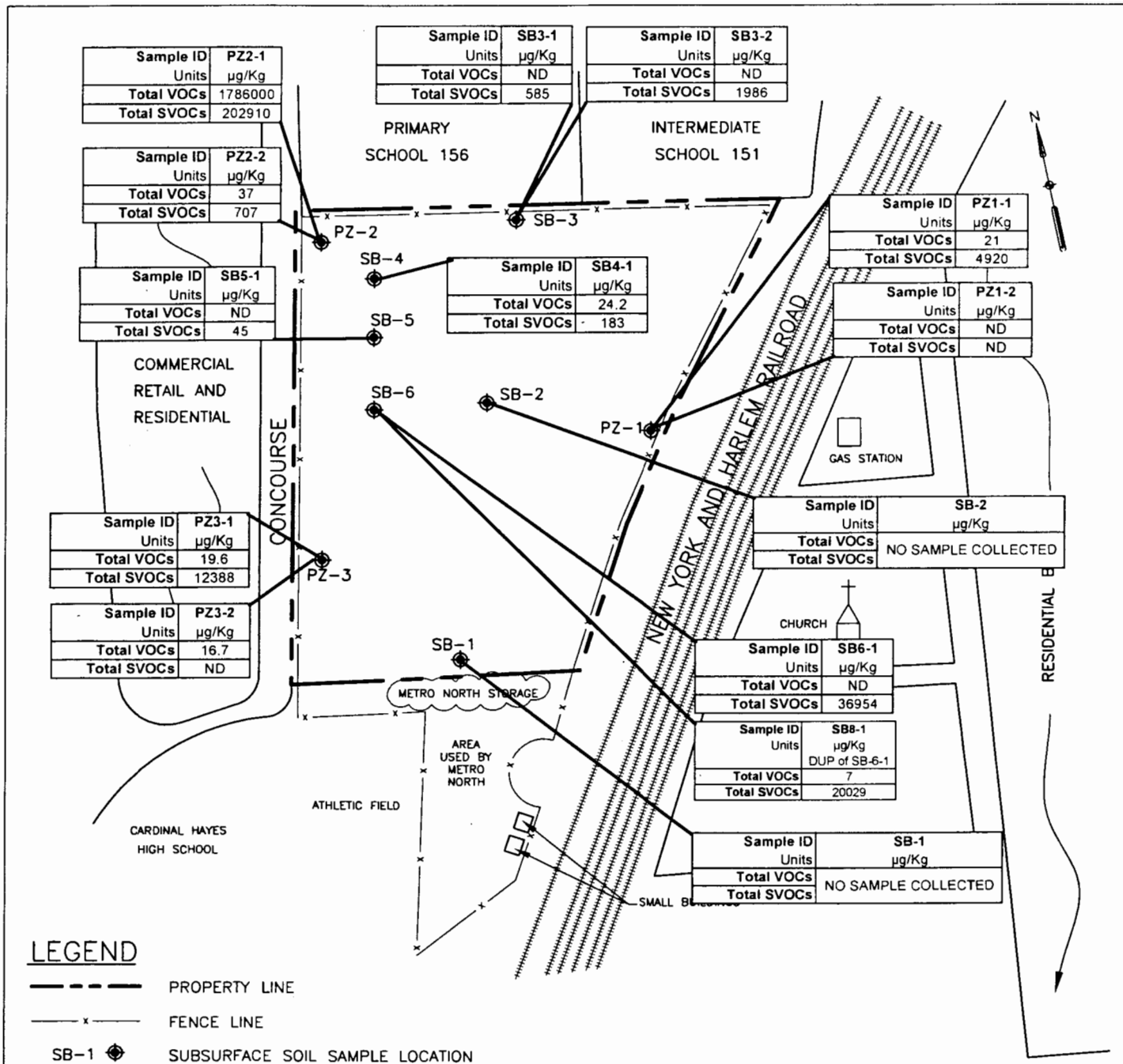

SOIL BORING ANALYTICAL RESULTS
TOTAL VOCs AND SVOCs

0 100 200 400

SCALE (FEET)

CLIENT:	SCHOOL CONSTRUCTION AUTHORITY
SITE:	FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451
PROJECT #:	47-01E04046.00/00018

URS
WAYNE, NEW JERSEY

SCALE: AS SHOWN
DRAWN BY: J.L.

FIGURE 7

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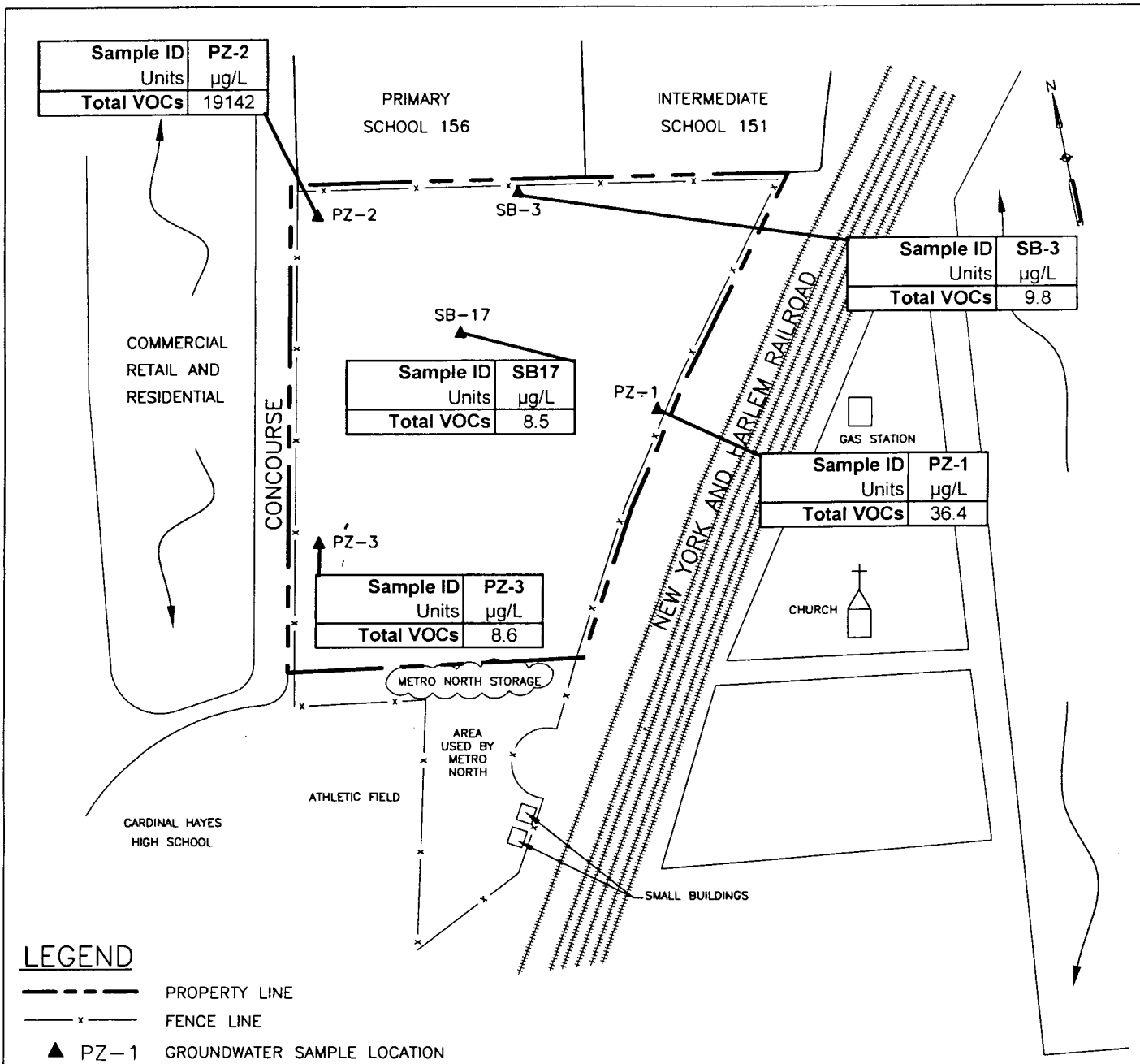

LEGEND

- PROPERTY LINE
- FENCE LINE
- ▲ PZ-1 GROUNDWATER SAMPLE LOCATION

GROUNDWATER ANALYTICAL RESULTS
TOTAL VOCs

0 100 200 400

SCALE (FEET)

CLIENT:	SCHOOL CONSTRUCTION AUTHORITY
SITE:	FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451
PROJECT #:	47-01E04046.00/00018

URS
WAYNE, NEW JERSEY

SCALE: AS SHOWN
DRAWN BY: J.L.

FIGURE 8

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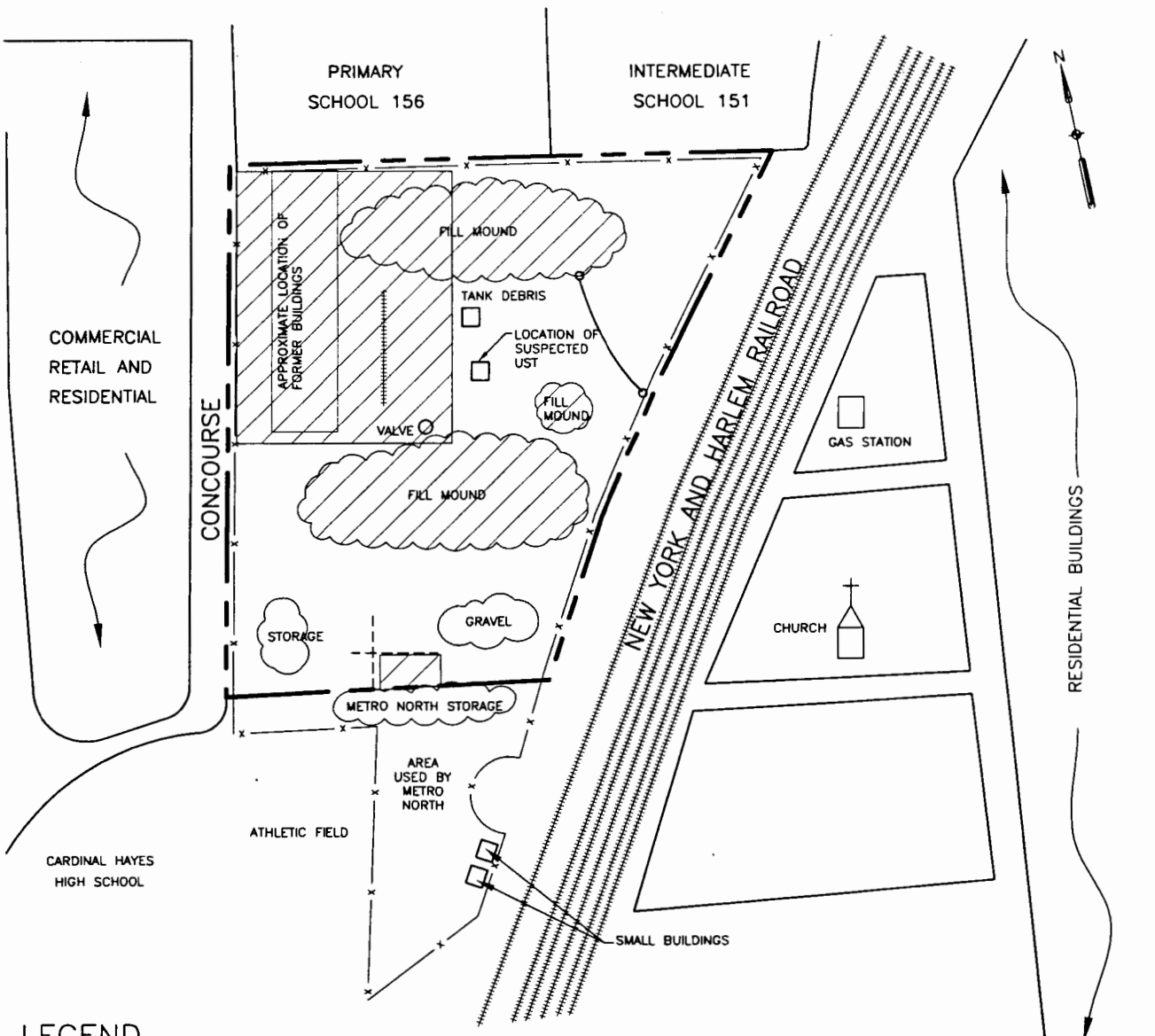

LEGEND

- PROPERTY LINE
- UNDERGROUND SEWER LINE WITH MANHOLES
- SUSPECTED LOCATION OF UNDERGROUND UTILITIES INFERRED FROM GEOPHYSICAL SURVEY
- SECTION OF RAILROAD TRACK EMBEDDED IN CONCRETE
- AREA OF REMEDIATION

AREAS OF PROPOSED REMEDIATION

0 100 200 400

SCALE (FEET)

CLIENT: SCHOOL CONSTRUCTION AUTHORITY	URS WAYNE, NEW JERSEY
SITE: FORMER METRO NORTH PROPERTY BLOCK 2443 LOT 78 BRONX, NY 10451	
PROJECT #: 47-01E04046.00/00018	SCALE: AS SHOWN DRAWN BY: J.L.
	FIGURE 9

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APPENDIX A

FIELD LOGS (TEST PITS, SOIL BORINGS)

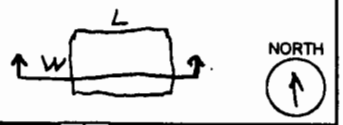
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP-1

SHEET 1 OF 1

SITE NAME Metro North LOCATION Bronx, NYC		DATE STARTED 8/2/01	DATE COMPLETED 8/2/01	PROJECT NUMBER 47-01E04046.00
EXCAVATION CONTRACTOR ADT	FOREMAN Mark Larabie	GROUND ELEVATION (FT) NR	COMPLETION DEPTH (FT) 9' bgs (~4' bng*)	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT Case 590 Super L Backhoe		WATER LEVEL (FT) not encountered	INSPECTOR Alireza Ayoubian	
EXCAVATION LOCATION TP-1 (As Marked)		APPROX. DIMENSIONS (FT) L x W x D 3 x 8 x 9		



HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION	Sample Interval	Water Table	Depth (ft)	PID/ LEL FID (ppm)	Sample Number
0 Brown, Silty c-f SAND, some f. gravel, dry (top covered with vegetation)			0		
1 Same as above, includes bricks, c-f gravel, cobbles			1		
2			2		
3 include pieces of wood, garbage (plastic, etc.), more bricks			3		
4 same as above			4		
5 "			5		
6 "			6		
7 "			7		
8 same as above, becomes moist to dry, some cinders (black)			8	0/0	TP-1
9 same as above			9		
10 End of test pit at 9' bgs.			10		
11			11		
12			12		
13			13		
14			14		
15			15		

* Below natural ground

URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP- 2

SHEET 1 OF 1

SITE NAME Metro North LOCATION Bronx, NYC		DATE STARTED 8/2/01	DATE COMPLETED 8/2/01	PROJECT NUMBER 47-01E04046.00
EXCAVATION CONTRACTOR ADT	FOREMAN Mark Lambie	GROUND ELEVATION (FT) NR	COMPLETION DEPTH (FT) 10' bgs (4' bng*)	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT Case 590 Super L Backhoe		WATER LEVEL (FT) not encountered	INSPECTOR Alireza Ayoubian	
EXCAVATION LOCATION TP-2 (As Marked)		APPROX. DIMENSIONS (FT) L x W x D 11 x 7 x 10		

HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION	Sample Interval	Water Table	Depth (ft)	PID/ ~~LEL~~ ~~FID~~ (ppm)	Sample Number
0 Brown, silty c-f SAND, some c-f gravel, a big piece of reinforced concrete 4-5' long			0		
1 (at depth 1' bgs) cobbles and boulder, dry, pieces of bricks			1		
2 same as above, includes garbage, tires, etc.			2		
3 same as above, more boulders (average diameter ~ 2-3 ft)			3		
4 same as above, pieces of reinforced concrete (~ 2 to 3'- long)			4		
5			5		
6 Same as above, fewer boulders and pieces of concrete.			6		
7 Same as above, becomes moist to dry			7		
8			8	0/0	TP-2
9 same as above			9		
10 End of test pit at 10' bgs.			10		
			11		
			12		
			13		
			14		
			15		

* below natural ground

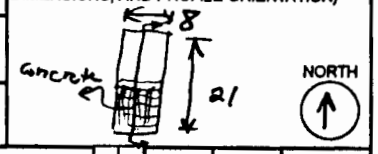
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP-3

SHEET 1 OF 1

SITE NAME Metro North LOCATION Bronx, NYC		DATE STARTED 8/3/01	DATE COMPLETED 8/3/01	PROJECT NUMBER 47-01E04046.00
EXCAVATION CONTRACTOR ADT	FOREMAN Mark Larabie	GROUND ELEVATION (FT) NR	COMPLETION DEPTH (FT) 12' bgs (7' bng)*	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT CASE 590 Super L Backhoe		WATER LEVEL (FT) Wet spots at 12' bgs.	INSPECTOR Alireza Ayoubian	
EXCAVATION LOCATION TP-3 (As Marked)		APPROX. DIMENSIONS (FT) L x W x D 21 x 8 x 12		



HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION	Sample Interval	Water Table	Depth (ft)	PID/~~FID~~ (ppm)	Sample Number
Brown, Silty c-f SAND, some c-f. gravel, pieces of brick, garbage (metal plates, wood, rebar, steel pipe, etc.), cobbles and boulders, dry			0		
			1		
			2		
Same as above			3		
			4		
Same as above			5		
Same as above, includes refuse (such as steel rods, pieces of steel beams, etc.).			6		
Soil becomes moist to dry			7		
Same a above, more bricks			8		
Same as above, boulders (~ 3 ft in diameter), pieces of wood (1-3 foot long)			9		
encountered a big block of concrete at depth of about 9.5' (covered 1/3 to 1/2 of the area of test pit in plan), appeared like part of a foundation footing.			10		
Same as above			11		
Some gray clayey SILT, bottom of test pit appeared wet at depth 12' bgs.			12	o/o	TP-3
End of TP-3 at 12' bgs.			13		
			14		
			15		

* below natural ground

Testpit Log1

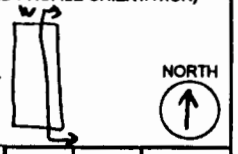
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP-4

SHEET 1 OF 1

SITE NAME Metro North LOCATION Bronx, NYC		DATE STARTED 8/3/01	DATE COMPLETED 8/3/01	PROJECT NUMBER 47-01E04046.00
EXCAVATION CONTRACTOR ADT	FOREMAN Mark Larabie	GROUND ELEVATION (FT) NR	COMPLETION DEPTH (FT) 5.5 bgs	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT Case 590 Super L Backhoe		WATER LEVEL (FT) ~ 5.5' (?)	INSPECTOR Alireza Ayoubian	
EXCAVATION LOCATION TP-4 (As Marked)		APPROX. DIMENSIONS (FT) L x W x D 12 x 4 x 5.5		



HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION

Sample Interval	Water Table	Depth (ft)	PID/ ~~FID~~ LEL (ppm)	Sample Number
		0		
		1		
		2		
		3	0/0	TP-4 & duplicate (TP-8) at depth 3' bgs
		4		
		5		
		6		
		7		
		8		
		9		
		10		
		11		
		12		
		13		
		14		
		15		

0 Brown, Silty C-f. SAND, some c-f. gravel, includes refuse (pieces of metal, etc.),
1 some cobbles and boulders
2 encountered big boulder at 2' bgs.
3 Same as above, encountered some black silty Sand with odor
4 Same as above, becomes moist, some yellowish brown silty sand
5 encountered several boulders (~ 1-3' in diameter) at about 4.5' bgs
6 encountered water at about 5.5' bgs. Encountered boulder; could not go deeper
7 End of Test pit at 5.5' bgs
8

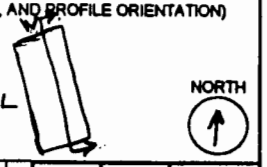
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP- 5

SHEET 1 OF 1

SITE NAME Metro North LOCATION Bronx, NYC		DATE STARTED 8/3/01	DATE COMPLETED 8/3/01	PROJECT NUMBER 47-01E04046.00
EXCAVATION CONTRACTOR ADT	FOREMAN Mark Larabie	GROUND ELEVATION (FT) NR	COMPLETION DEPTH (FT) 11' bgs (~ 5' bng*)	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT CASE 590 Super L Backhoe		WATER LEVEL (FT) not encountered	INSPECTOR Alireza Ayoubian	
EXCAVATION LOCATION TP-5 (As Marked)		APPROX. DIMENSIONS (FT) L x W x D 10 x 5 x 11		



HORIZONTAL SCALE: 1 Inch = ___ ft
VIEW LOOKING: _____

Depth (ft)	PROFILE DESCRIPTION	Sample Interval	Water Table	PID/FID (ppm)	Sample Number
0	Brown, Silty C-f SAND, some c-f. gravel; includes cobbles, boulders, bricks,				
1	refuse (wood, metal, plastic, etc.), dry				
2					
3	Same as above				
4	same as above				
5	become moist to dry at about 6' bgs, some yellowish brown Silty clayey Sand				
6					
7	Same as above				
8	Same as above, Some grey Silty SAND, some black cinders				
9	Same as above			0/16	TP-5
10	more gray silty clayey sand, becomes moist to wet				
11	Some black pieces of wood, some black soil, some cinders				
12	End of test pit @ 11' bgs				
13					
14					
15					

* below natural ground

Testpit Log1

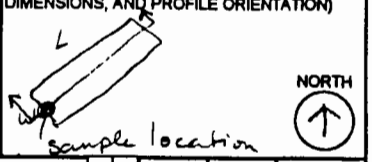
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP- 6

SHEET 1 OF 1

SITE NAME / LOCATION: Metro North		DATE STARTED: 8/6/01	DATE COMPLETED: 8/6/01	PROJECT NUMBER: 47016E04046.00 00018
EXCAVATION CONTRACTOR: JJ Hitch Constr.	FOREMAN: Martin	GROUND ELEVATION (FT): NR	COMPLETION DEPTH (FT): 8' bgs (~4' bns)	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT: Backhoe		WATER LEVEL (FT): Not Encountered	INSPECTOR: E Hollister	
EXCAVATION LOCATION: Center of North mound		APPROX. DIMENSIONS (FT) L x W x D: 11 x 4 x 8		



HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION

Sample Interval	Water Table	Depth (ft)	PID/FID (ppm)	Sample Number
		0	0	
		1		
		2		
		3		
		4		
		5		
■		6		TP-6 @ 0950
		7		
		8		
		9		
		10		
		11		
		12		
		13		
		14		
		15		

- 0 vegitation, debris - tires, piping, black rubber pipe insulation DRY
- 1 brown silty f-c SAND w/gravel, debris - carpet, C&D (brick, concrete), plastic, aerosol can, garbage DRY
- 2 SAB
- 3 SAB
- 4 SAB
- 5 Orange/tan f silty SAND and gray silty CLAY Damp Native
- 6 SAB w/ dark gray silty clay - petro odor Damp
- 7 SAB
- 8 SAB

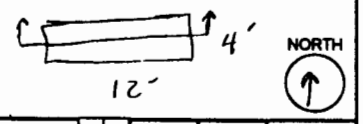
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP-7

SHEET 1 OF 1

SITE NAME / LOCATION: Metro North		DATE STARTED: 8/6/01	DATE COMPLETED: 8/6/01	PROJECT NUMBER: 47016040046.00 00018
EXCAVATION CONTRACTOR: JJ Hitch Constr.	FOREMAN: Martin	GROUND ELEVATION (FT): NR	COMPLETION DEPTH (FT): 12' bgs (3.5 bNG)	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT: Backhoe		WATER LEVEL (FT): Not Encountered	INSPECTOR: E Hollister	
EXCAVATION LOCATION: Eastern end of North mound		APPROX. DIMENSIONS (FT) L x W x D: 12 x 4 x 12		



HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION

Depth (ft)	Sample Interval / Water Table	PID/FID (ppm)	Sample Number
0			
1			
2			
3			
4			
5			
6			
7			TP-7 @ 1035
8			
9			
10			
11			
12			
13			
14			
15			

-0 vegetation
-1 dk brown silty f-m SAND and gravel — Dry
-2 SAB w/ brick, concrete, glass C&D
-3 SAB
-4 SAB w/ cobbles
-5 SAB w/ railroad tie chunk
-6 SAB more wood and roots
-7 SAB darker, with cinders, ash, slag, coal
-8 thin vegetation layer @ 7.5
orange/tan f-c silty SAND some silty/sandy gray clay
-9 thin layer of black cinders, ashes, gravel, coal
-10 tan silty SAND and gray sandy clay
-11 SAB
-12 SAB

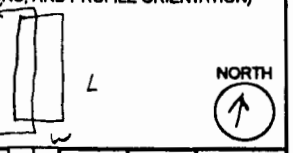
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP- SB-17

SHEET 1 OF 1

SITE NAME / LOCATION: Metro North		DATE STARTED: 8/6/01	DATE COMPLETED: 8/6/01	PROJECT NUMBER: 47016046.00 00018
EXCAVATION CONTRACTOR: JJ Hitch Constr.	FOREMAN: Martin	GROUND ELEVATION (FT): NR	COMPLETION DEPTH (FT): 8 ft bgs	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT: Backhoe		WATER LEVEL (FT): 6'	INSPECTOR: EHollister	
EXCAVATION LOCATION: original boring SB-7		APPROX. DIMENSIONS (FT) L x W x D: 8 x 5 x 8		



HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION

Depth (ft)	Sample Interval	Water Table	PID/FID (ppm)	Sample Number
0				
1				
2				SB17-1 @ 1200
3				
4				
5				SB17-2 @ 1145
6		▼		
7				
8				SB-17 @ 1340 for VOCs GW
9				
10				
11				
12				
13				
14				
15				

- 0 vegetation, cement, wood (railroad ties)
- 1 Brown silty SAND and gravel MUCH wood - strong naphthalene smell Railroad ties, concrete
- 2 SAB w/ brick, metal piping, large slabs of concrete, bricks held together w/ cement
- 3 SAB w/ black & gray cinders, ash, slag, coal, some perched water
- 4 dk gray stained green sandy silty CLAY and ashes/cinders still fill moist
- 5 SAB moist/wet
- 6 orange-brown silty f-c SAND 1.Hlz clay 1.Hlz gravel
- 7 SAB
- 8 SAB rushing water

Sheen on water after had sat x 1.5 hrs.

URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP- 9

SHEET 1 OF 1

SITE NAME / LOCATION: Metro North		DATE STARTED: 8/6/01	DATE COMPLETED: 8/6/01	PROJECT NUMBER: 47015046.00 00018
EXCAVATION CONTRACTOR: JJ Hitch Constr.	FOREMAN: Martin	GROUND ELEVATION (FT): NR	COMPLETION DEPTH (FT): 4	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT: Backhoe		WATER LEVEL (FT): Not Encountered	INSPECTOR: EHollister	NORTH ↑
EXCAVATION LOCATION: Between SB-2 and TP-3		APPROX. DIMENSIONS (FT) L x W x D: 10 x 8 x 4		

HORIZONTAL SCALE: 1 inch = ___ ft
VIEW LOOKING: _____

PROFILE DESCRIPTION

Sample Interval	Water Table	Depth (ft)	PID/FID (ppm)	Sample Number
		0		
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9		
		10		
		11		
		12		
		13		
		14		
		15		

0 Vegetation, brown silty f-m SAND
-1 ft brown silty f-m SAND and gravel DRY
-2 SAB, darker, Railroad fill
-3 fill - brick, cinders, ash, coal, concrete, metal
-4 refusal @ bedrock marble/schist

NO Sample

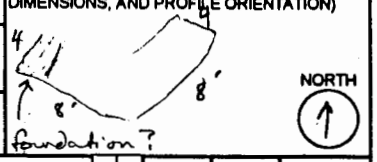
URS

TEST PIT/TRENCH LOG

LOG OF TEST PIT TP- SB-11

SHEET 1 OF 1

SITE NAME / LOCATION: Metro North		DATE STARTED: 8/6/01	DATE COMPLETED: 8/6/01	PROJECT NUMBER: 47016046.00 00018
EXCAVATION CONTRACTOR: JJ Hitch Constr	FOREMAN: Martin	GROUND ELEVATION (FT): NR	COMPLETION DEPTH (FT): 4'	PLAN (SKETCH WITH SHAPE, L x W (FT) DIMENSIONS, AND PROFILE ORIENTATION)
EXCAVATION EQUIPMENT: Backhoe		WATER LEVEL (FT): —	INSPECTOR: EHollister	
EXCAVATION LOCATION: center of Southern property		APPROX. DIMENSIONS (FT) L x W x D		



HORIZONTAL SCALE: 1 inch = + ft
VIEW LOOKING:

PROFILE DESCRIPTION

0-1.5 bluestone/gravel and brown silty f-m sand and gravel
1.5-2 wood, black fill - cinders, ash
brown silty f-c SAND and gravel with C+D
bricks (foundation? chimney?) boulder - marble/schist
silty f-c SAND + gravel
Refusal @ bedrock - marble/schist

Depth (ft)	PID/FID (ppm)	Sample Number
0	0	
1		
2		SB11-1 @ 1435
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Sample Interval
Water Table

URS

LOG OF BORING SB-1

SHEET 1 of 1

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/3/01	DATE COMPLETED: 8/3/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/A	WATER DEPTH (FT BGS): N/E
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS):	ROCK DEPTH (FT BGS): 4ft?
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: backfill with cuttings	
CASING: N/A		SOIL SAMPLES: DIST. 1 UNDIST. 0 CORE N/A	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: None	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Southern property line	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
0 to 2 ft silty c-f sand, some f gravel wood fragments		0		1	3		1350						
		4											Refusal E.O.B
													Replace boring with test pit excavation SB-11
		10											

URS

LOG OF BORING SB-2

SHEET 1 of

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/02/01	DATE COMPLETED: 8/02/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): N/E
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 4 ft	ROCK DEPTH (FT BGS): 4 ft
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: backfill with cuttings	
CASING: N/A		SOIL SAMPLES: DIST. 1 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 0	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Approximate center of site	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
tan gravelly SILT with gravel		0											
		1											
		2		1	4								
brown silty SAND with gravel and fragments of schist.		3											
		4											Refusal E.O.B. Replace with Test Pit TP-4
		5											
		6											
		7											
		8											
		9											
		10											

URS

LOG OF BORING SB-3

SHEET 1 of 2

PROJECT NAME/NUMBER	NYCSCA 47-01E04046.00 TASK 00018	DATE STARTED	DATE COMPLETED
LOCATION	Former Metro North Property - Bronx, NY	8/03/01	8/03/01
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): 7
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 12	ROCK DEPTH (FT BGS): -
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: backfill with cuttings	
CASING: N/A		SOIL SAMPLES: DIST. 3 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 2	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Northern property Boundary	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Recov. (ft)	Penetr. Resist. BL/6in	Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
Brown silty SAND and gravel grading to f-m SAND with black cinders, slag, glass Brick to 3.5 ft		0											
		1											
		2		1	3.5				.1		.1		
		3											
silty SAND grading to f-sand SILT with trace clay		4											
Gray sandy CLAY with trace silt		5											
		6		2	3				.1		.1		
		7	▼										
		8											
Orange clayey SAND		9		3	2.5				0		.4		
		10											

URS

LOG OF BORING SB-3

DESCRIPTION	Sample Interval	Depth (ft bgs)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	HNU / PID READINGS (PPM): Sample	HNU / PID READINGS (PPM): Ambient Air	HNU / PID READINGS (PPM): Time	HNU / PID READINGS (PPM): Head Space	HNU / PID READINGS (PPM): Date / Time	REMARKS
		11											Very Slow water recharge
		12											E.O.B.
		13											
		14											
		15											
		16											
		17											
		18											
		19											
		20											
		21											
		22											
		23											
		24											

URS

LOG OF BORING SB-4

SHEET 1 of 2

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/03/01	DATE COMPLETED: 8/03/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): 7
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 12	ROCK DEPTH (FT BGS): N
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: Backfill with cuttings	
CASING: N/A		SOIL SAMPLES: DIST. 3 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 1	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Northwest corner of site	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Recov. (ft)	Penetr. Resist. BL/6in	Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
brown fine silty SAND trace gravel		0											
		1											
black silty SAND with gravel containing brick, ash, cinders		2		1	3.5		0950						
		3											
		4											
		5											strong petroleum odor at 5' bgs
Dark brown sandy silt and clay grading to dark gray f. SAND		6		2	2		1000						
		7	▼										strong petroleum odor at W.T
		8											
		9		3	2		1015						
		10											

URS

LOG OF BORING SB-4

DESCRIPTION	Sample Interval	Depth (ft bgs)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	HNU / PID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date / Time	REMARKS
gray f-m SAND with silt		11											strong petroleum odor E.O.B
		12											
		13											
		14											
		15											
		16											
		17											
		18											
		19											
		20											
		21											
		22											
		23											
		24											

DESCRIPTION	ple Interval	Depth	ater Table	Samples: Number	Recov.	Penetr. Resist	Time	HNU / PID READINGS (PPM): Sample	Ambient	Time	Head	Date	REMARKS

URS

LOG OF BORING SB-5

SHEET 1 of 1

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/03/01	DATE COMPLETED: 8/03/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): 7
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 8	ROCK DEPTH (FT BGS): N/E
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: backfill with cuttings	
CASING: N/A		SOIL SAMPLES: DIST. 2 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 1	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Northwest section of site	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Recov. (ft)	Penetr. Resist. BL/6in	Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
brown silty SAND with gravel mixed with black stained fill material to 4 ft.		0											
		1											
		2		1	3.5		1050						Railroad ties at 2 to 3 ft. Strong creosote-like odor
		3											
Reddish brown f sandy SILT grading to black-green clayey SILT.		4											
		5											
		6		2	4		1055						
		7	▼										
		8											E.O.B
		9											
		10											

URS

LOG OF BORING SB-6

SHEET 1 of

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/03/01	DATE COMPLETED: 8/03/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): 6
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 8	ROCK DEPTH (FT BGS): N/E
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: backfill with cuttings	
CASING: N/A		SOIL SAMPLES: DIST. 2 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 1	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: northwest section of site	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
Brown silty SAND with gravel containing bricks, ash, cinders, coal, wood (possible railroad tie) grading moist to wet at 6 ft. and becoming clayey		0											
		1											
		2		1	2		1120						
		3											
		4											
		5											strong petroleum odor
		6	▼	2	3		1130						
Gray brown CLAY with silt, sand and gravel		7											
		8											
		9											
		10											

URS

LOG OF BORING SB-7

SHEET 1 of 1

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/03/01	DATE COMPLETED: 8/03/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): N/E
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 2	ROCK DEPTH (FT BGS): 2 Ft ?
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: backfill with cuttings	
CASING: N/A		SOIL SAMPLES: DIST. 0 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 0	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Center of site	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Recov. (ft)	Penetr. Resist. BL/6in	Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
		0											could not drill past 2 ft, refusal. Investigate with test pit SB-17
		1											
		2											E.O.B. Refusal
		3											
		4											
		5											
		6											
		7											
		8											
		9											
		10											

URS

LOG OF BORING PZ-1

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/02/01	DATE COMPLETED: 8/02/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): 11
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 15.7	ROCK DEPTH (FT BGS): N/E
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: 2-inch OD PVC Piezometer	
CASING: N/A		SOIL SAMPLES: DIST. 4 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 3	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Eastern Property Boundary	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Recov. (ft)	Penetr. Resist. BL/6in	Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
Brown silty SAND		0							0		0		
Brown - black f SAND with ash, cinders brick		1		1	4		0800		0		.9		
		2											
		3							0		2		
Brown f sandy SILT, trace clay		4											
		5							0		.5		
Brown silty f SAND, fr gravel and clay (ash & cinders		6		2	4		0905						
		7											
		8							0		1		
orange f sandy SILT with ash, cinders		9		3	3.6		910		0		1.4		
		10							0		1		

URS

LOG OF BORING P2-1

DESCRIPTION	Sample Interval	Depth (ft bgs)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	HNU / PID READINGS (PPM): Sample	HNU / PID READINGS (PPM): Ambient Air	HNU / PID READINGS (PPM): Time	HNU / PID READINGS (PPM): Head Space	HNU / PID READINGS (PPM): Date Time	REMARKS
orange f SAND with gravel cinder & ash		11	▼						0		1		
		12											
		13							0		.8		
		14		4	2		9:15				1		
Gray clay with sand and silt		15											
		16											E. O, B
		17											
		18											
		19											
		20											
		21											
		22											
		23											
		24											

URS

LOG OF BORING P2-2

SHEET 1 of 1

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/02/01	DATE COMPLETED: 8/02/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): 6
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 12	ROCK DEPTH (FT BGS): N/E
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: 2-inch OD PVC Piezometer	
CASING: N/A		SOIL SAMPLES: DIST. 3 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 2	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Northwestern corner of Site	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Number	Recov. (ft)	Penetr. Resist. BL/6in	Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
Brown silty SAND with gravel Brick, concrete rubble		0											
		1		1	3.5		1040						
		2							0		30		
		3											Hydrocarbon staining Petroleum odor
Brown silty SAND with brick ash, cinders concrete		4											
		5							0		110		Hydrocarbon stained Strong Petroleum odor
		6	▼	2	4		1047		0		60		
		7											
		8							0		28		
		9		3	4		1100		0		47		
		10											

URS

LOG OF BORING P2-2

DESCRIPTION	Sample Interval	Depth (ft bgs)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	HNU / PID READINGS (PPM): Sample	HNU / PID READINGS (PPM): Ambient Air	HNU / PID READINGS (PPM): Time	HNU / PID READINGS (PPM): Head Space	HNU / PID READINGS (PPM): Date Time	REMARKS
silty f-m SAND		11							0		8		Petroleum odor Hydrocarbon staining
		12											E.O.B
		13											
		14											
		15											
		16											
		17											
		18											
		19											
		20											
		21											
		22											
		23											
		24											

URS

LOG OF BORING P2-3

SHEET 1 of 2

PROJECT NAME/NUMBER: NYCSCA 47-01E04046.00 TASK 00018		DATE STARTED: 8/02/01	DATE COMPLETED: 8/02/01
LOCATION: Former Metro North Property - Bronx, NY			
DRILLING CONTRACTOR: ADT	FOREMAN: Andrea	GROUND ELEVATION (FT. MSL): N/D	WATER DEPTH (FT BGS): 7
DRILLING EQUIPMENT: Geoprobe		COMPLETION DEPTH (FT BGS): 12	ROCK DEPTH (FT BGS): N/E
TYPE BIT: 2-inch Macro Corer	SIZE AND TYPE CORE BARREL: N/A	COMPLETION METHOD: 2-inch OD PVC Piezometer	
CASING: N/A		SOIL SAMPLES: DIST. 3 UNDIST. 0 CORE 0	
CASING HAMMER: N/A WEIGHT: N/A	DROP: N/A	ENV. SAMPLES: 2	
SAMPLER: 2-inch Macro Corer		BORING LOCATION: Southwest corner of site	
SAMPLER HAMMER: WEIGHT: N/A	DROP: N/A	INSPECTOR: E. Hollister	

DESCRIPTION	Sample interval	Depth (FT BGS)	Water table	Samples: Number	Recov. (ft)	Penetr. Resist. BL/6in	Time	PID (HNU)/ FID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
(Fill) Brown silty SAND gravel brick fragments		0		1	1		1300		0		14		limited recovery brick fragment in tip
Black silty SAND with gravel Brick, ash, cinders slag		4		2	3		1305		0		4		
		6							0		2		
Orange-brown silty f-m SAND trace gravel		7	▼						0		2		
		8		3	4		1310		0		1		
		9							0		2		
		10							0		1		

URS

LOG OF BORING P2-2

DESCRIPTION	Sample Interval	Depth (ft bgs)	Water Table	Samples: Number	Samples: Recov. (ft)	Samples: Penetr. Resist. BL/6in	Samples: Time	HNU / PID READINGS (PPM): Sample	Ambient Air	Time	Head Space	Date Time	REMARKS
		11							0		1		
		12											E. O. B.
		13											
		14											
		15											
		16											
		17											
		18											
		19											
		20											
		21											
		22											
		23											
		24											

APPENDIX B

ENVIRONMENTAL SAMPLES – SUMMARY OF DETECTED COMPOUNDS TABLES (EXCEL SPREADSHEETS)

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		TP-1			TP-2			TP-3			TP-4		
Lab Sample ID	TAGM		N5416-24DL			N5435-12			N5435-01			N5435-03DL		
Sample Collection Date	Recommended		08/02/2001			08/03/2001			08/03/2001			08/03/2001		
Sample Receipt Date	Soil Cleanup		08/02/2001			08/03/2001			08/03/2001			08/03/2001		
Sample Depth (bgs)	Objectives		8 ft			8 ft			12 - 13 ft			3 - 4 ft		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
ORGANIC COMPOUNDS													
Volatile Organic Compounds													
Chloromethane	NC	3.5	ND		3.1	ND		3.3	ND		3.3	ND	
Vinyl Chloride	200	2.3	ND		2	ND		2.2	ND		2.1	ND	
Bromomethane	NC	2.4	ND		2.1	ND		2.3	ND		2.2	ND	
Chloroethane	1900	2.8	ND		2.5	ND		2.7	ND		2.6	ND	
1,1-Dichloroethene	400	2	ND		1.8	ND		1.9	ND		1.9	ND	
Acetone	200	7.1	8.3	B	6.4	8.6	B	6.8	14	B	6.7	ND	
Carbon Disulfide	2700	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
Methylene Chloride	100	1.1	3.2		1.3	ND		1.1	8	B	1.1	8.2	B
trans-1,2-Dichloroethene	300	2.1	ND		1.9	ND		2	ND		2	ND	
1,1-Dichloroethane	200	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
2-Butanone	300	6.9	ND		6.2	ND		6.6	ND		6.5	ND	
cis-1,2-Dichloroethene	NC	2.2	ND		2	ND		2.1	ND		2.1	ND	
Chloroform	300	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
1,1,1-Trichloroethane	800	1.8	ND		1.6	ND		1.7	ND		1.7	ND	
Carbon Tetrachloride	600	1.3	ND		1.1	ND		1.2	ND		1.2	ND	
Benzene	60	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
1,2-Dichloroethane	100	3	ND		2.7	ND		2.9	ND		2.8	ND	
Trichloroethene	700	3.4	ND		3.1	ND		3.3	ND		3.2	ND	
1,2-Dichloropropane	NC	4.4	ND		4	ND		4.2	ND		4.2	ND	
Bromodichloromethane	NC	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
4-Methyl-2-Pentanone	1000	3.7	ND		3.3	ND		3.6	ND		3.5	ND	
Toluene	1500	1.5	ND		1.4	ND		1.5	ND		1.4	ND	
t-1,3-Dichloropropene	NC	2	ND		1.8	ND		1.9	ND		1.9	ND	
cis-1,3-Dichloropropene	NC	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
1,1,2-Trichloroethane	NC	1.3	ND		1.2	ND		1.3	ND		1.2	ND	
2-Hexanone	NC	15	ND		13	ND		14	ND		14	ND	
Dibromochloromethane	NC	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
Tetrachloroethene	1400	2	ND		1.8	ND		1.9	ND		1.9	ND	
Chlorobenzene	1700	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
Ethyl Benzene	5500	1.8	ND		1.6	ND		1.7	ND		1.7	ND	
m/p-Xylenes	1200	1.9	ND		1.7	ND		1.8	ND		1.8	ND	
o-Xylene	1200	2	ND		1.8	ND		1.9	ND		1.9	ND	
Styrene	NC	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
Bromoform	NC	1.2	ND		1.1	ND		1.2	ND		1.2	ND	
1,1,2,2-Tetrachloroethane	600	2.7	ND		2.5	ND		2.6	ND		2.6	ND	
Semi-Volatile Organic Compounds													
Phenol	30 or MDL	41	ND		37	ND		39	ND		39	ND	
bis(2-Chloroethyl)ether	NC	49	ND		44	ND		47	ND		47	ND	
2-Chlorophenol	800	45	ND		40	ND		43	ND		43	ND	
1,2-Dichlorobenzene	NC	41	ND		37	ND		39	ND		39	ND	
1,3-Dichlorobenzene	NC	49	ND		44	ND		47	ND		47	ND	
1,4-Dichlorobenzene	NC	41	ND		37	ND		39	ND		39	ND	
2-Methylphenol	100 or MDL	41	ND		37	ND		39	ND		39	ND	
2,2'-oxybis(1-Chloropropane)	NC	41	ND		37	ND		39	ND		39	ND	
3+4-Methylphenols	NC	74	ND		66	ND		70	ND		70	ND	
n-Nitroso-di-n-propylamine	NC	41	ND		37	ND		39	ND		39	ND	
Hexachloroethane	NC	45	ND		40	ND		43	ND		43	ND	
Nitrobenzene	200 or MDL	41	ND		37	ND		39	ND		39	ND	
Isophorone	4400	41	ND		37	ND		39	ND		39	ND	
2-Nitrophenol	330 or MDL	45	ND		40	ND		43	ND		43	ND	
2,4-Dimethylphenol	NC	95	ND		84	ND		89	ND		89	ND	
bis(2-Chloroethoxy)methane	NC	41	ND		37	ND		39	ND		39	ND	
2,4-Dichlorophenol	400	53	ND		48	ND		50	ND		50	ND	
1,2,4-Trichlorobenzene	NC	49	ND		44	ND		47	ND		47	ND	
Naphthalene	13000	45	490		44	160		47	97		47	300	
4-Chloroaniline	220 or MDL	49	ND		44	ND		47	ND		47	ND	

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		TP-1			TP-2			TP-3			TP-4	
Lab Sample ID	TAGM		N5416-24DL			N5435-12			N5435-01			N5435-03DL	
Sample Collection Date	Recommended		08/02/2001			08/03/2001			08/03/2001			08/03/2001	
Sample Receipt Date	Soil Cleanup		08/02/2001			08/03/2001			08/03/2001			08/03/2001	
Sample Depth (bgs)	Objectives		8 ft			8 ft			12 - 13 ft			3 - 4 ft	
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL	
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg	
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
Hexachlorobutadiene	NC	62	ND		55	ND		58	ND		58	ND	
4-Chloro-3-methylphenol	240 or MDL	45	ND		40	ND		43	ND		43	ND	
2-Methylnaphthalene	36400	45	200		44	75		47	43	J	47	110	
Hexachlorocyclopentadiene	NC	160	ND		140	ND		150	ND		150	ND	
2,4,6-Trichlorophenol	NC	41	ND		37	ND		39	ND		39	ND	
2,4,5-Trichlorophenol	1000	41	ND		37	ND		39	ND		39	ND	
2-Chloronaphthalene	NC	49	ND		44	ND		47	ND		47	ND	
2-Nitroaniline	430 or MDL	41	ND		37	ND		39	ND		39	ND	
Dimethylphthalate	2000	41	ND		37	ND		39	ND		39	ND	
Acenaphthylene	41000	45	1200		44	260		47	400		47	330	
2,6-Dinitrotoluene	1000	41	ND		37	ND		39	ND		39	ND	
3-Nitroaniline	500 or MDL	49	ND		44	ND		47	ND		47	ND	
Acenaphthene	50,000***	45	470		44	180		47	55		47	280	
2,4-Dinitrophenol	200 or MDL	82	ND		73	ND		78	ND		78	ND	
4-Nitrophenol	100 or MDL	45	ND		40	ND		43	ND		43	ND	
Dibenzofuran	6200	37	500		36	160		39	100		39	240	
2,4-Dinitrotoluene	NC	45	ND		40	ND		43	ND		43	ND	
Diethylphthalate	7100	41	ND		37	ND		39	ND		39	ND	
4-Chlorophenyl-phenylether	NC	49	ND		44	ND		47	ND		47	ND	
Fluorene	50,000***	41	860		40	220		44	110		44	310	
4-Nitroaniline	NC	99	ND		88	ND		93	ND		93	ND	
4,6-Dinitro-2-methylphenol	NC	49	ND		44	ND		47	ND		47	ND	
n-Nitrosodiphenylamine	NC	82	ND		73	ND		78	ND		78	ND	
4-Bromophenyl-phenylether	NC	53	ND		48	ND		50	ND		50	ND	
Hexachlorobenzene	410	45	ND		40	ND		43	ND		43	ND	
Pentachlorophenol	1,000 or MDL	78	ND		70	ND		74	ND		74	ND	
Phenanthrene	50,000***	185	7400	D	36	1600		38	1400		38	2200	
Anthracene	50,000***	48	1800		48	540		50	300		50	730	
Carbazole	NC	37	700		36	230		38	180		38	290	
Di-n-butylphthalate	8100	49	ND		44	ND		46	58		46	ND	
Fluoranthene	50,000***	185	9400	D	36	2300		38	2000		38	2700	
Pyrene	50,000***	185	11000	D	36	2700		38	2400		76	3800	D
Butylbenzylphthalate	50,000***	41	ND		37	ND		38	370		38	ND	
3,3'-Dichlorobenzidine	NC	41	ND		37	ND		39	ND		39	ND	
Benzo(a)anthracene	224 or MDL	185	**4800**	D	38	**1200**		38	**950**		38	**1400**	
Chrysene	400	295	**5100**	D	38	**1400**		38	**1100**		38	**1600**	
Bis(2-Ethylhexyl)phthalate	50,000***	37	2000		60	180		62	220		62	ND	
Di-n-octyl phthalate	50,000***	62	ND		55	ND		58	ND		58	ND	
Benzo(b)fluoranthene	1100	185	**4100**	D	36	810		38	830		38	**1100**	
Benzo(k)fluoranthene	1100	98	**3100**		100	**1900**		101	**1700**		101	**1800**	
Benzo(a)pyrene	61 or MDL	280	**4500**	D	56	**1200**		58	**1000**		58	**1500**	
Indeno(1,2,3-cd)pyrene	3200	60	880		60	160		62	160		62	200	
Dibenzo(a,h)anthracene	14 or MDL	56	**260**		56	**56**		58	**46**	J	58	**68**	
Benzo(g,h,i)perylene	50,000***	48	1800		48	370		50	340		50	530	
Polychlorinated Biphenyls (PCBs)													
AROCLOR 1016	1,000/10,000	21	ND		18	ND		19	ND		19	ND	
AROCLOR 1221	1,000/10,000	21	ND		18	ND		19	ND		19	ND	
AROCLOR 1232	1,000/10,000	21	ND		18	ND		19	ND		19	ND	
AROCLOR 1242	1,000/10,000	21	ND		18	ND		19	ND		19	ND	
AROCLOR 1248	1,000/10,000	21	ND		18	ND		19	ND		19	ND	
AROCLOR 1254	1,000/10,000	21	ND		18	ND		19	ND		19	ND	
AROCLOR 1260	1,000/10,000	21	18	J	18	19		19	58		19	9	J
Total PCBs													

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		TP-1		TP-2		TP-3		TP-4	
Lab Sample ID	TAGM		N5416-24DL		N5435-12		N5435-01		N5435-03DL	
Sample Collection Date	Recommended		08/02/2001		08/03/2001		08/03/2001		08/03/2001	
Sample Receipt Date	Soil Cleanup		08/02/2001		08/03/2001		08/03/2001		08/03/2001	
Sample Depth (bgs)	Objectives		8 ft		8 ft		12 - 13 ft		3 - 4 ft	
Sample Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Units	µg/kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
		MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	
Pesticides and Herbicides										
alpha-BHC	110	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
gamma-BHC (Lindane)	60	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Heptachlor	100	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Aldrin	41	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
beta-BHC	200	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
delta-BHC	300	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Heptachlor epoxide	20	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Endosulfan I	900	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
gamma-Chlordane	540	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
alpha-Chlordane	NC	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
4,4'-DDE	2100	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Dieldrin	44	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Endrin	100	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Endosulfan II	900	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
4,4'-DDD	2900	13	ND	1.8	ND	1.9	ND	1.9	5	
4,4'-DDT	2100	13	ND	1.8	2.7	1.9	27	1.9	ND	
Endrin aldehyde	NC	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Endosulfan Sulfate	1000	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Methoxychlor	***	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Endrin ketone	NC	2.1	ND	1.8	ND	1.9	ND	1.9	ND	
Toxaphene	NC	21	ND	18	ND	19	ND	19	ND	
2,4-D	500	4.1	ND	3.7	ND	3.9	ND	3.8	ND	
2,4,5-TP(Silvex)	700	4.1	ND	3.7	ND	3.9	ND	3.8	ND	
2,45-T	1,900	4.1	ND	3.7	ND	3.9	ND	3.8	ND	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
B Analyte found in blank as well as the sample
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		TP-8		TP-5			TP-6		TP-7	
Lab Sample ID	TAGM		N5435-04		N5435-02			N5458-01		N5458-02	
Sample Collection Date	Recommended		08/03/2001		08/03/2001			08/06/2001		08/06/2001	
Sample Receipt Date	Soil Cleanup		08/03/2001		08/03/2001			08/07/2001		08/07/2001	
Sample Depth (bgs)	Objectives		3 - 4 ft		9 - 10 ft			5.5 - 6.5 ft		7 - 8 ft	
Sample Matrix	SOIL		SOIL		SOIL			SOIL		SOIL	
Units	µg/kg		µg/Kg		µg/Kg			µg/Kg		µg/Kg	
			DUP of TP-4								
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
ORGANIC COMPOUNDS													
Volatile Organic Compounds													
Chloromethane	NC	3.3	ND		3.7	ND		3	ND		3.3	ND	
Vinyl Chloride	200	2.1	ND		2.4	ND		2	ND		2.1	ND	
Bromomethane	NC	2.2	ND		2.5	ND		2.1	ND		2.3	ND	
Chloroethane	1900	2.6	ND		2.9	ND		2.4	ND		2.6	ND	
1,1-Dichloroethene	400	1.9	ND		2.1	ND		1.7	ND		1.9	ND	
Acetone	200	6.7	ND		7.5	6.3	JB	5.8	23		5.8	7	
Carbon Disulfide	2700	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
Methylene Chloride	100	1.3	ND		1.1	7.4	B	1.1	4.9		1.1	5.4	
trans-1,2-Dichloroethene	300	2	ND		2.2	ND		1.8	ND		2	ND	
1,1-Dichloroethane	200	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
2-Butanone	300	6.5	ND		7.3	ND		6	ND		6.6	ND	
cis-1,2-Dichloroethene	NC	2.1	ND		2.4	ND		2	ND		2.1	ND	
Chloroform	300	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
1,1,1-Trichloroethane	800	1.7	ND		1.9	ND		1.6	ND		1.7	ND	
Carbon Tetrachloride	600	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
Benzene	60	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
1,2-Dichloroethane	100	2.8	ND		3.2	ND		2.6	ND		2.9	ND	
Trichloroethene	700	3.2	ND		3.6	ND		3	ND		3.2	ND	
1,2-Dichloropropane	NC	4.2	ND		4.7	ND		3.9	ND		4.2	ND	
Bromodichloromethane	NC	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
4-Methyl-2-Pentanone	1000	3.5	ND		3.9	ND		3.3	ND		3.5	ND	
Toluene	1500	1.4	ND		1.6	ND		1.3	ND		1.5	ND	
t-1,3-Dichloropropene	NC	1.9	ND		2.2	ND		1.8	ND		1.9	ND	
cis-1,3-Dichloropropene	NC	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
1,1,2-Trichloroethane	NC	1.2	ND		1.4	ND		1.1	ND		1.3	ND	
2-Hexanone	NC	14	ND		16	ND		13	ND		14	ND	
Dibromochloromethane	NC	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
Tetrachloroethene	1400	1.9	ND		2.1	ND		1.7	ND		1.9	ND	
Chlorobenzene	1700	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
Ethyl Benzene	5500	1.7	ND		1.9	ND		1.6	ND		1.7	ND	
m/p-Xylenes	1200	1.8	ND		2	ND		1.6	ND		1.8	ND	
o-Xylene	1200	1.9	ND		2.1	ND		1.8	ND		1.9	ND	
Styrene	NC	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
Bromoform	NC	1.2	ND		1.3	ND		1.1	ND		1.2	ND	
1,1,2,2-Tetrachloroethane	600	2.6	ND		2.9	ND		2.4	ND		2.6	ND	
Semi-Volatile Organic Compounds													
Phenol	30 or MDL	38	ND		43	ND		35	ND		39	ND	
bis(2-Chloroethyl)ether	NC	46	ND		52	ND		43	ND		47	ND	
2-Chlorophenol	800	42	ND		48	ND		39	ND		43	ND	
1,2-Dichlorobenzene	NC	38	ND		43	ND		35	ND		39	ND	
1,3-Dichlorobenzene	NC	46	ND		52	ND		43	ND		47	ND	
1,4-Dichlorobenzene	NC	38	ND		43	ND		35	ND		39	ND	
2-Methylphenol	100 or MDL	38	ND		43	ND		35	ND		39	ND	
2,2'-oxybis(1-Chloropropane)	NC	38	ND		43	ND		35	ND		39	ND	
3+4-Methylphenols	NC	69	ND		78	ND		64	ND		70	ND	
n-Nitroso-di-n-propylamine	NC	38	ND		43	ND		35	ND		39	ND	
Hexachloroethane	NC	42	ND		48	ND		39	ND		43	ND	
Nitrobenzene	200 or MDL	38	ND		43	ND		35	ND		39	ND	
Isophorone	4400	38	ND		43	ND		35	ND		39	ND	
2-Nitrophenol	330 or MDL	42	ND		48	ND		39	ND		43	ND	
2,4-Dimethylphenol	NC	88	ND		100	ND		82	ND		89	ND	
bis(2-Chloroethoxy)methane	NC	38	ND		43	ND		35	ND		39	ND	
2,4-Dichlorophenol	400	50	ND		56	ND		46	ND		50	ND	
1,2,4-Trichlorobenzene	NC	46	ND		52	ND		43	ND		47	ND	
Naphthalene	13000	46	390		52	ND		42	110		47	ND	
4-Chloroaniline	220 or MDL	46	ND		52	ND		43	ND		47	ND	

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		TP-8			TP-5			TP-6			TP-7	
Lab Sample ID	TAGM		N5435-04			N5435-02			N5458-01			N5458-02	
Sample Collection Date	Recommended		08/03/2001			08/03/2001			08/06/2001			08/06/2001	
Sample Receipt Date	Soil Cleanup		08/03/2001			08/03/2001			08/07/2001			08/07/2001	
Sample Depth (bgs)	Objectives		3 - 4 ft			9 - 10 ft			5.5 - 6.5 ft			7 - 8 ft	
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL	
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg	
			DUP of TP-4										
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
Hexachlorobutadiene	NC	57	ND		65	ND		53	ND		58	ND	
4-Chloro-3-methylphenol	240 or MDL	42	ND		48	ND		39	ND		43	ND	
2-Methylnaphthalene	36400	46	140		52	ND		43	ND		47	ND	
Hexachlorocyclopentadiene	NC	150	ND		160	ND		130	ND		150	ND	
2,4,6-Trichlorophenol	NC	38	ND		43	ND		35	ND		39	ND	
2,4,5-Trichlorophenol	1000	38	ND		43	ND		35	ND		39	ND	
2-Chloronaphthalene	NC	46	ND		52	ND		43	ND		47	ND	
2-Nitroaniline	430 or MDL	38	ND		43	ND		35	ND		39	ND	
Dimethylphthalate	2000	38	ND		43	ND		35	ND		39	ND	
Acenaphthylene	41000	46	390		52	ND		43	ND		43	42	J
2,6-Dinitrotoluene	1000	38	ND		43	ND		35	ND		39	ND	
3-Nitroaniline	500 or MDL	46	ND		52	ND		43	ND		47	ND	
Acenaphthene	50,000***	46	250		52	ND		42	86		47	ND	
2,4-Dinitrophenol	200 or MDL	77	ND		87	ND		71	ND		78	ND	
4-Nitrophenol	100 or MDL	42	ND		48	ND		39	ND		43	ND	
Dibenzofuran	6200	38	220		43	ND		35	45		39	ND	
2,4-Dinitrotoluene	NC	42	ND		48	ND		39	ND		43	ND	
Diethylphthalate	7100	38	ND		43	ND		35	ND		39	ND	
4-Chlorophenyl-phenylether	NC	46	ND		52	ND		43	ND		47	ND	
Fluorene	50,000***	43	340		48	ND		39	66		43	ND	
4-Nitroaniline	NC	92	ND		100	ND		85	ND		93	ND	
4,6-Dinitro-2-methylphenol	NC	46	ND		52	ND		43	ND		47	ND	
n-Nitrosodiphenylamine	NC	77	ND		87	ND		71	ND		78	ND	
4-Bromophenyl-phenylether	NC	50	ND		56	ND		46	ND		50	ND	
Hexachlorobenzene	410	42	ND		48	ND		39	ND		43	ND	
Pentachlorophenol	1,000 or MDL	73	ND		82	ND		67	ND		74	ND	
Phenanthrene	50,000***	37	1600		43	54		35	400		39	86	
Anthracene	50,000***	49	570		56	ND		45	100		50	ND	
Carbazole	NC	37	150		43	ND		35	43		39	ND	
Di-n-butylphthalate	8100	46	ND		52	54		43	ND		47	ND	
Fluoranthene	50,000***	37	2200		43	82		35	370		39	190	
Pyrene	50,000***	37	2900		43	76		35	310		39	170	
Butylbenzylphthalate	50,000***	38	ND		43	ND		35	ND		39	ND	
3,3'-Dichlorobenzidine	NC	38	ND		43	ND		35	ND		39	ND	
Benzo(a)anthracene	224 or MDL	37	**1400**		43	45		35	150		39	100	
Chrysene	400	37	**1400**		69	56	J	56	190		53	120	
Bis(2-Ethylhexyl)phthalate	50,000***	61	160		43	ND		35	ND		39	ND	
Di-n-octyl phthalate	50,000***	57	ND		65	ND		53	ND		58	ND	
Benzo(b)fluoranthene	1100	37	940		43	ND		35	110		39	120	
Benzo(k)fluoranthene	1100	100	**1800**		110	ND		92	110		87	92	J
Benzo(a)pyrene	61 or MDL	57	**1500**		65	ND		53	**120**		53	**120**	
Indeno(1,2,3-cd)pyrene	3200	61	260		69	ND		56	59		55	64	
Dibenzo(a,h)anthracene	14 or MDL	57	**66**		65	ND		53	ND		53	ND	
Benzo(g,h,i)perylene	50,000***	49	540		56	ND		43	65		44	67	
Polychlorinated Biphenyls (PCBs)													
AROCLOR 1016	1,000/10,000	19	ND		22	ND		18	ND		19	ND	
AROCLOR 1221	1,000/10,000	19	ND		22	ND		18	ND		19	ND	
AROCLOR 1232	1,000/10,000	19	ND		22	ND		18	ND		19	ND	
AROCLOR 1242	1,000/10,000	19	ND		22	ND		18	ND		19	ND	
AROCLOR 1248	1,000/10,000	19	ND		22	ND		18	ND		19	ND	
AROCLOR 1254	1,000/10,000	19	ND		22	ND		18	ND		19	ND	
AROCLOR 1260	1,000/10,000	19	11	J	22	ND		18	ND		19	ND	
Total PCBs													

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		TP-8		TP-5		TP-6		TP-7	
Lab Sample ID	TAGM		N5435-04		N5435-02		N5458-01		N5458-02	
Sample Collection Date	Recommended		08/03/2001		08/03/2001		08/06/2001		08/06/2001	
Sample Receipt Date	Soil Cleanup		08/03/2001		08/03/2001		08/07/2001		08/07/2001	
Sample Depth (bgs)	Objectives		3 - 4 ft		9 - 10 ft		5.5 - 6.5 ft		7 - 8 ft	
Sample Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Units	µg/kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
		MDL	DUP of TP-4 CONC	Q	MDL	CONC Q	MDL	CONC Q	MDL	CONC Q
Pesticides and Herbicides										
alpha-BHC	110	1.9	ND		2.2	ND	1.8	ND	1.9	ND
gamma-BHC (Lindane)	60	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Heptachlor	100	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Aldrin	41	1.9	ND		2.2	ND	1.8	ND	1.9	ND
beta-BHC	200	1.9	ND		2.2	ND	1.8	ND	1.9	ND
delta-BHC	300	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Heptachlor epoxide	20	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Endosulfan I	900	1.9	ND		2.2	ND	1.8	ND	1.9	ND
gamma-Chlordane	540	1.9	ND		2.2	ND	1.8	ND	1.9	ND
alpha-Chlordane	NC	1.9	ND		2.2	ND	1.8	ND	1.9	ND
4,4'-DDE	2100	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Dieldrin	44	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Endrin	100	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Endosulfan II	900	1.9	ND		2.2	ND	1.8	ND	1.9	ND
4,4'-DDD	2900	1.9	4.8		2.2	ND	1.8	ND	1.9	ND
4,4'-DDT	2100	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Endrin aldehyde	NC	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Endosulfan Sulfate	1000	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Methoxychlor	***	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Endrin ketone	NC	1.9	ND		2.2	ND	1.8	ND	1.9	ND
Toxaphene	NC	19	ND		22	ND	18	ND	19	ND
2,4-D	500	3.8	ND		4.3	ND	3.5	ND	3.9	ND
2,4,5-TP(Silvex)	700	3.8	ND		4.3	ND	3.5	ND	3.9	ND
2,45-T	1,900	3.8	ND		4.3	ND	3.5	ND	3.9	ND

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
B Analyte found in blank as well as the sample
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SB11-1			SB17-1			SB17-2			FB2		
Lab Sample ID	TAGM		N5458-06			N5458-03			N5458-04			N5416-23		
Sample Collection Date	Recommended		08/06/2001			08/06/2001			08/06/2001			08/02/2001		
Sample Receipt Date	Soil Cleanup		08/07/2001			08/07/2001			08/07/2001			08/02/2001		
Sample Depth (bgs)	Objectives		2 - 3 ft			2 - 3 ft			6 - 7 ft			NA		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			WATER		
Units	µg/kg	MDL	µg/Kg CONC	Q	MDL	µg/Kg CONC	Q	MDL	µg/Kg CONC	Q	MDL	µg/L CONC	Q
ORGANIC COMPOUNDS													
Volatile Organic Compounds													
Chloromethane	NC	3.4	ND		3	ND		3.3	ND		2.8	ND	
Vinyl Chloride	200	2.2	ND		1.9	ND		2.2	ND		1.8	ND	
Bromomethane	NC	2.3	ND		2	ND		2.3	ND		1.9	ND	
Chloroethane	1900	2.7	ND		2.4	ND		2.7	ND		2.3	ND	
1,1-Dichloroethene	400	1.9	ND		1.7	ND		1.9	ND		1.6	ND	
Acetone	200	6.9	ND		6.1	ND		6.8	16	B	5.8	3.7	J
Carbon Disulfide	2700	1.2	ND		1.1	ND		1.2	ND		1	ND	
Methylene Chloride	100	1.4	ND		1.2	ND		1.1	2.6		1.1	ND	
trans-1,2-Dichloroethene	300	2.1	ND		1.8	ND		2	ND		1.7	ND	
1,1-Dichloroethane	200	1.2	ND		1.1	ND		1.2	ND		1	ND	
2-Butanone	300	6.8	ND		5.9	ND		6.7	ND		5.6	ND	
cis-1,2-Dichloroethene	NC	2.2	ND		1.9	ND		2.2	ND		1.8	ND	
Chloroform	300	1.2	ND		1.1	ND		1.2	ND		1	ND	
1,1,1-Trichloroethane	800	1.8	ND		1.5	ND		1.7	ND		1.5	ND	
Carbon Tetrachloride	600	1.2	ND		1.1	ND		1.2	ND		1	ND	
Benzene	60	1.2	ND		1.1	ND		1.2	ND		1	ND	
1,2-Dichloroethane	100	2.9	ND		2.6	ND		2.9	ND		2.5	ND	
Trichloroethene	700	3.3	ND		2.9	ND		3.3	ND		2.8	ND	
1,2-Dichloropropane	NC	4.3	ND		3.8	ND		4.3	ND		3.6	ND	
Bromodichloromethane	NC	1.2	ND		1.1	ND		1.2	ND		1	ND	
4-Methyl-2-Pentanone	1000	3.7	ND		3.2	ND		3.6	ND		3	ND	
Toluene	1500	1.2	1.6		1.3	ND		1.5	ND		1.2	ND	
t-1,3-Dichloropropene	NC	2	ND		1.7	ND		2	ND		1.7	ND	
cis-1,3-Dichloropropene	NC	1.2	ND		1.1	ND		1.2	ND		1	ND	
1,1,2-Trichloroethane	NC	1.3	ND		1.1	ND		1.3	ND		1.1	ND	
2-Hexanone	NC	15	ND		13	ND		14	ND		12	ND	
Dibromochloromethane	NC	1.2	ND		1.1	ND		1.2	ND		1	ND	
Tetrachloroethene	1400	2	ND		1.7	ND		1.9	ND		1.6	ND	
Chlorobenzene	1700	1.2	ND		1.1	ND		1.2	ND		1	ND	
Ethyl Benzene	5500	1.8	ND		1.5	ND		1.7	ND		1.5	ND	
m/p-Xylenes	1200	1.5	6.7		1.6	ND		1.8	ND		1.5	ND	
o-Xylene	1200	1.7	2.4		1.7	ND		2	ND		1.7	ND	
Styrene	NC	1.2	ND		1.1	ND		1.2	ND		1	ND	
Bromoform	NC	1.2	ND		1.1	ND		1.2	ND		1	ND	
1,1,2,2-Tetrachloroethane	600	2.7	ND		2.3	ND		2.6	ND		2.2	ND	
Semi-Volatile Organic Compounds													
Phenol	30 or MDL	40	ND		35	ND		39	ND		1	ND	
bis(2-Chloroethyl)ether	NC	48	ND		42	ND		47	ND		1.2	ND	
2-Chlorophenol	800	44	ND		39	ND		43	ND		1.1	ND	
1,2-Dichlorobenzene	NC	40	ND		35	ND		39	ND		1	ND	
1,3-Dichlorobenzene	NC	48	ND		42	ND		47	ND		1.2	ND	
1,4-Dichlorobenzene	NC	40	ND		35	ND		39	ND		1	ND	
2-Methylphenol	100 or MDL	40	ND		35	ND		39	ND		1	ND	
2,2'-oxybis(1-Chloropropane)	NC	40	ND		35	ND		39	ND		1	ND	
3+4-Methylphenols	NC	72	ND		63	ND		71	ND		1.8	ND	
n-Nitroso-di-n-propylamine	NC	40	ND		35	ND		39	ND		1	ND	
Hexachloroethane	NC	44	ND		39	ND		43	ND		1.1	ND	
Nitrobenzene	200 or MDL	40	ND		35	ND		39	ND		1	ND	
Isophorone	4400	40	ND		35	ND		39	ND		1	ND	
2-Nitrophenol	330 or MDL	44	ND		39	ND		43	ND		1.1	ND	
2,4-Dimethylphenol	NC	92	ND		81	ND		90	ND		2.3	ND	
bis(2-Chloroethoxy)methane	NC	40	ND		35	ND		39	ND		1	ND	
2,4-Dichlorophenol	400	52	ND		46	ND		51	ND		1.3	ND	
1,2,4-Trichlorobenzene	NC	48	ND		42	ND		47	ND		1.2	ND	
Naphthalene	13000	40	120		42	200		47	480		1.2	ND	
4-Chloroaniline	220 or MDL	48	ND		42	ND		47	ND		1.2	ND	

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SB11-1			SB17-1			SB17-2			FB2		
Lab Sample ID	TAGM		N5458-06			N5458-03			N5458-04			N5416-23		
Sample Collection Date	Recommended		08/06/2001			08/06/2001			08/06/2001			08/02/2001		
Sample Receipt Date	Soil Cleanup		08/07/2001			08/07/2001			08/07/2001			08/02/2001		
Sample Depth (bgs)	Objectives		2 - 3 ft			2 - 3 ft			6 - 7 ft			NA		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			WATER		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/L		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
Hexachlorobutadiene	NC	60	ND		53	ND		59	ND		1.5	ND	
4-Chloro-3-methylphenol	240 or MDL	44	ND		39	ND		43	ND		1.1	ND	
2-Methylnaphthalene	36400	48	ND		42	74		40	140		1.2	ND	
Hexachlorocyclopentadiene	NC	150	ND		130	ND		150	ND		3.8	ND	
2,4,6-Trichlorophenol	NC	40	ND		35	ND		39	ND		1	ND	
2,4,5-Trichlorophenol	1000	40	ND		35	ND		39	ND		1	ND	
2-Chloronaphthalene	NC	48	ND		42	ND		47	ND		1.2	ND	
2-Nitroaniline	430 or MDL	40	ND		35	ND		39	ND		1	ND	
Dimethylphthalate	2000	40	ND		35	ND		39	ND		1	ND	
Acenaphthylene	41000	44	260		42	840		40	130		1.2	ND	
2,6-Dinitrotoluene	1000	40	ND		35	ND		39	ND		1	ND	
3-Nitroaniline	500 or MDL	48	ND		42	ND		47	ND		1.2	ND	
Acenaphthene	50,000***	40	65		42	210		47	750		1.2	ND	
2,4-Dinitrophenol	200 or MDL	80	ND		70	ND		78	ND		2	ND	
4-Nitrophenol	100 or MDL	44	ND		39	ND		43	ND		1.1	ND	
Dibenzofuran	6200	44	65		39	200		39	310		1	ND	
2,4-Dinitrotoluene	NC	44	ND		39	ND		43	ND		1.1	ND	
Diethylphthalate	7100	40	ND		35	ND		39	ND		1	ND	
4-Chlorophenyl-phenylether	NC	48	ND		42	ND		47	ND		1.2	ND	
Fluorene	50,000***	40	98		39	240		40	480		1.1	ND	
4-Nitroaniline	NC	96	ND		84	ND		94	ND		2.4	ND	
4,6-Dinitro-2-methylphenol	NC	48	ND		42	ND		47	ND		1.2	ND	
n-Nitrosodiphenylamine	NC	80	ND		70	ND		78	ND		2	ND	
4-Bromophenyl-phenylether	NC	52	ND		46	ND		51	ND		1.3	ND	
Hexachlorobenzene	410	44	ND		39	ND		43	ND		1.1	ND	
Pentachlorophenol	1,000 or MDL	76	ND		67	ND		75	ND		1.9	ND	
Phenanthrene	50,000***	40	680		39	2400		49	1200		1	ND	
Anthracene	50,000***	48	280		43	1000		47	390		1.3	ND	
Carbazole	NC	49	90		39	460		49	120		1	ND	
Di-n-butylphthalate	8100	48	ND		42	ND		50	ND		1.2	ND	
Fluoranthene	50,000***	49	1400		190	4900	D	39	1400		1	ND	
Pyrene	50,000***	49	1600		190	8800	D	39	1100		1	ND	
Butylbenzylphthalate	50,000***	40	ND		35	ND		39	ND		1	ND	
3,3'-Dichlorobenzidine	NC	40	ND		35	ND		39	ND		1	ND	
Benzo(a)anthracene	224 or MDL	40	**800**		39	**2500**		39	**380**		1	ND	
Chrysene	400	53	**890**		270	**3300**	D	59	**440**		1.6	ND	
Bis(2-Ethylhexyl)phthalate	50,000***	40	130		39	160		39	ND		1	ND	
Di-n-octyl phthalate	50,000***	60	ND		53	ND		59	ND		1.5	ND	
Benzo(b)fluoranthene	1100	40	880		190	**2900**	D	33	310		1	ND	
Benzo(k)fluoranthene	1100	100	870		440	**4000**	D	87	340		2.6	ND	
Benzo(a)pyrene	61 or MDL	53	**760**		50	**2500**		60	**300**		1.5	ND	
Indeno(1,2,3-cd)pyrene	3200	56	140		53	360		53	110		1.6	ND	
Dibenzo(a,h)anthracene	14 or MDL	53	**55**	J	50	**110**		60	ND		1.5	ND	
Benzo(g,h,i)perylene	50,000***	52	270		43	790		50	120		1.3	ND	
Polychlorinated Biphenyls (PCBs)													
AROCLOR 1016	1,000/10,000	20	ND		18	ND		20	ND		0.5	ND	
AROCLOR 1221	1,000/10,000	20	ND		18	ND		20	ND		0.5	ND	
AROCLOR 1232	1,000/10,000	20	ND		18	ND		20	ND		0.5	ND	
AROCLOR 1242	1,000/10,000	20	ND		18	ND		20	ND		0.5	ND	
AROCLOR 1248	1,000/10,000	20	ND		18	ND		20	ND		0.5	ND	
AROCLOR 1254	1,000/10,000	20	ND		18	ND		20	ND		0.5	ND	
AROCLOR 1260	1,000/10,000	20	56		18	34		20	ND		0.5	ND	
Total PCBs													

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SB11-1			SB17-1			SB17-2			FB2		
Lab Sample ID	TAGM		N5458-06			N5458-03			N5458-04			N5416-23		
Sample Collection Date	Recommended		08/06/2001			08/06/2001			08/06/2001			08/02/2001		
Sample Receipt Date	Soil Cleanup		08/07/2001			08/07/2001			08/07/2001			08/02/2001		
Sample Depth (bgs)	Objectives		2 - 3 ft			2 - 3 ft			6 - 7 ft			NA		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			WATER		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/L		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	
Pesticides and Herbicides														
alpha-BHC	110	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
gamma-BHC (Lindane)	60	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Heptachlor	100	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Aldrin	41	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
beta-BHC	200	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
delta-BHC	300	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Heptachlor epoxide	20	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Endosulfan I	900	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
gamma-Chlordane	540	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
alpha-Chlordane	NC	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
4,4'-DDE	2100	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Dieldrin	44	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Endrin	100	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Endosulfan II	900	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
4,4'-DDD	2900	2.0	23		1.8	ND		2.0	ND		0.05	ND		
4,4'-DDT	2100	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Endrin aldehyde	NC	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Endosulfan Sulfate	1000	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Methoxychlor	***	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Endrin ketone	NC	2.0	ND		1.8	ND		2.0	ND		0.05	ND		
Toxaphene	NC	20	ND		18	ND		20	ND		0.5	ND		
2,4-D	500	4.0	ND		3.5	ND		3.9	ND		0.1	ND		
2,4,5-TP(Silvex)	700	4.0	ND		3.5	ND		3.9	ND		0.1	ND		
2,45-T	1,900	4.0	ND		3.5	ND		3.9	ND		0.1	ND		

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
B Analyte found in blank as well as the sample
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC TAGM Eastern USA Background	NYSDEC TAGM Recommended Soil Cleanup Objectives		TP-1			TP-2			TP-3	
Lab Sample ID				N5416-24			N5435-12			N5435-01	
Sample Collection Date				08/02/2001			08/03/2001			08/03/2001	
Sample Receipt Date				08/02/2001			08/03/2001			08/03/2001	
Sample Depth (bgs)				8 ft			8 ft			12 - 13 ft	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL	
Units	mg/kg	mg/kg	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q
INORGANICS											
Metals											
Aluminum	33,000	SB	5.62	4950		5.03	7680		5.33	6730	
Antimony	NC	SB	0.46	2.4	B	0.41	6	B	0.43	3.5	B
Arsenic	3-12**	7.5 or SB	0.62	9.1		0.55	8.4		0.58	7.5	
Barium	15-600	300 or SB	0.25	**846**		0.22	117		0.23	178	
Beryllium	0-1.750	.16 (heast) or SB	0.12	0.32	B	0.05	0.4	B	0.05	0.3	B
Cadmium	.1-1	1 or SB	0.37	**2.1**		0.33	**1**		0.35	**1.2**	
Calcium	130-35,000**	SB	1.32	**41100**	E	0.12	23700	E	0.12	21300	E
Chromium	1.5-40**	10 or SB	0.62	16.6		0.55	25.8		0.58	21.9	
Cobalt	2.5-60**	30 or SB	0.22	5.7	B	0.20	8.4		0.21	6.2	
Copper	1-50	25 or SB	0.27	**57.1**		0.24	**121**		0.26	**102**	
Iron	2,000-550,000	2,000 or SB	0.86	15900		0.77	23000	E	0.82	19000	E
Lead	200-500****	SB	0.37	**539**	E	0.33	**566**	E	0.35	411	E
Magnesium	100-5,000	SB	9.34	3980	E	8.35	**12200**		8.86	**8960**	
Manganese	50-5,000	SB	0.15	303		0.13	262		0.14	226	
Mercury	.001-.2	0.1	0.04	**0.32**	N	0.04	**0.61**		0.04	**0.56**	
Nickel	.5-25	13 or SB	0.49	10.5		0.44	16.5		0.47	13.1	
Potassium	8,500-43,000**	SB	2.69	887	E	2.41	1900		2.56	778	
Selenium	.1-3.9	2 or SB	0.62	ND		0.55	ND		0.58	ND	
Silver	NC	SB	0.62	ND		0.55	ND		0.58	ND	
Sodium	6,000-8,000	SB	60.30	442	B	53.9	78.6	B	57.20	118	B
Thallium	NC	SB	0.70	ND		0.06	ND		0.07	ND	
Vanadium	1-300	150 or SB	0.39	26.3		0.35	30.8		0.37	23.1	
Zinc	9-50	20 or SB	1.05	**458**		0.94	**236**	E	0.99	**282**	E

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concentration
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.
HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID		NYSDEC		TP-4			TP-8			TP-5	
Lab Sample ID	NYSDEC	TAGM		N5435-03			N5435-04			N5435-02	
Sample Collection Date	TAGM	Recommended		08/03/2001			08/03/2001			08/03/2001	
Sample Receipt Date	Eastern USA	Soil Cleanup		08/03/2001			08/03/2001			08/03/2001	
Sample Depth (bgs)	Background	Objectives		3 - 4 ft			3 - 4 ft			9 - 10 ft	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL	
Units	mg/kg	mg/kg		MG/KG			MG/KG DUP of TP-4			MG/KG	
			MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
INORGANICS											
Metals											
Aluminum	33,000	SB	5.28	8740		5.26	8110		5.93	15900	
Antimony	NC	SB	0.43	3.1	B	0.43	3.2	B	0.48	0.6	B
Arsenic	3-12**	7.5 or SB	0.58	5.3		0.58	4.9		0.65	3.2	
Barium	15-600	300 or SB	0.23	92.3		0.23	78.4		0.26	39.2	
Beryllium	0-1.750	.16 (heast) or SB	0.05	0.41	B	0.05	0.39	B	0.05	0.46	B
Cadmium	.1-1	1 or SB	0.35	0.83		0.35	0.62		0.39	ND	
Calcium	130-35,000**	SB	0.12	25300	E	0.12	26800	E	0.14	32000	E
Chromium	1.5-40**	10 or SB	0.58	19		0.58	22.4		0.65	17.4	
Cobalt	2.5-60**	30 or SB	0.21	9.4		0.21	9.5		0.23	7.7	
Copper	1-50	25 or SB	0.25	**81.7**		0.25	**81.2**		0.29	17.6	
Iron	2,000-550,000	2,000 or SB	0.81	23400	E	0.81	18100	E	0.91	16100	E
Lead	200-500****	SB	0.35	313	E	0.35	296	E	0.39	34	E
Magnesium	100-5,000	SB	8.77	**6050**		8.73	**8360**		9.84	**37800**	
Manganese	50-5,000	SB	0.14	329		0.14	246		0.16	306	
Mercury	.001-.2	0.1	0.04	**0.84**		0.04	**0.62**		0.04	0.11	
Nickel	.5-25	13 or SB	0.46	16.5		0.46	18		0.52	11	
Potassium	8,500-43,000**	SB	2.53	1300		2.52	1530		2.84	1200	
Selenium	.1-3.9	2 or SB	0.58	ND		0.58	ND		0.65	ND	
Silver	NC	SB	0.58	ND		0.58	ND		0.65	ND	
Sodium	6,000-8,000	SB	56.67	61.3	B	56.41	88.8	B	63.58	ND	
Thallium	NC	SB	0.07	ND		0.07	ND		0.07	ND	
Vanadium	1-300	150 or SB	0.37	23.5		0.37	31		0.42	24.9	
Zinc	9-50	20 or SB	0.98	**166**	E	0.98	**169**	E	1.10	**64.7**	E

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concentration
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.
HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-1
Test Pit Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC	NYSDEC		TP-6			TP-7			FB2	
Lab Sample ID	NYSDEC	TAGM		N5458-01			N5458-02			N5416-23	
Sample Collection Date	TAGM	Recommended		08/06/2001			08/06/2001			08/02/2001	
Sample Receipt Date	Eastern USA	Soil Cleanup		08/07/2001			08/07/2001			08/02/2001	
Sample Depth (bgs)	Background	Objectives		5.5 - 6.5 ft			7 - 8 ft			NA	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			WATER	
Units	mg/kg	mg/kg	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q	MDL	µg/L CONC	Q
INORGANICS											
Metals											
Aluminum	33,000	SB	4.89	8020		5.32	8060		45.7	ND	
Antimony	NC	SB	0.40	0.91	B	0.43	0.7	B	3.7	ND	
Arsenic	3-12**	7.5 or SB	0.53	3		0.58	3.6		5	ND	
Barium	15-600	300 or SB	0.21	65.9		0.23	51.1		2	ND	
Beryllium	0-1.750	.16 (heast) or SB	0.01	0.37	B	0.01	0.43	B	0.1	0.32	B
Cadmium	.1-1	1 or SB	0.32	ND		0.35	ND		3	ND	
Calcium	130-35,000**	SB	1.14	2010		1.25	8840		10.7	ND	
Chromium	1.5-40**	10 or SB	0.53	20.8		0.58	13.1		5	ND	
Cobalt	2.5-60**	30 or SB	0.19	8.8		0.21	6.6		1.8	ND	
Copper	1-50	25 or SB	0.24	48.9		0.26	24.7		2.2	ND	
Iron	2,000-550,000	2,000 or SB	0.75	15300		0.81	14800		7	ND	
Lead	200-500****	SB	0.32	178	N	0.35	44.5	N	3	ND	
Magnesium	100-5,000	SB	8.12	2810		8.84	**7340**		75.9	ND	
Manganese	50-5,000	SB	0.13	346		0.14	273		1.2	ND	
Mercury	.001-.2	0.1	0.04	**0.6**		0.04	0.16		0.2	ND	
Nickel	.5-25	13 or SB	0.43	14.9		0.47	11.3		4	ND	
Potassium	8,500-43,000**	SB	2.34	1430	E	2.55	883	E	21.9	ND	
Selenium	.1-3.9	2 or SB	0.53	0.66	*	0.58	ND		5	ND	
Silver	NC	SB	0.53	ND		0.58	ND		5	ND	
Sodium	6,000-8,000	SB	52.43	ND		57.07	ND		490	ND	
Thallium	NC	SB	0.61	ND		0.66	ND		5.7	ND	
Vanadium	1-300	150 or SB	0.34	21.9		0.37	16.5		3.2	ND	
Zinc	9-50	20 or SB	0.91	**67.9**		0.99	**50.1**		8.5	ND	

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concentration
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.
HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SURFICIAL-1			SURFICIAL-2			SURFICIAL-3			SURFICIAL-4			SURFICIAL-5		
Lab Sample ID	TAGM		N5416-02DL			N5416-03			N5416-04DL1			N5416-05DL			N5416-06		
Sample Collection Date	Recommended		08/01/2001			08/01/2001			08/01/2001			08/01/2001			08/01/2001		
Sample Receipt Date	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001			08/02/2001			08/02/2001		
Sample Depth (bgs)	Objectives		0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL			SOIL		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg			µg/Kg		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
ORGANIC COMPOUNDS																	
Semi-Volatile Organic Compounds																	
Phenol	30 or MDL	35	ND		350	ND		36	ND		35	ND		34	ND		
bis(2-Chloroethyl)ether	NC	42	ND		430	ND		43	ND		42	ND		40	ND		
2-Chlorophenol	800	38	ND		390	ND		39	ND		38	ND		37	ND		
1,2-Dichlorobenzene	NC	35	ND		350	ND		36	ND		35	ND		34	ND		
1,3-Dichlorobenzene	NC	42	ND		430	ND		43	ND		42	ND		40	ND		
1,4-Dichlorobenzene	NC	35	ND		350	ND		36	ND		35	ND		34	ND		
2-Methylphenol	100 or MDL	35	ND		350	ND		36	ND		35	ND		34	ND		
2,2'-oxybis(1-Chloropropane)	NC	35	ND		350	ND		36	ND		35	ND		34	ND		
3+4-Methylphenols	NC	63	ND		640	ND		85	ND		63	ND		81	ND		
n-Nitroso-di-n-propylamine	NC	35	ND		350	ND		36	ND		35	ND		34	ND		
Hexachloroethane	NC	38	ND		390	ND		39	ND		38	ND		37	ND		
Nitrobenzene	200 or MDL	35	ND		350	ND		36	ND		35	ND		34	ND		
Isophorone	4400	35	ND		350	ND		36	ND		35	ND		34	ND		
2-Nitrophenol	330 or MDL	38	ND		390	ND		39	ND		38	ND		37	ND		
2,4-Dimethylphenol	NC	80	ND		820	ND		82	ND		80	ND		77	ND		
bis(2-Chloroethoxy)methane	NC	35	ND		350	ND		36	ND		35	ND		34	ND		
2,4-Dichlorophenol	400	45	ND		460	ND		47	ND		45	ND		44	ND		
1,2,4-Trichlorobenzene	NC	42	ND		430	ND		43	ND		42	ND		40	ND		
Naphthalene	13000	41	250		430	ND		42	120		41	180		40	140		
4-Chloroaniline	220 or MDL	42	ND		430	ND		43	ND		42	ND		40	ND		
Hexachlorobutadiene	NC	52	ND		530	ND		54	ND		52	ND		51	ND		
4-Chloro-3-methylphenol	240 or MDL	38	ND		390	ND		39	ND		38	ND		37	ND		
2-Methylnaphthalene	36400	41	96		430	ND		43	36	J	41	150		40	71		
Hexachlorocyclopentadiene	NC	130	ND		1300	ND		140	ND		130	ND		130	ND		
2,4,6-Trichlorophenol	NC	35	ND		350	ND		36	ND		35	ND		34	ND		
2,4,5-Trichlorophenol	1000	35	ND		350	ND		36	ND		35	ND		34	ND		
2-Chloronaphthalene	NC	42	ND		430	ND		43	ND		42	ND		40	ND		
2-Nitroaniline	430 or MDL	35	ND		350	ND		36	ND		35	ND		34	ND		
Dimethylphthalate	2000	35	ND		350	ND		36	ND		35	ND		34	ND		
Acenaphthylene	41000	41	320		425	460		43	800		41	1800		40	530		
2,6-Dinitrotoluene	1000	35	ND		350	ND		36	ND		35	ND		34	ND		
3-Nitroaniline	500 or MDL	42	ND		430	ND		43	ND		42	ND		40	ND		
Acenaphthene	50,000***	41	1200		430	ND		43	190		41	53		40	ND		
2,4-Dinitrophenol	200 or MDL	69	ND		710	ND		72	ND		69	ND		67	ND		
4-Nitrophenol	100 or MDL	38	ND		390	ND		39	ND		38	ND		37	ND		
Dibenzofuran	6200	34	690		350	ND		35	150		34	130		33	94		
2,4-Dinitrotoluene	NC	38	ND		390	ND		39	ND		38	ND		37	ND		
Diethylphthalate	7100	35	ND		350	ND		36	ND		35	ND		34	ND		
4-Chlorophenyl-phenylether	NC	42	ND		430	ND		43	ND		42	ND		40	ND		
Fluorene	50,000***	38	900		390	ND		40	230		38	160		37	ND		
4-Nitroaniline	NC	83	ND		850	ND		86	ND		83	ND		81	ND		
4,6-Dinitro-2-methylphenol	NC	42	ND		430	ND		43	ND		42	ND		40	ND		
n-Nitrosodiphenylamine	NC	69	ND		710	ND		72	ND		69	ND		67	ND		
4-Bromophenyl-phenylether	NC	45	ND		460	ND		47	ND		45	ND		44	ND		
Hexachlorobenzene	410	38	ND		390	ND		39	ND		38	ND		37	ND		
Pentachlorophenol	1,000 or MDL	66	ND		670	ND		68	ND		66	ND		64	ND		
Phenanthrene	50,000***	170	9000	D	350	1400		35	2400		34	1100		33	440		
Anthracene	50,000***	44	1500		460	440	J	46	720		44	1000		43	270		
Carbazole	NC	34	1100		350	ND		35	410		34	490		33	110		
Di-n-butylphthalate	8100	41	180		430	ND		43	230		41	58		40	ND		
Fluoranthene	50,000***	170	9500	D	350	2000		175	5000	D	170	4500	D	33	1200		
Pyrene	50,000***	170	9200	D	350	3000		175	6300	D	170	4600	D	33	1300		
Butylbenzylphthalate	50,000***	33	320		350	9100		875	21000	D	33	ND		34	ND		
3,3'-Dichlorobenzidine	NC	35	ND		350	ND		36	ND		35	ND		34	ND		
Benzo(a)anthracene	224 or MDL	170	**3500**	D	350	**1100**		35	**2500**		170	**3500**	D	33	**830**		
Chrysene	400	275	**4100**	D	560	**2000**		57	**2800**		275	**4100**	D	53	**1100**		
Bis(2-Ethylhexyl)phthalate	50,000***	34	740		350	3800		35	2000		34	35		34	ND		
Di-n-octyl phthalate	50,000***	52	ND		530	ND		58	ND		52	ND		51	ND		
Benzo(b)fluoranthene	1100	170	**3800**	D	350	**1500**		35	**2700**		170	**5900**	D	33	**1100**		
Benzo(k)fluoranthene	1100	90	**2200**		925	**1700**		93	**2400**		450	**3400**	D	87	**1200**		
Benzo(a)pyrene	61 or MDL	260	**3700**	D	530	**1800**		54	**2500**		260	**3800**	D	50	**970**		
Indeno(1,2,3-cd)pyrene	3200	55	560		560	940		57	500		55	670		53	340		
Dibenzo(a,h)anthracene	14 or MDL	52	**110**		530	ND		54	**180**		52	**220**		50	**79**		
Benzo(g,h,i)perylene	50,000***	45	1300		460	930		46	1100		45	1200		43	400		

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SURFICIAL-1		SURFICIAL-2		SURFICIAL-3		SURFICIAL-4		SURFICIAL-5	
Lab Sample ID	TAGM		N5416-02DL		N5416-03		N5416-04DL1		N5416-05DL		N5416-06	
Sample Collection Date	Recommended		08/01/2001		08/01/2001		08/01/2001		08/01/2001		08/01/2001	
Sample Receipt Date	Soil Cleanup		08/02/2001		08/02/2001		08/02/2001		08/02/2001		08/02/2001	
Sample Depth (bgs)	Objectives		0 - 0.5 ft		0 - 0.5 ft		0 - 0.5 ft		0 - 0.5 ft		0 - 0.5 ft	
Sample Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Units	µg/kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
		MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	
Polychlorinated Biphenyls (PCBs)												
AROCLOR 1016	1,000/10,000	17	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1221	1,000/10,000	17	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1232	1,000/10,000	17	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1242	1,000/10,000	17	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1248	1,000/10,000	17	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1254	1,000/10,000	17	ND	18	83	18	ND	17	ND	17	ND	
AROCLOR 1260	1,000/10,000	17	ND	18	ND	18	ND	17	ND	17	15	J
Total PCBs												
Pesticides and Herbicides												
alpha-BHC	110	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
gamma-BHC (Lindane)	60	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Heptachlor	100	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Aldrin	41	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
beta-BHC	200	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
delta-BHC	300	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Heptachlor epoxide	20	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Endosulfan I	900	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
gamma-Chlordane	540	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
alpha-Chlordane	NC	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
4,4'-DDE	2100	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Dieldrin	44	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Endrin	100	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Endosulfan II	900	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
4,4'-DDD	2900	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
4,4'-DDT	2100	8.7	69	1.8	23	18	120 D	8.7	ND	1.7	ND	
Endrin aldehyde	NC	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Endosulfan Sulfate	1000	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Methoxychlor	***	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Endrin ketone	NC	8.7	ND	1.8	ND	18	ND	8.7	ND	1.7	ND	
Toxaphene	NC	87	ND	18	ND	180	ND	87	ND	17	ND	
2,4-D	500	3.5	ND	3.5	ND	3.6	ND	3.5	ND	3.4	ND	
2,4,5-TP(Silvex)	700	3.5	ND	3.5	ND	3.6	ND	3.5	ND	3.4	ND	
2,45-T	1,900	3.5	ND	3.5	ND	3.6	ND	3.5	ND	3.4	ND	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SURFICIAL-6		SURFICIAL-12			SURFICIAL-7			SURFICIAL-8			SURFICIAL-9	
Lab Sample ID	TAGM		N5416-07		N5416-13			N5416-08DL			N5416-09DL			N5416-10	
Sample Collection Date	Recommended		08/01/2001		08/01/2001			08/01/2001			08/01/2001			08/01/2001	
Sample Receipt Date	Soil Cleanup		08/02/2001		08/02/2001			08/02/2001			08/02/2001			08/02/2001	
Sample Depth (bgs)	Objectives		0 - 0.5 ft		0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft	
Sample Matrix	SOIL		SOIL		SOIL			SOIL			SOIL			SOIL	
Units	µg/kg		µg/Kg		µg/Kg DUP of SURFICIAL-6			µg/Kg			µg/Kg			µg/Kg	
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
ORGANIC COMPOUNDS																
Semi-Volatile Organic Compounds																
Phenol	30 or MDL	35	ND		36	ND		36	ND		34	ND		34	ND	
bis(2-Chloroethyl)ether	NC	43	ND		43	ND		43	ND		41	ND		41	ND	
2-Chlorophenol	800	39	ND		39	ND		40	ND		38	ND		37	ND	
1,2-Dichlorobenzene	NC	35	ND		36	ND		36	ND		34	ND		34	ND	
1,3-Dichlorobenzene	NC	43	ND		43	ND		43	ND		41	ND		41	ND	
1,4-Dichlorobenzene	NC	35	ND		36	ND		36	ND		34	ND		34	ND	
2-Methylphenol	100 or MDL	35	ND		36	ND		36	ND		34	ND		34	ND	
2,2'-oxybis(1-Chloropropane)	NC	35	ND		36	ND		36	ND		34	ND		34	ND	
3+4-Methylphenols	NC	64	ND		65	ND		65	ND		62	ND		61	ND	
n-Nitroso-di-n-propylamine	NC	35	ND		36	ND		36	ND		34	ND		34	ND	
Hexachloroethane	NC	39	ND		39	ND		40	ND		38	ND		37	ND	
Nitrobenzene	200 or MDL	35	ND		36	ND		36	ND		34	ND		34	ND	
Isophorone	4400	35	ND		36	ND		36	ND		34	ND		34	ND	
2-Nitrophenol	330 or MDL	39	ND		39	ND		40	ND		38	ND		37	ND	
2,4-Dimethylphenol	NC	82	ND		82	ND		83	ND		79	ND		78	ND	
bis(2-Chloroethoxy)methane	NC	35	ND		36	ND		36	ND		34	ND		34	ND	
2,4-Dichlorophenol	400	46	ND		47	ND		47	ND		45	ND		44	ND	
1,2,4-Trichlorobenzene	NC	43	ND		43	ND		43	ND		41	ND		41	ND	
Naphthalene	13000	43	61		42	ND		43	61		40	38	J	41	ND	
4-Chloroaniline	220 or MDL	43	ND		43	ND		43	ND		41	ND		41	ND	
Hexachlorobutadiene	NC	53	ND		54	ND		54	ND		52	ND		51	ND	
4-Chloro-3-methylphenol	240 or MDL	39	ND		39	ND		40	ND		38	ND		37	ND	
2-Methylnaphthalene	36400	43	ND		43	ND		43	ND		41	ND		41	ND	
Hexachlorocyclopentadiene	NC	130	ND		140	ND		140	ND		130	ND		130	ND	
2,4,6-Trichlorophenol	NC	35	ND		36	ND		36	ND		34	ND		34	ND	
2,4,5-Trichlorophenol	1000	35	ND		36	ND		36	ND		34	ND		34	ND	
2-Chloronaphthalene	NC	43	ND		43	ND		43	ND		41	ND		41	ND	
2-Nitroaniline	430 or MDL	35	ND		36	ND		36	ND		34	ND		34	ND	
Dimethylphthalate	2000	35	ND		36	ND		36	ND		34	ND		34	ND	
Acenaphthylene	41000	43	340		43	200		43	880		40	530		40	120	
2,6-Dinitrotoluene	1000	35	ND		36	ND		36	ND		34	ND		34	ND	
3-Nitroaniline	500 or MDL	43	ND		43	ND		43	ND		41	ND		41	ND	
Acenaphthene	50,000***	43	ND		43	63		43	96		40	40	J	40	47	
2,4-Dinitrophenol	200 or MDL	71	ND		72	ND		72	ND		69	ND		68	ND	
4-Nitrophenol	100 or MDL	39	ND		39	ND		40	ND		38	ND		37	ND	
Dibenzofuran	6200	35	52		35	ND		36	82		33	40		33	36	
2,4-Dinitrotoluene	NC	39	ND		39	ND		40	ND		38	ND		37	ND	
Diethylphthalate	7100	35	ND		36	ND		36	ND		34	ND		34	ND	
4-Chlorophenyl-phenylether	NC	43	ND		43	ND		43	ND		41	ND		41	ND	
Fluorene	50,000***	39	ND		40	56		40	150		37	62		37	55	
4-Nitroaniline	NC	85	ND		86	ND		87	ND		82	ND		82	ND	
4,6-Dinitro-2-methylphenol	NC	43	ND		43	ND		43	ND		41	ND		41	ND	
n-Nitrosodiphenylamine	NC	71	ND		72	ND		72	ND		89	ND		68	ND	
4-Bromophenyl-phenylether	NC	46	ND		47	ND		47	ND		45	ND		44	ND	
Hexachlorobenzene	410	39	ND		39	ND		40	ND		38	ND		37	ND	
Pentachlorophenol	1,000 or MDL	67	ND		68	ND		89	ND		65	ND		65	ND	
Phenanthrene	50,000***	35	360		35	560		36	1400		33	690		33	580	
Anthracene	50,000***	46	210		46	200		47	660		43	370		43	240	
Carbazole	NC	35	80		35	66		36	180		33	94		33	73	
Di-n-butylphthalate	8100	43	43		43	ND		43	53		41	ND		41	ND	
Fluoranthene	50,000***	35	830		35	890		36	2700		33	1500		33	1200	
Pyrene	50,000***	35	1300		35	980		180	4300	D	170	2400	D	33	1800	
Butylbenzylphthalate	50,000***	35	43		35	ND		36	76		33	82		34	ND	
3,3'-Dichlorobenzidine	NC	35	ND		36	ND		36	ND		34	ND		34	ND	
Benzo(a)anthracene	224 or MDL	35	**640**		35	**570**		36	**2200**		33	**1200**		33	**640**	
Chrysene	400	56	**780**		57	**700**		58	**2400**		53	**1400**		53	**880**	
Bis(2-Ethylhexyl)phthalate	50,000***	35	350		35	73		36	340		33	290		33	81	
Di-n-octyl phthalate	50,000***	53	ND		58	ND		54	ND		52	ND		51	ND	
Benzo(b)fluoranthene	1100	35	1000		35	480		180	**3000**	D	33	**1200**		33	760	
Benzo(k)fluoranthene	1100	92	840		93	830		87	**1500**		87	**1400**		87	750	
Benzo(a)pyrene	61 or MDL	53	**640**		54	**680**		54	**2000**		50	**1200**		50	**670**	
Indeno(1,2,3-cd)pyrene	3200	56	150		57	260		58	380		53	240		53	110	
Dibenzo(a,h)anthracene	14 or MDL	53	**58**		54	**44**	J	54	**160**		50	**81**		50	**48**	J
Benzo(g,h,i)perylene	50,000***	46	350		46	310		48	820		43	480		43	290	

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SURFICIAL-6		SURFICIAL-12		SURFICIAL-7		SURFICIAL-8		SURFICIAL-9	
Lab Sample ID	TAGM		N5416-07		N5416-13		N5416-08DL		N5416-09DL		N5416-10	
Sample Collection Date	Recommended		08/01/2001		08/01/2001		08/01/2001		08/01/2001		08/01/2001	
Sample Receipt Date	Soil Cleanup		08/02/2001		08/02/2001		08/02/2001		08/02/2001		08/02/2001	
Sample Depth (bgs)	Objectives		0 - 0.5 ft		0 - 0.5 ft		0 - 0.5 ft		0 - 0.5 ft		0 - 0.5 ft	
Sample Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Units	µg/kg		µg/Kg		µg/Kg DUP of SURFICIAL-6		µg/Kg		µg/Kg		µg/Kg	
		MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	
Polychlorinated Biphenyls (PCBs)												
AROCLOR 1016	1,000/10,000	18	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1221	1,000/10,000	18	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1232	1,000/10,000	18	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1242	1,000/10,000	18	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1248	1,000/10,000	18	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1254	1,000/10,000	18	ND	18	ND	18	ND	17	ND	17	ND	
AROCLOR 1260	1,000/10,000	18	24	18	21	18	30	17	41	17	17	
Total PCBs												
Pesticides and Herbicides												
alpha-BHC	110	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
gamma-BHC (Lindane)	60	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Heptachlor	100	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Aldrin	41	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
beta-BHC	200	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
delta-BHC	300	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Heptachlor epoxide	20	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Endosulfan I	900	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
gamma-Chlordane	540	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
alpha-Chlordane	NC	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
4,4'-DDE	2100	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Dieldrin	44	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Endrin	100	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Endosulfan II	900	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
4,4'-DDD	2900	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
4,4'-DDT	2100	1.8	ND	3.6	ND	1.6	ND	1.7	7.9	1.7	ND	
Endrin aldehyde	NC	1.6	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Endosulfan Sulfate	1000	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Methoxychlor	***	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Endrin ketone	NC	1.8	ND	3.6	ND	1.8	ND	1.7	ND	1.7	ND	
Toxaphene	NC	18	ND	36	ND	18	ND	17	NO	17	ND	
2,4-D	500	3.5	ND	3.6	ND	3.6	ND	3.4	ND	3.4	ND	
2,4,5-TP(Silvex)	700	3.5	ND	3.6	ND	3.6	ND	3.4	ND	3.4	ND	
2,45-T	1,900	3.5	ND	3.6	ND	3.6	ND	3.4	ND	3.4	ND	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SURFICIAL-10			SURFICIAL-11			SURFICIAL	
Lab Sample ID	TAGM		N5416-11DL1			N5416-12DL			N5416-01	
Sample Collection Date	Recommended		08/01/2001			08/01/2001			08/01/2001	
Sample Receipt Date	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001	
Sample Depth (bgs)	Objectives		0 - 0.5 ft			0 - 0.5 ft			NA	
Sample Matrix	SOIL		SOIL			SOIL			WATER	
Units	µg/kg		µg/Kg			µg/Kg			µg/L	
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
ORGANIC COMPOUNDS										
Semi-Volatile Organic Compounds										
Phenol	30 or MDL	34	ND		35	ND		1	ND	
bis(2-Chloroethyl)ether	NC	41	ND		42	ND		1.2	ND	
2-Chlorophenol	800	37	ND		39	ND		1.1	ND	
1,2-Dichlorobenzene	NC	34	ND		35	ND		1	ND	
1,3-Dichlorobenzene	NC	41	ND		42	ND		1.2	ND	
1,4-Dichlorobenzene	NC	34	ND		35	ND		1	ND	
2-Methylphenol	100 or MDL	34	ND		35	ND		1	ND	
2,2'-oxybis(1-Chloropropane)	NC	34	ND		35	ND		1	ND	
3+4-Methylphenols	NC	61	ND		63	ND		1.8	ND	
n-Nitroso-di-n-propylamine	NC	34	ND		35	ND		1	ND	
Hexachloroethane	NC	37	ND		39	ND		1.1	ND	
Nitrobenzene	200 or MDL	34	ND		35	ND		1	ND	
Isophorone	4400	34	ND		35	ND		1	ND	
2-Nitrophenol	330 or MDL	37	ND		39	ND		1.1	ND	
2,4-Dimethylphenol	NC	78	ND		81	ND		2.3	ND	
bis(2-Chloroethoxy)methane	NC	34	ND		35	ND		1	ND	
2,4-Dichlorophenol	400	44	ND		46	ND		1.3	ND	
1,2,4-Trichlorobenzene	NC	41	ND		42	ND		1.2	ND	
Naphthalene	13000	40	96		42	220		1.2	ND	
4-Chloroaniline	220 or MDL	41	ND		42	ND		1.2	ND	
Hexachlorobutadiene	NC	51	ND		53	ND		1.5	ND	
4-Chloro-3-methylphenol	240 or MDL	37	ND		39	ND		1.1	ND	
2-Methylnaphthalene	36400	40	88		42	130		1.2	ND	
Hexachlorocyclopentadiene	NC	130	ND		130	ND		3.8	ND	
2,4,6-Trichlorophenol	NC	34	ND		35	ND		1	ND	
2,4,5-Trichlorophenol	1000	34	ND		35	ND		1	ND	
2-Chloronaphthalene	NC	41	ND		42	ND		1.2	ND	
2-Nitroaniline	430 or MDL	34	ND		35	ND		1	ND	
Dimethylphthalate	2000	34	ND		35	ND		1	ND	
Acenaphthylene	41000	40	600		42	1300		1.2	ND	
2,6-Dinitrotoluene	1000	34	ND		35	ND		1	ND	
3-Nitroaniline	500 or MDL	41	ND		42	ND		1.2	ND	
Acenaphthene	50,000***	40	380		42	520		1.2	ND	
2,4-Dinitrophenol	200 or MDL	68	ND		70	ND		2	ND	
4-Nitrophenol	100 or MDL	37	ND		39	ND		1.1	ND	
Dibenzofuran	6200	34	230		35	350		1	ND	
2,4-Dinitrotoluene	NC	37	ND		39	ND		1.1	ND	
Diethylphthalate	7100	34	ND		35	ND		1	ND	
4-Chlorophenyl-phenylether	NC	41	ND		42	ND		1.2	ND	
Fluorene	50,000***	37	330		39	630		1.1	ND	
4-Nitroaniline	NC	82	ND		84	ND		2.4	ND	
4,6-Dinitro-2-methylphenol	NC	41	ND		42	ND		1.2	ND	
n-Nitrosodiphenylamine	NC	68	ND		70	ND		2	ND	
4-Bromophenyl-phenylether	NC	44	ND		46	ND		1.3	ND	
Hexachlorobenzene	410	37	ND		39	ND		1.1	ND	
Pentachlorophenol	1,000 or MDL	65	ND		67	ND		1.9	ND	
Phenanthrene	50,000***	170	7600	D	350	6500	D	1	ND	
Anthracene	50,000***	43	1500		45	2000		1.3	ND	
Carbazole	NC	33	1100		35	700		1	ND	
Di-n-butylphthalate	8100	40	39	J	40	40	J	1.2	1.1	J
Fluoranthene	50,000***	850	26000	D	350	12000	D	1	ND	
Pyrene	50,000***	850	24000	D	350	12000	D	1	ND	
Butylbenzylphthalate	50,000***	33	300		35	ND		1	ND	
3,3'-Dichlorobenzidine	NC	34	ND		35	ND		1	ND	
Benzo(a)anthracene	224 or MDL	850	**15000**	D	350	**7100**	D	1	ND	
Chrysene	400	1350	**17000**	D	560	**7900**	D	1.6	ND	
Bis(2-Ethylhexyl)phthalate	50,000***	33	2600		35	210		1	ND	
Di-n-octyl phthalate	50,000***	50	1600		56	ND		1.5	ND	
Benzo(b)fluoranthene	1100	850	**13000**	D	350	**6700**	D	1	ND	
Benzo(k)fluoranthene	1100	440	**13000**	D	870	**6000**	D	2.6	ND	
Benzo(a)pyrene	61 or MDL	1000	**15000**	D	530	**6500**	D	1.5	ND	
Indeno(1,2,3-cd)pyrene	3200	53	2500		56	1000		1.6	ND	
Dibenzo(a,h)anthracene	14 or MDL	50	**400**		53	**310**		1.5	ND	
Benzo(g,h,i)perylene	50,000***	220	4300	D	45	1900		1.3	ND	

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SURFICIAL-10		SURFICIAL-11			SURFICIAL
Lab Sample ID	TAGM		N5416-11DL1		N5416-12DL			N5416-01
Sample Collection Date	Recommended		08/01/2001		08/01/2001			08/01/2001
Sample Receipt Date	Soil Cleanup		08/02/2001		08/02/2001			08/02/2001
Sample Depth (bgs)	Objectives		0 - 0.5 ft		0 - 0.5 ft			NA
Sample Matrix	SOIL		SOIL		SOIL			WATER
Units	µg/kg		µg/Kg		µg/Kg			µg/L
		MDL	CONC Q	MDL	CONC Q	MDL	CONC Q	
Polychlorinated Biphenyls (PCBs)								
AROCLOR 1016	1,000/10,000	17	ND	18	ND	0.5	ND	
AROCLOR 1221	1,000/10,000	17	ND	18	ND	0.5	ND	
AROCLOR 1232	1,000/10,000	17	ND	18	ND	0.5	ND	
AROCLOR 1242	1,000/10,000	17	ND	18	ND	0.5	ND	
AROCLOR 1248	1,000/10,000	17	ND	18	ND	0.5	ND	
AROCLOR 1254	1,000/10,000	17	ND	18	ND	0.5	ND	
AROCLOR 1260	1,000/10,000	17	130	18	340	0.5	ND	
Total PCBs								
Pesticides and Herbicides								
alpha-BHC	110	17	ND	18	ND	0.05	ND	
gamma-BHC (Lindane)	60	17	ND	18	ND	0.05	ND	
Heptachlor	100	17	ND	18	ND	0.05	ND	
Aldrin	41	17	ND	18	ND	0.05	ND	
beta-BHC	200	17	ND	18	ND	0.05	ND	
delta-BHC	300	17	ND	18	ND	0.05	ND	
Heptachlor epoxide	20	17	ND	18	ND	0.05	ND	
Endosulfan I	900	17	ND	18	ND	0.05	ND	
gamma-Chlordane	540	17	ND	18	ND	0.05	ND	
alpha-Chlordane	NC	17	ND	18	ND	0.05	ND	
4,4'-DDE	2100	17	ND	18	ND	0.05	ND	
Dieldrin	44	17	ND	18	ND	0.05	ND	
Endrin	100	17	ND	18	ND	0.05	ND	
Endosulfan II	900	17	ND	18	ND	0.05	ND	
4,4'-DDD	2900	17	ND	18	23	0.05	ND	
4,4'-DDT	2100	17	ND	18	130	0.05	ND	
Endrin aldehyde	NC	17	ND	18	ND	0.05	ND	
Endosulfan Sulfate	1000	17	ND	18	ND	0.05	ND	
Methoxychlor	***	17	ND	18	ND	0.05	ND	
Endrin ketone	NC	17	ND	18	ND	0.05	ND	
Toxaphene	NC	170	ND	180	ND	0.5	ND	
2,4-D	500	3.4	ND	3.5	ND	0.1	ND	
2,4,5-TP(Silvex)	700	3.4	ND	3.5	ND	0.1	ND	
2,4,5-T	1,900	3.4	ND	3.5	ND	0.1	ND	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID		NYSDEC		SURFICIAL-1			SURFICIAL-2			SURFICIAL-3		
Lab Sample ID	NYSDEC	TAGM		N5416-02			N5416-03			N5416-04		
Sample Collection Date	TAGM	Recommended		08/01/2001			08/01/2001			08/01/2001		
Sample Receipt Date	Eastern USA	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001		
Sample Depth (bgs)	Background	Objectives		0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft		
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL		
Units	mg/kg	mg/kg		MG/KG			MG/KG			MG/KG		
			MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
INORGANICS											
Metals											
Aluminum	33,000	SB	4.75	6340		4.85	6130		4.93	5280	
Antimony	NC	SB	0.38	0.89	B	0.39	1.5	B	0.40	1.1	B
Arsenic	3-12**	7.5 or SB	0.52	5.6		0.53	5		0.54	3.8	
Barium	15-600	300 or SB	0.21	361		0.21	**779**		0.22	**1140**	
Beryllium	0-1.750	.16 (heast) or SB	0.10	0.29	B	0.11	0.67		0.11	0.34	B
Cadmium	.1-1	1 or SB	0.31	0.84		0.32	**1.1**		0.32	**2.5**	
Calcium	130-35,000**	SB	1.11	**42200**	E	1.13	31900	E	1.15	**35600**	E
Chromium	1.5-40**	10 or SB	0.52	16.4		0.53	30.4		0.54	17.3	
Cobalt	2.5-60**	30 or SB	0.19	5.7		0.19	10.6		0.19	8.3	
Copper	1-50	25 or SB	0.23	36.5		0.23	**103**		0.24	43.6	
Iron	2,000-550,000	2,000 or SB	0.73	12400		0.74	14000		0.76	12400	
Lead	200-500*****	SB	0.31	307	E	0.32	436	E	0.32	332	E
Magnesium	100-5,000	SB	7.89	4310	E	8.05	**7990**	E	8.19	**5530**	E
Manganese	50-5,000	SB	0.12	205		0.13	254		0.13	257	
Mercury	.001-.2	0.1	0.03	**0.27**	N	0.03	**0.21**	N	0.04	**0.32**	N
Nickel	.5-25	13 or SB	0.42	12.5		0.42	**37.8**		0.43	15	
Potassium	8,500-43,000**	SB	2.28	1700	E	2.32	1380	E	2.36	1470	E
Selenium	.1-3.9	2 or SB	0.51	ND		0.52	ND		0.53	ND	
Silver	NC	SB	0.51	ND		0.52	ND		0.53	ND	
Sodium	6,000-8,000	SB	50.96	149	B	51.98	201	B	52.88	214	B
Thallium	NC	SB	0.59	ND		0.60	ND		0.61	ND	
Vanadium	1-300	150 or SB	0.33	27		0.34	31.6		0.35	25.7	
Zinc	9-50	20 or SB	0.88	**272**		0.90	**727**		0.92	**855**	

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concentration
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

***** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID		NYSDEC		SURFICIAL-4			SURFICIAL-5			SURFICIAL-6		
Lab Sample ID	NYSDEC	TAGM		N5416-05			N5416-06			N5416-07		
Sample Collection Date	TAGM	Recommended		08/01/2001			08/01/2001			08/01/2001		
Sample Receipt Date	Eastern USA	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001		
Sample Depth (bgs)	Background	Objectives		0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft		
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL		
Units	mg/kg	mg/kg		MG/KG			MG/KG			MG/KG		
			MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
INORGANICS												
Metals												
Aluminum	33,000	SB	4.74	4530		4.60	2770		4.85	2710		
Antimony	NC	SB	0.38	20.4		0.37	11.2		0.39	7		
Arsenic	3-12**	7.5 or SB	0.52	**22.9**		0.50	**16.2**		0.53	**12.2**		
Barium	15-600	300 or SB	0.21	131		0.20	70.6		0.21	53.7		
Beryllium	0-1.750	.16 (heast) or SB	0.10	0.48	B	0.10	0.5		0.11	0.34	B	
Cadmium	.1-1	1 or SB	0.31	**2**		0.30	0.91		0.32	0.66		
Calcium	130-35,000**	SB	1.11	9730	E	1.08	16600	E	1.13	32200	E	
Chromium	1.5-40**	10 or SB	0.52	32.8		0.50	20.3		0.53	16.9		
Cobalt	2.5-60**	30 or SB	0.19	12.1		0.18	7.8		0.19	10.6		
Copper	1-50	25 or SB	0.23	**999**		0.22	**168**		0.23	**228**		
Iron	2,000-550,000	2,000 or SB	0.73	60300		0.70	41800		0.74	28000		
Lead	200-500****	SB	0.31	**915**	E	0.30	337	E	0.32	292	E	
Magnesium	100-5,000	SB	7.87	**7130**	E	7.64	**8430**	E	8.05	**18500**	E	
Manganese	50-5,000	SB	0.12	563		0.12	379		0.13	300		
Mercury	.001-.2	0.1	0.03	**0.86**	N	0.03	**0.27**	N	0.03	**0.31**	N	
Nickel	.5-25	13 or SB	0.41	**36.7**		0.40	21.9		0.42	18.5		
Potassium	8,500-43,000**	SB	2.27	404	BE	2.21	468	BE	2.32	672	E	
Selenium	.1-3.9	2 or SB	0.50	ND		0.50	ND		0.53	ND		
Silver	NC	SB	0.50	0.7	B	0.50	0.53	B	0.53	0.54	B	
Sodium	8,000-8,000	SB	50.85	118	B	49.37	58.1	B	51.98	1030		
Thallium	NC	SB	0.59	0.87	B	0.57	ND		0.60	ND		
Vanadium	1-300	150 or SB	0.33	49.5		0.32	25.3		0.34	16.3		
Zinc	9-50	20 or SB	0.88	**364**		0.86	**128**		0.90	**180**		

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concen
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample dilutad for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC	NYSDEC		SURFICIAL-12			SURFICIAL-7			SURFICIAL-8			SURFICIAL-9		
Lab Sample ID	TAGM	TAGM		N5416-13			N5416-08			N5416-09			N5416-10		
Sample Collection Date	Eastern USA	Recommended		08/01/2001			08/01/2001			08/01/2001			08/01/2001		
Sample Receipt Date	Background	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001			08/02/2001		
Sample Depth (bgs)	SOIL	Objectives		0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft			0 - 0.5 ft		
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL			SOIL		
Units	mg/kg	mg/kg		MG/KG			MG/KG			MG/KG			MG/KG		
				DUP of SURFICIAL-6											
			MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
INORGANICS															
Metals															
Aluminum	33,000	SB	4.91	3880		4.99	4900		4.70	5950		4.68	7740		
Antimony	NC	SB	0.40	7.3		0.40	2.7	B	0.38	2.8	B	0.38	1.3		B
Arsenic	3-12**	7.5 or SB	0.54	**13.9**		0.55	**20.6**		0.51	8.3		0.51	4.6		
Barium	15-600	300 or SB	0.21	65.5		0.22	169		0.21	249		0.20	150		
Beryllium	0-1.750	.16 (heast) or SB	0.11	0.51	B	0.11	0.45	B	0.10	0.5		0.10	0.31		B
Cadmium	.1-1	1 or SB	0.32	0.81		0.33	**1.1**		0.31	0.64		0.31	0.38		B
Calcium	130-35,000**	SB	1.15	33800	E	1.17	31500	E	1.10	**36900**	E	1.10	28400		E
Chromium	1.5-40**	10 or SB	0.54	21.6		0.55	21.7		0.51	20.6		0.51	24.9		
Cobalt	2.5-60**	30 or SB	0.19	9.3		0.20	8.9		0.19	7.1		0.18	9.1		
Copper	1-50	25 or SB	0.24	**181**		0.24	**105**		0.23	**85.1**		0.23	40.6		
Iron	2,000-550,000	2,000 or SB	0.75	35100		0.77	23800		0.72	19000		0.72	22500		
Lead	200-500****	SB	0.32	308	E	0.33	241	E	0.31	299	E	0.31	324		E
Magnesium	100-5,000	SB	8.15	**20200**	E	8.30	**14500**	E	7.81	**14800**	E	7.77	**5570**		E
Manganese	50-5,000	SB	0.13	430		0.13	313		0.12	278		0.12	276		
Mercury	.001-.2	0.1	0.04	**0.25**	N	0.04	**0.37**	N	0.03	**0.36**	N	0.03	0.13		N
Nickel	.5-25	13 or SB	0.43	19.7		0.44	16.2		0.41	14.6		0.41	17.2		
Potassium	8,500-43,000**	SB	2.35	983	E	2.39	1290	E	2.25	1380	E	2.24	2670		E
Selenium	.1-3.9	2 or SB	0.54	ND		0.55	ND		0.51	ND		0.51	ND		
Silver	NC	SB	0.54	0.53	B	0.55	ND		0.51	ND		0.51	ND		
Sodium	6,000-8,000	SB	52.65	1220		53.57	999		50.43	49	B	50.17	ND		
Thallium	NC	SB	0.61	ND		0.62	ND		0.59	ND		0.58	ND		
Vanadium	1-300	150 or SB	0.34	22.3		0.35	29.4		0.33	34.5		0.33	28.8		
Zinc	9-50	20 or SB	0.91	**204**		0.93	**264**		0.87	**251**		0.87	**119**		

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concen
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-2
Surficial Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC	NYSDEC		SURFICIAL-10			SURFICIAL-11			SURFICIAL	
Lab Sample ID	TAGM	TAGM		N5416-11			N5416-12			N5416-01	
Sample Collection Date	Recommended	Recommended		08/01/2001			08/01/2001			08/01/2001	
Sample Receipt Date	Eastern USA	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001	
Sample Depth (bgs)	Background	Objectives		0 - 0.5 ft			0 - 0.5 ft			NA	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			WATER	
Units	mg/kg	mg/kg		MG/KG			MG/KG			µg/L	
			MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
INORGANICS											
Metals											
Aluminum	33,000	SB	4.65	3930		4.79	5290		45.70	ND	
Antimony	NC	SB	0.38	4.2	B	0.39	5.4	B	3.70	ND	
Arsenic	3-12**	7.5 or SB	0.51	**22.7**		0.52	**42.7**		5.00	ND	
Barium	15-600	300 or SB	0.20	232		0.21	238		2.00	ND	
Beryllium	0-1.750	.16 (heast) or SB	0.10	0.4	B	0.10	0.56		0.10	0.37	B
Cadmium	.1-1	1 or SB	0.31	**1.6**		0.31	**1.4**		3.00	ND	
Calcium	130-35,000**	SB	1.09	33400	E	1.12	26600	E	10.70	ND	
Chromium	1.5-40**	10 or SB	0.51	22.8		0.52	31.1		5.00	ND	
Cobalt	2.5-60**	30 or SB	0.18	7.8		0.19	8.1		1.80	ND	
Copper	1-50	25 or SB	0.22	**129**		0.23	**181**		2.20	ND	
Iron	2,000-550,000	2,000 or SB	0.71	27000		0.73	39100		7.00	ND	
Lead	200-500****	SB	0.31	**560**	E	0.31	**707**	E	3.00	ND	
Magnesium	100-5,000	SB	7.72	**12900**	E	7.96	4110	E	75.9	ND	
Manganese	50-5,000	SB	0.12	290		0.13	390		1.20	ND	
Mercury	.001-.2	0.1	0.03	**0.22**	N	0.03	**0.45**	N	0.20	ND	
Nickel	.5-25	13 or SB	0.41	22.1		0.42	23.9		4.00	ND	
Potassium	8,500-43,000**	SB	2.23	1270	E	2.30	767	E	21.9	ND	
Selenium	.1-3.9	2 or SB	0.51	ND		0.52	ND		5.00	ND	
Silver	NC	SB	0.51	ND		0.52	ND		5.00	ND	
Sodium	6,000-8,000	SB	49.87	226	B	51.38	153	B	490	ND	
Thallium	NC	SB	0.58	ND		0.60	ND		5.70	ND	
Vanadium	1-300	150 or SB	0.33	23.1		0.34	43.9		3.20	ND	
Zinc	9-50	20 or SB	0.86	**423**		0.89	**390**		8.50	ND	

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concen
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		PZ1-1			PZ1-2			PZ2-1			PZ2-2		
Lab Sample ID	TAGM		N5416-14			N5416-15			N5416-017DL2			N5416-18		
Sample Collection Date	Recommended		08/02/2001			08/02/2001			08/02/2001			08/02/2001		
Sample Receipt Date	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001			08/02/2001		
Sample Depth (bgs)	Objectives		2.5 - 3.5 ft			12.5 - 13.5 ft			3 - 4 ft			10 - 11 ft		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
ORGANIC COMPOUNDS													
Volatile Organic Compounds													
Chloromethane	NC	3.2	ND		3.2	ND		34	ND		3.4	ND	
Vinyl Chloride	200	2.1	ND		2.1	ND		22	ND		2.2	ND	
Bromomethane	NC	2.2	ND		2.2	ND		23	ND		2.3	ND	
Chloroethane	1900	2.6	ND		2.6	ND		27	ND		2.7	ND	
1,1-Dichloroethene	400	1.8	ND		1.8	ND		19	ND		1.9	ND	
Acetone	200	6.5	ND		6.5	ND		70	ND		6.6	15	B
Carbon Disulfide	2700	1.1	ND		1.1	ND		12	ND		1.2	ND	
Methylene Chloride	100	1.1	21	B	1.3	ND		14	ND		1.1	22	B
trans-1,2-Dichloroethene	300	2	ND		2	ND		21	ND		2.1	ND	
1,1-Dichloroethane	200	1.1	ND		1.1	ND		12	ND		1.2	ND	
2-Butanone	300	6.4	ND		6.4	ND		68	ND		6.7	ND	
cis-1,2-Dichloroethene	NC	2.1	ND		2.1	ND		22	ND		2.2	ND	
Chloroform	300	1.1	ND		1.1	ND		12	ND		1.2	ND	
1,1,1-Trichloroethane	800	1.7	ND		1.7	ND		18	ND		1.7	ND	
Carbon Tetrachloride	600	1.2	ND		1.2	ND		12	ND		1.2	ND	
Benzene	60	1.1	ND		1.1	ND		2700	**6000**	D	1.2	ND	
1,2-Dichloroethane	100	2.8	ND		2.8	ND		30	ND		2.9	ND	
Trichloroethene	700	3.1	ND		3.1	ND		34	ND		3.3	ND	
1,2-Dichloropropane	NC	4.1	ND		4.1	ND		44	ND		4.3	ND	
Bromodichloromethane	NC	1.1	ND		1.1	ND		12	ND		1.2	ND	
4-Methyl-2-Pentanone	1000	3.4	ND		3.4	ND		37	ND		3.6	ND	
Toluene	1500	1.4	ND		1.4	ND		2650	**110000**	D	1.5	ND	
t-1,3-Dichloropropene	NC	1.9	ND		1.9	ND		20	ND		2	ND	
cis-1,3-Dichloropropene	NC	1.1	ND		1.1	ND		12	ND		1.2	ND	
1,1,2-Trichloroethane	NC	1.2	ND		1.2	ND		13	ND		1.3	ND	
2-Hexanone	NC	14	ND		14	ND		150	ND		15	ND	
Dibromochloromethane	NC	1.1	ND		1.1	ND		12	ND		1.2	ND	
Tetrachloroethene	1400	1.8	ND		1.8	ND		20	ND		1.9	ND	
Chlorobenzene	1700	1.1	ND		1.1	ND		12	ND		1.2	ND	
Ethyl Benzene	5500	1.7	ND		1.7	ND		2300	**170000**	D	1.8	ND	
m/p-Xylenes	1200	1.7	ND		1.7	ND		8660	**1100000**	D	1.8	ND	
o-Xylene	1200	1.9	ND		1.9	ND		5060	**400000**	D	2	ND	
Styrene	NC	1.1	ND		1.1	ND		12	ND		1.2	ND	
Bromoform	NC	1.1	ND		1.1	ND		12	ND		1.2	ND	
1,1,2,2-Tetrachloroethane	600	2.5	ND		2.5	ND		27	ND		2.7	ND	
Semi-Volatile Organic Compounds													
Phenol	30 or MDL	37	ND		40	ND		400	ND		40	ND	
bis(2-Chloroethyl)ether	NC	45	ND		48	ND		480	ND		48	ND	
2-Chlorophenol	800	41	ND		44	ND		440	ND		44	ND	
1,2-Dichlorobenzene	NC	37	ND		40	ND		400	ND		40	ND	
1,3-Dichlorobenzene	NC	45	ND		48	ND		480	ND		48	ND	
1,4-Dichlorobenzene	NC	37	ND		40	ND		400	ND		40	ND	
2-Methylphenol	100 or MDL	37	ND		40	ND		400	ND		40	ND	
2,2'-oxybis(1-Chloropropane)	NC	37	ND		40	ND		400	ND		40	ND	
3+4-Methylphenols	NC	67	ND		72	ND		720	ND		71	ND	
n-Nitroso-di-n-propylamine	NC	37	ND		40	ND		400	ND		40	ND	
Hexachloroethane	NC	41	ND		44	ND		440	ND		44	ND	
Nitrobenzene	200 or MDL	37	ND		40	ND		400	ND		40	ND	
Isophorone	4400	37	ND		40	ND		400	ND		40	ND	
2-Nitrophenol	330 or MDL	41	ND		44	ND		440	ND		44	ND	
2,4-Dimethylphenol	NC	86	ND		92	ND		920	ND		91	ND	
bis(2-Chloroethoxy)methane	NC	37	ND		40	ND		400	ND		40	ND	
2,4-Dichlorophenol	400	49	ND		52	ND		520	ND		52	ND	
1,2,4-Trichlorobenzene	NC	45	ND		48	ND		480	ND		48	ND	
Naphthalene	13000	45	ND		48	ND		2400	**72000**	D	48	ND	
4-Chloroaniline	220 or MDL	45	ND		48	ND		480	ND		48	ND	
Hexachlorobutadiene	NC	56	ND		60	ND		600	ND		60	ND	
4-Chloro-3-methylphenol	240 or MDL	41	ND		44	ND		440	ND		44	ND	
2-Methylnaphthalene	36400	45	ND		48	ND		2400	**57000**	D	48	ND	

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		PZ1-1			PZ1-2			PZ2-1			PZ2-2		
Lab Sample ID	TAGM		N5416-14			N5416-15			N5416-017DL2			N5416-18		
Sample Collection Date	Recommended		08/02/2001			08/02/2001			08/02/2001			08/02/2001		
Sample Receipt Date	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001			08/02/2001		
Sample Depth (bgs)	Objectives		2.5 - 3.5 ft			12.5 - 13.5 ft			3 - 4 ft			10 - 11 ft		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
Hexachlorocyclopentadiene	NC	140	ND		150	ND		1500	ND		150	ND	
2,4,6-Trichlorophenol	NC	37	ND		40	ND		400	ND		40	ND	
2,4,5-Trichlorophenol	1000	37	ND		40	ND		400	ND		40	ND	
2-Chloronaphthalene	NC	45	ND		48	ND		480	ND		48	ND	
2-Nitroaniline	430 or MDL	37	ND		40	ND		400	ND		40	ND	
Dimethylphthalate	2000	37	ND		40	ND		400	ND		40	ND	
Acenaphthylene	41000	45	160		48	ND		480	2100		48	ND	
2,6-Dinitrotoluene	1000	37	ND		40	ND		400	ND		40	ND	
3-Nitroaniline	500 or MDL	45	ND		48	ND		480	ND		48	ND	
Acenaphthene	50,000***	45	ND		48	ND		480	4500		48	ND	
2,4-Dinitrophenol	200 or MDL	75	ND		80	ND		800	ND		79	ND	
4-Nitrophenol	100 or MDL	41	ND		44	ND		440	ND		44	ND	
Dibenzofuran	6200	37	ND		40	ND		480	510		40	ND	
2,4-Dinitrotoluene	NC	41	ND		44	ND		440	ND		44	ND	
Diethylphthalate	7100	37	ND		40	ND		400	ND		40	ND	
4-Chlorophenyl-phenylether	NC	45	ND		48	ND		480	ND		48	ND	
Fluorene	50,000***	41	ND		44	ND		440	4000		44	ND	
4-Nitroaniline	NC	90	ND		96	ND		960	ND		95	ND	
4,6-Dinitro-2-methylphenol	NC	45	ND		48	ND		480	ND		48	ND	
n-Nitrosodiphenylamine	NC	75	ND		80	ND		800	ND		79	ND	
4-Bromophenyl-phenylether	NC	49	ND		52	ND		520	ND		52	ND	
Hexachlorobenzene	410	41	ND		44	ND		440	ND		44	ND	
Pentachlorophenol	1,000 or MDL	71	ND		76	ND		760	ND		75	ND	
Phenanthrene	50,000***	37	240		40	ND		400	14000		39	100	
Anthracene	50,000***	48	99		52	ND		520	4400		51	52	
Carbazole	NC	37	51		40	ND		400	ND		40	ND	
Di-n-butylphthalate	8100	45	40	J	48	ND		480	ND		48	ND	
Fluoranthene	50,000***	37	570		40	ND		400	7700		39	91	
Pyrene	50,000***	37	560		40	ND		400	13000		39	110	
Butylbenzylphthalate	50,000***	37	ND		40	ND		400	ND		40	ND	
3,3'-Dichlorobenzidine	NC	37	ND		40	ND		400	ND		40	ND	
Benzo(a)anthracene	224 or MDL	37	**330**		40	ND		400	**4300**		39	43	
Chrysene	400	60	**440**		64	ND		640	**4600**		59	56	J
Bis(2-Ethylhexyl)phthalate	50,000***	37	930		40	ND		400	ND		40	ND	
Di-n-octyl phthalate	50,000***	56	ND		60	ND		600	ND		60	ND	
Benzo(b)fluoranthene	1100	35	380		40	ND		400	**2700**		39	44	
Benzo(k)fluoranthene	1100	98	340		100	ND		1000	**2400**		103	48	J
Benzo(a)pyrene	61 or MDL	56	**370**		60	ND		600	**4300**		60	50	J
Indeno(1,2,3-cd)pyrene	3200	60	210		64	ND		640	2200		63	48	J
Dibenzo(a,h)anthracene	14 or MDL	56	ND		60	ND		600	ND		60	ND	
Benzo(g,h,i)perylene	50,000***	48	200		52	ND		520	3200		51	65	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		PZ3-1			PZ3-2			SB3-1			SB3-2		
Lab Sample ID	TAGM		N5416-20			N5416-21			N5435-05			N5435-06		
Sample Collection Date	Recommended		08/02/2001			08/02/2001			08/03/2001			08/03/2001		
Sample Receipt Date	Soil Cleanup		08/02/2001			08/02/2001			08/03/2001			08/03/2001		
Sample Depth (bgs)	Objectives		4 - 5 ft			11 - 12 ft			1.5 - 2.5 ft			6 - 7 ft		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
ORGANIC COMPOUNDS													
Volatile Organic Compounds													
Chloromethane	NC	3.3	ND		3.3	ND		3.2	ND		3.5	ND	
Vinyl Chloride	200	2.1	ND		2.2	ND		2.1	ND		2.3	ND	
Bromomethane	NC	2.3	ND		2.3	ND		2.2	ND		2.4	ND	
Chloroethane	1900	2.6	ND		2.6	ND		2.6	ND		2.8	ND	
1,1-Dichloroethene	400	1.9	ND		1.9	ND		1.8	ND		2	ND	
Acetone	200	6.5	16	B	6.5	13	B	6.5	ND		7.1	ND	
Carbon Disulfide	2700	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
Methylene Chloride	100	1.1	3.6		1.1	3.7		1.3	ND		1.4	ND	
trans-1,2-Dichloroethene	300	2	ND		2	ND		1.9	ND		2.1	ND	
1,1-Dichloroethane	200	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
2-Butanone	300	6.6	ND		6.6	ND		6.4	ND		7	ND	
cis-1,2-Dichloroethene	NC	2.1	ND		2.1	ND		2.1	ND		2.3	ND	
Chloroform	300	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
1,1,1-Trichloroethane	800	1.7	ND		1.7	ND		1.6	ND		1.8	ND	
Carbon Tetrachloride	600	1.2	ND		1.2	ND		1.2	ND		1.3	ND	
Benzene	60	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
1,2-Dichloroethane	100	2.8	ND		2.9	ND		2.8	ND		3	ND	
Trichloroethene	700	3.2	ND		3.2	ND		3.1	ND		3.4	ND	
1,2-Dichloropropane	NC	4.2	ND		4.2	ND		4.1	ND		4.5	ND	
Bromodichloromethane	NC	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
4-Methyl-2-Pentanone	1000	3.5	ND		3.6	ND		3.4	ND		3.8	ND	
Toluene	1500	1.4	ND		1.5	ND		1.4	ND		1.5	ND	
t-1,3-Dichloropropene	NC	1.9	ND		1.9	ND		1.9	ND		2.1	ND	
cis-1,3-Dichloropropene	NC	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
1,1,2-Trichloroethane	NC	1.2	ND		1.3	ND		1.2	ND		1.3	ND	
2-Hexanone	NC	14	ND		14	ND		14	ND		15	ND	
Dibromochloromethane	NC	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
Tetrachloroethene	1400	1.9	ND		1.9	ND		1.8	ND		2	ND	
Chlorobenzene	1700	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
Ethyl Benzene	5500	1.7	ND		1.7	ND		1.7	ND		1.8	ND	
m/p-Xylenes	1200	1.8	ND		1.8	ND		1.7	ND		1.9	ND	
o-Xylene	1200	1.9	ND		1.9	ND		1.9	ND		2	ND	
Styrene	NC	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
Bromoform	NC	1.2	ND		1.2	ND		1.1	ND		1.2	ND	
1,1,2,2-Tetrachloroethane	600	2.6	ND		2.6	ND		2.5	ND		2.8	ND	
Semi-Volatile Organic Compounds													
Phenol	30 or MDL	39	ND		39	ND		37	ND		41	ND	
bis(2-Chloroethyl)ether	NC	47	ND		47	ND		45	ND		49	ND	
2-Chlorophenol	800	43	ND		43	ND		41	ND		45	ND	
1,2-Dichlorobenzene	NC	39	ND		39	ND		37	ND		41	ND	
1,3-Dichlorobenzene	NC	47	ND		47	ND		45	ND		49	ND	
1,4-Dichlorobenzene	NC	39	ND		39	ND		37	ND		41	ND	
2-Methylphenol	100 or MDL	39	ND		39	ND		37	ND		41	ND	
2,2'-oxybis(1-Chloropropane)	NC	39	ND		39	ND		37	ND		41	ND	
3+4-Methylphenols	NC	70	ND		70	ND		67	ND		74	ND	
n-Nitroso-di-n-propylamine	NC	39	ND		39	ND		37	ND		41	ND	
Hexachloroethane	NC	43	ND		43	ND		41	ND		45	ND	
Nitrobenzene	200 or MDL	39	ND		39	ND		37	ND		41	ND	
Isophorone	4400	39	ND		39	ND		37	ND		41	ND	
2-Nitrophenol	330 or MDL	43	ND		43	ND		41	ND		45	ND	
2,4-Dimethylphenol	NC	89	ND		89	ND		86	ND		95	ND	
bis(2-Chloroethoxy)methane	NC	39	ND		39	ND		37	ND		41	ND	
2,4-Dichlorophenol	400	50	ND		50	ND		49	ND		53	ND	
1,2,4-Trichlorobenzene	NC	47	ND		47	ND		45	ND		49	ND	
Naphthalene	13000	47	240		47	ND		45	38	J	49	120	
4-Chloroaniline	220 or MDL	47	ND		47	ND		45	ND		49	ND	
Hexachlorobutadiene	NC	58	ND		58	ND		56	ND		62	ND	
4-Chloro-3-methylphenol	240 or MDL	43	ND		43	ND		41	ND		45	ND	
2-Methylnaphthalene	36400	47	77		47	ND		45	ND		49	ND	

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		PZ3-1			PZ3-2			SB3-1			SB3-2		
Lab Sample ID	TAGM		N5416-20			N5416-21			N5435-05			N5435-06		
Sample Collection Date	Recommended		08/02/2001			08/02/2001			08/03/2001			08/03/2001		
Sample Receipt Date	Soil Cleanup		08/02/2001			08/02/2001			08/03/2001			08/03/2001		
Sample Depth (bgs)	Objectives		4 - 5 ft			11 - 12 ft			1.5 - 2.5 ft			6 - 7 ft		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
Hexachlorocyclopentadiene	NC	150	ND		150	ND		140	ND		160	ND	
2,4,6-Trichlorophenol	NC	39	ND		39	ND		37	ND		41	ND	
2,4,5-Trichlorophenol	1000	39	ND		39	ND		37	ND		41	ND	
2-Chloronaphthalene	NC	47	ND		47	ND		45	ND		49	ND	
2-Nitroaniline	430 or MDL	39	ND		39	ND		37	ND		41	ND	
Dimethylphthalate	2000	39	ND		39	ND		37	ND		41	ND	
Acenaphthylene	41000	47	280		47	ND		45	ND		49	ND	
2,6-Dinitrotoluene	1000	39	ND		39	ND		37	ND		41	ND	
3-Nitroaniline	500 or MDL	47	ND		47	ND		45	ND		49	ND	
Acenaphthene	50,000***	47	92		47	ND		45	ND		49	60	
2,4-Dinitrophenol	200 or MDL	78	ND		78	ND		75	ND		82	ND	
4-Nitrophenol	100 or MDL	43	ND		43	ND		41	ND		45	ND	
Dibenzofuran	6200	39	140		39	ND		37	ND		41	ND	
2,4-Dinitrotoluene	NC	43	ND		43	ND		41	ND		45	ND	
Diethylphthalate	7100	39	ND		39	ND		37	ND		41	ND	
4-Chlorophenyl-phenylether	NC	47	ND		47	ND		45	ND		49	ND	
Fluorene	50,000***	43	190		43	ND		41	ND		46	47	
4-Nitroaniline	NC	93	ND		93	ND		90	ND		99	ND	
4,6-Dinitro-2-methylphenol	NC	47	ND		47	ND		45	ND		49	ND	
n-Nitrosodiphenylamine	NC	78	ND		78	ND		75	ND		82	ND	
4-Bromophenyl-phenylether	NC	50	ND		50	ND		49	ND		53	ND	
Hexachlorobenzene	410	43	ND		43	ND		41	ND		45	ND	
Pentachlorophenol	1,000 or MDL	74	ND		74	ND		71	ND		78	ND	
Phenanthrene	50,000***	43	1500		43	ND		37	62		40	320	
Anthracene	50,000***	50	380		50	ND		49	ND		52	66	
Carbazole	NC	39	200		39	ND		37	ND		41	ND	
Di-n-butylphthalate	8100	47	ND		47	ND		45	ND		49	ND	
Fluoranthene	50,000***	39	1800		39	ND		36	55		40	350	
Pyrene	50,000***	39	2000		39	ND		36	72		40	290	
Butylbenzylphthalate	50,000***	39	ND		39	ND		37	ND		41	ND	
3,3'-Dichlorobenzidine	NC	39	ND		39	ND		37	ND		41	ND	
Benzo(a)anthracene	224 or MDL	39	**920**		39	ND		36	46		40	140	
Chrysene	400	59	**1000**		59	ND		36	96		40	180	
Bis(2-Ethylhexyl)phthalate	50,000***	39	120		39	ND		60	82		41	ND	
Di-n-octyl phthalate	50,000***	58	ND		58	ND		56	ND		62	ND	
Benzo(b)fluoranthene	1100	39	680		39	ND		36	43		40	91	
Benzo(k)fluoranthene	1100	101	**1300**		101	ND		99	51	J	103	110	
Benzo(a)pyrene	61 or MDL	58	**900**		58	ND		56	40	J	60	**100**	
Indeno(1,2,3-cd)pyrene	3200	62	200		62	ND		60	ND		64	53	J
Dibenzo(a,h)anthracene	14 or MDL	58	**69**		58	ND		56	ND		62	ND	
Benzo(g,h,i)perylene	50,000***	50	310		50	ND		49	ND		52	59	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rurel areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SB4-1			SB5-1			SB6-1			SB8-1		
Lab Sample ID	TAGM		N5435-07			N5435-08			N5435-09			N5435-10		
Sample Collection Date	Recommended		08/03/2001			08/03/2001			08/03/2001			08/03/2001		
Sample Receipt Date	Soil Cleanup		08/03/2001			08/03/2001			08/03/2001			08/03/2001		
Sample Depth (bgs)	Objectives		6 - 7 ft			4 - 5 ft			5 - 6 ft			5 - 6 ft		
Sample Matrix	SOIL		SOIL			SOIL			SOIL			SOIL		
Units	µg/kg		µg/Kg			µg/Kg			µg/Kg			µg/Kg DUP of SB6-1		
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	
ORGANIC COMPOUNDS														
Volatile Organic Compounds														
Chloromethane	NC	3.5	ND		3.5	ND		3.6	ND		3.6	ND		
Vinyl Chloride	200	2.3	ND		2.3	ND		2.4	ND		2.4	ND		
Bromomethane	NC	2.4	ND		2.4	ND		2.5	ND		2.5	ND		
Chloroethane	1900	2.8	ND		2.8	ND		2.9	ND		2.9	ND		
1,1-Dichloroethene	400	2	ND		2	ND		2.1	ND		2.1	ND		
Acetone	200	7.25	17	B	7.2	ND		7.4	ND		7.4	ND		
Carbon Disulfide	2700	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
Methylene Chloride	100	1.4	ND		1.4	ND		1.5	ND		1.1	7		
trans-1,2-Dichloroethene	300	2.1	ND		2.1	ND		2.2	ND		2.2	ND		
1,1-Dichloroethane	200	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
2-Butanone	300	7	ND		7	ND		7.3	ND		7.3	ND		
cis-1,2-Dichloroethene	NC	2.3	ND		2.3	ND		2.4	ND		2.4	ND		
Chloroform	300	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
1,1,1-Trichloroethane	800	1.8	ND		1.8	ND		1.9	ND		1.9	ND		
Carbon Tetrachloride	600	1.3	ND		1.3	ND		1.3	ND		1.3	ND		
Benzene	60	1	7.2		1.2	ND		1.3	ND		1.3	ND		
1,2-Dichloroethane	100	3	ND		3	ND		3.2	ND		3.2	ND		
Trichloroethene	700	3.5	ND		3.5	ND		3.6	ND		3.6	ND		
1,2-Dichloropropane	NC	4.5	ND		4.5	ND		4.7	ND		4.7	ND		
Bromodichloromethane	NC	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
4-Methyl-2-Pentanone	1000	3.8	ND		3.8	ND		3.9	ND		3.9	ND		
Toluene	1500	1.6	ND		1.6	ND		1.6	ND		1.6	ND		
t-1,3-Dichloropropene	NC	2.1	ND		2.1	ND		2.1	ND		2.1	ND		
cis-1,3-Dichloropropene	NC	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
1,1,2-Trichloroethane	NC	1.3	ND		1.3	ND		1.4	ND		1.4	ND		
2-Hexanone	NC	15	ND		15	ND		16	ND		16	ND		
Dibromochloromethane	NC	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
Tetrachloroethene	1400	2	ND		2	ND		2.1	ND		2.1	ND		
Chlorobenzene	1700	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
Ethyl Benzene	5500	1.8	ND		1.8	ND		1.9	ND		1.9	ND		
m/p-Xylenes	1200	1.9	ND		1.9	ND		2	ND		2	ND		
o-Xylene	1200	2.1	ND		2.1	ND		2.1	ND		2.1	ND		
Styrene	NC	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
Bromoform	NC	1.2	ND		1.2	ND		1.3	ND		1.3	ND		
1,1,2,2-Tetrachloroethane	600	2.8	ND		2.8	ND		2.9	ND		2.9	ND		
Semi-Volatile Organic Compounds														
Phenol	30 or MDL	42	ND		41	ND		43	ND		43	ND		
bis(2-Chloroethyl)ether	NC	50	ND		49	ND		52	ND		52	ND		
2-Chlorophenol	800	46	ND		45	ND		48	ND		48	ND		
1,2-Dichlorobenzene	NC	42	ND		41	ND		43	ND		43	ND		
1,3-Dichlorobenzene	NC	50	ND		49	ND		52	ND		52	ND		
1,4-Dichlorobenzene	NC	42	ND		41	ND		43	ND		43	ND		
2-Methylphenol	100 or MDL	42	ND		41	ND		43	ND		43	ND		
2,2'-oxybis(1-Chloropropane)	NC	42	ND		41	ND		43	ND		43	ND		
3+4-Methylphenols	NC	75	ND		74	ND		78	ND		78	ND		
n-Nitroso-di-n-propylamine	NC	42	ND		41	ND		43	ND		43	ND		
Hexachloroethane	NC	46	ND		45	ND		48	ND		48	ND		
Nitrobenzene	200 or MDL	42	ND		41	ND		43	ND		43	ND		
Isophorone	4400	42	ND		41	ND		43	ND		43	ND		
2-Nitrophenol	330 or MDL	46	ND		45	ND		48	ND		48	ND		
2,4-Dimethylphenol	NC	96	ND		95	ND		100	ND		100	ND		
bis(2-Chloroethoxy)methane	NC	42	ND		41	ND		43	ND		43	ND		
2,4-Dichlorophenol	400	54	ND		53	ND		56	ND		56	ND		
1,2,4-Trichlorobenzene	NC	50	ND		49	ND		52	ND		52	ND		
Naphthalene	13000	50	93		49	45	J	52	270		52	110		
4-Chloroaniline	220 or MDL	50	ND		49	ND		52	ND		52	ND		
Hexachlorobutadiene	NC	63	ND		62	ND		65	ND		65	ND		
4-Chloro-3-methylphenol	240 or MDL	46	ND		45	ND		48	ND		48	ND		
2-Methylnaphthalene	36400	50	ND		49	ND		52	87		52	44	J	

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		SB4-1		SB5-1		SB6-1		SB8-1	
Lab Sample ID	TAGM		N5435-07		N5435-08		N5435-09		N5435-10	
Sample Collection Date	Recommended		08/03/2001		08/03/2001		08/03/2001		08/03/2001	
Sample Receipt Date	Soil Cleanup		08/03/2001		08/03/2001		08/03/2001		08/03/2001	
Sample Depth (bgs)	Objectives		6 - 7 ft		4 - 5 ft		5 - 6 ft		5 - 6 ft	
Sample Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Units	µg/kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
									DUP of SB6-1	
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
Hexachlorocyclopentadiene	NC	160	ND		160	ND		160	ND		160	ND	
2,4,6-Trichlorophenol	NC	42	ND		41	ND		43	ND		43	ND	
2,4,5-Trichlorophenol	1000	42	ND		41	ND		43	ND		43	ND	
2-Chloronaphthalene	NC	50	ND		49	ND		52	ND		52	ND	
2-Nitroaniline	430 or MDL	42	ND		41	ND		43	ND		43	ND	
Dimethylphthalate	2000	42	ND		41	ND		43	ND		43	ND	
Acenaphthylene	41000	50	ND		49	ND		52	1200		52	730	
2,6-Dinitrotoluene	1000	42	ND		41	ND		43	ND		43	ND	
3-Nitroaniline	500 or MDL	50	ND		49	ND		52	ND		52	ND	
Acenaphthene	50,000***	50	ND		49	ND		52	200		52	80	
2,4-Dinitrophenol	200 or MDL	83	ND		82	ND		87	ND		87	ND	
4-Nitrophenol	100 or MDL	46	ND		45	ND		48	ND		48	ND	
Dibenzofuran	6200	42	ND		41	ND		43	180		43	76	
2,4-Dinitrotoluene	NC	46	ND		45	ND		48	ND		48	ND	
Diethylphthalate	7100	42	ND		41	ND		43	ND		43	ND	
4-Chlorophenyl-phenylether	NC	50	ND		49	ND		52	ND		52	ND	
Fluorene	50,000***	46	ND		46	ND		48	210		48	160	
4-Nitroaniline	NC	100	ND		99	ND		100	ND		100	ND	
4,6-Dinitro-2-methylphenol	NC	50	ND		49	ND		52	ND		52	ND	
n-Nitrosodiphenylamine	NC	83	ND		82	ND		87	ND		87	ND	
4-Bromophenyl-phenylether	NC	54	ND		53	ND		56	ND		56	ND	
Hexachlorobenzene	410	46	ND		45	ND		48	ND		48	ND	
Pentachlorophenol	1,000 or MDL	79	ND		78	ND		82	ND		82	ND	
Phenanthrene	50,000***	42	45		40	ND		43	1300		43	1400	
Anthracene	50,000***	54	ND		52	ND		56	850		56	510	
Carbazole	NC	42	ND		41	ND		43	450		43	310	
Di-n-butylphthalate	8100	50	ND		49	ND		52	ND		52	ND	
Fluoranthene	50,000***	42	45		40	ND		220	6100	D	43	3400	
Pyrene	50,000***	42	ND		40	ND		220	7200	D	43	3000	
Butylbenzylphthalate	50,000***	42	ND		41	ND		43	ND		43	ND	
3,3'-Dichlorobenzidine	NC	42	ND		41	ND		43	ND		43	ND	
Benzo(a)anthracene	224 or MDL	42	ND		40	ND		43	**2800**		43	**1700**	
Chrysene	400	67	ND		40	ND		69	**3300**		69	**2100**	
Bis(2-Ethylhexyl)phthalate	50,000***	42	ND		41	ND		43	87		43	110	
Di-n-octyl phthalate	50,000***	63	ND		62	ND		65	ND		65	ND	
Benzo(b)fluoranthene	1100	42	ND		40	ND		220	**4000**	D	43	**1900**	
Benzo(k)fluoranthene	1100	110	ND		103	ND		110	**3500**		110	**2000**	
Benzo(a)pyrene	61 or MDL	63	ND		60	ND		65	**3500**		65	**1600**	
Indeno(1,2,3-cd)pyrene	3200	67	ND		64	ND		69	550		69	310	
Dibenzo(a,h)anthracene	14 or MDL	63	ND		62	ND		65	**170**		65	**89**	
Benzo(g,h,i)perylene	50,000***	54	ND		52	ND		56	1000		56	400	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		FB3	
Lab Sample ID	TAGM		N5435-11	
Sample Collection Date	Recommended		08/03/2001	
Sample Receipt Date	Soil Cleanup		08/03/2001	
Sample Depth (bgs)	Objectives		NA	
Sample Matrix	SOIL		WATER	
Units	µg/kg		µg/L	
		MDL	CONC	Q
ORGANIC COMPOUNDS				
Volatile Organic Compounds				
Chloromethane	NC	2.8	ND	
Vinyl Chloride	200	1.8	ND	
Bromomethane	NC	1.9	ND	
Chloroethane	1900	2.3	ND	
1,1-Dichloroethene	400	1.6	ND	
Acetone	200	5.8	ND	
Carbon Disulfide	2700	1	ND	
Methylene Chloride	100	1.1	3	B
trans-1,2-Dichloroethene	300	1.7	ND	
1,1-Dichloroethane	200	1	ND	
2-Butanone	300	5.6	ND	
cis-1,2-Dichloroethene	NC	1.8	ND	
Chloroform	300	1	ND	
1,1,1-Trichloroethane	800	1.5	ND	
Carbon Tetrachloride	600	1	ND	
Benzene	60	1	ND	
1,2-Dichloroethane	100	2.5	ND	
Trichloroethene	700	2.8	ND	
1,2-Dichloropropane	NC	3.6	ND	
Bromodichloromethane	NC	1	ND	
4-Methyl-2-Pentanone	1000	3	ND	
Toluene	1500	1.2	ND	
t-1,3-Dichloropropene	NC	1.7	ND	
cis-1,3-Dichloropropene	NC	1	ND	
1,1,2-Trichloroethane	NC	1.1	ND	
2-Hexanone	NC	12	ND	
Dibromochloromethane	NC	1	ND	
Tetrachloroethene	1400	1.6	ND	
Chlorobenzene	1700	1	ND	
Ethyl Benzene	5500	1.5	ND	
m/p-Xylenes	1200	1.5	ND	
o-Xylene	1200	1.7	ND	
Styrene	NC	1	ND	
Bromoform	NC	1	ND	
1,1,2,2-Tetrachloroethane	600	2.2	ND	
Semi-Volatile Organic Compounds				
Phenol	30 or MDL	1	ND	
bis(2-Chloroethyl)ether	NC	1.2	ND	
2-Chlorophenol	800	1.1	ND	
1,2-Dichlorobenzene	NC	1	ND	
1,3-Dichlorobenzene	NC	1.2	ND	
1,4-Dichlorobenzene	NC	1	ND	
2-Methylphenol	100 or MDL	1	ND	
2,2'-oxybis(1-Chloropropane)	NC	1	ND	
3+4-Methylphenols	NC	1.8	ND	
n-Nitroso-di-n-propylamine	NC	1	ND	
Hexachloroethane	NC	1.1	ND	
Nitrobenzene	200 or MDL	1	ND	
Isophorone	4400	1	ND	
2-Nitrophenol	330 or MDL	1.1	ND	
2,4-Dimethylphenol	NC	2.3	ND	
bis(2-Chloroethoxy)methane	NC	1	ND	
2,4-Dichlorophenol	400	1.3	ND	
1,2,4-Trichlorobenzene	NC	1.2	ND	
Naphthalene	13000	1.2	ND	
4-Chloroaniline	220 or MDL	1.2	ND	
Hexachlorobutadiene	NC	1.5	ND	
4-Chloro-3-methylphenol	240 or MDL	1.1	ND	
2-Methylnaphthalene	36400	1.2	ND	

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC		FB3	
Lab Sample ID	TAGM		N5435-11	
Sample Collection Date	Recommended		08/03/2001	
Sample Receipt Date	Soil Cleanup		08/03/2001	
Sample Depth (bgs)	Objectives		NA	
Sample Matrix	SOIL		WATER	
Units	µg/kg		µg/L	
		MDL	CONC	Q
Hexachlorocyclopentadiene	NC	3.8	ND	
2,4,6-Trichlorophenol	NC	1	ND	
2,4,5-Trichlorophenol	1000	1	ND	
2-Chloronaphthalene	NC	1.2	ND	
2-Nitroaniline	430 or MDL	1	ND	
Dimethylphthalate	2000	1	ND	
Acenaphthylene	41000	1.2	ND	
2,6-Dinitrotoluene	1000	1	ND	
3-Nitroaniline	500 or MDL	1.2	ND	
Acenaphthene	50,000***	1.2	ND	
2,4-Dinitrophenol	200 or MDL	2	ND	
4-Nitrophenol	100 or MDL	1.1	ND	
Dibenzofuran	6200	1	ND	
2,4-Dinitrotoluene	NC	1.1	ND	
Diethylphthalate	7100	1	ND	
4-Chlorophenyl-phenylether	NC	1.2	ND	
Fluorene	50,000***	1.1	ND	
4-Nitroaniline	NC	2.4	ND	
4,6-Dinitro-2-methylphenol	NC	1.2	ND	
n-Nitrosodiphenylamine	NC	2	ND	
4-Bromophenyl-phenylether	NC	1.3	ND	
Hexachlorobenzene	410	1.1	ND	
Pentachlorophenol	1,000 or MDL	1.9	ND	
Phenanthrene	50,000***	1	ND	
Anthracene	50,000***	1.3	ND	
Carbazole	NC	1	ND	
Di-n-butylphthalate	8100	1.2	ND	
Fluoranthene	50,000***	1	ND	
Pyrene	50,000***	1	ND	
Butylbenzylphthalate	50,000***	1	ND	
3,3'-Dichlorobenzidine	NC	1	ND	
Benzo(a)anthracene	224 or MDL	1	ND	
Chrysene	400	1.6	ND	
Bis(2-Ethylhexyl)phthalate	50,000***	1	ND	
Di-n-octyl phthalate	50,000***	1.5	ND	
Benzo(b)fluoranthene	1100	1	ND	
Benzo(k)fluoranthene	1100	2.6	ND	
Benzo(a)pyrene	61 or MDL	1.5	ND	
Indeno(1,2,3-cd)pyrene	3200	1.6	ND	
Dibenzo(a,h)anthracene	14 or MDL	1.5	ND	
Benzo(g,h,i)perylene	50,000***	1.3	ND	

NOTES:

bold Analyte exceedance of RSCO value
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
NC No Criteria
D Sample diluted for analysis
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.
**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC TAGM Eastern USA Background	NYSDEC TAGM Recommended Soil Cleanup Objectives		PZ1-1			PZ1-2			PZ2-1	
Lab Sample ID				N5416-14			N5416-15			N5416-17	
Sample Collection Date				08/02/2001			08/02/2001			08/02/2001	
Sample Receipt Date				08/02/2001			08/02/2001			08/02/2001	
Sample Depth (bgs)				2.5 - 3.5 ft			12.5 - 13.5 ft			3 - 4 ft	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL	
Units	mg/kg	mg/kg	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q
INORGANICS											
Metals											
Aluminum	33,000	SB	5.16	3020		5.48	5690		5.52	6860	
Antimony	NC	SB	0.42	4.2	B	0.44	0.79	B	0.45	7.1	B
Arsenic	3-12**	7.5 or SB	0.56	9.4		0.60	3.2		0.60	7.1	
Barium	15-600	300 or SB	0.23	81.9		0.24	45.9		0.24	176	
Beryllium	0-1.750	.16 (heast) or SB	0.11	0.46	B	0.12	0.5	B	0.12	0.36	B
Cadmium	.1-1	1 or SB	0.34	0.84		0.36	ND		0.36	**1.6**	
Calcium	130-35,000**	SB	1.21	7910	E	1.28	33700	E	1.29	20400	E
Chromium	1.5-40**	10 or SB	0.56	16.1		0.60	11.8		0.60	14	
Cobalt	2.5-60**	30 or SB	0.20	8.7		0.22	7.4		0.22	4.5	B
Copper	1-50	25 or SB	0.25	**136**		0.26	20.8		0.27	**734**	
Iron	2,000-550,000	2,000 or SB	0.79	21500		0.84	18900		0.85	12200	
Lead	200-500****	SB	0.34	446	E	0.36	21.5	E	0.36	**2600**	E
Magnesium	100-5,000	SB	8.58	3890	E	9.10	**21600**	E	9.17	**5590**	E
Manganese	50-5,000	SB	0.14	224		0.14	152		0.14	297	
Mercury	.001-.2	0.1	0.04	**0.76**	N	0.04	0.05	N	0.04	**2.9**	N
Nickel	.5-25	13 or SB	0.45	17.9		0.48	9.1		0.48	12.7	
Potassium	8,500-43,000**	SB	2.47	411	BE	2.63	1050	E	2.64	831	E
Selenium	.1-3.9	2 or SB	0.56	ND		0.60	ND		0.60	ND	
Silver	NC	SB	0.56	ND		0.60	ND		0.60	0.67	B
Sodium	6,000-8,000	SB	55.39	123	B	58.78	183	B	59.20	647	
Thallium	NC	SB	0.64	ND		0.68	ND		0.69	ND	
Vanadium	1-300	150 or SB	0.36	22.8		0.38	21.7		0.39	22.8	
Zinc	9-50	20 or SB	0.96	**408**		1.02	**99.1**		1.03	**475**	

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Concentration
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC	NYSDEC		PZ2-2			PZ3-1			PZ3-2			SB3-1	
Lab Sample ID	TAGM	TAGM		N5416-18			N5416-20			N5416-21			N5435-05	
Sample Collection Date	Eastern USA	Recommended		08/02/2001			08/02/2001			08/02/2001			08/03/2001	
Sample Receipt Date	Background	Soil Cleanup		08/02/2001			08/02/2001			08/02/2001			08/03/2001	
Sample Depth (bgs)	SOIL	Objectives		10 - 11 ft			4 - 5 ft			11 - 12 ft			1.5 - 2.5 ft	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL			SOIL	
Units	mg/kg	mg/kg	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q	MDL	MG/KG CONC	Q
INORGANICS														
Metals														
Aluminum	33,000	SB	5.45	4800		5.30	6930		5.34	7960		5.15	4330	
Antimony	NC	SB	0.44	ND		0.43	2.3	B	0.43	0.43	B	0.42	4.2	B
Arsenic	3-12**	7.5 or SB	0.60	2.7		0.58	**12.5**		0.58	2.2		0.56	5.6	
Barium	15-600	300 or SB	0.24	12.9	B	0.23	270		0.23	59.5		0.23	85.4	
Beryllium	0-1.750	.16 (heast) or SB	0.12	0.19	B	0.12	0.41	B	0.12	0.39	B	0.05	0.43	B
Cadmium	.1-1	1 or SB	0.36	ND		0.35	0.91		0.35	ND		0.34	0.88	
Calcium	130-35,000**	SB	1.28	2240	E	1.24	22500	E	1.25	1440	E	0.12	2150	E
Chromium	1.5-40**	10 or SB	0.60	8.6		0.58	21.4		0.58	20.2		0.56	9.2	
Cobalt	2.5-60**	30 or SB	0.21	4	B	0.21	8.3		0.21	11.6		0.20	7.1	
Copper	1-50	25 or SB	0.26	12.1		0.26	**125**		0.26	14.3		0.25	**334**	
Iron	2,000-550,000	2,000 or SB	0.83	8610		0.81	31100		0.82	14700		0.79	13300	E
Lead	200-500****	SB	0.36	14.4	E	0.35	440	E	0.35	6.8	E	0.34	**1520**	E
Magnesium	100-5,000	SB	9.05	2010	E	8.81	**7330**	E	8.87	**5110**	E	8.56	**1210**	
Manganese	50-5,000	SB	0.14	124		0.14	293		0.14	260		0.14	199	
Mercury	.001-.2	0.1	0.04	ND		0.04	**0.33**	N	0.04	ND		0.04	**0.58**	
Nickel	.5-25	13 or SB	0.48	7.5		0.46	17.2		0.47	15.3		0.45	9.8	
Potassium	8,500-43,000**	SB	2.61	467	BE	2.54	1550	E	2.56	2020	E	2.47	613	
Selenium	.1-3.9	2 or SB	0.60	ND		0.58	ND		0.58	ND		0.56	0.75	
Silver	NC	SB	0.60	ND		0.58	ND		0.58	ND		0.56	ND	
Sodium	6,000-8,000	SB	58.43	97.5	B	56.87	125	B	57.27	ND		55.26	ND	
Thallium	NC	SB	0.68	ND		0.66	ND		0.67	ND		0.06	ND	
Vanadium	1-300	150 or SB	0.38	7.9		0.37	34		0.37	25.8		0.36	14.9	
Zinc	9-50	20 or SB	1.01	**117**		0.99	**346**		0.99	39.1		0.96	**112**	E

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Conce
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID		NYSDEC		SB3-2			SB4-1			SB5-1			SB6-1	
Lab Sample ID	NYSDEC	TAGM		N5435-06			N5435-07			N5435-08			N5435-09	
Sample Collection Date	TAGM	Recommended		08/03/2001			08/03/2001			08/03/2001			08/03/2001	
Sample Receipt Date	Eastern USA	Soil Cleanup		08/03/2001			08/03/2001			08/03/2001			08/03/2001	
Sample Depth (bgs)	Background	Objectives		6 - 7 ft			6 - 7 ft			4 - 5 ft			5 - 6 ft	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL			SOIL	
Units	mg/kg	mg/kg		MG/KG			MG/KG			MG/KG			MG/KG	
			MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
INORGANICS														
Metals														
Aluminum	33,000	SB	5.64	10200		5.68	6300		5.57	11200		5.96	4630	
Antimony	NC	SB	0.46	0.87	B	0.46	ND		0.45	ND		0.48	13.9	
Arsenic	3-12**	7.5 or SB	0.62	3.5		0.62	3.2		0.61	3.4		0.65	13.7	
Barium	15-600	300 or SB	0.25	73.5		0.25	50.1		0.24	39.7		0.26	53.2	
Beryllium	0-1.750	.16 (heast) or SB	0.05	0.46	B	0.05	0.34	B	0.05	0.44	B	0.05	0.32	B
Cadmium	.1-1	1 or SB	0.37	ND		0.37	ND		0.37	ND		0.39	0.83	
Calcium	130-35,000**	SB	0.13	1730	E	0.13	**56400**	E	0.13	12100	E	0.14	2920	E
Chromium	1.5-40**	10 or SB	0.62	22.3		0.62	11.3		0.61	16.4		0.65	**13.7**	
Cobalt	2.5-60**	30 or SB	0.22	10.4		0.22	4.2	B	0.22	8.7		0.23	11.5	
Copper	1-50	25 or SB	0.27	**75.3**		0.27	8.3		0.27	17.5		0.29	**135**	
Iron	2,000-550,000	2,000 or SB	0.86	18100	E	0.87	12300	E	0.85	20100	E	0.91	27000	E
Lead	200-500****	SB	0.37	142	E	0.37	19.1	E	0.37	12.9	E	0.39	**684**	E
Magnesium	100-5,000	SB	9.37	3430		9.44	**22300**		9.26	**5080**		9.90	2150	
Manganese	50-5,000	SB	0.15	275		0.15	292		0.15	281		0.16	161	
Mercury	.001-.2	0.1	0.04	**0.6**		0.04	0.07		0.04	0.07		0.04	**0.32**	
Nickel	.5-25	13 or SB	0.49	17.8		0.50	8.3		0.49	12.5		0.52	18	
Potassium	8,500-43,000**	SB	2.70	1860		2.72	954		2.67	1010		2.86	693	
Selenium	.1-3.9	2 or SB	0.62	ND		0.62	ND		0.61	ND		0.65	ND	
Silver	NC	SB	0.62	ND		0.62	ND		0.61	ND		0.65	ND	
Sodium	6,000-8,000	SB	60.52	ND		60.97	113	B	59.78	ND		63.91	75.2	B
Thallium	NC	SB	0.07	ND		0.07	ND		0.07	ND		0.07	ND	
Vanadium	1-300	150 or SB	0.40	28.1		0.40	13		0.39	23.2		0.42	14.9	
Zinc	9-50	20 or SB	1.05	**70.4**	E	1.06	**63.7**	E	1.04	45.3	E	1.11	**160**	E

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Conce
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	NYSDEC	NYSDEC		SB8-1			SB11-1			SB17-1			SB17-2	
Lab Sample ID	TAGM	TAGM		N5435-10			N5458-06			N5458-03			N5458-04	
Sample Collection Date	Recommended	Recommended		08/03/2001			08/06/2001			08/06/2001			08/06/2001	
Sample Receipt Date	Eastern USA	Soil Cleanup		08/03/2001			08/07/2001			08/07/2001			08/07/2001	
Sample Depth (bgs)	Background	Objectives		5 - 6 ft			2 - 3 ft			2 - 3 ft			6 - 7 ft	
Sample Matrix	SOIL	SOIL		SOIL			SOIL			SOIL			SOIL	
Units	mg/kg	mg/kg		MG/KG			MG/KG			MG/KG			MG/KG	
				DUP of SB6-1										
			MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
INORGANICS														
Metals														
Aluminum	33,000	SB	5.97	4090		5.49	6310		4.81	5990		5.38	7500	
Antimony	NC	SB	0.48	15.9		0.44	3.6	B	0.39	15.1		0.44	0.82	B
Arsenic	3-12**	7.5 or SB	0.65	**22.3**		0.60	**20.2**		0.53	**17.5**		0.59	0.96	B
Barium	15-600	300 or SB	0.26	274		0.24	253		0.21	107		0.24	73.5	
Beryllium	0-1.750	.16 (heast) or SB	0.05	0.41	B	0.01	0.51	B	0.01	0.41	B	0.01	0.36	B
Cadmium	.1-1	1 or SB	0.39	**2.6**		0.36	**1.6**		0.32	**1.8**		0.35	ND	
Calcium	130-35,000**	SB	0.14	7260	E	1.29	31900		1.13	11400		1.26	1620	
Chromium	1.5-40**	10 or SB	0.65	30.2		0.60	18.9		0.53	28		0.59	18.7	
Cobalt	2.5-60**	30 or SB	0.23	8.8		0.22	11.2		0.19	10.5		0.21	9.1	
Copper	1-50	25 or SB	0.29	**238**		0.26	**123**		0.23	**228**		0.26	23.9	
Iron	2,000-550,000	2,000 or SB	0.91	56100	E	0.84	25400		0.74	46100		0.82	14200	
Lead	200-500****	SB	0.39	**676**	E	0.36	**559**	N	0.32	**1020**	N	0.35	15.2	N
Magnesium	100-5,000	SB	9.91	2500		9.12	**5720**		7.98	**7490**		8.94	3910	
Manganese	50-5,000	SB	0.16	304		0.14	359		0.13	453		0.14	142	
Mercury	.001-.2	0.1	0.04	**1.3**		0.04	**1.2**		0.03	**0.79**		0.04	ND	
Nickel	.5-25	13 or SB	0.52	**28.7**		0.48	**30.3**		0.42	22.1		0.47	14.6	
Potassium	8,500-43,000**	SB	2.86	581	B	2.63	1360	E	2.30	669	E	2.58	2930	E
Selenium	.1-3.9	2 or SB	0.65	ND		0.60	ND		0.53	ND		0.59	ND	
Silver	NC	SB	0.65	ND		0.60	ND		0.53	ND		0.59	ND	
Sodium	6,000-8,000	SB	63.99	118	B	58.92	195	B	51.55	ND		57.74	ND	
Thallium	NC	SB	0.07	ND		0.69	ND		0.60	ND		0.67	ND	
Vanadium	1-300	150 or SB	0.42	67.7		0.38	43.4		0.34	31.9		0.38	24.5	
Zinc	9-50	20 or SB	1.11	**638**	E	1.02	**443**		0.89	**256**		1.00	**52**	

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Conce
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-3
Subsurface Soil Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID		NYSDEC	NYSDEC		FB3	
Lab Sample ID		TAGM	Recommended		N5435-11	
Sample Collection Date		Eastern USA	Soil Cleanup		08/03/2001	
Sample Receipt Date		Background	Objectives		08/03/2001	
Sample Depth (bgs)					NA	
Sample Matrix		SOIL	SOIL		WATER	
Units		mg/kg	mg/kg		µg/L	
				MDL	CONC	Q
INORGANICS						
Metals						
	Aluminum	33,000	SB	4.57	ND	
	Antimony	NC	SB	0.37	ND	
	Arsenic	3-12**	7.5 or SB	0.50	ND	
	Barium	15-600	300 or SB	0.20	ND	
	Beryllium	0-1.750	.16 (heast) or SB	0.04	0.64	B
	Cadmium	.1-1	1 or SB	0.30	ND	
	Calcium	130-35,000**	SB	0.11	62.1	B
	Chromium	1.5-40**	10 or SB	0.50	ND	
	Cobalt	2.5-60**	30 or SB	0.18	ND	
	Copper	1-50	25 or SB	0.22	ND	
	Iron	2,000-550,000	2,000 or SB	0.70	8	B
	Lead	200-500****	SB	0.30	ND	
	Magnesium	100-5,000	SB	7.59	ND	
	Manganese	50-5,000	SB	0.12	ND	
	Mercury	.001-.2	0.1	0.03	ND	
	Nickel	.5-25	13 or SB	0.40	ND	
	Potassium	8,500-43,000**	SB	2.19	ND	
	Selenium	.1-3.9	2 or SB	0.50	ND	
	Silver	NC	SB	0.50	ND	
	Sodium	6,000-8,000	SB	49.02	ND	
	Thallium	NC	SB	0.06	ND	
	Vanadium	1-300	150 or SB	0.32	ND	
	Zinc	9-50	20 or SB	0.85	ND	

NOTES:

bold Analyte exceedance of RSCOs and Eastern USA Background Conce
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
E Estimated value
B Estimated value
N Spiked sample recovery not within control limits
NC No Criteria
D Sample diluted for analysis
** New York State Background
*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. Individual Semi-VOCs <50 ppm. Total pesticides < 10 ppm.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or surburban areas or near highways are much higher and typically range from 200-500 ppm.

HEAST Health Effects Assessments Summary Table
SB Site Background

Table B-4
Groundwater Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	New York State GA Groundwater Standards	NYSDEC TAGM Groundwater Standards		PZ-1			PZ-2			PZ-3		
Lab Sample ID				N5416-16			N5416-19DL			N5416-22		
Sample Collection Date				08/02/2001			08/02/2001			08/02/2001		
Sample Receipt Date				08/02/2001			08/02/2001			08/02/2001		
Sample Depth (bgs)				9 ft			6 ft			12 ft		
Sample Matrix	WATER	WATER		WATER			WATER			WATER		
Units	µg/l	µg/l	MDL	µg/L CONC	Q	MDL	µg/L CONC	Q	MDL	µg/L CONC	Q
ORGANIC COMPOUNDS											
Volatile Organic Compounds											
Chloromethane	NC	NC	2.8	ND		2.8	ND		2.8	ND	
Vinyl Chloride	2	2	1.8	**7.7**		1.8	ND		1.8	ND	
Bromomethane	5	NC	1.9	ND		1.9	ND		1.9	ND	
Chloroethane	5	50	2.3	ND		2.3	ND		2.3	ND	
1,1-Dichloroethene	5	5	1.6	ND		1.6	ND		1.6	ND	
Acetone	NC	50	5.8	ND		5.8	ND		5.8	ND	
Carbon Disulfide	NC	50	1	ND		1	ND		1	ND	
Methylene Chloride	5	5	1.1	ND		1.1	ND		1.1	3.1	B
trans-1,2-Dichloroethene	5	5	1.7	ND		1.7	ND		1.7	ND	
1,1-Dichloroethane	5	5	1	ND		1	ND		1	ND	
2-Butanone	NC	50	5.6	ND		5.6	ND		5.6	ND	
cis-1,2-Dichloroethene	5	NC	1.8	**25**		1.8	ND		1.8	ND	
Chloroform	7	7	1	ND		1	ND		1	ND	
1,1,1-Trichloroethane	5	5	1.5	ND		1.5	ND		1.5	ND	
Carbon Tetrachloride	5	5	1	ND		1	ND		1	ND	
Benzene	1	1	1	ND		100	**17000**	D	1	**5.5**	
1,2-Dichloroethane	0.6	5	2.5	ND		2.5	ND		2.5	ND	
Trichloroethene	5	5	2.8	3.7		2.8	ND		2.8	ND	
1,2-Dichloropropane	1	NC	3.6	ND		3.6	ND		3.6	ND	
Bromodichloromethane	50	NC	1	ND		1	ND		1	ND	
4-Methyl-2-Pentanone	NC	50	3	ND		3	ND		3	ND	
Toluene	5	5	1.2	ND		1.2	**180**		1.2	ND	
t-1,3-Dichloropropene	0.4****	NC	1.7	ND		1.7	ND		1.7	ND	
cis-1,3-Dichloropropene	0.4****	NC	1	ND		1	ND		1	ND	
1,1,2-Trichloroethane	1	NC	1.1	ND		1.1	**12**		1.1	ND	
2-Hexanone	NC	NC	12	ND		12	ND		12	ND	
Dibromochloromethane	50	50	1	ND		1	ND		1	ND	
Tetrachloroethene	5	5	1.6	ND		1.6	ND		1.6	ND	
Chlorobenzene	5	5	1	ND		1	ND		1	ND	
Ethyl Benzene	5	5	1.5	ND		150	**370**	D	1.5	ND	
m/p-Xylenes	NC	5*	1.5	ND		150	**1400**	D	1.5	ND	
o-Xylene	NC	5*	1.7	ND		1.7	**180**		1.7	ND	
Styrene	5	NC	1	ND		1	ND		1	ND	
Bromoform	50	NC	1	ND		1	ND		1	ND	
1,1,2,2-Tetrachloroethane	5	5	2.2	ND		2.2	ND		2.2	ND	

NOTES:

bold Analyte exceedance of NYSGA Groundwater standards and NYSDEC TAGM Groundwater standards
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
B Analyte found in blank as well as the sample
NC No Criteria
D Sample diluted for analysis
* Total xylenes

Table B-4
Groundwater Sampling Analytical Data
Phase II ESI
Former Metro North Property
Bronx, New York

Client Sample ID	New York State GA Groundwater Standards	NYSDEC TAGM Groundwater Standards		SB-3			SB17			TRIPBLANK	
Lab Sample ID				N5435-13			N5458-05			N5435-14	
Sample Collection Date				08/03/2001			08/07/2001			01/19/2001	
Sample Receipt Date				08/03/2001			08/07/2001			08/03/2001	
Sample Depth (bgs)				8 ft			7 ft			NA	
Sample Matrix	WATER	WATER		WATER			WATER			WATER	
Units	µg/l	µg/l	MDL	µg/L CONC	Q	MDL	µg/L CONC	Q	MDL	µg/L CONC	Q
ORGANIC COMPOUNDS											
Volatile Organic Compounds											
Chloromethane	NC	NC	2.8	ND		2.8	ND		2.8	ND	
Vinyl Chloride	2	2	1.8	ND		1.8	ND		1.8	ND	
Bromomethane	5	NC	1.9	ND		1.9	ND		1.9	ND	
Chloroethane	5	50	2.3	ND		2.3	ND		2.3	ND	
1,1-Dichloroethene	5	5	1.6	ND		1.6	2.2		1.6	ND	
Acetone	NC	50	5.8	9.8		5.8	ND		5.8	ND	
Carbon Disulfide	NC	50	1	ND		1	ND		1	ND	
Methylene Chloride	5	5	1.1	ND		1.1	ND		1.1	3	B
trans-1,2-Dichloroethene	5	5	1.7	ND		1.7	ND		1.7	ND	
1,1-Dichloroethane	5	5	1	ND		1	ND		1	ND	
2-Butanone	NC	50	5.6	ND		5.6	ND		5.6	ND	
cis-1,2-Dichloroethene	5	NC	1.8	ND		1.8	ND		1.8	ND	
Chloroform	7	7	1	ND		1	ND		1	ND	
1,1,1-Trichloroethane	5	5	1.5	ND		1.5	ND		1.5	ND	
Carbon Tetrachloride	5	5	1	ND		1	ND		1	ND	
Benzene	1	1	1	ND		1	ND		1	ND	
1,2-Dichloroethane	0.6	5	2.5	ND		2.5	ND		2.5	ND	
Trichloroethene	5	5	2.8	ND		2.8	2.2	J	2.8	ND	
1,2-Dichloropropane	1	NC	3.6	ND		3.6	ND		3.6	ND	
Bromodichloromethane	50	NC	1	ND		1	ND		1	ND	
4-Methyl-2-Pentanone	NC	50	3	ND		3	ND		3	ND	
Toluene	5	5	1.2	ND		1.2	ND		1.2	ND	
t-1,3-Dichloropropene	0.4****	NC	1.7	ND		1.7	ND		1.7	ND	
cis-1,3-Dichloropropene	0.4****	NC	1	ND		1	ND		1	ND	
1,1,2-Trichloroethane	1	NC	1.1	ND		1.1	ND		1.1	ND	
2-Hexanone	NC	NC	12	ND		12	ND		12	ND	
Dibromochloromethane	50	50	1	ND		1	ND		1	ND	
Tetrachloroethene	5	5	1.6	ND		1.6	4.1		1.6	ND	
Chlorobenzene	5	5	1	ND		1	ND		1	ND	
Ethyl Benzene	5	5	1.5	ND		1.5	ND		1.5	ND	
m/p-Xylenes	NC	5*	1.5	ND		1.5	ND		1.5	ND	
o-Xylene	NC	5*	1.7	ND		1.7	ND		1.7	ND	
Styrene	5	NC	1	ND		1	ND		1	ND	
Bromoform	50	NC	1	ND		1	ND		1	ND	
1,1,2,2-Tetrachloroethane	5	5	2.2	ND		2.2	ND		2.2	ND	

NOTES:

bold Analyte exceedance of NYSGA Groundwater standards and NYSDEC TAGM Groundwater standards
MDL Method Detection Limit
CONC Concentration
Q Qualifier
NA Not Analyzed
ND Not Detected
J Estimated value
B Analyte found in blank as well as the sample
NC No Criteria
D Sample diluted for analysis
* Total xylenes

APPENDIX C

ENVIRONMENTAL SAMPLES - LABORATORY ANALYTICAL DATA REPORTS

LABORATORY ANALYTICAL DATA REPORTS ARE PROVIDED UNDER SEPARATE COVER

APPENDIX D

PERSONNEL RESUMES

AREAS OF EXPERTISE

- project management
- remedial investigation and site characterization
- investigation and remediation of MGP sites

EDUCATION

Rutgers University, M.S., Geology, 1982

Rutgers University, B.A., Geology, 1974

REGISTRATION

Registered Professional Geologist: Arkansas, 1989
Indiana, 1981

PROFESSIONAL HISTORY

URS, Principal Geologist, 2000 to date

URS Greiner Woodward Clyde, Principal Geologist, 1997 – 1999

Woodward-Clyde Consultants, Staff Geologist to Consulting Professional, 1978 - 1997

AFFILIATIONS

Geological Society of America

American Geophysical Union

Association of Engineering Geologists

REPRESENTATIVE EXPERIENCE

Mr. Seborowski has 23 years of experience in engineering and environmental investigations. He has been responsible for the implementation of geophysical surveys for engineering evaluations and for the characterization of subsurface environmental conditions. He has been responsible for the design and implementation of remedial investigations at former manufacturing facilities, active and inactive hazardous and non-hazardous waste sites and former manufactured gas plant (MGP) facilities. For the past 12 years, his focus has been directed to the investigation and remediation of former MGP sites.

Representative project experience includes:

- Project Manager for the development and implementation of a remedial investigation at a former MGP site in northern New Jersey. Field activities included: surface soil sampling; subsurface soil sampling from test trenches and soil borings; drilling, installing, and sampling overburden and bedrock monitoring wells; and, collecting surface water/sediment samples from the adjacent river.
- Developed and implemented Interim Remedial Measures (IRMs) at a former MGP site in northern New Jersey. The IRMs included a bulkhead extension/collection system to contain site contaminants leaching into an adjacent river; source removal of contaminants from a subsurface tar pit; and, pilot product recovery systems.
- Project Manager for the evaluation of remedial alternatives to resolve environmental issues associated with a former MGP site in northern New Jersey. This evaluation included: an exposure pathways analysis, evaluations of applicable remediation technologies for soil and groundwater contamination; selection of the preferred remedial action; and, development of a conceptual (30 percent complete) design to resolve soil and groundwater contamination at the site.
- Project Manager for development of the plans and specifications for the remediation of a former MGP site in northern New Jersey. This work consisted of the design and implementation of engineering and hydrogeologic studies to establish final design parameters and subsequently to complete the final design. The planned remediation consists of the isolation of the site by the

installation of a hydraulic barrier comprised of a sheet pile wall and soil bentonite wall, regrading of the site and the installation of an asphalt cap and soil cover, the replacement of existing active underground utilities (natural gas, sanitary sewer, storm sewer, high pressure water mains), and the installation and operation of a groundwater recovery and treatment system consisting of 26 recovery wells conveying contaminated groundwater to a treatment train comprised of an equalization tank, a dissolved air floatation unit, a carbon fluidized bed reactor, a flocculating clarifier, a sand filter system and a liquid granular activated carbon unit. The treated effluent will be discharged directly to a surface water body. The complete design consisted of approximately 145 detailed design drawings and the supporting specifications.

- Project Manager for the development and implementation of a remedial investigation at a former MGP site in northeastern, New Jersey. Field activities included: surface soil sampling; subsurface soil sampling from test trenches and soil borings; drilling, installing, and, sampling overburden monitoring wells; and, sampling ambient air and soil gas emissions. Developed the remedial action implemented at the site and provided technical support and oversight during remediation.
- Project Manager for the implementation of remedial investigations at two former MGP sites in southern New Jersey.
- Assisted in the development and was the Project Manager for the implementation of Preliminary Site Screening Programs for former MGP sites to determine if any imminent health threat existed for residents on or near the sites.
- Developed and implemented an indoor air sampling program in 18 residences constructed at a former MGP site.
- Project Manager during completion of an ISRA/ECRA regulated investigation and remediation at a manufacturing site in Roseland, New Jersey. Activities included preparation of technical specifications and design drawings for a groundwater pump and treat system, preparation of construction specifications and bid packages, and, as agent to the client, arranged for the construction of the treatment system. Provided oversight

during the operation of the groundwater remediation program, ultimately completing remediation activities, decommissioning and removing the groundwater treatment system and completing the ISRA requirements for the Site.

- Investigated over 40 hazardous waste sites (active and inactive) for organic, inorganic and heavy metal contamination utilizing geophysical techniques to locate contamination sources and provide plume characterization.

AREAS OF EXPERTISE

- hydrology
- site investigations

EDUCATION

S.U.N.Y Oneonta: B.S., Water Resources, 1994
Minor Geology

PROFESSIONAL HISTORY

URS, Geologist, April 2000 to present

LMS Engineers, LLP,Geologist, 1997

ONSITE Environmental, Field Tech, 1996

CA RICH Consultants, Staff Scientist, 1995

AFFILIATIONS

NEGSA;

NYSGA;

Long Island Geologists

Association for Women Geoscientists,

Hudson-Mohawk Professional Geologists' Association

TRAINING

Health and Safety Training Course for Hazardous Waste Operations, 40-hour, 1996

Hazardous Waste Operations Training, 8-hour refresher, 1999

REPRESENTATIVE EXPERIENCE

Ms. Hollister is a geologist who has conducted field investigations for projects in both the public and private sectors, including work for the New York State Department of Environmental Conservation (NYSDEC), the New York City Department of Environmental Protection (NYCDEP), the New York State Department of Transportation (NYSDOT), the Dormitory Authority of the State of New York (DASNY), and private industry.

Ms. Hollister has conducted site investigations consisting of exploratory drilling and soil sampling, along with well installation, development, and sampling. As a project geologist she is responsible for such activities as completing boring logs; taking static water level (SWL) measurements; supervision of drilling and remediation contractors in the field; conducting water, soil, soil gas, and air sampling; performing slug and well pumping tests for hydraulic testing; interpreting and evaluating geological and hydrological data; and preparing reports on her activities. She is also familiar with sampling and chain-of-custody protocols.

Ms. Hollister has prepared cost estimates, work plans, site health and safety plans, and site contamination assessment reports. She has been a field team leader during drilling and field sampling activities at a number of hazardous waste and contaminated sites for sampling of groundwater, surface water, sediment, and surface soil, and monitoring air quality. She is familiar with rotary and hollow-stem auger drilling techniques as well as hydraulic probe sampling, and is accustomed to resolving difficulties encountered during the course of a drilling program. She is also experienced in interpreting field data, reviewing gamma-ray well log correlations, and performing and reviewing seismic profiling.

Representative sites include Superfund sites under the direction of the NYSDEC. Most of these sites required the delineation of a contaminant plume consisting primarily of volatile organic compounds. The sources of these materials were usually associated with the landfilling of spent solvents on the facilities.

For a number of petroleum-contaminated and underground storage tank (UST) sites Ms. Hollister has supervised the excavation of USTs and contaminated soils, conducted air monitoring with real-time instrumentation (flame ionization detector [FID], photoionization detector [PID]), supervised the installation of subsurface soil borings and monitoring

LICENSES

Accredited AHERA inspector

NJ Reg. No. RWJ2042

NY Cert. No. AH00-21574

wells, and conducted site inspections.

Representative sites include:

- Ms. Hollister was a field team leader for a remedial investigation/feasibility study (RI/FS) for NYSDEC at the United Plating site in Schenectady, New York. Ms. Hollister was responsible for preparing and implementing the work plan, as well as installing and developing monitoring wells, logging bedrock cores, collecting soil samples from some of the new wells, and collecting water samples from all new and existing wells. She was also involved with data review and report preparation.
- Ms. Hollister was a project geologist at the Mohonk Road Industrial Plant in Ulster County for NYSDEC. Ms. Hollister collected surface and groundwater samples to determine volatile organic compound (VOC) concentrations and the extent of the groundwater contamination plume. She was involved in well pumping tests. She also supervised a subsurface investigation that included downhole geophysics involving borehole video, fluid resistivity, caliper, and dual temperature logging.
- Ms. Hollister was a project geologist for NYCDEP at Flushing Bay in Queens. While supervising drillers, she logged and visually characterized hundreds of split-spoon soil samples to determine removal requirements for hazardous, industrial, and clean soil during construction of a 30-million gallon UST.
- For a number of petroleum-contaminated and UST sites Ms. Hollister has supervised the excavation of USTs and contaminated soils, conducted air monitoring with real-time instrumentation (FID, PID), supervised the installation of subsurface soil borings and monitoring wells, and conducted site inspections.
- Ms. Hollister has worked on Phase I Environmental Assessments and has been the principal writer for site reports. She has done environmental audits/inspections of industrial, commercial and residential properties. Reports consist of historical background and regulatory searches, on-site visual inspections and limited sampling for hazardous materials and/or conditions, and recommendations for remediation of historical contamination, hazardous materials and/or conditions. These reports are used in assessing the environmental integrity and liability associated with the property.

- As part of tenant inspections for property owners, Ms. Hollister has performed independent environmental inspections of properties for owners. These inspections serve to both establish a baseline of the building conditions and to alert the property owner of potential environmental problems that may occur in the future. These inspections include, but are not limited to: review of appropriate operating permits (wastewater discharge, air discharge, chemical storage, USTs); inspection of hazardous substance storage; review of hazardous waste disposal practices; and contact with tenants, including notification of any possible items that need to be remedied.
- Sampled for asbestos at Newark International Airport.
- Randomly sampled 600 acres at BASF in Belvidere, NJ for TPH and metals. Some discrete sampling for VOCs, SVOCs, Pest/PCBs and metals.
- On a limited budget, supervised 10 geoprobe borings to sample the groundwater for delineation for a VOC contaminant plume. Samples were analyzed on site for quick turnaround time.

AREAS OF EXPERTISE

- feasibility studies
- construction management
- wastewater collection and treatment
- sanitary landfills
- hazardous waste remediation
- coastal zone management programs

EDUCATION

Northeastern University, M.S., Environmental Engineering, 1983

Boston University, M.B.A., Business Administration, 1996

University of Washington, B.S:, Fisheries Science, 1976

Tufts University, B.S., Civil Engineering, 1970

REGISTRATION

Professional Engineer: New York, Connecticut, Massachusetts, Georgia, Rhode Island

PROFESSIONAL HISTORY

URS Corporation,

Principal Environmental Engineer, 1997 to date

ABB Environmental Services, Design Lead, 1993 - 1997

REPRESENTATIVE EXPERIENCE

Mr. Coffey has more than 28 years of experience in project management and has filled the roles of Principal Environmental Engineer, Design Leader, Chief Engineer and Department Manager for process and design engineering for more than ten years. He is a Civil/Environmental Engineer with an unusually comprehensive background which encompasses both the traditional, and more current, technologies for treatment and disposal of conventional, and hazardous wastes, respectively. Experience includes feasibility studies, and planning, design, construction management and construction inspection of municipal, industrial and private wastewater collection and treatment systems, water systems, sanitary landfills, hazardous waste remediation and storage facilities, and coastal zone management programs.

Mr. Coffey has a working knowledge of RCRA, CERCLA, TSCA, TURA and other regulatory requirements. He has performed sampling and analysis of wastewater treatment plants and made recommendations for operational changes; he has evaluated the effects of asbestos and other toxic and hazardous substances in the environment. His experience includes sampling and analysis of lake, stream, estuarine and marine waters, identification of aquatic life and the studies of the effects on aquatic life of chemical and thermal pollution, and radioactive inputs.

- **Sewer District No. 1, Rockland County, NY:** As Project Manager for Design/Construction Services for Rockland County, New York Sewer District No. 1, supervised a multi-disciplinary team of civil, structural, electrical, mechanical and instrumentation engineers for a $140 million expansion of wastewater treatment facility. His responsibilities included interfacing with client and numerous contractors on a multi-prime series of contracts.
- **Confidential Client, MA:** As Project Manager, was responsible for overseeing a team of civil, electrical, instrumentation, and mechanical engineers for the study/design/construction services for oil/water separation facilities and outfall reconstruction of over ten storm drain outfalls servicing a large manufacturing facility. Complete hydraulic analysis and NPDES permitting of outfalls was part of the work. Project had a

Wehran Engineering, Department Manager, 1988 - 1993

URS Corporation, Senior Project Manager, 1985 – 1988

Wehran Engineering, Senior Project Manager, 1983 - 1985

AFFILIATIONS

Water Environment Association

New England Water Environment Association

Instrument Society of America

American Society of Civil Engineers

$6 million construction value.

- **Metropolitan District Commission, Boston, MA:** Project Engineer coordinating a team of civil, electrical, mechanical, and instrumentation engineers on the design of a comprehensive computerized flow monitoring system to wholesale water to more than a score of cities and towns on the Metropolitan District Commission's service area around Boston, MA.
- **Town of South Berwick, ME:** As Project Engineer, was in charge of hydraulic analysis and design of improvements to an existing water system . The work included field monitoring of flows, computer analysis of the existing system, and recommendations and design for improvements, as well as projected construction cost estimates.
- **Rhode Island Solid Waste Management Corporation, Central Landfill, Johnston, RI:** As Project Manager, was responsible for coordination of a team of civil, electrical, instrumentation, and mechanical engineers for design of water main distribution and metering facilities, a subsurface methane gas migration control facility, and access roadways and scale facilities at the Central Landfill in Johnston, RI. He was also Project Manager during the construction and start-up of these facilities.
- **Towns of Colchester and East Hampton, CT:** As Design Engineer, designed the entire sewerage collection system, including eleven sewage pump stations, for Colchester and East Hampton Connecticut.
- **Confidential Client, MA:** As Project Manager, was responsible for a treatability study and design of an activated carbon-activated sludge industrial wastewater treatment plant for treatment and removal of diethylhexylpthalate at a plastics manufacturing facility. The plant was designed to meet OCPSF standards.
- **Confidential Client, MA:** As Project Manager, was responsible for turnkey services (associated design, procurement and construction) for a groundwater recovery and treatment system, and for a separate phase product recovery system at an operating aerospace manufacturing facility.
- **Confidential Client, NJ:** As Principal Environmental Engineer, coordinated a team of civil and electrical

engineers and hydrogeologists for the design of a site perimeter groundwater containment and extraction facility to address a wide range of contaminants in groundwater at the former chemical manufacturing industrial site. Isolation and capping of contaminated soil was also a part of this design effort.

- **RayMark Facility Superfund Site, Stratford, CT:** As Design Lead, coordinated a multi-disciplinary team of civil, structural, mechanical, instrumentation, and electrical engineers for the design of a gas control and treatment system for a 30-acre site at a former asbestos brake manufacturing facility. Treatment of the off-gases will consist of both granular activated carbon systems, and thermal oxidation systems.
- **Confidential Client, MA:** As Project Manager, was responsible for overseeing the design of PCB decontamination, and subsequent rehabilitation of an asbestos-paneled operating manufacturing facility for heavy industrial use. The design included specifications for the injection of grout into the building foundations to inhibit further seepage of PCB contaminated groundwater into work areas in the basement area of the building. Drawings and specifications detailing the cleaning operations, and subsequent demolition and construction work were prepared and put out to bid. The design approach minimized costs while allowing continued use of the building.
- **Confidential Client, MA:** As Design Manager personally inspected and evaluated extensive reinforced concrete steam tunnel network at a heavy industrial manufacturing facility in the metropolitan Boston area. The Steam piping system within the tunnels is lined with heavy asbestos insulation which was deteriorating at some locations. The design team headed by Mr. Coffey drew up specifications to address this situation, dewater the steam tunnel network, treat groundwater collecting in the tunnels to remove petroleum and chlorinated organic contaminants and perform grout injection to exclude further seepage of contaminated groundwater into the steam tunnels.
- **Kent-Taylor, Rochester, NY:** Provided advice and review of design documents associated with the demolition of a large instrument manufacturing facility.

This former manufacturing facility consisted of a large complex of buildings totaling several hundred thousand square feet in area, containing numerous sites within the building complex which are contaminated with asbestos, elemental mercury, cyanide, lead and other toxic chemicals on an occasional basis. The design work consisted of several floor plans showing the nature of the building's construction (this was a multi-level facility), and the locations and kinds of contamination within the structures. Specifications were prepared detailing how the demolition was to address the removal and disposal of the several different types of demolition debris, taking into account the nature of the materials, and the kinds and concentrations of the contaminants. Bid review assistance is also a part of the work.

- **U.S. Coast Guard - Floyd Bennett Field, Brooklyn, NY:** As Design Lead, was responsible for coordinating a team of civil, structural, mechanical, instrumentation, and electrical engineers for the design of a large soil bioventing and off-gas treatment facility for soils contaminated with jet fuel at the Coast Guard Air Station.
- **CE Cast, Muse, PA:** As Design Lead, worked with a staff civil engineer on the design of a soil excavation and thermal desorption project for the former foundry owned by CE Cast. Documents prepared included drawings and specifications for the soil removal, treatment by thermal desorption, and site restoration using treated decontaminated soil to backfill the excavated areas. An erosion control plan prepared in conformance with PADER requirements was a part of the design effort. This project received the Grand Conceptor Award for its innovative and cost-effective solution to on-site contamination.
- **Fountain Avenue Landfill Pier, Brooklyn, New York:** As Principal Environmental Engineer, coordinated a design team of geotechnical, civil, structural, and electrical engineers in the design of marine pier facilities for the off-loading of over two million cubic yards of bulk fill materials for the closing of the Fountain Avenue Landfill in Brooklyn, New York. The pier design consists of concrete filled steel pipe piles supporting a reinforced concrete deck for crane , conveyor system, and truck operations for the off loading of sea-going barges delivering earthfill and revetment armour stone to the

landfill site.

- **Pine Street Barge Canal Site, Burlington, VT:** As Design Manager, performed a study and evaluation of alternatives to replace the EPA ROD alternative for remediation of coal tar contamination from a former manufactured gas plant at the Pine Street Barge Canal Site located on Lake Champlain. Working for the PRPs, he developed an acceptable alternative to excavation and landfilling (the ROD selected alternative). The alternative developed called for leaving the coal tars in place, isolating the contaminated area with driven sheet piles and an impermeable cap, and placing clean substrate over the cap to support growth of aqueous plants and benthic organisms.
- **Confidential Industrial Client, MA:** As Design Manager, directed a study to determine the effectiveness of heat injection into soils in improving the flowability of highly viscous oils (aromatic hydrocarbons) contaminated with halogens. The study looked at the decreased viscosity and improved flowability (extractability) of the oils brought about by raising the temperature of the oils through heat injection into the soil. Evaluation of different methods of heat injection for cost-effectiveness was included.
- **Souza's Texaco, East Falmouth, MA:** As Design Lead, coordinated the design team for the design of the groundwater sparging and soil vapor extraction system in the vicinity of the former Souza's Texaco gas station. This design work included the use of activated carbon for treatment of the off-gas. This work was performed for the Massachusetts Department of Environmental Protection.
- **Olin Chemical Company, Lancaster, PA:** As Design Lead, coordinated a design team of civil, structural, mechanical, and electrical and instrumentation engineers in the design of a 120-gpm groundwater extraction and treatment system for treatment of groundwater contaminated with chlorinated solvents at the former Hamilton Watch factory. This system utilizes air stripping and granular activated carbon for treatment of the off-gas, and includes a force main for discharge of the treated effluent to the City of Lancaster sewer system. A remote sensor is included in the design to monitor water

level in the downstream sections of the sewer system. The sensor signals for the groundwater extraction and treatment system to shut down when water levels in the sewer system exceed system capacity because of a storm event.

- **MCLB, Albany, GA:** Provided advice and review of design services for several remediation activities conducted at the Marine Corps Logistics Base. These designs include groundwater extraction and treatment systems for removal of contaminated solvents, as well as soils removal and remediation actions. All engineering actions were prepared in conformance with Naval Facilities Engineering Command requirements for preparation of engineering drawings and specifications.
- **Confidential Client, Bangor, ME:** As Design Manager, was responsible for the design of remediation plans and specifications for an area of soils contaminated with chlorinated solvents at Building 10 in the industrial park at the Bangor International Airport. This area is immediately adjacent to the Maine Air National Guard hangers. Remediation consisted of excavation of contaminated soils and landfarming on an area specially designed for the bioremediation of contaminants found in the soil. The bioremediation project was determined to have been successfully completed to the satisfaction of the MEDEP. The bioremediation platform was also designed to function as a parking area once bioremediation of the contaminated soils was completed.
- **New England Telephone Co., MA; VT; NH:** As Chief Engineer, provided technical oversight for removal and replacement of over 40 underground storage tanks for gasoline, diesel and heating fuels.
- **Confidential Client, MA:** As Project Manager, was responsible for overseeing design of a treatment/remediation facility for TCA-contaminated groundwater at a large manufacturing facility. An air stripping column followed by vapor phase carbon was utilized to remove contaminants.
- **Confidential Client, MA:** As Project Manager, was responsible for overseeing design/construction services for a large treatment/remediation facility for jet fuel contaminated groundwater at a large manufacturing facility. A tray aeration system followed by a thermal

catalytic destructor was used to remove the contaminant. The entire system was mounted in an enclosed trailer for mobility.

- **Confidential Client, MA:** As Project Manager, was responsible for technical oversight of a feasibility study for treatment and disposal of contaminated soils at a large operating industrial manufacturing facility (over 200 acres) with an operating history of over one hundred years. High temperature and low temperature thermal, and non-thermal technologies were evaluated, and recommendations were made, contingent on the kind of hazardous waste contamination involved.
- **Massachusetts Department of Environmental Protection, Middleborough, MA:** As Project Manager, was responsible for overseeing design and construction of a treatment/remediation facility for contaminated groundwater at a former gasoline service station site. The fully automated system utilizes activated carbon.
- **Humphrey Chemical Co., North Haven, CT:** As Project Manager, was responsible for design of an industrial waste neutralization facility and a hazardous waste drum storage facility.
- **Hamm's Sanitary Landfill, Lafayette, NJ:** As Construction Superintendent, was responsible for construction of one-mile bentonite slurry cutoff wall and berm for containment of landfill leachate.
- **Federal Bureau of Prisons, Otisville, NY:** As Project Manager, was responsible for design and construction management for a sewage treatment plant rehabilitation and expansion at the Federal Correctional Institution, Otisville, NY. The expanded facility is now on-line and producing a high quality effluent.
- **Town of Bristol, RI:** As Project Engineer, was in charge of design for upgrading an existing primary treatment plant to provide secondary treatment of sewage. The work included complete hydraulic analysis and aspects of mechanical and civil design for a 4-MGD wastewater plant.
- **Penobscot Bay Medical Center, Rockland, ME:** As Project Engineer, performed the design for the 10,000-gallons-per-day extended aeration wastewater treatment facility serving the Penobscot Bay Medical Center

complex.

- **Atlantic County, New Jersey, MUA-Municipal Solid Waste Transfer Station:** Served as design reviewer for a major municipal solid waste transfer station design for the Atlantic County, New Jersey Municipal Utilities Authority. Performed a thorough review of drawings and specifications produced by the design team to ensure their adequacy, compatibility, and completeness.
- **Bucks County, Pennsylvania, MUA-Municipal Solid Waste Transfer Station:** Performed layout and traffic flow design for a major solid waste transfer station in Bensalem, Pennsylvania servicing the Philadelphia metropolitan area.
- **RayMark Facility Landfill-Gas Capture and Control System Design:** As Design Lead, coordinated a multidisciplined team of civil, structural, mechanical, instrumentation, and electrical engineers for the design of a gas capture, control, and treatment system for a 30-acre landfill site located in Stratford, Connecticut.
- **Town of Scituate, Massachusetts-Quality and Quantification Study of Municipal Solid Waste:** Performed sampling and weighing of municipal solid waste delivered to the Town of Scituate's municipal sanitary landfill. Information was analyzed and used in the design of the expansion of the landfill.
- **Town of Scituate, Massachusetts-Design of Landfill Expansion:** Designed landfill expansion utilizing information collected from study of quality and quantity of municipal solid waste delivered to the landfill.
- **Holt Road Landfill, Town of North Andover, Massachusetts- Design of Gas Migration Control System:** Performed site investigations and design of a gas migration cut-off trench at the Holt Road Sanitary Landfill.
- **Al Turi Landfill, Goshen, New York-Study and Process Design of Landfill Leachate Treatment System:** Studied and evaluated several treatment alternatives and participated in pilot plant operation and design of the leachate treatment facility for leachate generated at a municipal solid waste landfill located in Goshen, New York.
- **Mountaintop Municipal Solid Waste Landfill,**

Pennsylvania-Design of Leachate Collection and Treatment Facility: Coordinated the design team for the leachate collection and treatment facility for the Mountaintop Municipal Solid Waste Landfill, Pennsylvania.

- **Milford RESCO Facility, Milford, Massachusetts-Design of Facility Access Ramp:** Designed the highway access ramp from State Route 20 to the Milford Resco Facility. Design was accomplished in conformance with State of Massachusetts Department of Transportation requirements.

PUBLICATIONS

Coffey, Brendan J., "Review of Recent Literature on the Heat Transfer and Combustion Efficiency Characteristics of the Pulse Combustion Engine, Particularly Relating to Atomization and Spray Drying, and Potential for Use in Destruction of Polychlorinated Biphenyls," Presented to Northeastern University, Department of Civil Engineering, 1983.