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MTA/LIRR

FINDINGS REPORT
for the
ENVIRONMENTAL SITE INVESTIGATION
of the
EXISTING RAIL YARD
QUEENS, NEW YORK
EAST SIDE ACCESS PROJECT
ALIGNMENTS AND REPLACEMENT
YARDS STUDY
(VOLUME I)
REVISION NO. 2

Prepared For:

MTA/LONG ISLAND RAIL ROAD

Prepared By:

A Joint Venture of
Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated

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(Not Reissued, refer to original Findings Report)

ES.1 INTRODUCTION

The Metropolitan Transportation Authority/Long Island Rail Road (MTA/LIRR) has contracted the joint venture team of Parsons Brinckerhoff Quade & Douglas, Inc. and STV Incorporated (PB/STV) to provide tunnel engineering consulting services for the East Side Access Project (the Project). The completed Project will provide direct LIRR service into Manhattan's Grand Central Terminal (GCT) and a new LIRR Sunnyside Station located in western Queens County, New York. The PB/STV team is known as the Tunnel Engineer (TE) of the Project and is responsible for providing the conceptual, and all preliminary and final design engineering, construction phase services (including pre-construction environmental assessments) and coordination services for the Project, under the direction of the Program Management (PM) firm. The TE is conducting pre-construction-related Environmental Site Investigations (ESIs) within the Project's proposed right-of-ways (ROWs) and replacement rail yards.

This document presents a summary of findings for the ESI of MTA/LIRR's replacement yard, known as the Existing Rail Yard and the Cut-and-Cover Tunnels and Shafts of the Queens Alignment (collectively known as "the Site") located in Sunnyside, Queens County, New York. The Site is currently owned by MTA/LIRR and is leased to New York and Atlantic Railway (NY & AR). NY & AR uses the Existing Rail Yard for the temporary storage of freight trains.

The northern boundary of the Existing Rail Yard is adjacent to Northern Boulevard and the southern boundary is adjacent to the Amtrak Sunnyside Yard, which is to be the topic of a separate Findings Report. The three main geographic segments of the Existing Rail Yard and the associated proposed construction activities within each are as follows:

- West Existing Rail Yard. The West Existing Rail Yard is the area between Thomson Street to the west and the Queens Boulevard overpass to the east. Proposed construction activities in this area include track replacement, construction of access roads, and demolition of three buildings (NY & AR Maintenance Shop, Abandoned Substation, and the Yardmaster's Building).

- Central Existing Rail Yard. The Central Existing Rail Yard is the area between the Queens Boulevard overpass to the west and Honeywell Street Bridge to the east and also includes the site of the connection to the 63rd Street tunnel to the north of Northern Boulevard (the Bellmouth). The proposed construction activities in this area include track replacement and construction of the cut-and-cover tunnel structures including a water-tight slurry wall structure (or "bathtub"). The adjacent property to the south of the Central Existing Rail Yard is Sunnyside Yard, a Class II Site in the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites[1].
- East Existing Rail Yard. The East Existing Rail Yard encompasses the area from Honeywell Bridge to the Amtrak Loop track ending at the LIRR Mainline overpass. The proposed construction activities include the construction of a train car wash building, construction of access roads, track replacement, and demolition of the abandoned locker building.

The ESI was conducted to determine the existing environmental conditions within the construction areas in accordance with applicable environmental regulations and Project protocol prior to Site construction activities. Areas of Concern (AOCs) were defined for soils and structures within proposed construction areas if samples taken in these areas (during the ESI or previous investigations) detected substances above regulatory thresholds or site reconnaissance indicated the potential for contamination. An AOC indicates an area that will require specific testing, handling and disposal protocols during construction and for which contaminant controls may be required to safeguard against potential impacts to the construction work force. Based upon the findings of this ESI, as well as previous environmental investigations and proposed supplemental investigations, a Site-specific Construction Contaminant Management Plan (CCMP) will be prepared to direct the proper testing, handling, and disposal protocols required during various stages of construction at the Existing Rail Yard in accordance with applicable

[1] A Class "II" site is a site at which hazardous waste constitutes a significant threat to the environment as specified in 6 NYCRR 375-1.4, but unlike a Class "I" site, the hazardous conditions found at a Class "II" site do not constitute an imminent danger (see e.g. 375-1.8). An inactive hazardous waste disposal site means any area or structure used for the long-term storage or final placement of hazardous waste as to which area or structure no permit or authorization disposal of hazardous waste was in effect after August 25, 1979.

environmental regulations and Project protocols. As such, the specific objectives of the Existing Rail Yard ESI were to:

- Identify, sample and characterize potential asbestos-containing materials (ACM) and lead-based paint (LBP) that may be encountered during renovation, relocation, abandonment or demolition of utilities, buildings, bridges, catenary towers or other structures.
- Characterize the nature and quality of soil, ballast and fill in order to assess construction worker safety and soil disposal options for possible soil and fill excavation during Project construction.
- Characterize the groundwater plumes in order to determine which would be intercepted and directly affected by the Project.
- Determine groundwater discharge options (treatment, etc.) for those plumes directly affected by the Project.
- Determine location and hydrology of plumes not directly affected by the Project in order to assess steps to be taken to ensure that the Project does not cause migration of these plumes.
- Confirm the presence or absence of on-site sources of VOCs in groundwater.

ES.2 SUMMARY OF PRIOR INVESTIGATIONS

Summaries of the following recent environmental site investigations are provided below: the Preliminary Environmental Site Assessment and Proposed Sampling Plan (AKRF, 1999a); Detailed Environmental Site Investigation (AKRF, 1999b); and Operable Unit 6 Remedial Investigation Report (Roux, 1999). These studies were considered most representative of the environmental concerns of the Existing Rail Yard.

ES.2.1 <u>EC Preliminary Environmental Site Assessment and Proposed Sampling Plan</u>

A Preliminary Environmental Site Assessment of the Existing Rail Yard was conducted by the Project EC in February and March 1999 and a non-intrusive environmental site survey was conducted on February 5, 1999, as part of the site assessment. During the survey, several 55-gallon drums of waste oil and maintenance fluids were observed near the maintenance building. Several piles of debris containing suspect ACMs, including pipe insulation, train brake pads and roofing materials were observed in scattered locations throughout the site. The visual survey confirmed the presence of structures remaining on-site and the presence of potential LBP and ACMs (including pipe insulation and roofing materials) on or within the structures. Additional debris observed on-site included scrap metal, tires, abandoned drums, automotive parts and fluid containers (AKRF, 1999a).

An environmental database search indicated that there were many areas of concern near the site, particularly from properties bordering the northern site along Northern Boulevard. Some of the most pertinent neighboring sites are:

- MTA/New York City Transit Authority (NYCTA) (former Superior Reed), a spill of waste oil, diesel, kerosene and mineral spirits was reported in 1996 (29-70 Northern Boulevard location) and an oil spill was reported in the cut-and-cover tunnel area in 1994 (29-50 Northern Boulevard location).
- Standard Motor Products, Inc., 37-18 Northern Boulevard, is a NYSDEC Inactive Hazardous Waste site with 1,1,1-trichloroethane, lead, and petroleum hydrocarbons confirmed in groundwater and soil. This site is adjacent to the proposed train car wash just west of 39th Street.
- West Disinfecting Company (a.k.a. Outlet City) is located at 42-16 West Street just north of the West Existing Rail Yard near Queens Boulevard. The database lists a spill of creosote affecting the soil and groundwater. A free product recovery system has been installed and further remediation is expected.

ES.2.2 EC Environmental Site Investigation

The Project EC performed a subsurface investigation of the Existing Rail Yard in April 1999. The sampling plan for this subsurface investigation was based on the non-intrusive preliminary environmental assessment discussed in Section 1.5.1 (AKRF, 1999a). During the investigation, six shallow monitoring wells were installed at selected locations throughout the Existing Rail Yard. One deep monitoring well was installed in the center of the proposed Cut-and-Cover Tunnels and Shafts construction area. The monitoring wells were sampled and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and metals (total and filtered). PCBs were not detected in any of the wells. VOCs of concern in groundwater include benzene, toluene, ethylbenzene, xylenes (BTEX), and trichlorethene (TCE). The primary SVOCs of concern in groundwater include naphthalene, acenaphthene, fluorene and phenanthrene. The primary metals of concern in groundwater are total zinc and dissolved and total lead.

Soil samples were collected from 14 locations and analyzed for VOCs, SVOCs, pesticide/herbicides, PCBs, and metals (including total lead). PCBs and pesticides were not detected and SVOCs were detected below the guidance values. Localized acetone contamination was detected in the east-northeast portion of the Existing Rail Yard. The primary metal of concern in soil is lead. Lead was detected above the cleanup criteria of 1,000 ppm specified in the ROD (NYSDEC, 1997b and 1998d) in 3 samples: YAD-3 (1,880 ppm), YAS-2 (1,220 ppm) and YAS-6 (2,440 ppm).

ES.2.3 Previous Environmental Site Investigations

Many environmental investigations have been conducted throughout the Existing Rail Yard (AKRF 1999a, AKRF 1999b, and Roux 1999). These studies were considered most representative of the environmental concerns of the Existing Rail Yard. As a result of the NYSDEC Class II listing of the yard, Amtrak, NJTC and the NYSDEC entered into an Order of Consent (Index #W2-0081-87-06), effective October 1989.

With NYSDEC concurrence, the Yard was divided into six (remedial) operable units (OUs) after the Phase II Remedial Investigation (RI) was completed in 1995. The findings for OU-4, OU-5 and OU-6 are relevant to Sunnyside Yard. The findings for OU-1, OU-2, OU-3 and OU-6 are relevant to the Existing Rail Yard. The OUs are as follows:

OU-1

Unit OU-1 refers to the unsaturated soils within the High Speed Train Facility (HSTF) Service and Inspection (S & I) building footprint, located south of the East Existing Rail Yard and the former turntable, between Honeywell Street and 39th Street. For OU-1, a Proposed Remedial Action Plan (PRAP) was issued by NYSDEC that includes the excavation and off-site disposal of contaminated soils (NYSDEC, 1998d). A Record of Decision (ROD) was also issued by NYSDEC establishing the following cleanup criteria for soils at OU-1: PCBs – 25 parts per million (ppm); total carcinogenic polyaromatic hydrocarbons (cPAHs) – 25 ppm; and lead – 1,000 ppm. The ROD additionally established site restrictions based on these cleanup criteria levels (NYSDEC, 1997b and 1998d).

OU-2

Unit OU-2 refers to the unsaturated soils within the HSTF S&I building ancillary structures including the access route. For OU-2, a PRAP was also issued by the NYSDEC establishing a No-Action Alternative, as none of the contaminants of concern were found above established cleanup levels (NYSDEC, 1997c).

OU-3

Unit OU-3 refers to the unsaturated soil and separate phase petroleum (with PCBs) near the former turntable (also known as Area 1), located in the north-central portion of Sunnyside Yard, extending from the former Metro Shop to beyond the northern property boundary into the Existing Rail Yard. The plume, called the PCB-Contaminated Separate Phase Oil plume, appears to have originated at the former fuel storage area, in the vicinity of the former Engine House and migrated northward. Approximately 72,700 gallons of

PCB contaminated oil was quantified (Roux, 1995). PCBs were generally not detected in groundwater unless separate-phase petroleum was present (Roux, 1999).

OU-4

Unit OU-4 refers to the unsaturated soil in the remainder of Sunnyside Yard.

OU-5

Unit OU-5 refers to the sewer system beneath Sunnyside Yard.

OU-6

Unit OU-6 encompasses the groundwater and saturated soil beneath Sunnyside Yard and the Existing Rail Yard. The most recent groundwater monitoring for OU-6 was conducted in 1997 (Roux, 1999). There are several dissolved plumes in the shallow groundwater, which are relevant to Sunnyside Yard and the Existing Rail Yard as follows:

- A large inferred chlorinated-VOC plume from the main body area of Sunnyside Yard has been inferred to extend into the Central Existing Rail Yard where the proposed cut-and-cover tunnel and shaft will be. The plume has been attributed to off-site sources south of Skillman Avenue (Roux, 1999). This plume was further investigated as part of this ESI and is referred to in this report as the Central Yard plume.
- A minor chlorinated-VOC plume is located in the East Existing Rail Yard between 37th Street and 39th Street where the trainwash is proposed to be. This plume was further investigated as part of this ESI and is referred to in this report as the Northern Boulevard/39th Street plume.
- A minor chlorinated-VOC plume is located on the southern boundary of Sunnyside Yard at Skillman Avenue and 39th Street. This plume was attributed to off-site sources located to the southeast (Roux, 1999). This plume was not further

investigated as part of the ESI and is referred to in this report as the Skillman Avenue/39th Street plume.

- A BTEX plume that is situated in the East Existing Rail Yard near the 44th Place access road entrance and is attributed to off-site sources. This plume is referred to as the Loop Track plume in the Environmental Status and Construction Plan (ESCP) report and was not further investigated for this ESI.
- A small BTEX plume that appears to be situated off-site under a building on Northern Boulevard and is just north and adjacent to the northern extent of the separate-phase product plume. The BTEX plume is attributed to off-site sources and is not associated with the separate-phase product plume. This plume is referred to as the 34th Street plume in the ESCP report and was not further investigated for this ESI.

For additional information on physical characteristics of the Site, please refer to the thorough description of the site geology and the geology within the various construction segments that is provided in the draft TE report, "Geotechnical Design Summary Report, Preliminary Engineering, Queens Segment," November 2000 (PB/STV, 2000c).

In addition to the information given in the two environmental studies listed above, additional information can be found in the following previous environmental studies: Draft Report Summary of Real Estate Transfer Environmental Assessments: 63rd Street Line Connection to the Queens Boulevard Line (Louis Berger & Associates, Inc., 1994); Phase II Remedial Investigation (RI) Sunnyside Yard, Queens, New York: Volumes I-V (Roux, 1995); and Limited Phase II Environmental Site Assessment Report: High Speed Trainset Facility, Sunnyside Yard, Queens, New York (Roux, 1996).

ES.3 METHODOLOGY

Asbestos surveys, lead surveys, and modified environmental assessments were conducted at structures within the Project-related construction area that may be demolished or renovated.

These surveys were conducted on March 31, 2000, April 12, 2000, and June 15, 2000. The following structures are scheduled for replacement or removal and were inspected for LBP and/or ACM:

- Abandoned locker building (east of Honeywell Street).
- Abandoned substation (between Thomson and Queens Streets).
- Yardmaster's Building (west of Queens Boulevard).
- NY & AR Maintenance Shop (west of Queens Boulevard and south of the Yardmaster's Building).
- MTA/NYCT (former Superior Reed) building complex. Access to this building was delayed until August 2000 and a supplemental report will be issued separately on the findings for this building.

The hydrogeologic investigation was conducted within the proposed construction area and consisted of the following activities:

- A total of sixty-one (61) soil borings were completed.
- Seven of the soil borings utilized the Geoprobe® macro-core sampling system and wells were constructed in five of the environmental boring locations.
- Two of the soil borings were deep (to bedrock) and were completed as 2-inch diameter PVC monitoring wells (to bedrock depth) using the hollow stem auger/mud rotary drilling rig.
- Three of the borings were hand dug and completed as 1-inch diameter PVC piezometers.
- The rest of the soil samples were collected using a hand auger.
- All boring locations were surveyed for location and elevation in June 2000.
- Prior to powered drilling (i.e., Geoprobe® or hollow stem/mud rotary), boring locations were cleared using geophysical methods for shallow subsurface utilities and through hand augering to a depth of 5 feet-below grade (ft-bg).
- Soil samples were characterized in the field for lithology, staining, odors, and photoionization detector (PID) readings.

- Groundwater samples were collected from the two new monitoring wells and six existing wells within the Cut-and-Cover construction area and at seven temporary Geoprobe® well points. Water quality parameters (temperature, pH, salinity, conductivity, turbidity, and dissolved oxygen) were measured and field observations for sheen, non-aqueous phase liquid (NAPL), odor, and color were noted prior to sampling.

The Existing Rail Yard ESI was conducted in accordance with the "Sampling and Analysis Plan (SAP) for the Environmental Site Investigation of Existing Rail Yard, Sunnyside, Queens, New York, Revision No. 1" (PB/STV, 2000a) which was approved by the PM in early 2000; the "Health and Safety Plan for the Environmental Site Investigation of the East Side Access Project Alignment and Replacement Yards" (PB/STV, 1999); and applicable environmental regulatory protocol.

Analytical parameters for soil samples were based upon the contaminants identified in previous investigations of the Site, as well as the nature of the potential contamination sources being investigated. Analytical parameters and methods for soil included the following:

- Target Compound List (TCL) VOCs by EPA Method 8260B (done in certain selected shallow samples which were selected for analysis based on field observations).
- TCL SVOCs by EPA Method 8270B.
- Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics/Diesel Range Organics (GRO/DRO) by EPA Method 8015 (done for every other vertical soil sample collected in the two deep borings in the cut-and-cover excavation and structure area only).
- Toxicity characteristic leaching procedure (TCLP) Pesticides by EPA Method 8081A (applies to the area east of the former turntable and for every other vertical soil sample collected in the two deep borings in the cut-and-cover excavation and structure area).
- PCBs by EPA Methods 8082 (applies to the area east of the former turntable and for every other vertical soil sample collected in the two deep borings in the cut-and-cover excavation and structure area).

- TCLP metals by EPA Methods 1311/RCRA 6000+7000.
- TCLP Herbicides by EPA Method 1311/8151A (applies to the area east of the former turntable and a vertical soil sample from the top of each of the two deep borings in the cut-and-cover excavation and structure area).

Analytical parameters and methods for groundwater included the following:

- TCL VOCs by EPA Methods 624/8260B.
- TCL SVOCs by EPA Methods 625/8270B.
- TCLP Pesticides by EPA Methods 8081A.
- TCL PCBs by EPA Methods 8082.
- TAL Herbicides by EPA Method 515.1.
- TAL Metals unfiltered (total metals) by EPA Method 6000.
- TAL Metals filtered (dissolved metals) by EPA Method 6000.

ES.4 FINDINGS

The findings of the asbestos and lead survey, ballast, soil and groundwater investigations conducted at the Site as part of this ESI are summarized below. The soil results are given for AOCs numbered consecutively, and the groundwater results are related to the existing contaminant plumes. Recommendations are presented at the conclusion of the Report.

ES.4.1 Asbestos and Lead Surveys

Asbestos and lead surveys were conducted in the structures within the Existing Rail Yard that may be demolished. Significant findings are summarized below for those structures within the West and East Existing Rail Yard:

West Existing Rail Yard

ACM was confirmed in the West Existing Rail at the following locations: roof sealant in the NY & AR Maintenance Shop and floor tile in the Yardmaster's Building. Although the roofing, wall, and ceiling plaster of the Abandoned Substation were inaccessible for sampling, these materials are assumed to contain ACMs. The same assumption applies to the siding and waterproof membrane of the NY & AR Maintenance Shop. Further sampling will be conducted to confirm the presence of ACM.

LBP was confirmed in the West Existing Rail Yard at the following locations: window frames and sashes in the abandoned locker building, leg pipes in the NY & AR Maintenance Shop, and windows and baseboards in the Yardmaster's Building. Although the roofing, wall, and ceiling plaster of the Abandoned Substation were inaccessible for sampling, these materials are assumed to contain LBP.

Central Existing Rail Yard

There is potential ACM and LBP in the NYCT building complex (former Superior Reed building included), which are part of AOC 6.

East Existing Rail Yard

An asbestos and lead survey of the abandoned locker building confirmed the presence of LBP in the window frames and sashes. ACM was not identified in this building.

ES.4.2 Soil and Ballast Findings

NYSDEC's Spill Technology and Remediation Series (STARS) Memo #1 TCLP Alternative Guidance Values were used as the soil characterization criteria for VOCs. The primary soil characterization criterion of 25 ppm for total cPAHs, 25 ppm for total PCBs and 1,000 ppm for total lead was established by the NYSDEC's ROD for the High Speed Train Facility at Sunnyside Yard (NYSDEC, 1997, 1998). The NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046 has a guidance value of 10 ppm for total pesticides. TCLP metals (including lead) soils samples were compared to the Federal Resource, Conservation and Recovery Act (RCRA) Hazardous Waste Criteria. Petroleum-type odors are considered "Objectionable Nuisance Characteristics" by the NYSDEC and must not be present in order for the soil to be considered for reuse options (NYSDEC, 1992).

ES.4.2.1 West Existing Rail Yard

Areas of concerns in the West Existing Rail Yard include AOCs 1, 1A, 2, 3, 3A and 4 and are described below. Since AOC 4 only includes the examination of LBP and ACM in the Yardmaster's Building, it is not discussed here in the soil and ballast findings section.

AOC 1 and AOC 1A – Adjacent to Queens Street Buildings (AOC 1) and Near West Street (AOC 1A)

Observations confirming the presence of petroleum included staining and high PID response in borehole TE-YA-7 (AOC 1A).

SVOCs exceeded the soil characterization criteria in AOC 1 along the northern border of the property near Queens Street (locations TE-YA-2, TE-YA-4, TE-YA-5, TE-YA-40, TE-YA-41, TE-YA-42, and TE-YA-43). SVOCs exceeded the soil characterization criteria in AOC 1A at location TE-YA-7. Soil in AOC 1A also had petroleum odors and stained ballast.

AOC 2 – Wood Tie Pile Area

AOC 2 includes soil with VOCs and SVOCs in exceedance of the soil characterization criteria at two locations situated under the Thomson Avenue overpass near the end of Dutch Kills Street (TE-YA-44 and TE-YA-51) and suspect subsurface concrete layer at TE-YA-51 (4.5 ft-bg).

AOC 3 & AOC 3A – NY & AR Maintenance Shop and Parking Lot (AOC 3) and North of NY & AR (AOC 3A)

Observations confirming the presence of petroleum included staining, high PID response and strong petroleum-type odors in and around the parking lot and NY & AR Maintenance Shop in AOC 3, including boreholes TE-YA-48, TE-YA-51, TE-YA-52, TE-YA-53, and TE-YA-55. Sheen was observed in the borehole of TE-YA-49 (0-1') in AOC 3.

AOC 3 had VOCs that exceeded the soil characterization criteria at three locations in and around the parking lot and NY & AR Maintenance Shop, including TE-YA-52, TE-YA-53, and TE-YA-55. The VOCs detected at concentrations above the primary soil characterization criteria for VOCs included 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, isopropylbenzene, naphthalene, n-propylbenzene, and sec-butylbenzene.

AOC 3 had petroleum-related SVOCs of concern in exceedance of the primary soil characterization criteria for SVOCs (NYSDEC STARS guidance values) at locations TE-YA-3, TE-YA-49, TE-YA-50, TE-YA-52, TE-YA-53, TE-YA-54, TE-YA-55 and TE-YA-56, including acenaphthene, benzo(g,h,i) perylene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd) pyrene, naphthalene, phenanthrene, and pyrene.

AOC 3 had TCLP lead exceeded the RCRA regulatory level at TE-YA-48. TCLP lead was detected at 84 ppm, which is above the RCRA hazardous waste regulatory level of 5 ppm at location TA-YA-48. This location is situated just southwest of the NY & AR Maintenance Shop.

A survey for petroleum-impact ballast was conducted within the entire Existing Rail Yard construction area.

ES.4.2.2 Central Existing Rail Yard

Areas of concern in the Central Existing Rail Yard include AOCs 6, 7 and 7A, and the Queens Cut-and-Cover area (not part of any AOC) and are described below. Since AOC 6 only includes the examination of LBP and ACM in the NYCT building complex (former Superior Reed Building included), it is not discussed here in the soil and ballast findings section.

AOC 7 and 7A – At Amtrak Boundary (AOC 7) and at Northern Boulevard Building Boundary (AOC 7A)

AOC 7 and AOC 7A include two areas in the Central Existing Rail Yard that have SVOCs which exceed the soil characterization criteria. These were found at locations TE-YA-9, TE-YA-10, TE-YA-11 in AOC 7 and locations TE-YA-23 and TE-YA-24 in AOC 7A. These samples included exceedances of acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene at all or some of these sample locations.

Queens Cut-and-Cover (Central Yard) Area

These findings are for the Queens cut-and-cover area, and are not part of any AOC. VOC analytical results for vertical delineation soil samples from TE-YA-3D and TE-YA-5D in the cut-and-cover area did not exceed soil characterization criteria. Although the presence of TCE was confirmed in the bottom sample just above bedrock at both locations, the concentration of TCE was below soil regulatory criteria.

ES.4.2.3 East Existing Rail Yard

Areas of concern in the East Existing Rail Yard include AOCs 8, 9, 10, 11, 11A and 12. Since AOC 12 only includes the examination of LBP and ACM in the Abandoned Substation, it is not discussed here, in the soil and ballast findings section.

<u>*AOC 8 – Near Honeywell Bridge*</u>

Chlorinated VOCs tetrachloroethene (PCE) and trichloroethene (TCE) were detected above the primary soil characterization criteria (NYSDEC STARS guidance values) in a sample from location just east of the Honeywell Bridge, at sampling location TE-YA-25.

AOC 8 includes soil with SVOCs, which exceed the soil characterization criteria at two locations, TE-YA-25 and TE-YA-26, just east of the Honeywell Street Bridge. The SVOC exceedances were anthracene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene.

<u>*AOC 9 – North Part of Amtrak PCB-Contaminated Separate Phase Oil Plume*</u>

Petroleum-impacted soil was observed in soil samples at locations TE-YA-27 and TE-YA-28 (product, odor, and high PID response), in AOC 9.

The primary soil characterization criterion of 25,000 ppb for total cPAHs was exceeded at a location just east of the abandoned locker building (TE-YA-28). SVOCs exceeded the primary and secondary soil characterization criteria for SVOCs (NYSDEC STARS and NYSDEC TAGM 4046) at three locations in the general vicinity of this building (TE-YA-27, TE-YA-28, and TE-YA-30), including acenaphthene, anthracene, chrysene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, 2-methynaphthalene, and acenaphthylene.

The primary soil characterization criteria (NYSDEC STARS) were exceeded for TE-YA-28, with exceedances in the VOCs naphthalene, n-butylbenzene, n-propylbenzene, isopropylbenzene and trimethylbenzene. The primary soil characterization criteria for methylene chloride was exceeded for TE-YA-27. Additionally, there are suspect vegetated mounds in back of the abandoned locker building..

AOC 10 – East Existing Rail Yard

AOC 10 includes soil exceeding the soil characterization criteria for SVOCs at locations TE-YA-32, TE-YA-57, TE-YA-58, and TE-YA-60, all located at locations between the former turntable and the 39th Street Bridge.

The primary soil characterization criteria (NYSDEC TAGM #4046) for the pesticide Aldrin was exceeded at four locations between the former turntable and 39th Street Bridge, including TE-YA-32, TE-YA-57, TE-YA-58, and TE-YA-60.

AOC 11 and 11A – West of 39th Street (AOC 11) and East of 39th Street (AOC 11A)

AOC 11 and AOC 11A include two locations in east the Existing Rail Yard that have SVOCs which exceed the soil characterization criteria (locations TE-YA-31 and TE-YA-33), located between the former turntable and the 39th Street Bridge.

ES.4.3 Groundwater

The average groundwater project elevation is 309.34 feet for the entire cut-and-cover area. Regional groundwater flow trends northwest to west towards the East River. The only location where floating product, or light non-aqueous phase liquid (LNAPL), was observed as part of this ESI for the Existing Rail Yard was monitoring well TE-YA-MW-28S, which is located inside the PCB-Contaminated Separate Phase Oil plume. LNAPL was observed in one groundwater monitoring well TE-YA-MW28S, but dense product, or dense non-aqueous phase liquid (DNAPL) was not found in any groundwater samples as part of this ESI.

Groundwater is encountered at shallow depths (2.5 to 6.5 ft-bg) in this area. As such, the design of track replacement in this area will need to account for the shallow depth to groundwater to avoid affecting the floating product.

Groundwater sampling and analysis was conducted for the entire Existing Rail Yard construction area. The groundwater characterization criteria are the NYSDEC Class GA Groundwater Standards.

Significant groundwater findings are summarized in this section. Three dissolved phase chlorinated-VOC plumes were investigated, including the Central Yard plume, the Kinney Lot plume and the Northern Boulevard/39th Street plume, as described below. In addition, there were exceedances of the groundwater characterization criteria in the West Existing Rail Yard, although this area is not part of any designated plume. Finally, there was an investigation of the PCB-Contaminated Separate Phase Oil plume, located in the East Existing Rail Yard, which is described in Section ES.4.4.

ES.4.3.1 Central Yard Plume

Two deep wells were installed and groundwater samples were taken within the Roux-inferred boundaries of the Central Yard Plume and are designated as TE-YA-MW-3D and TE-YA-MW-5D.

Detected concentrations of chlorinated VOCs exceeded the groundwater characterization criteria in deep wells TE-YA-MW-5D (TCE and PCE), QB-124W (TCE), and QB-126W (TCE).

One SVOC (bis(2-ethylhexyl)phthalate) was found above the groundwater characterization criteria in groundwater samples taken from TE-YA-MW-3D, TE-YA-MW-5D, QB-124W, QB-126W, QB-128W and QB-129W.

Iron, manganese, magnesium, antimony, mercury, copper, chromium and/or sodium concentrations in the wells sampled in this area exceeded groundwater characterization criteria.

ES.4.3.2 Kinney Lot Plume

The Kinney Lot plume is located off-site within the bottom half of the aquifer. This includes wells QB-117W in the alleyway to the east of the MTA/NYCT building and QB-106W on the construction site across Northern Boulevard.

Detected concentrations of the VOC toluene exceeded the groundwater characterization criteria in two offsite wells, including wells QB-117W in the alleyway to the east of the MTA/NYCT building and QB-106W in the Bellmouth area north of Northern Boulevard. The VOCs acetone and chloroform were detected at concentrations exceeding the groundwater characterization criteria in well QB-106W. NAPL was not observed in this area.

The SVOC phenol exceeded the groundwater characterization criteria in well QB-106W. The SVOC bis(2-ethylhexyl)phthalate exceeded the groundwater characterization criteria in wells QB-106W and QB-117W.

The wells sampled in this area (QB-106W and QB-117W) had concentrations of iron and/or sodium that exceeded groundwater characterization criteria.

ES.4.3.3 Northern Boulevard/39^th^ Street Plume

Chlorinated VOCs (1,1,1-trichloroethane (TCA), *cis*-1, 2-DCE and vinyl chloride) were detected at concentrations exceeding the groundwater characterization criteria in sample TE-YA-58 which is just west of the 39th Street Bridge.

Total and dissolved iron and total and dissolved sodium were detected at levels exceeding groundwater characterization criteria in all groundwater samples from this area.

ES.4.3.4 West Existing Rail Yard

Petroleum odors (NYSDEC "Objectionable Nuisance Characteristic) were observed at TE-YA-48, TE-YA-51, TE-YA-53 and TE-YA-55.

Petroleum-related VOCs exceeded groundwater characterization criteria at locations TE-YA-52 (in the parking lot) and TE-YA-53, including 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, isopropylbenzene, n-propylbenzene and sec-butylbenzene.

TAL metals, including barium, chromium, iron, manganese, lead and sodium, exceeded groundwater characterization criteria at locations TE-YA-52 (in the parking lot), TE-YA-53, TE-YA-55 and TE-YA-56.

ES.4.4 PCB-Contaminated Separate Phase Oil Plume

The PCB-Contaminated Separate Phase Oil plume is located mostly in Sunnyside Yard, with a small portion being in the East Existing Rail Yard.

A thickness of 1.14-feet of LNAPL was observed in monitoring well TE-YA-MW-28S. Petroleum odor was evident in TE-YA-MW-27S and TE-YA-MW-28S. Groundwater is encountered at shallow depths (2.5 to 6.5 ft-bg) in this area.

ES.5 CONCLUSIONS / RECOMMENDATIONS

The following conclusions and recommendations are based on the asbestos, lead, soil and groundwater investigation conducted at the Existing Rail Yard.

ES.5.1 Conclusions and Recommendations - Asbestos and Lead Survey

Asbestos abatement is recommended in the following buildings scheduled for demolition as part of the Existing Rail Yard reconstruction effort: NY & AR Maintenance Shop (roof sealant) and the Yardmaster's Building (floor tile). It is also recommended that confirmatory sampling be conducted concurrently with the abatement procedure prior to demolition for both of these buildings in areas of suspect ACM. Access to the interior of the Abandoned Substation should be pursued to conduct asbestos and lead survey.

Lead abatement is recommended in the following buildings scheduled for demolition as part of the Existing Rail Yard Reconstruction effort: the abandoned locker building (window frames and sashes), the NY & AR Maintenance Shop (lead pipes), and the Yardmaster's Building (windows and baseboards). It is recommended that confirmatory sampling be conducted concurrently with the abatement procedure prior to demolition of these buildings.

Based on the findings of the Phase I Environmental Site Assessment, additional environmental assessments of the NYCT (former Superior Reed) building are recommended, including asbestos and lead surveys, non-intrusive environmental inspection of the building, assessment of historical maps and any other available information that is available.

Construction/demolition activities for the Yardmaster's Building will require the moving all empty and full cylinders containing fuel gas and disconnecting all utilities.

Procedures and methods to perform asbestos and lead abatement will be provided in the CCMP and specifications.

ES.5.2 Conclusions and Recommendations – Impacted Soil and Ballast

The CCMP will address the classification and disposal of any excavated soils and ballast from the affected AOCs as noted in this report. However, the petroleum-impacted soil (and groundwater) in the area around the abandoned locker building in the East Existing Rail Yard may require remediation beyond the proposed excavation depths. Even with the shallow depth excavation that will be needed for track replacement, the existing petroleum-impacted soil and groundwater may be disturbed by construction of future rail yard shops. Construction of the cut-and-cover structure will not have any significant impacts on the PCB-Contaminated Separate Phase Oil plume. Four remedial options are being assessed and include conducting the track replacement, excavation and building demolition as planned, either at-grade (Option 1) or above-grade (Option 2) and perform the containment, testing and disposal of impacted soil and groundwater (for Option 1) or impacted soil (Option 2). Option 3 involves conducting the track replacement, excavation and building demolition as planned, and in the process, remediate the separate-phase petroleum product and impacted soil and groundwater that is present within the LIRR ROW reconstruction zone in the East Existing Rail Yard and dispose of it properly. Groundwater may be treated on-site with an oil-water separator and granular activated carbon (GAC) adsorption unit; or alternative treatment system that meets applicable discharge standards. Option 4 involves remediating the entire separate-phase petroleum product and impacted soil which encompasses the LIRR property and the adjacent Amtrak property through excavation. These four remedial options are described in further detail in Section 6.3 of the report.

In general, for all of the AOCs, any petroleum-impacted ballast encountered during Project construction should be treated as petroleum contaminated non-hazardous soil. All potentially contaminated ballast should be segregated for characterization and disposal according to the CCMP protocol and applicable regulations.

ES.5.2.1 Areas of Concern in the West Existing Rail Yard

Areas of concern in the West Existing Rail Yard include AOCs 1, 1A, 2, 3, 3A, and 4, and are described below. Since AOC 4 only includes the examination of LBP and ACM in the Yardmaster's Building, it is not discussed here in the soil and ballast findings section.

AOC 1 and AOC 1A – Adjacent to Queens Street Buildings (AOC 1) and Near West Street (AOC 1A)

AOC 1 includes soil with SVOCs above regulatory criteria in locations along the northern border of the property (locations TE-YA-40, TE-YA-41, TE-YA-42, TE-YA-43, TE-YA-2 and TE-YA-5). SVOCs in soil could be attributed to either combusted materials (coal, cinders, etc.) due to years of rail activities and/or off-site sources bordering the property. AOC 1A includes SVOCs above regulatory criteria in soil at location TE-YA-7. As such, petroleum-impacted soil may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) in this area.

Construction/demolition activities in the area of the Abandoned Substation should be aware of a catch basin at the southwest corner of the Abandoned Substation building and subsurface duct line. Also, the trash compactor from the neighboring building will need to be moved.

AOC 2 – Wood Tie Pile Area

AOC 2 includes soils with SVOCs exceeding regulatory criteria were also noted from samples along the northern property boundary near Queens Street and an area near a wood rail tie pile under the Thomson Avenue overpass (TE-YA-44 and TE-YA-51). This was based on field observations and exceedance of soil characterization criteria. Toluene is a VOC of concern at locations TE-YA-44 and TE-YA-51 near the wood rail tie pile.

AOC 3 and AOC 3A – NY & AR Maintenance Shop and Parking Lot (AOC 3) and North of NY & AR (AOC 3A)

AOC 3 includes soil with petroleum-related VOCs and SVOCs; soil at location TE-YA-48 (0 to 3.5 ft) significantly exceeded RCRA levels for TCLP lead and petroleum-impacted ballast is around the parking lot and the NY & AR Maintenance Shop. The petroleum-related compounds have been attributed to diesel engine activity and road runoff.

Petroleum-impacted soil may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) in and around the parking lot and NY & AR Maintenance Shop. Petroleum-related VOCs of concern were found at locations TE-YA-52, TE-YA-53, and TE-YA-55. TCLP lead is of concern at location TA-YA-48 and is situated just southwest of the NY & AR Maintenance Shop. Petroleum-impacted ballast may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) in and around the parking lot and NY & AR Maintenance Shop.

It is recommended that further soil investigation in the area surrounding the parking lot and NY & AR building in the West Existing Rail Yard be conducted. Additional delineation of hazardous waste lead is recommended in the area southwest of this location.

It is recommended for the ballast that a surficial survey be done in the West Existing Rail Yard-NY & AR Maintenance Building area just prior to the Existing Rail Yard reconstruction activities in order to confirm any changes.

Several environmental actions will be needed prior to construction/demolition activities for the NY & AR Maintenance Shop, as per the non-intrusive Phase I environmental assessment and findings. The inspection pits and sumps in the NY & AR Maintenance Shop will require sampling and analytical tests prior to removal and proper disposal since there is suspect petroleum. All empty aboveground storage tanks (ASTs), drums, etc may be moved to the new location for the shop. All utilities should be disconnected properly prior to demolition.

ES.5.2.2 Areas of Concern in the Central Existing Rail Yard

Areas of concern in the Central Existing Rail Yard include AOCs 6, 7 and 7A, and are described below.

For the entire Central Existing Rail Yard, including AOCs 6, 7 and 7A, the surficial ballast did not exhibit any staining in the Central Existing Rail Yard and is not of concern.

AOC 6 – Superior Reed Building – NYCT Property

Further soil investigation in AOC 6 is not warranted except for the Bellmouth area north of Northern Boulevard where baseline soil levels should be established prior to construction.

AOC 7 and 7A – At Amtrak Boundary (AOC 7) and at Northern Boulevard Building Boundary (AOC 7A)

Shallow soil affected by SVOCs may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) in two locations of the Central Existing Rail Yard. The first location is in the southwest area of the Central Existing Rail Yard (AOC 7) and the second area is in the northeast area of the Central Existing Rail Yard (AOC 7A). The SVOCs found in AOCs 7 and 7A have been attributed to combusted materials (coal, cinders, etc.).

ES.5.2.3 Areas of Concern in the East Existing Rail Yard

Areas of concern in the East Existing Rail Yard include AOCs 8, 9, 10, 11, 11A and 12. Since AOC 12 only includes the examination of LBP and ACM in the Abandoned Substation, it is not discussed here in this soil and ballast recommendations section.

AOC 8 – Near Honeywell Bridge

AOC 8 includes soil with chlorinated VOCs (PCE and TCE) and SVOCs at locations TE-YA-25 (1.5 ft-bg) and TE-YA-26 (2.5 ft-bg), just east of the Honeywell Street Bridge. This had not been identified by previous investigations and may be attributed to other unknown sources.

AOC 9 – North Part of Amtrak PCB-Contaminated Separate Phase Oil Plume

AOC 9 includes soil with petroleum–related VOCs and SVOCs (locations TE-YA-27, TE-YA-28, and TE-YA-30); floating product in well TE-MW-28S and suspect vegetated mounds in back of abandoned locker building. Petroleum-impacted soil may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) in the area around the abandoned locker room building. The presence of petroleum and the SVOCs is attributed to the presence of floating product in well TE-YA-MW-28S, due to the presence of the PCB-Contaminated Separate Phase Oil plume. The separate-phase product plume is situated under the abandoned locker building and contains PCBs, and is prevalent between locations TE-YA-27 and TE-YA-30.

Suspect mounds in back of the abandoned locker building in AOC 9 suggest buried materials and warrant further investigation prior to excavation and track replacement activities. A survey and/or remediation via test pits of these mounds may be warranted. Test pits to remove and detect materials, could be used to determine the nature of any buried objects contained within the mounds.

AOC 10 – Area West of 39th Street Bridge and Proposed Train Car Wash

AOC 10 includes soil with SVOCs and the pesticide (Aldrin). As such, pesticide-impacted soil (Aldrin) may be encountered during shallow excavation (grade to 4 ft-bg) of the foundation for the proposed car wash and during track replacement and excavation at adjacent locations TE-YA-32 and TE-YA-60.

AOC 11 and 11A – West of 39th Street (AOC 11) and East of 39th Street (AOC 11A)

AOC 11 and AOC 11A include two locations in the East Existing Rail Yard that have high levels of SVOCs. The SVOCs exceeded the soil characterization criteria in two locations (TE-YA-31 and TE-YA-33). These SVOCs have been attributed to combusted materials (coal, cinders, etc.).

ES.5.3 Conclusions and Recommendations - Groundwater

For groundwater management purposes, the primary chemicals of concern are the metals and the chlorinated VOCs regulated by the New York City Department of Environmental Protection (NYCDEP) Bureau of Wastewater Treatment are of concern. The metals chromium, copper, lead and nickel and the chlorinated VOC PCE were all detected at the Existing Rail Yard and have established limitations for effluent to both storm drains and sanitary or combined sewers.

The CCMP will address the classification, proper handling, disposal, and treatment of any dewatered groundwater from the affected AOCs as noted in this report, primarily the cut-and-cover tunnel and the construction of the train car wash. Construction-related dewatering in the Existing Rail Yard will require treatment prior to discharge. Since the groundwater may exhibit chlorinated VOC at concentrations above the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers, pre-treatment of groundwater prior to discharge to the municipal sewer system is likely.

It is recommended that groundwater management be accomplished through the use of a water-tight slurry wall structure.

Based upon the groundwater data collected, filtration of groundwater is not necessary to meet the limitations established by the NYCDEP for PCE and these metals.

Use of a groundwater model during the design phase is recommended in order to determine the effects of construction-related groundwater management on groundwater flow and the fate and transport of the dissolved plumes outside of the structure. Geologic and structural elements should be merged into this model also. The model should also be used to design an optimal monitoring well network around the cut-and-cover structure as per permit requirements for gauging water quality and water levels during and after construction.

VOCs which exceeded the groundwater characterization criteria include: *cis*-1,2-dichloroethene (*cis*-1,2-DCE), PCE, TCE, TCA, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, isopropylbenzene, n-propylbenzene, sec-butylbenzene, vinyl chloride, acetone, chloroform and toluene. Some of these VOCs tend to form DNAPLs, including chloroform, TCA, PCE, TCE and *cis*-1,2-DCE.

ES.5.3.1 Central Yard Plume

Impacted groundwater may be encountered during excavation of the cut-and-cover tunnel on-site for the Central Yard plume. The groundwater was found to have concentrations of VOCs, SVOCs and metals, which exceeded the groundwater characterization criteria.

Chlorinated VOCs, including TCE and PCE, are regulated by NYCDEP and were detected in groundwater in the cut-and-cover excavation and structure area for the Central Yard plume in the Central Existing Rail Yard. The presence of chlorinated VOCs is attributed to the previously identified chlorinated VOC plume in shallow groundwater emanating from the south Central Yard plume. Although the groundwater results meet the NYCDEP limitations for PCE in effluent from both storm drains and sanitary or combined sewers, the NYSDEC groundwater standards were exceeded. As such, discharged groundwater from affected areas may need to be treated prior to discharge. Groundwater can be treated on-site with a sedimentation, filtration and GAC adsorption system.

Iron, manganese, magnesium, antimony, mercury, copper, chromium and/or sodium concentrations in the wells sampled in this area exceeded groundwater characterization criteria. Based on the concentrations of these metals in the wells, filtration will not be necessary in order to meet the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers. Excess levels of these metals can lead to scaling, staining and/or corrosion.

Additional monitoring wells will eventually be needed as per permit requirements. These wells will be used for groundwater monitoring during construction activities primarily in the cut-and-cover excavation and structure for the Central Yard plume. The groundwater monitoring program will be described in the Construction Monitoring Plan (CMP).

Additional monitoring wells were sampled for the Sunnyside Yard/Harold Interlocking ESI. These wells will further delineate the Central Yard plume and will identify the absence/presence of free sinking product within the unconfined aquifer and information will be provided in subsequent findings reports for the respective design packages.

ES.5.3.2 Kinney Lot Plume

Impacted groundwater may be encountered during excavation of the cut-and-cover tunnel off-site with the Kinney Lot plume. The groundwater was found to have concentrations of VOCs, SVOCs and metals which exceeded groundwater characterization criteria.

The wells sampled in this area (QB-106W and QB-117W) had concentrations of iron and/or sodium which exceeded groundwater characterization criteria. Although these metals (total and dissolved) were found to exceed groundwater characterization criteria, the concentrations are most likely due to natural background concentrations, and are not regulated by the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers. These metals can cause staining or corrosion.

Additional monitoring wells will eventually be needed as per permit requirements. These wells will be used for groundwater monitoring during construction activities in the Bellmouth structure north of Northern Boulevard, where baseline levels of VOCs in groundwater are needed. The groundwater monitoring program will be described in the CMP.

ES.5.3.3 Northern Boulevard/39th Street Plume

Chlorinated VOC and metal impacted groundwater may be encountered during excavation of the foundation for the proposed car wash in the Northern Blvd/39th Street plume. Although total and dissolved iron and total and dissolved sodium were detected at levels exceeding groundwater characterization criteria, these are most likely due to natural background concentrations, and are not regulated by the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers. These metals can cause staining or corrosion.

For the Northern Blvd/39th Street plume, as grade elevation increases proceeding eastward, the depth to water becomes deeper. As such, groundwater will probably not be encountered during track replacement and excavation east of 39th Street Bridge.

ES.5.3.4 West Existing Rail Yard

Groundwater was impacted due to the presence of VOCs and metals, and the presence of petroleum odors.

Based on the depth to water in this area and the anticipated construction depths, there is no impact to the groundwater anticipated, and therefore, there are no further recommendations for the West Existing Rail Yard.

ES.5.3.5 PCB-Contaminated Separate Phase Oil Plume

Separate-phase product may be encountered during track replacement and shallow excavation, particularly in the area between the abandoned locker room building and the former turntable. Groundwater is also encountered at very shallow depths in this area (2.5 to 6.5 ft-bg).

It is recommended that containment, testing, and disposal of petroleum-impacted soil and groundwater within the PCB-Contaminated Separate Phase Oil plume area according to the requirements in the CCMP. Groundwater discharge can be treated on-site with a portable oil/water separation tank and GAC adsorption unit.

A slurry wall or other impermeable barrier can be constructed to prevent migration of more product to this area.

The potential effects of groundwater management within the cut-and-cover excavation and structure on the PCB-Contaminated Separate Phase Oil plume should be modeled during the design phase using a groundwater flow model as described previously. Modeling will aid in the assessment of the potential effects of drawdown on the PCB-Contaminated Separate Phase Oil plume which is approximately 1,000 feet east of the cut- and-cover excavation and structure. Also, the model will be used to design an optimal monitoring well network around the cut-and-cover structure as per permit requirements. The monitoring network will be used for gauging water levels and water quality during and after construction.

It is recommended that the existing wells be gauged and, depending on construction plans, sampled in the vicinity of the abandoned locker building prior to construction.

1.0 INTRODUCTION

The Metropolitan Transportation Authority/Long Island Rail Road (MTA/LIRR) has contracted the joint venture team of Parsons Brinckerhoff Quade & Douglas, Inc. and STV Incorporated (PB/STV) to provide tunnel engineering consulting services for the East Side Access Project. The PB/STV team is known as the Tunnel Engineer (TE) of the Project. The TE is responsible for providing the conceptual, and all preliminary and final design engineering, construction phase services (including pre-construction environmental assessments) and coordination services for the Project, under the direction of the Program Management (PM) firm.

The TE is conducting pre-construction-related Environmental Site Investigations (ESIs) within the Project's proposed right-of-ways (ROWs) and replacement rail yards. At this time, the ROWs are known as the Manhattan Alignment with GCT and the Queens Alignment with Sunnyside Yard, the Existing Rail Yard, Harold Interlocking and Sunnyside Station. The replacement yards include the Existing Rail Yard, Fresh Pond Yard, and Blissville Yard.

The ESI was developed to address Project-related environmental concerns within the Existing Rail Yard and Queens Cut-and-Cover Tunnels and Shafts construction areas, in accordance with the Project Scope of Work for the Tunnel Engineering Consultant Conceptual, Preliminary Engineering, Final Design and Construction Phase Services, Section 3.6.8 (MTA/LIRR, 1999). Special attention was made to potential contaminant source areas identified in previous investigations, which may impact the Project construction. The ESI was conducted to determine the existing site and subsurface environmental conditions according to applicable environmental regulations and Project protocol prior to site construction activities. The ESI included the performance of a modified environmental site assessment on buildings prior to modification and/or demolition activities. The findings determine the nature, approximate quantity and extent of contaminated or hazardous soil, groundwater, and other materials that may impact Project design and construction.

This document presents summaries and findings for the Environmental Site Investigation (ESI) of the Existing Rail Yard with the Queens Cut-and-Cover Tunnels and Shafts located in Sunnyside, Queens County, New York (Figure 1). The site is currently owned by the MTA/LIRR who leases the property to New York and Atlantic Railway (NY & AR). The TE and subcontractors have followed the sampling protocol of the TE's Sampling and Analysis Plan (SAP) for the Environmental Site Investigation of Yard A, Sunnyside, Queens, New York, Revision No. 1 (PB/STV, 2000a) which was approved by the PM in early 2000. Additionally, the site investigation activities have conformed to the analytical quality assurance/quality control (QA/QC) program included in Section 4.0 of the SAP, the <u>Health and Safety Plan for the Environmental Site Investigation of the East Side Access Project Alignment and Replacement Yards</u> (PB/STV, 1999), and all other applicable Project protocol.

2.0 BACKGROUND

2.1 Objectives

The specific objectives of the ESI for the Existing Rail Yard and the Cut-and-Cover Tunnels and Shafts are to:

- Identify, sample and characterize potential asbestos-containing materials (ACM) and lead-based paint (LBP) that may be encountered during renovation, relocation, abandonment or demolition of utilities, buildings, bridges, catenary towers or other structures.
- Characterize the nature and quality of soil, ballast and fill in order to assess construction worker safety and soil disposal options for possible soil and fill excavation during Project construction.
- Characterize the groundwater plumes in order to determine which would be intercepted and directly affected by the Project.
- Determine groundwater discharge options (treatment, etc.) for those plumes directly affected by the Project.
- Determine location and hydrology of plumes not directly affected by the Project in order to assess steps to be taken to ensure that the Project does not cause migration of these plumes.
- Confirm the presence or absence of on-site sources of VOCs in groundwater.

Based upon the findings of the ESI and previous environmental investigations, a site-specific Construction Contaminant Management Plan (CCMP) will be prepared during design Phase II to direct the proper testing, handling, and disposal protocols required during various stages of construction at the Existing Rail Yard. The CCMP will be prepared according to applicable environmental regulations and established Project protocols.

2.2 Regulatory Requirements

The environmental investigation will be conducted in accordance with applicable New York City (NYC), New York State (NYS) and Federal regulations and protocol. Applicable statutes, rules, regulations, and procedures are:

- U.S. Environmental Protection Agency (EPA) - Clean Water Act (CWA)
- EPA - Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- EPA - Resource Conservation and Recovery Act (RCRA)
- EPA - Safe Drinking Water Act (SDWA)
- EPA - 40 Code of Federal Regulations (CFR) Part 61 – NESHAPS
- EPA - 40 CFR Parts 260, 261, 262, 263, 266, 268, and 280
- EPA – 40 CFR Part 763 – Asbestos Hazardous Emergency Response Act (AHERA)
- EPA - 40 CFR Part 745 – Lead: Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities; Final Rule
- U.S. Department of Labor (USDOL) OSHA – 29 CFR 1910.120, 1910.1001, 1910.1101, 1926.62, and 1929.58
- U.S. Department of Housing and Urban Development (HUD) Guideline for the Evaluation and Control of Lead Based Paint Hazards in Housing pursuant to Title X of the Housing and Community Development Act of 1992
- NYS Department of Labor Industrial Code (NYSDOL) OSHA- Rule 56 - Asbestos Regulations
- NYSDOL OSHA- 29 CFR 1926.62 – Lead: Occupational Health and Environmental Controls
- NYS Public Health Law – Title 10, Part 67
- NYS Environmental Conservation Law - Articles 12, 15 and 17

- New York State Department of Environmental Conservation (NYSDEC) - Technical and Administration Guidance Memorandum (TAGM) Determination of Soil Cleanup Objectives, HWR-94-4046, January 24, 1994
- NYSDEC - Spill Technology and Remediation Series (STARS) Memo No. 1, Petroleum Contaminated Soil Guidance Policy, prepared by the NYSDEC, Division of Construction Management, Bureau of Spill Prevention and Response, August, 1992
- NYSDEC - Cleanup Standards Task Force, Draft Cleanup Policy and Guidelines, October 1991
- NYSDEC - Sampling Guidelines and Protocols, Technological Background and Quality Control/Quality Assurance for NYSDEC Spill Response Program, March 1991
- NYSDEC - Spill Response Guidelines, Basic Procedures and Requirements for Responsible Parties in New York State, January 1991
- NYSDEC – Spill Prevention Operation Technology Series (SPOTS) No. 14, 1991
- NYSDEC - Division of Water, Spill Response Guidance Manual, January 1990
- NYC Department of Environmental Protection (NYCDEP) - Title 15 - Asbestos Regulations
- 6 NYCRR Part 613, Handling and Storage of Petroleum
- 6 NYCRR Part 364, Waste Transporter Permits
- 6 NYCRR Part 371, Identification and Listing of Hazardous Waste, July 14, 1985
- 6 NYCRR Part 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities, July 1, 1986
- 6 NYCRR Part 360, Solid Waste Management Facilities
- NYC Department of Housing Preservation and Development - Local Law 1 of 1982
- NYC Department of Health - Section 173.13 and 173.14

2.3 Proposed Construction Areas

Project-related construction activities will include the construction of the Queens Cut-and-Cover Tunnels and Shafts and the reconstruction of the Existing Rail Yard within the Queens

Alignment in Sunnyside, western Queens County, New York (Figure 1). A description of the existing site and details of the proposed construction activities are provided below.

2.3.1 Site Description

The Queens Alignment is an approximately 5,500 foot long route between the existing Metropolitan Transit Authority/New York City Transit (MTA/NYCT) 63rd Street Tunnel and LIRR's Port Washington Branch/Main Line tracks (Figure 2). The Queens Alignment begins at the partially completed lower level of the MTA/NYCT 63rd Street Tunnel, which currently terminates beneath 41st Avenue, east of 29th Street. The connecting tunnels cross beneath Northern Boulevard, MTA/LIRR's Existing Rail Yard and Amtrak's Sunnyside Yard. Within Sunnyside Yard, the tunnels surface and continue to the Port Washington/Main Line tracks at Harold Interlocking.

MTA/LIRR's Existing Rail Yard is a 32-track area situated between Thomson Avenue and 34th Street, south of Northern Boulevard, with a ROW continuing east from the yard to 43rd Street, along the northern boundary of Sunnyside Yard (Figure 2). The National Railroad Passenger Corporation (Amtrak) currently owns and operates Sunnyside Yard. Amtrak's Sunnyside Yard borders the site to the southeast. Sunnyside Yard is primarily used by Amtrak and New Jersey Transit Corporation (NJTC) for the storage and maintenance of electric locomotives and railroad cars. Sunnyside Yard is currently listed as a Class II Site in the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites. Commercial, light industrial and residential properties border the Existing Rail Yard to the north and west (AKRF, 1999a). Figure 3 presents an overview of the entire Existing Rail Yard area and provides an index to the sheets, which follow (Figures 4 through 8). Figures 4 through 8 provide the following information: existing yard features, proposed construction features, and ESI borings and wells.

NY & AR currently uses the Existing Rail Yard for the temporary storage of freight trains. The site has been used as a freight yard since at least 1898. Dutch Kills, a tributary of Newtown Creek, formerly extended into the southwest portion of the yard and wetlands had previously been located along the LIRR ROW, east of the 39th Street Bridge. By 1915, yard expansions included the addition of numerous tracks, the construction of the Honeywell Bridge and major filling activities, increasing the surface elevation of the site and eliminating the wetlands and Dutch Kills (AKRF, 1999a).

Several structures are currently located within the Existing Rail Yard and Queens Cut-and-Cover and Shafts construction areas. The Existing Rail Yard structures include two structures located east of Honeywell Street, within the LIRR ROW and three structures located in the vicinity of Queens Street. Within the LIRR ROW, an abandoned one-story concrete structure, formerly used as a locker room facility, is located east of 34th Street and an abandoned wood shed is situated directly east of the Honeywell Bridge. East of the Queens Street entrance to the Existing Rail Yard, two occupied two-story buildings with an adjacent parking area are located (NY & AR Maintenance Shop and the Yard Masters building). Additionally, an abandoned two-story substation is situated between Queens Street and Thomson Street viaduct. These structures are likely to have been constructed between 1950 and 1980 (AKRF, 1999a). No structures are located within the current Queens Cut-and-Cover Tunnels and Shafts construction area.

Three bridges traverse the Existing Rail Yard including Honeywell Bridge, Thomson Avenue Bridge and Queens Boulevard Bridge. Honeywell Bridge is currently listed as a New York State Hazardous Waste Generator of lead.

2.3.2 Queens Cut-and-Cover Tunnels and Shafts (Design Package D06)

The proposed Queens Cut-and-Cover Tunnels and Shafts will connect the existing MTA/NYCT 63rd Street Tunnel to Sunnyside Yard. The cut-and-cover method will be used for excavation between Northern Boulevard and the Tunnel-Boring Machine (TBM) launch shafts. The proposed cut-and-cover construction area will be approximately 1,200 feet long and 70 feet wide at the west end, widening to 290 feet wide at the east end.

Excavation invert elevations vary from approximately 40 to 50 feet below mean sea level (msl) or approximately 45 to 60 feet below the existing groundwater table. Figures 9 and 10 provide the following information: existing yard features, proposed construction features, and ESI borings and wells in the proposed cut-and-cover tunnels and shaft area.

The proposed Cut-and-Cover Tunnels will start at the existing stub of the MTA/NYCT 63rd Street Tunnel Connection located approximately 150 feet northwest of Northern Boulevard. The two-track tunnel crosses beneath Northern Boulevard and several adjacent properties, continuing southeast at a depth of approximately 45 feet below msl or 55 feet below-grade (ft-bg). The tunnel continues beneath the Existing Rail Yard and widens into five tracks. The cut-and-cover structure ends just before the MTA/LIRR and Amtrak property (Sunnyside Yard) boundary in the Existing Rail Yard. This is where the TBM launch shaft will be located (PB/STV, 2000c). Figure 10 depicts the location of the shaft.

The construction of the Queens Cut-and-Cover Tunnels and Shafts may require the modification and/or demolition of structures including the MTA's building complex (formerly owned by Superior Reed) located on the south side of Northern Boulevard, along the northeast border of the Existing Rail Yard. This building complex consists of a 3-story (29-50 Northern Boulevard) and a 2-story (29-70 Northern Boulevard) structure. The building is currently used by NYCTA staff. The EC's preliminary environmental assessment (AKRF, 1999a) reported several spills from this area. A spill of waste oil, diesel, kerosene and mineral spirits was reported in 1996 from the 29-70 Northern Boulevard location. An oil spill was reported in 1994 from the 29-50 Northern Boulevard location. This apparently was the outcome of a failed petro-tite test of an UST that has been out of service for 12 years.

Support walls will be installed to serve as a temporary excavation support and very good groundwater cutoff during construction. The support walls will be constructed around the perimeter of the excavation and extend beneath the existing IND subway under Northern

Boulevard to form a continuous retaining structure and groundwater cutoff. Slurry walls are the preferred choice of retaining wall for the site. Slurry walls are structural, cast-in-place concrete walls constructed by placement of tremie concrete in a pre-excavated slurry-filled trench. The slurry wall consists of a series of interlocking panels that form a continuous wall. The panels are about 3 feet thick and 8 to 18 feet long with cages of steel reinforcement bars. The first step for slurry walls is to construct the concrete guide walls to align the trench during excavation and prevent caving. Then excavation for the wall panel is conducted. The excavation faces are supported by slurry, which provides a fluid pressure to prevent caving. After the trench has been excavated to the required depth and the bottom cleaned of debris, the reinforcing cage is installed. Then the concrete is placed via tremie which displaces the slurry.

The excavation will include rock excavation at or near the tunnel invert along most of the alignment and the support walls can be socketed into bedrock. Excavated soil will primarily consist of fill, glacial deposits, and weathered and unweathered bedrock. A total of 300,000 bank cubic yards (CY) (500,000 loose CY) of excavated material is estimated for the cut-and-cover construction activities (PB/STV, 1999f). Groundwater is expected to be shallow in this area (approximately 5 to 10 ft-bg), therefore it is anticipated that the majority of excavated soil will be saturated with water. Previous investigations of the adjacent Sunnyside Yard indicate that polychlorinated biphenyl (PCB), metal and semi-volatile organic compound (SVOC) contamination may be present in the soils.

Dewatering is anticipated during the Cut-and-Cover Tunnels and Shafts construction as based on excavation requirements and existing hydrogeologic features. A two-dimensional, vertical section model was developed by the TE's Geotechnical Engineers to assess the potential impacts of dewatering during cut-and-cover construction within an impermeable slurry wall. Results of the model indicate that impact on the groundwater drawdown outside the slurry wall will be minimal (0 to a maximum of 2 feet). This is based on the assumption that the permeability of the sound rock below the excavation is about 1E-6 cm/sec or lower and that the slurry wall permeability is 1E-7 cm/sec. The minimum penetration into sound rock is assumed to be one foot and the slurry wall is expected to be 3 feet thick. The low seepage volume is expected to be managed through sump-pumping. A small gradient change is not expected to cause significant movement of the separate-phase plume 1500 feet east of the construction area. No pumping outside of the excavation is expected within this area. Water levels will be measured during and after cut-and-cover excavation activities. If the drawdown exceeds contract specifications, the contractor will be required to implement remedial measures. This may include chemical grouting, jet grout cutoff wall installation and/or groundwater recharging (PB/STV, 1999g).

Further modeling efforts to apply the three-dimensional groundwater model are tentatively scheduled for Phase II in 2001 (update). The next phase of dewater modeling should also incorporate the effect on plumes which are present in the groundwater regime. In addition to the separate-phase plume, previous investigations at the adjacent Sunnyside Yard indicate that a dissolved chlorinated-volatile organic compound (VOC) groundwater plume has been inferred within this area (Roux, 1999).

2.3.3 Existing Rail Yard Reconstruction (Design Package D09)

The existing freight operations at the NY & AR will be discontinued at the Existing Rail Yard. The Existing Rail Yard will be converted to a MTA/LIRR storage facility. Some light maintenance activities and car washing will be performed at the new facility. The Existing Rail Yard is scheduled to be the last area of construction within the Queens Alignment. In the interim, it will be used as a construction staging area for the Project tunnels and will accommodate displaced Amtrak and NJTC trains from Sunnyside Yard. Proposed construction activities of environmental concern at the Existing Rail Yard include track and ballast replacement, and the construction of a Trainwash, and access roads entering into the yard and leading to and around the proposed building. A Yard Services Building (former Employee Welfare Building) will be constructed where the

MTA/NYCT (former Superior Reed) building currently is. The proposed Maintenance of Equipment (MOE) Building (former Servicing and Inspection Building) has been relocated to the Arch Street location.

Soil excavation will occur for the construction of the building foundations. Previous investigations of the site and adjacent Sunnyside Yard have indicated the presence of PCBs, polyaromatic hydrocarbons (PAHs) and metal contamination in soils and consequently, these are compounds of concern.

Dewatering may be required for the building foundations if groundwater is encountered during excavation and construction. All other construction areas will require minor excavation, to a maximum depth of 4 ft-bg (PB/STV, 1999e and 1999f). Previous investigations have indicated several contaminant plumes in groundwater may be located within the Existing Rail Yard, which could impact dewatering activities. A dissolved chlorinated-VOC groundwater plume has been inferred from Sunnyside Yard between Honeywell Street and 40th Road, extending into the Existing Rail Yard. A separate-phase petroleum and PCB plume is located in the north-central portion of Sunnyside Yard and may extend north into the LIRR ROW (PCB-Contaminated Separate Phase Oil Plume). Additionally, one small dissolved chlorinated-VOC groundwater plume and two dissolved benzene, toluene, ethylbenzene and xylene (BTEX) groundwater plumes are located in the north-central portion and northeast corner of Sunnyside Yard, possibly extending into the LIRR ROW located directly north of these areas (Roux, 1999).

2.4 Environmental Setting

2.4.1 Topography

The Existing Rail Yard is located in western Queens County, NY. The United States Geologic Survey (USGS) 7.5-Minute topographic maps for the Brooklyn, NY Quadrangle and Central Park, NY Quadrangle, both dated 1967 and photo revised in 1979, depicts basic topographic features of the yard (Figure 1). The topography is generally flat with a gentle slope to the west. The yard is located in a basin, with surface elevations approximately 10 to 20 feet below surrounding surface areas. The average surface elevation of the yard is approximately 15 feet above msl.

2.4.2 Geology

The regional geology of western Queens County is composed of a thick layer of unconsolidated material (glacial and recent deposits) overlying dense, metamorphic crystalline bedrock. The bedrock surface dips gently toward the southeast at approximately 80 feet vertically for every mile horizontally (Roberts-Dolgin, 1989; Merguerian, 1992). The unconsolidated sediments thicken from a thin veneer in northwestern Queens to several hundred feet thick in the vicinity of Jamaica Bay in the southeast.

Project-specific geologic cross-sections for Package Nos. 6 and 7 (PB/STV, 1999b) depicts the north and south stratigraphy of the proposed Cut-and-Cover Tunnels and Shafts construction area (Figures 11 and 12, respectively). The yard overlies granite gneiss bedrock. The depth to bedrock in the vicinity of the yard appears to be irregular, with an increasing depth to the south and ranging from 30 to 85 ft-bg. In areas surrounding the yard, bedrock has been found to range from 30 to 150 ft-bg (Roux, 1999). Additionally, bedrock was encountered at depths ranging from 41 feet below msl at the intersection of Northern Boulevard and 39th Street to 71 feet below msl at 43rd Avenue (Louis and Berger Associates, 1994). Also, a discontinuous peat/clay layer (possibly remnant marshland) appears to be situated below the fill from 10 to 20 ft-bg.

The unconsolidated materials in the vicinity of the yard are of Pleistocene (Wisconsin glaciation) and Holocene ages. The unconsolidated materials of the Pleistocene age are known as the Upper Pleistocene glacial (ground moraine) deposits (including fill and channel deposits). Ground moraine is an unsorted and unstratified mixture of clay, sand, gravel and boulders formed at the base of the ice sheet during periods of melting. In this urban coastal area, Holocene (recent) deposits, where present, consist of artificial fill, salt marsh deposits, alluvium and shoreline deposits. The sediments are sand, gravel, clay, silt, organic silt, peat, loam and shells (Baskerville, 1982; Roberts-Dolgin, 1989).

Between the years 1844 and 1957, approximately 65 percent of the surface area within Queens County were artificially filled for urban expansion and waste disposal purposes. Studies of NYC landfills built between 1844 and 1900 determined that typical fill material was composed of both "natural fill" including channel dredge and excavated soil, and municipal solid waste consisting of coal ash, cinders, slag, brick, wood, and cement (Walsh and LaFleur, 1995). From 1906 to 1910, the Existing Rail Yard and adjacent Sunnyside Yard were graded, with the excavation of the higher portions of the yards (generally the eastern portion) and redistribution of the fill to the lower areas. Additionally fill was used in the construction of elevated railroad ROW and bulkheads throughout the yards. Prior to the filling activities, marshland was located in the southwest portions of Sunnyside Yard, extending north into the Existing Rail Yard. Dutch Kill Creek extended across the western portion of Sunnyside Yard, flowing south to Newton Creek. Dutch Kills Creek was later filled in and drainage was culverted beneath the northeast corner of the yard through a 48-inch diameter sewer line (Roux, 1999). Currently, water can be found at very shallow depths, particularly in eastern and the Central Existing Rail Yard where the Dutch Kills Creek and marsh once existed.

A subsurface investigation of the Existing Rail Yard was conducted for MTA/LIRR by AKRF, in 1999 (AKRF, 1999b). The lithology observed during the investigation was natural fill (fine to coarse sand, silt, clay and gravel) and artificial fill (railroad ballast, ash, cinders and construction debris). The natural fill generally consists of the same geologic formation as the underlying native soils, often making the two indistinguishable. The depth of artificial fill ranges from approximately 2 to 5 ft-bg over the yard (AKRF, 1999b).

2.4.3 Hydrology

Three surface water bodies are present within one mile of the Existing Rail Yard (Figure 1). The East River is located approximately one mile northwest of the yard. Dutch Kills Creek is located approximately 1,000 feet southwest, relative to the site and is a tributary of Newtown Creek, located approximately 3,500 feet west of the site. The site is not found within designated wetlands depicted on the Federal Fish and Wildlife National Wetland Inventory maps (AKRF, 1999a).

The only aquifer of significance in this section of Queens County is the Upper Glacial Aquifer, which is composed of unconsolidated Pleistocene age sediments. The Upper Glacial Aquifer is an unconfined aquifer subject to atmospheric effects. This aquifer was an important groundwater source in western Queens until the mid-1940s when over-pumping caused saltwater intrusion, which in turn made the water non-potable. Maximum pumping rates were as great as 1,500 gallons per minute (gpm). Several potentially active, private supply wells had previously pumped water from the Upper Glacial Aquifer in southern Queens County. The wells were predominantly used to supply water for car washing and cooling water. The status of these wells is currently unavailable as the NYSDEC has not updated the well records for this area in many years (Roux, 1999). Groundwater is not used as a source of potable water in this area.

Water level measurements in cut-and-cover area wells were obtained by the TE in the Spring of 2000. The data are presented in Appendix A. With the exception of the off-site wells, the depth to water is very shallow in this area of the Existing Rail Yard. The depth to water ranged from 2.7 to 5.4 ft-bg in April 13, 2000 and 2.7 to 5.1 ft-bg on May 26, 2000. As such, hydraulic gradients are expected to be relatively flat in this area.

Previous studies conducted at the adjacent Sunnyside Yard found the groundwater at approximately 3 to 15 ft-bg. Groundwater flow within the saturated Upper Pleistocene deposits, comprising the Upper Glacial aquifer, is predominantly west at an average rate of 5.7 to 6.6 feet/day (ft/d) discharging to the buried flow path of Dutch Kills Creek in the western portion of Sunnyside Yard, and/or the East River. Upward and vertical gradients exist beneath the west and northwest portions of the yard and are influenced by filling activities of the Dutch Kills. Groundwater flow still appears to mimic topographic contours of the former Dutch Kills (Roux, 1999). Urban subsurface structures may additionally affect groundwater flow patterns. Sewer lines and water mains may provide permeable migration pathways while retaining walls and other structures may prevent and divert flow. Construction-related dewatering efforts of the MTA/NYCT 63rd Street Tunnel Connection Project along Northern Boulevard may affect groundwater flow direction and gradients in the Upper Glacial Aquifer, within the northern portions of the yard. Dewatering activities for the MTA/NYCT 63rd Street Tunnel Connection Project began in mid-1996. Groundwater lowering outside the project slurry wall was limited to 2 to 3 vertical feet. Monitoring of a known separate-phase product plume located approximately 150 feet northeast of the dewatering activities indicated practically no movement during dewatering (PB/STV, 1999g).

The saturated fill and Upper Glacial Aquifer are highly transmissive based on the findings of pumping and slug test performed by Roux Associates, Inc. in 1997 (Roux, 1999). Hydraulic conductivity (K_H) was found to range from 2.36 to 577 ft/d, with average values of 410 ft/d for the water table aquifer and 500 ft/d for deeper deposits. Average transmissivity (T) was calculated to be 28,295 ft^2/d for the water table aquifer and 35,300 ft^2/d for deeper deposits (Roux, 1999).

2.5 Recent Environmental Investigations

Summaries of the following recent environmental site investigations are provided below: the Preliminary Environmental Site Assessment and Proposed Sampling Plan of Yard A (AKRF, 1999a); Detailed Environmental Site Investigation (AKRF, 1999b); and Operable Unit 6 Remedial Investigation Report (Roux, 1999). These studies were considered most representative of the environmental concerns of the Existing Rail Yard.

Additional information can be found in the following previous environmental studies: Draft Report Summary of Real Estate Transfer Environmental Assessments: 63rd Street Line Connection to the Queens Boulevard Line (Louis Berger & Associates, Inc., 1994); Phase II Remedial Investigation (RI) Sunnyside Yard, Queens, New York: Volumes I-V (Roux, 1995); and Limited Phase II Environmental Site Assessment Report: High Speed Trainset Facility, Sunnyside Yard, Queens, New York (Roux, 1996).

2.5.1 EC Preliminary Environmental Site Assessment and Proposed Sampling Plan – Existing Rail Yard

A Preliminary Environmental Site Assessment of the Existing Rail Yard was conducted by the Project EC in February and March 1999. A non-intrusive environmental site survey was conducted on February 5, 1999, as part of the site assessment. During the survey, several 55-gallon drums of waste oil and maintenance fluids were observed in the vicinity of the maintenance building. Several piles of debris containing suspect ACMs, including pipe insulation, train brake pads and roofing materials were observed in scattered locations throughout the site. The visual survey confirmed the presence of structures remaining on-site and the presence of potential LBP and ACMs (including pipe insulation and roofing materials) on or within the structures. Additional debris observed on-site included scrap metal, tires, abandoned drums, automotive parts and fluid containers (AKRF, 1999a).

An environmental database search indicated that there were many areas of concern near the site, particularly from properties bordering the northern site along Northern Boulevard. Some of the most pertinent neighboring sites are:

- MTA/New York City Transit Authority (NYCTA) (former Superior Reed), a spill of waste oil, diesel, kerosene and mineral spirits was reported in 1996 (29-70 Northern Boulevard location). Also, an oil spill was reported in 1994 which apparently was the outcome of a failed petro-tite test of an UST that has been out of service for 12 years

(29-50 Northern Boulevard location). This building is situated in the cut-and-cover tunnel area.

- Standard Motor Products, Inc. on 37-18 Northern Boulevard is a NYSDEC Inactive Hazardous Waste site with 1,1,1-trichloroethane, lead, and petroleum hydrocarbons confirmed in groundwater and soil. This site is adjacent to the proposed train car wash just west of 39th Street.
- West Disinfecting Company (a.k.a. Outlet City) is located at 42-16 West Street just north of the West Existing Rail Yard near Queens Boulevard. The database lists a spill of creosote affecting the soil and groundwater. A free product recovery system has been installed and more remediation is expected. This is also a Large Quantity Hazardous Waste Generator and produces spent halogenated solvent waste in 1997 and lead waste in 1992.

2.5.2 EC Environmental Site Investigation

A subsurface investigation of the Existing Rail Yard was performed by the Project EC for the Existing Rail Yard in April 1999. The sampling plan for this subsurface investigation was based on the non-intrusive preliminary environmental assessment discussed in Section 1.5.1 (AKRF, 1999a). During the investigation, six shallow monitoring wells were installed at selected locations throughout the Existing Rail Yard. One deep monitoring well (set at 60 ft-bg) was installed in the center of the proposed Cut-and-Cover Tunnels and Shafts construction area. The monitoring wells were sampled and analyzed for VOCs, SVOCs, PCBs and metals (total and filtered). PCBs were not detected in any of the wells. VOCs of concern in groundwater include benzene, toluene, ethylbenzene, xylenes, and trichlorethene (TCE). The primary SVOCs of concern in groundwater include naphthalene, acenaphthene, fluorene and phenanthrene. The primary metals of concern in groundwater are total zinc and dissolved and total lead.

Soil samples were collected from 14 locations and analyzed for VOCs, SVOCs, pesticide/herbicides, PCBs, and metals (including total lead). PCBs and pesticides were not detected. Acetone was detected in one sample located in the east-northeast portion of the Existing Rail Yard and may indicate localized contamination due to an exceedance of the 10,000 ppb criteria for total VOCs in the sample. Although low acetone concentrations were detected in several other samples, the laboratory blank indicates that these are most likely due to a laboratory contaminant. Although many SVOCs were detected, the compounds were at concentrations below the guidance values. The primary metal of concern in soil is lead. Lead was detected above the cleanup criteria of 1,000 ppm specified in the ROD (NYSDEC, 1997b and 1998d) in 3 samples: YAD-3 (1,880 ppm), YAS-2 (1,220 ppm) and YAS-6 (2,440 ppm).

2.5.3 Sunnyside Yard

Sunnyside Yard is a rail storage and maintenance facility bordering the entire southeastern length of the Existing Rail Yard. Sunnyside Yard is owned and operated by Amtrak. Many environmental investigations have been conducted throughout Amtrak's Sunnyside Yard since 1986 (Roux, 1995, 1996, 1999). Sunnyside Yard is listed as a Class II Site in the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites. As a result of the NYSDEC Class II listing of the yard, Amtrak, NJTC and the NYSDEC entered into an Order of Consent (Index #W2-0081-87-06), effective October 1989.

The Yard was divided into six (remedial) operable units after the Phase II Remedial Investigation (RI) was completed in 1995 with NYSDEC concurrence. The findings for OU-1, OU-2, OU-3 and OU-6 are relevant to the Existing Rail Yard. The findings for OU-4, OU-5 and OU-6 are relevant to Sunnyside Yard. The Operable Units (OU) are as follows:

- OU-1 - the unsaturated soils within the High Speed Train Facility (HSTF) Service and Inspection (S & I) building footprint;

- OU-2 - the unsaturated soils within the HSTF S&I building footprint ancillary structures including access route;
- OU-3 - the unsaturated soil and separate phase petroleum (with PCBs) near the former turntable (also known as Area 1);
- OU-4 - the unsaturated soil in the remainder of Sunnyside Yard; 5) OU-5 - the sewer system beneath Sunnyside Yard; and
- OU-6 - the groundwater and saturated soil beneath Sunnyside Yard.

For OU-1, a Proposed Remedial Action Plan (PRAP) was issued by the NYSDEC which includes the excavation and off-site disposal of contaminated soils (NYSDEC, 1998d). A Record of Decision (ROD) was also issued by the NYSDEC establishing the following cleanup criteria for soils at OU-1: PCBs – 25 parts per million (ppm); total carcinogenic PAHs (cPAHs) – 10 ppm; and lead – 1,000 ppm. The ROD additionally established site restrictions based on these cleanup criteria levels (NYSDEC, 1998d). For OU-2, a PRAP was also issued by the NYSDEC establishing a No-Action Alternative for OU-2, as none of the contaminants of concern were found above established cleanup levels (NYSDEC, 1997c). The HSTF S&I and associated ancillary structures is located south of the East Existing Rail Yard and the former turntable, between Honeywell Street and 39th Street.

For OU-3, the PCB-Contaminated Separate Phase Oil plume is located in the north-central portion of Sunnyside Yard, extending from the former Metro Shop to beyond the northern property boundary into the Existing Rail Yard. The separate phase oil plume appears to have originated at the former fuel storage area, in the vicinity of the former Engine House and migrated northward. Approximately 200,000 gallons of PCB contaminated oil was quantified. PCBs were generally not detected in groundwater unless separate-phase petroleum was present (Roux, 1999).

The most recent groundwater monitoring for OU-6 was conducted in 1997 (Roux, 1999). There are several dissolved plumes in shallow groundwater which are relevant to the Existing Rail Yard as follows:

- A benzene, toluene, ethylbenzene and xylene (BTEX) plume which is situated in the East Existing Rail Yard near the 44th Place access road entrance and is attributed to off-site sources. The plume is referred to as the Loop Track Plume in the Environmental Status and Construction Plan (ESCP) report and was not further investigated for this report.
- A small BTEX plume which appears to be situated off-site under a building on Northern Boulevard and is just north and adjacent to the northern extent of the PCB-Contaminated Separate Phase Oil plume. The BTEX plume is attributed to off-site sources and is not associated with the separate phase oil plume. This plume is referred to as the 34th Street Plume in the ESCP report and was not further investigated for this ESI.
- A large inferred chlorinated-VOC plume from the main body area of Sunnyside Yard has been inferred to extend into the Central Existing Rail Yard where the proposed cut-and-cover tunnel and shaft will be. The chlorinated-VOCs of concern include 1,2-dichloroethene (1,2 -DCE), trichloroethene (TCE) and tetrachloroethene (PCE). These VOCs exceed the NYSDEC Class GA Groundwater Standards. The plume has been attributed to off-site sources south of Skillman Avenue. This plume was further investigated as part of this ESI and is referred to in this report as the Central Yard Plume.
- A minor chlorinated-VOC plume is located in the East Existing Rail Yard between 37th Street and 39th Street where the trainwash is proposed to be. This plume was further investigated as part of this ESI and is referred to in this report as the Northern Boulevard/39th Street Plume.
- A minor chlorinated-VOC plume is located on the southern boundary of Sunnyside Yard at Skillman Avenue and 39th Street. This plume was attributed to off-site sources located to the southeast (Roux, 1999). This plume was not further investigated as part of the ESI and is referred to in this report as the Skillman Avenue/39th Street plume.

- Salt-water intrusion of the aquifer has been confirmed through chloride and total dissolved solids analyses. Saline groundwater is present throughout the southwest half of the Existing Rail Yard including the area between Thomson Street and Honeywell Street.

3.0 SITE INVESTIGATION METHODOLOGY

This section describes the field methodologies used for the Existing Rail Yard ESI. The field methodologies were in accordance with the PM-approved Existing Rail Yard Sampling and Analytical Plan (SAP) Revision No.1 (PB/STV, 2000a). The SAP is a guidance document, which describes well installation procedures, soil and groundwater sampling procedures, analytical requirements, and quality assurance/quality control procedures. The SAP procedures were developed in accordance with New York State Department of Environmental Conservation (NYSDEC) sampling techniques and analytical protocols. The Site investigation focused on areas of that may be impacted by proposed construction, as discussed in Section 2.3.

3.1 Environmental Assessments of Buildings to Be Demolished

Environmental assessments consisted of asbestos and lead surveys and a modified environmental assessment of the buildings to be demolished in the Existing Rail Yard. The buildings that are scheduled to be demolished include the abandoned locker building located in the northeast portion of the Existing Rail Yard within the LIRR ROW and the Abandoned Substation in the West Existing Rail Yard between Thomson and Queens Streets. Other buildings that had environmental assessments performed, but are not scheduled to be demolished include the Yardmaster's Building in the West Existing Rail Yard and the NY & AR Maintenance Shop in the West Existing Rail Yard. The environmental assessment of the abandoned locker building was conducted on March 31, 2000. The environmental assessments of the Abandoned Substation and the Yardmaster's Building was conducted on April 12, 2000. The environmental assessment of the NY & AR Maintenance Shop was conducted on June 15, 2000. Access to the MTA/NYCT (former Superior Reed) building has been delayed to August, 2000 and is not included in this ESI report. An addendum will be issued separately on the findings for this building.

3.1.1 Asbestos Surveys

A TE subconsultant, JLC Environmental Consultants, Inc. (JLC) of New York, conducted asbestos surveys of the buildings proposed to be demolished at the Existing Rail Yard. The inspection, sampling, analysis, and assessment associated with the asbestos survey was completed by certified investigators and followed applicable Project protocol and safety practices, as well as, NY state and federal regulations and standards.

All buildings were physically inspected at each homogenous area and functional space in order to determine the presence or absence of possible ACM. No interior or exterior demolition was done for sampling purposes. Bulk samples were collected and placed into sealed containers, labeled with an identifying number, and recorded in a sample log.

Representative samples from each ACM sampling area were submitted to JLC's in-house laboratory for Polarized Light Microscopy (PLM) analysis. Submitted samples were individually prepared and identified as friable or non-friable and then analyzed and indexed by color, total estimated percentage of asbestos, and type(s) and estimated percentage of each asbestos fiber group and non-asbestos fiber groups. Selected samples of non-friable, organically bound material were also submitted to Scientific Laboratories, Inc. for Transmission Electron Microscopy (TEM) analysis. Selected samples were analyzed and indexed by color, total estimated percentage of asbestos, and type(s) and estimated percentage of each asbestos fiber group and non-asbestos fiber groups.

3.1.2 Lead Surveys

The subconsultant, JLC Environmental Consultants, Inc. (JLC) of New York, conducted lead surveys of the buildings proposed to be demolished at the Existing Rail Yard. The inspection, sampling, analysis, and assessment associated with the lead survey was completed by certified investigators and followed applicable Project protocol and safety practices, as well as, NY state and federal regulations and standards.

Within the buildings of investigation, all accessible spaces and surfaces were physically inspected. Suspect LCM was categorized and grouped by homogeneous area and then each area was sampled randomly. The paint samples were collected by removing paint from the exposed surfaces down to the substrate from a one square inch area for each sample. The paint samples were placed in sealed containers, labeled with an identifying number, and recorded in a sample log.

Samples of LCM were submitted to JLC's in-house laboratory for Atomic Absorption Spectrometry (AAS) analysis. Submitted samples were analyze and results reported according to color and lead content, including milligrams per square centimeter (mg/cm^2) and percent lead.

3.1.3 Additional Environmental Surveys

Modified environmental site assessments of the existing structures and adjacent area were inspected for potential environmental concerns which may impact Project-related construction activities. This provides site-specific supplementary information to the site-wide environmental assessments conducted by the EC (AKRF 1999a, 1999b). Environmental concerns include potential sources of contamination and hazardous wastes such as underground storage tanks, inspection pits, stained pavement, suspect vegetated mounds, monitoring wells, drainage systems, etc. These may impact project-related construction activities and demolition. A non-intrusive site reconnaissance was conducted at each building. A review of site-specific historical maps was conducted and includes Sanborn and LIRR valuation maps. Based on the findings, recommendations for further subsurface investigations can be made prior to construction and/or demolition.

3.2 Hydrogeologic Investigation

3.2.1 Soil Borings

A total of sixty-one (61) soil borings were completed as part of the Existing Rail Yard investigation. Boring logs for all locations are presented in Appendix B. Of the sixty-one locations, seven utilized the Geoprobe® macro-core sampling system and wells were constructed in five of the environmental boring locations. Two deep borings were completed as 2-inch diameter PVC monitoring wells (to bedrock depth) using the hollow stem auger/mud rotary drilling rig and three shallow borings were hand dug and completed as 1-inch diameter PVC piezometers. The rest of the soil samples were collected using the hand auger. ESI boring and monitoring well locations for the Existing Rail Yard are shown in Figures 4 – 11.

NAEVA Geophysics, a TE subconsultant, cleared several boring locations prior to Geoprobe® or hollow stem/mud rotary drilling on March 22, 2000 and April 6, 2000. Electromagnetic (EM), conductivity, and ground penetrating radar (GPR) geophysical survey instruments were utilized to investigate proposed boring locations for detectable underground utilities or subsurface obstructions. To further insure the clearance of shallow subsurface utilities, borings deeper than 5 ft-bg were hand augered to a depth of 5 ft-bg prior to the commencement of powered drilling. Soil samples from deeper borings were collected utilizing either a Geoprobe® macro-core samplers or split spoon samplers (using a truck-mounted hollow stem auger (HSA) drill rig) depending upon subsurface conditions and sampling requirements. Shallow soil samples above 5 ft-bg were sampled using a decontaminated, steel hand auger.

Soil was characterized in the field. The lithology of the screened sample was classified according to the Unified Soil Classification System (USCS), and the presence of soil staining, odors, suspected contaminants, moisture, and PID readings were noted. Each soil sample was screened for VOCs with a Photovac® photo-ionization detector (PID).

Immediately following retrieval of the soil core, soil gas readings were collected at approximately 6-inch segments along the soil sample to screen.

Soil samples were collected during the completion of the soil borings and were submitted for specific target analytical parameters determined for each boring and monitoring well location. Analytical parameters and methods include selected analysis from the following:

- Target Compound List (TCL) Volatile Organic Compounds (VOCs) by EPA Method 8260B (done in certain selected shallow samples which were selected for analysis based on field observations).
- TCL Semi-volatile organic compounds (SVOCs) by EPA Method 8270B
- Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics/Diesel Range Organics (GRO/DRO) by EPA Method 8015 (done for every other vertical soil sample collected in the two deep borings in the cut-and-cover excavation and structure area only).
- Toxicity Characteristic Leaching Procedure (TCLP) Pesticides by EPA Method 8081A (applies to the area east of the former turntable and for every other vertical soil sample collected in the two deep borings in the cut-and-cover excavation and structure area).
- Polychlorinated biphenyls (PCBs) by EPA Methods 8282/8082 (applies to the area east of the former turntable and for every other vertical soil sample collected in the two deep borings in the cut-and-cover excavation and structure area).
- TCLP metals by EPA Methods 1311/RCRA 6000+7000
- TCLP Herbicides by EPA Method 1311/8151A (applies to the area east of the former turntable and a vertical soil sample from the top of each of the two deep borings in the cut-and-cover excavation and structure area).

To avoid redundancy, PCBs, pesticides and herbicides were analyzed in soil samples only in areas which were not previously investigated by the EC. This includes the area east of the former turntable. TPH (GRO/DRO) was analyzed in every other vertical soil sample collected in the two deep borings in the cut-and-cover tunnel area only. Soil sample analytical results were reported in microgram per kilogram (ug/kg) equal to parts per billion (ppb) on a dry weight basis, except for TCLP analysis, which is reported in milligrams per liter (mg/L) equal to ppm.

With the exception of the soil samples from the cut-and-cover tunnels and shafts area, only soil samples with elevated levels of VOCs (PID concentrations of 5 ppm above the background levels) or samples exhibiting apparent staining or odors were submitted for VOC analysis. All soil intervals sampled from the cut-and-cover tunnels and shafts area were analyzed for VOCs regardless of field observations. The boring locations, representative soil samples, and sources of possible contamination were documented photographically, and other observations were recorded in a bound field notebook.

All boring locations were surveyed for location and elevation on June 5, 6, 8, 9, and 12, 2000 by the TE subconsultant Medina. The survey data are presented in Appendix C.

3.2.1.1 Hand Auger Soil Samples

The hand auger sampling method was used in locations where shallow soil sampling was conducted (above 5 ft-bg). This was based on proposed construction plans for the majority of the Existing Rail Yard (i.e., track replacement). Soil samples were collected in the West and Central Existing Rail Yard on 4/7/00, 4/11/00, 4/12/00, and 4/13/00. Soil samples were collected in the East Existing Rail Yard (i.e., east of Honeywell Street) on 3/28/00, 3/29/00, 3/30/00, and 3/31/00.

Soil samples were collected for laboratory analysis in accordance with site-specific procedures. One composite soil sample was collected from each boring location below ballast. Samples were composited in a decontaminated stainless steel bowl and sent to the lab to be analyzed for TCL SVOCs, TCLP Pesticides, TCL PCBs, TCLP metals, and TCLP Herbicides. Selected grab soil samples were analyzed for TCL VOCs. This includes soil samples with elevated levels of VOCs (PID concentrations of 5 ppm above the background levels), samples exhibiting apparent staining or odors, and/or any other suspect observation.

3.2.1.2 Geoprobe® Macro-Core Soil Sampling

The Geoprobe® macro-core soil sampling system was used in locations where soil sampling was needed below 5 ft-bg. This was based on proposed construction plans and foundation design of the proposed train car wash facility in the East Existing Rail Yard and the former proposed Maintenance of Equipment (MOE) facility in the West Existing Rail Yard. As the project progressed, the proposed MOE facility was moved to the Arch Street Yard location. The soil samples at this location were still collected using the procedure described in the SAP since the West Existing Rail Yard is the most active rail-use area of the entire yard. As such, six borings were advanced and sampled using the Geoprobe® in the West Existing Rail Yard on 4/7/00, 4/10/00, and 4/11/00. Also, a small dissolved chlorinated VOC plume in shallow groundwater, called the Northern Boulevard/39th Street Plume has been inferred in the proposed car wash area from previous investigations. As such, two borings were advanced and sampled using the Geoprobe® in the East Existing Rail Yard on 3/28/00 and 3/29/00. The macro-core sampler was attached to the Geoprobe® drive rods and advanced to the target sample depth to obtain a relatively undisturbed soil core.

Soil samples were collected for laboratory analysis in accordance with site-specific procedures. Two composite soil samples were collected at two sample depth intervals above the shallow water table – one from the 4-foot interval below ballast and one four-foot interval directly below that. Samples were composited in a decontaminated stainless steel bowl and sent to the lab to be analyzed for TCL SVOCs, TCLP Pesticides, TCL PCBs, TCLP metals and TCLP Herbicides. Only one composite sample was possible at location TE-YA-54 in the West Existing Rail Yard due to a PVC pipe at 3 ft-bg.

Grab soil samples were collected at all Geoprobe® locations (except TE-YA-54) and analyzed for TCL VOCs. In most of these samples the criteria for collecting samples for VOC analysis were met (i.e., elevated levels of VOCs as per PID concentrations of 5 ppm above the background levels, and samples exhibiting apparent staining or odors). There were other suspect observations which caused the collection of samples. The inferred chlorinated VOC plume in the proposed car wash area (the Northern Boulevard/39th Street Plume) was applicable to samples TE-YA-57 and TE-YA-58. At TE-YA-51 in the West Existing Rail Yard (not part of any plume, by AOC 1), a grab sample was collected over a suspect concrete layer at 8.5 ft-bg.

3.2.1.3 Split Spoon Soil Sampling

Split spoon soil samples were collected prior to well installation at two deep soil boring locations in the proposed cut-and-cover tunnel area of the Existing Rail Yard. Although the SAP proposed five deep borings, a reduction in deep soil borings was determined adequate to characterize the site and minimize force account costs to the project. The proposed cut-and-cover tunnel will require excavation to bedrock in this area in order to accommodate the tunnel shaft and slurry wall in the Central Existing Rail Yard. A dissolved chlorinated VOC plume in shallow groundwater has been inferred in this area as well. Since chlorinated VOCs tend to sink, vertical soil sampling was needed to delineate soil quality below the water table (about 10 ft-bg) down to the top of bedrock at this location. Utilizing a 2-inch diameter by 24-inch length stainless steel split-spoon sampler, soil samples were collected at 10-foot depth intervals. A truck-mounted hollow stem auger rig was used to advance borings in these two locations. When heaving sands became very apparent, the drilling method was converted to mud rotary drilling. Boring TE-YA-3D was advanced and sampled using split spoons on 5/9/00 and 5/10/00. Boring TE-YA-5D was advanced and sampled using split spoons on 5/11/00. Each split-spoon was characterized and field-screened for contamination.

Samples were collected for laboratory analysis in accordance with SAP procedures. Two composite and one grab samples were typically collected at each hollow stem auger boring location. Typical sampling consisted of one composite soil sample from specified 10-foot intervals below ballast. Samples were composited in a decontaminated stainless steel bowl and sent to the lab to be analyzed for TCL Semivolatiles, TCLP Pesticides, TCL PCBs, TCLP Metals, TCLP Herbicides, and TPH (GRO/DRO). A grab sample was collected at each soil interval for TCL VOC analysis, regardless of the field screening observations.

3.2.2 Monitoring Well Installation and Development

Five wells were constructed at the Existing Rail Yard. Boring logs for the monitoring wells, including well construction are presented in Appendix B. Table 1 provides well construction summaries of the new and existing monitoring wells located at the Existing Rail Yard which were sampled for this project.

Two deep borings were completed as 2-inch diameter PVC monitoring wells (to bedrock depth) using the hollow stem auger/mud rotary drilling rig within the proposed cut-and-cover tunnel area of the Existing Rail Yard (wells TE-YA-MW-3D and TE-YA-MW-5D). The goal of installing these wells is to collect groundwater quality information from the deeper portion of the unconfined aquifer. Existing wells for the geotechnical investigation in this area were also sampled.

Three shallow borings were hand dug and completed as 1-inch diameter PVC piezometers in the area in the vicinity of the abandoned locker building in the East Existing Rail Yard (for the PCB-Contaminated Separate Phase Oil Plume) (TE-YA-MW-27S, TE-YA-MW-28S, TE-MW-YA-30S). These wells provided water and product level data. Although the original goal was to sample these wells, several Amtrak monitoring wells in the same area have already provided ample groundwater quality data. The proposed monitoring well TE-YA-MW-29S was not installed due to inaccessibility to the location.

The monitoring wells were constructed of either 1-inch or 2-inch diameter, schedule-40 PVC casing threaded to 1-inch or 2-inch diameter schedule-40 PVC screens (10 slot). A continuous gravel pack consistent to the screen slot size was installed around the well screen. A bentonite seal was installed above the gravel pack. A concrete surface seal was installed around the riser pipe of the well casing and a protective 8-inch diameter well box was secured in the concrete seal. The manhole was set flush to grade. The top of the well casing was fitted with an expandable rubber seal and a locking cap, with a well identification number painted on the exterior and interior of the protective casing. Following installation, the well was monitored for total well depth, depth to water, and depth to non-aqueous phase liquid (NAPL), if present.

Monitoring wells TE-YA-MW-3D and TE-YA-MW-5D were developed to ensure proper groundwater flow into the monitoring well screen. Prior to well development, each monitoring well was monitored for total depth, depth to water, and depth to NAPL. Well development was conducted using a submersible pump. Well development was continued until a turbidity level of less than 50 nephelometric turbidity units (NTU) was measured, or after three or more well volumes were purged.

All wells were surveyed for location and elevation on June 5, 6, 8, 9 and 12, 2000 by the TE subconsultant Medina. Elevations are included for grade level and top of PVC casing. The survey data are presented in Appendix C.

3.2.3 Groundwater Sampling

Groundwater samples were collected from the two new monitoring wells and six existing wells within the Queens Cut-and-Cover construction area (Table 1) and at seven temporary Geoprobe® well points. Water quality parameters were field screened at each location prior to and during groundwater sampling. Temperature, pH, salinity, conductivity, turbidity, and dissolved oxygen were measured using a Horiba U-10 Water Quality Checker and field observations for sheen, NAPL, odor, and color were noted.

Groundwater analytical parameters and methods were selected based on the ESI objectives for each sampling point. The analytical parameters and methods for the groundwater survey included the following:

- TCL VOCs by EPA Methods 624/8260B;
- TCL SVOCs by EPA Methods 625/8270B;
- TCLP Pesticides by EPA Methods 8081A;
- TCL PCBs by EPA Methods 8082;
- TAL Herbicides by EPA Method 515.1;
- TAL Metals unfiltered (total metals) by EPA Method 6000; and
- TAL Metals filtered (dissolved metals) by EPA Method 6000.

Groundwater samples were analyzed for both TAL unfiltered and TAL filtered metals, providing concentrations of total and dissolved metals, respectively. Field filtration was performed using an inline 0.45-micron borosilicate cellulose acetate membrane filter in accordance with procedures outlined in the "EPA Region II: CERCLA Quality Assurance Manual" (EPA, 1989) and the "TAGM Policy Regarding Alteration of Groundwater Samples Collected for Metals Analysis" (NYSDEC, 1988).

3.2.3.1 Monitoring Well Sampling

Groundwater samples were collected from the newly installed monitoring wells TE-YA-MW-3D and TE-YA-MW-5D and existing monitoring wells QB-106W, QB-117W, QB-124W, QB-126W, QB-128W, and QB-129W within the proposed cut-and-cover tunnel construction areas. Prior to groundwater sampling, each well was monitored for total depth, depth to water, and depth to NAPL, if present. A submersible pump was then utilized to purge the well of three or more well volumes so that representative sample could be obtained. Water quality parameters were measured using the Horiba U-10 Water Quality Checker before and after purging the well. Temperature, pH, dissolved oxygen (D.O.), turbidity and specific conductance of the well discharge were monitored and measurements were recorded in the field logbook prior to and following the completion of well purging. Groundwater samples were then collected using a disposable bailer. Field measurements during groundwater sampling are provided in Appendix D. Due to low yield in wells QB-106W and QB-128W, these wells were sampled for TCL VOCs, TCL SVOCs and PCBs only.

3.2.3.2 Geoprobe® System Sampling

Groundwater samples were collected at seven sample point locations (TE-YA-51, TE-YA-52, TE-YA-53, TE-YA-55, TE-YA-56, TE-YA-57 and TE-YA-58) within the Existing Rail Yard Reconstruction area using the Geoprobe® sampling system. The Geoprobe® macro-core soil sampling system was used to create a small diameter boring in which a temporary 1-inch diameter, 4-foot long polyvinyl chloride (PVC) screened well point was set at a depth to straddle the water table. Utilizing a peristaltic pump and polyethylene tubing, groundwater was drawn from the bottom of the screened well point to the surface and purged until the water was free of heavy sediment. The polyethylene tubing was then raised to the approximate center of the screened interval and purged of approximately one to two well volumes prior to sample collection. Water quality parameters were measured with the Horiba U-10 Water Quality Checker. Temperature, pH, DO, turbidity and specific conductance measurements of the purge water were recorded in the field logbook after each sampler volume was purged.

4.0 FINDINGS OF SITE INVESTIGATION

The Findings section of the Existing Rail Yard ESI includes results for the environmental assessments of buildings to be demolished (Section 4.1), soil sampling and analytical results (Section 4.2), and groundwater sampling and analytical results (Section 4.3).

4.1 Environmental Assessments of Buildings to Be Demolished

4.1.1 Abandoned Locker Building – East Existing Rail Yard

The environmental assessment of the abandoned locker building was conducted on March 31, 2000. The abandoned locker building is located in the northeast portion of the Existing Rail Yard within the LIRR ROW (Figure 7). The findings of the ACM/LCM surveys are presented in a report prepared by JLC (refer to Appendix E). Photographs of the environmental site survey as presented in Appendix F. Key findings of the environmental assessment are summarized below.

4.1.1.1 Asbestos and Lead Surveys

Eighteen samples (18) of six suspect ACM were collected from the abandoned Locker Room Building. The findings of the ACM survey are listed on Table 2 which includes the sample numbers, suspect ACM, results, estimated area of ACM and analytical method for each collection location. Suspect ACM included stucco, brick mortar, roof membrane, roof flashing, and window putty. ACMs were not identified in any of these samples from the abandoned locker room building.

Ten (10) samples of suspect LCM from five components within the abandoned locker room building were collected. The results of the LCM survey are listed in Table 3 which includes the sample numbers, component, substrate, results, lead content, estimated LCM area, and analytical method for each collection location. Suspect LCM collection locations included walls, ceilings, window frames, window sashes, walls, and stair railings. LCM was confirmed at sample numbers 003 to 006, window frame and sash located within the abandoned locker room building.

4.1.1.2 Historical Land Use

The project area history near the abandoned locker building was reviewed using Historical Sanborn Fire Insurance Maps from 1898, 1915, 1936, 1947, 1950, 1980, 1991 and 1996 and LIRR value maps (MTA/LIRR, 1916). The purpose of this review was to evaluate the potential for environmental concern from an historical perspective in areas where buildings will be demolished.

The 1898 map depicts four LIRR tracks running east-west, parallel to Jackson Avenue (a.k.a. Northern Boulevard) and crossing Middlesburg Avenue, which formerly extended onto the property, presently owned by LIRR. The surrounding properties were primarily residential, occupied by one to three story buildings. Between 1898 and 1915 the maps depict the addition of numerous tracks to the area presently known as Sunnyside Yard. Within these tracks a one to two-story building was built in 1910 and used as an electric locomotive repair and machine shop. A one-story building used as the oil and lamp house was constructed west of the repair shop. Honeywell Viaduct was constructed west of the site, extending between Jackson Avenue (a.k.a. Northern Boulevard) and Skillman Avenue. The properties surrounding the site became increasingly industrial. Several one-story buildings were constructed directly north of the site. An eight-story, steel and concrete building was constructed northwest of the site in 1915 and occupied by the Ford Motor Company as a service facility.

Between 1936 and 1950 no major changes are depicted by the maps to have occurred on the site. Several one to four-story buildings were constructed north of the site between 1918 and 1922. An automotive service and parts facility and machine shop owned by Steiner Brothers Incorporated was located north of the site. A manufacturing chemical facility owned by E. R. Squibb replaced the Ford service facility in 1941. Additionally, between 1947 and 1950, an automotive service facility was constructed north of Northern Boulevard, approximately 270 feet north of the site. No storage tanks were depicted on the maps.

Although it appears that the locker room facility was constructed between 1950 and 1980 on the Sanborn maps, LIRR value maps imply that it was constructed between 1910 to 1915. In-house TE sources for the ESA project indicate that is was vacated in 1970 (PB/STV, 2000b). The portions of the two tracks in the location of the locker room facility were removed causing the tracks to terminate directly east of the building. South of the site, an oil tank was added within the southern portion of the Electric Locomotive Repair Shop and the former Oil and Lamp House was replaced by a one-story locker room facility. New York City Offices occupied the north adjacent properties relative to the site, with the New York City Department of Social Services replacing the occupancy of E. R. Squibb chemical manufacturing facility.

No major changes are depicted on the maps to have occurred on the site or immediately adjacent properties between 1980 and 1996. Between 1991 and 1996, a filling station was added to the automotive service facility located north of Northern Boulevard (approximately 270 feet north of the site). No storage tanks are depicted on the map.

4.1.1.3 Survey of Building and Surroundings

The former trainman's locker room building is a one-story concrete structure on a slab-foundation. The building is 92 feet long and 12 feet wide. The building is abandoned and in decrepit condition inside. The windows and doors have been removed. Electrical power was once supplied as evidenced by inside outlets and outside wire cables. A water heater was observed inside and heat was supplied by gas as evidenced by structures on the outside of the building. USTs were not observed in association with this building. Several remnant (presumably inactive) subsurface utility lines were detected around the building. One is assumed to be a former water line and was discovered while clearing project well location TE-YA-MW-27S for underground utilities via hand augering. This well is located at the west end of the building near the door. The geophysical survey detected some sort of subsurface utility line in the front of the building as well (presumably electrical).

Two rail tracks are located in the front (or southside) of the building. MTA/NYCT monitoring well P-10 is located between the rails of one of the tracks. This well apparently has separate phase product in it (NYCT, 1999). Just south of these two tracks is a "hump track" and beyond this are Amtrak tracks with overhead catenary. Amtrak's passive product recovery system is located south of and adjacent to the "hump track" and separate phase product has been documented in this area. On March 31, 2000, the TE met with Amtrak's environmental consultant (Roux Associates) to observe the inspection of the passive product recovery system and associated monitoring wells. The water and separate phase product levels in these wells as measured on March 31, 2000 are as follows:

Amtrak Monitoring Well	Depth to Water (ft-bg)	Depth to Product (ft-bg)/Apparent Product Thickness (feet)	Comment
MW- 38D (depth = 39.5 ft)	6.31	ND/ND	Screened below LNAPL.
MW-49 (depth = 11.7 ft)	6.10	5.34/0.76	Product was not observed in 1997 data for this well.
MW-50 (depth = 12 ft)	8.00	4.50/3.50	Product has been consistently detected in this well.
MW-70	5.61	ND/ND	Recently installed well just west of MW-49. Information on well not available yet.

Several Amtrak monitoring wells are situated in back of the abandoned locker room building. Well construction and 1997 water/separate phase product level data are presented in Appendix G for these wells. Separate phase petroleum product with PCBs (Arochlor-1260 at 14,000 ppb) has been documented in well MW-36 which is situated in back of the building (Roux, 1995). Well MW-20 is situated just east of the building and product has also consistently been detected. Wells MW-19, MW-39 and MW-35 are situated in back of the building near the former loading dock and consistently have not indicated the presence of product. However, BTEX has been detected in MW-35 (Roux, 1999). Levels in these wells could not be obtained during the site survey because Amtrak's well keys were not available.

Amtrak's environmental consultant also reported that the foundations for the Northern Boulevard buildings are below the water table and use sump pumps.

The building basement directly in back of the abandoned locker building at 34-00 Northern Boulevard was inspected by them for the Sunnyside Yard Remedial Investigation (Roux, 1995). A BTEX plume in groundwater in this area is attributed to sources other than the existing PCB-Contaminated Separate Phase Oil plume.

Several vegetated mounds were observed. One is directly in back of the building near well MW-36. Another is located adjacent to the former loading dock which is west of the building. Amtrak wells MW-19 and MW-39D are located nearby. Just west of the wells is an enclosed area between the loading dock and one of the Northern Boulevard buildings. In this area was a pile of miscellaneous debris about five feet high.

A manhole cover was observed in the back of the building and has been identified as MH-3. Sediment from MH-3 was sampled for PCB analysis in 11/13/96 and 3/11/97 by Amtrak (Roux, 1997b). Total PCBs in sediment were detected at 32,500 ppb in an 11/13/96 sample and 1,380 ppb in the 3/11/97 sample. A sewer line runs parallel to the northern property line and may act as barrier to shallow groundwater flow. Groundwater is reported to be shallow in this area as based on hand auger borings and ranges from 3.5 to 6.5 ft-bg. Shallow groundwater has been reported to flow parallel to the sewer line (westerly) in this area while shallow groundwater flows in a northwest direction south of this area (Roux, 1995).

4.1.2 NY & AR Repair Shop

The environmental assessment of the NY & AR Maintenance Shop was conducted on June 15, 2000. The shop is located in the West Existing Rail Yard west of Queens Boulevard (Figure 5). The findings of the ACM/LCM surveys are presented in a report prepared by JLC (refer to Appendix E). Photographs of the environmental site survey are presented in Appendix F. Key findings of the environmental assessment are summarized below.

4.1.2.1 Asbestos and Lead Surveys

Eighteen (18) samples of six suspect ACM were collected from the NY & AR Repair Shop. The findings of the ACM survey are listed on Table 2 which includes the sample numbers, suspect ACM, results, estimated area of ACM and analytical method for each collection location. Suspect ACM included roofing sealant, window caulking, brick mortar, ceiling tiles, and door frame caulking. ACMs were confirmed at sample numbers 001 to 003 and 004 to 006, roof sealant located on the high and low roofs, respectively, of the NY & AR Maintenance Shop. Additionally, siding and water proofing membrane located on the NY & AR Maintenance Shop are assumed to contain ACM although this has not been confirmed due to the inaccessibility of the building interior.

A total of fifty (50) suspect LCM samples from fifty (50) components were collected from the NY & AR Maintenance Shop. The results of the LCM survey are listed on Table 3 which includes the sample numbers, component, substrate, results, lead content, estimated LCM area, and analytical method for each collection location. Suspect LCM collection locations included walls, ceilings, window frames, window sashes, window sills, doors, door frames, door lintels, baseboards, stair railings, risers, treads, piping, poles, tanks, drums, beams, and debris. LCMs were confirmed at sample number 002, leg pipes located at the north-west entrance of the NY & AR Maintenance Shop.

4.1.2.2 Survey of Building and Surrounding Area

The existing NY&AR maintenance shop has a footprint of approximately 6,000 square feet. A shop floor plan is presented as Figure 14. The shop is an insulated metal building consisting of high bay and low bay areas. The high bay area measures 100 feet long by 39 feet wide and 29 feet high at the peak. It houses a single repair track which includes a 30 foot long, two level maintenance pit. The low bay area is 126 feet long by 10 feet high and houses the employee welfare facilities, work rooms, parts storage, equipment rooms and an office (PB/STV, 1999). There is roof access from inside the building through the compressor room. Four NY&AR employees currently work in the shop.

The shallow pits are about 30 feet long. Each pit has a circular sump that only collects fluids. The sumps are pumped when full and the liquid transferred to a waste oil tank. There is one trench sump located at the floor level along each side of the pit. The sump has a length equal to the length of the pit. Most of the sump was filled with debris and no outlet was visible. Diesel locomotives are run in the shop and ventilation is provided by leaving the doors open and using three small fans. There are two electrically operated jacks which are used to lift one locomotive at a time halfway up.

There is also no oil/water separator on site for the shop facility. However, there is a 275 gallon above ground storage tank (AST) for waste oil. This is located at the west end of the shop between the outside wall and the track. The AST collects oil from drained filters and other waste oil. The waste oil is collected periodically by a disposal service.

The air brake room contained a portable solvent wash stand. No other equipment was located in the room.

An air compressor is located on a concrete pad about 6 inches above the floor. The drying tanks and piping located outside on a concrete pad level with the surrounding ground. The compressor is used to fill the locomotive tanks and also the supply the compressed air tools. The compressor was in good condition.

There are two portable arc-welding units and an electrical transformer. The building is serviced by gas, presumably via a one inch diameter line. There are two hose bibs located at the end of the shop on the wall opposite the offices and storage rooms. There are three compressed air outlets on each of the long sidewalls. Finally, the existing building does not have sprinklers or standpipes for fire protection.

Outside there are large asphalt paved areas to the west and to the east of the shop. The west area is approximately 350 feet long by 60 feet wide at the widest point. The east area is approximately 120 feet long by 60 feet wide. The shop track bisects both the east and west outdoor working areas. These areas are used for employee parking, outdoor work areas for the locomotives and rail cars and crane work, and for storage of miscellaneous materials and equipment including a 12 foot by 5 foot gas cylinder storage facility. Extensive staining was observed on the asphalt pavement in the east outdoor work area. The staining is petroleum-related. This is the area where the diesel train engines are washed down.

There are two shallow monitoring wells near the shop that were installed by Amtrak in 1994. MW-30 is situated along the southwest edge of the shop and MW-29 is situated within the active track area north of the shop. The latest groundwater monitoring data for both of these wells indicates that product and dissolved compounds are not present (Roux, 1999). Additional information on these wells is presented in Appendix G.

4.1.3 Additional West Existing Rail Yard Structures

The environmental assessment of two additional buildings within the West Existing Rail Yard was conducted on April 12, 2000. The structures include the Yardmaster's Building just north of the NY & AR Maintenance Shop and an Abandoned Substation building located between Queens Street and Dutch Kills Street (Figure 5). The findings of the ACM/LCM surveys are presented in a report prepared by JLC (refer to Appendix E). Photographs of the environmental site survey are presented in Appendix F. Key findings of the environmental assessment are summarized below.

4.1.3.1 Asbestos and Lead Surveys

Thirty-four (34) samples of ten suspect ACMs from the second floor of the Yardmaster's Building and twenty-four (24) samples of eight suspect ACMs from the first floor of the Yardmaster's Building were collected. Twenty-three (23) samples of eight suspect ACM from the Abandoned Substation located adjacent to Queens Street were collected. The findings of the ACM survey are listed on Table 2 which includes the sample numbers, suspect ACM, results, estimated area of ACM and analytical method for each collection location. Suspect ACM in the Yardmaster's Building included sheetrock, wall plasters, floor tiles, ceiling plaster, window frame caulking and window putty. ACMs were confirmed at four locations with the following sample numbers and descriptions: 035 to 037, 9 by 9-inch green floor tile and 038 to 040, 9 by 9-inch green floor tile mastic located on the first floor of the Yardmaster's Building. On the second floor of the Yardmaster's Building ACMs were confirmed in floor tile samples 001 to 003.

Additionally, roofing materials, wall plaster, ceiling plaster, and miscellaneous debris within the Abandoned Substation located near Queens Street are assumed to contain ACM although this has not been confirmed due to the inaccessibility of the building interior.

Seventy-four (74) suspect LCM samples from thirty-three (33) components within the Yardmaster's Building were collected. The results of the LCM survey are listed on Table 3 which includes the sample numbers, component, substrate, results, lead content, estimated LCM area, and analytical method for each collection location. Suspect LCM collection locations included walls, ceilings, window frames, window sashes, window sills, window wells, doors, door frames, door lintels, baseboards, risers, and treads. LCM was confirmed at the following sample numbers and descriptions: sample numbers 007 to 009, baseboards located on the 2nd floor of the east office of the Yardmaster's Building, sample numbers 025 to 032, window sills, frames and sashes, and walls located on the 2nd floor bathroom of the Yardmaster's Building,

Additionally, walls, wall components, ceilings, window components and door components of the Abandoned Substation are assumed to be painted with LCM, although this has not been confirmed due to the inaccessibility of the building.

4.1.3.2 Survey of Buildings and Surrounding Area

The Abandoned Substation is a three story brick building with a footprint of 36 feet by 20 feet. The interior of the Abandoned Substation was inaccessible and unsafe to enter at the time of the survey. A catch basin filled with debris was observed on the southwest side of the building. A trash compactor from the neighboring building is situated next to the north side of the building.

The Yardmaster's Building is a two story structure with a basement. The footprint is 40 feet by 20 feet. Kawasaki currently leases this building from the

MTA/NYCT. Several empty and full fuel gas cylinder were observed in front of the building in a locked cage. There was no indication of USTs.

4.1.4 Historical Land Use – West Existing Rail Yard

The West Existing Rail Yard area history was reviewed using Historical Sanborn Fire Insurance Maps from 1898, 1915, 1936, 1947, 1950, 1980, and 1996 and LIRR value maps (MTA/LIRR, 1916). The purpose of this review was to evaluate the potential for environmental concern from an historical perspective in the areas where buildings will be demolished. This applies to the Abandoned Substation, the active Yardmaster's Building and the NY & AR Maintenance Shop in the West Existing Rail Yard.

The 1898 map depicts six LIRR tracks running east-west, parallel to Jackson Avenue. The subject property is located immediately north of these tracks between Queens Street and Dutch Kills Street. Surrounding properties include a domestic residence and stable immediately north of the site, several one and two story residential buildings to the west of the site, and LIRR tracks to the south and east of the site. Between 1898 and 1915 the site building was constructed. Adjacent properties remain unchanged. During this period areas surrounding the site become increasingly industrial. The Rosewater Bros. Shoe Manufacturer and the West Disinfecting Co. were built northeast of the site a few blocks away. Several one and two-story buildings were also constructed north of the site.

Between 1915 and 1937 a large factory was constructed by the Anchor Cap and Closure Corporation immediately north of the site location, replacing several one and two story domestic residences. The site property was apparently used as a loading area for materials brought in by a new spur track constructed east of the site building. A large tank was also constructed at the site location east of the site building (which was not demolished). Several unidentified tanks were located in the factory north of the site. To the west of the site several two story domestic residences, a church, an auto service, a paper warehouse, a storage area for machine parts, a lighting equipment warehouse, and a fire station were constructed.

Between 1937 and 1941 the Anchor Cap and Closure Corporation was converted to the Ford Instrument Co. The subject building is listed as an "electrical service building". Surrounding properties remain largely unchanged until 1980 when the Ford Instrument Company is listed as "Budd Electronics LTD" and a steel and concrete viaduct replaced the church and warehouses on the western adjacent properties. After 1980 the site property and surrounding properties remain largely unchanged. The two towers indicated on the current site location map are not shown on any of the historical Sanborn maps.

Three small buildings are located on the LIRR property south of West Street within the LIRR track alignments. These buildings first appear on historical Sanborn Maps in 1980, with the largest of the three labeled as "glass and metal maintenance yard". Prior to 1980 no structures exist in these locations. In 1890 the site location was composed of empty building lots. From 1915 to 1980 the site location was surrounded on all sides by active track.

The LIRR value map and in-house TE sources for the ESA project indicates that the current NY & AR building was constructed around 1980 and replaced the pre-existing structure. The Yardmaster's Building and the substation were built in 1910 (PB/STV, 2000b). The LIRR value map also depicts the storm water/sewer system in the West Existing Rail Yard. By the substation there is a catch basin which leads to a 48-inch reinforced concrete pipe. Also there is an underground duct line and a nearby associated manhole cover.

4.2 Soil Sampling/Analytical Results

The condition of the subsurface soil and ballast within the proposed construction areas of the Site was delineated and quantified in the ESI. The results include the constituents identified (or potential chemicals of concern) in the soil. Laboratory analytical reports are presented in Appendix H. The standard, criteria and guidance values of the following documents were used to develop soil characterization criteria for the soil sample analytical results of the ESI.

Regulatory Document	ESI Application
NYSDEC Record of Decision – Amtrak, Sunnyside Yard Operable Unit 1: Proposed High Speed Trainset Facility (HSTF) Building. Queens, N.Y. Site No. 241006, August 1997.	Primary soil characterization criteria for PCBs and cPAHs (a type of SVOC).
NY STARS Memo #1, Petroleum Contaminated Soil Guidance Policy, August 1992.	Primary guidance values for VOC and SVOC results.
NY TAGM HWR-92-4046 – Determination of Soil Cleanup Objectives and Cleanup Levels, January 24, 1994.	Primary guidance values for PCBs, Pesticides, and Herbicides result. Secondary soil characterization criteria for VOC and SVOC results.
6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes, January 14, 1995.	NY State hazardous waste regulations for TCLP results.
40 CFR 261- Identification and Listing of Hazardous Waste, February 12, 1997.	Federal hazardous waste regulations for sample results.

The primary soil characterization criteria for the SVOC and VOC soil sample results are the TCLP Alternative Guidance Values provided in the "NYSDEC STARS Memo #1, Petroleum-Contaminated Soil Guidance Policy, August, 1992." The TCLP Alternative Guidance Values of STARS Memo #1 are appropriate and relevant for the Existing Rail Yard based on the historical use of the rail yard.

If TCLP Alternative Guidance Values were not provided in the STARS Memo for a VOC or SVOC compound, then the recommended soil cleanup standards described in "NYSDEC TAGM

HWR-92-4046, Determination of Soil Cleanup Objectives and Cleanup Levels, January 24, 1994" were used as secondary soil characterization criteria. The soil characterization criteria for PCBs, pesticides and herbicides for TAGM #4046 are considered primary. The NYSDEC established these TAGM soil cleanup levels for Federal Superfund, State Superfund, 1986 EQBA Title 3 and Responsible Party (RP) sites. These levels should only be considered as reference values for soil analytical results and not appropriate or relevant regulatory limits for the Existing Rail Yard.

The primary soil characterization criteria for PCBs and cPAHs (a type of SVOC) are based upon the NYSDEC ROD (NYSDEC, 1197a and 1998d). The soil characterization criteria for NYSDEC Class 2A Hazardous Waste Site Sunnyside Yard is considered primary because it applies to previous construction work completed within Sunnyside Yard at Operable Unit 1 (OU-1). OU-1 is the High-Speed Train Facility (HSTF) area which is south and adjacent to the East Existing Rail Yard (just east of Honeywell Street). The NYSDEC, is consultation with the NYSDOH established the following cleanup criteria for OU-1:

- Total PCBs – 25 ppm for both surface and subsurface soils.
- Semi-volatiles – 25 ppm for total cPAHs for both surface and subsurface soils.
- Total Lead – 1,000 ppm for both surface and subsurface soils.

These cleanup criteria are based on the fact that the site will remain a rail yard and all future use of the site will be regulated through institutional controls, such as deed destructions or notifications.

Soil samples for metals were screened against hazardous waste criteria to determine whether a solid waste exhibits hazardous waste characterization as defined by USEPA in RCRA under 40 CFR 261 Subpart C and 6 NYCRR Part 371. Generally, a solid waste is considered a RCRA characteristic hazardous waste if it exhibits the characteristics of corrosivity, ignitability, reactivity, or toxicity. The characteristic of toxicity was evaluated for the site soils using the testing procedure known as the Toxicity Characteristic Leaching Procedure (TCLP). TCLP testing was performed on the soil samples for eight metals and herbicides.

4.2.1 Field Characterization of Soil

The soil boring logs in Appendix B summarize the field characterization of soil throughout the Existing Rail Yard. The shallow soil consists primarily, of fill material, typically sand and silt with mixed minor amounts of coal, slag, and cinders. Petroleum was evident in two areas at the Existing Rail Yard through odors, staining of soils and/or photoionization detector (PID) levels above ambient background levels. The two areas are the NY & AR repair facility and parking lot in the West Existing Rail Yard (west of Queens Boulevard) and within the area of the abandoned locker building (east of Honeywell). The following is a summary of field observations of shallow soils at various boring locations:

The soil from two deep boreholes (TE-YA-3D and TE-YA-5d) within the proposed cut-and-cover area of the Existing Rail Yard consisted of mixed glacial deposits. Field indicators of contamination were not observed in any of the deep soil samples from 10 ft-bg to bedrock.

Sample Location	Field Observation	Collection Depth (feet)	Location
TE-YA-7	Slight Odor	4	West Existing Rail Yard (West of Honeywell).
TE-YA-27	PID = 10.4 ppm; odors	2.5	West end of locker building.
TE-YA-28	1) PID = 168 ppm; odors and 2) PID = 108 ppm; odors; staining	8	East of locker building. East of locker building.
TE-YA-48	PID = 2.0 ppm; odors; staining	3.5 – 4	South border of the West Existing Rail Yard.
TE-YA-49	Sheen	1	South border of the West Existing Rail Yard; south of NY & AR Maintenance shop.
TE-YA-52	1) PID = 142 ppm; odors; staining 2) PID = 334 ppm, odors & staining.	4 6.5	West Existing Rail Yard
TE-YA-53	1) PID = 14.4 ppm; odors. 2) PID = 22.4 ppm.	4.5 6	East/adjacent to NY & AR Maintenance shop.
TE-YA-55	PID = 2.1 ppm, slight odor.	3.5	East of NY & AR Maintenance shop.

A visual inspection of ballast materials throughout the Existing Rail Yard was conducted. The majority of the Existing Rail Yard did not have any visible signs of petroleum-impacted ballast except for the active west-end area of the Existing Rail Yard. Petroleum-impacted ballast was observed in the following West Existing Rail Yard areas:

- Within the third and fifth track south of West Street, the aerial extent of both impacted ballast areas is approximately 20 feet by 4 feet.
- Within the track parallel to the northern border of the parking lot, the aerial extent of impacted ballast is approximately 400 feet long by 4 feet wide. Not a lot of ballast was observed within this track and soil was stained. The track is used frequently by NY & AR to move train cars and idle diesel engines.

- Within the track near soil sample location TE-YA-49, the aerial extent of impacted ballast is approximately 30 feet by 4 feet.
- In an area behind the maintenance tent and near a diesel AST labeled "Aagrebo", the aerial extent of impacted ballast is approximately 6 feet by 4 feet.

The track leading out of the east end of NY & AR Maintenance shop was observed to be very stained. However, there is no ballast within the rails - it is paved. The aerial extent of impacted pavement is 100 feet by 4 feet.

Any impacted ballast encountered during construction would be treated as petroleum contaminated non-hazardous soil as described in Section 5.3.2. Disposal of impacted ballast will be regulated under 6 NYCRR Part 360.

4.2.2 Volatile Organic Compounds

Summaries of soil sample analytical results for TCL VOCs appear in Table 4 (shallow subsurface soil) and Table 5 (deeper subsurface soil). Soil sample results were characterized using the STARS, Memo, and TCLP Alternative Guidance Values. If a compound did not have a TCLP Alternative Guidance Value, then the recommended soil cleanup objective provided in TAGM #4046 was used as the characterization criterion for that compound.

4.2.2.1 Shallow Soil

Nineteen shallow subsurface soil samples were collected for VOC analysis. Collections were based on field observations and suspect areas of concern. At five of the 19 locations, VOCs were not detected, including a suspect area for the proposed car wash in the East Existing Rail Yard. At ten of the 19 locations, detected VOCs exceeds the soil characterization criteria. These locations and depths are: TE-YA-25 (1.5'), TE-YA-27 (2.5'), TE-YA-28 (3'), TE-YA-28 (8'), TE-YA-44 (4'), TE-YA-51 (8.5'), TE-YA-52 (4'), TE-YA-52 (6.5'), TE-YA-53 (4.5'), TE-YA-53 (6'), and TE-YA-55 (2.5').

Petroleum-related VOCs which exceeded the soil characterization criteria are: 1,2,4-trimethylbenzene, 1,3,5–trimethlbenzene, napthalene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, toluene, and ispropylbenzene. This occurred primarily at several locations in the East Existing Rail Yard in the vicinity of the abandoned locker building and former turntable (location TE-YA-28) and in the West Existing Rail Yard in the vicinity of an active track, parking lot and repair facility (locations TE-YA-52, TE-YA-53 and TE-YA-55).

Several chlorinated VOCs were detected above soil characterization criteria. This includes: tetrachloroethene and trichloroethene at location TE-YA-25 and methylene chloride at location TE-YA-27.

VOC-acetone was detected above soil characterization criteria at location TE-YA-55 but is attributed to laboratory contamination.

The 10,000 ppb soil characterization criteria for total VOCs was exceeded in both samples collected at TE-YA-52 (10,220 ppb, at 4 ft-bg and 138,850 at 6.5 ft-bg).

4.2.2.2 Deep Soil

Six deep saturated subsurface soil samples were collected at borehole TE-YA-3D and six were collected at borehole TE-YA-5D for VOC analysis. VOCs were detected in three out of the twelve samples. Acetone was detected above the soil characterization criteria in sample TE-YA-3D (18 ft-bg). This may be attributed to laboratory contamination. All other VOCs were detected below the soil characterization criteria. Nevertheless, it should be noted that TCE was detected in the bottom sample just above bedrock in both borings. The soil characterization criteria for total VOCs was not exceeded in any of the samples.

4.2.3 Semivolatile Organic Compounds

The soil characterization criteria for SVOCs are the TCLP Alternative Guidance Values provided in the STARS Memo. Compounds with no TCLP Alternative Guidance Value were compared to the recommended soil cleanup objectives of TAGM #4046. A secondary soil characterization criteria was used for comparison for carcinogenic SVOCs even through it is a site-specific criteria applicable to Operable Unit 1 of Sunnyside Yard.

4.2.3.1 Shallow Soil

A summary of soil sample analytical results for TCL SVOCs is presented in Table 6 for shallow subsurface soil. Composite soil samples were collected at 59 locations and sixty-four samples were submitted for SVOC analysis. SVOCs were not detected in ten of the samples as follows: TE-YA-14 (0-4'); TE-YA-15 (0-3'); TE-YA-18 (0-2.5'); TE-YA-36 (0-4'); TE-YA-38 (0-4'); TE-YA-47 (0-4'); TE-YA-48 (0-36'); TE-YA-57 (4-8'); and TE-YA-58 (4-8'). In all of the other 54 samples, SVOCs were detected.

The following SVOCs were detected at concentrations above soil characterization criteria: acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, benzo(b)flouranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, 2-methynaphthalene, and acenaphthylene. SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, benzo(k)flouranthene, and dibenzo(a,h)anthracene are classified as carcinogenic compounds as per TAGM HWR.94-4046. Additionally, the STARS Memo states these guidance values "are based on soil ingestion values for carcinogens and systemic toxicants." Benzo(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, chrysene, and indeno(1,2,3-cd)pyrene all have STARS guidance values which are well below the detection level for these compounds. As such, other criteria such as field observations and suspect sources are used in assessing whether or not these compounds are of concern.

The highest total SVOCs concentration of 299,400 ppb was observed at soil sample TE-YA-28 (0-4'). This total SVOC value however does not exceed the soil characterization criteria of 500,000 ppb for total SVOCs. The highest total carcinogenic SVOCs (cPAHs) concentration was also observed with this sample. TE-YA-28 is situated within the northern edge of the documented PCB-Contaminated Separate Phase Oil plume.

Although the soil characterization criteria for total SVOCs was not exceeded in any of the samples, the secondary soil characterization criteria for total carcinogenic SVOCs (cPAHs) was exceeded in one sample analyzed (TE-YA-28). This criteria is site specific for OU-1 of Sunnyside Yard, which is adjacent to the East Existing Rail Yard.

4.2.3.2 Deep Soil

Six composite soil samples were collected from borehole TE-YA-3D and four composite soil samples were collected from borehole TE-YA-5D at 10-foot depth intervals for SVOC analysis. SVOCs were not detected in any of the soil samples.

Additionally, TPH (DRO-GRO) was analyzed for in alternate depth soil samples in boreholes TE-YA-3D and TE-YA-5D. Diesel range organics were detected at 140 ppm in sample TE-YA-3D (18-20'). This may be attributed to organic matter in the sample, since field evidence of petroleum was not evident.

4.2.4 PCBs

The soil characterization criteria for total PCBs are from NYSDEC's soil cleanup objectives of TAGM #4046. A secondary soil characterization criteria was used for comparison for PCBs even though it is the site-specific criteria applicable to Operable Unit 1 of Sunnyside Yard.

4.2.4.1 Shallow Soil

A summary of soil sample analytical results for PCBs is presented in Table 7. Composite soil samples were obtained at 17 locations in the East Existing Rail Yard (east of the former turntable). PCBs were detected at eleven of these locations but the soil characterization criteria was not exceeded. Arochlor 1260 and Arochlor 1254 are the PCB compounds typically detected.

4.2.4.2 Deep Soil

Five composite soil samples were collected from borehole TE-YA-3D and four composite samples were collected from borehole TE-YA-5D at 10-foot depth intervals for PCB analysis. PCBs were not detected in any of the samples.

4.2.5 Pesticides

The soil characterization criteria for pesticides were compared to the recommended soil cleanup objectives of NYSDEC TAGM #4046.

4.2.5.1 Shallow Soils

A summary of soil sample analytical results is presented as Table 8 for shallow subsurface soil. Composite soil samples were obtained at 16 locations in the East

Existing Rail Yard (east of the former turntable). Pesticides were detected at 13 of the 16 locations. Aldrin, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT are the detected pesticides in soil. Aldrin exceeded the soil characterization criteria in samples TE-YA-32 (0-6'), TE-YA-57 (0-4'), TE-YA-32 (0-6'), TE-YA-57 (0-4'), TE-YA-58 (0-4'), and TE-YA-60 (0-4').

4.2.5.2 Deep Soil

Five composite soil samples were collected from borehole TE-YA-3D and four composite soil samples were collected from borehole TE-YA-5D at 10 feet depth intervals for pesticides analysis. Pesticides were not detected in any of the samples.

4.2.6 TCLP Herbicides

The soil characterization criteria for TCLP herbicides is the RCRA hazardous waste characterization regulatory levels.

4.2.6.1 Shallow Subsurface Soil

Composite soil samples were collected at 16 locations in the East Existing Rail Yard (east of the former turntable). TCLP herbicides were not detected in any of the samples.

4.2.6.2 Deep Subsurface Soil

Composite soil samples were collected at the 10-foot depth interval in borings TE-YA-3D and TE-YA-5D TCLP herbicides were not detected in either sample.

4.2.7 TCLP Metals

The soil characterization criteria for TCLP metals is the RCRA hazardous waste characterization regulatory levels.

4.2.7.1 Shallow Subsurface Soil

Composite soil samples were collected at 59 locations with a total of 64 samples. Lead was detected at 12 locations as shown in Table 9. Lead exceeded the RCRA regulatory level in sample TE-YA-48 (0-3.5') at 84 mg/L. This location is in the West Existing Rail Yard along the southern border of the parking lot and south of NY & AR Maintenance shop. Cadmium was also detected in TE-YA-48 but did not exceed the RCRA levels. Selenium was detected in TE-YA-52 (4.5-8.5') but did not exceed the RCRA levels.

4.2.7.2 Deep Subsurface Soil

Six composite soil samples were collected from borehole TE-YA-3D and four composite soil samples were collected from borehole TE-YA-5D at 10-foot intervals for TCLP metals analysis. TCLP metals were not detected in any of the samples.

4.3 Groundwater Sampling/Analytical Results

The condition of the groundwater within proposed construction areas of the Site where construction activities could intersect the water table was delineated and quantified in the ESI. The proposed construction areas include the train car wash in the East Existing Rail Yard and the cut-and-cover tunnel in the Central Existing Rail Yard. The results include the constituents identified (or potential chemicals of concern) in groundwater. Laboratory analytical reports are presented in Appendix H. The standard, criteria and guidance values presented in NYSDEC

TOGS "1.1.1 – Ambient Water Quality Standards and Guidance Values," June 1998 were used to develop groundwater characterization criteria for the groundwater sample analytical results of the ESI.

Compounds of concern (those that exceed the groundwater characterization criteria) for the cut-and-cover tunnel area are presented in Figures 15 and 16.

4.3.1 Field Observations

4.3.1.1 Water Quality Parameters

The general condition of the groundwater was observed and basic water quality parameters were measured with the Horiba U-10 water quality checker at monitoring wells and Geoprobe® sample points.

In the Geoprobe® samples from the proposed car wash area in the East Existing Rail Yard, the groundwater was observed to be relatively clear with no odor. The following water quality parameters were tested in TE-YA-57: conductivity (0.234 ms/cm); turbidity (10 ntu); dissolved oxygen (6.35 mg/l); temperature (12.4 degrees C); pH (6.65); and salinity (0%). Geoprobe® groundwater samples were also collected from the West Existing Rail Yard in the vicinity of the parking lot and NY & AR Maintenance shop. Groundwater was observed to be very turbid and silty with a brown color. The ranges in water quality parameters for this area were: conductivity (0.506 – 0.850 ms/cm); turbidity (5 - 115 ntu); dissolved oxygen (11.36 – 12.49 mg/l); temperature (5.7 – 14.1 degrees C); pH (7.51 – 7.89); and salinity (0.02 – 0.03%).

Eight monitoring wells were sampled in the cut-and-cover area of the Existing Rail Yard. Five of the wells are deep (screened at the bottom of the glacial aquifer just above the bedrock) and three of the wells are screened in the middle of the aquifer. All wells had been developed after construction. One of these wells (QB-106W) is located off-site in the 63rd Street Tunnel construction area along Northern Boulevard. Originally this well was screened from 55 to 65 ft-bg but the tagged bottom depth of the well is now 53.5 ft-bg due to silt build up. As such, well recovery was very poor, the water turbid and gray in color. Wells QB-129W and QB-128W were also low yielding. QB-129W was originally set from 23 to 33 ft-bg but the bottom was tagged at 26 ft-bg.

Odor and NAPL (light or dense) was not observed in any of the cut-and-cover wells. The post-purge ranges in water quality parameters for this area were: conductivity (0.336 – 1.90 ms/cm); dissolved oxygen (0.46 – 11.03 mg/l); temperature (14.2 – 17.7 degrees C); pH (7.36 – 12.28); and salinity (0.01 – 0.09%). Additional details on well monitoring data are presented in Appendix D.

4.3.1.2 Water Levels and Product Levels

Two rounds of water levels and separate phase petroleum thicknesses were measured in eleven monitoring wells for the Existing Rail Yard and are presented in Tables 10 and 11.

In the East Existing Rail Yard, three shallow one-inch diameter LNAPL wells (wells TE-YA-MW-27S, TE-YA-MW-28S, and TE-YA-MW-30S) were installed in the vicinity of the abandoned locker building on LIRR property to measure water and product levels only. Depth to water is shallow and ranges from 2.62 to 4.24 ft-bg. Petroleum odors were detected in TE-YA-MW-27S and TE-YA-MW-28S. Floating petroleum product is present in TE-YA-MW-28S in both rounds at thickness of 1.14 (April 2000) and 0.08 feet (June 2000).

The other eight monitoring wells are situated throughout the cut-and-cover tunnel area and are deeper. The depth to water in the Existing Rail Yard is shallow also and ranges from 3.69 to 5.23 ft-bg. Two wells situated off-site of the Existing Rail Yard have deeper depth to waters which is attributed to a higher land elevation. The average groundwater project elevation is 309.34 feet for the entire cut-and-cover area.

Throughout the Existing Rail Yard, the depth to water was observed to be shallow during the soil borings. This is attributed to the fact that this is a filled-in swamp area. In the West Existing Rail Yard between Thomson and Queens Boulevard, the depth to water ranged from 1 to 8 ft-bg. In the Central Existing Rail Yard between Queens Boulevard and Honeywell Street, the depth to water ranged from 2 to 4.2 ft-bg. In the East Existing Rail Yard between Honeywell and 39th Street, the depth to water ranged from 1.5 to 6 ft-bg. Water was not encountered during hand augering soil samples to four ft-bg east of 39th Street.

4.3.1.3 Elevation Survey

The grade throughout the Existing Rail Yard was observed to be relatively flat. In the West Existing Rail Yard between Thomson and Queens Boulevard, the grade project elevation range is 309.97 to 313.14 feet. In the Central Existing Rail Yard between Queens Boulevard and Honeywell Street, the grade project elevation range is 311.02 to 313.05 feet. In the East Existing Rail Yard (east of Honeywell), the grade project elevation range is 312.50 feet (west end by Honeywell Bridge) to 330.94 feet (very east end of the Existing Rail Yard). All boring and well locations were surveyed for location and elevation on June 5, 6, 8, 9 and 12, 2000 by the TE subconsultant Medina. The survey data are presented in Appendix C. All surveyed project elevations were corrected by adding 300 feet to the project datum (NGVD).

4.3.2 *Volatile Organic Compounds*

4.3.2.1 Shallow Groundwater Samples

Seven shallow groundwater samples were collected using the Geoprobe® system for VOC analysis including five in the West Existing Rail Yard and two in the East Existing Rail Yard. At four of the 7 locations, VOCs were not detected.

Summaries of shallow groundwater sample analytical results for TCL VOCs for appear in Table 12. VOCs were detected at three of 7 locations, all of which indicated exceedances of the groundwater characterization criteria. These locations (with sampling depths) are TE-YA-52 (9-11') and TE-YA-53 (8-12') in the West Existing Rail Yard and TE-YA-58 (8-10') in the East Existing Rail Yard.

Sample TE-YA-52 is notable due to the great variety of petroleum-related VOCs detected. Petroleum-related VOCs which exceeded the groundwater characterization criteria are: 1,2,4-trimethylbenzene (locations TE-YA-52 and TE-YA-53), 1,3,5 – trimethylbenzene (location TE-YA-52), n-propylbenzene(location TE-YA-52), sec-butylbenzene (location TE-YA-52), and ispropylbenzene (location TE-YA-52). These sampling locations in the West Existing Rail Yard are in the vicinity of an active track, parking lot and maintenance shop.

Three chlorinated VOCs were detected above the groundwater characterization criteria in the East Existing Rail Yard (location TE-YA-58). These are 1,1,1-trichloroethane, *cis*-1,2 dichloroethene and vinyl chloride. A dissolved chlorinated VOC plume has been documented in this general area.

Additional VOCs detected include naphthalene and toluene. Acetone was also detected but is potentially a lab contaminant.

4.3.2.2 Cut-and-Cover Monitoring Wells

Eight monitoring wells were sampled in the cut-and-cover area of the Existing Rail Yard and offsite. Five of the wells are deep (screened at the bottom of the glacial aquifer just above the bedrock) and three of the wells are screened in the middle of the aquifer. Summaries of the cut-and-cover groundwater monitoring well sample analytical results for TCL VOCs appear in Table 13. VOCs were not detected in the following wells: TE-YA-MW-3D, QB-128W (mid-depth), and QB-129W (mid-depth).

VOCs were detected in five of the eight wells (one of which is a mid depth well) and some of the detected levels exceed the groundwater characterization criteria. Chlorinated VOCs which exceeded the groundwater characterization criteria are: chloroform (QB-106W), trichloroethene (TE-YA-MW-5D, QB-124W, and QB-126W) and tetrachloroethene (TE-YA-MW-5D). The latter two compounds may be associated with the documented chlorinated VOC plume upgradient of the yard. Toluene (QB-106W and QB-117W) and acetone (QB-106W) were also detected at levels above the groundwater characterization criteria. Well QB-106W is the only off-site well situated downgradient in the 63rd Street tunnel construction area. The integrity of this well is suspect as the screen was silted up and recovery was very poor. QB-117W is situated in the alleyway between Northern Boulevard and the Existing Rail Yard and the MTA/NYCT parking lot (former Superior Reed building).

4.3.3 Semivolatile Organic Compounds

4.3.3.1 Shallow Groundwater Samples

Seven shallow groundwater samples were collected using the Geoprobe® system for SVOC analysis including five in the West Existing Rail Yard and two in the East Existing Rail Yard. At four of the 7 locations, SVOCs were not detected. Summaries of shallow groundwater sample analytical results for TCL SVOCs for appear in Table 14.

SVOCs were detected at three of 7 locations. These locations (with sampling depths) are TE-YA-52 (9-11'), TE-YA-53 (8-12'), and TE-YA-56 (2-4') in the West Existing Rail Yard. The detected petroleum-related SVOCs include: acenaphthene, fluorene, phenanthrene, and 2-methynaphthalene. None of the detected SVOC levels exceeded the groundwater characterization criteria.

4.3.3.2 Cut-and-Cover Monitoring Wells

Eight monitoring wells were sampled in the cut-and-cover area of the Existing Rail Yard and offsite. Five of the wells are deep (screened at the bottom of the glacial aquifer just above the bedrock) and three of the wells are screened in the middle of the aquifer. Summaries of the cut-and-cover groundwater monitoring well sample analytical results for TCL SVOCs are presented in Table 15. SVOCs were not detected in the following wells: QB-124W, QB-126W (mid-depth), and QB-129W (mid-depth).

The detected SVOCs include: benzoic acid (QB-106W), phenol (QB-106W) and bis (2-ethyl hexyl) phthalate (wells TE-YA-MW-3D, TE-YA-MW-5D, QB-106W, QB-117W, and QB-128W). The groundwater characterization criteria was exceeded for phenol and bis (2-ethyl hexyl) phthalate in the wells listed. Bis (2-ethyl hexyl) phthalate is commonly found in plastics and is also a common analytical laboratory contaminant.

4.3.4 PCBs

PCBs were not detected in any of the groundwater samples. This includes seven shallow groundwater samples utilizing the Geoprobe® and eight groundwater samples from permanent monitoring wells in the cut-and-cover area.

4.3.5 Pesticides

4.3.5.1 Shallow Groundwater Samples.

Seven shallow groundwater samples were collected using the Geoprobe® system for pesticides analysis including five in the West Existing Rail Yard and two in the East Existing Rail Yard. At three of the 7 locations, pesticides were not detected.

The following pesticides were detected in samples from the West Existing Rail Yard: 4,4'-DDT (TE-YA-56), alpha-BHC (TE-YA-53), alpha chlordane (TE-YA-51), and gamma-BHC (TE-YA-52). The groundwater characterization criteria was not exceeded for these pesticides.

4.3.5.2 Cut-and-Cover Monitoring Wells

Six monitoring wells were sampled in the cut-and-cover area of the Existing Rail Yard and off-site for pesticide analysis. Four of the wells are deep (screened at the bottom of the glacial aquifer just above the bedrock) and two of the wells are screened in the middle of the aquifer. Deep well QB-106W and mid-depth well QB-128W were not sampled due to low well recovery.

Pesticides were not detected in any of the wells sampled except for mid-depth well QB-129W. Heptachlor epoxide was detected at 0.028 ppb. The groundwater characterization criteria for this pesticide compound is 0.03 ppb but the detected value does not exceed it.

4.3.6 TAL Herbicides

TAL Herbicides were not detected in any of the groundwater samples. This includes seven shallow groundwater samples utilizing the Geoprobe and eight groundwater sample from permanent monitoring wells in the cut-and-cover area.

4.3.7 TAL Metals

4.3.7.1 Shallow Geoprobe Groundwater Samples

Seven shallow groundwater samples were collected using the Geoprobe system for TAL metals analysis. This includes five locations in the West Existing Rail Yard and two in the East Existing Rail Yard. Samples that were unfiltered represent total metals in groundwater while samples that were field-filtered represent dissolved metals in groundwater.

Summaries of the cut-and-cover groundwater monitoring well sample analytical results (unfiltered and field-filtered) for the 23 TAL metals appear in Table 16. The following metals were not detected in any of the samples: antimony, arsenic, beryllium, cadmium, cobalt, selenium, silver, thallium, and vanadium. The rest of the TAL metals were detected.

The following metals exceeded the groundwater characterization criteria: barium, chromium, iron, lead, magnesium, manganese, and sodium.

Total barium and total chromium exceeded the groundwater characterization criteria in the unfiltered sample from TE-YA-52. Chromium was not detected in the filtered sample representing the dissolved portion. Barium was detected in the filtered sample but did not exceed the groundwater characterization criteria.

Total and dissolved iron exceeded the groundwater characterization criteria in all samples. Exceptions to this are unfiltered and filtered samples from TE-YA-51 and the filtered sample from TE-YA-58.

Total and dissolved lead exceeded the groundwater characterization criteria in TE-YA-51. Total lead exceeded the criteria in unfiltered samples from TE-YA-52 and TE-YA-56.

Total and dissolved manganese exceeded the groundwater characterization criteria in samples TE-YA-52, TE-YA-53 and TE-YA-56.

Total and dissolved sodium exceeded the groundwater characterization criteria in samples located in the West Existing Rail Yard. This includes locations TE-YA-51, TE-YA-52, TE-YA-53, TE-YA-55, TE-YA-56 and TE-YA-58. High levels of sodium may be attributed to documented saltwater intrusion in this area.

Although there are no groundwater characterization criteria for metals calcium and potassium, these were found to occur in almost every sample analyzed and at relatively high levels. The calcium and magnesium are considered naturally occurring constituents in groundwater that typically occur at concentrations of 5,000 ppb and 10,000 ppb, respectively or greater. The local groundwater has a high mineral content which may be attributed to documented saltwater intrusion in this area.

4.3.7.2 Cut-and-Cover Monitoring Wells

Six monitoring wells were sampled in the cut-and-cover area of the Existing Rail Yard and offsite for TAL metals analysis. Four of the wells are deep (screened at the bottom of the glacial aquifer just above the bedrock) and two of the wells are screened in the middle of the aquifer. Deep well QB-106W and mid-depth well QB-128W were not sampled due to low well recovery. Samples that were unfiltered represent total metals in groundwater while samples that were field-filtered represent dissolved metals in groundwater.

Summaries of the cut-and-cover groundwater monitoring well sample analytical results (unfiltered and field-filtered) for the 23 TAL metals appear in Table 17. The following metals were not detected in any of the samples: arsenic, beryllium, cadmium, cobalt, selenium, silver and thallium. The rest of the TAL metals were detected.

The following metals exceeded the groundwater characterization criteria: antimony, chromium, copper, iron, magnesium, manganese, mercury, and sodium.

Total antimony, total copper, total magnesium and total mercury exceeded the groundwater characterization criteria in the unfiltered sample from mid-depth well QB-129W. Antimony, copper and mercury however were not detected in the filtered sample representing the dissolved portion. Total and dissolved manganese were both found to exceed the groundwater characterization criteria. Total and dissolved manganese also exceeded the groundwater characterization criteria in samples from the mid-depth well QB-126W.

Total chromium exceeded the groundwater characterization criteria in samples from mid-depth wells QB-126W and QB-129W and TE-YA-MW-5D. Dissolved chromium exceeded the groundwater characterization criteria in the sample from well TE-YA-MW-5D.

Total iron exceeded the groundwater characterization criteria in samples from all of the wells. Dissolved iron was not detected in the same well samples except for wells QB-126W and QB-129W where the groundwater characterization criteria was exceeded.

Total and dissolved sodium exceeded the groundwater characterization criteria in samples from all of the wells. The only two exceptions are for total sodium which was detected in wells TE-YA-MW-3D and QB-124W. High levels of sodium may be attributed to documented saltwater intrusion in this area.

Although there are no groundwater characterization criteria for metals calcium and potassium, these were found to occur in almost every sample analyzed and at relatively high levels. The calcium and magnesium are considered naturally occurring constituents in groundwater that typically occur at concentrations of 5,000 ppb and 10,000 ppb, respectively or greater. The local groundwater has a high mineral content which may be attributed to documented saltwater intrusion in this area.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the asbestos, lead, soil and groundwater investigation conducted at the Existing Rail Yard.

Based on the conclusions derived from the findings of the soil sample analyses, ballast, asbestos and lead surveys, AOCs were defined. The AOCs are areas where the construction activities may encounter compounds of concern. The conclusions from the findings of the groundwater analysis were delineated according to plumes where applicable.

5.1 Asbestos Survey

5.1.1 Conclusions

ACMs were confirmed in the West Existing Rail Yard at the following locations: roof sealant in the NY & AR Maintenance Shop (AOC 3) and floor tile in the Yardmaster's Building (AOC 4). Although the roofing, wall, and ceiling plaster of the Abandoned Substation were inaccessible for sampling, these materials are assumed to most likely contain ACMs. The same applies to the siding and waterproof membrane of the NY & AR Maintenance Shop (AOC 3).

An asbestos survey of the abandoned locker building confirmed that asbestos containing materials (ACMs) were not present in the abandoned locker building (AOC 1).

5.1.2 Recommendations

Asbestos abatement is recommended in the following buildings which will be demolished as part of the Existing Rail Yard Reconstruction effort: roof sealant in the NY & AR Maintenance Shop (AOC 3) and floor tile in the Yardmaster's Building (AOC 4). It is also recommended that confirmatory sampling be conducted concurrently with the abatement procedure prior to demolition for both buildings in areas of suspect ACM.

It is recommended that an environmental assessment of the TA (former Superior Reed) building (AOC 6) be conducted, including asbestos surveys and non-intrusive environmental inspection of the building and assessment of historical maps.

Procedures and methods to perform asbestos abatement will be provided in the Construction Contaminant Management Plan (CCMP) to be completed as part of Phase II design for the West Existing Rail Yard buildings.

It is recommended that all empty and full cylinders containing fuel gas and that all utilities are disconnected before construction/demolition activities for the Yardmaster's Building (AOC 4).

5.2 Lead Survey

5.2.1 Conclusions

LCMs were confirmed in the West Existing Rail Yard at the following locations: window frames and sashes in the abandoned locker building, leg pipes in the NY & AR Maintenance Shop, and windows and baseboards in the Yardmaster's Building. Although in the roofing, wall, and ceiling plaster of the Abandoned Substation (AOC 1) were inaccessible for sampling, these materials are assumed to most likely contain ACMs.

5.2.2 Recommendations

Lead abatement is recommended in the following buildings which will be demolished as part of the Existing Rail Yard Reconstruction effort: window frames and sashes in the abandoned locker building (AOC 9), leg pipes in the NY & AR Maintenance Shop (AOC 3), and windows and baseboards in the Yardmaster's Building (AOC 4). It is recommended that confirmatory sampling be conducted concurrently with the abatement procedure prior to demolition of this building.

It is recommended that an environmental assessment of the TA (former Superior Reed) building (AOC 6) be conducted, including lead surveys and non-intrusive environmental inspection of the building and assessment of historical maps.

Procedures and methods to perform asbestos and lead abatement will be provided in the Construction Contaminant Management Plan (CCMP) to be completed as part of Phase II design for the West Existing Rail Yard buildings.

As was mentioned in the asbestos section (Section 5.1.2), it is recommended that all empty and full cylinders containing fuel gas and that all utilities are disconnected before construction/demolition activities for the Yardmaster's Building (AOC 4).

5.3 Soil and Ballast

This section describes the conclusions and recommendations for the soil and ballast in the Existing Rail Yard. For further information on soil and ballast handling, refer to Section 5.5 (Soil, Ballast and Groundwater Handling).

5.3.1 Field Characterization of Soil

5.3.1.1 Conclusions

Petroleum was evident in two areas at the Existing Rail Yard through odors, staining of soils and/or PID levels above ambient background levels. Petroleum-type odors are considered "Objectionable Nuisance Characteristics" by NYSDEC STARS #1 and must not be present in order for the soil to be considered for soil reuse options (NYSDEC, 1992).

The two areas where petroleum was evident are the soil in the vicinity of the NY & AR repair facility and parking lot in the West Existing Rail Yard (west of Queens Boulevard) and the soil within the area of the abandoned locker building (east of Honeywell). Elevated PID readings were observed at TE-YA-27(2.5 ft-bg), TE-YA-28(8 ft-bg), TE-YA-48(3.5-4 ft-bg), TE-YA-52(4 and 6.5 ft-bg), TE-YA-53(4.5 and 6 ft-bg), and TE-YA-55(3.5 ft-bg). Odors were observed at TE-YA-7(4 ft-bg) TE-YA-27(2.5 ft-bg), TE-YA-28(8 ft-bg), TE-YA-48(3.5-4 ft-bg), TE-YA-52(4 and 6.5 ft-bg), TE-YA-53(4.5 ft-bg), and TE-YA-55(3.5 ft-bg).

Staining was found in soil samples TE-YA-28(8 ft-bg) and TE-YA-48(3.5-4 ft-bg); while sheen was found in soil sample TE-YA-49 (1 ft-bg).

Petroleum-impacted ballast was found in the active West Existing Rail Yard, including (1) within the third and fifth track south of West Street; (2) within the track parallel to the northern border of the parking lot; (3) within the track near soil sample location TE-YA-49; and (4) in an area behind the maintenance tent and near a diesel AST labeled “Aagrebo”.

5.3.1.2 Recommendations

Excavated materials from areas where field observations suggest petroleum contamination, and has not been confirmed by laboratory analysis, will be stockpiled and disposed of according to the guidelines given in the CCMP.

5.3.2 West Existing Rail Yard

The West Existing Rail Yard encompasses the area from Thomson Avenue to the Queens Boulevard overpass. The proposed construction activities in this area include track replacement, construction of access roads, and demolition of three buildings. The AOCs are areas where the construction activities may encounter compounds of concern.

Areas of concern in the West Existing Rail Yard include AOCs 1, 1A, 2, 3, 3A and 4 and are described below. Since AOC 4 only includes the examination of LBP and ACM in the Yardmaster's Building, it is not discussed here in the soil and ballast findings section.

AOC 1 and AOC 1A - Locations Adjacent to Queens Street Buildings (AOC 1) and Near West Street (AOC 1A)

Conclusions

AOC 1 includes soil with petroleum-related SVOCs above regulatory criteria in locations along the northern border of the property (locations TE-YA-40, TE-YA-41, TE-YA-42, TE-YA-43, and TE-YA-5). AOC 1A includes soil with SVOCs above regulatory criteria in soil at location TE-YA-7. SVOCs in soil could be attributed to either combusted materials (coal, cinders, etc.) due to years of rail activities and/or off-site sources bordering the property. Petroleum-impacted soil and ballast may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) within existing track in several locations in the West Existing Rail Yard.

Recommendations

Several environmental actions will be needed prior construction/demolition activities in the area of the Abandoned Substation building (AOC 1) should be aware of a catch basin at the southwest corner of the Abandoned Substation building and subsurface duct line. Also, the trash compactor from the neighboring building will need to be moved.

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

AOC 2- Wood Rail Tie Pile Area

Conclusions

AOC 2 includes soil with petroleum-related VOCs and SVOCs in exceedance of the soil characterization criteria at two locations situated under the Thomson Avenue overpass near the end of Dutch Kills Street (TE-YA-44 and TE-YA-51) and suspect subsurface concrete layer at TE-YA-51 (4.5 ft-bg).

Petroleum-impacted ballast may be encountered during track replacement within existing track in AOC 2.

Recommendations

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

AOC 3 and AOC 3A- NY & AR Maintenance Shop and Parking Lot (AOC 3) and North of NY & AR (AOC 3A)

Conclusions

AOC 3 and AOC 3A includes soil with petroleum-related VOCs of concern in exceedance of the primary soil characterization criteria for VOCs (NYSDEC STARS). AOC 3 and AOC 3A also includes soil with petroleum-related SVOCs of concern in exceedance of the primary soil characterization criteria for SVOCs (NYSDEC STARS). The petroleum-related compounds have been attributed to diesel engine activity and road runoff. Petroleum-impacted ballast may be encountered during track replacement within existing track in AOCs 3 and 3A.

Soil at location TE-YA-48 (0 to 3.5 ft) significantly exceeded RCRA levels for TCLP lead.

Recommendations

It is recommended that further soil investigation in the area surrounding the parking lot and the NY &AR building in the West Existing Rail Yard be conducted. Additional delineation of hazardous waste lead is recommended in the area southwest of this location.

It is recommended for the ballast that a surficial survey be done in the West Existing Rail Yard NY &AR Maintenance building area just prior to the Existing Rail Yard reconstruction activities in order to confirm any changes.

Several environmental actions will be needed prior to construction/demolition activities for the NY & AR Maintenance Shop (AOC 3). The inspection pits and sumps will require sampling and analytical tests prior to removal and proper disposal since there is suspect petroleum. All empty ASTs, drums, etc may be moved to the new location for the shop. All utilities should be disconnected properly prior to demolition.

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

5.3.3 Central Existing Rail Yard

The Central Existing Rail Yard encompasses the area between the Queens Boulevard overpass and Honeywell Street bridge and also extends off-site to the Northern Boulevard construction site for the 63rd Street tunnel. The proposed construction activities in this area include track replacement and construction of the cut-and-cover tunnel structures.

Areas of concern in the Central Existing Rail Yard include AOCs 6, 7, 7A and the Queens Cut-and-Cover area (not part of any AOC) and are described below. Since AOC 6 only includes the examination of LBP and ACM in the NYCT building complex (former Superior Reed Building included), it is not discussed here in the soil and ballast findings section.

AOC 7 and AOC 7A - At Amtrak Boundary (AOC 7) and at Northern Boulevard Building Boundary (AOC 7A)

Conclusions

AOC 7 and AOC 7A include two locations in the Central Existing Rail Yard that have high levels of SVOCs, i.e., exceedances of the primary soil characterization criteria (NYSDEC STARS). These SVOCs have been attributed to combusted materials (coal, cinders, etc.) due to years of rail activities.

Shallow soil affected by SVOCs may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) in two locations of the Central Existing Rail Yard. The first location is in the southwest area of the Central Existing Rail Yard (AOC 7) and the second area is in the northeast area of the Central Existing Rail Yard (AOC 7A).

Surficial ballast did not exhibit any staining in the Central Existing Rail Yard and is not of concern.

Recommendations

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

Queens Cut-and-Cover Area

Conclusions

A part of the samples taken in the Queens cut-and-cover area are not part of any AOC, but conclusions are listed here for completeness. VOC analytical results for vertical delineation soil samples from TE-YA-3D and TE-YA-5D in the cut-and-cover area did not exceed soil characterization criteria. Although the presence of TCE was confirmed in the bottom sample just above bedrock at both locations, the concentration of TCE was below soil regulatory criteria.

Recommendations

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

5.3.4 East Existing Rail Yard

The East Existing Rail Yard encompasses the area from Honeywell Bridge to the Amtrak Loop track ending at the LIRR Mainline overpass. The proposed construction activities include the construction of a train car wash building, construction of access roads, track replacement, and demolition of the abandoned locker building.

Areas of concern in the East Existing Rail Yard include AOCs 8, 9, 10, 11, 11A and 12. Since AOC 12 only includes the examination of LBP and ACM in the Abandoned Substation, it is not discussed here in the soil and ballast findings section.

AOC 8 - Unknown Spill Near Honeywell Bridge

Conclusions

AOC 8 includes soil with chlorinated VOCs and SVOCs (locations TE-YA-25 and TE-YA-26), just east of the Honeywell Street Bridge. This had not been identified by previous investigations and may be attributed to other unknown sources.

Recommendations

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

AOC 9 – North Part of Amtrak PCB-Contaminated Separate Phase Oil Plume

Conclusions

Soil impacts for AOC 9 includes soil with petroleum–related VOCs and SVOCs (locations TE-YA-27, TE-YA-28, and TE-YA-30) and suspect vegetated mounds in back of abandoned locker building. Petroleum-impacted soil may be encountered during track replacement and shallow excavation (grade to 4 ft-bg) in the area around the abandoned locker room building. A separate-phase product plume is situated under the abandoned locker building and contains PCBs.

Separate-phase product will most likely be encountered during track replacement and shallow excavation, particularly in the area between the abandoned locker room building and the former turntable. Groundwater is also encountered at very shallow depths in this area (2.5 to 6.5 ft-bg). Remnant subsurface utilities associated with the abandoned locker building will be encountered also during shallow excavation.

Recommendations

Suspect mounds in back of the abandoned locker building suggest buried materials and warrant further investigation prior to excavation and track replacement activities. Test pits to remove and detect materials, could be used to determine the nature of any buried objects contained within the mounds. Depending on construction plans, the suspect mounds in back of the abandoned locker building may be removed. Therefore, a survey and/or remediation via test pits of these mounds may be warranted.

Several Amtrak monitoring wells exist around the abandoned locker building which were not accessible at the time of the assessment. Water level and product levels should be measured in the Amtrak wells and the wells should be sampled if there is no product to verify any changes in the plume of separate-phase product.

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

AOC 10 – East Existing Rail Yard (Proposed Train Car Wash)

Conclusions

AOC 10 includes soil exceeding the primary soil characterization criteria for SVOCs (NYSDEC STARS) and the primary soil characterization criteria for the pesticide aldrin (NYSDEC TAGM #4046). Pesticide-impacted soil (aldrin) may be encountered during excavation of the foundation for the proposed car wash and during track replacement and excavation at adjacent locations TE-YA-32 (AOC 10) and TE-YA-60 (AOC 10).

PCBs were detected in two of the seven shallow soil sample locations in AOC 10. However, none exceeded the primary soil characterization criteria (NYSDEC TAGM #4046). PCBs therefore is not of concern for construction efforts therein.

Surficial ballast did not exhibit any staining in the East Existing Rail Yard, including AOC 10, and is not of concern.

Recommendations

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

AOC 11 and AOC 11A – West of 39th Street (AOC 11) and East of 39th Street (AOC 11A)

Conclusions

AOC 11 and AOC 11A include two locations in the East Existing Rail Yard that have high levels of SVOCs which exceeded soil characterization criteria (locations TE-YA-31 and TE-YA-33). These SVOCs have been attributed to combusted materials (coal, cinders, etc.) due to years of rail activities.

PCBs were detected in both shallow soil sample locations (TE-YA-31 and TE-YA-33) east of the turntable to the Amtrak Loop Track ending at the Mainline. However, none exceeded the soil characterization criteria. PCBs therefore is not of concern for construction efforts therein.

Surficial ballast did not exhibit any staining in the East Existing Rail Yard, including AOCs 11 and 11A, and is not of concern.

Recommendations

All soil disposal will be performed in accordance with the specifications and the CCMP. Further details on soil and ballast handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling).

5.4 Groundwater

This section describes the conclusions and recommendations for groundwater in the Existing Rail Yard. For further information on groundwater handling, refer to Section 5.5 (Soil, Ballast and Groundwater Handling) and Section 5.6 (Groundwater Handling).

The average groundwater project elevation is 309.34 feet for the entire cut-and-cover area. Regional groundwater flow trends northwest to west towards the East River. The only location where floating product, or LNAPL, was observed as part of this ESI for the Existing Rail Yard was monitoring well TE-YA-MW-28S, which is located inside the PCB-Contaminated Separate Phase Oil Plume. LNAPL was observed in one groundwater monitoring well TE-YA-MW-28S, but dense product, or DNAPL, was not found in any groundwater samples as part of this ESI.

5.4.1 Central Yard Plume

5.4.1.1 Conclusions

The Central Yard Plume is a dissolved chlorinated VOC plume in groundwater in the deeper portion of the aquifer near the cut-and-cover tunnel on-site and off-site. It is attributed to the documented chlorinated VOC plume in shallow groundwater emanating from the south (upgradient). Compounds of concern include chlorinated VOCs (TCE and PCE). Chlorinated VOCs, including TCE and PCE, are regulated by the NYCDEP and were detected in groundwater in the cut-and-cover excavation and structure areas of the Central Existing Rail Yard. NAPL (light or dense) was not observed in this area.

One SVOC (bis(2-ethylhexyl) phthalate) was found above the groundwater characterization criteria from samples taken in this area.

Iron, manganese, magnesium, antimony, mercury, copper, chromium and/or sodium concentrations in the wells sampled in this area exceeded groundwater characterization criteria. Based on the concentrations of these metals in the wells, filtration will not be necessary in order to meet the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers. Excess levels of these metals can lead to scaling, staining, and/or corrosion.

Additional monitoring wells were sampled for the Sunnyside Yard/Harold Interlocking ESI. These wells will further delineate the Central Yard plume and will identify the absence/presence of free sinking product within the unconfined aquifer and information will be provided in subsequent findings reports for the respective design packages.

5.4.1.2 Recommendations

Additional monitoring wells will eventually be needed as per permit requirements. These wells will be used for groundwater monitoring during construction activities primarily in the cut-and-cover excavation and structure for the Central Yard plume. The groundwater monitoring program will be described in the Construction Monitoring Plan (CMP).

All dewatering will be performed in accordance with the specifications and the CCMP. Further details on groundwater handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling) and Section 5.6 (Groundwater Handling).

5.4.2 Kinney Lot Plume

5.4.2.1 Conclusions

The Kinney Lot Plume is a VOC plume which is attributed to the documented spills from an adjacent neighboring building situated along Northern Boulevard and road runoff. It is located off-site within the bottom half of the aquifer. This includes wells QB-117W in the alleyway to the east of the MTA/NYCT building and QB-106W on the construction site across Northern Boulevard. The key VOC of concern is toluene. In addition, chloroform, a potential carcinogen, and phenol were detected at levels exceeding the groundwater characterization criteria in QB-106W. NAPL (light or dense) was not observed in this area either.

The wells sampled in this area (QB-106W and QB-117W) had concentrations of iron and/or sodium which exceeded the groundwater characterization criteria. Although these metals (total and dissolved) were found to exceed groundwater characterization criteria, the concentrations are most likely due to natural background concentrations, and are not regulated by the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers. These metals can cause staining or corrosion.

5.4.2.2 Recommendations

All dewatering will be performed in accordance with the specifications and the CCMP. The groundwater monitoring program will be described in the Construction Monitoring Plan (CMP). Further details on groundwater handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling) and Section 5.6 (Groundwater Handling).

5.4.3 Northern Boulevard/39th Street Plume

5.4.3.1 Conclusions

Impacted groundwater may be encountered during excavation of the foundation for the proposed car wash in the Northern Boulevard/39th Street plume. Compounds of concern include chlorinated VOCs (1,1,1-TCA, *cis*-1,2-DCE and vinyl chloride). Although total and dissolved iron and total and dissolved sodium were detected at levels exceeding groundwater characterization criteria, these are most likely due to natural background concentrations, and are not regulated by the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers. These metals can cause staining or corrosion.

For the Northern Boulevard/39th Street plume, as grade elevation increases proceeding eastward, the depth to water becomes deeper. As such, groundwater will probably not be encountered during track replacement and excavation east of 39th Street Bridge.

5.4.3.2 Recommendations

All dewatering will be performed in accordance with the specifications and the CCMP. The groundwater monitoring program will be described in the Construction Monitoring Plan (CMP). Further details on groundwater handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling) and Section 5.6 (Groundwater Handling).

5.4.4 PCB-Contaminated Separate Phase Oil Plume

5.4.4.1 Conclusions

Petroleum-impacted groundwater may be encountered during track replacement and shallow excavation in the area around the abandoned locker room building (due to the PCB-Contaminated Separate Phase Oil Plume). Groundwater is encountered at shallow depths (2.5 to 6.5 ft-bg) in this area.

5.4.4.2 Recommendations

Several Amtrak monitoring wells exist around the building which were not accessible at the time of the assessment, in the vicinity of the PCB-Contaminated Separate Phase Oil Plume. Water level and product levels should be measured in the existing Amtrak wells and the TA wells and they should be sampled if there is no product to verify any changes in the plume of separate-phase product.

All dewatering will be performed in accordance with the specifications and the CCMP. The groundwater monitoring program will be described in the Construction Monitoring Plan (CMP). Further details on groundwater handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling) and Section 5.6 (Groundwater Handling).

5.4.5 Remaining Groundwater Results (for the West Existing Rail Yard)

5.4.5.1 Conclusions

Petroleum odors were observed at numerous sample sites in the West Existing Rail Yard, including TE-YA-48, TE-YA-51, TE-YA-53 and TE-YA-55.

Petroleum-related VOCs exceeded groundwater characterization criteria at locations TE-YA-52 (in the parking lot) and TE-YA-53.

Metals exceeded groundwater characterization criteria in many wells throughout the West Existing Rail Yard, including total barium, total chromium, total and dissolved iron, total and dissolved lead, total and dissolved manganese and total and dissolved sodium. Based on the concentrations of these metals in the wells, filtration will not be necessary in order to meet the NYCDEP Bureau of Wastewater Treatment's established effluent limitations to the storm drains and sanitary or combined sewers. Excess levels of these metals can lead to scaling, staining, and/or corrosion.

Total and dissolved lead in groundwater is also of concern at location TE-YA-51 and total lead at location TE-YA-56. However, since depth to water at these locations was observed to be 8 to 10 ft-bg, proposed construction activities probably will not affect it.

5.4.5.2 Recommendations

All dewatering will be performed in accordance with the specifications and the CCMP. The groundwater monitoring program will be described in the Construction Monitoring Plan (CMP). Further details on groundwater handling are given in Section 5.5 (Soil, Ballast and Groundwater Handling) and Section 5.6 (Groundwater Handling).

5.5 Soil, Ballast and Groundwater Handling

Recommendations – Soil, Ballast and Groundwater Handling

The CCMP will address the classification and disposal of any excavated soils and ballast from the affected AOCs as noted in this report. However, the petroleum impacted soil (and groundwater) in the area around the abandoned locker building in the East Existing Rail Yard may require remediation beyond the proposed excavation depths. Even with the shallow depth excavation that will be needed for track replacement, the existing petroleum-impacted soil and groundwater will most likely be disturbed by construction activities. The following four remedial options are currently being assessed:

- Option 1: Conduct track replacement, excavation and building demolition as planned. Perform containment, testing, and disposal of impacted soil and groundwater within the Existing Rail Yard construction zone.
- Option 2: Conduct scheduled construction activities but raise grade to avoid impacting groundwater during construction. Perform containment, testing, and disposal of any impacted soil.
- Option 3: Conduct track replacement, excavation and building demolition as planned. In the process, remediate the separate-phase petroleum product and impacted soil and groundwater that is present within the LIRR ROW reconstruction zone in the East Existing Rail Yard and dispose of it properly. Construct a slurry wall or other impermeable barrier to prevent migration of more product to this area. Remediation of the soil should include, at the least, re-excavation and removal of the vegetated mounds. Groundwater may be treated on-site with a granular activated carbon (GAC) filtration unit and portable oil-water separator tank.
- Option 4: Remediate the entire separate-phase petroleum product and impacted soil which encompasses this the LIRR property and the adjacent Amtrak property through excavation. A coordination plan will be incorporated into the CCMP to conduct the work on both properties. Before any collaborative efforts between Amtrak and MTA/LIRR are pursued, the most current Amtrak product recovery and water/product level data should be assessed. Further construction-related activities in this area may cause Amtrak track outages. Such outages will be incorporated into the CCMP.

If Option 1 is selected, it is recommended that detailed groundwater modeling be done in order assess the potential for drawdown due to cut-and-cover tunnel dewatering and the potential effects on the separate-phase product and dissolved BTEX plumes. The 3-D application of MODFLOW is recommended. The goal of the design should be no disturbance of the plume, i.e., no effect on groundwater drawdown during dewatering efforts. Excavations for the new ESA tunnels through Sunnyside Yard and the Existing Rail Yard will be at least 1500 feet away from the PCB-Contaminated Separate Phase Oil plume in OU-3. Construction monitoring data from the New York City Transit (NYCT) 63rd Street Connector project reported that lowering of the groundwater table was generally limited to 2 feet immediately adjacent to the construction and that there was no measurable movement of the plume. However, recent site observations during the environmental assessment of the abandoned locker building suggest that the PCB-Contaminated Separate Phase Oil plume has changed after dewatering ceased. The ESA project will use similar construction techniques to minimize groundwater drawdown. It is recommended that nearby monitoring wells be monitored for water and product levels and sample for groundwater quality parameters, before and during dewatering.

5.6 Groundwater Handling

Recommendations - Groundwater Handling

The CCMP will address the classification, proper handling, disposal, and treatment of any dewatered groundwater from the affected AOCs as noted in this report, primarily the cut-and-cover tunnel and the construction of the train car wash. Construction-related dewatering in the Existing Rail Yard will require treatment prior to discharge. Since the groundwater exhibits high mineral/saline content, precautions should be taken to prevent mineral deposition on pump and filtration equipment.

The dewatering for the cut-and-cover tunnel will be a major undertaking. As such, groundwater modeling is recommended to address the effects of construction activities related to the cut-and-cover slurry wall and tunneling as well as the entire Queens Alignment. In the Existing Rail Yard, the effects of dewatering from the "impermeable" slurry wall structure on the dissolved chlorinated plume and the groundwater flow regime are of concern. The effects of tunneling from the shafts in the Existing Rail Yard going under Sunnyside Yard on these issues are also of concern. These construction concerns should be addressed using the 3-D application of MODFLOW (a groundwater flow and fate and transport model). The installation of additional monitoring wells throughout the Existing Rail Yard and Sunnyside Yard to delineate the dissolved chlorinated VOC plume and to identify the absence/presence of free sinking product within the unconfined aquifer is currently in progress for the Sunnyside Yard/Harold Interlocking ESI.

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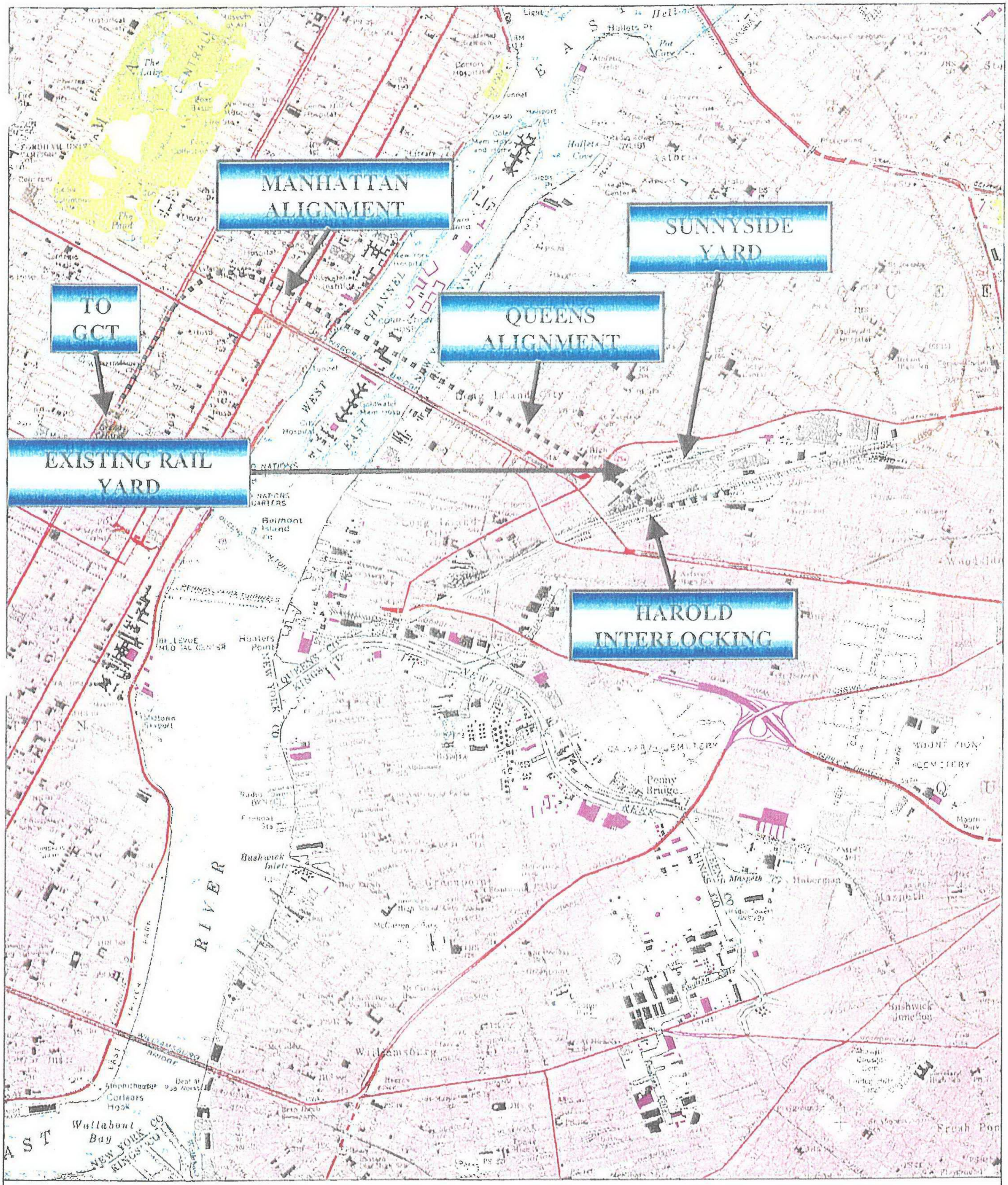
FIGURES

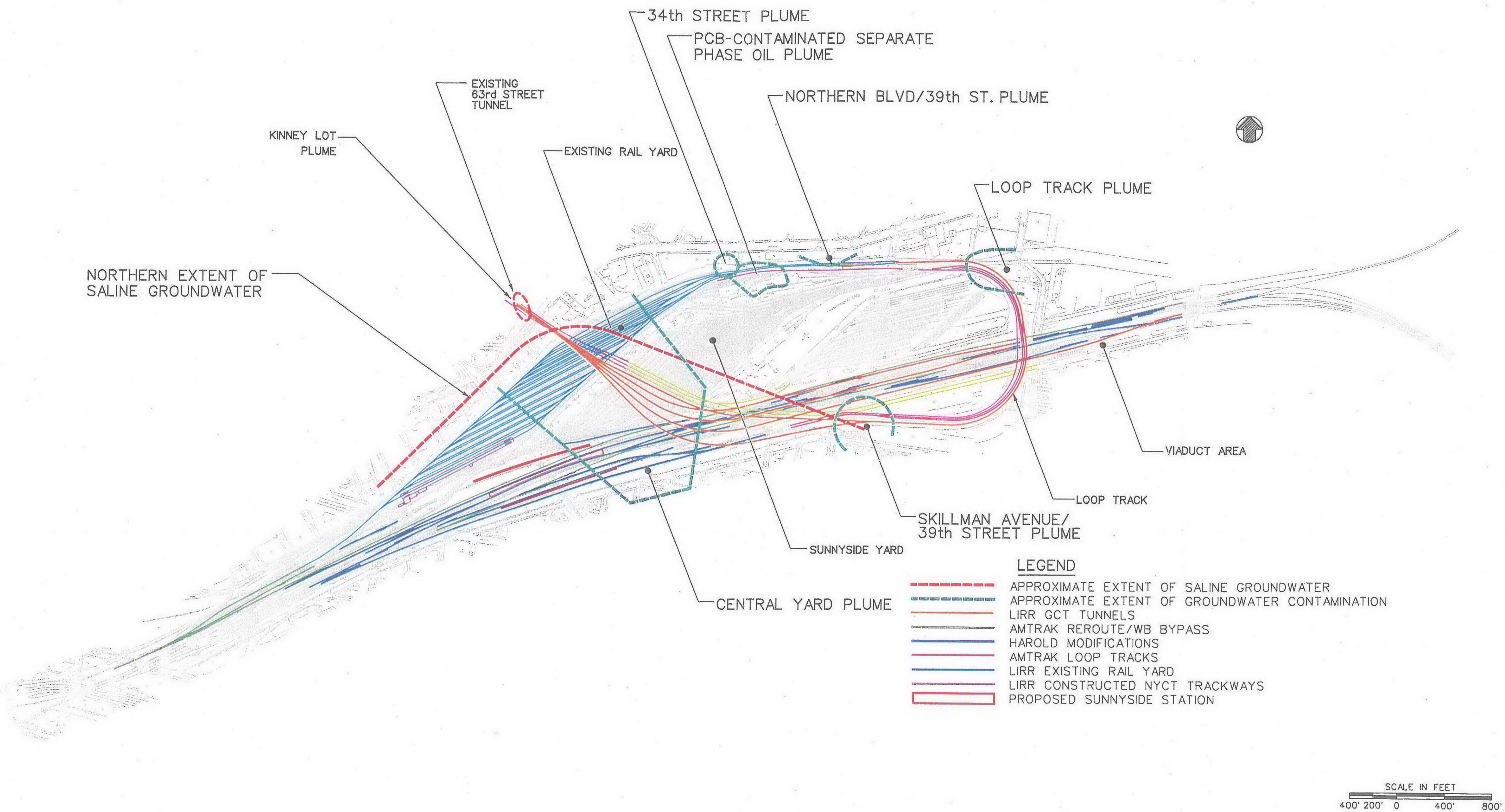


EAST SIDE ACCESS
LONG ISLAND RAILROAD
GRAND CENTRAL CONNECTION

SITE LOCATION
EXISTING RAIL YARD
EAST SIDE ACCESS PROJECT

Parsons Brinckerhoff Quade & Douglas Inc./STV Incorporated

FIGURE 1



EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION

QUEENS ALIGNMENT

PB STV

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.		98-0040-01	
SCALE	AS NOTED	DWG No.	NA
DATE	7-18-01	FIGURE 2	

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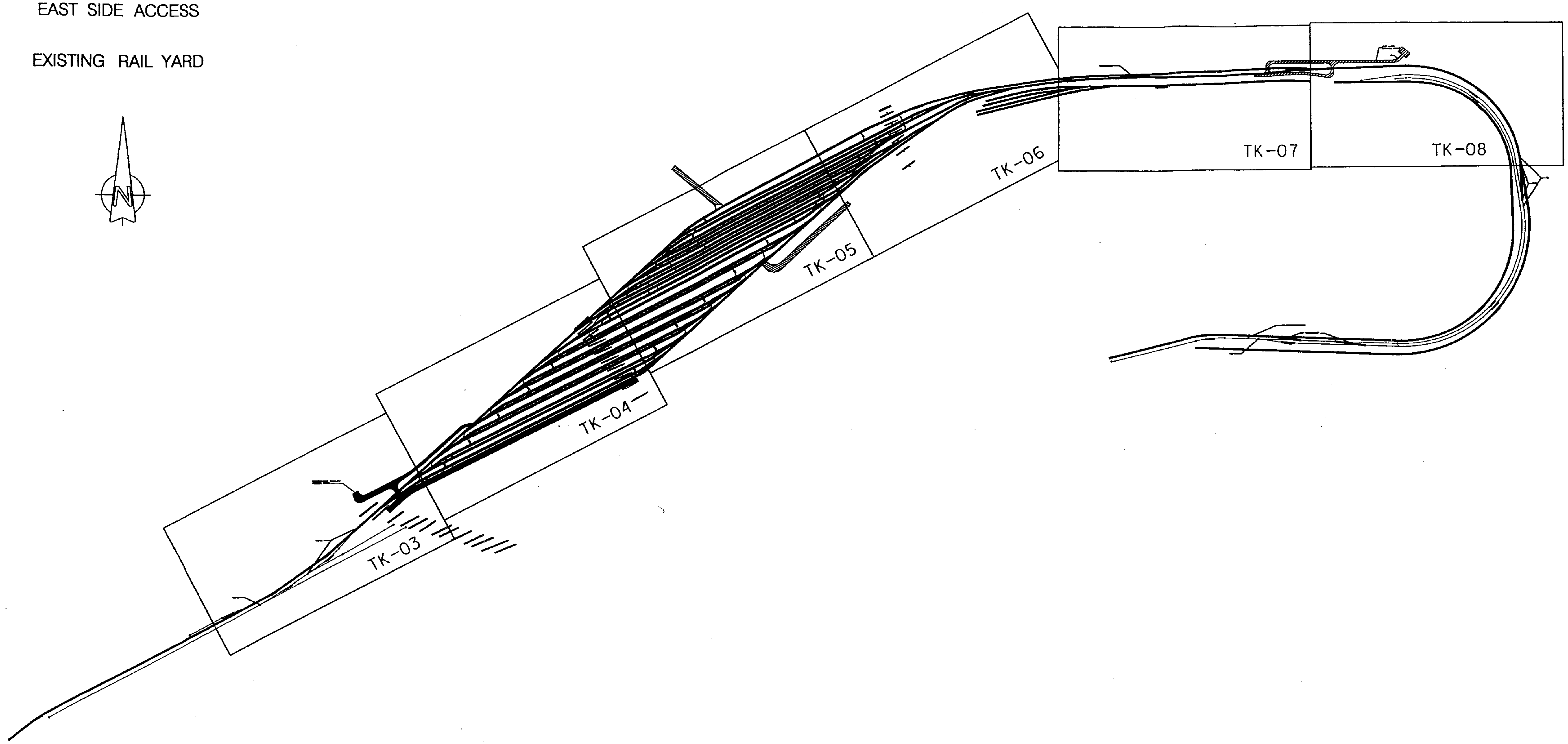
EAST SIDE ACCESS

EXISTING RAIL YARD



E A S T S I D E A C C E S S
L O N G I S L A N D R A I L R O A D
G R A N D C E N T R A L C O N N E C T I O N

EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
INDEX SHEET

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporate

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. NA
DATE: 7-18-01	FIGURE 3

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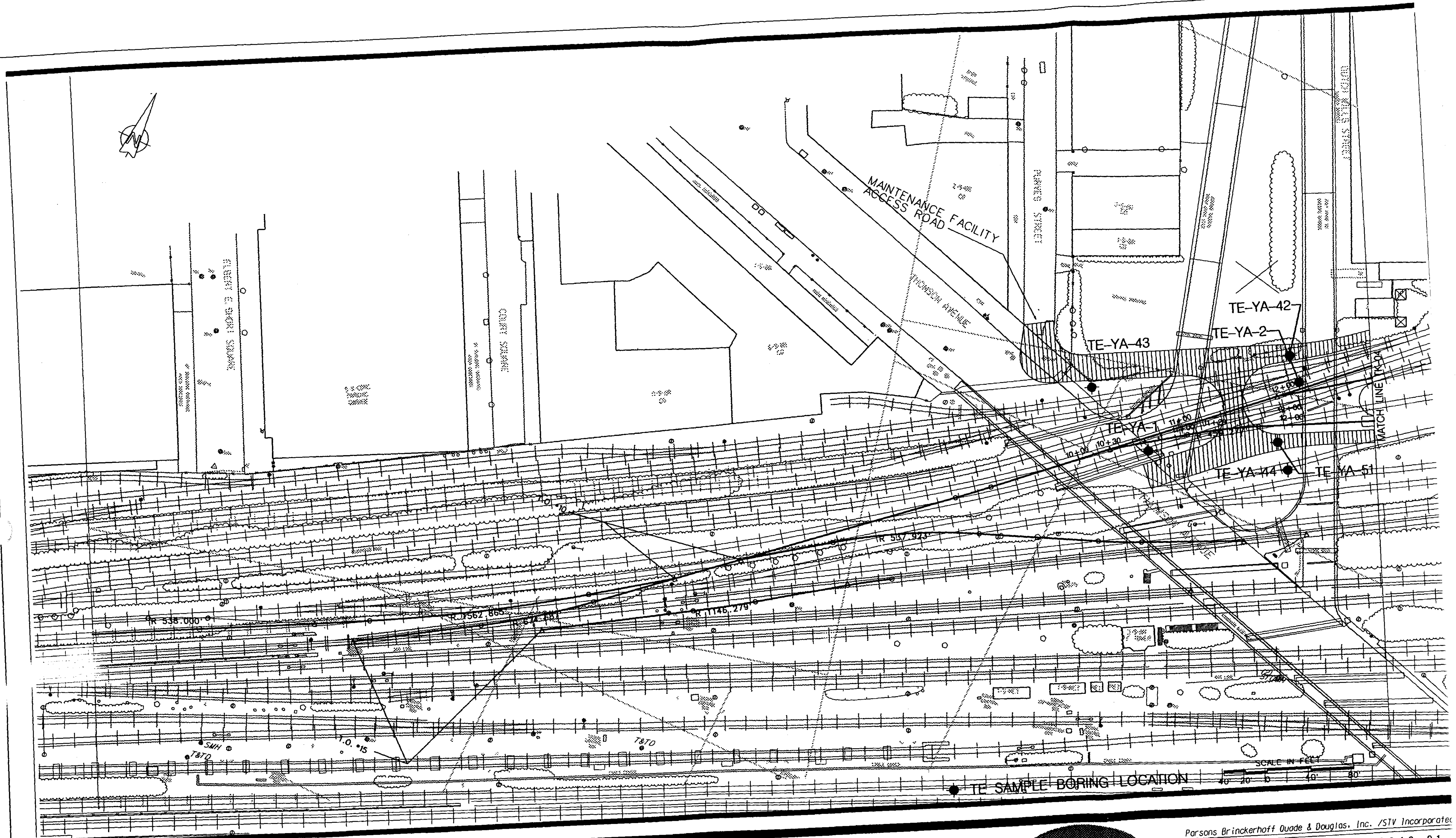

YARD A – ENVIRONMENTAL SITE INVESTIGATION
ENVIRONMENTAL SOIL BORING LOCATIONS
DRAWING No. TK-03

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

PB STV

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.		98-0040-01
SCALE: AS NOTED	DWG. No.	TK-03
DATE: 7-18-01	FIGURE	4

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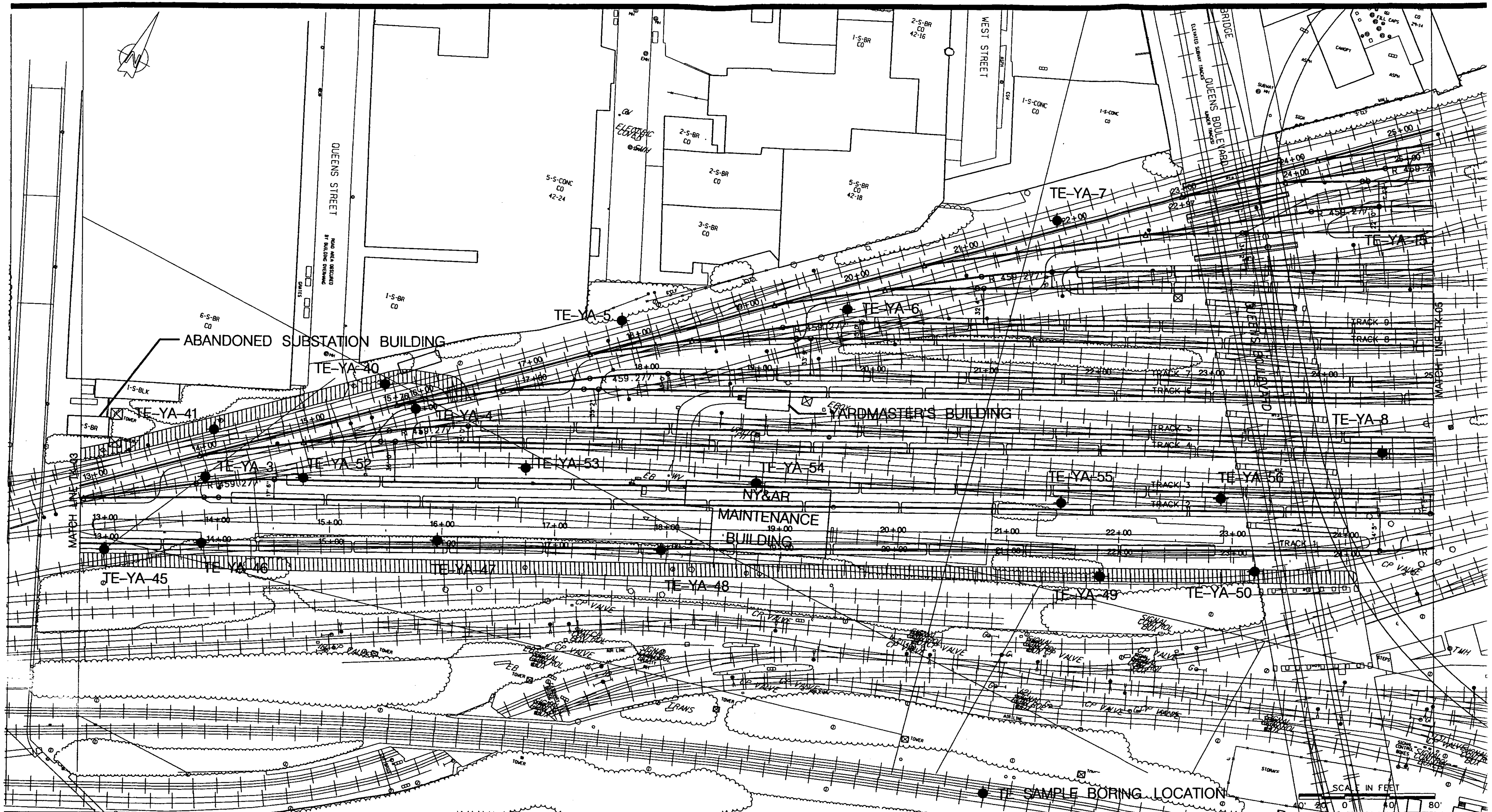

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
ENVIRONMENTAL SOIL BORING LOCATIONS
DRAWING No. TK-04

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-04
DATE: 7-18-01	FIGURE 5

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EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
ENVIRONMENTAL SOIL BORING LOCATIONS
DRAWING No. TK-05

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-05
DATE: 7-18-01	FIGURE 6

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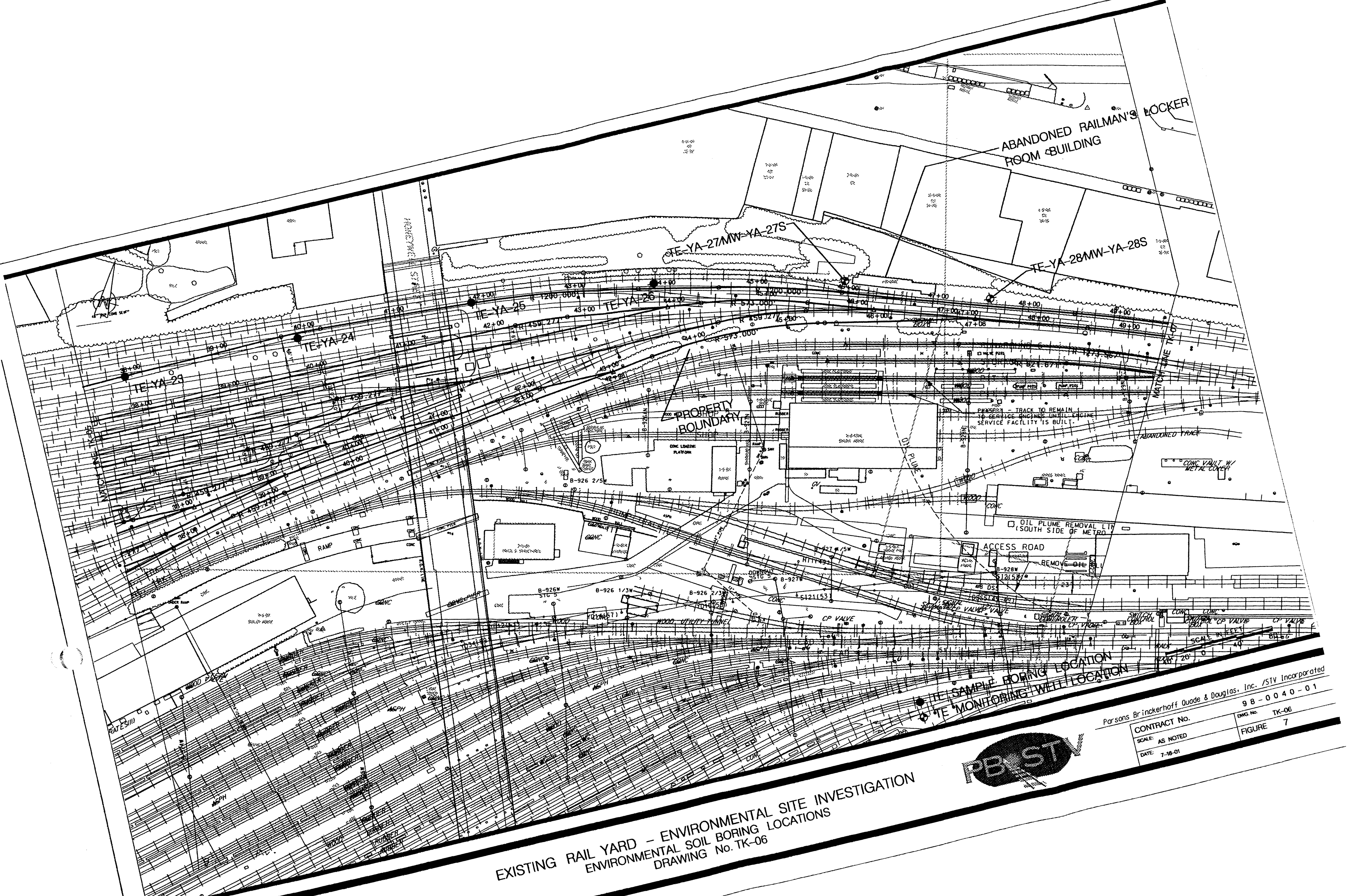
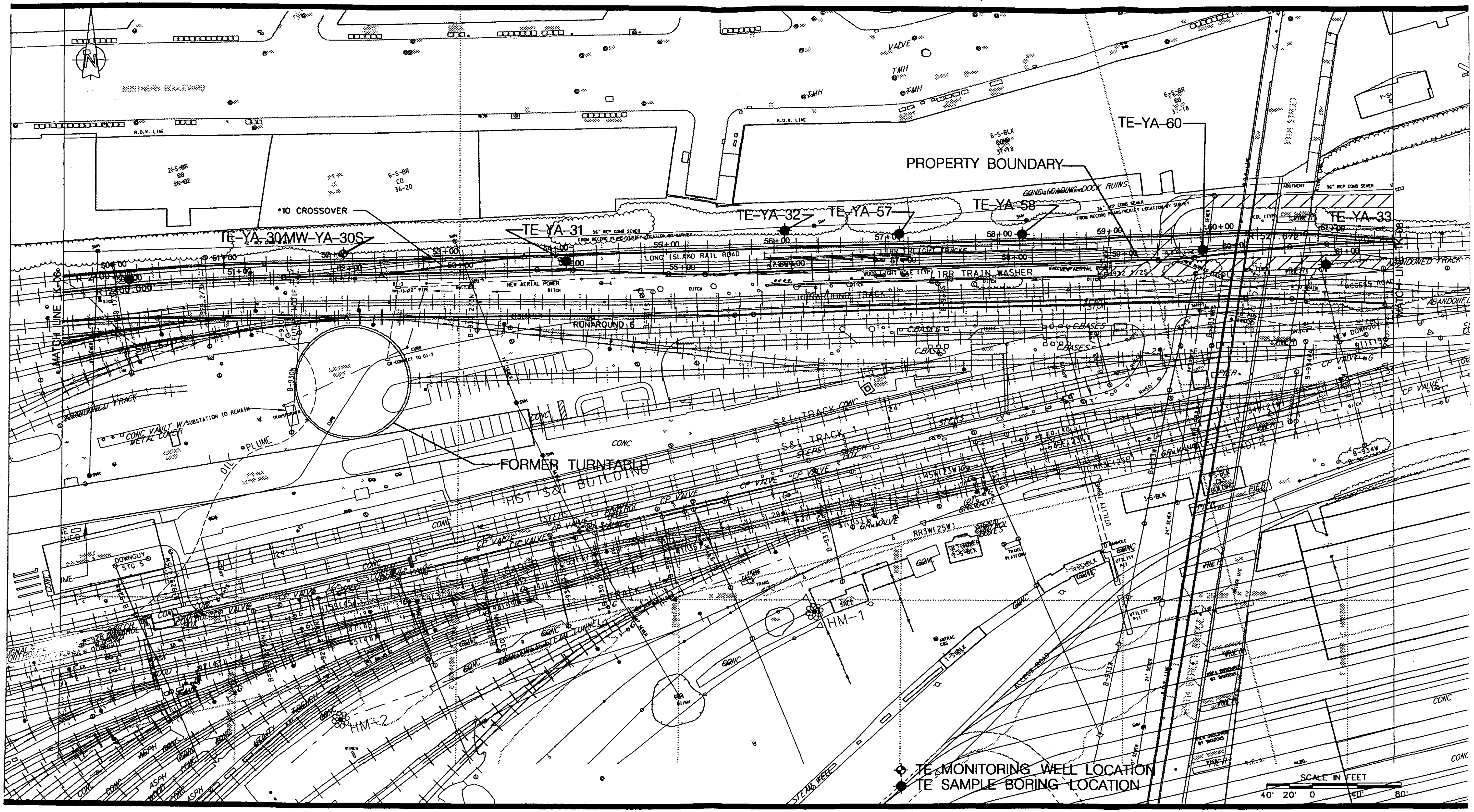


EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
ENVIRONMENTAL SOIL BORING LOCATIONS
DRAWING No. TK-06

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.		98-0040-01	
SCALE:	AS NOTED	DWG. No.	TK-06
DATE:	7-18-01	FIGURE	7



EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
ENVIRONMENTAL SOIL BORING LOCATIONS
DRAWING No. TK-07

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-07
DATE: 7-18-01	FIGURE 8

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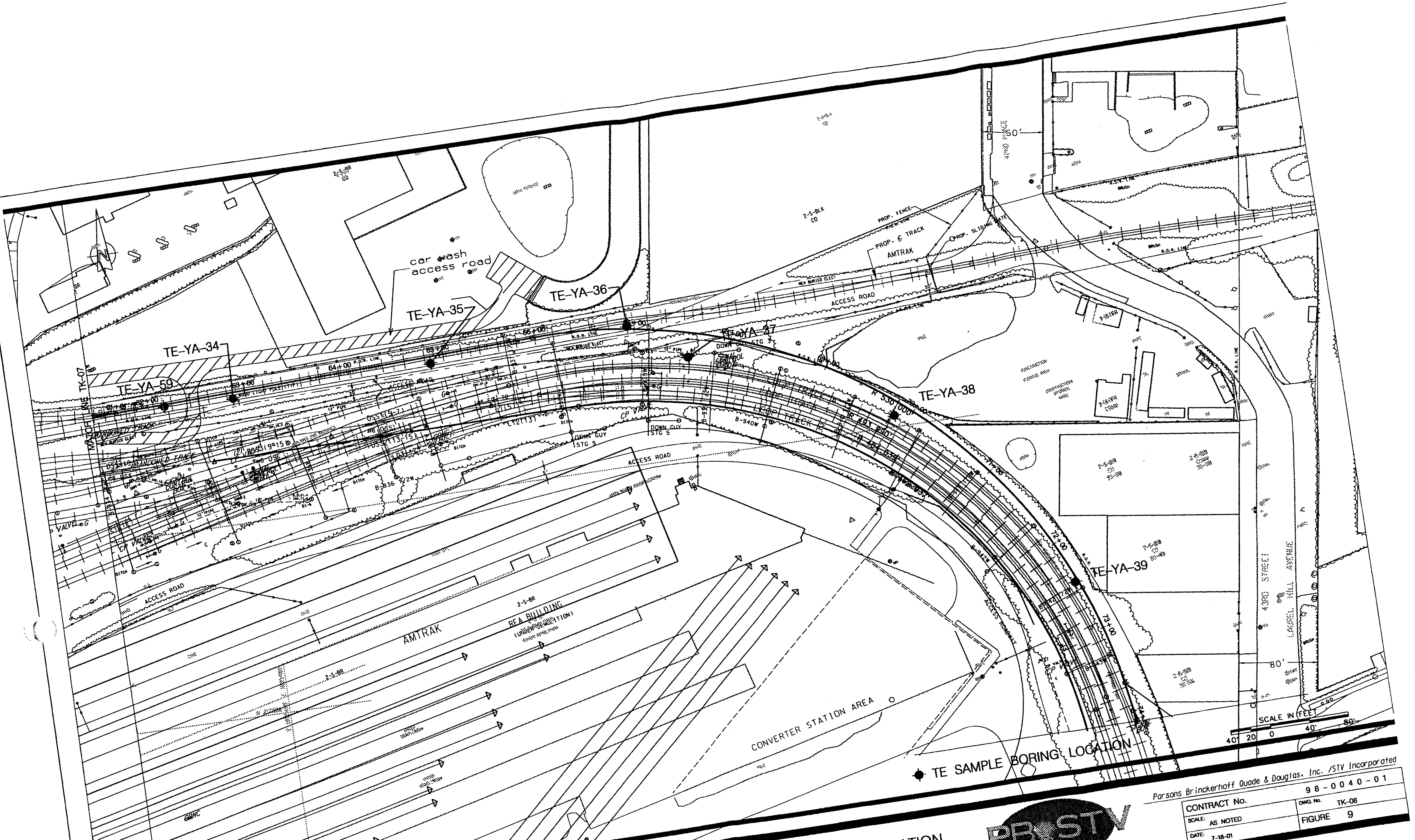

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.		98-0040-01	
SCALE: AS NOTED		DWG. No.	TK-08
DATE: 7-18-01		FIGURE	9

EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
ENVIRONMENTAL SOIL BORING LOCATIONS
DRAWING No. TK-08

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

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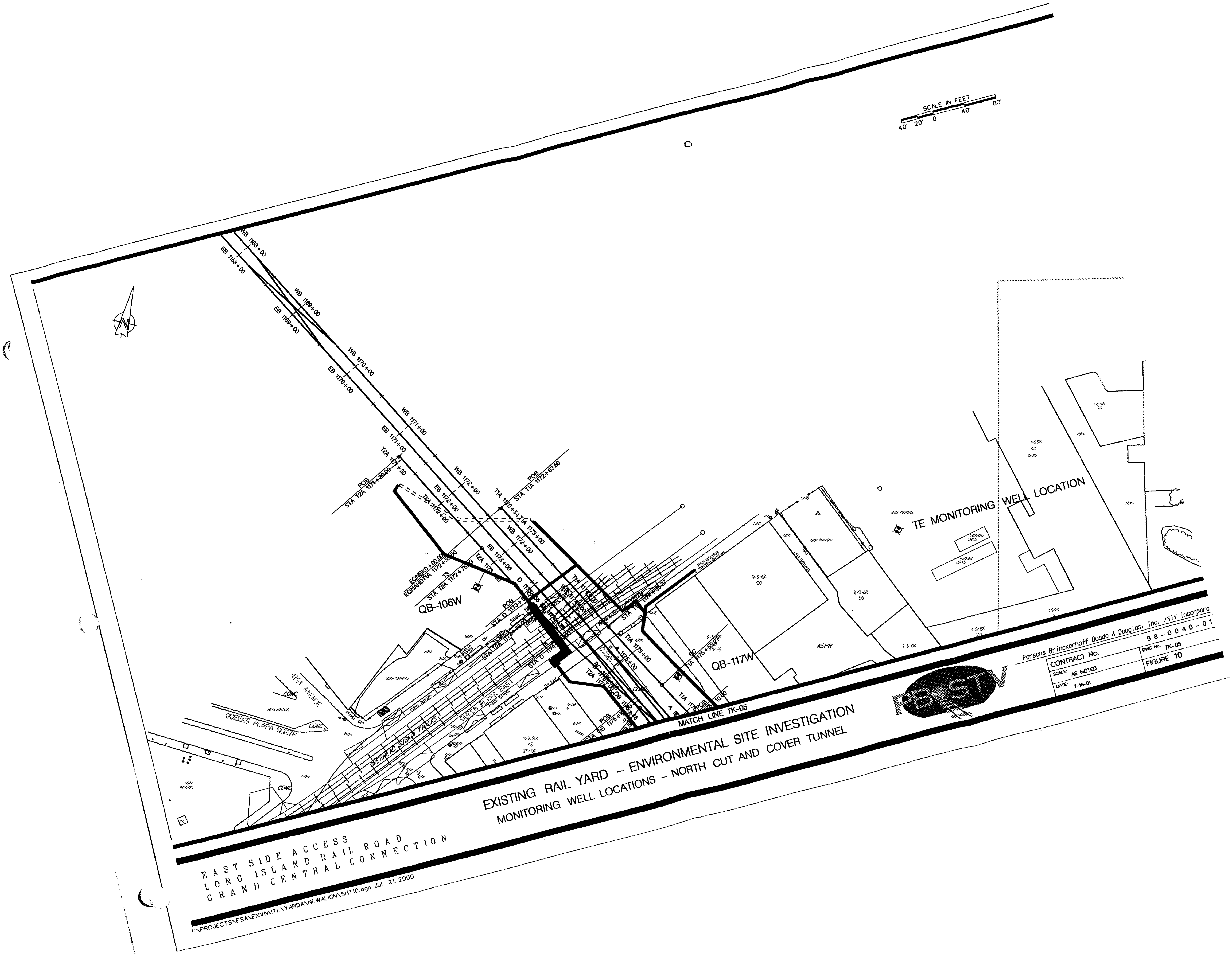
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STA T2A 1171+20.00
WB 1172+00
EB 1172+00
T2A 1172+00
POB
STA T1A 1172+53.50
T1A 1172+54
WB 1173+00
EB 1173+00
QB-106W
TE MONITORING WELL LOCATION
QB-117W
T1A 1175+00
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ASPH
MATCH LINE TK-05
41ST AVENUE
QUEENS PLAZA NORTH
CONC
OVERHEAD SUBWAY TRACKS
EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
MONITORING WELL LOCATIONS - NORTH CUT AND COVER TUNNEL
Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated
CONTRACT No. 98-0040-01
DWG No. TK-05
SCALE: AS NOTED
FIGURE 10
DATE: 7-18-01
EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION
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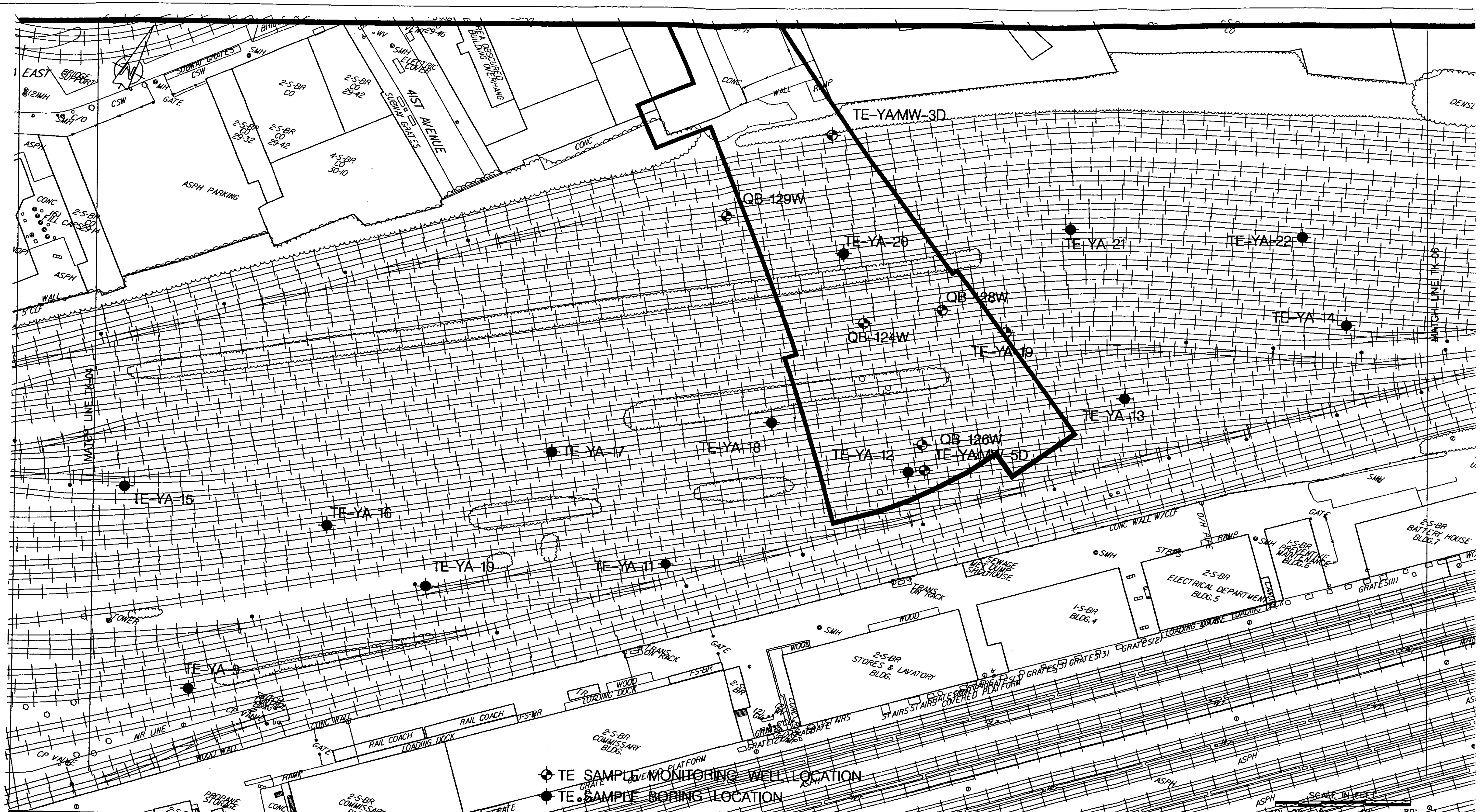


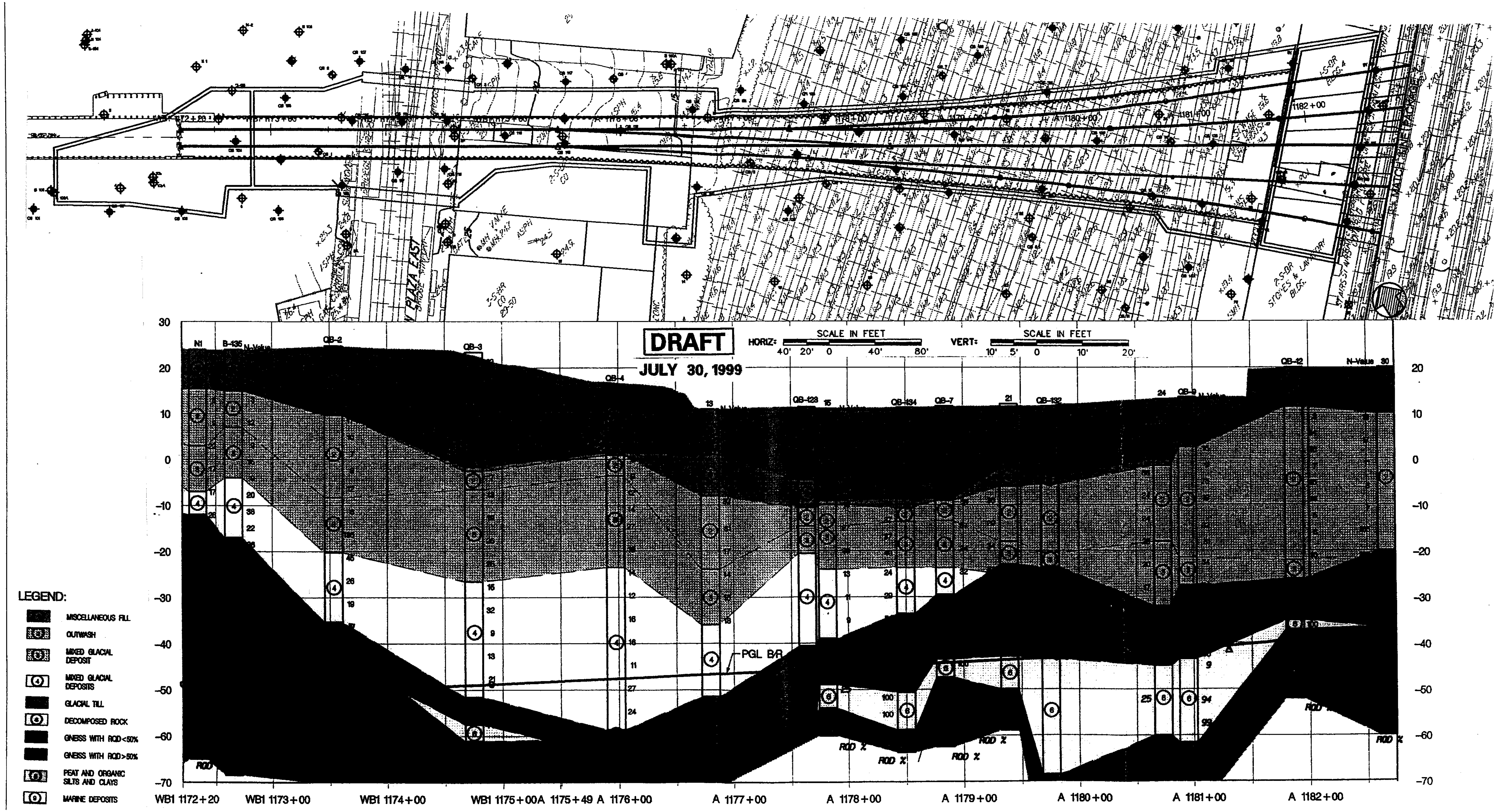
EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
MONITORING WELL LOCATIONS – SOUTH CUT AND COVER TUNNEL

PB STV

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-05
DATE: 7-18-01	FIGURE 11



EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
GEOLOGICAL PROFILE - NORTH SIDE OF CUT AND COVER TUNNEL

PB STV

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. NA
DATE: 7-18-01	FIGURE 12

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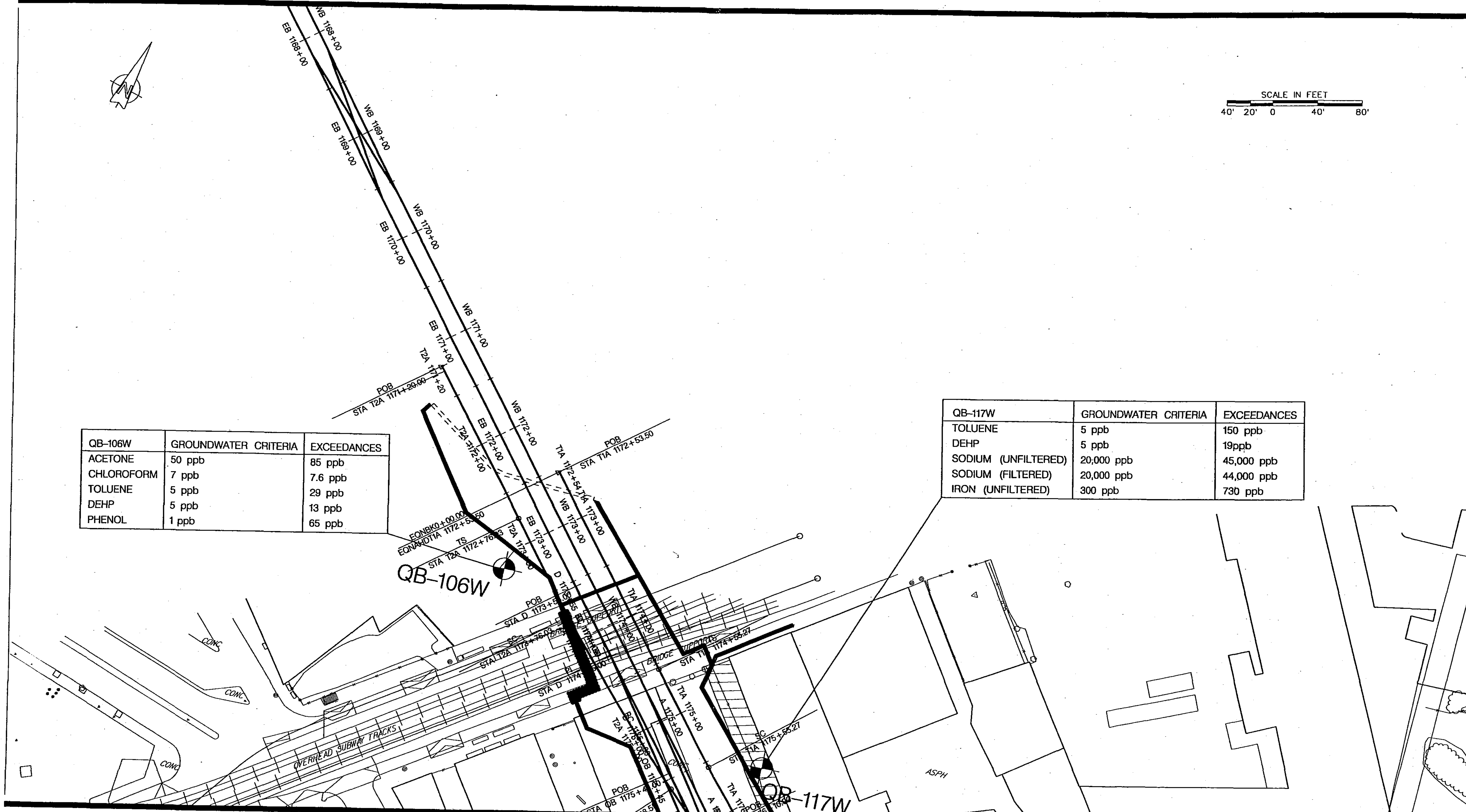

QB-106W	GROUNDWATER CRITERIA	EXCEEDANCES
ACETONE	50 ppb	85 ppb
CHLOROFORM	7 ppb	7.6 ppb
TOLUENE	5 ppb	29 ppb
DEHP	5 ppb	13 ppb
PHENOL	1 ppb	65 ppb

QB-117W	GROUNDWATER CRITERIA	EXCEEDANCES
TOLUENE	5 ppb	150 ppb
DEHP	5 ppb	19ppb
SODIUM (UNFILTERED)	20,000 ppb	45,000 ppb
SODIUM (FILTERED)	20,000 ppb	44,000 ppb
IRON (UNFILTERED)	300 ppb	730 ppb

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
COMPOUNDS OF CONCERN DETECTED IN GROUNDWATER
NORTH CUT-AND-COVER TUNNEL

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01		
SCALE: AS NOTED	DWG. No. TK-05		
DATE: 7-18-01	FIGURE 15		

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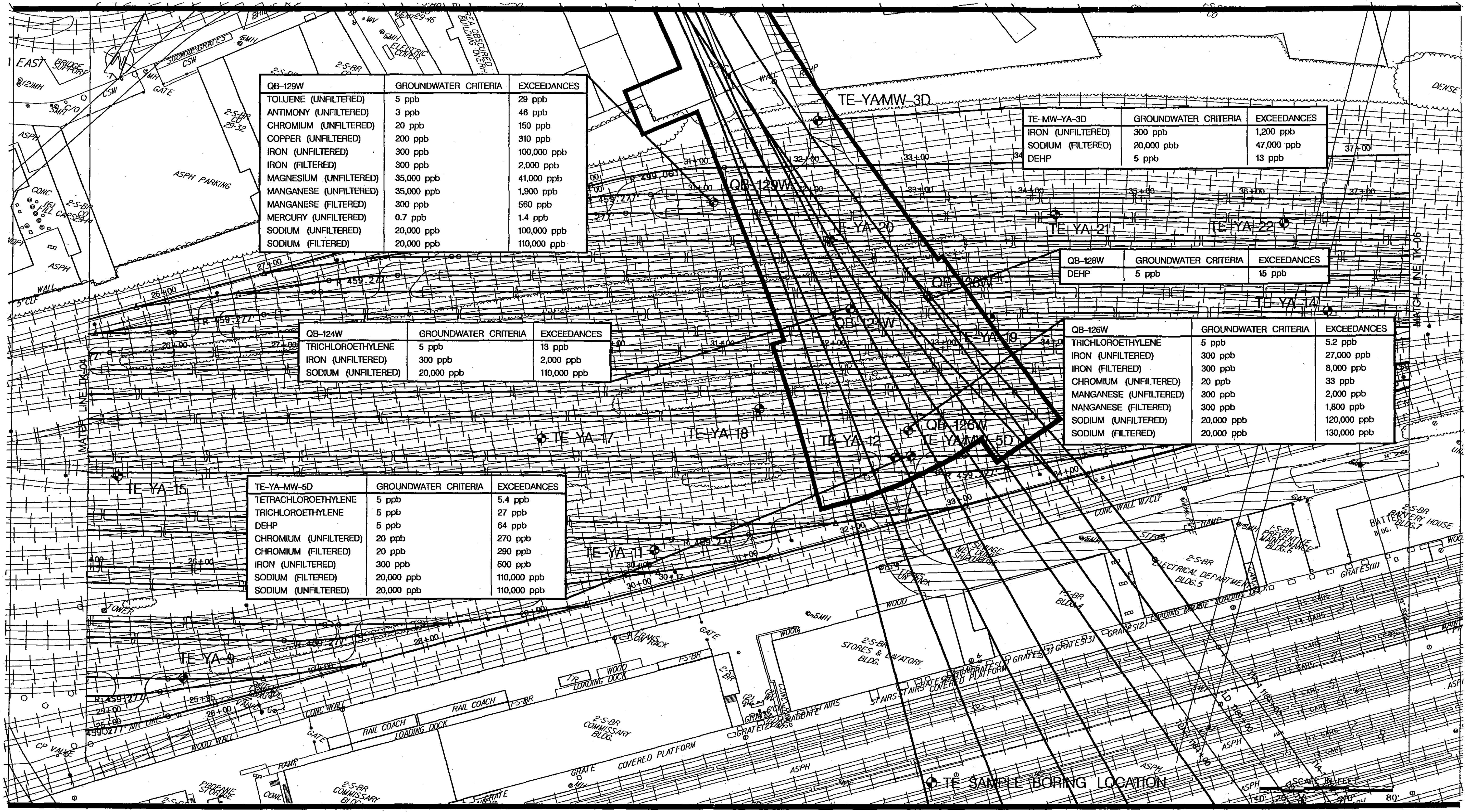

QB-129W	GROUNDWATER CRITERIA	EXCEEDANCES
TOLUENE (UNFILTERED)	5 ppb	29 ppb
ANTIMONY (UNFILTERED)	3 ppb	46 ppb
CHROMIUM (UNFILTERED)	20 ppb	150 ppb
COPPER (UNFILTERED)	200 ppb	310 ppb
IRON (UNFILTERED)	300 ppb	100,000 ppb
IRON (FILTERED)	300 ppb	2,000 ppb
MAGNESIUM (UNFILTERED)	35,000 ppb	41,000 ppb
MANGANESE (UNFILTERED)	35,000 ppb	1,900 ppb
MANGANESE (FILTERED)	300 ppb	560 ppb
MERCURY (UNFILTERED)	0.7 ppb	1.4 ppb
SODIUM (UNFILTERED)	20,000 ppb	100,000 ppb
SODIUM (FILTERED)	20,000 ppb	110,000 ppb

TE-MW-YA-3D	GROUNDWATER CRITERIA	EXCEEDANCES
IRON (UNFILTERED)	300 ppb	1,200 ppb
SODIUM (FILTERED)	20,000 pbb	47,000 ppb
DEHP	5 ppb	13 ppb

QB-128W	GROUNDWATER CRITERIA	EXCEEDANCES
DEHP	5 ppb	15 ppb

QB-124W	GROUNDWATER CRITERIA	EXCEEDANCES
TRICHLOROETHYLENE	5 ppb	13 ppb
IRON (UNFILTERED)	300 ppb	2,000 ppb
SODIUM (UNFILTERED)	20,000 ppb	110,000 ppb

QB-126W	GROUNDWATER CRITERIA	EXCEEDANCES
TRICHLOROETHYLENE	5 ppb	5.2 ppb
IRON (UNFILTERED)	300 ppb	27,000 ppb
IRON (FILTERED)	300 ppb	8,000 ppb
CHROMIUM (UNFILTERED)	20 ppb	33 ppb
MANGANESE (UNFILTERED)	300 ppb	2,000 ppb
NANGANESE (FILTERED)	300 ppb	1,800 ppb
SODIUM (UNFILTERED)	20,000 ppb	120,000 ppb
SODIUM (FILTERED)	20,000 ppb	130,000 ppb

TE-YA-MW-5D	GROUNDWATER CRITERIA	EXCEEDANCES
TETRACHLOROETHYLENE	5 ppb	5.4 ppb
TRICHLOROETHYLENE	5 ppb	27 ppb
DEHP	5 ppb	64 ppb
CHROMIUM (UNFILTERED)	20 ppb	270 ppb
CHROMIUM (FILTERED)	20 ppb	290 ppb
IRON (UNFILTERED)	300 ppb	500 ppb
SODIUM (FILTERED)	20,000 ppb	110,000 ppb
SODIUM (UNFILTERED)	20,000 ppb	110,000 ppb

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
COMPOUNDS OF CONCERN DETECTED IN GROUNDWATER
SOUTH CUT AND COVER TUNNEL

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-05
DATE: 7-18-01	FIGURE 16

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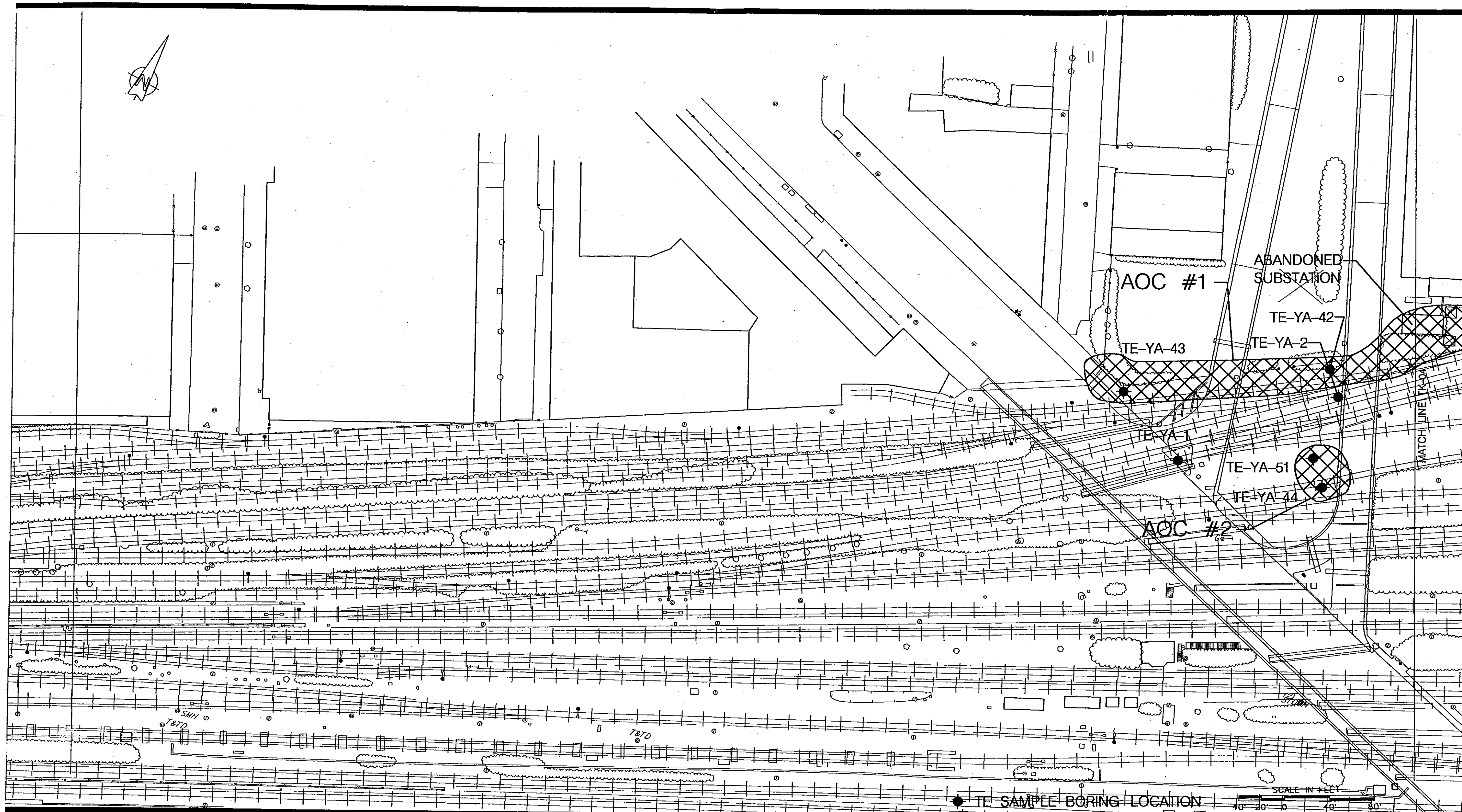

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
AREAS OF CONCERN IN WEST EXISTING RAIL YARD
DRAWING . No. TK-03

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-03
DATE: 7-18-01	FIGURE 17

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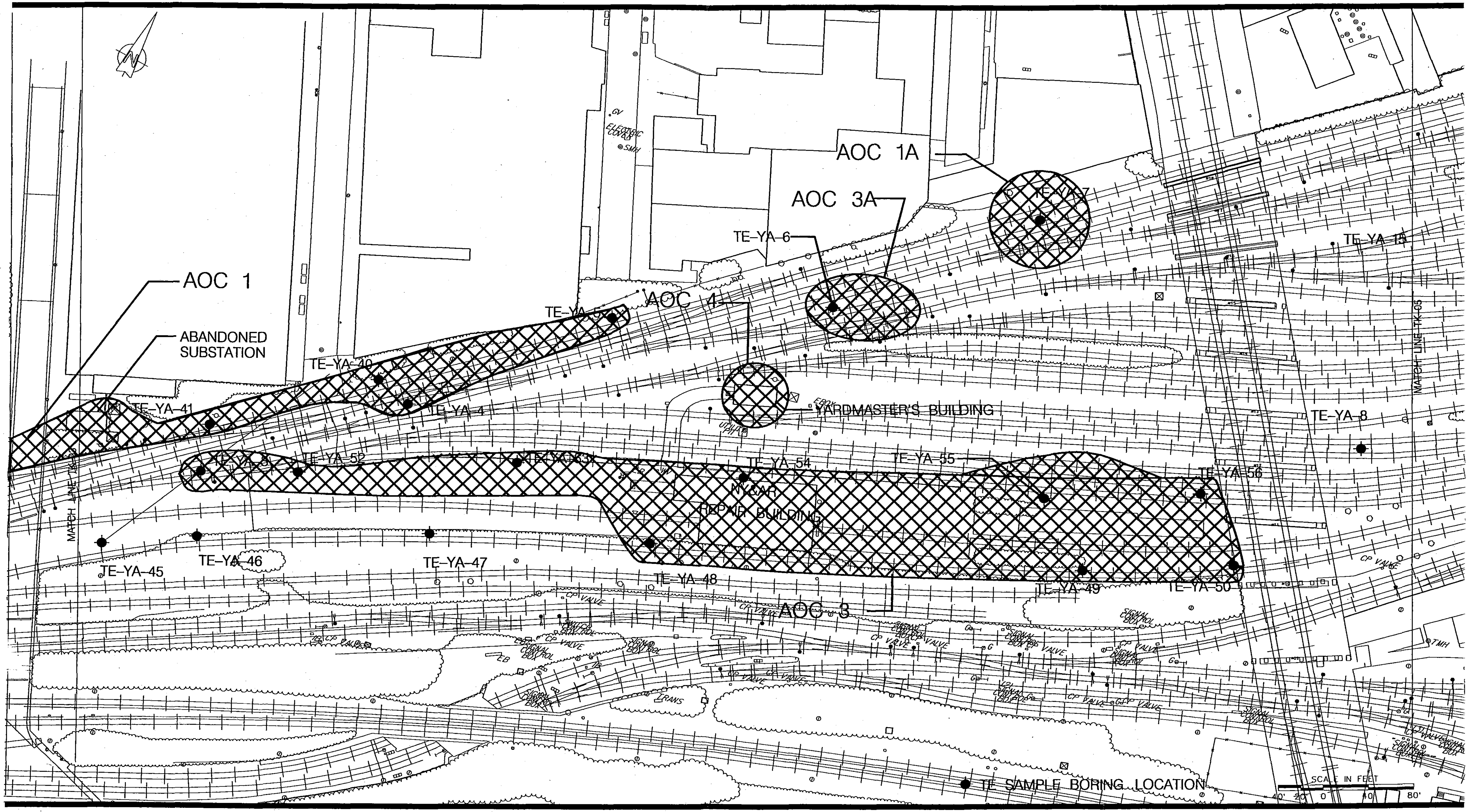

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
AREAS OF CONCERN IN WEST EXISTING RAIL YARD
DRAWING · No. TK-04

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporate

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-04
DATE: 7-18-01	FIGURE 18

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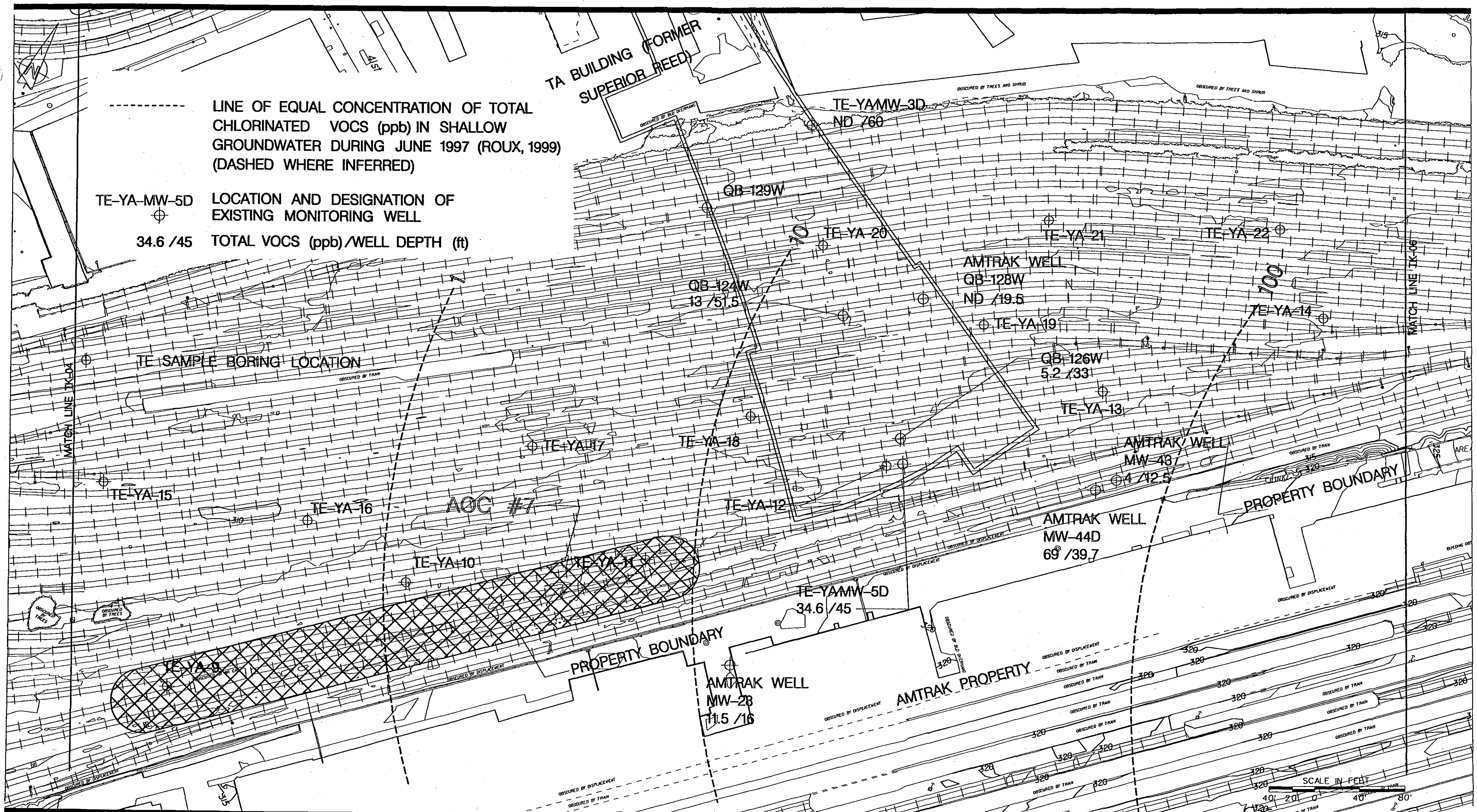

E A S T S I D E A C C E S S
L O N G I S L A N D R A I L R O A D
G R A N D C E N T R A L C O N N E C T I O N

EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
AREAS OF CONCERN IN CENTRAL EXISTING RAIL YARD
DRAWING NO. TK-05

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.		98-0040-01	
SCALE:	AS NOTED	DWG. No.	TK-05
DATE:	7-18-01	FIGURE 19	

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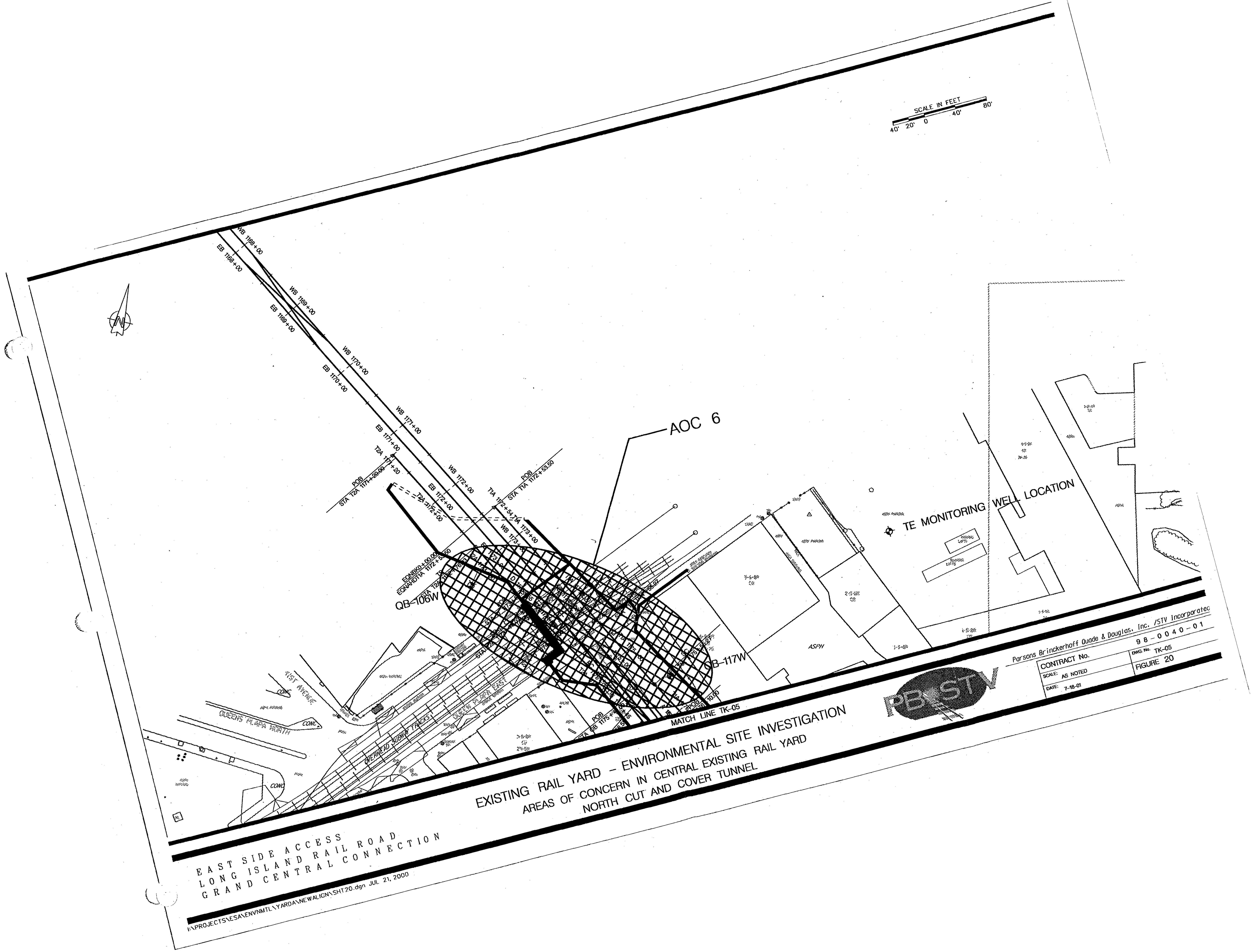
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40' 20' 0 40' 80'
AOC 6
TE MONITORING WELL LOCATION
QB-106W
QB-117W
MATCH LINE TK-05
ASPH
QUEENS PLAZA NORTH
OVERHEAD SUBWAY TRACKS
CONC
EXISTING RAIL YARD - ENVIRONMENTAL SITE INVESTIGATION
AREAS OF CONCERN IN CENTRAL EXISTING RAIL YARD
NORTH CUT AND COVER TUNNEL
Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated
CONTRACT No. 98-0040-01
SCALE: AS NOTED
DATE: 7-18-01
DWG. No. TK-05
FIGURE 20
EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION
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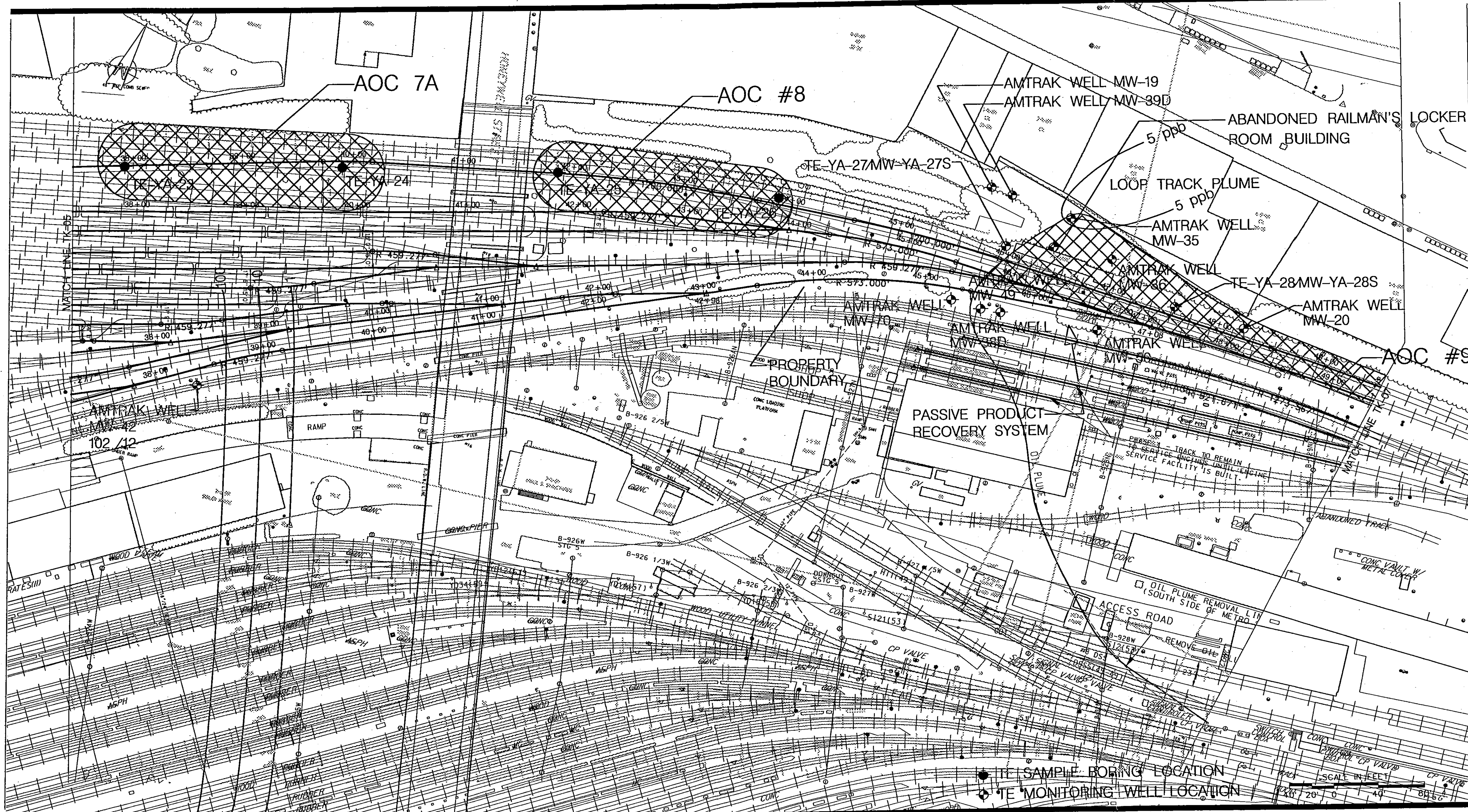

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
AREAS OF CONCERN IN EAST EXISTING RAIL YARD
DRAWING No. TK-06

PB STV

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorporated

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-06
DATE: 7-18-01	FIGURE 21

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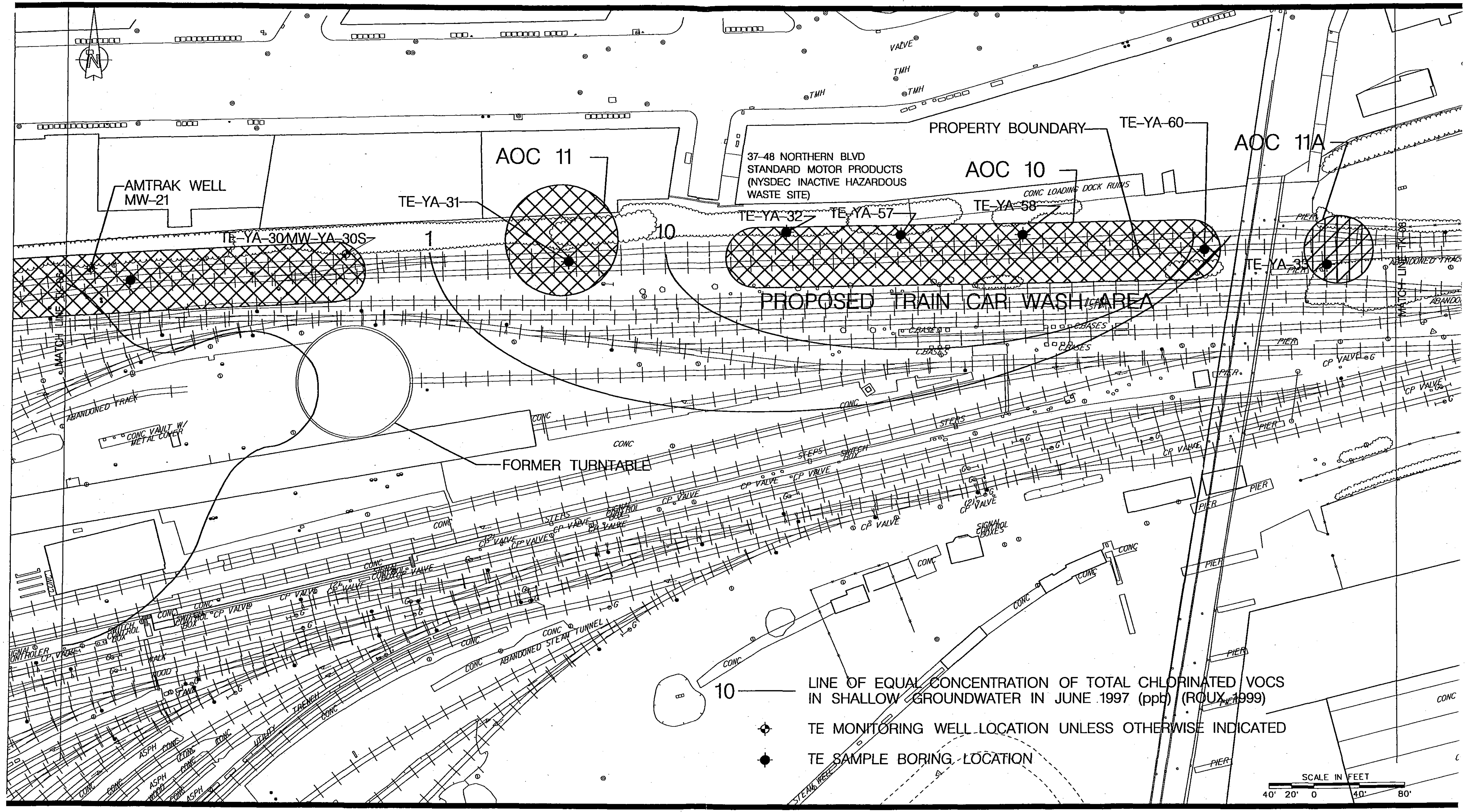

EAST SIDE ACCESS
LONG ISLAND RAIL ROAD
GRAND CENTRAL CONNECTION

EXISTING RAIL YARD – ENVIRONMENTAL SITE INVESTIGATION
AREAS OF CONCERN IN EAST EXISTING RAIL YARD
DRAWING No. TK-07

Parsons Brinckerhoff Quade & Douglas, Inc. /STV Incorpora

CONTRACT No.	98-0040-01
SCALE: AS NOTED	DWG. No. TK-07
DATE: 7-18-01	FIGURE 22

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TABLES

Table 1

SUMMARY OF MONITORING WELL CONSTRUCTION DATA

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Well I.D. No.	Well Material	Well Diameter (Inches)	Elevation Top of Casing (Ft. MSL)	Surface Elevation (Ft. MSL)	Screened Interval (Ft-bg)	Screened Interval (Ft-MSL)	Date Installed
Existing Monitoring Wells							
QB 106W	PVC	2	326.00	NA	55 - 65	271 - 261	3/16/00
QB 117W	PVC	2	318.00	NA	60 - 70	258 - 248	12/22/99
QB 124W	PVC	2	311.80	311.50	43.5 - 51.5	268.3 -260.3	12/28/99
QB 126W	PVC	2	311.90	312.20	23 - 33	288.9 - 278.9	6/29/99
QB 128W	PVC	2	311.30	311.30	14.5 - 19.5	296.8 - 291.8	7/28/99
QB 129W	PVC	2	311.10	311.30	23 - 33	288.1 - 278.1	6/8/99
New Monitoring Wells							
TE-YA-MW-3D	PVC	2	310.28	312.76	50 - 60	260.28 - 250.28	5/9/00
TE-YA-MW-5D	PVC	2	312.45	310.63	35 - 45	277.45 - 267.45	5/10/00
TE-YA-MW-27S	PVC	1	316.65	316.83	1 - 4	315.65 - 312.65	3/30/00
TE-YA-MW-28S	PVC	1	317.01	317.24	2.5 - 9.5	314.51 - 307.51	3/30/00
TE-YA-MW-30S	PVC	1	318.84	319.12	3 - 10	315.84 - 308.84	3/30/00

NOTES
PVC: Schedule 40 polyvinyl chloride piping
TEC: Tunnel Engineering Consultant
EC: Environmental Consultant (AKRF)
Ft. MSL: Feet above Mean Sea Level elevation as determined by the National Geodetic Vertical Datum of 1929
Ft. BG: Feet below surface grade

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SUMMARY OF ASBESTOS SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	SUSPECT ACM	RESULTS*	ESTIMATED ACM AREA	ANALYTICAL METHODS
Abandoned Locker Room Building	001 to 003	Interior Stucco	Non - ACM	0 sf	PLM-DS
	004 to 006	Exterior Stucco	Non - ACM	0 sf	PLM-DS
	007 to 009	Exterior Brick Mortar	Non - ACM	0 sf	PLM-DS
	010 to 012	Window Putty	Non - ACM	0 sf	PLM-DS; TEM
	013 to 015	Roof Membrane	Non - ACM	0 sf	PLM-DS; TEM
	016 to 018	Roof Flashing	Non - ACM	0 sf	PLM-DS; TEM
Yardmaster's Building, 2nd Floor	001 to 003	9" x 9" Green Floor Tile	**ACM**	431 sf	PLM-DS; TEM
	004 to 006	9" x 9" Green Floor Tile Mastic	Non - ACM	0 sf	PLM-DS
	007 to 011	Wall Plaster Whitecoat	Non - ACM	0 sf	PLM-DS
	012 to 016	Wall Plaster Browncoat	Non - ACM	0 sf	PLM-DS
	017 to 019	Ceiling Plaster Whitecoat	Non - ACM	0 sf	PLM-DS
	020 to 022	Ceiling Plaster Browncoat	Non - ACM	0 sf	PLM-DS; TEM
	023 to 025	Window Caulking	Non - ACM	0 sf	PLM-DS; TEM
	026 to 028	Window Putty	Non - ACM	0 sf	PLM-DS
	029 to 031	Sheetrock	Non - ACM	0 sf	PLM-DS; TEM
	032 to 034	Sheetrock Joint Compound	Non - ACM	0 sf	PLM-DS; TEM

NOTES:

* Material was defined ACM if the sample contained greater than 1% asbestos.

All samples were prepared and analyzed in accordance with EPA "Method
for the Determination of Asbestos in Bulk Building Materials"
USEPA/600/R-93/116, July 1993

ACM = Asbestos Containing Materials
NY & AR = New York and Atlantic Railroad
PLM-DS = Polarized Light Microscopy
TEM = Transmission Electron Microscope
NA = No Area estimated
lf = Linear Feet
sf = Square Feet

T.

SUMMARY OF ASBESTOS SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	SUSPECT ACM	RESULTS*	ESTIMATED ACM AREA	ANALYTICAL METHODS
Yard Master's Building, 1st Floor	035 to 037	9" x 9" Green Floor Tile	**ACM**	570 sf	PLM-DS; TEM
	038 to 040	9" x 9" Green Floor Tile Mastic	**ACM**	570 sf	PLM-DS; TEM
	041 to 043	12" x 12" Light Green Floor Tile	Non - ACM	0 sf	PLM-DS
	044 to 046	12" x 12" Light Green Floor Tile Mastic	Non - ACM	0 sf	PLM-DS
	047 to 049	Wall Plaster Whitecoat	Non - ACM	0 sf	PLM-DS
	050 to 052	Wall Plaster Browncoat	Non - ACM	0 sf	PLM-DS
	053 to 055	Sheetrock	Non - ACM	0 sf	PLM-DS
	056 to 058	Sheetrock Joint Compound	Non - ACM	0 sf	PLM-DS
Abandoned Substation Building	059 to 061	Exterior Brick	Non - ACM	0 sf	PLM-DS
	062 to 064	Exterior Brick Mortar	Non - ACM	0 sf	PLM-DS
	065 to 067	Exterior Brick	Non - ACM	0 sf	PLM-DS
	068 to 070	Exterior Brick Mortar	Non - ACM	0 sf	PLM-DS
	071 to 073	Exterior Brick	Non - ACM	0 sf	PLM-DS
	074 to 076	Exterior Brick Mortar	Non - ACM	0 sf	PLM-DS
	077 to 079	Exterior Brick	Non - ACM	0 sf	PLM-DS
	080 to 082	Exterior Brick Mortar	Non - ACM	0 sf	PLM-DS
	---	Roofing Materials	Assumed	To Be Determined	PLM-DS
	---	Wall and Ceiling Plasters	Assumed	To Be Determined	PLM-DS
	---	Debris	Assumed	To Be Determined	PLM-DS

NOTES:
* Material was defined ACM if the sample contained greater than 1% asbestos.
All samples were prepared and analyzed in accordance with EPA "Method
for the Determination of Asbestos in Bulk Building Materials"
USEPA/600/R-93/116, July 1993
ACM = Asbestos Containing Materials
NY & AR = New York and Atlantic Railroad
PLM-DS = Polarized Light Microscopy
TEM = Transmission Electron Microscope
NA = No Area estimated
lf = Linear Feet
sf = Square Feet

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SUMMARY OF ASBESTOS SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	SUSPECT ACM	RESULTS*	ESTIMATED ACM AREA	ANALYTICAL METHODS
NY & AR Maintenance Building, High Roof	001 to 003	Roof Sealant	ACM	300 lf	
NY & AR Maintenance Building, Low Roof	004 to 006	Roof Sealant	ACM	300 lf	
NY & AR Maintenance Building, 1st Floor, All Doors	007 to 009	Door Frame Caulking	Non - ACM	0 sf	
NY & AR Maintenance Building, 1st Floor, Lunch Room & Inspection Pit	010 to 012	Window Caulking	Non - ACM	0 sf	
NY & AR Maintenance Building, 1st Floor, Lunch Room Parts Room, Ladies Room, Men's Room, Locker Room, Hallway and Office	013 to 015	2' x 4' Ceiling Tile	Non - ACM	0 sf	
NY & AR Maintenance Building, 1st Floor, Walls	016 to 018	Brick Mortar	Non - ACM	0 sf	
NY & AR Maintenance Building, Exterior Façade, Behind Aluminum Paneling	---	Sideing	Assumed	To be Determined	
NY & AR Maintenance Building, High Roof, Under Aluminum Paneling	---	Waterproofing Membrane	Assumed	To be Determined	
NY & AR Maintenance Building, Low Roof, Under Aluminum Paneling	---	Waterproofing Membrane	Assumed	To be Determined	

NOTES:
* Material was defined ACM if the sample contained greater than 1% asbestos.
All samples were prepared and analyzed in accordance with EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/600/R-93/116, July 1993
ACM = Asbestos Containing Materials
NY & AR = New York and Atlantic Railroad
PLM-DS = Polarized Light Microscopy
TEM = Transmission Electron Microscope
NA = No Area estimated
lf = Linear Feet
sf = Square Feet

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SUMMARY OF LEAD SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	COMPONENT	SUBSTRATE	LEAD CONTENT (mg/cm^2)	RESULTS*	ESTIMATED LBP AREA	ANALYTICAL METHODS
Abandoned Locker Room Building	001-002	Ceiling	Plaster	0.038-0.088	Non-LBP	0 sf	AAS
	003-004	Window Frame	Wood	0.337-2.331	**LBP**	180 sf	AAS
	005-006	Window Sash	Wood	0.783-1.076			
	007-008	Walls	Plaster	0.025-0.783	Non-LBP	0 sf	AAS
	009-010	Stairs Railings	Metal	0.605-0.984	Non-LBP	0 sf	AAS
Yardmaster's Building-East Office, 2nd Floor	001-006	Walls	Sheetrock	<0.02	Non-LBP	0 sf	AAS
	007-009	Baseboards	Wood	0.079-1.135	**LBP**	150 sf	AAS
	033	Door	Wood	0.116	Non-LBP	0 sf	AAS
	034	Door Frame	Wood	0.143	Non-LBP	0 sf	AAS
	035	Door Lintel	Metal	0.135	Non-LBP	0 sf	AAS
	036-038	Ceiling	Sheetrock	<0.02	Non-LBP	0 sf	AAS
Yardmaster's Building-West Office, 2nd Floor	011-012	Baseboards	Wood	0.061-0.142	Non-LBP	0 sf	AAS
	039-041	Ceiling	Sheetrock	<0.02	Non-LBP	0 sf	AAS
	042-044	Walls	Sheetrock	<0.02	Non-LBP	0 sf	AAS
	057-060	Walls	Sheetrock	<0.02	Non-LBP	0 sf	AAS
Yardmaster's Building - Staircase, 2nd Floor	013	Risers	Wood	0.337	Non-LBP	0 sf	AAS
	014	Treads	Wood	0.357	Non-LBP	0 sf	AAS
	015	Baseboard	Wood	0.613	Non-LBP	0 sf	AAS
	061-065	Wall	Sheetrock	<0.02	Non-LBP	0 sf	AAS

NOTES:

* HUD guidelines define paint containing lead levels equal to or greater than 1.0 mg/cm2 or 0.5% by weight (5,000 ppm) as LBP

All samples were prepared and analyzed in accordance with EPA Method : EPA SW 846-3050/7420

AAS = Atomic Absorption Spectrometry

LBP = Lead Based Paint

PPM = parts per million

NY & AR = New York and Atlantic Railroad

sf = square feet

lf = linear feet

Tab...

SUMMARY OF LEAD SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	COMPONENT	SUBSTRATE	LEAD CONTENT (mg/cm^2)	RESULTS*	ESTIMATED LBP AREA	ANALYTICAL METHODS
Yardmaster's Building - Bathroom, 2nd Floor	010	Baseboard	Wood	0.446	Non-LBP	0 sf	AAS
	025-029	Window Sills		0.419-2.713	LBP	16 sf	AAS
	026-030	Window Wells		0.557-2.262			
	027-031	Window Frame		0.536-2.167			
	028-032	Window Sashes		0.503-2.223			
	053-054	Wall	Sheetrock	<0.02	Non-LBP	0 sf	AAS
Yardmaster's Building - Closet, 2nd Floor	055-056	Wall	Sheetrock	<0.02	Non-LBP	0 sf	AAS
Yardmaster's Building - Basement Entrance, 1st Floor	016	Door	Wood	0.671	Non-LBP	0 sf	AAS
	017	Door Frame	Wood	0.761	Non-LBP	0 sf	AAS
	018	Door Lintel	Metal	0.183	Non-LBP	0 sf	AAS
Yardmaster's Building - Bathroom, 1st Floor	019	Baseboard	Wood	0.468	Non-LBP	0 sf	AAS
	068-069	Wall	Sheetrock	<0.02	Non-LBP	0 sf	AAS
Yardmaster's Building - Supplies Room, 1st Floor	020-021	Baseboards	Wood	0.615-0.731	Non-LBP	0 sf	AAS
	045-048	Ceiling	Sheetrock	<0.02	Non-LBP	0 sf	AAS
	070-072	Wall	Sheetrock	<0.02	Non-LBP	0 sf	AAS
Yardmaster's Building - Supplies Room/Bathroom, 1st Floor	073-074	Wall	Sheetrock	<0.02	Non-LBP	0 sf	AAS
Yardmaster's Building - Office, 1st Floor	022-024	Baseboards	Wood	0.063-0.628	Non-LBP	0 sf	AAS
	049-052	Ceiling	Sheetrock	<0.02	Non-LBP	0 sf	AAS
	066-067	Wall	Sheetrock	<0.02	Non-LBP	0 sf	AAS

NOTES:
* HUD guidelines define paint containing lead levels equal to or greater than 1.0 mg/cm2 or 0.5% by weight (5,000 ppm) as LBP
All samples were prepared and analyzed in accordance with EPA Method : EPA SW 846-3050/7420
AAS = Atomic Absorption Spectrometry
LBP = Lead Based Paint
PPM = parts per million
NY & AR = New York and Atlantic Railroad
sf = square feet
lf = linear feet

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SUMMARY OF LEAD SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	COMPONENT	SUBSTRATE	LEAD CONTENT (mg/cm^2)	RESULTS*	ESTIMATED LBP AREA	ANALYTICAL METHODS
NY & AR Maintenance Building Grounds, North Entrance	001	4 Fee Safety Pole	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building Grounds, North-West Entrance	002	5 Leg Pipes	Metal	1.53	**LBP**	100 lf	AAS
NY & AR Maintenance Building Grounds, North-West	003	Waste Oil Tanks	Metal	<0.02	Non-LBP	0 sf	AAS
	004	Compressed Air Tank	Metal	<0.02	Non-LBP	0 sf	AAS
	005	Compressed Dry Air Tank	Metal	<0.02	Non-LBP	0 sf	AAS
	006	Compressed Air Supply Pipe	Metal	0.03	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Inxpection Pit	007	Exterior Wall-A	Metal	<0.02	Non-LBP	0 sf	AAS
	008	Interior Wall-A	Metal	<0.02	Non-LBP	0 sf	AAS
	009	Locker	Metal	<0.02	Non-LBP	0 sf	AAS
	010	Chain Pipe	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Compressor Room	011	Door	Metal	<0.02	Non-LBP	0 sf	AAS
	012	Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
	013	Steam Riser	Metal	<0.02	Non-LBP	0 sf	AAS
	014	Pump Box	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, tool Storage Room	015	Closet	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Office	016	Electrical Pipe	Metal	<0.02	Non-LBP	0 sf	AAS

NOTES:
* *HUD guidelines define paint containing lead* levels equal to or greater than 1.0 mg/cm2 or 0.5% by weight (5,000 ppm) as LBP
All samples were prepared and analyzed in accordance with EPA Method : EPA SW 846-3050/7420
AAS = Atomic Absorption Spectrometry
LBP = Lead Based Paint
PPM = parts per million
NY & AR = New York and Atlantic Railroad
sf = square feet
lf = linear feet

Ta.

SUMMARY OF LEAD SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	COMPONENT	SUBSTRATE	LEAD CONTENT (mg/cm^2)	RESULTS*	ESTIMATED LBP AREA	ANALYTICAL METHODS
NY & AR Maintenance Building 1st Floor, Air Brake Work Room	017	Work Station	Metal	<0.02	Non-LBP	0 sf	AAS
	018	Lockers	Metal	<0.02	Non-LBP	0 sf	AAS
	019	Shelves	Metal	<0.02	Non-LBP	0 sf	AAS
	020	Cupboard	Metal	0.03	Non-LBP	0 sf	AAS
	021	Door	Metal	<0.02	Non-LBP	0 sf	AAS
	022	Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Inspection Pit	023	Iron Beam	Metal	<0.02	Non-LBP	0 sf	AAS
	024	Supply Pipes	Metal	<0.02	Non-LBP	0 sf	AAS
	025	Wall-D	Cinderblock	<0.02	Non-LBP	0 sf	AAS
	026	3 Ton Crane	Metal	<0.02	Non-LBP	0 sf	AAS
	027	Paint Locker	Metal	<0.02	Non-LBP	0 sf	AAS
	028	Lube Oil Drum	Metal	<0.02	Non-LBP	0 sf	AAS
	029	Door	Metal	<0.02	Non-LBP	0 sf	AAS
	030	Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building Grounds, Ouside of Building, Southside	031	Barrier Pole	Metal	0.61	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Parts Room	032	Door	Metal	<0.02	Non-LBP	0 sf	AAS
	033	Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Men's Bathroom	034	Door	Metal	<0.02	Non-LBP	0 sf	AAS
	035	Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS

NOTES:
* HUD guidelines define paint containing lead levels equal to or greater than 1.0 mg/cm2 or 0.5% by weight (5,000 ppm) as LBP
All samples were prepared and analyzed in accordance with EPA Method : EPA SW 846-3050/7420
AAS = Atomic Absorption Spectrometry
LBP = Lead Based Paint
PPM = parts per million
NY & AR = New York and Atlantic Railroad
sf = square feet
lf = linear feet

NY & AR Maintenance Building 1st Floor, Women's Bathroom	036	Door	Metal	<0.02	Non-LBP	0 sf	AAS
	037	Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Hallway by Women's Bathroom	038	Wall-B	Cinderblock	0.04	Non-LBP	0 sf	AAS

Tab

SUMMARY OF LEAD SURVEY RESULTS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

COLLECTION LOCATION	SAMPLE NUMBERS	COMPONENT	SUBSTRATE	LEAD CONTENT (mg/cm^2)	RESULTS*	ESTIMATED LBP AREA	ANALYTICAL METHODS
NY & AR Maintenance Building 1st Floor, Kitchen	039	Electrical Supply Pipe	Metal	0.03	Non-LBP	0 sf	AAS
	040	Wall-A	Cinderblock	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building 1st Floor, Tool Room	041	Interior Door	Metal	<0.02	Non-LBP	0 sf	AAS
	042	Interior Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
	043	Closet Shelves	Metal	<0.02	Non-LBP	0 sf	AAS
	044	Cabinet	Metal	<0.02	Non-LBP	0 sf	AAS
	045	Exterior Door	Metal	<0.02	Non-LBP	0 sf	AAS
	046	Exterior Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building1st Floor, Locker Room	047	Door	Metal	<0.02	Non-LBP	0 sf	AAS
	048	Door Frame	Metal	<0.02	Non-LBP	0 sf	AAS
NY & AR Maintenance Building Grounds, Outside of Building, Southside	049	Brake Shoe Bucket	Metal	<0.02	Non-LBP	0 sf	AAS
	050	Brake Shoe	Metal	<0.02	Non-LBP	0 sf	AAS

NOTES:
* HUD guidelines define paint containing lead levels equal to or greater than 1.0 mg/cm2 or 0.5% by weight (5,000 ppm) as LBP
All samples were prepared and analyzed in accordance with EPA Method : EPA SW 846-3050/7420
AAS = Atomic Absorption Spectrometry
LBP = Lead Based Paint
PPM = parts per million
NY & AR = New York and Atlantic Railroad
sf = square feet
lf = linear feet
* NY & AR = Repair Shop

Tabl.

SUMMARY OF SOIL SAMPLE RESULTS FOR VOLATILE ORGANIC COMPOUNDS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-7 (4')	TE-YA-25 (1.5')	TE-YA-26 (2.5')	TE-YA-27 (2.5')	TE-YA-28 (3')	TE-YA-28 (8')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/12/00	3/28/00	3/28/00	3/30/00	3/30/00	3/30/00
Compound	**Guidance Value (ppb)**	**Concentration (ppb or ug/Kg)**					
1,2,3-Trichlorobenzene	**NA**	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	**3400***	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**100**	ND	.65	ND	ND	ND	**940**
1,3,5-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	**NA**	ND	ND	ND	ND	ND	ND
Acetone	**200***	ND	ND	ND	ND	ND	ND
Chloroform	**300***	ND	110	ND	ND	ND	ND
cis-1,2 Dichloroethene	**300***	ND	130	ND	ND	ND	ND
Ethylbenzene	**100**	ND	ND	ND	ND	ND	ND
Isopropylbenzene	**100**	ND	ND	ND	ND	ND	**780**
m,p-Xylene	**200**	ND	72	ND	ND	ND	ND
Methylene chloride	**100***	72	ND	ND	**110**	ND	ND
Naphthalene	**200**	ND	170	ND	ND	**1,400**	**1,100**
n-Butylbenzene	**100**	ND	ND	ND	ND	**1,600**	**1,700**
n-Propylbenzene	**100**	ND	ND	ND	ND	**2,300**	ND
o-Xylene	**100**	ND	52	ND	ND	ND	ND
sec-Butylbenzene	**100**	ND	ND	ND	ND	ND	**1,100**
Tetrachloroethene	**1,400***	ND	**1,400**	ND	34	ND	ND
Toluene	**100**	ND	49	ND	ND	ND	ND
Trichloroethene	**700***	ND	**7,500**	ND	ND	ND	ND
Total VOCs	**10,000***	72	9,548	0	144	5,300	5,620
Moisture	**NA**	14.10%	27.80%	29.60%	19.40%	17.20%	14.20%

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds guidance values or the recommended soil cleanup objective.
Guidance values are from the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values
*No NYSDEC STARS Memo #1 guidance value provided. Value is the recommended soil cleanup objective per NYSDEC TAGM #4046.
All data is in parts per billion (ppb) micrograms per kilogram (ug/Kg).
TCL = Target Compound List
VOCs = Volatile organic compounds
NA = not available
ND = Not detected.
Only those compounds that were detected are shown.

Tab.

SUMMARY OF SOIL SAMPLE RESULTS FOR VOLATILE ORGANIC COMPOUNDS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-30 (5')	TE-YA-31 (4')	TE-YA-32 (6')	TE-YA-44 (4')	TE-YA-48 (3.5')	TE-YA-51 (8.5')	TE-YA-52 (4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/30/00	3/28/00	3/28/00	4/7/00	4/11/00	4/7/00	4/10/00
Compound	**Guidance Value (ppb)**	**Concentration (ppb or ug/Kg)**						
1,2,3-Trichlorobenzene	**NA**	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	**3400***	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	ND	**6,200**
1,3,5-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	**NA**	ND	ND	ND	ND	ND	100	ND
Acetone	**200***	ND	ND	ND	ND	ND	ND	ND
Chloroform	**300***	ND	ND	ND	ND	ND	ND	ND
cis-1,2 Dichloroethene	**300***	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	**100**	ND	ND	ND	45	ND	ND	ND
Isopropylbenzene	**100**	ND	ND	ND	ND	ND	ND	**510**
m,p-Xylene	**200**	ND	63	ND	ND	ND	ND	ND
Methylene chloride	**100***	ND	ND	ND	ND	ND	ND	ND
Naphthalene	**200**	ND	150	ND	ND	73	ND	110
n-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	**100**	ND	ND	ND	ND	ND	ND	**1,500**
o-Xylene	**100**	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND	**1,900**
Tetrachloroethene	**1,400***	ND	ND	ND	ND	ND	ND	ND
Toluene	**100**	ND	66	ND	**170**	ND	**180**	ND
Trichloroethene	**700***	ND	ND	ND	ND	ND	ND	ND
Total VOCs	**10,000***	0	279	0	215	73	280	**10,220**
Moisture	**NA**	28.50%	10.30%	15.60%	19.60%	12.00%	28.47%	8.50%

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds guidance values or the recommended soil cleanup objective.
Guidance values are from the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values
*No NYSDEC STARS Memo #1 guidance value provided. Value is the recommended soil cleanup objective per NYSDEC TAGM #4046.
All data is in parts per billion (ppb) micrograms per kilogram (ug/Kg).
TCL = Target Compound List
VOCs = Volatile organic compounds
NA = not available
ND = Not detected.
Only those compounds that were detected are shown.

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SUMMARY OF SOIL SAMPLE RESULTS FOR VOLATILE ORGANIC COMPOUNDS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-52 (6.5')	TE-YA-53 (4.5')	TE-YA-53 (6')	TE-YA-55 (2.5')	TE-YA-57 (4')	TE-YA-58 (4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/10/00	4/10/00	4/11/00	4/11/00	3/28/00	3/28/00
Compound	**Guidance Value (ppb)**	**Concentration (ppb or ug/Kg)**					
1,2,3-Trichlorobenzene	**NA**	ND	77	60	ND	ND	ND
1,2,4-Trichlorobenzene	**3400***	ND	37	50	ND	ND	ND
1,2,4-Trimethylbenzene	**100**	**110,000**	**340**	**2,300**	**120**	ND	ND
1,3,5-Trimethylbenzene	**100**	ND	78	**270**	55	ND	ND
4-Isopropyltoluene	**NA**	ND	ND	ND	ND	ND	ND
Acetone	**200***	ND	ND	ND	**350**	ND	ND
Chloroform	**300***	ND	ND	ND	ND	ND	ND
cis-1,2 Dichloroethene	**300***	ND	ND	ND	ND	ND	ND
Ethylbenzene	**100**	ND	ND	ND	ND	ND	ND
Isopropylbenzene	**100**	**4,200**	ND	66	ND	ND	ND
m,p-Xylene	**200**	ND	99	27	120	ND	ND
Methylene chloride	**100***	ND	ND	ND	ND	ND	ND
Naphthalene	**200**	**650**	**560**	**850**	**320**	ND	ND
n-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND
n-Propylbenzene	**100**	**12,000**	46	**150**	ND	ND	ND
o-Xylene	**100**	ND	35	33	48	ND	ND
sec-Butylbenzene	**100**	**12,000**	ND	**260**	ND	ND	ND
Tetrachloroethene	**1,400***	ND	ND	ND	ND	ND	ND
Toluene	**100**	ND	ND	80	66	ND	ND
Trichloroethene	**700***	ND	ND	ND	ND	ND	ND
Total VOCs	**10,000***	**138,850**	1,158	4,036	1,079	0	0
Moisture	**NA**	ND	11.70%	10.90%	18.30%	14.80%	3.60%

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds guidance values or the recommended soil cleanup objective.
Guidance values are from the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values
*No NYSDEC STARS Memo #1 guidance value provided. Value is the recommended soil cleanup objective per NYSDEC TAGM #4046.
All data is in parts per billion (ppb) micrograms per kilogram (ug/Kg).
TCL = Target Compound List
VOCs = Volatile organic compounds
NA = not available
ND = Not detected.
Only those compounds that were detected are shown.

Tab

SUMMARY OF SOIL SAMPLE RESULTS FOR VOLATILE ORGANIC COMPOUNDS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-3D (11')	TE-YA-3D (18')	TE-YA-3D (32')	TE-YA-3D (40')	TE-YA-3D (52')	TE-YA-3D (60.7')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		5/9/00	5/9/00	5/9/00	5/9/00	5/10/00	5/10/00
Compound	**Guidance Value (ppb)**	**Concentration (ppb or ug/Kg)**					
1,2,3-Trichlorobenzene	**NA**	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	**3400***	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	**NA**	ND	ND	ND	ND	ND	ND
Acetone	**200***	ND	**1,300**	ND	ND	ND	ND
Chloroform	**300***	ND	ND	ND	ND	ND	ND
cis-1,2 Dichloroethene	**300***	ND	ND	ND	ND	ND	ND
Ethylbenzene	**100**	ND	ND	ND	ND	ND	ND
Isopropylbenzene	**100**	ND	ND	ND	ND	ND	ND
m,p-Xylene	**200**	ND	ND	ND	ND	ND	ND
Methylene chloride	**100***	ND	ND	ND	ND	ND	ND
Naphthalene	**200**	ND	ND	ND	ND	ND	ND
n-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND
n-Propylbenzene	**100**	ND	ND	ND	ND	ND	ND
o-Xylene	**100**	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**1,400***	ND	ND	ND	ND	ND	ND
Toluene	**100**	ND	ND	ND	ND	ND	41
Trichloroethene	**700***	ND	ND	ND	ND	ND	42
Total VOCs	**10,000***	0	1,300	0	0	0	83
Moisture		11.10%	59.30%	26.40%	20.30%	22.40%	17.40%

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds guidance values or the recommended soil cleanup objective.
Guidance values are from the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values
*No NYSDEC STARS Memo #1 guidance value provided. Value is the recommended soil cleanup objective per NYSDEC TAGM #4046.
All data is in parts per billion (ppb) micrograms per kilogram (ug/Kg).
TCL = Target Compound List
VOCs = Volatile organic compounds
NA = not available
ND = Not detected.
Only those compounds that were detected are shown.

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SUMMARY OF SOIL SAMPLE RESULTS FOR VOLATILE ORGANIC COMPOUNDS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-5D (10')	TE-YA-5D (20')	TE-YA-5D (30')	TE-YA-5D (41.5')	TE-YA-5D (50')	TE-YA-5D (52.5')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		5/11/00	5/11/00	5/11/00	5/11/00	5/11/00	5/11/00
Compound	**Guidance Value (ppb)**	**Concentration (ppb or ug/Kg)**					
1,2,3-Trichlorobenzene	**NA**	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	**3400***	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	**100**	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	**NA**	ND	ND	ND	ND	ND	ND
Acetone	**200***	ND	ND	ND	ND	ND	ND
Chloroform	**300***	ND	ND	ND	ND	ND	ND
cis-1,2 Dichloroethene	**300***	ND	ND	ND	ND	ND	ND
Ethylbenzene	**100**	ND	ND	ND	ND	ND	ND
Isopropylbenzene	**100**	ND	ND	ND	ND	ND	ND
m,p-Xylene	**200**	ND	ND	ND	ND	ND	ND
Methylene chloride	**100***	ND	ND	ND	ND	ND	ND
Naphthalene	**200**	ND	ND	ND	ND	ND	ND
n-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND
n-Propylbenzene	**100**	ND	ND	ND	ND	ND	ND
o-Xylene	**100**	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**1,400***	ND	ND	ND	ND	ND	ND
Toluene	**100**	ND	ND	ND	ND	ND	ND
Trichloroethene	**700***	ND	ND	ND	ND	ND	75
Total VOCs	**10,000***	0	0	0	0	0	75
Moisture		11.80%	16.80%	16.00%	15.20%	13.60%	22.40%

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds guidance values or the recommended soil cleanup objective.
Guidance values are from the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values
*No NYSDEC STARS Memo #1 guidance value provided. Value is the recommended soil cleanup objective per NYSDEC TAGM #4046.
All data is in parts per billion (ppb) micrograms per kilogram (ug/Kg).
TCL = Target Compound List
VOCs = Volatile organic compounds
NA = not available
ND = Not detected.
Only those compounds that were detected are shown.

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SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-1(0-4')	TE-YA-2 (0-4')	TE-YA-3 (0-4')	TE-YA-4 (0-4')	TE-YA-5 (0-4')	TE-YA-6 (0-4')	TE-YA-7 (0-4')	TE-YA-8 (0-1.5')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/7/00	4/7/00	4/13/00	4/12/00	4/12/00	4/12/00	4/12/00	4/12/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)							
2-Methylnaphthalene	36,400*	ND	ND	ND	520	ND	360	600	570
Acenaphthene	400	ND	ND	ND	300	ND	ND	ND	ND
Anthracene	1,000	ND	ND	ND	490	800	ND	640	ND
Acenaphthylene	41,000*	ND	ND	ND	ND	ND	ND	370	ND
Benzo(a)anthracene**	0.04	ND	**300**	**900**	**1,100**	**2,000**	**280**	**1,300**	ND
Benzo(a)pyrene**	0.04	ND	**350**	**760**	**1,000**	**1,900**	ND	**1,200**	ND
Benzo(b)fluoranthene**	0.04	**360**	**530**	**1,000**	**1,700**	**2,700**	**560**	**2,100**	**360**
Benzo(g,h,i)perylene	0.04	ND	**370**	**430**	**830**	**1,400**	**300**	**1,100**	ND
Benzo(k)fluoranthene**	0.04	ND	ND	**410**	**580**	**930**	ND	**760**	ND
Bis (2-ethylhexyl) phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	---	ND	ND	ND	ND	370	ND	ND	ND
Chrysene**	0.04	**270**	**350**	**900**	**1,300**	**2,000**	**430**	**1,500**	ND
Di-n-butyl Phthalate	8,100*	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	1,000	ND	ND	ND	ND	350	ND	290	ND
Dibenzofuran	6,200*	ND	ND	ND	ND	300	ND	480	ND
Fluoranthene	1,000	310	520	**1,300**	**1,800**	**4,100**	500	**2,400**	ND
Flourene	1,000	ND	ND	ND	ND	340	ND	ND	ND
Indeno(1,2,3-cd)pyrene**	0.04	ND	**350**	**500**	**920**	**1,500**	**300**	**1,200**	ND
Isophorone	4,400*	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	200	ND	ND	ND	**380**	ND	**300**	**720**	ND
Phenanthrene	1,000	270	440	370	**1,400**	**3,500**	510	**1,800**	280
Pyrene	1,000	360	480	**1,400**	**1,800**	**3,600**	420	**2,200**	ND
Total SVOCs:	500,000	1,570	3,690	7,970	14,120	25,790	3,960	18,660	1,210
Total Carcinogenic PAHs:	25,000***	630	1,880	4,470	6,600	11,380	1,570	8,350	360
Percent Moisture	NA	5.80%	5.20%	10.70%	13.50%	12.50%	9.40%	16.60%	8.70%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---': No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: Total potentially carcinogenic PAH compounds in surface and subsurface soils (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

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SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-9 (0-2.5')	TE-YA-10 (0-2.5')	TE-YA-11 (0-3.5')	TE-YA-12 (0-4')	TE-YA-13 (0-4')	TE-YA-14 (0-4')	TE-YA-15 (0-3')	TE-YA-16 (0-2')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/12/00	4/12/00	4/12/00	4/12/00	4/12/00	4/13/00	4/12/00	4/12/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)							
2-Methylnaphthalene	36,400*	710	ND	320	ND	ND	ND	ND	420
Acenaphthene	400	ND	ND	1,500	ND	ND	ND	ND	ND
Anthracene	1,000	ND	ND	1,200	ND	ND	ND	ND	ND
Acenaphthylene	41,000*	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	0.04	390	0	3,900	ND	ND	ND	ND	ND
Benzo(a)pyrene**	0.04	410	0	3,100	ND	ND	ND	ND	ND
Benzo(b)fluoranthene**	0.04	830	450	6,800	290	450	ND	ND	ND
Benzo(g,h,i)perylene	0.04	380	ND	1,800	ND	ND	ND	ND	ND
Benzo(k)fluoranthene**	0.04	ND	ND	1,900	ND	ND	ND	ND	ND
Bis (2-ethylhexyl) phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	---	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene**	0.04	540	400	4,100	ND	ND	ND	ND	ND
Di-n-butyl Phthalate	8,100*	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	1,000	ND	ND	580	ND	ND	ND	ND	ND
Dibenzofuran	6,200*	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1,000	570	350	3,100	ND	ND	ND	ND	ND
Flourene	1,000	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene**	0.04	420	ND	2,400	ND	ND	ND	ND	ND
Isophorone	4,400*	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	200	520	ND	350	ND	ND	ND	ND	310
Phenanthrene	1,000	540	480	910	ND	ND	ND	ND	320
Pyrene	1,000	650	300	3,600	ND	ND	ND	ND	ND
Total SVOCs:	500,000	5,960	1,980	35,560	290	450	0	0	1,050
Total Carcinogenic PAHs:	25,000***	2,590	850	22,780	290	450	0	0	0
Percent Moisture	NA	16.90%	13.70%	14.80%	11.30%	23.60%	16.30%	8.90%	18.20%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---: No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: Total potentially carcinogenic PAH compounds in surface and subsurface soils (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

Tab.

SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-17 (0-2.5')	TE-YA-18 (0-4')	TE-YA-19 (0-3.5)	TE-YA-20 (0-2.5')	TE-YA-21 (0-2.5')	TE-YA-22 (0-3')	TE-YA-23 (0-4')	TE-YA-24 (0-3.5')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/13/00	4/12/00	4/12/00	4/13/00	4/13/00	4/13/00	4/13/00	4/13/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)							
2-Methylnaphthalene	36,400*	360	ND	340	460	ND	ND	500	810
Acenaphthene	400	ND	ND	ND	ND	ND	ND	370	ND
Anthracene	1,000	ND	ND	ND	ND	ND	ND	650	ND
Acenaphthylene	41,000*	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	0.04	**500**	ND	**520**	ND	ND	ND	**3,800**	**380**
Benzo(a)pyrene**	0.04	**490**	ND	**500**	ND	ND	ND	**3,900**	**380**
Benzo(b)fluoranthene**	0.04	**1,200**	ND	**860**	**460**	**510**	**470**	**6,200**	**880**
Benzo(g,h,i)perylene	0.04	**560**	ND	**400**	ND	ND	ND	**3,000**	**500**
Benzo(k)fluoranthene**	0.04	**390**	ND	**330**	ND	ND	ND	**1,500**	**280**
Bis (2-ethylhexyl) phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	510
Carbazole	---	ND	ND	ND	ND	ND	ND	350	ND
Chrysene**	0.04	**780**	ND	**680**	**430**	**360**	**350**	**4,100**	**640**
Di-n-butyl Phthalate	8,100*	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	1,000	ND	ND	ND	ND	ND	ND	710	ND
Dibenzofuran	6,200*	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1,000	710	ND	840	320	480	440	**6,800**	ND
Flourene	1,000	ND	ND	ND	ND	ND	ND	ND	670
Indeno(1,2,3-cd)pyrene**	0.04	**570**	ND	**390**	ND	ND	ND	**3,200**	**500**
Isophorone	4,400*	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	200	ND	ND	ND	**310**	ND	ND	**430**	**640**
Phenanthrene	1,000	620	ND	680	480	ND	ND	**2,400**	730
Pyrene	1,000	710	ND	780	300	510	440	**6,100**	590
Total SVOCs:	500,000	6,890	0	6,320	2,760	1,860	1,700	44,010	7,510
Total Carcinogenic PAHs:	25,000***	3,930	0	3,280	890	870	820	23,410	3,060
Percent Moisture	NA	23.00%	16.10%	18.70%	12.60%	23.00%	27.10%	16.30%	8.90%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---: No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: Total potentially carcinogenic PAH compounds in surface and subsurface soils (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

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SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-25 (0-1.5')	TE-YA-26 (0-2.5')	TE-YA-27(0-2.5')	TE-YA-28 (0-4')	TE-YA-30 (0-4')	TE-YA-31 (0-4')	TE-YA-32 (0-6')	TE-YA-33 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/29/00	3/29/00	3/30/00	3/30/00	3/30/00	3/29/00	3/29/00	3/31/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)							
2-Methylnaphthalene	36,400*	660	ND	ND	83,000	ND	290	ND	380
Acenaphthene	400	ND	ND	ND	7,800	ND	ND	ND	ND
Anthracene	1,000	1,900	ND	450	42,000	ND	ND	ND	480
Acenaphthylene	41,000*	1,200	390	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	0.04	3,900	730	1,100	12,000	310	ND	ND	750
Benzo(a)pyrene**	0.04	3,100	690	1,000	10,000	ND	ND	ND	630
Benzo(b)fluoranthene**	0.04	6,300	1,300	1,700	12,000	560	400	300	1,100
Benzo(g,h,i)perylene	0.04	2,500	560	780	5,300	ND	ND	ND	550
Benzo(k)fluoranthene**	0.04	2,000	ND	540	3,800	ND	ND	ND	470
Bis (2-ethylhexyl) phthalate	50,000*	1,900	660	ND	ND	ND	ND	ND	320
Carbazole	---	670	ND	320	2,200	ND	ND	ND	ND
Chrysene**	0.04	4,700	1,200	1,300	1,100	410	320	ND	950
Di-n-butyl Phthalate	8,100*	480	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
*Dibenzo(a,h)anthracene***	1,000	740	ND	ND	1,300	ND	ND	ND	ND
Dibenzofuran	6,200*	360	ND	ND	7,700	ND	ND	ND	ND
Fluoranthene	1,000	7,300	1,100	2,000	26,000	560	350	ND	1,200
Flourene	1,000	ND	ND	ND	11,000	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene**	0.04	2,900	630	900	6,200	ND	ND	ND	700
Isophorone	4,400*	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	200	650	ND	ND	ND	ND	290	ND	ND
Phenanthrene	1,000	2,500	750	1,400	42,000	450	420	ND	970
Pyrene	1,000	6,100	1,400	1,800	26,000	520	300	310	1,300
Total SVOCs:	500,000	49,860	9,410	13,290	299,400	2,810	2,370	610	9,800
Total Carcinogenic PAHs:	25,000***	23,640	4,550	6,540	46,400	1,280	720	300	4,600
Percent Moisture	NA	15.40%	22.90%	20.70%	12.90%	15.10%	4.30%	16.90%	9.30%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---: No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: Total potentially carcinogenic PAH compounds in surface and subsurface soils (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

Ta.

SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-34 (0-4')	TE-YA-35 (0-1.5')	TE-YA-36 (0-4')	TE-YA-37 (0-4')	TE-YA-38 (0-4')	TE-YA-39 (0-4')	YA-40 (0-4')	TE-YA-41 (0-4')	TE-YA-42 (0-3')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/30/00	3/30/00	3/30/00	3/28/00	3/28/00	3/28/00	4/12/00	4/12/00	4/7/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)								
2-Methylnaphthalene	**36,400***	ND	ND	ND	ND	ND	ND	530	710	470
Acenaphthene	**400**	ND	ND	ND	ND	ND	ND	ND	**720**	ND
Anthracene	**1,000**	ND	ND	ND	ND	ND	ND	320	890	590
Acenaphthylene	**41,000***	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	**0.04**	ND	**510**	ND	ND	ND	ND	**600**	**3,800**	**1,400**
Benzo(a)pyrene**	**0.04**	ND	**510**	ND	ND	ND	ND	**520**	**3,400**	**1,200**
Benzo(b)fluoranthene**	**0.04**	**590**	**1,600**	ND	**300**	ND	ND	**1,100**	**5,300**	**2,200**
Benzo(g,h,i)perylene	**0.04**	ND	**560**	ND	ND	ND	ND	**660**	**2,300**	**1,100**
Benzo(k)fluoranthene**	**0.04**	ND	**520**	ND	ND	ND	ND	**390**	**1,700**	**720**
Bis (2-ethylhexyl) phthalate	**50,000***	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	**---**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene**	**0.04**	**360**	**890**	ND	ND	ND	ND	**820**	**3,500**	**1,700**
Di-n-butyl Phthalate	**8,100***	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	***50,000****	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	**1,000**	ND	ND	ND	ND	ND	ND	ND	610	350
Dibenzofuran	**6,200***	ND	ND	ND	ND	ND	ND	ND	350	ND
Fluoranthene	**1,000**	330	640	ND	ND	ND	ND	**1,100**	**5,000**	**3,100**
Flourene	**1,000**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene**	**0.04**	**310**	**710**	ND	ND	ND	ND	**680**	**2,700**	**1,100**
Isophorone	**4,400***	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	**200**	ND	ND	ND	ND	ND	ND	**450**	**570**	**380**
Phenanthrene	**1,000**	ND	320	ND	ND	ND	ND	900	**1,400**	**1,900**
Pyrene	**1,000**	330	620	ND	ND	ND	ND	980	**5,600**	**2,600**
Total SVOCs:	500,000	1,920	6,880	0	300	0	0	9,050	38,550	18,810
Total Carcinogenic PAHs:	25,000***	1,260	4,740	0	300	0	0	4,110	21,010	8,670
Percent Moisture	NA	5.80%	7.40%	11.00%	11.50%	14.20%	12.10%	14.60%	14.40%	18.40%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---': No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: *Total potentially carcinogenic PAH compounds in surface and subsurface soils* (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

Tab.

SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-43 (0-4')	TE-YA-44 (0-4')	TE-YA-45 (0-4')	TE-YA-46 (0-4')	TE-YA-47(0-4')	TE-YA-48 (0-3.6')	TE-YA-49 (0-1')	TE-YA-50 (0-2')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/7/00	4/7/00	4/11/00	4/11/00	4/11/00	4/11/00	4/11/00	4/11/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)							
2-Methylnaphthalene	36,400*	ND	1,700	320	ND	ND	ND	1,400	1,300
Acenaphthene	400	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	1,000	740	ND	ND	330	ND	ND	360	470
Acenaphthylene	41,000*	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	0.04	**2,100**	**470**	**530**	**590**	ND	ND	**560**	**720**
Benzo(a)pyrene**	0.04	**1,800**	**400**	**380**	**540**	ND	ND	**490**	**540**
Benzo(b)fluoranthene**	0.04	**2,500**	**950**	**970**	**1,100**	ND	ND	**1,200**	**1,400**
Benzo(g,h,i)perylene	0.04	**1,300**	**490**	**350**	**480**	ND	ND	**500**	**630**
Benzo(k)fluoranthene**	0.04	**800**	**310**	ND	**350**	ND	ND	**340**	**450**
Bis (2-ethylhexyl) phthalate	50,000*	ND	ND	ND	ND	ND	2,000	380	480
Carbazole	---	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene**	0.04	**2,100**	**720**	**800**	**630**	ND	ND	**860**	**1,100**
Di-n-butyl Phthalate	8,100*	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	1,000	330	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	6,200*	ND	ND	ND	ND	ND	ND	ND	550
Fluoranthene	1,000	**4,100**	730	870	620	ND	ND	860	**1,500**
Flourene	1,000	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene**	0.04	**1,400**	**570**	**380**	**560**	ND	ND	**570**	**720**
Isophorone	4,400*	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	200	ND	**590**	ND	ND	ND	ND	**940**	**1,000**
Phenanthrene	1,000	**2,600**	950	710	290	ND	ND	**1,100**	**1,600**
Pyrene	1,000	**3,900**	810	780	650	ND	ND	730	**1,100**
Total SVOCs:	500,000	23,670	8,690	6,090	6,140	0	2,000	10,290	13,560
Total Carcinogenic PAHs:	25,000***	11,030	3,420	3,060	3,770	0	0	4,020	4,930
Percent Moisture	NA	11.30%	18.10%	16.00%	15.00%	13.80%	16.80%	28.50%	18.30%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---: No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: Total potentially carcinogenic PAH compounds in surface and subsurface soils (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

Table

SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-51 (5-9')	TE-YA-51(0-5')	TE-YA-52 (1-4.5')	TE-YA-52 (4.5-8.5')	TE-YA-53 (0.5-4.5')	TE-YA-53 (4.5-8.5')	TE-YA-54 (0.5-3')	TE-YA-55 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/7/00	4/7/00	4/7/00	4/10/00	4/10/00	4/10/00	4/10/00	4/11/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)							
2-Methylnaphthalene	36,400*	ND	630	2,200	12,000	1,300	3,500	430	610
Acenaphthene	400	ND	**950**	ND	**870**	**470**	**740**	ND	ND
Anthracene	1,000	ND	**1,100**	350	490	600	360	ND	490
Acenaphthylene	41,000*	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	0.04	ND	**2,000**	**300**	**280**	**520**	ND	**400**	**600**
Benzo(a)pyrene**	0.04	ND	**1,900**	**290**	ND	**490**	ND	**390**	**570**
Benzo(b)fluoranthene**	0.04	**300**	**3,600**	**770**	ND	**1,200**	**310**	**560**	**1,100**
Benzo(g,h,i)perylene	0.04	ND	**1,900**	**350**	ND	**390**	ND	**410**	**550**
Benzo(k)fluoranthene**	0.04	ND	**1,200**	ND	ND	**390**	ND	ND	**350**
Bis (2-ethylhexyl) phthalate	50,000*	ND	300	400	ND	550	ND	ND	460
Carbazole	---	ND	300	ND	ND	ND	ND	ND	ND
Chrysene**	0.04	ND	**2,200**	**550**	ND	**960**	ND	**430**	**970**
Di-n-butyl Phthalate	8,100*	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	1,000	ND	500	ND	ND	ND	ND	ND	ND
Dibenzofuran	6,200*	ND	290	390	730	ND	380	ND	330
Fluoranthene	1,000	ND	**2,900**	570	1,000	**1,200**	660	830	**1,800**
Flourene	1,000	ND	ND	ND	**1,300**	450	790	ND	ND
Indeno(1,2,3-cd)pyrene**	0.04	ND	**2,200**	**400**	ND	**620**	ND	**360**	**610**
Isophorone	4,400*	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	200	ND	**480**	**630**	ND	**590**	**510**	**320**	**540**
Phenanthrene	1,000	ND	**1,100**	**1,200**	**3,700**	**1,200**	**1,600**	530	**1,100**
Pyrene	1,000	ND	**2,900**	900	930	**1,700**	1,000	740	**1,600**
Total SVOCs:	500,000	300	26,450	9,300	21,300	12,630	9,850	5,400	11,680
Total Carcinogenic PAHs:	25,000***	300	13,600	2,310	280	4,180	310	2,140	4,200
Percent Moisture	NA	15.40%	9.50%	8.50%	12.00%	12.20%	16.50%	12.20%	15.40%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---: No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: Total potentially carcinogenic PAH compounds in surface and subsurface soils (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

Tab.

SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-56 (0-1.5')	TE-YA-57 (0-4')	TE-YA-57 (4-8')	TE-YA-58 (0-4')	TE-YA-58 (4-8')	TE-YA-59 (0-3')	TE-YA-60 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/11/00	3/29/00	3/29/00	3/28/00	3/28/00	3/31/00	3/29/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)						
2-Methylnaphthalene	36,400*	350	ND	ND	ND	ND	ND	1,600
Acenaphthene	400	ND	ND	ND	ND	ND	ND	ND
Anthracene	1,000	ND	740	ND	440	ND	ND	ND
Acenaphthylene	41,000*	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	0.04	460	1,200	ND	960	ND	0	460
Benzo(a)pyrene**	0.04	560	1,100	ND	750	ND	310	350
Benzo(b)fluoranthene**	0.04	1,000	1,400	ND	1,900	ND	700	980
Benzo(g,h,i)perylene	0.04	440	700	ND	620	ND	290	400
Benzo(k)fluoranthene**	0.04	ND	750	ND	780	ND	310	300
Bis (2-ethylhexyl) phthalate	50,000*	ND	ND	ND	ND	ND	ND	ND
Carbazole	---	ND	410	ND	ND	ND	ND	ND
Chrysene**	0.04	820	1,200	ND	1,100	ND	610	700
Di-n-butyl Phthalate	8,100*	ND	550	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	50,000*	ND	ND	ND	1,100	ND	ND	ND
Dibenzo(a,h)anthracene**	1,000	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	6,200*	ND	ND	ND	ND	ND	ND	540
Fluoranthene	1,000	800	2,600	ND	1,100	ND	430	730
Flourene	1,000	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene**	0.04	390	750	ND	760	ND	360	430
Isophorone	4,400*	ND	ND	ND	480	ND	ND	ND
Naphthalene	200	ND	ND	ND	ND	ND	ND	1,300
Phenanthrene	1,000	560	2,600	ND	580	ND	390	1,100
Pyrene	1,000	650	2,700	ND	1,300	ND	450	640
Total SVOCs:	500,000	6,030	16,700	0	11,870	0	3,850	9,530
Total Carcinogenic PAHs:	25,000***	3,230	6,400	0	6,250	0	2,290	3,220
Percent Moisture	NA	28.40%	9.90%	9.39%	11.70%	11.60%	9.10%	6.80%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.
PAH = Polynuclear Aromatic Hydrocarbon

Bold: Value exceeds guidance values or recommended soil cleanup objective.

Guidance values are the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.

*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective as per NYSDEC TAGM Memo #4046.

---': No guidance value provided in NYSDEC STARS Memo #1 or TAGM Memo #4046.

**: Potentially carcinogenic PAH compound, as listed in NYSDEC TAGM Memo #4046.

***: *Total potentially carcinogenic PAH compounds in surface and subsurface soils* (site-specific soil cleanup objective as per March 1998 NYSDEC Revised ROD for OU-1 of Sunnyside Yard).

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SUMMARY OF SOIL SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-1(0-4')	TE-YA-2 (0-4')	TE-YA-3 (0-4')	TE-YA-4 (0-4')	TE-YA-5 (0-4')	TE-YA-6 (0-4')	TE-YA-7 (0-4')	TE-YA-8 (0-1.5')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/7/00	4/7/00	4/13/00	4/12/00	4/12/00	4/12/00	4/12/00	4/12/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/Kg)							
2-Methylnaphthalene	**36,400***	ND	ND	ND	520	ND	360	600	570
Acenaphthene	400	ND	ND	ND	300	ND	ND	ND	ND
Anthracene	1,000	ND	ND	ND	490	800	ND	640	ND
Acenaphthylene	**41,000***	ND	ND	ND	ND	ND	ND	370	ND
Benzo(a)anthracene**	0.04	ND	**300**	**900**	**1,100**	**2,000**	**280**	**1,300**	ND
Benzo(a)pyrene**	0.04	ND	**350**	**760**	**1,000**	**1,900**	ND	**1,200**	ND
Benzo(b)fluoranthene**	0.04	**360**	**530**	**1,000**	**1,700**	**2,700**	**560**	**2,100**	**360**
Benzo(g,h,i)perylene	0.04	ND	**370**	**430**	**830**	**1,400**	**300**	**1,100**	ND
Benzo(k)fluoranthene**	0.04	ND	ND	**410**	**580**	**930**	ND	**760**	ND
Bis (2-ethylhexyl) phthalate	**50,000***	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	**---**	ND	ND	ND	ND	370	ND	ND	ND
Chrysene	0.04	**270**	**350**	**900**	**1,300**	**2,000**	**430**	**1,500**	ND
Di-n-butyl Phthalate	**8,100***	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	**50,000***	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	1,000	ND	ND	ND	ND	350	ND	290	ND
Dibenzofuran	**6,200***	ND	ND	ND	ND	300	ND	480	ND
Fluoranthene	1,000	310	520	**1,300**	**1,800**	**4,100**	500	**2,400**	ND
Flourene	1,000	ND	ND	ND	ND	340	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.04	ND	**350**	**500**	**920**	**1,500**	**300**	**1,200**	ND
Isophorone**	**4,400***	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	200	ND	ND	ND	**380**	ND	**300**	**720**	ND
Phenanthrene	1,000	270	440	370	**1,400**	**3,500**	510	**1,800**	280
Pyrene	1,000	360	480	**1,400**	**1,800**	**3,600**	420	**2,200**	ND
Total SVOCs:	500,000	1,570	3,690	7,970	14,120	25,790	3,960	18,660	1,210
Total Carcinogenic SVOCs:	**10,000*****	360	1,180	3,070	4,380	7,880	840	5,650	360
Percent Moisture	NA	5.80%	5.20%	10.70%	13.50%	12.50%	9.40%	16.60%	8.70%

Samples analyzed for TCL SVOCs by EPA Method 8270B.
All data is in parts per billion (ppb) - micrograms per kilogram (ug/kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
SVOCs = Semivolatile organic compounds
NA = Not available
ND = Not detected.

Bold: Value exceeds guidance values or recommended soil cleanup objective.
Guidance values are from the NYSDEC STARS Memo #1 TCLP Alternative Guidance Values.
*: No NYSDEC STARS Memo #1 guidance value provided. The value shown is the NYSDEC recommended soil cleanup objective per NYSDEC TAGM #4046.
---: No guidance value provided in NYSDEC STARS Memo #1 or TAGM #4046.
**: Carcinogenic compound, as listed in TAGM HWR 92-4046 Determination of Soil Cleanup Objectives and Cleanup Levels Jan. 24, 1994
***: Total potentially carcinogenic compounds in surface and subsurface soils (site-specific values as per 1997 NYSDEC ROD for OU-1 of Sunnyside Yard).

Table 6 (SVOCs)
1/30/02

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SUMMARY OF SOIL SAMPLE RESULTS FOR PCBs

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification				TE-YA-30 (0-4')	TE-YA-31 (0-4')	TE-YA-32 (0-6')	TE-YA-33 (0-4')	TE-YA-34 (0-4')
Matrix				Soil	Soil	Soil	Soil	Soil
Sample Date				3/30/00	3/29/00	3/29/00	3/31/00	3/30/00
Compound	Guidance Value (ug/Kg) Surface*	Guidance Value (ug/Kg) Subsurface*	NYSDEC Site-specific Cleanup Criteria (ug/Kg)+ Surface and Subsurface	Concentration (ppb or ug/Kg)				
Aroclor 1016	NA	NA	NA	ND	ND	ND	ND	ND
Aroclor 1221	NA	NA	NA	ND	ND	ND	ND	ND
Aroclor 1232	NA	NA	NA	ND	ND	ND	ND	ND
Aroclor 1242	NA	NA	NA	ND	ND	ND	ND	ND
Aroclor 1248	NA	NA	NA	ND	ND	ND	ND	ND
Aroclor 1254	NA	NA	NA	ND	ND	ND	ND	ND
Aroclor 1260	NA	NA	NA	ND	32	46	420	120
TOTAL PCBs	1,000	10,000	25,000	ND	32	46	420	120

Samples analyzed for PCBs by EPA Method 8082.
Guidance values are the NYSDEC TAGM4046 Recommended Cleanup
Objectives for both subsurface and surface soils.
NYSDEC site-specific cleanup criteria are from the 1997 Record of Decision
for adjacent Inactive Hazardous Waste Site (Amtrak Sunnyside Yard).
* Depth of sample interval determines the appropriate guidance value.
All data is in parts per billion (ppb) - micrograms per Kilogram (ug/Kg).
Only those compounds that were detected are shown.
PCBs = Polychlorinated biphenyls
NA = Not available
ND = Not detected
\+ Site-specific values as per 1997 NYSDEC ROD for OU-1 of Sunnyside Yard for
total PCBs is 25,000 ppb for both surface and subsurface soils.

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SUMMARY OF SOIL SAMPLE RESULTS FOR PCBs

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification				TE-YA-35 (0-1.5')	TE-YA-36 (0-4')	TE-YA-37 (0-4')	TE-YA-38 (0-4')	TE-YA-39 (0-4')	TE-YA-57 (0-4')
Matrix				Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				3/30/00	3/30/00	3/28/00	3/28/00	3/28/00	3/29/00
Compound	Guidance Value (ug/Kg) Surface*	Guidance Value (ug/Kg) Subsurface*	NYSDEC Site-specific Cleanup Criteria (ug/Kg)+ Surface and Subsurface	Concentration (ppb or ug/Kg)					
Aroclor 1016	NA	NA	NA	ND	ND	ND	ND	ND	ND
Aroclor 1221	NA	NA	NA	ND	ND	ND	ND	ND	ND
Aroclor 1232	NA	NA	NA	ND	ND	ND	ND	ND	ND
Aroclor 1242	NA	NA	NA	ND	ND	ND	ND	ND	ND
Aroclor 1248	NA	NA	NA	ND	ND	ND	ND	ND	ND
Aroclor 1254	NA	NA	NA	330	270	ND	ND	ND	ND
Aroclor 1260	NA	NA	NA	210	210	120	84	120	ND
TOTAL PCBs	1,000	10,000	25,000	540	480	120	84	120	ND

Samples analyzed for PCBs by EPA Method 8082.
Guidance values are the NYSDEC TAGM4046 Recommended Cleanup Objectives for both subsurface and surface soils.
NYSDEC site-specific cleanup criteria are from the 1997 Record of Decision for adjacent Inactive Hazardous Waste Site (Amtrak Sunnyside Yard).
* Depth of sample interval determines the appropriate guidance value.
All data is in parts per billion (ppb) - micrograms per Kilogram (ug/Kg).
Only those compounds that were detected are shown.
PCBs = Polychlorinated biphenyls
NA = Not available
ND = Not detected
+ Site-specific values as per 1997 NYSDEC ROD for OU-1 of Sunnyside Yard for total PCBs is 25,000 ppb for both surface and subsurface soils.

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SUMMARY OF SOIL SAMPLE RESULTS FOR PCBs

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification				TE-YA-57 (4-8')	TE-YA-58 (0-4')	TE-YA-58 (4-8')	TE-YA-58 (4-8')	TE-YA-59 (0-3')	TE-YA-60 (0-4')
Matrix				Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				3/29/00	3/28/00	3/28/00	3/28/00	3/31/00	3/29/00
Compound	Guidance Value (ug/Kg) Surface*	Guidance Value (ug/Kg) Subsurface*	NYSDEC Site-specific Cleanup Criteria (ug/Kg)+ Surface and Subsurface	*Concentration (ppb or ug/Kg)*					
Aroclor 1016	**NA**	**NA**	**NA**	ND	ND	ND	ND	ND	ND
Aroclor 1221	**NA**	**NA**	**NA**	ND	ND	ND	ND	ND	ND
Aroclor 1232	**NA**	**NA**	**NA**	ND	ND	ND	ND	ND	ND
Aroclor 1242	**NA**	**NA**	**NA**	ND	ND	ND	ND	ND	ND
Aroclor 1248	**NA**	**NA**	**NA**	ND	ND	ND	ND	ND	ND
Aroclor 1254	**NA**	**NA**	**NA**	ND	ND	ND	ND	ND	ND
Aroclor 1260	**NA**	**NA**	**NA**	ND	ND	ND	ND	56	120
TOTAL PCBs	**1,000**	**10,000**	**25,000**	ND	ND	ND	ND	56	120

Samples analyzed for PCBs by EPA Method 8082.
Guidance values are the NYSDEC TAGM4046 Recommended Cleanup Objectives for both subsurface and surface soils.
NYSDEC site-specific cleanup criteria are from the 1997 Record of Decision for adjacent Inactive Hazardous Waste Site (Amtrak Sunnyside Yard).
* Depth of sample interval determines the appropriate guidance value.
All data is in parts per billion (ppb) - micrograms per Kilogram (ug/Kg).
Only those compounds that were detected are shown.
PCBs = Polychlorinated biphenyls
NA = Not available
ND = Not detected
\+ Site-specific values as per 1997 NYSDEC ROD for OU-1 of Sunnyside Yard for total PCBs is 25,000 ppb for both surface and subsurface soils.

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SUMMARY OF SOIL SAMPLE RESULTS FOR PESTICIDES

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-30 (0-4')	TE-YA-31 (0-4')	TE-YA-32 (0-6')	TE-YA-33 (0-4')	TE-YA-34 (0-4')	TE-YA-35 (0-1.5')	TE-YA-36 (0-4')	TE-YA-37 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/30/00	3/29/00	3/29/00	3/31/00	3/30/00	3/30/00	3/30/00	3/28/00
Compound	Regulatory Level (ppb)	Concentration (ppb or ug/Kg)							
4,4'-DDD	**2,900**	ND	ND	ND	9.0	ND	ND	ND	ND
4,4'-DDE	**2,100**	ND	ND	ND	9.0	ND	6.4	6.5	ND
4,4'-DDT	**2,100**	ND	12	11	55	ND	ND	ND	27
Aldrin	**41**	ND	ND	**77**	ND	ND	ND	ND	ND
alpha-BHC	**110**	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	**200**	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	**300**	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	**44**	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	**900**	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	**900**	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	**1,000**	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	**NA**	ND	ND	ND	ND	9.7	ND	15	ND
Endrin ketone	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	**60**	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	**540**	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Technical Chlordane	**540**	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Total Pesticides	10,000	0	12	88	73	9.7	6.4	21.5	27

Samples analyzed for TCL Pesticides by EPA Method 8081A.
Bold: Value exceeds the recommended
soil cleanup objective (NYSDEC TAGM #4046.)
All data is in parts per billion (ppb) - micrograms per kilogram (ug/Kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
NA = Not available
ND = Not detected

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SUMMARY OF SOIL SAMPLE RESULTS FOR PESTICIDES

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-38 (0-4')	TE-YA-39 (0-4')	TE-YA-57 (0-4')	TE-YA-57 (4-8')	TE-YA-58 (0-4')	TE-YA-58 (4-8')	TE-YA-59 (0-3')	TE-YA-60 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/28/00	3/28/00	3/29/00	3/29/00	3/28/00	3/28/00	3/31/00	3/29/00
Compound	Regulatory Level (ppb)	Concentration (ppb or ug/Kg)							
4,4'-DDD	**2,900**	ND	ND	ND	ND	20	ND	10	ND
4,4'-DDE	**2,100**	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	**2,100**	ND	20	61	ND	ND	ND	15	28
Aldrin	**41**	ND	ND	**640**	4.8	**170**	ND	ND	**98**
alpha-BHC	**110**	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	**200**	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	**300**	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	**44**	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	**900**	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	**900**	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	**1,000**	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	**60**	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	**540**	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Technical Chlordane	**540**	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Total Pesticides	10,000	0	20	701	4.8	190	0	25	126

Samples analyzed for TCL Pesticides by EPA Method 8081A.
Bold: Value exceeds the recommended
soil cleanup objective (NYSDEC TAGM #4046.)
All data is in parts per billion (ppb) - micrograms per kilogram (ug/Kg).
Only those compounds that were detected are shown.
TCL = Target Compound List
NA = Not available
ND = Not detected

Table 9

SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-1(0-4')	TE-YA-2 (0-4')	TE-YA-3 (0-4')	TE-YA-4 (0-4')	TE-YA-5 (0-4')	TE-YA-6 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/7/00	4/7/00	4/13/00	4/12/00	4/12/00	4/12/00
Metal	RCRA Regulatory Level (mg/L)	Concentration (ppm or mg/L)					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	ND	ND	ND	ND	ND	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity Characteristics.
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

Table 9

SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-7 (0-4')	TE-YA-8 (0-1.5')	TE-YA-9 (0-2.5')	TE-YA-10 (0-2.5')	TE-YA-11 (0-3.5')	TE-YA-12 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/12/00	4/12/00	4/12/00	4/12/00	4/12/00	4/12/00
Metal	**RCRA Regulatory Level (mg/L)**	**Concentration (ppm or mg/L)**					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	0.45	0.53	ND	ND	ND	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-13 (0-4')	TE-YA-14 (0-4')	TE-YA-15 (0-3')	TE-YA-16 (0-2')	TE-YA-17 (0-2.5)	TE-YA-18 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/12/00	4/13/00	4/12/00	4/12/00	4/13/00	4/12/00
Metal	RCRA Regulatory Level (mg/L)	Concentration (ppm or mg/L)					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	ND	ND	ND	ND	ND	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-19 (0-3.5')	TE-YA-20 (0-2.5')	TE-YA-21 (0-2.5')	TE-YA-22 (0-3')	TE-YA-23 (0-4')	TE-YA-24 (0-3.5)
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/12/00	4/13/00	4/13/00	4/13/00	4/13/00	4/13/00
Metal	**RCRA Regulatory Level (mg/L)**	**Concentration (ppm or mg/L)**					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	ND	ND	ND	ND	1.3	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-25 (0-1.5')	TE-YA-26 (0-2.5')	TE-YA-27 (0-2.5')	TE-YA-28 (0-4')	TE-YA-30 (0-4')	TE-YA-31 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/29/00	3/29/00	3/30/00	3/30/00	3/30/00	3/29/00
Metal	**RCRA Regulatory Level (mg/L)**	**Concentration (ppm or mg/L)**					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	ND	ND	ND	0.50	ND	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-32 (0-6')	TE-YA-33 (0-4')	TE-YA-34 (0-4')	TE-YA-35 (0-1.5')	TE-YA-36 (0-4')	TE-YA-37 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/29/00	3/31/00	3/30/00	3/30/00	3/30/00	3/28/00
Metal	**RCRA Regulatory Level (mg/L)**	**Concentration (ppm or mg/L)**					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	ND	ND	ND	ND	ND	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-38 (0-4')	TE-YA-39 (0-4')	TE-YA-40 (0-4')	TE-YA-42 (0-3')	TE-YA-43 (0-4')	TE-YA-44 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		3/28/00	3/28/00	4/12/00	4/7/00	4/7/00	4/7/00
Metal	RCRA Regulatory Level (mg/L)	Concentration (ppm or mg/L)					
Arsenic	5.0	ND	ND	ND	ND	ND	ND
Barium	100.0	ND	ND	ND	ND	ND	ND
Cadmium	1.0	ND	ND	ND	ND	ND	ND
Chromium	5.0	ND	ND	ND	ND	ND	ND
Lead	5.0	0.80	ND	ND	ND	ND	0.74
Mercury	0.2	ND	ND	ND	ND	ND	ND
Selenium	1.0	ND	ND	ND	ND	ND	ND
Silver	5.0	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-45 (0-4')	TE-YA-46 (0-4')	TE-YA-47(0-4')	TE-YA-48 (0-3.6')	TE-YA-49 (0-1')	TE-YA-50 (0-2')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/11/00	4/11/00	4/11/00	4/11/00	4/11/00	4/11/00
Metal	**RCRA Regulatory Level (mg/L)**	**Concentration (ppm or mg/L)**					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	0.14	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	ND	ND	ND	**84**	ND	0.33
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-51 (0-5')	TE-YA-51 (5-9')	TE-YA-52 (1-4.5')	TE-YA-52 (4.5-8.5')	TE-YA-53 (0.5-4.5')	TE-YA-53 (4.5-8.5')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/7/00	4/7/00	4/10/00	4/10/00	4/10/00	4/10/00
Metal	**RCRA Regulatory Level (mg/L)**	**Concentration (ppm or mg/L)**					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	1.3	ND	ND	ND	0.32	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	0.41	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-54 (0.5-3')	TE-YA-55 (0-4')	TE-YA-56 (0-1.5')	TE-YA-57 (0-4')	TE-YA-57 (4-8')	TE-YA-58 (0-4')
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		4/10/00	4/11/00	4/11/00	3/29/00	3/29/00	3/28/00
Metal	RCRA Regulatory Level (mg/L)	Concentration (ppm or mg/L)					
Arsenic	**5.0**	ND	ND	ND	ND	ND	ND
Barium	**100.0**	ND	ND	ND	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND	ND	ND	ND
Chromium	**5.0**	ND	ND	ND	ND	ND	ND
Lead	**5.0**	0.43	ND	ND	ND	ND	ND
Mercury	**0.2**	ND	ND	ND	ND	ND	ND
Selenium	**1.0**	ND	ND	ND	ND	ND	ND
Silver	**5.0**	ND	ND	ND	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

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SUMMARY OF SOIL SAMPLE RESULTS FOR TCLP METALS

EXISTING STORAGE YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-58 (4-8')	TE-YA-59 (0-3')	TE-YA-60 (0-4')
Matrix		Soil	Soil	Soil
Sample Date		3/28/00	3/31/00	3/29/00
Metal	RCRA Regulatory Level (mg/L)	Concentration (ppm or mg/L)		
Arsenic	**5.0**	ND	ND	ND
Barium	**100.0**	ND	ND	ND
Cadmium	**1.0**	ND	ND	ND
Chromium	**5.0**	ND	ND	ND
Lead	**5.0**	0.34	ND	ND
Mercury	**0.2**	ND	ND	ND
Selenium	**1.0**	ND	ND	ND
Silver	**5.0**	ND	ND	ND

Samples analyzed for TCLP Metals by EPA Method 1311/RCRA 6000+7000.
BOLD: Value exceeds EPA Hazardous Waste Regulatory Levels
Regulatory levels are the EPA Hazardous Waste Regulatory Levels for Toxicity C
All data is in parts per million (ppm) - milligrams per kilogram (mg/l).
Only those compounds that were detected are shown.
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected.

Table 10

WATER-LEVEL ELEVATIONS AND SEPARATE-PHASE PETROLEUM THICKNESS MEASUREMENTS
June 2000

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Well I.D. No.	*Site Study*	*Date*	*Elevation Top of Casing (feet)^*	*Depth to Water (ft-bmp)*	*Water Level Elevation (ft)^*	*Depth to Petroleum (ft-bmp)*	*Apparent Thickness (ft)*
Existing Monitoring Wells							
QB 106W	TE/Geotech	6/22/00	326.00	18.58	307.42	ND	ND
QB 117W	TE/Geotech	6/22/00	318.00	6.7	311.30	ND	ND
QB 124W	TE/Geotech	6/22/00	311.80	4.30	307.50	ND	ND
QB 126W	TE/Geotech	6/22/00	331.90	4.05	327.85	ND	ND
QB 128W	TE/Geotech	6/22/00	311.30	NA	NA	ND	ND
QB 129W	TE/Geotech	6/22/00	311.10	3.35	307.75	ND	ND
New Monitoring Wells							
TE-YA-MW-3D	TE/Environmental	6/22/00	312.45	5.23	307.22	ND	ND
TE-YA-MW-5D	TE/Environmental	6/22/00	310.28	4.72	305.56	ND	ND
TE-YA-MW-27S	TE/Environmental	6/22/00	316.65	2.52	314.13	ND	ND
TE-YA-MW-28S	TE/Environmental	6/22/00	317.01	2.63	314.45 *	2.55	0.08
TE-YA-MW-30S	TE/Environmental	6/22/00	318.84	3.77	315.07	ND	ND

NOTES
PVC: Schedule 40 polyvinyl chloride piping
TE: Tunnel Engineering Consultant
NGVD: National Geodetic Vertical Datum of 1929
Ft-bg: Feet below surface grade
Ft-bmp: Feet below measuring point (surveyed top of casing)
^300 feet added to NGVD for ESA project elevation
*Water table elevation corrected where product present
(corrected elevation = specific density of the product times the apparent thicknes + the uncorrected elevation).
Correction assumes density of 0.874 (the average specific density of yard petroleum samples).

Table 11

WATER-LEVEL ELEVATIONS AND SEPARATE-PHASE PETROLEUM THICKNESS MEASUREMENTS
April May 2000

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Well I.D. No.	Site Study	Date	Elevation Top of Casing (feet)^	Depth to Water (ft-bmp)	Water Level Elevation (ft)^	Depth to Petroleum (ft-bmp)	Petroleum Thickness (ft)
Existing Monitoring Wells							
QB 106W	TE/Geotech	5/16/00	326.00	18.9	307.10	ND	ND
QB 117W	TE/Geotech	5/16/00	318.00	11.9	306.10	ND	ND
QB 124W	TE/Geotech	5/17/00	311.80	4.74	307.06	ND	ND
QB 126W	TE/Geotech	5/18/00	331.90	4.49	327.41	ND	ND
QB 128W	TE/Geotech	5/18/00	311.30	4.90	306.40	ND	ND
QB 129W	TE/Geotech	5/17/00	311.10	3.69	307.41	ND	ND
New Monitoring Wells							
TE-YA-MW-3D	TE/Environmental	05/17/00	310.28	5.23	305.05	ND	ND
TE-YA-MW-5D	TE/Environmental	05/18/00	312.45	4.29	308.16	ND	ND
TE-YA-MW-27S	TE/Environmental	04/13/00	316.65	2.61	314.04	ND	ND
TE-YA-MW-28S	TE/Environmental	04/13/00	317.01	4.05	313.99 *	2.91	1.14
TE-YA-MW-30S	TE/Environmental	04/13/00	318.84	4.24	314.60	ND	ND

NOTES
PVC: Schedule 40 polyvinyl chloride piping
TE: Tunnel Engineering Consultant
NGVD: National Geodetic Vertical Datum of 1929
Ft-bg: Feet below surface grade
Ft-bmp: Feet below measuring point (surveyed top of casing)
^300 feet added to NGVD for ESA project elevation
*Water table elevation corrected where product present
(corrected elevation = specific density of the product times the apparent thicknes + the uncorrected elevation).
Correction assumes density of 0.874 (the average specific density of yard petroleum samples).

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SUMMARY OF GROUNDWATER
SAMPLE RESULTS FOR VOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-51 (11-13')	TE-YA-52 (9-11')	TE-YA-53 (8-12')	TE-YA-55 (4-8')	TE-YA-56 (2-4')	TE-YA-57 (7-9')	TE-YA-58 (8-10')
Matrix		Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Sample Date		4/7/00	4/10/00	4/10/00	4/11/00	4/11/00	3/29/00	3/28/00
Compound	NYSDEC Groundwater Standards and Guidance Values for Class GA Waters (ug/L)	**Concentration (ppb or ug/L)**						
Acetone	**50**	ND	24	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**5**	ND	ND	ND	ND	ND	ND	**7.9**
1,1-Dichloroethane	**5**	ND	ND	ND	ND	ND	ND	3.9
1,2,4-Trimethylbenzene	**5**	ND	**520**	**13**	ND	ND	ND	ND
1,3,5-Trimethylbenzene	**5**	ND	**63**	ND	ND	ND	ND	ND
cis-1,2 Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	**18**
Isopropylbenzene	**5**	ND	**18**	ND	ND	ND	ND	ND
Methylene Chloride	**5**	ND	ND	ND	ND	ND	ND	ND
MTBE	**50**	ND	ND	ND	ND	ND	ND	30
Napthalene	**10**	ND	7.5	9.5	ND	ND	ND	ND
n-Propylbenzene	**5**	ND	**31**	ND	ND	ND	ND	ND
sec-Butylbenzene	**5**	ND	**12**	ND	ND	ND	ND	ND
Toluene	**5**	ND	2.1	ND	ND	ND	ND	ND
Vinyl Chloride	**2**	ND	ND	ND	ND	ND	ND	**10**
Total VOCs		0	**677.6**	22.5	0	0	0	69.8

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds standard or guidance values.
NYSDEC GA groundwater quality standards/guidance values as
per T.O.G.S. 1.1.1, " Ambient Water Quality Standards
and Guidance Values and Groundwater Effluent Limitations," June 1998.
All data is in parts per billion (ppb) - milligrams per liter (ug/L).
Only those compounds that were detected are shown.
TCL = Target Compound List.
VOCs = Volatile organic compounds.
NA = Not available.
ND = Not detected.

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SUMMARY OF GROUNDWATER
SAMPLE RESULTS FOR VOLATILE ORGANIC COMPOUNDS
QUEENS CUT-AND-COVER TUNNELS
EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-MW-3D	TE-YA-MW-5D	QB 106W	QB 117W	QB 124W	QB 126W	QB 128W	QB 129W
Matrix		Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Sample Date		5/17/00	5/18/00	5/16/00	5/16/00	5/17/00	5/18/00	5/18/00	5/17/00
Compound	NYSDEC Groundwater Standards and Guidance Values for Class GA Waters (ug/L)	Concentration (ppb or ug/L)							
Acetone	50	ND	ND	**85**	17	ND	ND	ND	ND
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	NA	ND	ND	ND	710	ND	ND	ND	ND
cis-1,2 Dichloroethene	5	ND	2.2	ND	ND	ND	ND	ND	ND
Chloroform	7	ND	ND	**7.6**	3.1	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	50	ND	ND	ND	ND	2.9	ND	ND	ND
Naphthalene	10	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	**5.4**	ND	ND	ND	ND	ND	ND
Toluene	5	ND	ND	**29**	**150**	ND	ND	ND	ND
Trichloroethene	5	ND	**27**	ND	ND	**13**	**5.2**	ND	ND
Vinyl Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs:		0	34.6	121.6	880.1	15.9	5.2	0	0

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds standard or guidance values.
NYSDEC GA groundwater quality standards/guidance values as per T.O.G.S. 1.1.1, " Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations," June 1998.
All data is in parts per billion (ppb) - micrograms per liter (ug/L).
Only those compounds that were detected are shown.
TCL = Target Compound List.
VOCs = Volatile organic compounds.
NA = not available.
ND = Not detected.

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SUMMARY OF GROUNDWATER SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-51 (11-13')	TE-YA-52 (9-11')	TE-YA-53 (8-12')	TE-YA-55 (4-8')	TE-YA-56 (2-4')	TE-YA-57 (7-9')	TE-YA-58 (8-10')
Matrix		Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Sample Date		4/7/00	4/10/00	4/10/00	4/11/00	4/11/00	3/29/00	3/28/00
Compound	Guidance Value (ppb)	Concentration (ppb or ug/L)						
2-Methylnaphthalene	**NA**	ND	140	35	ND	35	ND	ND
Acenaphthene	**20**	ND	12	ND	ND	ND	ND	ND
Anthracene	**50**	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	**0.002**	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene**	**ND**	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene**	**0.002**	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	**NA**	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene**	**0.002**	ND	ND	ND	ND	ND	ND	ND
Bis (2-ethylhexyl) phthalate	**5**	ND	ND	ND	ND	ND	ND	ND
Carbazole	**NA**	ND	ND	ND	ND	ND	ND	ND
Chrysene	**0.002**	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl Phthalate	**50**	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	**NA**	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene**	**NA**	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	**NA**	ND	ND	ND	ND	ND	ND	ND
Flourene	**50**	ND	17	ND	ND	ND	ND	ND
Fluoranthene	**50**	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	**0.002**	ND	ND	ND	ND	ND	ND	ND
Isophorone	**50**	ND	ND	ND	ND	ND	ND	ND
Naphthalene	**10**	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	**50**	ND	33	ND	ND	ND	ND	ND
Pyrene	**50**	ND	ND	ND	ND	ND	ND	ND
Total SVOCs:		0	202	35	0	35	0	0

Samples analyzed for TCL SVOCs by EPA Method 8270B.
Bold: Value exceeds standard or guidance values.
All data is in parts per billion (ppb) - milligrams per liter (ug/L).
NYSDEC GA groundwater quality standards/guidance values as
per T.O.G.S. 1.1.1, " Ambient Water Quality Standards
and Guidance Values and Groundwater Effluent Limitations," June 1998.
Only those compounds that were detected are shown.
TCL = Target Compound List.
SVOCs = Semivolatile organic compounds.
ND = Not detected.
NA = Not available.

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SUMMARY OF GROUNDWATER SAMPLE RESULTS FOR SEMIVOLATILE ORGANIC COMPOUNDS
QUEENS CUT-AND-COVER TUNNELS
EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-MW-3D	TE-YA-MW-5D	QB 106W	QB 117W	QB 124W	QB 126W	QB 128W	QB 129W
Matrix		Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Sample Date		5/17/00	5/18/00	5/16/00	5/16/00	5/17/00	5/18/00	5/18/00	5/17/00
Compound	NYSDEC Groundwater Standards and Guidance Values for Class GA Waters (ug/L)	Concentration (ppb or ug/L)							
2-Methylnaphthalene	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	**20**	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	**50**	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene**	**0.002**	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene**	**ND**	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene**	**0.002**	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic Acid	**NA**	ND	ND	38	ND	ND	ND	ND	ND
Benzo(k)fluoranthene**	**0.002**	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-ethylhexyl) phthalate	**5**	**13**	**64**	**13**	**19**	ND	ND	**15**	ND
Carbazole	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	**0.002**	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl Phthalate	**50**	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
*Dibenzo(a,h)anthracene***	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	**NA**	ND	ND	ND	ND	ND	ND	ND	ND
Flourene	**50**	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	**50**	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	**0.002**	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	**50**	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	**10**	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	**50**	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	**1.0**	ND	ND	**65**	ND	ND	ND	ND	ND
Pyrene	**50**	ND	ND	ND	ND	ND	ND	ND	ND
Total SVOCs:		13	64	116	19	0	0	15	0

Samples analyzed for TCL VOCs by EPA Method 8260B.
Bold: Value exceeds standard or guidance values.
NYSDEC GA groundwater quality standards/guidance values as per T.O.G.S. 1.1.1, " Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations," June 1998.
All data is in parts per billion (ppb) - micrograms per liter (ug/L).
Only those compounds that were detected are shown.
TCL = Target Compound List.
VOCs = Volatile organic compounds.
NA = not available.
ND = Not detected.

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SUMMARY OF GROUNDWATER SAMPLE RESULTS FOR TAL METALS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-51 (11-13')	TE-YA-51 (11-13')	TW-YA-52 (9-11')	TW-YA-52 (9-11')	TW-YA-53 (8-12')	TW-YA-53 (8-12')	TW-YA-55 (4-8')
Matrix		AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
		UNFILTERED	FILTERED	UNFILTERED	FILTERED	UNFILTERED	FILTERED	UNFILTERED
Sample Date		4/7/00	4/7/00	4/10/00	4/10/00	4/10/00	4/10/00	4/11/00
Metal	***NYSDEC Groundwater Standards* and Guidance Values for Class GA Waters (ug/L)**	**Concentration (ppb or ug/L)**						
Aluminum	NA	ND	ND	4,000	ND	ND	350	ND
Antimony	3.0	ND	ND	ND	ND	ND	ND	ND
Arsenic	25.0	ND	ND	ND	ND	ND	ND	ND
Barium	1000	ND	ND	**1,200**	740	ND	ND	ND
Berrylium	3.0	ND	ND	ND	ND	ND	ND	ND
Cadmium	5.0	ND	ND	ND	ND	ND	ND	ND
Calcium	NA	95,000	90,000	98,000	89,000	65,000	64,000	41,000
Chromium	20	ND	ND	**24**	ND	ND	ND	ND
Cobalt	NA	ND	ND	ND	ND	ND	ND	ND
Copper	200	ND	ND	28	ND	ND	ND	ND
Iron	300	250	160	**100,000**	**81,000**	**60,000**	**30,000**	**450**
Lead	25.0	**7,900**	**7,600**	**130**	ND	ND	ND	ND
Magnesium	35,000	320	310	21,000	184,000	21,000	20,000	7,400
Manganese	300	ND	ND	**61,000**	**3,100**	**11,000**	**11,000**	130
Mercury	0.7	ND	ND	0.41	ND	ND	ND	ND
Nickel	100	ND	ND	55	ND	ND	ND	ND
Potassium	NA	5,400	5,200	5,300	4,500	6,400	6,500	6,300
Selenium	10.0	ND	ND	ND	ND	ND	ND	ND
Silver	50	ND	ND	ND	ND	ND	ND	ND
Sodium	20,000	**22,000**	**22,000**	**69,000**	**67,000**	**69,000**	**66,000**	**140,000**
Thallium	0.5	ND	ND	ND	ND	ND	ND	ND
Vanadium	NA	ND	ND	ND	ND	ND	ND	ND
Zinc	2,000	ND	ND	1,100	ND	ND	29	110

Samples analyzed for TAL Metals by EPA Method 6010
except for Mercury analyzed via EPA Method 7470.
Field filtered groundwater samples were done using a 0.45 micron
filter to obtain concentration of Dissolved Metals in groundwater.
Unfiltered groundwater samples werer analyzed to obtain Total Metals concentration.
Bold: Value exceeds standard or guidance values.
Standards are the NYSDEC GA groundwater quality standards
per T.O.G.S. 1.1.1, " Ambient Water Quality Standards
and Guidance Values and Groundwater Effluent Limitations," June 1998.
All data is in parts per billion (ppb) - micrograms per liter (ug/L).
TAL = Target Analyte List.
NA = Not available.
ND = Not detected.

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SUMMARY OF GROUNDWATER SAMPLE RESULTS FOR TAL METALS

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TW-YA-55 (4-8')	TW-YA-56 (2-4')	TW-YA-56 (2-4')	TW-YA-57 (7-9')	TW-YA-57 (7-9')	TE-YA-58 (8-10')	TE-YA-58 (8-10')
Matrix		AQUEOUS	AQUEOUS	AQUEOUS	AQEOUS;	AQEOUS;	AQEOUS;	AQEOUS;
		FILTERED	UNFILTERED	FILTERED	UNFILTERED	FILTERED	UNFILTERED	FILTERED
Sample Date		4/11/00	4/11/00	4/11/00	3/29/00	3/29/00	3/28/00	3/28/00
Metal	**NYSDEC Groundwater Standards and Guidance Values for Class GA Waters (ug/L)**	***Concentration (ppb or ug/L)***						
Aluminum	NA	ND	570	ND	ND	ND	3400	ND
Antimony	3.0	ND	ND	ND	ND	ND	ND	ND
Arsenic	25.0	ND	ND	ND	ND	ND	ND	ND
Barium	1000	ND	ND	ND	ND	ND	ND	ND
Berrylium	3.0	ND	ND	ND	ND	ND	ND	ND
Cadmium	5.0	ND	ND	ND	ND	ND	ND	ND
Calcium	NA	40,000	33,000	32,000	16,000	16,000	76,000	75,000
Chromium	20	ND	ND	ND	ND	ND	18	ND
Cobalt	NA	ND	ND	ND	ND	ND	ND	ND
Copper	200	ND	110	ND	ND	ND	40	ND
Iron	300	**310**	**2,700**	**1,100**	**320**	**370**	**14,000**	1,100
Lead	25.0	ND	**110**	ND	ND	ND	ND	ND
Magnesium	35,000	7,200	6,000	5,800	4,800	4,700	26,000	24,000
Manganese	300	120	**490**	**450**	120	110	840	700
Mercury	0.7	ND	ND	ND	ND	ND	ND	ND
Nickel	100	ND	ND	ND	ND	ND	ND	ND
Potassium	NA	6,100	5,600	5,600	2,700	2,800	4,900	4,200
Selenium	10.0	ND	ND	ND	ND	ND	ND	ND
Silver	50	ND	ND	ND	ND	ND	ND	ND
Sodium	20,000	**150,000**	**250,000**	**250,000**	18,000	18,000	**70,000**	**67,000**
Thallium	0.5	ND	ND	ND	ND	ND	ND	ND
Vanadium	NA	ND	ND	ND	ND	ND	ND	ND
Zinc	2,000	110	100	64	300	280	75	28

Samples analyzed for TAL Metals by EPA Method 6010
except for Mercury analyzed via EPA Method 7470.
Field filtered groundwater samples were done using a 0.45 micron
filter to obtain concentration of Dissolved Metals in groundwater.
Unfiltered groundwater samples werer analyzed to obtain Total Metals concentration.
Bold: Value exceeds standard or guidance values.
Standards are the NYSDEC GA groundwater quality standards
per T.O.G.S. 1.1.1, " Ambient Water Quality Standards
and Guidance Values and Groundwater Effluent Limitations," June 1998.
All data is in parts per billion (ppb) - micrograms per liter (ug/L).
TAL = Target Analyte List.
NA = Not available.
ND = Not detected.

Tab... ..

SUMMARY OF GROUNDWATER SAMPLE RESULTS FOR TAL METALS
QUEENS CUT-AND-COVER TUNNELS
EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		TE-YA-MW-3D	TE-YA-MW-3D	TE-YA-MW-5D	TE-YA-MW-5D	QB 117W	QB 117W	QB 124W
Matrix		AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
		UNFILTERED	FILTERED	UNFILTERED	FILTERED	UNFILTERED	FILTERED	UNFILTERED
Sample Date		5/17/00	5/17/00	5/18/00	5/18/00	5/16/00	5/16/00	5/17/00
Metal	NYSDEC Groundwater Standards and Guidance Values for Class GA Waters (ug/L)	Concentration (ppb or ug/L)						
Aluminum	NA	610	ND	ND	ND	560	ND	1,400
Antimony	3.0	ND	ND	ND	ND	ND	ND	ND
Arsenic	25.0	ND	ND	ND	ND	ND	ND	ND
Barium	1,000	ND	ND	ND	ND	ND	ND	ND
Berrylium	3.0	ND	ND	ND	ND	ND	ND	ND
Cadmium	5.0	ND	ND	ND	ND	ND	ND	ND
Calcium	NA	38,000	36,000	67,000	69,000	120,000	110,000	65,000
Chromium	20	ND	ND	**270**	**290**	ND	ND	ND
Cobalt	NA	ND	ND	ND	ND	ND	ND	ND
Copper	200	ND	ND	ND	ND	ND	ND	ND
Iron	300	**1,200**	ND	**500**	ND	**730**	ND	**2,000**
Lead	25.0	ND	ND	ND	ND	ND	ND	ND
Magnesium	35,000	12,000	12,000	19,000	19,000	ND	ND	8,300
Manganese	300	180	140	160	120	27	ND	83
Mercury	0.7	ND	ND	ND	ND	ND	ND	ND
Nickel	100	ND	ND	ND	ND	ND	ND	ND
Potassium	NA	5,800	19,000	3,300	3,100	9,700	9,800	8,100
Selenium	10.0	ND	ND	ND	ND	ND	ND	ND
Silver	50	ND	ND	ND	ND	ND	ND	ND
Sodium	20,000	14,000	**47,000**	**110,000**	**110,000**	**45,000**	**44,000**	**110,000**
Thallium	0.5	ND	ND	ND	ND	ND	ND	ND
Vanadium	NA	ND	ND	ND	ND	ND	ND	ND
Zinc	2,000	ND	ND	ND	ND	27	ND	ND

Samples analyzed for TAL Metals by EPA Method 6010
except for Mercury analyzed via EPA Method 7470.
Field filtered groundwater samples were done using a 0.45 micron
filter to obtain concentration of Dissolved Metals in groundwater.
Unfiltered groundwater samples werer analyzed to obtain Total Metals concentration.
Bold: Value exceeds standard or guidance values.
Standards are the NYSDEC GA groundwater quality standards
per T.O.G.S. 1.1.1, " Ambient Water Quality Standards
and Guidance Values and Groundwater Effluent Limitations," June 1998.
All data is in parts per billion (ppb) - micrograms per liter (ug/L).
TAL = Target Analyte List.
NA - Not available.
ND = Not detected.

Tab.

SUMMARY OF GROUNDWATER SAMPLE RESULTS FOR TAL METALS
QUEENS CUT-AND-COVER TUNNELS
EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Boring Identification		QB 124W	QB 126W	QB 126W	QB 129W	QB 129W
Matrix		AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
		FILTERED	UNFILTERED	FILTERED	UNFILTERED	FILTERED
Sample Date		5/17/00	5/18/00	5/18/00	5/17/00	5/17/00
Metal	NYSDEC Groundwater Standards and Guidance Values for Class GA Waters (ug/L)	Concentration (ppb or ug/L)				
Aluminum	NA	ND	4,800	ND	46,000	ND
Antimony	3.0	ND	ND	ND	**46**	ND
Arsenic	25.0	ND	ND	ND	ND	ND
Barium	1,000	ND	230	ND	670	ND
Berrylium	3.0	ND	ND	ND	ND	ND
Cadmium	5.0	ND	ND	ND	ND	ND
Calcium	NA	50,000	83,000	67,000	58,000	34,000
Chromium	20	ND	**33**	ND	**150**	ND
Cobalt	NA	ND	ND	ND	ND	ND
Copper	200	ND	ND	ND	**310**	ND
Iron	300	ND	**27,000**	**8,000**	**100,000**	**2,000**
Lead	25.0	ND	ND	ND	530	ND
Magnesium	35,000	6,900	26,000	22,000	**41,000**	15,000
Manganese	300	27	**2,000**	**1,800**	**1,900**	**560**
Mercury	0.7	ND	ND	ND	**1.4**	ND
Nickel	100	ND	ND	ND	99	ND
Potassium	NA	5,300	4,500	3,200	7,600	7,200
Selenium	10.0	ND	ND	ND	ND	ND
Silver	50	ND	ND	ND	ND	ND
Sodium	20,000	13,000	**120,000**	**130,000**	**100,000**	**110,000**
Thallium	0.5	ND	ND	ND	ND	ND
Vanadium	NA	ND	ND	ND	140	ND
Zinc	2,000	ND	45	ND	680	23

Samples analyzed for TAL Metals by EPA Method 6010
except for Mercury analyzed via EPA Method 7470.
Field filtered groundwater samples were done using a 0.45 micron
filter to obtain concentration of Dissolved Metals in groundwater.
Unfiltered groundwater samples werer analyzed to obtain Total Metals concentration.
Bold: Value exceeds standard or guidance values.
Standards are the NYSDEC GA groundwater quality standards
per T.O.G.S. 1.1.1, " Ambient Water Quality Standards
and Guidance Values and Groundwater Effluent Limitations," June 1998.
All data is in parts per billion (ppb) - micrograms per liter (ug/L).
TAL = Target Analyte List.
NA - Not available.
ND = Not detected.

APPENDIX A

EAST SIDE ACCESS
GROUNDWATER OBSERVATION WELL READINGS

QUEENS CUT & COVER PROJECT

Boring No.	Location	Date	Groundwater Reading Prior to Development		Groundwater Reading After Development		Remarks
			Time	Depth (FT)	Time	Depth (FT)	
QB-135	Yard A	4/13/00	9:30 AM	5.3	10:30 AM	5.4	Gray Water During Development
QB-9	Yard A	4/13/00	9:10 AM	5.1	10:26 AM	5.2	Light Brown Water During Development
QB-14	Yard A	4/13/00	8:40 AM	4.5	10:20 AM	4.4	Light Brown Water During Development
QB-11	Yard A	4/13/00	10:00 AM	4.0	11:50 AM	3.9	Light Brown Water During Development
QB-126	Yard A	4/13/00	10:34 AM	4.4	11:55 AM	4.4	Light Brown Water During Development
QB-131	Yard A	4/13/00	NA	NA	NA	NA	Train Blocking Access To Monitoring Well
QB-132	Yard A	4/13/00	11:35 AM	4.4	12:10 PM	4.5	Light Brown Water During Development
QB-133	Yard A	4/13/00	10:53 AM	4.2	11:59 AM	4.3	Clear Water During Development
QB-8	Yard A	4/13/00	11:10 AM	3.8	12:05 PM	3.8	Brown Water During Development
QB-128	Yard A	4/13/00	12:15 PM	4.5	1:38 PM	16.4	Gray Water During Development
QB-124	Yard A	4/13/00	12:35 PM	4.3	1:41 PM	4.3	Clear Water During Development
QB-130	Yard A	4/13/00	12:46 PM	3.5	1:44 PM	3.5	Light Brown Water During Development
QB-125	Yard A	4/13/00	NA	NA	1:49 PM	5.7	Monitoring Well Previously Developed
QB-134	Yard A	4/13/00	1:06 PM	5.4	1:52 PM	5.4	Clear Water During Development
QB-127	Yard A	4/13/00	1:24 PM	4.6	2:00 PM	4.6	Clear Water During Development. Well Screen on Top
QB-123	Yard A	4/13/00	NA	NA	2:50 PM	4.1	Monitoring Well Previously Developed
QB-129	Yard A	4/13/00	NA	NA	3:30 PM	3.9	Monitoring Well Previously Developed
QB-5	Yard A	4/13/00	NA	NA	2:45 PM	4.8	Monitoring Well Previously Developed
QB-122	Yard A	4/13/00	2:29 PM	4.2	3:40 PM	4.3	Clear Water During Development
QB-120	Yard A	4/13/00	2:12 PM	2.7	3:34 PM	4.6	Clear Water During Development
QB-117	Parking Lot	4/13/00	3:45 PM	11.1	4:20 PM	11.2	Clear Water During Development

* Depths below ground surface

EAST SIDE ACCESS
GROUNDWATER OBSERVATION WELL READINGS

QUEENS CUT & COVER PROJECT

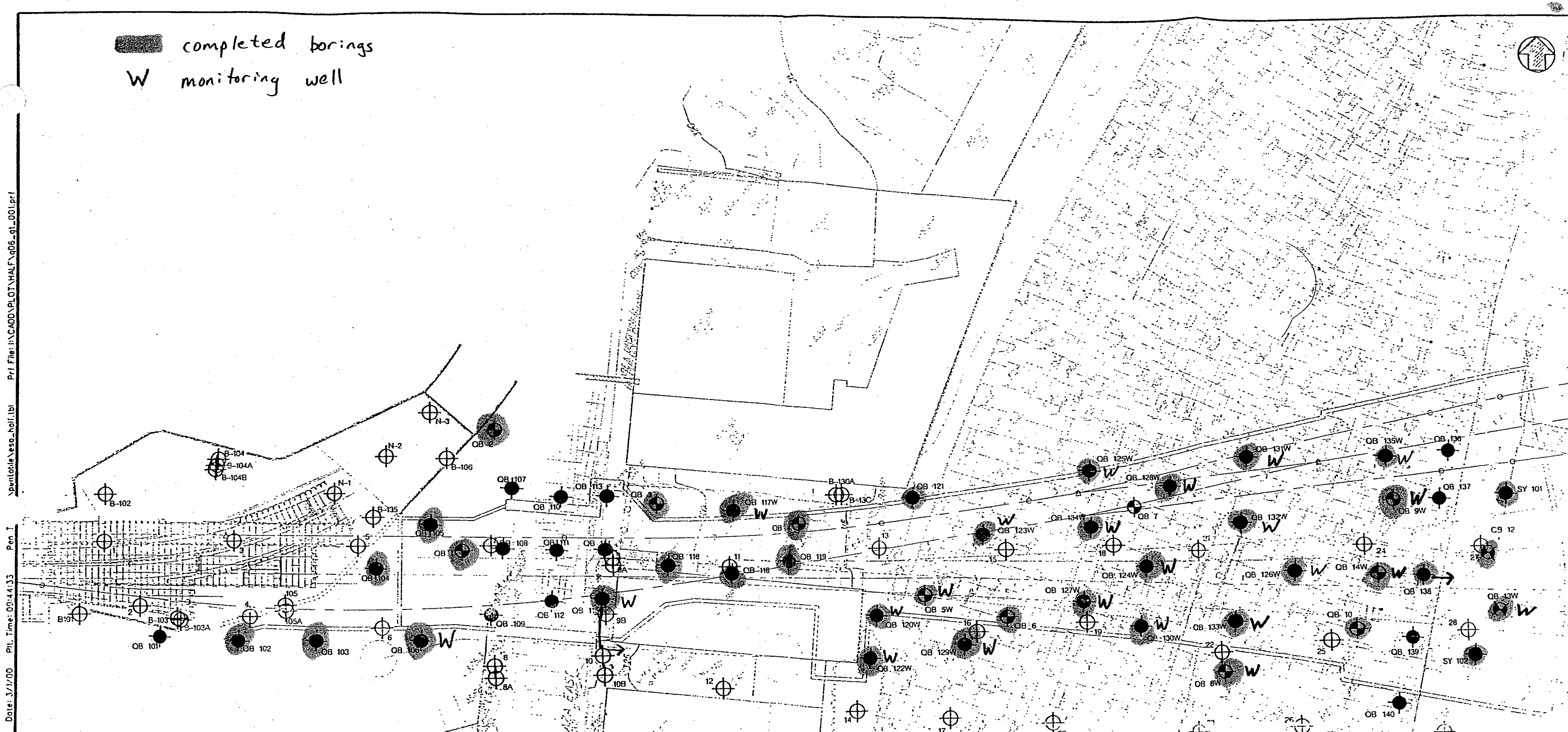
Boring No.	Location	Date	Groundwater Reading		Remarks
			Time	Depth (FT)	
QB-135w	Yard A	5/26/00	10:45 AM	4.7	
QB-9w	Yard A	5/26/00	10:50 AM	4.5	
QB-14w	Yard A	5/26/00	10:55 AM	3.8	
QB-11w	Yard A	5/26/00	11:00 AM	3.4	
QB-126w	Yard A	5/26/00	11:05 AM	3.9	
QB-131w	Yard A	5/26/00	NA	NA	Train parked on top of monitoring well.
QB-132w	Yard A	5/26/00	11:10 AM	3.8	
QB-133w	Yard A	5/26/00	11:15 AM	3.7	
QB-8w	Yard A	5/26/00	11:20 AM	3.1	
QB-128w	Yard A	5/26/00	11:25 AM	3.9	
QB-124w	Yard A	5/26/00	11:30 AM	3.7	
QB-130w	Yard A	5/26/00	11:35 AM	2.9	
QB-125w	Yard A	5/26/00	11:40 AM	5.1	
QB-134w	Yard A	5/26/00	11:45 AM	4.6	
QB-127w	Yard A	5/26/00	11:50 AM	2.7	
QB-123w	Yard A	5/26/00	11:55 AM	4.0	
QB-129w	Yard A	5/26/00	12:00 PM	3.3	
QB-5w	Yard A	5/26/00	12:05 PM	4.2	
QB-122w	Yard A	5/26/00	12:10 PM	4.3	
QB-120w	Yard A	5/26/00	12:15 PM	4.3	
QB-117w	MTA Parking Lot Alley	5/26/00	12:20 PM	11.0	
QB-115w	MTA Parking Lot	5/26/00	1:00 PM	11.7	
QB-106w	Laquila Construction	5/26/00	NA	NA	Car parked on top of monitoring well.

* *Depths below ground surface*

EAST SIDE ACCESS
GROUNDWATER OBSERVATION WELL READINGS

completed borings

W monitoring well



LEGEND:

- PROPOSED PHASE I, STAGE 2 TEST BORINGS
- PHASE I, STAGE 1 TEST BORINGS
- EXISTING BORINGS FROM PREVIOUS STUDIES (1994)
- W BORING NUMBER WITH A SUBSCRIPT "W" INDICATES OBSERVATION WELL.

NOTE:

Eighty-Nine of the as-drilled borehole locations have been field surveyed. Refer to Boring Summary Tables 1 & 2. Other borehole locations are approximate and their as-drilled locations will be surveyed at a later date.

SCALE IN FEET

40' 20' 0 40' 80'

Metropolitan Transportation Authority
Long Island Rail Road
East Side Access Project

A JOINT VENTURE BETWEEN: PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC AND STV INCORPORATED

KL

JT

LMH

CUT AND COVER BELLMOUTH STRUCTURE

BORING LOCATION PLAN

FIGURE 3

AS SHOWN

D06-GT-001

3-3-2000

6

CONCEP

1 of

Date: 3/1/00 Plt. Time: 09:44:33 Pen 1 \pentable\eso_half.tbl Prf File: I:\CADD\PLOT\HALF\q06_gt_001.prf

APPENDIX B

BORING #: **TE-YA-1**

PROJECT ID: **East Side Access - Yard A**	STV PROJECT NO.: 07-02184
LOCATION: West of Honeywell Street	
DRILLER: Lloyd Adams - ADT	GEOL./ENG.: Tamsyn Hunnewell
DRILLING METHOD: HAND AUGER	
SOIL SAMPLING METHOD: STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION: NA
DATE BORING INSTALLED: 4/7/00	
TOTAL DEPTH: 4 ft-bg	DEPTH TO WATER: NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Dark brown, fine to coarse SAND and SILT, some Gravel, few Cinders. (SP)	
2	0.0		100	Light brown, medium SAND. (SM)	SOIL SAMPLE TE-YA-1 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-2

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/7/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg	100	FILL - Dark brown, fine to coarse SAND and SILT, some Gravel. (SM)	
2				Brown to orange, fine to medium SAND and SILT. (SM)	SOIL SAMPLE TE-YA-2 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-3

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/13/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-2.5 ft-bg	100	FILL - Dark gray to black, medium to coarse SAND, some Gravel, trace Wood and Glass fragments. (SP)	SOIL SAMPLE TE-YA-3 (0-4')
2					
4				E. O. B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV

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One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-4

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	4 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg		FILL - Dark brown to black, fine to medium Sandy SILT, some Gravel, some Cobbles (0.5'-1'). Moist (SP)	
2	0.0		100		
				Brown, fine to med. SAND, little Silt, and trace Gravel. Saturated (at 4 ft-bg). (SP)	SOIL SAMPLE TE-YA-4 (0-4)
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-5

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Dark brown to black, Silty SAND, little Gravel, trace	
	0.0	0-4 ft-bg		Organics and Clay. Moist. (SC)	
2			100		
	0.0			Tan to brown, low plasticity, Silty CLAY, little Sand. Moist. (SC)	SOIL SAMPLE
	0.0			Tan to brown, fine to medium SAND, little Silt, trace Gravel. Moist. (SM)	TE-YA-5 (0-4)
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-6

PROJECT ID: East Side Access - Yard A		STV PROJECT NO.:	07-02184
LOCATION: West of Honeywell Street			
DRILLER: Lloyd Adams - ADT		GEOL./ENG. :	Brian Murtagh
DRILLING METHOD: HAND AUGER			
SOIL SAMPLING METHOD: STAINLESS STEEL HAND AUGER, 2" DIA.		ELEVATION:	NA
DATE BORING INSTALLED: 4/12/00			
TOTAL DEPTH: 4 ft-bg		DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Dark brown to black, fine to medium Sandy SILT, GRAVEL, and SLAG. Dry to moist. (SP)	
	0.0				
2			100		
	0.0			Brown, fine to medium SAND, little Silt, trace Gravel. Moist to wet. (SP)	SOIL SAMPLE TE-YA-6 (0-4)
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: **TE-YA-7**

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Dark brown to black, fine to medium Sandy SILT, little Gravel. (SP)	
	0.0			Fill described above with large COBBLES at 2 ft-bg. (SP)	
2			100	Fill described above with large Coal GRAVEL, trace Wood and Ash. (SP)	
				FILL - Dark brown to black Coal GRAVEL, some Silty SAND. Moist to wet. (SP)	(2) SOIL SAMPLES TE-YA-7 (4')
				FILL - Gray to black, fine to med. SAND, trace Gravel and Metal fragments.	TE-YA-7 (0-4')
4				E.O.B. @ 4 ft-bg Note: Slight petroleum/chemical odor detected from 3.5 to 4 ft-bg.	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-8

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	1.5 ft-bg	DEPTH TO WATER:	1.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Black, medium to very coarse SAND, trace to little	
	0.0	0-1.5 ft-bg	100	Gravel and Coal fragments. Dry. (SP)	SOIL SAMPLE
				GRAVEL and Sandy SILT. Saturated (at 1.5 ft-bg). (SP)	TE-YA-8 (0-1.5')
				E.O.B. @ 1.5 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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NEW YORK, NY 10119-0061

BORING #: TE-YA-9

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	2.5 ft-bg	DEPTH TO WATER:	2.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from		FILL - Black, Sandy SILT and GRAVEL (Slag, Coal and Ballast).	
		0-2.5 ft-bg		Moist to wet. (SP)	
	0.0		100	Same FILL as above with little brown to dark brown med. Sand and Gravel. (SP)	
				Brown to dark brown, medium to coarse SAND, some sub rounded	SOIL SAMPLE
2	0.0			Gravel and little Silt. Moist to wet. (SP)	TE-YA-9 (0-2.5')
				E.O.B. @ 2.5 ft-bg	
				Note: Saturated at 2.5 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: **TE-YA-10**

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	2.5 ft-bg	DEPTH TO WATER:	2.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Black, fine to very coarse SAND and GRAVEL, some Silt and	
		0-2.5 ft-bg		Cinders. Moist. (SP)	
	0.0		100		
					SOIL SAMPLE
2	0.0			Tan to brown-gray, medium to coarse SAND, some Gravel and trace Silt. (SP)	TE-YA-10 (0-2.5')
				E.O.B. @ 2.5 ft-bg	
				Note: Saturated at 2.5 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-11

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	3.5 ft-bg	DEPTH TO WATER:	3.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-3.5 ft-bg		FILL - Black, fine to very coarse SAND and SILT, little Gravel (Slag, Cinders, and Coal). Dry. (SP)	
	0.0		100	FILL - Black, fine to very coarse SAND, little Gravel (Slag, Cinders, and Coal), trace Silt. Dry. (SP)	
2	0.0				
				Brown to red-brown, medium to coarse SAND, some Gravel, little Silt, trace Cinder Gravel.Moist to wet. (SP)	SOIL SAMPLE TE-YA-11 (0-3.5')
				E.O.B. @ 3.5 ft-bg	
4				Note: Saturated at 3.5 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-12

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	3.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Black, fine to very coarse SAND and GRAVEL (Slag, Cinders, and Coal), some Ash. Moist. (SP)	
	0.0		100	FILL described above with trace brick fragments. (SP)	
2	0.0			Brown to red-brown, medium to coarse SAND, and GRAVEL, little to trace Silt. Moist to wet. (SP) Saturated (at 3.5 ft-bg).	SOIL SAMPLE TE-YA-12 (0-4')
4				E.O.B. @ 4 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-13

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Black, fine to very coarse SAND and GRAVEL (Slag, Cinders, and Coal), some Ash. Moist. (SP)	
	0.0		100		
2	0.0			Brown to dark brown medium to coarse SAND and GRAVEL, little to trace Silt. Moist. (SP)	SOIL SAMPLE TE-YA-13 (0-4')
4				E.O.B. @ 4 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: **TE-YA-14**

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/13/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	4 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg	100	FILL - Black, Sandy GRAVEL, little Silt, trace Slag and Ash. Dry to Moist. (SP)	
2	0.0			Tan to red-brown, fine to medium SAND, little to some Gravel (qtz, ss). (SP) Saturated (at 4 ft-bg).	SOIL SAMPLE TE-YA-14 (0-4')
4				E.O.B. @ 4 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-15

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	3 ft-bg	DEPTH TO WATER:	3 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-3 ft-bg		GRAVEL (6")	
	0.0		100	FILL - Dark brown to black Sandy GRAVEL, little to some Silt, and trace Ash. Moist. (SP)	
2	0.0			Tan to brown, medium to coarse SAND, little to some angular to sub rounded Gravel. Saturated (at 3 ft-bg). (SP)	SOIL SAMPLE TE-YA-15 (0-3')
				E.O.B. @ 3 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-16

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	2 ft-bg	DEPTH TO WATER:	2 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Black, Sandy SILT, some Gravel and little to some Silt.	
	0.0	0-2 ft-bg	100	Moist to dry. (SP)	
				Saturated (at 2 ft-bg).	SOIL SAMPLE TE-YA-16 (0-2')
2				E.O.B. @ 2 ft-bg	
				Note: Large cobbles encounterd at 2 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-17

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/13/00		
TOTAL DEPTH:	2.5 ft-bg	DEPTH TO WATER:	2.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Black, Sandy GRAVEL, little to some Silt. Moist. (SP)	
	0.0	0-2.5 ft-bg			
			100	Brown-tan to red-brown, medium to coarse SAND, little to trace	
				sub rounded Gravel. Moist. (SP)	SOIL SAMPLE
2	0.0			Saturated. (at 2.5 ft-bg)	TE-YA-17 (0-2.5')
				E.O.B. @ 2.5 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-18

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	2.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg	100	FILL - Gray to black, Sandy GRAVEL (Slag, Cinders), little brick fragments. (SP)	
2	0.0			Brown to brown-red medium to coarse SAND and Gravel, little Clay and Silt. Saturated (at 2.5 ft-bg). (GC)	SOIL SAMPLE TE-YA-18 (0-4')
4				E.O.B. @ 4 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-19

PROJECT ID: East Side Access - Yard A		STV PROJECT NO.:	07-02184
LOCATION: West of Honeywell Street			
DRILLER: Lloyd Adams - ADT		GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	3.5 ft-bg	DEPTH TO WATER:	3.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg	100	FILL - Black, fine to very coarse SAND and GRAVEL (Slag, Cinders), little to some Silt. Moist. (SP)	
2	0.0			Brown to red-brown, medium to coarse SAND, some Clay, trace Silt. Moist. (SC)	SOIL SAMPLE TE-YA-19 (0-4')
4				E.O.B. @ 3.5 ft-bg Note: Saturated at 3.5 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-21

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/13/00		
TOTAL DEPTH:	2.5 ft-bg	DEPTH TO WATER:	2.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Dark brown to black Silty SAND and GRAVEL. Moist. (SP)	
		0-2.5 ft-bg			
	0.0		100		
					SOIL SAMPLE
2				FILL described above with GRAVEL consisting primarily of Slag. (SP)	TE-YA-21 (0-2.5')
				E.O.B. @ 2.5 ft-bg	
				Note: Saturated at 2.5 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-22

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/13/00		
TOTAL DEPTH:	3 ft-bg	DEPTH TO WATER:	3 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-3 ft-bg	100	FILL - Black, fine to medium Sandy GRAVEL, little Silt, trace Coal Cobbles (at 1 ft-bg). Dry to moist. (SP)	
2	0.0			Dark brown to black Sandy GRAVEL, little Silt, trace Coal Gravel. Dry. (SP)	SOIL SAMPLE TE-YA-22 (0-3')
				E.O.B. @ 3 ft-bg	
4				Note: Saturated Sandy GRAVEL at 3 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-23

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/13/00		
TOTAL DEPTH:	4.2 ft-bg	DEPTH TO WATER:	4.2 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Black, fine Sandy SILT and GRAVEL. Moist. (SP)	
	0.0	0-4.2 ft-bg			
	0.0		100	FILL - Brown to black, fine Sandy SILT and GRAVEL, some Cobbles. Moist. (SP)	
2					
	0.0			Tan to brown SILT, little Clay (low plasticity) and trace fine Sand. Moist. (SC)	
				Tan-brown to gray SILT and fine SAND, trace to little Clay. Moist. (SC)	SOIL SAMPLE TE-YA-23 (0-4')
4				E.O.B. @ 4 ft-bg	
				Note: Saturated at 4.2 ft-bg.	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-24

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/13/00		
TOTAL DEPTH:	3.5 ft-bg	DEPTH TO WATER:	3.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-3.5 ft-bg	100	FILL - Dark brown to black, fine to coarse SAND and GRAVEL. Moist. (SP)	
2	0.0			Tan to red-brown, fine to medium SAND, trace Gravel (well sorted). Moist to wet. (SP)	SOIL SAMPLE TE-YA-24 (0-3.5')
				E.O.B. @ 3.5 ft-bg	
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SOIL BORING LOG

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BORING #: TE-YA-25

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/29/00		
TOTAL DEPTH:	1.5 ft-bg	DEPTH TO WATER:	1.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-1.5 ft-bg	100	FILL - Dark brown, fine to medium SAND and SILT, some Gravel and Cinders. Moist. Saturated (at 1.5 ft-bg). (SM)	(2) SOIL SAMPLES TE-YA-25 (1.5') TE-YA-25 (0-1.5')
				E.O.B. @ 1.5 ft-bg	
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SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-26

PROJECT ID: **East Side Access - Yard A**	STV PROJECT NO.: 07-02184
LOCATION: East of Honeywell Street	
DRILLER: Lloyd Adams - ADT	GEOL./ENG.: Tamsyn Hunnewell
DRILLING METHOD: HAND AUGER	
SOIL SAMPLING METHOD: STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION: NA
DATE BORING INSTALLED: 3/29/00	
TOTAL DEPTH: 2.5 ft-bg	DEPTH TO WATER: 2.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0 - 2.5 ft-bg	100	FILL - Dark brown, fine to medium SAND and SILT, some Gravel and Cinders. Moist. (SM)	(2) SOIL SAMPLES TE-YA-26 (2.5') TE-YA-26 (0-2.5')
2				Saturated (at 2.5 ft-bg).	
				E.O.B. @ 2.5 ft-bg	
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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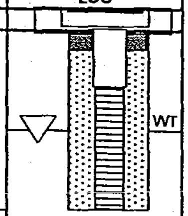
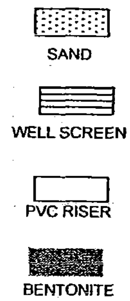
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-27/MW-27

PROJECT ID:	East Side Access - Yard A ESI	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street/Near West Door of Abandoned Locker Building		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/30/00		
TOTAL DEPTH:	4.5 ft-bg	DEPTH TO WATER:	2.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE	WELL CONST. LOG
0		Hand dug from 0-4.5 ft-bg		FILL: Dark brown, Fine to medium SAND and SILT, some pebbles (SW). Moist		
2	10.4		100	Wet. Odor and sheen evident at 2.5 feet	(2)SOIL SAMPLES TE-YA-27 (0-2.5') TE-YA-27 (2.5')	WT
4				Brown to gray, Silty CLAY (CL). Wet.		
				E.O.B. @ 4.5 ft-bg Screen = 3 feet, 10 slot PVC, 1 inch diameter Riser = 1.5 feet PVC, 1 inch diameter		
6						
8						
10						
12						
14						
16						
18						
20						
22						



SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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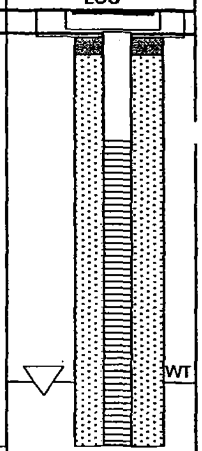
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-28/MW-28

PROJECT ID:	East Side Access - Yard A ESI	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street - East of Abandoned Locker Building		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA., and MACRO-CORE SAMPLER, 2 " DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/30/00		
TOTAL DEPTH:	9.5 ft-bg	DEPTH TO WATER:	8 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE
0		Hand dug from 0-4 ft-bg	100	FILL: Dark brown, Fine to coarse SAND and SILT (SM). Dry.	
2					(1) SOIL SAMPLE TE-YA-28 (3')
	168			Moist. Petroleum odors, staining and product.	(1) SOIL SAMPLE TE-YA-28 (0-4')
4	31.1	Macro-core Sampler manually driven from 4 - 8 ft-bg	63	FILL: Dark brown, Fine to coarse SAND and SILT, some cobbles. Moist. Petroleum odors and staining.	
6	66.6				(2) SOIL SAMPLES TE-YA-28 (4'-8') TE-YA-28 (8')
	70.4			Wet. Petroleum odors and staining.	
8	60.5				
	108				
10				E.O.B. @ 9.5 ft-bg	
12				Screen = 7 feet, 10 slot PVC, 1 inch diameter Riser = 2.5 feet PVC, 1 inch diameter	
14					
16					
18					
20					
22					

WELL CONST. LOG



SAND

WELL SCREEN

PVC RISER

BENTONITE

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH

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FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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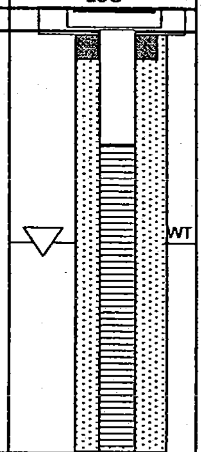
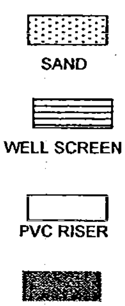
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-30/MW-30

PROJECT ID:	East Side Access - Yard A ESI	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street/North of the Abandoned Turntable		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/30/00		
TOTAL DEPTH:	10 ft-bg	DEPTH TO WATER:	5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE	WELL CONST. LOG
0		Hand dug from 0-10 ft-bg		FILL: Dark brown, fine to coarse SAND (SW). Moist No odors or stains.		
2	0.0		100			
4				Light brown, Silty-SAND (SM). Moist Wet at 5ft-bg. No odors or stains.	(2)SOIL SAMPLES TE-YA-30 (0-4') TE-YA-30 (5')	WT
6						
8						
10				E.O.B. @ 10 ft-bg		
12				Screen = 7 feet, 10 slot PVC, 1 inch diameter Riser = 3 feet PVC, 1 inch diameter		
14						
16						
18						
20						
22						





SOIL BORING LOG		PB/STV
DATE: 4/14/00	DRAWN BY: TH	One Penn Plaza
SCALE: NTS	APP'D BY: CV	NEW YORK, NY 10119-0061
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs		

BORING #: TE-YA-31

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/29/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0 - 4 ft-bg		FILL - Dark brown, fine to medium SAND, some Gravel (Coal, Slag). (SP)	
				Medium brown, fine to coarse SAND, Clay. (SC)	
2	0.0		100		(2) SOIL SAMPLES TE-YA-31 (4') TE-YA-31 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-32

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/29/00		
TOTAL DEPTH:	6 ft-bg	DEPTH TO WATER:	6 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0 - 4 ft-bg		FILL - Medium brown, fine to medium SAND and SILT. (SC)	
2	0.0		100		
4					SOIL SAMPLES TE-YA-32 (6') TE-YA-32 (0-6')
				Saturated (at 6 ft-bg).	
6				E.O.B. @ 6 ft-bg	
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-33

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/31/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		*Hand dug from 0-4 ft-bg*		FILL - Dark brown, fine to coarse SAND and SILT, some Gravel. (SP)	
2	0.0		100	Brown to orange, fine to coarse SAND and SILT, some Gravel. (SP)	SOIL SAMPLE TE-YA-33 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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NEW YORK, NY 10119-0061

BORING #: TE-YA-34

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/30/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0				Asphalt (2")	
		Hand dug from 0-4 ft-bg		FILL - Medium brown, fine to coarse SAND and SILT. (SM)	
2	0.0		100	Light brown, fine to coarse SAND and SILT. (SM)	
				Brown to orange, fine to coarse SAND and SILT. (SM)	SOIL SAMPLE TE-YA-34 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: **TE-YA-35**

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/30/00		
TOTAL DEPTH:	1.5 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0				Asphalt (2")	
	0.0	Hand dug from	100	FILL - Dark brown, fine to coarse SAND and SILT. (SM)	SOIL SAMPLE
		0-1.5 ft-bg		Fill - Light brown, fine to coarse SAND and SILT. (SM)	TE-YA-35 (0-1.5')
				E.O.B. @ 1.5 ft-bg	
2				Note: Two, approximately 0.5" cables encountered at 1.5 ft-bg.	
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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NEW YORK, NY 10119-0061

BORING #: TE-YA-36

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/30/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Dark brown, fine to coarse SAND and SILT. (SM)	
2	0.0		100	FILL - Light brown, fine to coarse SAND and SILT. (SM)	
				Light brown to gray, fine SAND and SILT. (SM)	SOIL SAMPLE TE-YA-36 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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NEW YORK, NY 10119-0061

BORING #: TE-YA-37

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/28/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0 - 4 ft-bg		FILL - Medium brown, fine to coarse SAND and SILT replace all trace Clay. (SM)	SOIL SAMPLE TE-YA-37 (1')
2	0.1		100		SOIL SAMPLE TE-YA-37 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-38

PROJECT ID: East Side Access - Yard A	STV PROJECT NO.: 07-02184
LOCATION: East of Honeywell Street	
DRILLER: Lloyd Adams - ADT	GEOL./ENG.: Tamsyn Hunnewell
DRILLING METHOD: HAND AUGER	
SOIL SAMPLING METHOD: STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION: NA
DATE BORING INSTALLED: 3/28/00	
TOTAL DEPTH: 4 ft-bg	DEPTH TO WATER: NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0 - 4 ft-bg		FILL - Medium brown, fine to coarse SAND and SILT. (SM)	SOIL SAMPLE TE-YA-38 (1')
2	0.0		100		
				Gray, fine SAND and SILT. (SM)	SOIL SAMPLE
				Brown to gray, medium CLAY. (CL)	TE-YA-38 (0-4')
4				E.O.B. @ 4 ft-bg NOTE: Light brown to gray, fine SAND and SILT encountered at 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-39

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/28/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0 - 4 ft-bg		FILL - Medium brown, fine to coarse SAND and SILT. (GM)	SOIL SAMPLE TE-YA-39 (1')
2	0.0		100	Light brown, fine to coarse SAND and SILT. (GM)	
				Light brown to gray, fine SAND and SILT. (SM)	SOIL SAMPLE TE-YA-39 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-40

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg		FILL - Dark brown to black, fine to very coarse Sandy GRAVEL, some Silt, trace Ash and Slag. Moist. (SP)	
2	0.0		100	FILL - Dark brown to black, fine to very coarse Sandy GRAVEL, some Silt, trace Ash, Slag, Glass and Brick. Moist. (SP)	SOIL SAMPLE TE-YA-40 (0-4)
4				E.O.B. @ 4 ft-bg Note: Cracked and deteriorating 4" PVC Piping encountered within an adjacent location at 1.5 ft-bg. Appears to be running east-west across the yard.	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-41

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/12/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Dark brown to black, fine to coarse SAND and GRAVEL,	
	1.6	0-4 ft-bg		little to some Silt, trace Ash and Slag. (SP)	
2			100		
	7.5				SOIL SAMPLE
				Brown, fine to medium SAND(well sorted), trace Gravel. (SM)	TE-YA-41 (0-4)
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-42

PROJECT ID: **East Side Access - Yard A**	STV PROJECT NO.: 07-02184
LOCATION: West of Honeywell Street	
DRILLER: Lloyd Adams - ADT	GEOL./ENG.: Tamsyn Hunnewell
DRILLING METHOD: HAND AUGER	
SOIL SAMPLING METHOD: STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION: NA
DATE BORING INSTALLED: 4/7/00	
TOTAL DEPTH: 3 ft-bg	DEPTH TO WATER: NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg	100	FILL - Dark brown, fine to coarse SAND and SILT, some Gravel. (SP)	
2				FILL - Light brown, fine to coarse SAND and SILT, few Gravel, Cobbles and Brick fragments. (SP)	SOIL SAMPLE TE-YA-42 (0-3')
				E.O.B. @ 3 ft-bg	
4				Note: Refusal at 3 ft-bg due to presence of solid rock.	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG DATE: 4/14/00 DRAWN BY: TH SCALE: NTS APP'D BY: CV FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs	PB/STV	**PB/STV** **One Penn Plaza** **NEW YORK, NY 10119-0061**

BORING #: **TE-YA-43**

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/7/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0				Gravel (2") (GW)	
		Hand dug from 0-4 ft-bg		FILL - Dark brown, fine to coarse SAND and SILT, some Gravel. (SP)	
2	0.0		100		
					SOIL SAMPLE TE-YA-43 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-44

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/7/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Dark brown, fine to coarse SAND and SILT, some Gravel, few Cinders. Dry. (SP)	
2	0.0		100		(2) SOIL SAMPLES TE-YA-44 (0-4') TE-YA-44 (4')
				Moist (at 4 ft-bg).	
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-45

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/11/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.7	Hand dug from 0-4 ft-bg	100	FILL - Brown to black, fine to coarse SAND, SILT and GRAVEL Moist. (SP)	
				FILL - Brown to black, fine to coarse SAND and GRAVEL some Silt. Moist. (SM)	
2	0.8				
	1.0			FILL - Dark gray and tan, fine to coarse SAND, some Cinders and Ash. Moist. (SM)	SOIL SAMPLE TE-YA-45 (0-4')
4				E.O.B. @ 4 ft-bg	
				Note: Marsh grass observed at 1 ft-bg.	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-46

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/11/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	3.8 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-4 ft-bg		FILL - Dark brown to black, fine to coarse SAND and SILT, some Gravel, Ash and Cinder. Moist. (SP)	
	0.0		100		
2				Brown to tan, fine to medium SAND, some Silt and trace Mica. Moist. (SM) Saturated (at 3.8 ft-bg).	SOIL SAMPLE TE-YA-46 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-47

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/11/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	3 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-4 ft-bg	100	FILL - Dark brown to black, fine to coarse SAND and angular to sub rounded GRAVEL, little to some Silt. Moist. (SP)	
2				FILL - Dark brown to black, fine to coarse SAND, angular to sub rounded GRAVEL and COBBLES. Saturated (at 3 ft-bg). (SP)	SOIL SAMPLE TE-YA-47 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-48

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/11/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	3.8 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0				FILL - Medium brown, Sandy GRAVEL. Moist. (SP)	
		Hand dug from 0-4 ft-bg		FILL - Dark brown to black Sandy GRAVEL (Slag), and ASH, trace to some Silt. Moist. (SP)	
	0.0		100		
2					
					SOIL SAMPLE
					TE-YA-48 (3.5')
	2.0			Gray, fine to medium SAND, little Gravel. Saturated (at 3.8 ft-bg). (SP)	TE-YA-48 (0-4')
4				E.O.B. @ 4 ft-bg	
				Note: Strong Petroleum Odors and Staining at 3.5 to 4.0 ft-bg.	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-49

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/11/00		
TOTAL DEPTH:	1 ft-bg	DEPTH TO WATER:	1.0 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from		FILL - Brown to black, Sandy GRAVEL (Slag), little to some	SOIL SAMPLE
	0.0	0-1 ft-bg	100	Silt. Saturated (at 1 ft-bg). (SP)	TE-YA-49 (0-1)
				E.O.B. @ 1 ft-bg	
2				Note: Petroleum sheen observed on water surface.	
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: **TE-YA-50**

PROJECT ID:	**East Side Access - Yard A**	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Brian Murtagh
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/11/00		
TOTAL DEPTH:	2 ft-bg	DEPTH TO WATER:	2.0 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-2 ft-bg	100	FILL - Brown to black, Sandy GRAVEL (Slag), and ASH, some Silt. Moist to wet. (SP) Saturated (at 2 ft-bg).	SOIL SAMPLE TE-YA-50 (0-2)
2				E.O.B. @ 2 ft-bg	
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-51

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	Geoprobe Direct Push		
SOIL SAMPLING METHOD:	Geoprobe Macro-Core, 2" DIA., 4" LGTH.	ELEVATION:	NA
DATE BORING INSTALLED:	4/7/00		
TOTAL DEPTH:	14 ft-bg	DEPTH TO WATER:	10 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-5 ft-bg		FILL - Medium brown, fine to coarse SAND and SILT, some Gravel. Dry. (SP)	
	0.0		100		
2					
4					SOIL SAMPLE TE-YA-51 (0-5')
6			100		
8	67.8 0.6				(2) SOIL SAMPLES TE-YA-51 (8.5') TE-YA-51 (5'-9')
				White, Crumbling and powdery CONCRETE (4.5"). Dry.	
	0.2			Medium brown, fine to coarse SAND and SILT, some Gravel. Saturated. (SP)	
10					GROUNDWATER SAMPLE TE-YA-51 (11'-13')
			100	Light brown, Silty SAND. Saturated (SM)	
				Gray SLATE. Dry.	
12				Gray SLATE, Saturated.	
				Medium brown, fine to medium SAND. Saturated. (SW)	
14				E.O.B. @ 14 ft-bg	
16					
18					
20					
22					

SOIL BORING LOG

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BORING #: **TE-YA-52**

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	Geoprobe Direct Push		
SOIL SAMPLING METHOD:	Geoprobe Macro-Core, 2" DIA., 4" LGTH.	ELEVATION:	NA
DATE BORING INSTALLED:	4/10/00		
TOTAL DEPTH:	8.5 ft-bg	DEPTH TO WATER:	8 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-5 ft-bg		Asphalt (6").	
				FILL - Dark brown, fine to coarse SAND and SILT, some Gravel. (SP)	
2	178		100		(2) SOIL SAMPLES TE-YA-52 (4') TE-YA-52 (1'-4.5')
4	142			Gray, Fine to medium SAND, Petroleum Odors and Staining. (SM)	
	542				SOIL SAMPLE TE-YA-52 (6.5')
6	334		50		
	191				SOIL SAMPLE TE-YA-52 (4.5'-8.5')
8	303			Saturated.	
				E.O.B. @ 8.5 ft-bg	
10					GROUNDWATER SAMPLE TE-YA-52 (9'-11')
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-53

PROJECT ID: East Side Access - Yard A	STV PROJECT NO.: 07-02184
LOCATION: West of Honeywell Street	
DRILLER: Lloyd Adams - ADT	GEOL./ENG.: Tamsyn Hunnewell
DRILLING METHOD: Geoprobe Direct Push	
SOIL SAMPLING METHOD: Geoprobe Macro-Core, 2" DIA., 4" LGTH.	ELEVATION: NA
DATE BORING INSTALLED: 4/10/00	
TOTAL DEPTH: 8.5 ft-bg	DEPTH TO WATER: 5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0				Asphalt (5").	
		Hand dug from 0-5 ft-bg		FILL - Dark brown, fine to coarse SAND and SILT, some Gravel. Petroleum odors. Moist. (SP)	
2	14.4		100		(2) SOIL SAMPLES TE-YA-53 (4.5') TE-YA-53 (0.5'-4.5')
4					
	22.4			Dark gray SAND and SILT, some stiff Clay. Moist.	SOIL SAMPLE TE-YA-53 (6')
	22.2				
6	22.4			Saturated (at 5 ft-bg). (SC)	
	10.1		75		
	5.4				
	3.2				SOIL SAMPLE
8	2.9				TE-YA-53 (4.5'-8.5')
				E.O.B. @ 8.5 ft-bg	
10					
					GROUNDWATER SAMPLE TE-YA-52 (8'-12')
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-54

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	4/10/00		
TOTAL DEPTH:	3 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0				Asphalt (6")	
		Hand dug from 0-3 ft-bg		FILL - Light brown, fine to coarse SAND and SILT, some Gravel and Cobbles. (SP)	
	0.0		100		
2					SOIL SAMPLE TE-YA-54 (0.5'-3')
				E.O.B.@ 3 ft-bg	
4				Note: PVC Pipe encountered at 3 ft-bg. Abandonned location.	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
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BORING #: TE-YA-55

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Brian Murtagh
DRILLING METHOD:	Geoprobe Direct Push		
SOIL SAMPLING METHOD:	Geoprobe Macro-Core, 2" DIA., 4" LGTH.	ELEVATION:	NA
DATE BORING INSTALLED:	4/11/00		
TOTAL DEPTH:	4 ft-bg	DEPTH TO WATER:	4 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0				Asphalt (4").	
	2.1	Hand dug from 0-5 ft-bg	100	FILL - Light brown, fine to medium SAND and SILT, some Gravel. Petroleum odors. (SP)	SOIL SAMPLE TE-YA-55 (2.5')
2				FILL - Dark brown, fine to medium SAND, some Cinders. *Slight Petroleum Odor.* (SM)	SOIL SAMPLE TE-YA-55 (0-4')
4				Saturated (at 4 ft-bg).	
				E.O.B. @ 4 ft-bg	
6					GROUNDWATER SAMPLE TE-YA-55 (4'-8')
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-56

PROJECT ID: East Side Access - Yard A	STV PROJECT NO.: 07-02184
LOCATION: West of Honeywell Street	
DRILLER: Lloyd Adams - ADT	GEOL./ENG.: Brian Murtagh
DRILLING METHOD: HAND AUGER	
SOIL SAMPLING METHOD: STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION: NA
DATE BORING INSTALLED: 4/11/00	
TOTAL DEPTH: 1.5 ft-bg	DEPTH TO WATER: 1.5 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0	Hand dug from 0-1.5 ft-bg	100	FILL - Fine to coarse SAND, some Silt and Gravel. (SP) Saturated (at 1.5 ft-bg).	SOIL SAMPLE TE-YA-56 (0-1.5')
				E.O.B. @ 1.5 ft-bg	
2					GROUNDWATER SAMPLE TE-YA-56 (2'-4')
4					
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-57

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	Geoprobe Direct Push		
SOIL SAMPLING METHOD:	Geoprobe Macro-Core, 2" DIA., 4" LGTH.	ELEVATION:	NA
DATE BORING INSTALLED:	3/29/00		
TOTAL DEPTH:	8 ft-bg	DEPTH TO WATER:	6 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0			FILL - Medium to dark brown, fine to coarse SAND, some Silt. Moist. (SM)	
		NA			
	0.0				
2	0.0		100	Light brown, fine to coarse SAND with some Silt, tract Clay. Moist. (SC)	
	0.0				SOIL SAMPLE TE-YA-57 (0-4')
4	0.0			Medium brown, fine to coarse SAND, some Silt. Moist (SM)	
	0.0				
6	0.0		100	Saturated at 6 ft-bg).	SOIL SAMPLE TE-YA-57 (6')
	0.0				SOIL SAMPLE TE-YA-57 (4'-8')
8				E.O.B. @ 8 ft-bg	
10					GROUNDWATER SAMPLE TE-YA-57 (7'-9')
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
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BORING #: TE-YA-58

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	Tamsyn Hunnewell
DRILLING METHOD:	Geoprobe Direct Push		
SOIL SAMPLING METHOD:	Geoprobe Macro-Core, 2" DIA., 4" LGTH.	ELEVATION:	NA
DATE BORING INSTALLED:	3/28/00		
TOTAL DEPTH:	8 ft-bg	DEPTH TO WATER:	6 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0			FILL - Medium brown, fine to coarse SAND and SILT. Moist. (GM)	
	0.0	NA			
2	0.0		100	Light brown, fine to coarse SAND and SILT. Dry. (GM)	
	0.0				(2) SOIL SAMPLES TE-YA-58 (4') TE-YA-58 (0-4')
4	0.0				
	0.0				
6	0.0		100	Light brown to orange, fine to coarse SAND and SILT. Saturated. (GM)	
	0.0				SOIL SAMPLE TE-YA-58 (4'-8')
8				E.O.B. @ 8 ft-bg	
10					GROUNDWATER SAMPLE TE-YA-58 (8'-10')
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

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BORING #: TE-YA-59

PROJECT ID:	East Side Access - Yard A	STV PROJECT NO.:	07-02184
LOCATION:	East of Honeywell Street		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG. :	Tamsyn Hunnewell
DRILLING METHOD:	HAND AUGER		
SOIL SAMPLING METHOD:	STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION:	NA
DATE BORING INSTALLED:	3/31/00		
TOTAL DEPTH:	3 ft-bg	DEPTH TO WATER:	NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0-3 ft-bg		FILL - Dark brown, fine to coarse SAND and SILT. (SM)	
	0.0		100	FILL - Light brown, fine to coarse SAND and SILT. (SM)	
2					SOIL SAMPLE TE-YA-59 (0-3')
				E.O.B. @ 3 ft-bg	
4				Note: Refusal at 3 ft-bg due to 2" to 8" cobbles.	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-60

PROJECT ID: East Side Access - Yard A	STV PROJECT NO.: 07-02184
LOCATION: East of Honeywell Street	
DRILLER: Lloyd Adams - ADT	GEOL./ENG.: Tamsyn Hunnewell
DRILLING METHOD: HAND AUGER	
SOIL SAMPLING METHOD: STAINLESS STEEL HAND AUGER, 2" DIA.	ELEVATION: NA
DATE BORING INSTALLED: 3/29/00	
TOTAL DEPTH: 4 ft-bg	DEPTH TO WATER: NA

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0		Hand dug from 0 - 4 ft-bg		FILL - Dark brown, fine to coarse SAND, some Gravel. (SP)	
2	0.0		100	Brown to orange, fine to coarse SAND. (SW)	SOIL SAMPLE TE-YA-60 (0-4')
4				E.O.B. @ 4 ft-bg	
6					
8					
10					
12					
14					
16					
18					
20					
22					

SOIL BORING LOG

DATE: 4/14/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-MW-3D

PROJECT ID:	East Side Access - Yard A ESI	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell/Cut-and-Cover Area		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	C.Vilardi
DRILLING METHOD:	Hand Auger/Hollow Stem Auger/Mud Rotary after 12 ft-bg		
SOIL SAMPLING METHOD:	STAINLESS STEEL Hand Auger/2" Dia. Split Spoon (2 ft. long)	ELEVATION:	NA
DATE BORING INSTALLED:	5/9/2000- 5/10/2000		
TOTAL DEPTH:	60.67 ft-bg	DEPTH TO WATER:	10 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE	WELL CONSTRUCTION LOG
0				FILL. Dry. No odors or staining.		
		Hand dug from 0-5 ft-bg				
2	0.0		100			
				6 5/8 " HSA to 12 ft-bg		
4						
6						
8						WT
10	0.0	7		Fine to coarse SAND, little silt, little gravel (SW).	(2)SOIL SAMPLES	
	0.0	6	50	Wet. No odors or staining.	TE-YA-MW-3D (12')	
	0.0	4			TE-YA-MW-3D (10-12')	
	0.0	4				
12				Mud rotary (bentonite and water) starts at 12 ft-bg to EOB		
14						
16						
18	0.0	1		PEAT and Clay (PT). Swamp odor. No staining.	(2)SOIL SAMPLES	
	0.0	2	75	Moist to dry.	TE-YA-MW-3D (18')	
	0.0	2			TE-YA-MW-3D (18-20')	
	0.0	2				
20						
22						
24						
26						
28						
30	0.0	2		Fine SAND, trace Silt (SM). Wet.	(2)SOIL SAMPLES	
	0.0	2	75	No odors or staining.	TE-YA-MW-3D (32')	
	0.0	4			TE-YA-MW-3D (30-32')	
32	0.0	6				

SOIL BORING LOG

DATE: 5/23/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-MW-3D (Continued)

PROJECT ID:	East Side Access - Yard A ESI	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell/Cut-and-Cover Area		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	C. Vilardi
DRILLING METHOD:	Hand Auger/Hollow Stem Auger/Mud Rotary after 12 ft-bg		
SOIL SAMPLING METHOD:	STAINLESS STEEL Hand Auger/2" Dia. Split Spoon (2 ft. long)	ELEVATION:	NA
DATE BORING INSTALLED:	5/9/2000- 5/10/2000		
TOTAL DEPTH:	60.67 ft-bg	DEPTH TO WATER:	10 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE	WELL CONSTRUCTION. LOG
34						
36						
38						
40	0.0 0.0 0.0 0.0	3 4 10 13	100	Brown SILT and SAND, some clay (SM). Wet. No odors or staining.	(2)SOIL SAMPLES TE-YA-MW-3D (40') TE-YA-MW-3D (40-42')	
42						
44						
46						
48						
50	0.0 0.0 0.0 0.0	2 5 6 7	100	Gray to brown, stiff silty SAND, some CLAY, some mica particles (SM). Wet. No odors or staining.	(2)SOIL SAMPLES TE-YA-MW-3D (52') TE-YA-MW-3D (50-52')	
52						
54						
56						
58						
60	0.0 0.0	10 60	33	SILT and CLAY - top 8 inches (ML). No odors or staining. Weathered GNEISS -bottom 2 inches. Bedrock at 60'8". E.O.B @ 60.67 ft-bg Screen = 10 feet, 10 slot PVC, 2 inch diameter Riser = 50 feet PVC, 2 inch diameter		
62						
64						

SAND (Grade 0)

WELL SCREEN

PVC RISER

BENTONITE

CEMENT GROUT

SOIL BORING LOG

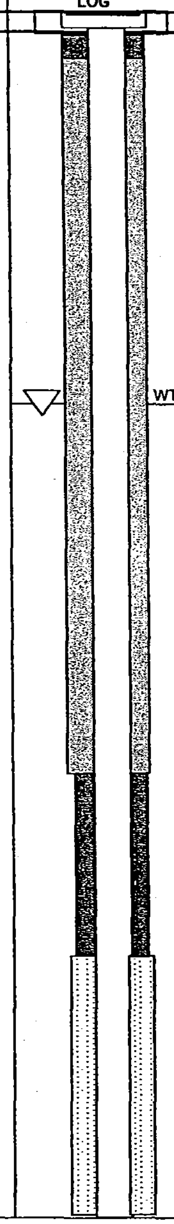
DATE: 5/23/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/secl/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-MW-5D

PROJECT ID:	East Side Access - Yard A ESI	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street/Cut-and-Cover Area		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	C. Vilardi
DRILLING METHOD:	Hand Auger/Hollow Stem Auger/Mud Rotary after 12 ft-bg		
SOIL SAMPLING METHOD:	STAINLESS STEEL Hand Auger/2" Dia. Split Spoon (2 ft. long)	ELEVATION:	NA
DATE BORING INSTALLED:	5/11/2000- 5/12/2000		
TOTAL DEPTH:	52.5 ft-bg	DEPTH TO WATER:	10 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE	WELL CONST. LOG
0				FILL: Black CINDERS and GRASS, trace Ballast.		
		Hand dug from 0-5 ft-bg		FILL: Light brown,fine to coarse SAND (SW). No odors or staining.		
2	0.0			6 5/8" HAS 0 to 12 ft-bg		
4						
6						
8						
10	0.0	3	17	Light brown, medium to coarse SAND, some Silt, trace medium Grave (SW). Wet. No odors or staining.	SOIL SAMPLE TE-YA-MW-5D (10')	WT
	0.0	7				
	0.0	3				
	0.0	4				
12	0.0	4	8	Dark brown, fine to medium SAND, some Silt (Sw). Wet. No Odors or Staining. Mud rotary starts at 12 ft-bg to EOB	SOIL SAMPLE TE-YA-MW-5D (12-14')	
	0.0	4				
	0.0	2				
	0.0	2				
14						
16						
18						
20	0.0	5	50	Red to brown, medium to coarse SAND, some medium gravel (SW). Wet. No odors or staining.	(2)SOIL SAMPLES TE-YA-MW-5D (20') TE-YA-MW-5D (20-22')	
	0.0	6				
	0.0	6				
	0.0	7				
22						
24						
26						
28						
30	0.0	4	100	Red to brown, medium to coarse SAND, trace fine gravel (SW). Wet. No odors or staining.	(2)SOIL SAMPLES TE-YA-MW-5D (30') TE-YA-MW-5D (30-32')	
	0.0	8				
	0.0	13				
32	0.0	16				



SOIL BORING LOG

DATE: 5/23/00 DRAWN BY: TH
SCALE: NTS APP'D BY: CV
FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

BORING #: TE-YA-MW-5D (Continued)

PROJECT ID:	East Side Access - Yard A ESI	STV PROJECT NO.:	07-02184
LOCATION:	West of Honeywell Street/Cut-and-Cover Area		
DRILLER:	Lloyd Adams - ADT	GEOL./ENG.:	C. Vilardi
DRILLING METHOD:	Hand Auger/Hollow Stem Auger/Mud Rotary at 12 ft-bg		
SOIL SAMPLING METHOD:	STAINLESS STEEL Hand Auger/2" Dia. Split Spoon (2 ft. long)	ELEVATION:	NA
DATE BORING INSTALLED:	5/11/2000- 5/12/2000		
TOTAL DEPTH:	52.5 ft-bg	DEPTH TO WATER:	10 ft-bg

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	BLOWS PER 6" OF SAMPLE	REC. (%)	LITHOLOGIC DESCRIPTION	SAMPLE	WELL CONST. LOG
34						
36						
38						
40	0.0 0.0 0.0 0.0	3 5 10 18	100	Red to brown, medium to coarse SAND (SW). Wet. No odors or staining. Red to brown SILT and CLAY (ML). Moist.	(2)SOIL SAMPLES TE-YA-MW-5D (41.5') TE-YA-MW-5D (40-42')	
42						
44						
46						
48						
50	0.0 0.0 0.0 0.0	25 20 27 30	50	Red to brown SILT, some clay, some fine Sand (ML). Dry to moist. No odors or staining. Gray to olive-green SILT and CLAY, some qtz pebble (ML) at point tip. Bedrock at 52.5 ft-bg (gneiss)	(2)SOIL SAMPLES TE-YA-MW-5D (52') TE-YA-MW-5D (50-52')	
52				E.O.B. at 52.5 ft-bg		
54						
56				Screen = 10 feet, 10 slot PVC, 2 inch diameter Riser = 35 feet PVC, 2 inch diameter		
58						
60						CEMENT GROUT
62						SAND (Grade 0) WELL SCREEN
64						PVC RISER BENTONITE

SOIL BORING LOG

DATE: 5/23/00 DRAWN BY: TH
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FILE NAME: H:gen/sect/environ/ESA/yard-a/ESI/blogs

PB/STV
One Penn Plaza
NEW YORK, NY 10119-0061

APPENDIX C

Monitoring Well Sampling Data
May 2000

Queens Cut-and-Cover Area
PB/STV East Side Access Project
Long Island City, NY

Project ID: East Side Access - Yard A **STV Project No.:** 07-02184
Location: Sunnyside, Queens, NY **Sampling Personnel:** CLV, TMH, JP

Well Identification / Date	QB 106W (TE-YA-MW-_) 5/16/00	QB 117W (TE-YA-MW-_) 5/16/00	TE-YA-MW-3D 5/17/00	QB 124W (TE-YA-MW-_) 5/17/00	QB 129W (TE-YA-MW-_) 5/17/00	TE-YA-MW-5D 5/18/00	QB 126W (TE-YA-MW-_) 5/18/00	QB 128W (TE-YA-MW-_) 5/18/00
PID (ppm)	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0
Casing Diameter (ft)	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667
Total Depth (ft)	53.50	69.00	60.00	46.76	26.91	45.23	29.70	19.50
Initial Depth to Water (ft)	18.90	11.90	5.23	4.74	3.69	4.29	4.49	4.90
Water Column (ft)	34.60	57.10	54.77	42.02	23.22	40.94	25.21	14.60
Multiplier*	0.1632	0.1632	0.1632	0.1632	0.1632	0.1632	0.1632	0.1632
Static Water Volume (gal)*	5.6	9.3	8.9	6.9	3.8	6.7	4.1	2.4
Est. Purge Vol. (gal)	16.9	28.0	26.8	20.6	11.4	20.0	12.3	7.1
Depth to LNAPL (ft)	0	0	0	0	0	0	0	0
LNAPL Thickness (ft)	ND	ND	ND	ND	ND	ND	ND	ND
Depth to DNAPL (ft)	0	0	0	0	0	0	0	0
DNAPL Thickness (ft)	ND	ND	ND	ND	ND	ND	ND	ND
PURGING INFORMATION								
Purge Method	submersible pump	submersible pump	submersible pump	submersible pump	submersible pump	submersible pump	submersible pump	submersible pump
Time Begin Purge	1140	1425	925	1115	1400	930	1027	1310
Time End Purge	1147	1430	938	1140	1407	935	1030	1314
Flow Rate (gpm)	0.714	0.8	2.5	1	2.5	2.5	1.67	0.5
Total Purge Vol. (gal)	5	4	25	25	12	7	5	2
After Purge Depth to Water (ft)	29.40	23.97	6.23		3.97	4.31	4.49	16.85
Recharge Wait (min)	30+	30			5			65
PRE-PURGE								
Time	1135	1420	915	1140	1345	910	1020	1300
Temperature (C)	19.8	20.4	14.7	14.7	15.5	14.9	14.8	15.2
Conductivity (ms/cm)	1.45	1.01	0.349	0.757	0.153	1.09		2.49
pH	11.86	12.10	8.64	11.59	7.37	8.22	7.64	7.44
Turbidity	25	233	258	351	177	429	249	212
Salinity	0.06	0.04	0.01	0.03	0.00	0.04	0.05	0.11
D.O. (mg/L)	9.53	9.44	11.69	12.47	13.73	11.08	3.91	2.68
Color		Clear	Clear	Clear	Clear	Cloudy, gray	Clear to yellow	Fairly clear
Odor	ND	ND	ND	ND	ND	ND	ND	ND
POST-PURGE								
Time	1148	1530	940		1415	935	1030	NA
Temperature (C)	17.7	15.9	14.2	14.9	15.8	15.6	15.8	NA
Conductivity (ms/cm)	1.90	0.758	0.336	1.31	0.434	1.23	1.23	NA
pH	12.28	11.41	8.46	8.74	7.36	8.06	1.61	NA
Turbidity	368	886**	20	75	>999	20	524	NA
Salinity	0.09	0.03	0.01	0.06	0.01	0.05	0.05	NA
D.O. (mg/L)	1.41	11.03	3.44	1.20	5.07	2.03	0.46	NA
Color					Olive-gray	Cloudy, olive-gray		
Odor	ND	ND	ND	ND	ND	ND	ND	ND
SAMPLING INFORMATION								
Sample Time	1225-1230		1000 - 1010	1140-1150	1415-1425	0950-1000	1040-1050	1430-1435
Depth to Water (ft)	23.63	12.35	6.23		3.97	4.31	4.49	15.65
Method of Sampling	bailer	bailer	bailer	bailer	bailer	bailer	bailer	bailer
Analysis/Container(s)	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber Pest - 2 x 1L amber Herb - 2 x 1L amber TAL Metal - 2 x 1L ply.	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber Pest - 2 x 1L amber Herb - 2 x 1L amber TAL Metal - 2 x 1L ply.	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber Pest - 2 x 1L amber Herb - 2 x 1L amber TAL Metal - 2 x 1L ply.	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber Pest - 2 x 1L amber Herb - 2 x 1L amber TAL Metal - 2 x 1L ply.	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber Pest - 2 x 1L amber Herb - 2 x 1L amber TAL Metal - 2 x 1L ply.	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber Pest - 2 x 1L amber Herb - 2 x 1L amber TAL Metal - 2 x 1L ply.	VOC - 3 x 40ml w/HCL SVOC - 2 x 1L amber PCB - 2 x 1L amber
Comments								
	A slow recovery well, 5 gallons. Screen blocked with silt. Well purged to dryness. Not enough yield for full analysis.	A slow recovery well, screened in silt and clay. Well purged to dryness.			Screen at 23-33', silted to 26'.			Well purged to dryness. Not enough yield for full analysis.

2" = 0.1667 ft
*For a 2" well, Well Water Volume = (Well depth - Depth to Water) * 0.1632.

APPENDIX E-1

ASBESTOS AND LEAD PAINT INVESTIGATION AND MATERIAL SURVEY REPORT

FOR

MTA/LIRR EAST SIDE ACCESS PROJECT - SUNNYSIDE YARD "A", QUEENS, NY

PREPARED FOR

STV INCORPORATED
225 PARK AVENUE
NEW YORK, NY 10003

BY

JLC ENVIRONMENTAL CONSULTANTS, INC.
200 PARK AVENUE SOUTH, SUITE 1001
NEW YORK, NY 10003
(212) 420-8119

JLC PROJECT # 00-1067

Signed for JLC Environmental Consultants, Inc. by:

Stephen Pharai
Technical Director

June 1, 2000

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Page No.

APPENDICES

1.0 BACKGROUND:

JLC Environmental Consultants, Inc. (JLC), in its role as an Environmental Consultant, and under contract with STV Incorporated was authorized to proceed with an field investigation to determine the presence of Asbestos Containing Materials (ACM) and Lead Based Paint (LBP) in specific building materials and components at the Sunnyside Yard "A" Railroad Facility, Queens, NY (hereby called the subject area).

The investigation was conducted on March 31st and April 12th, 2000 by Mr. Peter Davis, Mr. Sinclair Brown and Mr. Fernando Velasquez, New York State and USEPA AHERA Asbestos Inspectors and EPA/NYS Lead Inspectors under the direct supervision of Mr. Jeewan Biscessar, a New York City Certified Asbestos Investigator, New York State Asbestos Inspector, USEPA AHERA Inspector and EPA/NYS Lead Inspector.

Project:	MTA/LIRR East Side Access Project
Work Areas:	Two abandoned Buildings and Yardmaster's Building
Borough:	Queens
Address:	Sunnyside Yard "A"
Contact Person:	Jeff Butler, STV Incorporated
Contact Phone #:	212-614-3439

The Senior Investigator responsible for this project was:

Jeewan Biscessar:	NYC Asbestos Investigator #76905	Expires: 11/28/01
	NYS Asbestos Inspector #AH 95-02587	Expires: 11/28/99

The scope of the investigation consisted of determining if Asbestos Containing Materials (ACM) and Lead Based Paint are present in the facility and locations where proposed renovation and or alteration work are scheduled to take place. The scope of work also included determining the locations, quantity and condition of the suspect materials present at the time of the investigation.

2.0 ASBESTOS INSPECTION & BULK SAMPLING PROCEDURES:

The asbestos inspection procedures were based on the guidelines established by the Asbestos Hazardous Emergency Response Act (AHERA), as set forth in 40 CFR Part 763 of October 30, 1987. The AHERA guidelines represent the most up-to-date inspection and sampling protocol available and as such were utilized during the inspection and sampling. For the purposes of this inspection, suspect ACM has been placed in three (3) material categories: Thermal Systems Insulation (TSI), surfacing materials and miscellaneous materials.

The locations within the building and yard were inspected physically, functional space by functional space and homogeneous area-by-homogeneous area to determine the presence or absence of asbestos-containing materials. No interior or exterior demolition was done for sampling purposes. Also for safety reasons no electrical wiring was inspected or sampled since electric power could not be shut off.

2.0 ASBESTOS INSPECTION & BULK SAMPLING PROCEDURES (CONT.):

Suspect materials that may be present inside wall cavities, electrical wiring or which were otherwise inaccessible were not included in the scope of this inspection. Core samples of friable and non-friable suspect materials were collected by penetration of the suspect material to its substrate. The bulk samples collected were placed in sealed containers, labeled with an identifying code and a sample log was kept. Representative samples of each sampling area were then submitted to the laboratory to be analyzed for asbestos content. The inspection involved the following tasks:

1. A visual determination as to the extent of visible and accessible suspect materials and conditions of the material.
2. Collect and analyze for asbestos content, samples of suspect building materials.
3. A physical "Hand Pressure" test for determining friability and condition of suspect materials.
4. Assessments of suspect friable and non-friable materials and locations.
5. Quantifying the amount of suspect friable and non-friable materials in their respective locations.
6. All suspect materials sampled were identified on the appropriate building floor plan diagram with the sample number.
7. A Chain of Custody record was prepared and accompanied the samples to the laboratory.

3.0 ASBESTOS PHYSICAL CONDITION ASSESSMENT:

USEPA Asbestos Hazard Emergency Response Act of 1986 (AHERA) specifies that a physical assessment of all friable suspect material must be performed during the inspection. The suspect materials were assessed to determine if it poses a hazard and the hazard ranked according to seriousness. The physical condition assessment consists of determining the (1) condition of the suspect ACM and (2) cause of damage and potential for future disturbance.

AHERA lists seven (7) categories in which to assess the current condition and potential for damage as follows:

1. Damaged or Significantly Damaged Friable Thermal System Insulation
2. Damaged Friable Surfacing Material
3. Significantly Damaged Friable Surfacing Material
4. Damaged or Significantly Damaged Friable Miscellaneous Material
5. Asbestos Containing Building Materials (ACBM) with potential for damage
6. ACBM with the potential for significant damage
7. Any remaining Friable ACBM or Friable Suspected (assumed) ACBM

3.0 ASBESTOS PHYSICAL CONDITION ASSESSMENT (CONT.):

A rank of "1," means the material is in "poor" condition and requires top priority for abatement response action. A result of "5" would indicate material in "fair" condition with "moderate" potential for future damage. It would have a higher priority for abatement response action. A rank of "7" indicates material in "good" condition with "low" potential for future damage. These areas would have a low abatement response priority.

The second step in the assessment process is to determine the potential for future damage or deterioration for material classified as good or fair. The potential for future damage shall be classified as High, Moderate, or Low. There are many factors to consider including potential for physical contact and the influence of environmental factors such as vibration, air erosion, the likelihood of water damage, etc.

The third step is determining the friability rating and classifying the material as Friable ACM or Non-Friable ACM. Friable ACM is the term given to any material that contains more than one percent (1%) asbestos by weight and can be crumbled, pulverized, or reduced to powder by hand pressure. It refers to a material's likeliness to release airborne fibers. There is a greater possibility that a friable material will release fibers into the air when disturbed than will a non friable material (i.e., floor tiles, roofing materials, etc.) thereby causing a potential hazard.

The Assessment Process defines the extent of condition as follows:

i. If the extent of the damage is roughly ten percent (10%) of the material and is evenly distributed throughout the material, then the material is considered significantly damaged.
ii. If the extent of the damage is roughly twenty five percent (25%) of the material and is localized, then the material is considered significantly damaged.

4.0 ASBESTOS BULK SAMPLE ANALYSIS AND METHODOLOGY:

The bulk samples of the suspect asbestos-containing materials collected were analyzed using Polarized Light Microscopy (PLM) in accordance with EPA 600/M4-82-021 by JLC Environmental Consultants, Inc. (JLC). The analysis involves microscopically observing the suspect asbestos containing materials with a low power stereo-scopic microscope to determine the homogeneity of the material.

Forceps samples are then immersed in a refractive index solution, placed on a microscope slide, teased apart, covered with a cover slip, and observed with a polarized light microscope.

4.0 ASBESTOS BULK SAMPLE ANALYSIS AND METHODOLOGY (CONT.):

JLC's Laboratory is accredited by the New York State Department of Health Environmental Laboratory Approval Program (NYS DOH ELAP #11029) and by the National Institute of Standards and Technology under their National Voluntary Laboratory Accreditation Program (NVLAP #101953). NYS DOH ELAP states that Polarized Light Microscopy is not consistently reliable and conclusive in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-asbestos-containing, confirmation must be made by Transmission Electron Microscopy.

Transmission Electron Microscopy (TEM) analysis of non-friable, organically bound (NOB's) materials was performed by Scientific Laboratories, Inc. located at 117 East 30th Street, New York, NY 10003. (ELAP#11480, NVLAP#101904-1, AIHA#8939).

5.0 LEAD PAINT INSPECTION AND SAMPLING PROCEDURES:

The areas surveyed included all accessible spaces and surfaces within the affected areas. The locations in the building were divided into space equivalents. Painted surfaces within the space equivalents were identified and grouped together by component type, substrate and visible color. For example, if there are four walls all made of plaster, and all painted with white paint, these four walls are all grouped together. One wall of the four is to be randomly selected to represent the four walls.

In similar fashion, the inspection continued in each space equivalent with the identification of unique combinations of component, substrate and visible color. A random representative area of each unique combination was sampled and tested in each room equivalent. For each of these designated components, an area on the component was chosen which represents the paint on that building component. During the inspection, components which are accessible surfaces, friction surfaces, impact surfaces, or have deteriorated paint was identified.

6.0 LEAD PAINT PHYSICAL CONDITION ASSESSMENT:

Lead is a naturally occurring heavy metal that is used for a variety of industrial and commercial purposes. Lead is used in paint as a base to enhance the pigment of the paint and properties of the substrate. Lead based paint has been used extensively in the United States in private and commercial buildings.

A feature that most painted surfaces have in common is that they are not homogeneous. Different paints are made from different materials, in different concentrations. For most applications, lead was removed from use in paint in high concentrations over thirty years ago. We most often see lead paint on the bottom most layers of a painted surface. These are covered by a number of non-lead painted surfaces.

6.0 LEAD PAINT PHYSICAL CONDITION ASSESSMENT (CONT.):

A "lead-based paint hazard" is defined by the US-EPA as any condition that causes exposure to lead sufficient to cause adverse human health effects. When lead based paint is abated or deteriorates from age, the resulting paint chips and dust become a health threat. The following six (6) situations are defined by the US-EPA.

- "Deteriorated LBP" is any interior or exterior LBP that is peeling, chipping, chalking, or cracking, or located on any surface or fixture that is damaged or deteriorating.
- LBP on any "friction surface", defined as an interior or exterior surface subject to abrasion or friction, such as painted floors and friction surfaces on windows.
- LBP on any "impact surface", defined as an interior or exterior surface subject to damage by repeated impacts, such as parts of door frames.
- LBP on any "accessible surface", defined as an interior or exterior surface accessible for a young child to mouth or chew, such as a windowsill.
- "Lead contaminated dust" is defined as surface dust in residential dwellings that contains an area or mass concentration of lead in excess of the standard to be established by EPA.
- "Lead contaminated soil" is defined as bare soil on residential property that contains lead in excess of the standard to be established by EPA.

7.0 LEAD PAINT SAMPLE ANALYSIS AND METHODOLOGY:

The paint samples were collected by removing paint from the exposed surfaces down to the substrate from a one square inch area for each sample. Lead samples collected this way can be reported in both milligrams per square centimeter and percent by weight. The paint samples were placed in sealed containers, labeled with an identifying code, secured and a sample log and chain of custody was prepared.

The samples were then submitted to JLC's Environmental Laboratory, together with the bulk sample log and chain of custody, to be analyzed for lead content using US-EPA SW-846 Method 3050/7420 using the Air-Acetylene Flame Instrument for Lead Based Paint. This method utilizes Atomic Absorption Spectrometry with flame combustion. Sample results are given in parts per million for lead based paints.

The EPA allows the use of Atomic Absorption Spectrometer (AAS) for the analysis of lead samples. The analytical method, Solid and Hazardous Waste lead--EPA SW-846/3050 for preliminary digestion; SW-846/7420 for AA flame and SW-846/7421 for AA furnace. The Lead Paint sample is solubilized by extraction with nitric acid (HNO_3) and hydrogen peroxide (H_2O_2) facilitated by heat, or by mixture of HNO_3 and hydrochloric acid (HCl) facilitated by microwave energy.

The lead content of the sample is measured by atomic absorption spectrometry (AAS) using an air-acetylene flame, the 283.3 or 217.0 nm lead absorption line and the optimum instrumental conditions recommended by the manufacturer.

8.0 QUALITY CONTROL PROCEDURES:

In order to provide environmental services of the highest quality for this project, JLC have integrated resources, technologies, and discipline to conduct the investigation and analysis based on the following principles:

i. All applicable regulations are addressed in order to make certain our field inspectors and lab personnel meet their responsibilities, do so cost-effectively, and are equipped with the practical knowledge they need in order to understand and comply with regulations that affect them.
ii. Care is taken to make certain that the information provided and actions recommended are practical and cost effective in achieving regulatory compliance.

The 'management' approach utilized assured that for this project all work performed received the highest quality service. All project results, reports and recommendations are reviewed for accuracy, content and quality prior to presentation. We recognize that the information in each assignment we undertake, that the information we develop, and the conclusions and advice we provide, will be used to support important management decisions.

JLC's Quality Assurance Program directs and requires that all personnel:

i. Provide quality objectives so that project activities can be evaluated in terms of precision, accuracy, reproducibility, completeness, and comparability.
ii. Provide specific guidance on the proper methodology for all activities.
iii. Be provided with ongoing training to enhance their technical skills.
iv. Be trained in QA/QC procedures and document technical and QC activities.
v Review all reports until it is acceptable in terms of technical and editorial quality and all quality assurance activities have been successfully performed.

STATEMENT OF MANAGEMENT POLICY

The usefulness and integrity of analytical findings are the primary objectives in any analytical laboratory. The major goal of JLC Environmental Consultants, Inc. (JLC) is to provide analytical products and services of unsurpassed quality, stability and reproducibility. The laboratory's "product" is the report issued as a result of analytical testing conducted on samples received from clients.

The JLC Quality Assurance Manual provides detailed procedures for laboratory personnel to follow to produce quality data. The Policies and procedures in the Manual apply to all personnel, from Management to Analytical Technicians. Management and the Quality Control Officer (QCO) routinely audit the program to insure that all the quality control (QC) procedures are being followed. When unusual situations occur, the Laboratory Manager and the QCO have the authority to correct the problem.

9.0 SCOPE OF WORK FOR ASBESTOS CONTAINING MATERIALS:

The inspection for asbestos containing materials in the following areas that may be affected by the MTA/LIRR East Access Project was based on the Preliminary Environmental Site Assessment and Proposed Sampling Plan dated March, 2000 provided by STV Incorporated.

1. Two Abandoned Buildings
2. Yardmaster's Building

The inspection was characterized by a close visual inspection of all accessible areas. Suspect materials were sampled and inventoried for quantity, condition and friability. Materials examined included:

1. Stucco
2. Brick & Mortar
3. Window Caulking & Putty
4. Roof Membrane
5. Roof Flashing
6. 9" x 9" Floor Tiles & Mastic
7. 12" x 12" Floor Tiles & Mastic
8. Wall & Ceiling Plasters
9. Sheetrock & Joint Compound
10. Debris

10.0 SCOPE OF WORK FOR LEAD BASED PAINT:

The following areas which may be affected by the MTA/LIRR East Access Project based on the Preliminary Environmental Site Assessment and Proposed Sampling Plan dated March, 2000 provided by STV Incorporated, were inspected for LBP:

1. Two Abandoned Building
2. Yardmaster's Building

The inspection was characterized by a close visual inspection of all accessible areas. Suspect paints were sampled and inventoried for quantity, condition and color. Components examined included:

1. Walls & Ceilings
2. Window Frames & Sashes
3. Doors & Frames
4. Door Lintels
5. Window Frames, Sashes, Sills & Wells
6. Baseboards
7. Stair Railings, Risers & Treads

11.0 SUMMARY OF FINDINGS FOR ACM:

The asbestos inspection involved a thorough visual examination of all areas and sampling of suspect materials that would be impacted during the proposed work schedule. It was based on the scope report/blueprint drawings provided by STV Incorporated.

Bulk samples of various suspect materials were collected and analyzed using Polarized Light Microscopy and Transmission Electron Microscopy Methods. This information was obtained during the inspection and is based upon the following materials being confirmed or assumed to having greater than one percent (1%) asbestos and is therefore classified as ACM. The following is a list all exposed ACM determined to be present in the subject area:

1. 9" x 9" Green Floor Tiles
2. 9" x 9" Floor Tiles Mastic
3. Roofing Materials
4. Wall & Ceiling Plasters
5. Debris

12.0 SUMMARY OF FINDINGS FOR LBP:

The lead paint inspection involved a thorough visual examination of all areas and sampling of paint that would be impacted during the proposed work schedule. It is based on the scope report/blueprint drawings provided by STV Incorporated.

JLC Laboratory analysis confirmed the presence of lead in the amount greater than 0.7 mg/cm^2 as per New York City Standards within the samples collected from the following components:

1. Window Components
2. Baseboards
3. Door Components
4. Walls
5. Ceilings

13.0 CONCLUSIONS AND RECOMMENDATIONS FOR ACM:

Asbestos Containing Materials (ACM) have been identified in the 9" x 9" floor tiles & mastic of the Yardmaster's Building and assumed in the roof materials, wall & ceiling plasters and debris of the abandoned building next to the Yardmaster's Building located at Sunnyside Yard "A", Queens, NY. Since a renovation project has been scheduled, JLC recommends that any ACM that will be impacted by the proposed work be removed prior to commencing the renovation.

Section I-53 of the New York City Department of Environmental Protection Title 15 Asbestos Regulations states that:

"Alterations/Renovations/Modifications: As early as possible before an alteration, renovation or modification takes place or changes in an alteration, renovation or modification occur, the building owner shall be responsible for determining the absence or presence of friable asbestos containing materials which will be disturbed during the course of the alteration, renovation or modification activities. The owner of the building or authorized agent shall comply with the notification requirements of this section regarding asbestos containing materials".

Section 56-1.9 (e) of the New York State Department of Labor Industrial Code Rule 56 Asbestos Regulations states that:

"If a building survey finds that a building to be demolished contains asbestos or asbestos containing material as defined in section 56-1.4 of this Subpart, no bids shall be advertised nor contracts awarded nor demolition work commenced by any owner or agent prior to completion of an asbestos remediation contract performed by a licensed asbestos contractor, in conformance with all standards set forth in this Part (rule)".

Section 56-1.4 (ac) Definitions: Demolition – The total razing of a building or an entire portion thereof.

Abatement activities must be conducted in compliance with all applicable regulations, standards and generally accepted environmental and safety practices including Federal OSHA (29 CFR 1926.58), EPA NESHAPS (40 CFR Part 61), and TSCA Title II AHERA/ASHARA (40 CFR Part 763) Asbestos Regulations, *New York State Department of Labor Industrial Code Rule 56 and New York City Department of Environmental Protection Title 15 Asbestos Regulations.*

Also, as an alternative to complete removal the following asbestos abatement response alternatives may be considered for any ACM not scheduled for removal:

13.0 CONCLUSIONS AND RECOMMENDATIONS (CONT):

RESPONSE ALTERNATIVES TO ASBESTOS ABATEMENT

Asbestos Abatement response alternatives may include removal, repair, enclosure, encapsulation, establishment of an operations and maintenance management plan, or combination thereof. At a minimum response alternatives shall include removal and inclusion in an Operation and Maintenance Management Plan. Immediate attention should be given to salient areas requiring special consideration (immediate repair or removal) and for portions of the building scheduled for renovation or demolition.

1. Asbestos removal may be the ultimate solution to the potential asbestos exposure problem, but may not always be the most practical immediate solution. However, removal is required prior to renovation and demolition and, therefore, must be included in the presentation of abatement alternatives. Asbestos removal recommendations may include total or partial removal, depending upon circumstances.

2. Encapsulation may be appropriate as an abatement response in some circumstances. Some bridging encapsulants may void fire ratings and this factor must be considered when examining this alternative. Also the eventual removal cost, which is typically increased following encapsulation, must be considered.

3. Enclosure, as an abatement response, forms an airtight barrier around the asbestos-containing material.

4. Repair as an abatement response may be appropriate for thermal system insulation or miscellaneous material particularly where damage is localized rather than general. It is not usually a realistic alternative with surfacing material, although individual conditions might make it so.

5. Establishment of an operation and maintenance management plan requires employee training, cleaning, special equipment purchases, development of asbestos work procedures for maintenance and custodial personnel, and periodic re-inspection and hazard re-assessments. Medical monitoring and establishment of a respiratory protection program may be required if in-house maintenance and repair requiring disturbance of asbestos-containing material is planned. For material in good condition this alone may be a valid abatement alternative. In any case, however, an operation and maintenance management plan will have to be developed and maintained until complete removal has been accomplished.

14.0 CONCLUSIONS AND RECOMMENDATIONS FOR LBP:

Lead Based Paint (LBP) has been identified in the painted surfaces of the window components of the abandoned Locker Room, the window components and baseboards of the Yardmaster's Building and assumed in the window components, door components, walls, ceilings and wall components of the abandoned building next to the Yardmaster's Building located at Sunnyside Yard "A", Queens, NY.

Two (2) options are being recommended to address the LBP in these areas.

1. All LBP that will be disturbed by any proposed renovations should be removed in accordance with applicable federal, state and local regulatory requirements. It should be noted that personal air monitoring should be conducted when disturbing lead based paints and lead containing materials as per 29CFR1926.62 (OSHA).

2. At all locations that will not be impacted by the renovation activities, the existing Lead Based Paint may be encapsulated and periodically monitored and maintained as necessary under a Lead Operations and Maintenance Plan. The maintenance procedure involves the training of building employees in proper work practices, performing periodic surveillance and maintaining the paint surfaces in good condition until such time as a removal program is implemented.

3. Encapsulation is the process that makes the LBP inaccessible by providing a barrier between the LBP and the surrounding environment. This barrier is formed using a liquid coating applied with or without reinforcement materials, or an adhesively bonded covering material.

15.0 SCHEDULE OF JLC INSPECTION RESULTS FOR ACM:

The following table presents inspection results, by homogeneous area, obtained during JLC's ACM investigation:

HA	Location	Material	Sample #	Results	Total Quantity Of ACM	Notes
A	Abandoned Locker Room Building	Interior Stucco	001-003	Non-ACM	0 SF	
B		Exterior Stucco	004-006	Non-ACM	0 SF	
C		Exterior Brick Mortar	007-009	Non-ACM	0 SF	
D		Window Putty	010-012	Non-ACM	0 SF	
E		Roof Membrane	013-015	Non-ACM	0 SF	
F		Roof Flashing	016-018	Non-ACM	0 SF	
A	2nd Floor/ Yardmaster's Building	9" x 9" Green Floor Tile	001-003	ACM	431 SF	9" x 9" Green Floor Tiles found on the 2nd Floor of the Yardmaster's Building are confirmed ACM. Approx. 431 SF.
B		9" x 9" Green Floor Tile Mastic	004-006	Non-ACM	0 SF	
C		Wall Plaster Whitecoat	007-011	Non-ACM	0 SF	
D		Wall Plaster Browncoat	012-016	Non-ACM	0 SF	
E		Ceiling Plaster Whitecoat	017-019	Non-ACM	0 SF	
F		Ceiling Plaster Browncoat	020-022	Non-ACM	0 SF	
G		Window Caulking	023-025	Non-ACM	0 SF	
H		Window Putty	026-028	Non-ACM	0 SF	
I		Sheetrock	029-031	Non-ACM	0 SF	
J		Sheetrock Joint Compound	032-034	Non-ACM	0 SF	
K	1st Floor/ Yardmaster's Building	9" x 9" Green Floor Tile	035-037	ACM	570 SF	9" x 9" Green Floor Tiles found on the 1st Floor of the Yardmaster's Building are confirmed ACM. Approx. 570 SF.
L		9" x 9" Green Floor Tile Mastic	038-040	ACM	570 SF	9" x 9" Green Floor Tile Mastic found on the 1st Floor of the Yardmaster's Building are confirmed ACM. Approx. 570 SF.
M		12" x 12" Light Green Floor Tile	041-043	Non-ACM	0 SF	

15.0 SCHEDULE OF JLC INSPECTION RESULTS FOR ACM (CONT.):

HA	Location	Material	Sample #	Results	Total Quantity Of ACM	Notes
N	1st Floor/ Yardmaster's Building	12" x 12" Light Green Floor Tile Mastic	044-046	Non-ACM	0 SF	
O		Wall Plaster Whitecoat	047-049	Non-ACM	0 SF	
P		Wall Plaster Browncoat	050-052	Non-ACM	0 SF	
Q		Sheetrock	053-055	Non-ACM	0 SF	
R		Sheetrock Joint Compound	056-058	Non-ACM	0 SF	
S	Abandoned Building by Yardmaster's Building	Exterior Brick	059-061	Non-ACM	0 SF	
T		Exterior Brick Mortar	062-064	Non-ACM	0 SF	
U		Exterior Brick	065-067	Non-ACM	0 SF	
V		Exterior Brick Mortar	068-070	Non-ACM	0 SF	
W		Exterior Brick	071-073	Non-ACM	0 SF	
X		Exterior Brick Mortar	074-076	Non-ACM	0 SF	
Y		Exterior Brick	077-079	Non-ACM	0 SF	
Z		Exterior Brick Mortar	080-082	Non-ACM	0 SF	
		Roofing Materials		Assumed	To be determined	Roofing Materials were assumed to be ACM since there was no access to the building. Quantities must be field determined.
		Wall & Ceiling Plasters		Assumed	To be determined	Wall & Ceiling Plasters were assumed to be ACM since there was no access to the building. Quantities must be field determined.
		Debris		Assumed	To be determined	Debris inside the building was assumed to be contaminated ACM since there was no access to the building. Quantities must be field determined.

16.0 SCHEDULE OF JLC INSPECTION RESULTS FOR LBP:

The following table presents inspection results, by homogeneous area, obtained during JLC's LBP investigation:

Location	Color Of Paint	Substrate	Component	Sample #	Lead Content (mg/cm^2)	Total Quantity Of LBP	Notes
Abandoned Locker Room Building	Gray	Plaster	Ceiling	001-002	0.038-0.088	0 SF	
	Gray	Wood	Window Frame	003-004	0.337-2.331	180 SF	The window components in the abandoned Locker Room Building are confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 180 SF.
	Gray	Wood	Window Sash	005-006	0.783-1.076		
	Gray	Plaster	Walls	007-008	0.025-0.783	0 SF	
	Gray	Metal	Stairs Railings	009-010	0.605-0.984	0 SF	
2nd Floor/ Yardmaster's Building/ East Office	Tan & White	Sheetrock	Walls	001-006	<0.02	0 SF	
	Gray	Wood	Baseboards	007-009	0.079-1.135	150 SF	The baseboards in the 2nd Floor East Office of the Yardmaster's Building are confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 150 SF.
	Tan	Wood	Door	033	0.116	0 SF	
	Tan	Wood	Door Frame	034	0.143	0 SF	
	Tan	Metal	Door Lintel	035	0.135	0 SF	
	White	Sheetrock	Ceiling	036-038	<0.02	0 SF	
2nd Floor/ Yardmaster's Building/ West Office	Gray	Wood	Baseboard	011-012	0.061-0.142	0 SF	
	White	Sheetrock	Ceiling	039-041	<0.02	0 SF	
	White	Sheetrock	Walls	042-044	<0.02	0 SF	
	Tan	Sheetrock	Wall	057-060	<0.02	0 SF	
2nd Floor/ Yardmaster's Building/ Staircase	Gray	Wood	Risers	013	0.337	0 SF	
	Gray	Wood	Treads	014	0.357	0 SF	
	Gray	Wood	Baseboard	015	0.613	0 SF	
	Tan	Sheetrock	Wall	061-065	<0.02	0 SF	

16.0 SCHEDULE OF JLC INSPECTION RESULTS FOR LBP (CONT.):

Location	Color Of Paint	Substrate	Component	Sample #	Lead Content (mg/cm^2)	Total Quantity Of LBP	Notes
2nd Floor/ Yardmaster's Building/ Bathroom	Gray	Wood	Baseboard	010	0.446	0 SF	
	Green & White		Window Sills	025 & 029	0.419-2.713	16 SF	The window components in the 2nd Floor Bathroom of the Yardmaster's Building are confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 16 SF.
	Green & White		Window Wells	026 & 030	0.557-2.262		
	Green & White		Window Frames	027 & 031	0.536-2.167		
	Green & White		Window Sashes	028 & 032	0.503-2.223		
	Tan	Sheetrock	Wall	053-054	<0.02	0 SF	
2nd Floor/ Yardmaster's Building/ Closet	Tan	Sheetrock	Wall	055-056	<0.02	0 SF	
1st Floor/ Yardmaster's Building/ Basement Entrance	Gray	Wood	Door	016	0.671	0 SF	
	Gray	Wood	Door Frame	017	0.761	0 SF	
	Gray	Metal	Door Lintel	018	0.183	0 SF	
1st Floor/ Yardmaster's Building/ Bathroom	Gray	Wood	Baseboard	019	0.468	0 SF	
	Tan	Sheetrock	Wall	068-069	<0.02	0 SF	
1st Floor/ Yardmaster's Building/ Supplies Room	Gray	Wood	Baseboards	020-021	0.615-0.731	0 SF	
	White	Sheetrock	Ceiling	045-048	<0.02	0 SF	
	Tan	Sheetrock	Wall	070-072	<0.02	0 SF	

16.0 SCHEDULE OF JLC INSPECTION RESULTS FOR LBP (CONT.):

Location	Color Of Paint	Substrate	Component	Sample #	Lead Content (mg/cm^2)	Total Quantity Of LBP	Notes
1st Floor/ Yardmaster's Building/ Supplies Room/ Bathroom	Tan	Sheetrock	Wall	073-074	<0.02	0 SF	
1st Floor/ Yardmaster's Building/ Office	Gray	Wood	Baseboards	022-024	0.063-0.628	0 SF	
	White	Sheetrock	Ceiling	049-052	<0.02	0 SF	
	Tan	Sheetrock	Wall	066-067	<0.02	0 SF	
Abandoned Building by Yardmaster's Building			Wall		Assumed LBP	To Be Determined	Walls, Ceilings, Wall Components, Window Components and Door Components are assumed to be painted with LBP since there was no access to the building. Quantities must be field determined.
			Ceiling		Assumed LBP	To Be Determined	
			Wall Components		Assumed LBP	To Be Determined	
			Window Components		Assumed LBP	To Be Determined	
			Door Components		Assumed LBP	To Be Determined	

17.0 ASBESTOS QUANTITY SCHEDULE:

Approximate asbestos quantity schedules are presented on the following table:

TABLE 1
SUMMARY OF INSPECTION RESULTS FOR ASBESTOS
SUNNYSIDE YARD "A"

PROPOSED WORK	SUSPECT ACM THAT MAY BE AFFECTED	LAB RESULTS	APPROXIMATE ACM QUANTITY	NOTES/SPECIFIC LOCATION
MTA/LIRR East-Side Access Project	9" x 9" Green Floor Tiles	ACM	431 SF	9" x 9" Green Floor Tiles found on the 2nd Floor of the Yardmaster's Building are confirmed ACM. Approx. 431 SF.
	9" x 9" Green Floor Tiles & Mastic	ACM	570 SF	9" x 9" Green Floor Tiles & Mastic found on the 1st Floor of the Yardmaster's Building are confirmed ACM. Approx. 570 SF.
	Roofing Materials	Assumed ACM	To Be Determined	Roofing Materials were assumed to be ACM since there was no access to the building. Quantities must be field determined. **(See Section 19.0)**
	Wall & Ceiling Plasters	Assumed ACM	To Be Determined	Wall & Ceiling Plasters were assumed to be ACM since there was no access to the building. Quantities must be field determined. **(See Section 19.0)**
	Debris	Assumed ACM	To Be Determined	Debris inside the building was assumed to be contaminated ACM since there was no access to the building. Quantities must be field determined. **(See Section 19.0)**

18.0 LEAD PAINT QUANTITY SCHEDULE:

Approximate Lead Paint quantity schedules are presented on the following table:

TABLE 2
SUMMARY OF INSPECTION RESULTS FOR LEAD PAINT
SUNNYSIDE YARD "A"

PROPOSED WORK	SUSPECT LBP THAT MAY BE AFFECTED	LAB RESULTS	APPROXIMATE LBP QUANTITY	NOTES/SPECIFIC LOCATION
MTA/LIRR East-Side Access Project	Window Frames and Sashes	Lead content higher than 1.0 mg/cm^2	180 SF	The window components in the abandoned Locker Room Building are confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 180 SF.
	Baseboards	Lead content higher than 1.0 mg/cm^2	150 SF	The baseboards in the 2nd Floor East Office of the Yardmaster's Building are confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 150 SF.
	Window Frames, Sashes, Sills & Wells	Lead content higher than 1.0 mg/cm^2	16 SF	The window components in the 2nd Floor Bathroom of the Yardmaster's Building are confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 16 SF.
	Walls	Assumed LBP	To Be Determined	Walls, Ceilings, Wall Components, Window Components and Door Components of the abandoned building by the Yardmaster's Building are assumed to be painted with LBP since there was no access to the building. Quantities must be field determined. **(See Section 19.0).**
	Ceilings	Assumed LBP	To Be Determined	
	Wall Components	Assumed LBP	To Be Determined	
	Window Components	Assumed LBP	To Be Determined	
	Door Components	Assumed LBP	To Be Determined	

19.0 AREAS NOT ACCESSIBLE:

JLC inspected and sampled materials, which were observable and accessible to the survey team. JLC was not able to access the abandoned building by the Yardmaster's Building for it was boarded up and unsafe to access. Any materials that have not been tested and/or found positive for asbestos or lead must be assumed ACM or LBP.

20.0 GLOSSARY AND DEFINITIONS:

ABATEMENT: Removal, repair, encapsulation, or enclosure of an asbestos-containing material to prevent fiber release.

AGENCY CONTACT: The person designated by their agency as the primary contact with the Asbestos Management Program.

ASBESTOS: The asbestiform varieties of chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite.

ASBESTOS CONSULTANT: A person who is licensed as such by the NYS Department of Labor.

ASBESTOS INSPECTOR: A person who successfully completed the appropriate course requirements, and works under the direction of a licensed asbestos consultant or is a Certified Asbestos Inspector and engages in the survey and assessment of asbestos-containing materials.

ASBESTOS CONTAINING MATERIAL: Any material that contains more than one percent by weight of asbestos.

BUILDING ASBESTOS CONTACT PERSON: A competent person appointed by an agency head, or higher authority, to manage and coordinate all asbestos-related activities for a specific state-owned building. This person shall be capable of identifying existing and potential asbestos hazards in the building and have the authority to take prompt corrective action.

ENCAPSULATION: The application of a coating to asbestos-containing material to prevent fiber release.

ENCLOSURE: Construction of an airtight barrier around asbestos-containing material to prevent fiber release.

FRIABLE: A condition wherein the material, when dry, can be crumbled by hand pressure.

FUNCTIONAL SPACE: A room or specific area such as a classroom, hallway, stairwell, elevator shaft, portico or covered walkway, office, auditorium, cafeteria, gymnasium, locker room, closet, storage area, dormitory room, break room, lounge, rest room, mechanical room, electrical equipment room, boiler or furnace room, penthouse, pipe chase, basement, crawl space (including soil when appropriate), steam or utility tunnel, attic, roof, siding, and the space above ceiling, between walls, or below floors.

20.0 GLOSSARY AND DEFINITIONS (CONT.):

HOMOGENEOUS AREA: The extent of a homogeneous material.

HOMOGENEOUS MATERIAL: A material which may or may not extend through many functional spaces; is uniform in color, texture, and relative date of installation, and appears to be the same identical material.

INSPECTOR: A person who has successfully completed the appropriate course requirements and works under the direction of a licensed asbestos consultant or is a Certified Asbestos Inspector and engages in the survey and assessment of asbestos-containing materials.

MISCELLANEOUS MATERIALS: Interior or exterior material components such as wallboard, linoleum, floor and ceiling tiles, fire doors, roofing, siding, and other materials not an integral component of the building such as stage curtains, protective clothing, laboratory apparatus and equipment, and other materials considered to be part of the real estate.

RESPONSE ACTION: A method such as removal, encapsulation, enclosure, repair, or attention under an operation and maintenance management plan that protects human health and the environment from asbestos-containing material.

SALIENT: A small section or area of damaged asbestos-containing material the condition of which is significantly different from the rest of the otherwise homogeneous area.

SURFACING MATERIALS: Materials which are sprayed-on, troweled-on, or otherwise applied to surfaces. Examples include wallboard primer, sealer, paint, and stucco; acoustical plaster on ceilings; fireproofing on structural components, or other materials applied to surfaces for acoustical, fireproofing, or other purposes.

SURVEY: The room-by-room physical inspection of a building, and related activities, conducted to document the presence, location, and condition of asbestos-containing materials.

THERMAL SYSTEM INSULATION: Materials in a building or distribution system applied to pipes, fittings, boilers, breaching, tanks, ducts, or other system components to prevent heat loss or gain, water condensation, or for other purposes.

21.0 REPORT CERTIFICATIONS:

This report, and the supporting data, findings, conclusions, opinions, and the recommendations it contains, represents the result of JLC's efforts on behalf of your firm. This report is not an asbestos abatement specification and should not be used for specifying removal methods or techniques.

The results, assessments, conclusions and recommendations stated in this report are factually representative of the conditions and circumstances we observed at this location on the date of our inspection. We cannot assume responsibility for any change in conditions or circumstances that occurred after our inspection.

This report and its findings and recommendations, if implemented by your firm, should not be construed as an assurance or implied warranty for the continuing safety, performance, or cost-effectiveness of any equipment, product, system, facility, procedure, or policy discussed or recommended herein.

This report may contain sensitive information about your firm, your staff, equipment, operations, or policies. It may also contain confidential or proprietary information about specific equipment or products, which have been provided to JLC by the manufacturers or other sources. Therefore, we consider this report confidential and ask that you do the same. This report should not be transmitted to third parties without the written permission of JLC and an authorized agent of your firm.

Approved by:

Jeewan Krish Biscessar
NYC DEP Asbestos Investigator #76905

CITY OF NEW YORK
JEEWAN KRISH BISCESSAR
CERTIFIED ASBESTOS INVESTIGATOR

APPENDIX A

LABORATORY ANALYTICAL REPORTS

CERTIFICATES OF ANALYSIS

BY

POLARIZED LIGHT MICROSCOPY

JLC
ENVIRONMENTAL CONSULTANTS, INC

June 1, 2000

STV Incorporated
225 Park Avenue South
New York, NY 10003

Attention: Mr. Jeff Buttler

Reference: Sunny Side Rail Yard "A"

Dear Mr. Buttler:

Enclosed please find the analytical results of the building materials inspection conducted at Sunny Side Rail Yard "A".

All samples were collected and analyzed by JLC Environmental Consultants, Inc. (JLC) at the request of STV Incorporated.

According to procedure, samples were placed in double plastic bags at the site location and ransported to the JLC laboratory. Upon arrival, the samples were individually prepared and identified as friable or non-friable and then analyzed and indexed by date of collection, receipt, and analysis, as well as location, color, total estimated percentage of asbestos, and type(s) and estimated percentage(s) of each asbestos fiber group and non-asbestos fiber groups.

The detailed protocol for friable bulk material sample preparation and analysis is discussed in detail in the five sections on the following page: Introduction, Methodology, Analytical Procedures, Polarized Light Microscopy, and Analytical Results. These sections should clarify most questions concerning the results and documentation for this project.

JLC Environmental Consultants, Inc. appreciates the opportunity to serve your organization. Please contact us with any further questions. We look forward to working with you again in the future.

Sincerely,

JLC Environmental Consultants, Inc.

Al Wallner

Al Wallner
Laboratory Director
cc: File

Bulk Building Materials Analysis and Procedure

Introduction

Polarized light microscopy with dispersion staining (PLM-DS) is the most efficient method for detecting asbestos in bulk samples. It is this method that the JLC lab uses during bulk building material analyses.

Methodology

A chain of custody is kept for each sample to ensure proper handling and delivery to the JLC lab prior to analysis. To avoid any possible contamination, all sample and slide preparation is carried out in a ventilated, HEPA-filter hood with continuous airflow. Sample analysis is performed using PLM-DS in accordance with the USEPA , "Method for the Determination of Asbestos in Bulk Building Materials," EPA 600 R-93 116, July 1993, and NYDOH-ELAP certification manual, "Polarized Light Microscope Methods for Identifying and Quantitating Asbestos in Bulk Samples," ELAP 198.1, October 1993.

Analytical Procedures

All samples are subject to preliminary visual stereomicroscopic examination. Observation of homogeneity, fiber identification, and semi-quantitation of constituents can be made at this point. Samples lacking uniformity of composition and/or distribution of component materials then undergo homogenization. Some non-friable organically bound (NOB) samples such as floor tiles and roofing materials may require additional steps to dislodge problem matrices (i.e. ashing, extractions, and TEM).

Identification of suspect fibers is made by PLM analysis of subsamples. A microscope equipped with dual polarizing filters enables us to observe specific optical characteristics of each sample. Positive identification of asbestos requires determination of the following optical properties: morphology, color and pleochroism, refractive indices, birefringence, extinction characteristics, and signs of elongation.

Asbestos quantitation is performed by point-counting procedure, a standard technique in petrography for determining the relative areas occupied by separate minerals in rock. An ocular reticle superimposes a point or points over the microscope's field of view. The number of points positioned directly above each kind of particle or fiber is recorded. A total of 400 points must be counted over at least eight different representative subsamples to complete analysis.

Polarized Light Microscopy

JLC uses an Olympus BHT-P Polarizing Microscope complete with polarizer, analyzer, port for wave retardation plate, 360 degree graduated rotating stage, substage condenser, lamp and lamp iris, eyepiece reticle, and 25 point Chalkley Point Array. Plane polarized light allows for the determination of refraction indices relative to specific crystallographic orientations. Morphology and color can also be observed under plane polarized light. Observation of particles or fibers while oriented between polarizing filters whose privileged vibration directions are perpendicular allows for determination of isotropism/ anistropism, extinction characterisitcs of anisotropic particles, and calculation of birefringence. A retardation plate may be placed in the polarized light path for verification of signs of elongation.

Analytical Results

The "Summary of Analytical Results" represents the results of analysis. Positive results mean the sample is asbestos or contains more than one percent asbestos by weight. The results are generally sufficient for identification and quantitation of major concentrations of asbestos. However, it may be found that additional techniques may be necessary. Please be aware that PLM is not consistenly reliable in detecting asbestos in floor coverings and similar NOB materials. Before the material can be considered or treated as non-asbestos containing, confirmation must be made by quantitative Transmission Electron Microscopy (TEM).

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STV Incorporated
125 Park Avenue South
New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067
Analyte: ASBESTOS
Date Received: 4/4/00
Date Analyzed: 4/4/00
Batch #: 0004B159

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunny Side Rail Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
001 3/31/00 4013 001A	Ground Floor/ West Wall/ North West Section/ Sample of Interior Stucco	BROWN	NO	0%	NFIB	100%
002 3/31/00 4014 002A	Ground Floor/ East Wall/ North West Section/ Sample of Interior Stucco	BROWN/ GRAY	NO	0%	NFIB	100%
003 3/31/00 1015 003A	Ground Floor/ North Wall/ North West Section/ Sample of Interior Stucco	BROWN	NO	0%	NFIB	100%
004 3/31/00 4016 004B	Ground Floor/ North Wall/ North East Section/ Sample of Interior Stucco	BROWN	NO	0%	SYNF NFIB	1% .99%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

ASBESTOS CONSTITUENTS
CHRY = Chrysotile Asbestos
AMOS = Amosite Asbestos
CROC = Crocidolite Asbestos
ACTN = Actinolite Asbestos
TREM = Tremolite Asbestos
ANTH = Anthophylite Asbestos

NON-ASBESTOS CONSTITUENTS
PAPF = Paper Fiber
MINW = Mineral Wool
FBGL = Fiberglass
SYNF = Synthetic Fibers
CELL = Cellulose
NFIB = Non-Fibrous
ORGM = Organic Material
WOLL = Wollastonite
HSHR = Horse Hair
OTHR = Other

Al Wallner

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005 3/31/00 4017 005B	Ground Floor/ East Wall/ North East Section/ Sample of Exterior Stucco	BROWN	NO	0%	NFIB	100%
006 3/31/00 4018 006B	Ground Floor/ West Wall/ North West Section/ Sample of Exterior Stucco	BROWN	NO	0%	NFIB	100%
007 3/31/00 4019 007C	Ground Floor/ West Wall/ North West Section/ Bathroom/ Sample of Brick Mortar	BROWN	NO	0%	NFIB	100%
008 3/31/00 4020 008C	Ground Floor/ North West Section/ Bathroom/ Sample of Brick Mortar	BROWN	NO	0%	NFIB	100%

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009 3/31/00 4021 009C	Ground Floor/ North West Section/ Bathroom/ Sample of Brick Mortar	BROWN	NO	0%	NFIB	100%
010 3/31/00 4022 010D	**Ground Floor/ North Section/ North Elevation/ Sample of Window Putty	TAN	NO	0%	NFIB	100%
011 3/31/00 4024 011D	**Ground Floor/ North West Section/ West Elevation/ Sample of Window Putty	TAN	NO	0%	NFIB	100%
012 3/31/00 4025 012D	**Ground Floor/ North East Section/ East Elevation/ Sample of Window Putty	TAN	NO	0%	NFIB	100%

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Analyte: ASBESTOS
Date Received: 4/4/00
Date Analyzed: 4/4/00
Batch #: 0004B159

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunny Side Rail Yard "A"*

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013 3/31/00 4026 013E	**Ground Floor/ North West Section/ Sample of Roof Membrane	BLACK	NO	0%	CELL 35% NFIB 65%
014 3/31/00 4027 014E	**Ground Floor/ South East Section/ Sample of Roof Membrane	BLACK	NO	0%	CELL 40% NFIB 60%
015 3/31/00 4028 015E	**Ground Floor/ South West Section/ Sample of Roof Membrane	BLACK	NO	0%	CELL 40% NFIB 60%
016 3/31/00 4029 016F	**Ground Floor/ North West Section/ North Wall/ Sample of Perimeter Flashing	BLACK	NO	0%	CELL 55% NFIB 45%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
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SUMMARY OF ANALYTICAL RESULTS - PLM

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SAMPLE # *DATE COLLECTED* *LAB #* *CLIENT'S SAMPLE #*	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
017 3/31/00 4030 017F	**Ground Floor/ South West Section/ South Wall/ Sample of Perimeter Flashing	BLACK	NO	0%	CELL NFIB	65% 35%
018 3/31/00 4031 018F	**Ground Floor/ North East Section/ East Wall/ Sample of Perimeter Flashing	BLACK	NO	0%	CELL NFIB	65% 35%

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NVLAP Lab Code: 101953

Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
001 4/12/00 4956 001A	**Yard Master Office/ 2nd Floor/ East Side/ Sample of 9"x9" Green Floor Tile	GREEN	NO	0%	CELL NFIB	TRACE 100%
002 4/12/00 4957 002A	**Yard Master Office/ 2nd Floor/ West Side/ Sample of 9"x9" Green Floor Tile	GREEN	NO	0%	NFIB	100%
003 4/12/00 4958 003A	**Yard Master Office/ 2nd Floor/ North Side/ Sample of 9"x9" Green Floor Tile	GREEN	NO	0%	NFIB	100%
004 4/12/00 4959 004B	**Yard Master Office/ 2nd Floor/ East Side/ Sample of 9"x9" Green Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	5% 95%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

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Date Received: 4/14/00
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SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED?	TOTAL % OF ASBESTOS	CONSTITUENTS	
005 4/12/00 4960 005B	**Yard Master Office/ 2nd Floor/ West Side/ Sample of 9"x9" Green Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	5% 95%
006 4/12/00 4961 006B	**Yard Master Office/ 2nd Floor/ North Side/ Sample of 9"x9" Green Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	5% 95%
007 4/12/00 4962 007C	Yard Master Office/ 2nd Floor/ South Wall/ Sample of Wall Plaster White Coat	WHITE	NO	0%	NFIB	100%
008 4/12/00 4963 008C	Yard Master Office/ 2nd Floor/ North Wall/ Sample of Wall Plaster White Coat	WHITE	NO	0%	NFIB	100%

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009 4/12/00 4964 009C	Yard Master Office/ 2nd Floor/ By Bathroom/ Sample of Wall Plaster White Coat	WHITE	NO	0%	NFIB	100%
010 4/12/00 4965 010C	Yard Master Office/ 2nd Floor/ Hall By Stairs/ Sample of Wall Plaster White Coat	WHITE	NO	0%	NFIB	100%
011 4/12/00 4966 011C	Yard Master Office/ 2nd Floor/ West Wall/ Sample of Wall Plaste/ White Coat	WHITE	NO	0%	NFIB	100%
012 4/12/00 4967 012D	Yard Master Office/ 2nd Floor/ South Wall/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	NFIB	100%

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Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # *DATE COLLECTED* *LAB #* *CLIENT'S SAMPLE #*	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
013 4/12/00 4969 013D	Yard Master Office/ 2nd Floor/ North Wall/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	CELL NFIB	TRACE 100%
014 4/12/00 4970 014D	Yard Master Office/ 2nd Floor/ By Bathroom/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	CELL NFIB	TRACE 100%
015 4/12/00 4971 015D	Yard Master Office/ 2nd Floor/ Hall By Stairs/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	NFIB	100%
016 4/12/00 4972 016D	Yard Master Office/ 2nd Floor/ West Wall/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	CELL NFIB	TRACE 100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

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CHRY = Chrysotile Asbestos
AMOS = Amosite Asbestos
CROC = Crocidolite Asbestos
ACTN = Actinolite Asbestos
TREM = Tremolite Asbestos
ANTH = Anthophylite Asbestos

Al Wallner
Al Wallner
Laboratory Director

NON-ASBESTOS CONSTITUENTS
PAPF = Paper Fiber
MINW = Mineral Wool
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HSHR = Horse Hair
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ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: Sunnyside Yard "A"

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017 4/12/00 4973 017E	Yard Master Office/ 2nd Floor/ Bathroom Foyer/ Sample of Ceiling Plaster White Coat	WHITE	NO	0%	NFIB	100%
018 4/12/00 4974 018E	Yard Master Office/ 2nd Floor/ West Area/ Sample of Ceiling Plaster White Coat	WHITE	NO	0%	NFIB	100%
019 4/12/00 4975 019E	Yard Master Office/ 2nd Floor/ Hall By Stairs/ Sample of Ceiling Plaster White Coat	WHITE	NO	0%	NFIB	100%
020 4/12/00 4976 020F	Yard Master Office/ 2nd Floor/ Bathroom Foyer/ Sample of Ceiling Plaster Brown Coat	BROWN	NO	0%	CELL NFIB	1% 99%

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Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

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021 4/12/00 4978 021F	Yard Master Office/ 2nd Floor/ West Area/ Sample of Ceiling Plaster Brown Coat	BROWN	NO	0%	NFIB	100%
022 4/12/00 4979 022F	Yard Master Office/ 2nd Floor/ Hall By Stairs/ Sample of Ceiling Plaster Brown Coat	BROWN	NO	0%	CELL NFIB	TRACE 100%
023 4/12/00 4980 023G	**Yard Master Office/ 2nd Floor/ Bathroom/ Left Side/ Sample of Window Caulking	BEIGE	NO	0%	NFIB	100%
024 4/12/00 4981 024G	**Yard Master Office/ 2nd Floor/ Bathroom/ Middle/ Sample of Window Caulking	BEIGE	NO	0%	NFIB	100%

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025 4/12/00 4982 025G	**Yard Master Office/ 2nd Floor/ Bathroom/ Right Side/ Sample of Window Caulking	BEIGE	NO	0%	NFIB	100%
026 4/12/00 4983 026H	**Yard Master Office/ 2nd Floor/ Bathroom/ Left Side/ Sample of Window Putty	PINK	NO	0%	NFIB	100%
027 4/12/00 4984 027H	**Yard Master Office/ 2nd Floor/ Bathroom/ Middle/ Sample of Window Putty	PINK	NO	0%	NFIB	100%
028 4/12/00 4985 028H	**Yard Master Office/ 2nd Floor/ Bathroom/ Right Side/ Sample of Window Putty	PINK	NO	0%	NFIB	100%

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Project No.: 00-1067001
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Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED?	TOTAL % OF ASBESTOS	CONSTITUENTS	
029 4/12/00 4986 029I	Yard Master Office/ 2nd Floor/ South Wall/ Sample of Sheetrock	TAN/ BROWN	NO	0%	CELL NFIB	10% 90%
030 4/12/00 4987 030I	Yard Master Office/ 2nd Floor/ North Wall/ Sample of Sheetrock	TAN	NO	0%	CELL NFIB	4% 96%
031 4/12/00 4989 031I	Yard Master Office/ 2nd Floor/ East Wall/ Sample of Sheetrock	TAN/ BROWN	NO	0%	CELL NFIB	10% 90%
032 4/12/00 4990 032J	Yard Master Office/ 2nd Floor/ South Wall/ Sample of Sheetrock Joint Compound	WHITE	NO	0%	NFIB	100%

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SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

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033 4/12/00 4991 033J	Yard Master Office/ 2nd Floor/ North Wall/ Sample of Sheetrock Joint Compound	WHITE	NO	0%	NFIB	100%
034 4/12/00 4992 034J	Yard Master Office/ 2nd Floor/ East Wall/ Sample of Sheetrock Joint Compound	WHITE	NO	0%	NFIB	100%
035 4/12/00 4993 035K	**Yard Master Office/ 1st Floor/ By West Exit/ Sample of 9"x9" Green Floor Tile	GREEN	NO	0%	NFIB	100%
036 4/12/00 4994 036K	**Yard Master Office/ 1st Floor/ By East Exit/ Sample of 9"x9" Green Floor Tile	GREEN	NO	0%	NFIB	100%

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SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # *DATE COLLECTED* *LAB #* *CLIENT'S SAMPLE #*	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
037 4/12/00 4995 037K	**Yard Master Office/ 1st Floor/ South Area/ Sample of 9"x9" Green Floor Tile	GREEN	NO	0%	NFIB	100%
038 4/12/00 4996 038L	**Yard Master Office/ 1st Floor/ By West Exit/ Sample of 9"x9" Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	5% 95%
039 4/12/00 4997 039L	**Yard Master Office/ 1st Floor/ By East Exit/ Sample of 9"x9" Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	7% 93%
040 4/12/00 4998 040L	**Yard Master Office/ 1st Floor/ South Area/ Sample of 9"x9" Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	5% 95%

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041 4/12/00 5000 041M	**Yard Master Office/ 1st Floor/ By West Exit/ Sample of 12"x12" Light Green Floor Tile	LIGHT BLUE	NO	0%	CELL NFIB	TRACE 100%
042 4/12/00 5001 042M	**Yard Master Office/ 1st Floor/ West Area/ Middle/ Sample of 12"x12" Light Green Floor Tile	LIGHT BLUE	NO	0%	NFIB	100%
043 4/12/00 5002 043M	**Yard Master Office/ 1st Floor/ West Area/ Left Side/ Sample of 12"x12" Light Green Floor Tile	LIGHT BLUE	NO	0%	NFIB	100%
044 4/12/00 5003 044N	**Yard Master Office/ 1st Floor/ West Area/ West Exit/ Sample of 12"x12" Light Green Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	10% 90%

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045 4/12/00 5004 045N	**Yard Master Office/ 1st Floor/ West Area/ Middle/ Sample of 12"x12" Light Green Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	10% 90%
046 4/12/00 5005 046N	**Yard Master Office/ 1st Floor/ West Area/ Left Side/ Sample of 12"x12" Light Green Floor Tile Mastic	BLACK	NO	0%	CELL NFIB	10% 90%
047 4/12/00 5006 047O	Yard Master Office/ 1st Floor/ By Staircase/ Sample of Wall Plaster White Coat	WHITE	NO	0%	NFIB	100%
048 4/12/00 5007 048O	Yard Master Office/ 1st Floor/ By West Exit/ Sample of Wall Plaster White Coat	WHITE	NO	0%	NFIB	100%

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Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
049 4/12/00 5008 049O	Yard Master Office/ 1st Floor/ By North Wall/ Sample of Wall Plaster White Coat	WHITE	NO	0%	NFIB	100%
050 4/12/00 5009 050P	Yard Master Office/ 1st Floor/ By Staircase/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	NFIB	100%
051 4/12/00 5011 051P	Yard Master Office/ 1st Floor/ By West Exit/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	NFIB	100%
052 4/12/00 5012 052P	Yard Master Office/ 1st Floor/ By North Wall/ Sample of Wall Plaster Brown Coat	BROWN	NO	0%	CELL NFIB	TRACE 100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

ASBESTOS CONSTITUENTS
CHRY = Chrysotile Asbestos
AMOS = Amosite Asbestos
CROC = Crocidolite Asbestos
ACTN = Actinolite Asbestos
TREM = Tremolite Asbestos
ANTH = Anthophylite Asbestos

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PAPF = Paper Fiber
MINW = Mineral Wool
FBGL = Fiberglass
SYNF = Synthetic Fibers
CELL = Cellulose
NFIB = Non-Fibrous
ORGM = Organic Material
WOLL = Wollastonite
HSHR = Horse Hair
OTHR = Other

Al Wallner
Al Wallner
Laboratory Director

JLC ENVIRONMENTAL CONSULTANTS, INC.
200 Park Avenue South, Suite 1001, New York, New York 10003
Phone: (212) 420-8119 Fax: (212) 420-6092

STV Incorporated
225 Park Avenue South,
New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
053 4/12/00 5013 053Q	Yard Master Office/ 1st Floor/ West Side/ Sample of Sheetrock	OFF-WHITE	NO	0%	CELL NFIB	2% 98%
054 4/12/00 5014 054Q	Yard Master Office/ 1st Floor/ South Side/ Sample of Sheetrock	OFF-WHITE	NO	0%	CELL NFIB	5% 95%
055 4/12/00 5015 055Q	Yard Master Office/ 1st Floor/ By Stairs/ Sample of Sheetrock	OFF-WHITE	NO	0%	CELL NFIB	12% 88%
056 4/12/00 5016 056R	Yard Master Office/ 1st Floor/ West Side/ Sample of Sheetrock Joint Compound	WHITE	NO	0%	NFIB	100%

***INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP**

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
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 This method is not applicable to samples containing large amounts of fine fibers below the resolution of the light microscope. The value of this method is limited to the quantitative identification of asbestos and the semi-quantitative determination of asbestos content of bulk samples, expressed as a percentage of the protected area. Quantitation of asbestos content was determined with a visual volume estimate, a calibrated visual area estimate, and/or point counting procedure. CAUTION: Other fibers with optical properties similar to asbestos may give positive interferences and will be considered asbestos under this methodology. Also, PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically-bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

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NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # *DATE COLLECTED* *LAB #* *CLIENT'S SAMPLE #*	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
057 4/12/00 5017 057R	Yard Master Office/ 1st Floor/ South Side/ Sample of Sheetrock Joint Compound	WHITE	NO	0%	NFIB	100%
058 4/12/00 5018 058R	Yard Master Office/ 1st Floor/ By Stairs/ Sample of Sheetrock Joint Compound	WHITE	NO	0%	NFIB	100%
059 4/12/00 5019 059S	West Side Of Yard/ Abandoned Building/ North Elevation/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
060 4/12/00 5020 060S	West Side Of Yard/ Abandoned Building/ North Elevation/ Left Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:

Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:

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Instrumentation:

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ELAP Lab Code: 11029
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NVLAP Lab Code: 101953

Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
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SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
061 4/12/00 5022 061S	West Side Of Yard/ North Elevation/ Abandoned Building/ Right Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
062 4/12/00 5023 062T	North Elevation/ Abandoned Building/ Middle/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%
063 4/12/00 5024 063T	North Elevation/ Abandoned Building/ Left Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%
064 4/12/00 5025 064T	North Elevation/ Abandoned Building/ Right Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%

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Sample Analysis by:

Polarized Light Microscopy-Dispersion Staining (PLM-DS)

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Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
065 4/12/00 5026 065U	Abandoned Building/ East Elevation/ Left Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
066 4/12/00 5027 066U	Abandoned Building/ East Elevation/ Middle/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
067 4/12/00 5028 067U	Abandoned Building/ East Elevation/ Right Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
068 4/12/00 5029 068V	Abandoned Building/ East Elevation/ Left Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%

***INSUFFICIENT MATERIAL SUBMITTED** ****TEM RECOMMENDED** *****NOT ANALYZED POSITIVE STOP**

Sample Analysis by:

Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:

All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

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Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
069 4/12/00 5030 069V	Abandoned Building/ East Elevation/ Middle/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%
070 4/12/00 5031 070V	Abandoned Building/ East Elevation/ Right Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%
071 4/12/00 5033 071W	Abandoned Building/ South Elevation/ Left Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
072 4/12/00 5034 072W	Abandoned Building/ South Elevation/ Middle/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%

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Sample Analysis by:
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Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: Sunnyside Yard "A"

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED?	TOTAL % OF ASBESTOS	CONSTITUENTS	
073 4/12/00 5035 073W	Abandoned Building/ South Elevation/ Right Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
074 4/12/00 5036 074X	Abandoned Building/ South Elevation/ Left Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%
075 4/12/00 5037 075X	Abandoned Building/ South Elevation/ Middle/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%
076 4/12/00 5038 076X	Abandoned Building/ South Elevation/ Right Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%

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Sample Analysis by:

Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:

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ELAP Lab Code: 11029
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Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
077 4/12/00 5039 077Y	Abandoned Building/ West Elevation/ Right Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
078 4/12/00 5040 078Y	Abandoned Building/ West Elevation/ Middle/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
079 4/12/00 5041 079Y	Abandoned Building/ West Elevation/ Left Side/ Sample of Exterior Brick	RED	NO	0%	NFIB	100%
080 4/12/00 5042 080Z	Abandoned Building/ West Elevation/ Right Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:

Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:

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Project No.: 00-1067001
Analyte: ASBESTOS
Date Received: 4/14/00
Date Analyzed: 4/14/00
Batch #: 0004B193

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunnyside Yard "A"*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED?	TOTAL % OF ASBESTOS	CONSTITUENTS	
081 4/12/00 5044 081Z	Abandoned Building/ West Elevation/ Middle/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%
082 4/12/00 5045 082Z	Abandoned Building/ West Elevation/ Left Side/ Sample of Exterior Brick Mortar	BEIGE	NO	0%	NFIB	100%

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Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
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CERTIFICATES OF ANALYSIS

BY

TRANSMISSION ELECTRON MICROSCOPY

JLC
ENVIRONMENTAL CONSULTANTS, INC

June 1, 2000

STV Incorporated
225 Park Avenue South
New York, NY 10003

Attention: Mr. Jeff Buttler

Reference: Sunny Side Rail Yard "A"

Dear Mr. Buttler:

Enclosed please find the analytical results for TEM Bulk samples collected at Sunny Side Rail Yard "A".

All samples were collected by JLC Environmental Consultants, Inc. (JLC) at the request of STV Incorporated.

The samples were analyzed by means of Transmission Electron Microscopy (TEM) in accordance with the ELAP "TEM Method for Identifying and Quantitating Asbestos in Non-Fibrous Organically Bound Bulk Samples" Revision 198.4, 8/3/92.

Any questions concerning results and/or documentation should be directed to Al Wallner, our laboratory director.

JLC Environmental Consultants, Inc. appreciates the opportunity to serve your organization. Please contact us with any further questions. We look forward to working with you again in the future.

Sincerely,
JLC Environmental Consultants, Inc.

Al Wallner

Al Wallner
Laboratory Director
cc: File

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ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

ΓV Incorporated
25 Park Avenue South
'ork, NY 10003

Project No.:	00-1067
Analyte:	ASBESTOS
Date Collected:	3/31/00
Date Relinquished:	4/4/00
Date Received:	4/4/00
Date Analyzed:	4/4/00
Batch #:	20004346

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunny Side Rail Yard "A"*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
010 4022	Ground Floor/ North Section/ North Elevation/ Sample of Window Putty	TAN	NO	0%	NAD	0%
011 4024	Ground Floor/ North West Section/ West Elevation/ Sample of Window Putty	TAN	NO	0%	NAD	0%
012 4025	Ground Floor/ North East Section/ East Elevation/ Sample of Window Putty	TAN	NO	0%	NAD	0%
013 4026	Ground Floor/ North West Section/ Sample of Roof Membrane	TAN	NO	0%	NAD	0%

Insufficient Material Submitted** ****Weight of Residue is <1%, Analysis Unnecessary** ** Not Analysis Positive Stop**

Sample Analysis by:
Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the ELAP "TEM Method for Identifying and Quantitating Asbestos in Non-Fibrous Organically Bound Bulk Samples" Revision 198.4, 8/3/92.

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OTHR = Other
ORGM = Organic Material
RESI = Residue
CARB = Carbonate

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Quantitative transmission electron microscopy is currently the only method that can be used to determine absolutely if this material can be considered or treated as non-asbestos containing.

Note: The above samples were analyzed by Sci Lab, a NIST-NVLAP and NYS-ELAP accredited laboratory and a sub-contractor of JLC Environmental Consultants, Inc. (NVLAP # 101904-1, ELAP # 11480)

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STV Incorporated
225 Park Avenue South
New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067
Analyte: ASBESTOS
Date Collected: 3/31/00
Date Relinquished: 4/4/00
Date Received: 4/4/00
Date Analyzed: 4/4/00
Batch #: 20004346

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunny Side Rail Yard "A"*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
014 4027	Ground Floor/ South East Section/ Sample of Roof Membrane	TAN	NO	0%	NAD	0%
015 4028	Ground Floor/ South West Section/ Sample of Roof Membrane	TAN	NO	0%	NAD	0%
016 4029	Ground Floor/ North West Section/ North Wall/ Sample of Perimeter Flashing	TAN	NO	0%	NAD	0%
017 4030	Ground Floor/ South West Section/ South Wall/ Sample of Perimeter Flashing	TAN	NO	0%	NAD	0%

Insufficient Material Submitted** ****Weight of Residue is <1%, Analysis Unnecessary** ** Not Analysis Positive Stop**

Sample Analysis by:

Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:

All samples were prepared and analyzed in accordance with the ELAP "TEM Method for Identifying and Quantitating Asbestos in Non-Fibrous Organically Bound Bulk Samples" Revision 198.4, 8/3/92.

ASBESTOS CONSTITUENTS

CHRY = Chrysotile Asbestos
AMOS = Amosite Asbestos
CROC = Crocidolite Asbestos
ACTN = Actinolite Asbestos
TREM = Tremolite Asbestos
ANTH = Anthophylite Asbestos

NON-ASBESTOS CONSTITUENTS

PAPF = Paper Fiber
MINW = Mineral Wool
FBGL = Fiberglass
SYNF = Synthetic Fibers
CELL = Cellulose
NFIB = Non-Fibrous
OTHR = Other
ORGM = Organic Material
RESI = Residue
CARB = Carbonate

Al Wallner
Laboratory Director

Quantitative transmission electron microscopy is currently the only method that can be used to determine absolutely if this material can be considered or treated as non-asbestos containing.

Note: The above samples were analyzed by Sci Lab, a NIST-NVLAP and NYS-ELAP accredited laboratory and a sub-contractor of JLC Environmental Consultants, Inc. (NVLAP # 101904-1, ELAP # 11480)

JLC ENVIRONMENTAL CONSULTANTS, INC.

200 Park Avenue South, Suite 1001, New York, New York 10003
Phone: (212) 420-8119 Fax: (212) 420-6092

:TV Incorporated
25 Park Avenue South
ork, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.:	00-1067
Analyte:	ASBESTOS
Date Collected:	3/31/00
Date Relinquished:	4/4/00
Date Received:	4/4/00
Date Analyzed:	4/4/00
Batch #:	20004346

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunny Side Rail Yard "A"*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
018 4031	Ground Floor/ North East Section/ East Wall/ Sample of Perimeter Flashing	BLACK	NO	0%	NAD	0%

Insufficient Material Submitted** ****Weight of Residue is <1%, Analysis Unnecessary** ** Not Analysis Positive Stop**

Sample Analysis by:
Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:
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ELAP Lab Code: 11029

NIOSH and AIHA Lab Code: 100273

NVLAP Lab Code: 101953

TV Incorporated
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York, NY 10003

Project No.:	00-1067001
Analyte:	ASBESTOS
Date Collected:	4/12/00
Date Relinquished:	4/14/00
Date Received:	4/14/00
Date Analyzed:	4/15/00
Batch #:	**200042437**

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunnyside Yard "A"*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
001 4956	Yard Master Office/ 2nd Floor/ East Side/ Sample of 9"X9" Green Floor Tile	GREEN	YES	22.9%	CHRY	22.9%
002 4957	Yard Master Office/ 2nd Floor/ West Side/ Sample of 9"X9" Green Floor Tile	GREEN	YES	21.6%	CHRY	21.6%
003 4958	Yard Master Office/ 2nd Floor/ North Side/ Sample of 9"X9" Green Floor Tile	GREEN	YES	23.2%	CHRY	23.2%
004 [illegible]9	Yard Master Office/ 2nd Floor/ East Side/ Sample of 9"X9" Green Floor Tile Mastic	BLACK	TRACE	<1%	CHRY	TRACE%

Insufficient Material Submitted** ****Weight of Residue is <1%, Analysis Unnecessary** ** Not Analysis Positive Stop**

<u>Sample Analysis by:</u>
Transmission Electron Microscopy (TEM)

<u>Method of Sample Preparation and Analysis:</u>
All samples were prepared and analyzed in accordance with the ELAP "TEM Method for Identifying and Quantitating Asbestos in Non-Fibrous Organically Bound Bulk Samples" Revision 198.4, 8/3/92.

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Al Wallner
Al Wallner
Laboratory Director

Quantitative transmission electron microscopy is currently the only method that can be used to determine absolutely if this material can be considered or treated as non-asbestos containing.

Note: The above samples were analyzed by Sci Lab, a NIST-NVLAP and NYS-ELAP accredited laboratory and a sub-contractor of JLC Environmental Consultants, Inc. (NVLAP # 101904-1, ELAP # 11480)

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New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.:	00-1067001
Analyte:	ASBESTOS
Date Collected:	4/12/00
Date Relinquished:	4/14/00
Date Received:	4/14/00
Date Analyzed:	4/15/00
Batch #:	200042437

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunnyside Yard "A"*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
005 4960	Yard Master Office/ 2nd Floor/ West Side/ Sample of 9"X9" Green Floor Tile Mastic	BLACK	TRACE	<1%	CHRY	TRACE%
006 4961	Yard Master Office/ 2nd Floor/ North Side/ Sample of 9"X9" Green Floor Tile Mastic	BLACK	TRACE	<1%	CHRY	TRACE%
023 4980	Yard Master Office/ 2nd Floor/ Bathroom/ Left Side/ Sample of Window Caulking	WHITE	TRACE	<1%	CHRY	TRACE%
024 4981	Yard Master Office/ 2nd Floor/ Bathroom/ Middle/ Sample of Window Caulking	WHITE	TRACE	<1%	CHRY	TRACE%

Insufficient Material Submitted** ****Weight of Residue is <1%, Analysis Unnecessary** ** Not Analysis Positive Stop***

Sample Analysis by:
Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:
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ELAP Lab Code: 11029
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Project No.:	00-1067001
Analyte:	ASBESTOS
Date Collected:	4/12/00
Date Relinquished:	4/14/00
Date Received:	4/14/00
Date Analyzed:	4/15/00
Batch #:	200042437

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunnyside Yard "A"*

MPLE # AB # LIENT'S AMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
25 982	Yard Master Office/ 2nd Floor/ Bathroom/ Right Side/ Sample of Window Caulking	WHITE	YES	<1.0%	CHRY	<1.0%
26 983	Yard Master Office/ 2nd Floor/ Bathroom/ Left Side/ Sample of Window Putty	WHITE	TRACE	<1.0%	CHRY	<1.0%
27 984	Yard Master Office/ 2nd Floor/ Bathroom/ Middle/ Sample Window Putty	BROWN	NO	0%	NAD	0%
28	Yard Master Office/ 2nd Floor/ Bathroom/ Right Side/ Sample of Window Putty	BROWN	NO	0%	NAD	0%

Insufficient Material Submitted* ***Weight of Residue is <1%, Analysis Unnecessary* ** Not Analysis Positive Stop*

Sample Analysis by:
Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:
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ːV Incorporated
:5 Park Avenue South,
ːw York, NY 10003

Project No.:	00-1067001
Analyte:	ASBESTOS
Date Collected:	4/12/00
Date Relinquished:	4/14/00
Date Received:	4/14/00
Date Analyzed:	4/15/00
Batch #:	200042437

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunnyside Yard "A"*

·AMPLE # ·AB # :LIENT'S ;AMPLE D #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
)35 ·1993	Yard Master Office/ 1st Floor/ By West Exit/ Sample of 9"X9" Green Floor Tile	BROWN	YES	14.5%	CHRY	14.5%
)36 ·1994	Yard Master Office/ 1st Floor/ By East Exit/ Sample of 9"X9" Green Floor Tile	BROWN	YES	14.8%	CHRY	14.8%
)37 ·1995	Yard Master Office/ 1st Floor/ South Area/ Sample of 9"X9" Green Floor Tile	GREEN	YES	10.6%	CHRY	10.6%
)38 ·1996	Yard Master Office/ 1st Floor/ By West Exit/ Sample of 9"X9" Floor Tile Mastic	BLACK	YES	2.3%	CHRY	2.3%

Insufficient Material Submitted** ****Weight of Residue is <1%, Analysis Unnecessary** ** Not Analysis Positive Stop**

Sample Analysis by:
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Method of Sample Preparation and Analysis:
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SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunnyside Yard "A"*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
039 4997	Yard Master Office/ 1st Floor/ By East Exit/ Sample of 9"X9" Floor Tile Mastic	BLACK	YES	<1.0%	CHRY	<1.0%
040 4998	Yard Master Office/ 1st Floor/ South Area/ Sample of 9"X9" Floor Tile Mastic	BLACK	YES	<1.0%	CHRY	<1.0%
041 5000	Yard Master Office/ 1st Floor/ By West Exit/ Sample of 12"X12" Light Green Floor Tile	LIGHT BLUE	TRACE	<1%	CHRY	TRACE%
042 [illegible]1	Yard Master Office/ 1st Floor/ West Area/ Middle/ Sample of 12"X12" Light Green Floor Tile	LIGHT BLUE	NO	0%	NAD	0%

Insufficient Material Submitted* ***Weight of Residue is <1%, Analysis Unnecessary* ** Not Analysis Positive Stop*

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Project No.:	00-1067001
Analyte:	ASBESTOS
Date Collected:	4/12/00
Date Relinquished:	4/14/00
Date Received:	4/14/00
Date Analyzed:	4/15/00
Batch #:	200042437

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunnyside Yard "A"*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
043 5002	Yard Master Office/ 1st Floor/ West Area/ Left Side/ Sample of 12"X12" Light Green Floor Tile	LIGHT BLUE	NO	0%	NAD	0%
044 5003	Yard Master Office/ 1st Floor/ West Area/ West Exit/ Sample of 2"X12"Floor Tile Mastic	BLACK	TRACE	<1%	CHRY	TRACE%
045 5004	Yard Master Office/ 1st Floor/ Middle/ Sample of 2"X12" Floor Tile Mastic	BLACK	TRACE	<1%	CHRY	TRACE%
046 5005	Yard Master Office/ 1st Floor/ West Area/ Left Side/ Sample of 2"X12" Floor Tile Mastic	BLACK	TRACE	<1%	CHRY	TRACE%

Insufficient Material Submitted* *****Weight of Residue is <1%, Analysis Unnecessary* ****** Not Analysis Positive Stop***

Sample Analysis by:
Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:
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CERTIFICATES OF LEAD PAINT ANALYSIS

BY

ATOMIC ABSORPTION SPECTROSCOPY

JLC ENVIRONMENTAL CONSULTANTS, INC

June 1, 2000

STV Incorporated
225 Park Avenue South
New York, NY 10003

Attention: Mr. Jeff Buttler

Reference: Sunny Side Rail Yard "A"

Dear Mr. Buttler:

Enclosed please find the analytical results for lead samples collected at Sunny Side Rail Yard "A".

The samples were analyzed using an Atomic Absorption Spectrometry (AAS) using an air-acetylene flame and background correction in accordance with the Environmental Protection Agency Method EPA SW846-3050-7420. HUD guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter or 0.5% by weight (5,000 PPM) as Lead Based Paint (LBP).

Any questions concerning results and/or documentation should be directed to Al Wallner, our laboratory director.

JLC Environmental Consultants, Inc. appreciates the opportunity to serve your organization. Please contact us with any further questions. We look forward to working with you again in the future.

Sincerely,
JLC Environmental Consultants, Inc.

Al Wallner

Al Wallner
Laboratory Director

cc: File

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ELAP Lab Code: 11029
NIOSH and AIHA (PAT, BAQAP ELPAT) Lab Code:100273
NVLAP Lab Code: 101953

V Incorporated
..5 Park Avenue South
New York, NY 10003

Project No. 00-1067
Analyte: LEAD (paint) AREA
Date Collected: 3/31/00
Date Received: 4/7/00
Date Analyzed: 4/7/00
Lab Batch #: 0004L325

Summary of Analytical Results

Site: **Sunny Side Rail Yard "A"**

Sample # **Lab #** **Client's Sample ID**	**Description / Location**	**LEAD CONTENT** **mg/ cm2**
1 4163 01	Ground Level/ North West Section/ Ceiling/ Sample of 2"x2" Paint Chip	0.088
2 4164 02	Ground Level/ North East Section/ Ceiling/ Sample of 2"x2" Paint Chip	0.038
3 4165 03	Ground Level/ South East Section/ Window Frame/ Sample of 2"x2" Paint Chip	0.337
4 4166 04	Ground Level/ North West Section/ Window Frame/ Sample of 2"x2" Paint Chip	2.331
5 4167 05	Ground Level/ North East Section/ Window Sash/ Sample of 2"x2" Paint Chip	1.076
6 4168 06	Ground Level/ South East Section/ Window Sash/ Sample of 2"x2" Paint Chip	0.783
7 4169 07	Ground Level/ South West Section/ Wall/ Sample of 2"x2" Paint Chip	0.058

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

.JD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

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Project No. 00-1067
Analyte: LEAD (paint) AREA
Date Collected: 3/31/00
Date Received: 4/7/00
Date Analyzed: 4/7/00
Lab Batch #: 0004L325

Summary of Analytical Results

Site: **Sunny Side Rail Yard "A"**

Sample # **Lab #** **Client's Sample ID**	**Description / Location**	**LEAD CONTENT** **mg/ cm2**
8 4170 08	Ground Level/ North West Section/ Wall/ Sample of 2"x2" Paint Chip	0.025
9 4171 09	Ground Level/ West Stairs/ Stairs Railing/ Sample of 2"x2" Paint Chip	0.984
10 4172 10	Ground Level/ West Stairs/ Stairs Railing/ Sample of 2"x2" Paint Chip	0.605

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

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NVLAP Lab Code: 101953

/ Incorporated
_25 Park Avenue South,
New York, NY 10003

Project No. 00-1067001
Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	**Description / Location**	**LEAD CONTENT mg/ cm2**
1 4940 001	2nd Floor/ East Office/ East Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
2 4941 002	2nd Floor/ East Office/ North Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
3 4942 003	2nd Floor/ East Office/ South Wall/ Sample of Tan 2"X2"Paint Chip	<0.02
4 4943 004	2nd Floor/ East Office/ East Elevation/ Window Wall/ Sample of 2"X2" Paint Chip	<0.02
5 4944 005	2nd Floor/ East Office/ North Elevation/ Window Wall/ Sample of White/ 2"X2" Paint Chip	<0.02
6 4945 006	2nd Floor/ East Office/ South Elevation/ Window Wall/ Sample of White 2"X2" Paint Chip	<0.02
7 4946 007	2nd Floor/ East Office/ Baseboard/ Sample of Gray 2"X2" Paint Chip	0.097

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.
Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director
Minimum Dectection Limit = <0.02

HUD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm^2).

JLC ENVIRONMENTAL CONSULTANTS, INC.

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STV Incorporated
225 Park Avenue South,
New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA (PAT, BAQAP ELPAT) Lab Code:100273
NVLAP Lab Code: 101953

Project No. 00-1067001
Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
8 4947 008	2nd Floor/ East Office/ Baseboard/ Sample of Gray 2"X2" Paint Chip	1.135
9 4948 009	2nd Floor/ East Office/ Baseboard/ Sample of Gray 2"X2" Paint Chip	0.079
10 4949 010	2nd Floor/ Bath Room/ Baseboard/ Sample of Gray 1"X1" Paint Chip	0.446
11 4950 011	2nd Floor/ West Office/ Baseboard/ Sample of Gray 2"X2" Paint Chip	0.061
12 4951 012	2nd Floor/ West Office/ Baseboard/ Sample of Gray 2"X2" Paint Chip	0.142
13 4952 013	2nd Floor/ Staircase/ Riser/ Sample of Gray 1"X1" Paint Chip	0.337
14 4953 014	2nd Floor/ Staircase/ Treads/ Sample of Gray 1"X1" Paint Chip	0.357

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
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Al Wallner

Al Wallner
Laboratory Director

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New York, NY 10003

Project No. 00-1067001
Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	**Description / Location**	**LEAD CONTENT mg/ cm2**
15 4954 015	2nd Floor/ Staircase/ Baseboard/ Sample of Gray 1"X1" Paint Chip	0.613
16 4955 016	1st Floor/ Basement Exit/ Entrance/ Door/ Sample of Gray 2"X2" Paint Chip	0.671
17 4956 017	1st Floor/ Basement Exit/ Entrance/ Door Frame/ Sample of Gray 2"X2" Paint Chip	0.761
18 4957 018	1st Floor/ Basement Exit/ Door Untel/ Sample of Gray 2"X2" Paint Chip	0.183
19 4958 019	1st Floor/ Bathroom/ Baseboard/ Sample of Gray 2"X2" Paint Chip	0.468
20 4959 020	1st Floor/ Supplies Room/ Baseboard/ Sample of Gray 2"X2" Paint Chip	0.615
21 4960 021	1st Floor/ Supplies Room/ Baseboard/ Sample of 2"X2" Paint Chip	0.731

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

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Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # **Lab #** **Client's Sample ID**	**Description / Location**	**LEAD CONTENT** **mg/ cm2**
22 4961 022	1st Floor/ Office Room/ Baseboard/ Sample of 2"X2" Paint Chip	0.628
23 4962 023	1st Floor/ Office Room/ Baseboard/ Sample of 2"X2" Paint Chip	0.063
24 4963 024	1st Floor/ Office Room/ Baseboard/ Sample of 2"X2" Paint Chip	0.323
25 4964 025	2nd Floor/ Bathroom/ Window Sill/ Sample of Green 2"X2" Paint Chip	0.419
26 4965 026	2nd Floor/ Bathroom/ Window Well/ Sample of Green 2"X2" Paint Chip	0.557
27 4966 027	2nd Floor/ Bathroom/ Window Frame/ Sample of Green 2"X2" Paint Chip	0.536
28 4967 028	2nd Floor/ Bathroom/ Window Sash/ Sample of Green 2"X2" Paint Chip	0.503

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

HUD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm^2).

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NVLAP Lab Code: 101953

Project No. 00-1067001
Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
29 4968 029	2nd Floor/ Bathroom/ Window Sill Exterior/ Sample of White 2"X2" Paint Chip	2.713
30 4969 030	2nd Floor/ Bathroom/ Window Well Exterior/ Sample of White 2"X2" Paint Chip	2.262
31 4970 031	2nd Floor/ Bathroom/ Window Frame/ Sample of White 2"X2" Paint Chip	2.167
32 4971 032	2nd Floor/ Bathroom/ Window Sash/ Sample of White 2"X2" Paint Chip	2.223
33 4972 033	2nd Floor/ East Office/ Door/ Sample of Tan 2"X2" Paint Chip	0.116
34 4973 034	2nd Floor/ East Office/ Door Frame/ Sample of Tan 2"X2" Paint Chip	0.143
35 4974 035	2nd Floor/ East Office/ Door Lintel/ Sample of Tan 2"X2" Paint Chip	0.135

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

.D Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm^2).

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NVLAP Lab Code: 101953

Project No. 00-1067001
Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # **Lab #** **Client's Sample ID**	**Description / Location**	**LEAD CONTENT** **mg/ cm2**
36 4975 036	2nd Floor/ East Office/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
37 4976 037	2nd Floor/ East Office/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
38 4977 038	2nd Floor/ East Office/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
39 4978 039	2nd Floor/ West Office/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
40 4979 040	2nd Floor/ West Office/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
41 4980 041	2nd Floor/ West Office/ Ceiling/ Sample of 2"X2" Paint Chip	<0.02
42 4981 042	2"X2"/ 2nd Floor/ West Office/ West Elevation/ Window Wall/ Sample of 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
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Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

HUD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

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NVLAP Lab Code: 101953

Project No. 00-1067001
Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
43 4982 043	1st Floor/ West Office/ North Elevation/ Window Wall/ Sample of White 2"X2" Paint Chip	<0.02
44 4983 044	1st Floor/ West Office/ West Elevation/ Window Wall/ Sample of White 2"X2" Paint Chip	<0.02
45 4984 045	1st Floor/ Supplies Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
46 4985 046	1st Floor/ Supplies Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
47 4986 047	1st Floor/ Supplies Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
48 4987 048	1st Floor/ Supplies Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
49 4988 049	1st Floor/ Office Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
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Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

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Project No. 00-1067001
Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	**Description / Location**	**LEAD CONTENT mg/ cm2**
50 4989 050	1st Floor/ Office Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
51 4990 051	1st Floor/ Office Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
52 4991 052	1st Floor/ Office Room/ Ceiling/ Sample of White 2"X2" Paint Chip	<0.02
53 4992 053	2nd Floor/ Bathroom/ Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
54 4993 054	2nd Floor/ Bathroom/ Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
55 4994 055	2nd Floor/ Closet/ Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
56 4995 056	2nd Floor/ Closet/ Wall/ Sample of Tan 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

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Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
57 4996 057	2nd Floor/ West Office/ North Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
58 4997 058	2nd Floor/ West Office/ South Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
59 4998 059	2nd Floor/ West Office/ East Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
60 4999 060	2nd Floor/ West Office/ West Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
61 5000 061	2nd Floor/ Staircase/ South Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
62 5001 062	2nd Floor/ Staircase/ South Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
63 5002 063	2nd Floor/ Staircase/ South Wall/ Sample of Tan 2"X2" Paint Chip	<0.02

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Analyte: LEAD (paint) AREA
Date Collected: 4/12/00
Date Received: 4/13/00
Date Analyzed: 4/13/00
Lab Batch #: 0004L367

Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # / Lab # / Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
64 / 5003 / 064	2nd Floor/ Staircase/ South Wall/ Sample of Tan 2"X2" Paint Chip	0.334
65 / 5004 / 065	2nd Floor/ Staircase/ North Wall/ Sample of Tan 2"X2" Paint Chip	0.326
66 / 5005 / 066	1st Floor/ Supplies Room/ North Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
67 / 5006 / 067	1st Floor/ Office Room/ West Wall/ Sample of Tan 2"X2" Paint Chip	0.031
68 / 5007 / 068	1st Floor/ Bath Room/ West Wall/ Sample of Tan 2"X2" Paint Chip	0.095
69 / 5008 / 069	1st Floor/ Bath Room/ West Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
70 / 5009 / 070	1st Floor/ Supplies Room/ North Wall/ Sample of Tan 2"X2" Paint Chip	0.027

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
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Summary of Analytical Results

Site: **Sunnyside Yard "A"**

Sample # Lab # Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
71 5010 071	1st Floor/ Supplies Room/ North Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
72 5011 072	1st Floor/ Supplies Room/ East Wall/ Sample of Tan 2"X2" Paint Chip	0.408
73 5012 073	1st Floor/ Supplies Room/ Bathroom/ Wall/ Sample of Tan 2"X2" Paint Chip	<0.02
74 5013 074	1st Floor/ Supplies Room/ Bathroom/ Wall/ Sample of Tan 2"X2" Paint Chip	0.376

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

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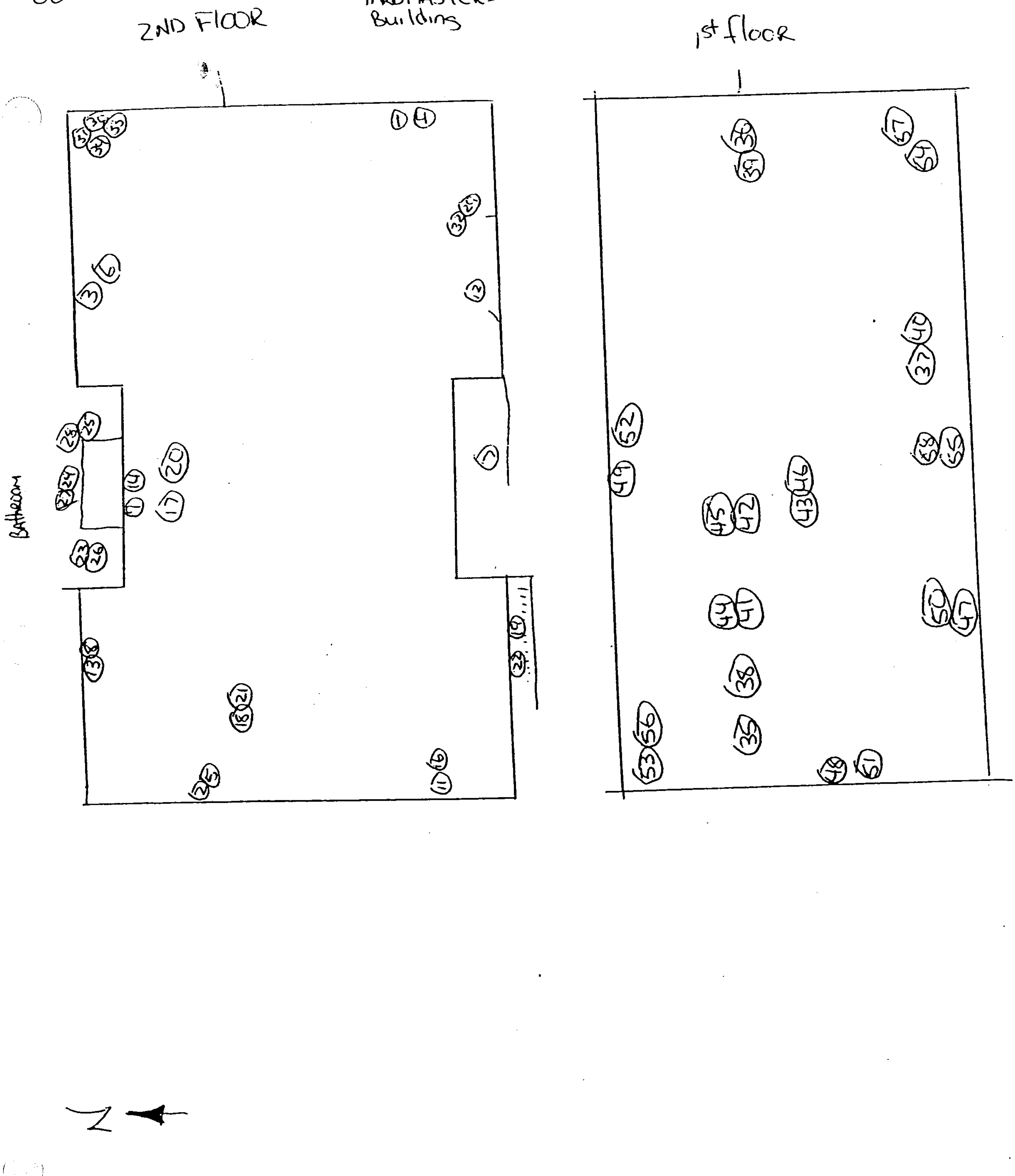
APPENDIX B

ASBESTOS SAMPLE LOCATION PLAN

00-1067-01

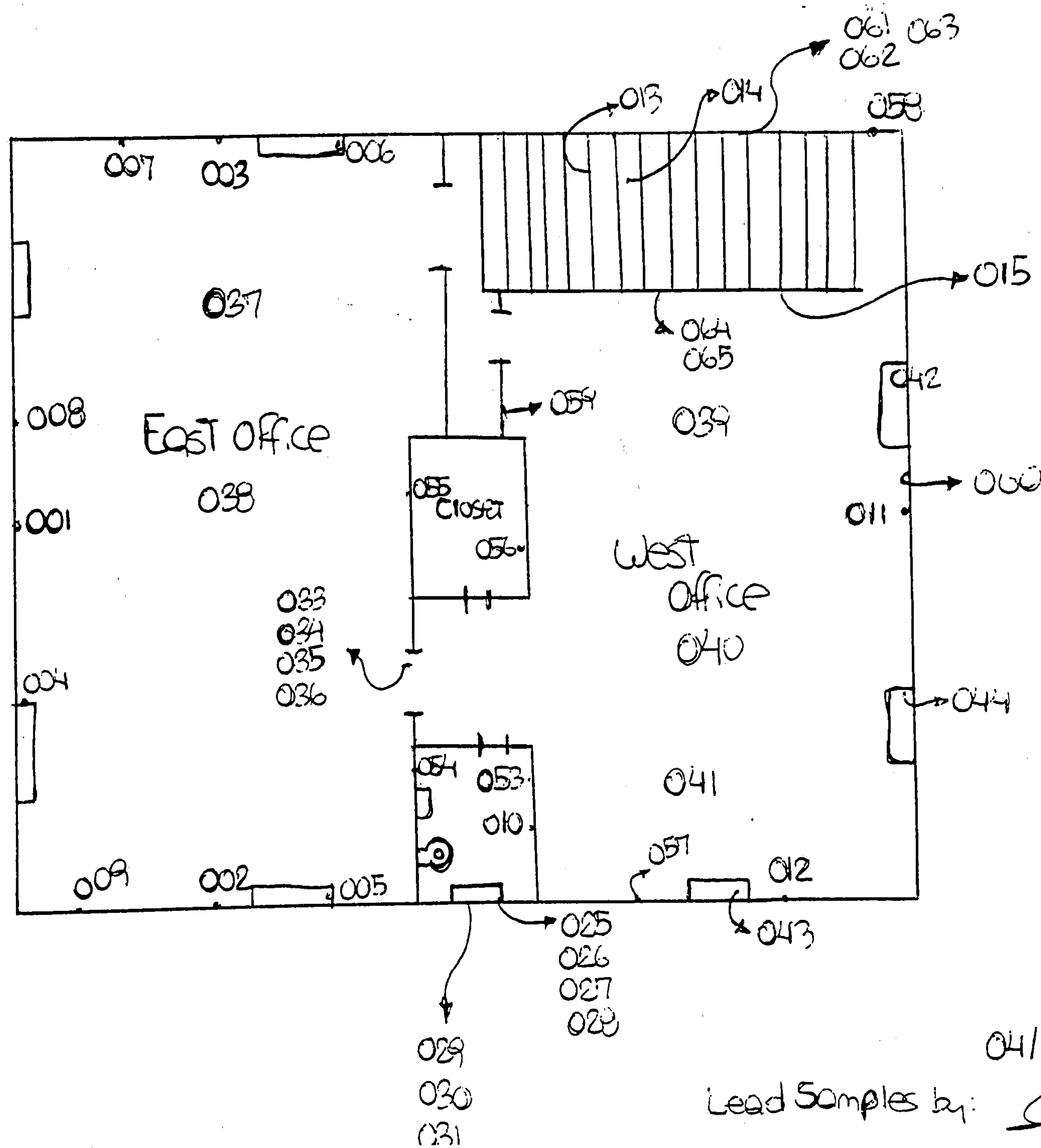
YARDMASTERS Building



2ND Floor

Yard Masters &

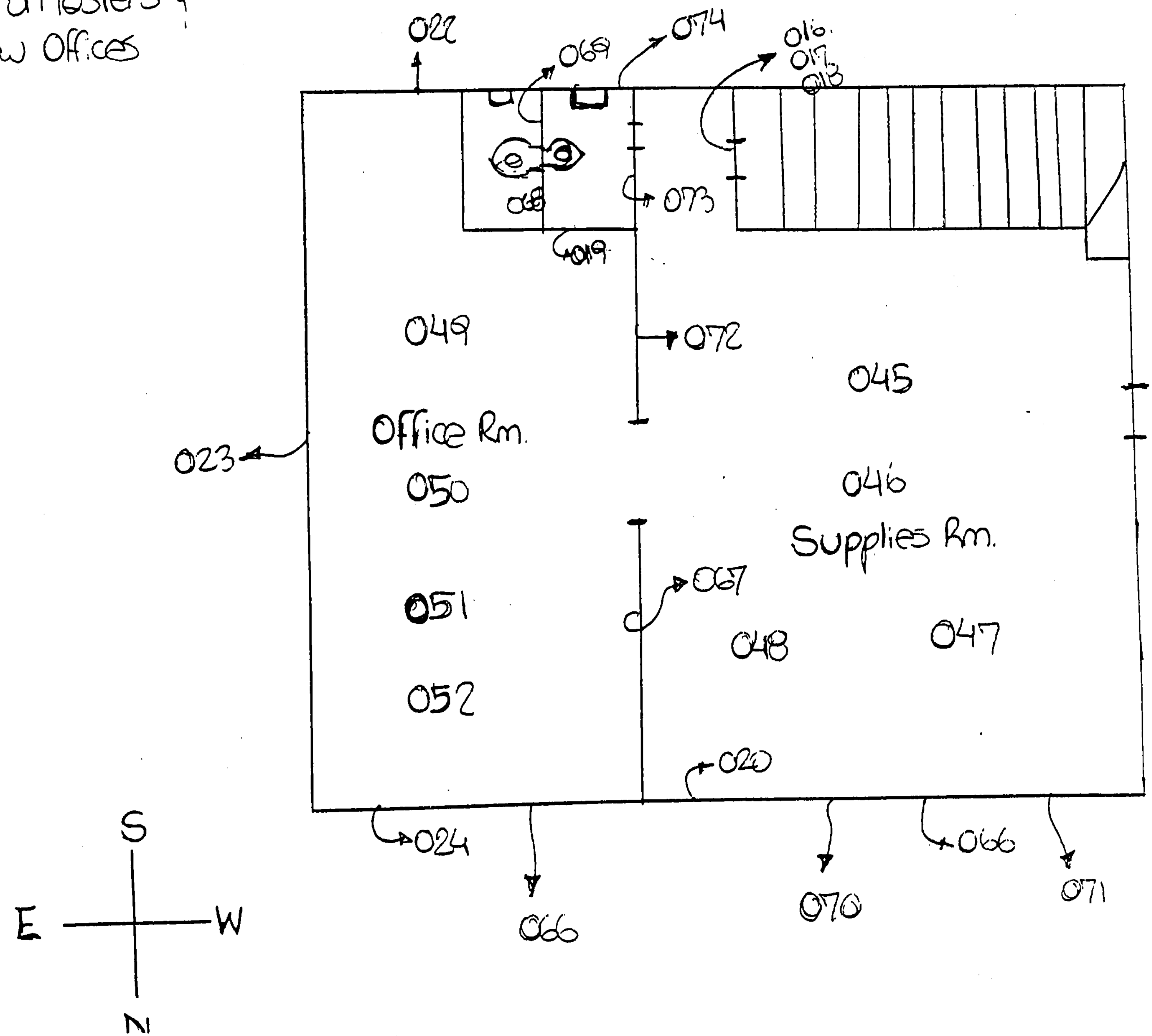
Crew Offices



04/12/00

Lead Samples by:

1st floor
Yard Masters &
Crew Offices



04/12/00

APPENDIX E-2

SUPPLEMENTAL ASBESTOS AND LEAD PAINT INVESTIGATION AND MATERIAL SURVEY REPORT

FOR

MTA/LIRR EAST SIDE ACCESS PROJECT - SUNNYSIDE YARD "A", QUEENS, NY

PREPARED FOR

STV INCORPORATED
225 PARK AVENUE
NEW YORK, NY 10003

BY

JLC ENVIRONMENTAL CONSULTANTS, INC.
200 PARK AVENUE SOUTH, SUITE 1001
NEW YORK, NY 10003
(212) 420-8119

JLC PROJECT # 00-1067-002

Signed for JLC Environmental Consultants, Inc. by:

Stephen Pharai
Technical Director

June 26, 2000

TABLE OF CONTENTS

APPENDICES

1.0 BACKGROUND:

JLC Environmental Consultants, Inc. (JLC), in its role as an Environmental Consultant, and under contract with STV Incorporated was authorized to proceed with an field investigation to determine the presence of Asbestos Containing Materials (ACM) and Lead Based Paint (LBP) in specific building materials and components at the Sunnyside Yard "A" Railroad Facility, Queens, NY (hereby called the subject area).

The investigation was conducted on June 15th, 2000 by Mr. Jeewan Biscessar, a New York City Certified Asbestos Investigator, New York State Asbestos Inspector, USEPA AHERA Inspector and EPA/NYS Lead Inspector and Mr. Nayyer Pervez, an EPA/NYS Lead Inspector.

Project:	MTA/LIRR East Side Access Project
Work Areas:	NYAR Repair Shop
Borough:	Queens
Address:	Sunnyside Yard "A"
Contact Person:	Jeff Butler, STV Incorporated
Contact Phone #:	212-614-3439

The Senior Investigator responsible for this project was:

Jeewan Biscessar:	NYC Asbestos Investigator #76905	Expires: 11/28/01
	NYS Asbestos Inspector #AH 95-02587	Expires: 11/28/99

The scope of the investigation consisted of determining if Asbestos Containing Materials (ACM) and Lead Based Paint are present in the facility and locations where proposed renovation and or alteration work are scheduled to take place. The scope of work also included determining the locations, quantity and condition of the suspect materials present at the time of the investigation.

2.0 ASBESTOS INSPECTION & BULK SAMPLING PROCEDURES:

The asbestos inspection procedures were based on the guidelines established by the Asbestos Hazardous Emergency Response Act (AHERA), as set forth in 40 CFR Part 763 of October 30, 1987. The AHERA guidelines represent the most up-to-date inspection and sampling protocol available and as such were utilized during the inspection and sampling. For the purposes of this inspection, suspect ACM has been placed in three (3) material categories: Thermal Systems Insulation (TSI), surfacing materials and miscellaneous materials.

The locations within the building and yard were inspected physically, functional space by functional space and homogeneous area-by-homogeneous area to determine the presence or absence of asbestos-containing materials. No interior or exterior demolition was done for sampling purposes. Also for safety reasons no electrical wiring was inspected or sampled since electric power could not be shut off.

2.0 ASBESTOS INSPECTION & BULK SAMPLING PROCEDURES (CONT.):

Suspect materials that may be present inside wall cavities, electrical wiring or which were otherwise inaccessible were not included in the scope of this inspection. Core samples of friable and non-friable suspect materials were collected by penetration of the suspect material to its substrate. The bulk samples collected were placed in sealed containers, labeled with an identifying code and a sample log was kept. Representative samples of each sampling area were then submitted to the laboratory to be analyzed for asbestos content. The inspection involved the following tasks:

1. A visual determination as to the extent of visible and accessible suspect materials and conditions of the material.
2. Collect and analyze for asbestos content, samples of suspect building materials.
3. A physical "Hand Pressure" test for determining friability and condition of suspect materials.
4. Assessments of suspect friable and non-friable materials and locations.
5. Quantifying the amount of suspect friable and non-friable materials in their respective locations.
6. All suspect materials sampled were identified on the appropriate building floor plan diagram with the sample number.
7. A Chain of Custody record was prepared and accompanied the samples to the laboratory.

3.0 ASBESTOS PHYSICAL CONDITION ASSESSMENT:

USEPA Asbestos Hazard Emergency Response Act of 1986 (AHERA) specifies that a physical assessment of all friable suspect material must be performed during the inspection. The suspect materials were assessed to determine if it poses a hazard and the hazard ranked according to seriousness. The physical condition assessment consists of determining the (1) condition of the suspect ACM and (2) cause of damage and potential for future disturbance.

AHERA lists seven (7) categories in which to assess the current condition and potential for damage as follows:

1. Damaged or Significantly Damaged Friable Thermal System Insulation
2. Damaged Friable Surfacing Material
3. Significantly Damaged Friable Surfacing Material
4. Damaged or Significantly Damaged Friable Miscellaneous Material
5. Asbestos Containing Building Materials (ACBM) with potential for damage
6. ACBM with the potential for significant damage
7. Any remaining Friable ACBM or Friable Suspected (assumed) ACBM

3.0 ASBESTOS PHYSICAL CONDITION ASSESSMENT (CONT.):

A rank of "1," means the material is in "poor" condition and requires top priority for abatement response action. A result of "5" would indicate material in "fair" condition with "moderate" potential for future damage. It would have a higher priority for abatement response action. A rank of "7" indicates material in "good" condition with "low" potential for future damage. These areas would have a low abatement response priority.

The second step in the assessment process is to determine the potential for future damage or deterioration for material classified as good or fair. The potential for future damage shall be classified as High, Moderate, or Low. There are many factors to consider including potential for physical contact and the influence of environmental factors such as vibration, air erosion, the likelihood of water damage, etc.

The third step is determining the friability rating and classifying the material as Friable ACM or Non-Friable ACM. Friable ACM is the term given to any material that contains more than one percent (1%) asbestos by weight and can be crumbled, pulverized, or reduced to powder by hand pressure. It refers to a material's likeliness to release airborne fibers. There is a greater possibility that a friable material will release fibers into the air when disturbed than will a non friable material (i.e., floor tiles, roofing materials, etc.) thereby causing a potential hazard.

The Assessment Process defines the extent of condition as follows:

i. If the extent of the damage is roughly ten percent (10%) of the material and is evenly distributed throughout the material, then the material is considered significantly damaged.
ii. If the extent of the damage is roughly twenty five percent (25%) of the material and is localized, then the material is considered significantly damaged.

4.0 ASBESTOS BULK SAMPLE ANALYSIS AND METHODOLOGY:

The bulk samples of the suspect asbestos-containing materials collected were analyzed using Polarized Light Microscopy (PLM) in accordance with EPA 600/M4-82-021 by JLC Environmental Consultants, Inc. (JLC). The analysis involves microscopically observing the suspect asbestos containing materials with a low power stereo-scopic microscope to determine the homogeneity of the material.

Forceps samples are then immersed in a refractive index solution, placed on a microscope slide, teased apart, covered with a cover slip, and observed with a polarized light microscope.

4.0 ASBESTOS BULK SAMPLE ANALYSIS AND METHODOLOGY (CONT.):

JLC's Laboratory is accredited by the New York State Department of Health Environmental Laboratory Approval Program (NYS DOH ELAP #11029) and by the National Institute of Standards and Technology under their National Voluntary Laboratory Accreditation Program (NVLAP #101953). NYS DOH ELAP states that Polarized Light Microscopy is not consistently reliable and conclusive in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-asbestos-containing, confirmation must be made by Transmission Electron Microscopy.

Transmission Electron Microscopy (TEM) analysis of non-friable, organically bound (NOB's) materials was performed by Scientific Laboratories, Inc. located at 117 East 30th Street, New York, NY 10003. (ELAP#11480, NVLAP#101904-1, AIHA#8939).

5.0 LEAD PAINT INSPECTION AND SAMPLING PROCEDURES:

The areas surveyed included all accessible spaces and surfaces within the affected areas. The locations in the building were divided into space equivalents. Painted surfaces within the space equivalents were identified and grouped together by component type, substrate and visible color. For example, if there are four walls all made of plaster, and all painted with white paint, these four walls are all grouped together. One wall of the four is to be randomly selected to represent the four walls.

In similar fashion, the inspection continued in each space equivalent with the identification of unique combinations of component, substrate and visible color. A random representative area of each unique combination was sampled and tested in each room equivalent. For each of these designated components, an area on the component was chosen which represents the paint on that building component. During the inspection, components which are accessible surfaces, friction surfaces, impact surfaces, or have deteriorated paint was identified.

6.0 LEAD PAINT PHYSICAL CONDITION ASSESSMENT:

Lead is a naturally occurring heavy metal that is used for a variety of industrial and commercial purposes. Lead is used in paint as a base to enhance the pigment of the paint and properties of the substrate. Lead based paint has been used extensively in the United States in private and commercial buildings.

A feature that most painted surfaces have in common is that they are not homogeneous. Different paints are made from different materials, in different concentrations. For most applications, lead was removed from use in paint in high concentrations over thirty years ago. We most often see lead paint on the bottom most layers of a painted surface. These are covered by a number of non-lead painted surfaces.

6.0 LEAD PAINT PHYSICAL CONDITION ASSESSMENT (CONT.):

A "lead-based paint hazard" is defined by the US-EPA as any condition that causes exposure to lead sufficient to cause adverse human health effects. When lead based paint is abated or deteriorates from age, the resulting paint chips and dust become a health threat. The following six (6) situations are defined by the US-EPA.

- "Deteriorated LBP" is any interior or exterior LBP that is peeling, chipping, chalking, or cracking, or located on any surface or fixture that is damaged or deteriorating.
- LBP on any "friction surface", defined as an interior or exterior surface subject to abrasion or friction, such as painted floors and friction surfaces on windows.
- LBP on any "impact surface", defined as an interior or exterior surface subject to damage by repeated impacts, such as parts of door frames.
- LBP on any "accessible surface", defined as an interior or exterior surface accessible for a young child to mouth or chew, such as a windowsill.
- "Lead contaminated dust" is defined as surface dust in residential dwellings that contains an area or mass concentration of lead in excess of the standard to be established by EPA.
- "Lead contaminated soil" is defined as bare soil on residential property that contains lead in excess of the standard to be established by EPA.

7.0 LEAD PAINT SAMPLE ANALYSIS AND METHODOLOGY:

The paint samples were collected by removing paint from the exposed surfaces down to the substrate from a one square inch area for each sample. Lead samples collected this way can be reported in both milligrams per square centimeter and percent by weight. The paint samples were placed in sealed containers, labeled with an identifying code, secured and a sample log and chain of custody was prepared.

The samples were then submitted to JLC's Environmental Laboratory, together with the bulk sample log and chain of custody, to be analyzed for lead content using US-EPA SW-846 Method 3050/7420 using the Air-Acetylene Flame Instrument for Lead Based Paint. This method utilizes Atomic Absorption Spectrometry with flame combustion. Sample results are given in parts per million for lead based paints.

The EPA allows the use of Atomic Absorption Spectrometer (AAS) for the analysis of lead samples. The analytical method, Solid and Hazardous Waste lead--EPA SW-846/3050 for preliminary digestion; SW-846/7420 for AA flame and SW-846/7421 for AA furnace. The Lead Paint sample is solubilized by extraction with nitric acid (HNO_3) and hydrogen peroxide (H_2O_2) facilitated by heat, or by mixture of HNO_3 and hydrochloric acid (HCl) facilitated by microwave energy.

The lead content of the sample is measured by atomic absorption spectrometry (AAS) using an air-acetylene flame, the 283.3 or 217.0 nm lead absorption line and the optimum instrumental conditions recommended by the manufacturer.

8.0 QUALITY CONTROL PROCEDURES:

In order to provide environmental services of the highest quality for this project, JLC have integrated resources, technologies, and discipline to conduct the investigation and analysis based on the following principles:

i. All applicable regulations are addressed in order to make certain our field inspectors and lab personnel meet their responsibilities, do so cost-effectively, and are equipped with the practical knowledge they need in order to understand and comply with regulations that affect them.
ii. Care is taken to make certain that the information provided and actions recommended are practical and cost effective in achieving regulatory compliance.

The 'management' approach utilized assured that for this project all work performed received the highest quality service. All project results, reports and recommendations are reviewed for accuracy, content and quality prior to presentation. We recognize that the information in each assignment we undertake, that the information we develop, and the conclusions and advice we provide, will be used to support important management decisions.

JLC's Quality Assurance Program directs and requires that all personnel:

i. Provide quality objectives so that project activities can be evaluated in terms of precision, accuracy, reproducibility, completeness, and comparability.
ii. Provide specific guidance on the proper methodology for all activities.
iii. Be provided with ongoing training to enhance their technical skills.
iv. Be trained in QA/QC procedures and document technical and QC activities.
v Review all reports until it is acceptable in terms of technical and editorial quality and all quality assurance activities have been successfully performed.

STATEMENT OF MANAGEMENT POLICY

The usefulness and integrity of analytical findings are the primary objectives in any analytical laboratory. The major goal of JLC Environmental Consultants, Inc. (JLC) is to provide analytical products and services of unsurpassed quality, stability and reproducibility. The laboratory's "product" is the report issued as a result of analytical testing conducted on samples received from clients.

The JLC Quality Assurance Manual provides detailed procedures for laboratory personnel to follow to produce quality data. The Policies and procedures in the Manual apply to all personnel, from Management to Analytical Technicians. Management and the Quality Control Officer (QCO) routinely audit the program to insure that all the quality control (QC) procedures are being followed. When unusual situations occur, the Laboratory Manager and the QCO have the authority to correct the problem.

9.0 SCOPE OF WORK FOR ASBESTOS CONTAINING MATERIALS:

The inspection for asbestos containing materials in the following areas that may be affected by the MTA/LIRR East Access Project was based on the Preliminary Environmental Site Assessment and Proposed Sampling Plan dated March, 2000 provided by STV Incorporated.

1. NYAR Repair Shop

The inspection was characterized by a close visual inspection of all accessible areas. Suspect materials were sampled and inventoried for quantity, condition and friability. Materials examined included:

1. Roof Sealant
2. Door Frame Caulking
3. Window Caulking
4. Ceiling Tiles
5. Brick Mortar
6. Waterproofing Membrane
7. Siding

10.0 SCOPE OF WORK FOR LEAD BASED PAINT:

The following areas which may be affected by the MTA/LIRR East Access Project based on the Preliminary Environmental Site Assessment and Proposed Sampling Plan dated March, 2000 provided by STV Incorporated, were inspected for LBP:

1. NYAR Repair Shop

The inspection was characterized by a close visual inspection of all accessible areas. Suspect paints were sampled and inventoried for quantity, condition and color. Components examined included:

1. Walls
2. Doors & Frames
3. Piping & Poles
4. Tanks & Drums
5. Lockers
6. Cupboards & Closets
7. Beams
8. Debris

11.0 SUMMARY OF FINDINGS FOR ACM:

The asbestos inspection involved a thorough visual examination of all areas and sampling of suspect materials that would be impacted during the proposed work schedule. It was based on the scope report/blueprint drawings provided by STV Incorporated.

Bulk samples of various suspect materials were collected and analyzed using Polarized Light Microscopy and Transmission Electron Microscopy Methods. This information was obtained during the inspection and is based upon the following materials being confirmed or assumed to having greater than one percent (1%) asbestos and is therefore classified as ACM. The following is a list all exposed ACM determined to be present in the subject area:

1. Roof Sealant
2. Waterproofing Membrane
3. Siding

12.0 SUMMARY OF FINDINGS FOR LBP:

The lead paint inspection involved a thorough visual examination of all areas and sampling of paint that would be impacted during the proposed work schedule. It is based on the scope report/blueprint drawings provided by STV Incorporated.

JLC Laboratory analysis confirmed the presence of lead in the amount greater than 1.0 mg/cm^2 as per New York City Standards within the samples collected from the following components:

1. 5 Leg Pipes

13.0 CONCLUSIONS AND RECOMMENDATIONS FOR ACM:

Asbestos Containing Materials (ACM) have been identified in the roof sealant and assumed in the exterior façade siding and roofs' waterproofing membrane of the NYAR Repair Shop located at Sunnyside Yard "A", Queens, NY. Since a renovation project has been scheduled, JLC recommends that any ACM that will be impacted by the proposed work be removed prior to commencing the renovation.

Section I-53 of the New York City Department of Environmental Protection Title 15 Asbestos Regulations states that:

"Alterations/Renovations/Modifications: As early as possible before an alteration, renovation or modification takes place or changes in an alteration, renovation or modification occur, the building owner shall be responsible for determining the absence or presence of friable asbestos containing materials which will be disturbed during the course of the alteration, renovation or modification activities. The owner of the building or authorized agent shall comply with the notification requirements of this section regarding asbestos containing materials".

Section 56-1.9 (e) of the New York State Department of Labor Industrial Code Rule 56 Asbestos Regulations states that:

"If a building survey finds that a building to be demolished contains asbestos or asbestos containing material as defined in section 56-1.4 of this Subpart, no bids shall be advertised nor contracts awarded nor demolition work commenced by any owner or agent prior to completion of an asbestos remediation contract performed by a licensed asbestos contractor, in conformance with all standards set forth in this Part (rule)".

Section 56-1.4 (ac) Definitions: Demolition – The total razing of a building or an entire portion thereof.

Abatement activities must be conducted in compliance with all applicable regulations, standards and generally accepted environmental and safety practices including Federal OSHA (29 CFR 1926.58), EPA NESHAPS (40 CFR Part 61), and TSCA Title II AHERA/ASHARA (40 CFR Part 763) Asbestos Regulations, *New York State Department of Labor Industrial Code Rule 56 and New York City Department of Environmental Protection Title 15 Asbestos Regulations.*

14.0 CONCLUSIONS AND RECOMMENDATIONS FOR LBP:

Lead Based Paint (LBP) has been identified in the painted surfaces of the 5-leg pipes on the north-west side of the NYAR Repair Shop located at Sunnyside Yard "A", Queens, NY.

Two (2) options are being recommended to address the LBP in these areas.

1. All LBP that will be disturbed by any proposed renovations should be removed in accordance with applicable federal, state and local regulatory requirements. It should be noted that personal air monitoring should be conducted when disturbing lead based paints and lead containing materials as per 29CFR1926.62 (OSHA).

2. At all locations that will not be impacted by the renovation activities, the existing Lead Based Paint may be encapsulated and periodically monitored and maintained as necessary under a Lead Operations and Maintenance Plan. The maintenance procedure involves the training of building employees in proper work practices, performing periodic surveillance and maintaining the paint surfaces in good condition until such time as a removal program is implemented.

3. Encapsulation is the process that makes the LBP inaccessible by providing a barrier between the LBP and the surrounding environment. This barrier is formed using a liquid coating applied with or without reinforcement materials, or an adhesively bonded covering material.

15.0 SCHEDULE OF JLC INSPECTION RESULTS FOR ACM:

The following table presents inspection results, by homogeneous area, obtained during JLC's ACM investigation:

HA	Location	Material	Sample #	Results	Total Quantity Of ACM	Notes
A	High Roof	Roof Sealant	001-003	ACM	300 LF	Roof Sealant found on the perimeter, along the middle and around roof penetrations on the High Roof of the Repair Shop is confirmed ACM. Approx. 300 LF.
B	Low Roof	Roof Sealant	004-006	ACM	300 LF	Roof Sealant found on the perimeter and around roof penetrations on the Low Roof of the Repair Shop is confirmed ACM. Approx. 300 LF.
C	1st Floor/ All Doors	Door Frame Caulking	007-009	Non-ACM	0 SF	
D	1st Floor/ Lunch Room & Inspection Pit	Window Caulking	010-012	Non-ACM	0 SF	
E	1st Floor/ Lunch Room, Parts Room, Ladies Room, Men's Room, Locker Room, Hallway and Office	2' x 4' Ceiling Tile	013-015	Non-ACM	0 SF	
F	1st Floor/ Walls	Brick Mortar	016-018	Non-ACM	0 SF	
G	Exterior Façade/ Behind aluminum Paneling	Siding		Assumed ACM	To Be Determined	There was no access behind the aluminum paneling on the exterior façade of the Repair Shop, so siding was assumed to be under this aluminum paneling. Quantities must be field determined.
H	High Roof/ Under aluminum Paneling	Waterproofing Membrane		Assumed ACM	To Be Determined	There was no access under the aluminum paneling on the High Roof of the Repair Shop, so waterproofing membrane was assumed to be under this aluminum paneling. Quantities must be field determined.
I	Low Roof/ Under aluminum Paneling	Waterproofing Membrane		Assumed ACM	To Be Determined	There was no access under the aluminum paneling on the Low Roof of the Repair Shop, so waterproofing membrane was assumed to be under this aluminum paneling. Quantities must be field determined.

16.0 SCHEDULE OF JLC INSPECTION RESULTS FOR LBP:

The following table presents inspection results, by homogeneous area, obtained during JLC's LBP investigation:

Location	Color Of Paint	Substrate	Component	Sample #	Lead Content (mg/cm^2)	Total Quantity Of LBP	Notes
Grounds/ North Entrance	Yellow	Metal	4 Feet Safety Pole	001	<0.02	0 SF	
Grounds/ North-West/ Entrance	Yellow	Metal	5 Leg Pipes	002	1.53	100 LF	The 5 Leg Pipes by the entrance on the North-West side of the Repair Shop is confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 100 LF.
Grounds/ North-West	Brown	Metal	Waste Oil Tank	003	<0.02	0 SF	
	Blue	Metal	Compressed Air Tank	004	<0.02	0 SF	
	Blue	Metal	Compressed Air Dryer Tank	005	<0.02	0 SF	
	Blue	Metal	Compressed Air Supply Pipe	006	0.03	0 SF	
1st Floor/ Inspection Pit	Blue	Metal	Exterior Wall-A	007	<0.02	0 SF	
	Tan	Metal	Interior Wall-A	008	<0.02	0 SF	
	Black	Metal	Locker	009	<0.02	0 SF	
	Yellow	Metal	Chain Pipe	010	<0.02	0 SF	
1st Floor/ Air Compressor Room	Blue	Metal	Door	011	<0.02	0 SF	
	Blue	Metal	Door Frame	012	<0.02	0 SF	
	Tan	Metal	Steam Riser	013	<0.02	0 SF	
	Green	Metal	Pump Box	014	0.02	0 SF	
1st Floor/ Tool Storage Room	Blue	Metal	Closet	015	<0.02	0 SF	
1st Floor/ Office	Tan	Metal	Electrical Pipe	016	<0.02	0 SF	

16.0 SCHEDULE OF JLC INSPECTION RESULTS FOR LBP (CONT.):

Location	Color Of Paint	Substrate	Component	Sample #	Lead Content (mg/cm^2)	Total Quantity Of LBP	Notes
1st Floor/ Air Brake work Room	Blue	Metal	Work Station	017	<0.02	0 SF	
	Black	Metal	Lockers	018	<0.02	0 SF	
	Blue	Metal	Shelves	019	<0.02	0 SF	
	Dark Blue	Metal	Cupboard	020	0.03	0 SF	
	Blue	Metal	Door	021	<0.02	0 SF	
	Blue	Metal	Door Frame	022	<0.02	0 SF	
1st Floor/ Inspection Pit	Tan	Metal	Iron Beam	023	<0.02	0 SF	
	Tan	Metal	Supply Pipes	024	<0.02	0 SF	
	Tan	Cinderblock	Wall-D	025	<0.02	0 SF	
	Brown	Metal	3 Ton Crane	026	<0.02	0 SF	
	Blue	Metal	Paint Locker	027	<0.02	0 SF	
	Black	Metal	Lube Oil Drum	028	<0.02	0 SF	
	Blue	Metal	Door	029	<0.02	0 SF	
	Blue	Metal	Door Frame	030	<0.02	0 SF	
Grounds/ Outside of Building/ Southside	Yellow	Metal	Barrier Pole	031	0.61	0 SF	
1st Floor/ Parts Room	Blue	Metal	Door	032	<0.02	0 SF	
	Blue	Metal	Door Frame	033	<0.02	0 SF	
1st Floor/ Men's Bathroom	Tan	Metal	Door	034	<0.02	0 SF	
	Tan	Metal	Door Frame	035	<0.02	0 SF	
1st Floor/ Women's Bathroom	Tan	Metal	Door	036	<0.02	0 SF	
	Tan	Metal	Door Frame	037	<0.02	0 SF	
1st Floor/ Hallway by Women's Bathroom	Yellow	Cinderblock	Wall-B	038	<0.02	0 SF	

16.0 SCHEDULE OF JLC INSPECTION RESULTS FOR LBP (CONT.):

Location	Color Of Paint	Substrate	Component	Sample #	Lead Content (mg/cm^2)	Total Quantity Of LBP	Notes
1st Floor/ Kitchen	Blue	Metal	Electrical Supply Pipe	039	<0.02	0 SF	
	Yellow	Cinderblock	Wall-A	040	<0.02	0 SF	
1st Floor/ Tool Room	Yellow	Metal	Interior Door	041	0.04	0 SF	
	Yellow	Metal	Interior Door Frame	042	0.03	0 SF	
	Gray	Metal	Closet Shelves	043	<0.02	0 SF	
	Gray	Metal	Cabinet	044	<0.02	0 SF	
	Yellow	Metal	Exterior Door	045	<0.02	0 SF	
	Yellow	Metal	Exterior Door Frame	046	<0.02	0 SF	
1st Floor/ Locker Room	Yellow	Metal	Door	047	<0.02	0 SF	
	Yellow	Metal	Door Frame	048	<0.02	0 SF	
Grounds/ Outside of Building/ Southside	Brown	Metal	Brake Shoe Bucket	049	<0.02	0 SF	
	Yellow	Metal	Brake Shoe	050	<0.02	0 SF	

17.0 ASBESTOS QUANTITY SCHEDULE:

Approximate asbestos quantity schedules are presented on the following table:

TABLE 1
SUMMARY OF INSPECTION RESULTS FOR ASBESTOS
SUNNYSIDE YARD "A"

PROPOSED WORK	SUSPECT ACM THAT MAY BE AFFECTED	LAB RESULTS	APPROXIMATE ACM QUANTITY	NOTES/SPECIFIC LOCATION
MTA/LIRR East-Side Access Project	Roof Sealant	ACM	300 LF	Roof Sealant found on the perimeter, along the middle and around roof penetrations on the High Roof of the Repair Shop is confirmed ACM. Approx. 300 LF.
	Roof Sealant	ACM	300 LF	Roof Sealant found on the perimeter and around roof penetrations on the Low Roof of the Repair Shop is confirmed ACM. Approx. 300 LF.
	Siding	Assumed ACM	To Be Determined	There was no access behind the aluminum paneling on the exterior façade of the Repair Shop, so siding was assumed to be under this aluminum paneling. Quantities must be field determined.
	Waterproofing Membrane	Assumed ACM	To Be Determined	There was no access under the aluminum paneling on the High Roof of the Repair Shop, so waterproofing membrane was assumed to be under this aluminum paneling. Quantities must be field determined.
	Waterproofing Membrane	Assumed ACM	To Be Determined	There was no access under the aluminum paneling on the Low Roof of the Repair Shop, so waterproofing membrane was assumed to be under this aluminum paneling. Quantities must be field determined.

18.0 LEAD PAINT QUANTITY SCHEDULE:

Approximate Lead Paint quantity schedules are presented on the following table:

TABLE 2
SUMMARY OF INSPECTION RESULTS FOR LEAD PAINT
SUNNYSIDE YARD "A"

PROPOSED WORK	SUSPECT LBP THAT MAY BE AFFECTED	LAB RESULTS	APPROXIMATE LBP QUANTITY	NOTES/SPECIFIC LOCATION
MTA/LIRR East-Side Access Project	5 Leg Pipes	Lead content higher than 1.0 mg/cm^2	100 LF	The 5 Leg Pipes by the entrance on the North-West side of the Repair Shop is confirmed to be painted with LBP having a lead content higher than 1.0 mg/cm^2. Approx. 100 LF.

19.0 AREAS NOT ACCESSIBLE:

JLC inspected and sampled materials, which were observable and accessible to the survey team. JLC was not able to access behind aluminum panels on the exterior façade and under aluminum panels on the roofs of the NYAR Repair Shop. Any materials that have not been tested and/or found positive for asbestos or lead must be assumed ACM or LBP.

20.0 GLOSSARY AND DEFINITIONS:

ABATEMENT: Removal, repair, encapsulation, or enclosure of an asbestos-containing material to prevent fiber release.

AGENCY CONTACT: The person designated by their agency as the primary contact with the Asbestos Management Program.

ASBESTOS: The asbestiform varieties of chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite.

ASBESTOS CONSULTANT: A person who is licensed as such by the NYS Department of Labor.

ASBESTOS INSPECTOR: A person who successfully completed the appropriate course requirements, and works under the direction of a licensed asbestos consultant or is a Certified Asbestos Inspector and engages in the survey and assessment of asbestos-containing materials.

ASBESTOS CONTAINING MATERIAL: Any material that contains more than one percent by weight of asbestos.

BUILDING ASBESTOS CONTACT PERSON: A competent person appointed by an agency head, or higher authority, to manage and coordinate all asbestos-related activities for a specific state-owned building. This person shall be capable of identifying existing and potential asbestos hazards in the building and have the authority to take prompt corrective action.

ENCAPSULATION: The application of a coating to asbestos-containing material to prevent fiber release.

ENCLOSURE: Construction of an airtight barrier around asbestos-containing material to prevent fiber release.

FRIABLE: A condition wherein the material, when dry, can be crumbled by hand pressure.

FUNCTIONAL SPACE: A room or specific area such as a classroom, hallway, stairwell, elevator shaft, portico or covered walkway, office, auditorium, cafeteria, gymnasium, locker room, closet, storage area, dormitory room, break room, lounge, rest room, mechanical room, electrical equipment room, boiler or furnace room, penthouse, pipe chase, basement, crawl space (including soil when appropriate), steam or utility tunnel, attic, roof, siding, and the space above ceiling, between walls, or below floors.

20.0 GLOSSARY AND DEFINITIONS (CONT.):

HOMOGENEOUS AREA: The extent of a homogeneous material.

HOMOGENEOUS MATERIAL: A material which may or may not extend through many functional spaces; is uniform in color, texture, and relative date of installation, and appears to be the same identical material.

INSPECTOR: A person who has successfully completed the appropriate course requirements and works under the direction of a licensed asbestos consultant or is a Certified Asbestos Inspector and engages in the survey and assessment of asbestos-containing materials.

MISCELLANEOUS MATERIALS: Interior or exterior material components such as wallboard, linoleum, floor and ceiling tiles, fire doors, roofing, siding, and other materials not an integral component of the building such as stage curtains, protective clothing, laboratory apparatus and equipment, and other materials considered to be part of the real estate.

RESPONSE ACTION: A method such as removal, encapsulation, enclosure, repair, or attention under an operation and maintenance management plan that protects human health and the environment from asbestos-containing material.

SALIENT: A small section or area of damaged asbestos-containing material the condition of which is significantly different from the rest of the otherwise homogeneous area.

SURFACING MATERIALS: Materials which are sprayed-on, troweled-on, or otherwise applied to surfaces. Examples include wallboard primer, sealer, paint, and stucco; acoustical plaster on ceilings; fireproofing on structural components, or other materials applied to surfaces for acoustical, fireproofing, or other purposes.

SURVEY: The room-by-room physical inspection of a building, and related activities, conducted to document the presence, location, and condition of asbestos-containing materials.

THERMAL SYSTEM INSULATION: Materials in a building or distribution system applied to pipes, fittings, boilers, breaching, tanks, ducts, or other system components to prevent heat loss or gain, water condensation, or for other purposes.

21.0 REPORT CERTIFICATIONS:

This report, and the supporting data, findings, conclusions, opinions, and the recommendations it contains, represents the result of JLC's efforts on behalf of your firm. This report is not an asbestos abatement specification and should not be used for specifying removal methods or techniques.

The results, assessments, conclusions and recommendations stated in this report are factually representative of the conditions and circumstances we observed at this location on the date of our inspection. We cannot assume responsibility for any change in conditions or circumstances that occurred after our inspection.

This report and its findings and recommendations, if implemented by your firm, should not be construed as an assurance or implied warranty for the continuing safety, performance, or cost-effectiveness of any equipment, product, system, facility, procedure, or policy discussed or recommended herein.

This report may contain sensitive information about your firm, your staff, equipment, operations, or policies. It may also contain confidential or proprietary information about specific equipment or products, which have been provided to JLC by the manufacturers or other sources. Therefore, we consider this report confidential and ask that you do the same. This report should not be transmitted to third parties without the written permission of JLC and an authorized agent of your firm.

Approved by:

Jeewan Krish Biscessar
NYC DEP Asbestos Investigator #76905

APPENDIX A

LABORATORY ANALYTICAL REPORTS

CERTIFICATES OF ANALYSIS

BY

POLARIZED LIGHT MICROSCOPY

JLC ENVIRONMENTAL CONSULTANTS, INC

June 26, 2000

STV Incorporated
225 Park Avenue South
New York, NY 10003

Attention: Mr. Jeff Buttler

Reference: Sunny Side Yard "A" - NYAR Repair Shop

Dear Mr. Buttler:

Enclosed please find the analytical results of the building materials inspection conducted at Sunny Side Yard "A" - NYAR Repair Shop.

All samples were collected and analyzed by JLC Environmental Consultants, Inc. (JLC) at the request of STV Incorporated.

According to procedure, samples were placed in double plastic bags at the site location and transported to the JLC laboratory. Upon arrival, the samples were individually prepared and identified as friable or non-friable and then analyzed and indexed by date of collection, receipt, and analysis, as well as location, color, total estimated percentage of asbestos, and type(s) and estimated percentage(s) of each asbestos fiber group and non-asbestos fiber groups.

The detailed protocol for friable bulk material sample preparation and analysis is discussed in detail in the five sections on the following page: Introduction, Methodology, Analytical Procedures, Polarized Light Microscopy, and Analytical Results. These sections should clarify most questions concerning the results and documentation for this project.

JLC Environmental Consultants, Inc. appreciates the opportunity to serve your organization. Please contact us with any further questions. We look forward to working with you again in the future.

Sincerely,

JLC Environmental Consultants, Inc.

Al Wallner

Al Wallner
Laboratory Director
cc: File

Bulk Building Materials Analysis and Procedure

Introduction

Polarized light microscopy with dispersion staining (PLM-DS) is the most efficient method for detecting asbestos in bulk samples. It is this method that the JLC lab uses during bulk building material analyses.

Methodology

A chain of custody is kept for each sample to ensure proper handling and delivery to the JLC lab prior to analysis. To avoid any possible contamination, all sample and slide preparation is carried out in a ventilated, HEPA-filter hood with continuous airflow. Sample analysis is performed using PLM-DS in accordance with the USEPA , "Method for the Determination of Asbestos in Bulk Building Materials," EPA 600 R-93 116, July 1993, and NYDOH-ELAP certification manual, "Polarized Light Microscope Methods for Identifying and Quantitating Asbestos in Bulk Samples," ELAP 198.1, October 1993.

Analytical Procedures

All samples are subject to preliminary visual stereomicroscopic examination. Observation of homogeneity, fiber identification, and semi-quantitation of constituents can be made at this point. Samples lacking uniformity of composition and/or distribution of component materials then undergo homogenization. Some non-friable organically bound (NOB) samples such as floor tiles and roofing materials may require additional steps to dislodge problem matrices (i.e. ashing, extractions, and TEM).

Identification of suspect fibers is made by PLM analysis of subsamples. A microscope equipped with dual polarizing filters enables us to observe specific optical characteristics of each sample. Positive identification of asbestos requires determination of the following optical properties: morphology, color and pleochroism, refractive indices, birefringence, extinction characteristics, and signs of elongation.

Asbestos quantitation is performed by point-counting procedure, a standard technique in petrography for determining the relative areas occupied by separate minerals in rock. An ocular reticle superimposes a point or points over the microscope's field of view. The number of points positioned directly above each kind of particle or fiber is recorded. A total of 400 points must be counted over at least eight different representative subsamples to complete analysis.

Polarized Light Microscopy

JLC uses an Olympus BHT-P Polarizing Microscope complete with polarizer, analyzer, port for wave retardation plate, 360 degree graduated rotating stage, substage condenser, lamp and lamp iris, eyepiece reticle, and 25 point Chalkley Point Array. Plane polarized light allows for the determination of refraction indices relative to specific crystallographic orientations. Morphology and color can also be observed under plane polarized light. Observation of particles or fibers while oriented between polarizing filters whose privileged vibration directions are perpendicular allows for determination of isotropism/ anistropism, extinction characterisitcs of anisotropic particles, and calculation of birefringence. A retardation plate may be placed in the polarized light path for verification of signs of elongation.

Analytical Results

The "Summary of Analytical Results" represents the results of analysis. Positive results mean the sample is asbestos or contains more than one percent asbestos by weight. The results are generally sufficient for identification and quantitation of major concentrations of asbestos. However, it may be found that additional techniques may be necessary. Please be aware that PLM is not consistenly reliable in detecting asbestos in floor coverings and similar NOB materials. Before the material can be considered or treated as non-asbestos containing, confirmation must be made by quantitative Transmission Electron Microscopy (TEM).

JLC ENVIRONMENTAL CONSULTANTS, INC.

200 Park Avenue South, Suite 1001, New York, New York 10003
Phone: (212) 420-8119 Fax: (212) 420-6092

STV Incorporated
225 Park Avenue South
New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067002
Analyte: ASBESTOS
Date Received: 6/16/00
Date Analyzed: 6/16/00
Batch #: 0006B292

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunny Side Yard "A" - NYAR Repair Shop*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*
001 6/15/00 6882 001A	High Roof/ Perimeter/ Sample of Roof Sealant	GRAY	YES	1.3%	CHRY 1.3% SYNF 15.7% NFIB 83%
002 6/15/00 6883 002A	High Roof/ Exhaust Fan/ Sample of Roof Sealant	GRAY	TRACE	<1%	CHRY <1% SYNF 15% NFIB 85%
003 6/15/00 6884 003A	High Roof/ Perimeter/ Sample of Roof Sealant	GRAY	YES	1.1%	CHRY 1.1% SYNF 15.9% NFIB 83%
004 6/15/00 6885 004B	**Low Roof/ Perimeter/ Sample of Roof Sealant	GRAY	NO	0%	SYNF 15% NFIB 85%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

ASBESTOS CONSTITUENTS
CHRY = Chrysotile Asbestos
AMOS = Amosite Asbestos
CROC = Crocidolite Asbestos
ACTN = Actinolite Asbestos
TREM = Tremolite Asbestos
ANTH = Anthophylite Asbestos

NON-ASBESTOS CONSTITUENTS
PAPF = Paper Fiber
MINW = Mineral Wool
FBGL = Fiberglass
SYNF = Synthetic Fibers
CELL = Cellulose
NFIB = Non-Fibrous
ORGM = Organic Material
WOLL = Wollastonite
HSHR = Horse Hair
OTHR = Other

Al Wallner

Al Wallner
Laboratory Director

Analytical results reflect the make up of the materials only in the areas sampled. This "Summary of Analytical Results" shall not be reproduced except in full, without the written approval of JLC Laboratory, and it must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government. This method is not applicable to samples containing large amounts of fine fibers below the resolution of the light microscope. The value of this method is limited to the quantitative identification of asbestos and the semi-quantitative determination of asbestos content of bulk samples, expressed as a percentage of the protected area. Quantitation of asbestos content was determined with a visual volume estimate, a calibrated visual area estimate, and/or point counting procedure. CAUTION: Other fibers with optical properties similar to asbestos may give positive interferences and will be considered asbestos under this methodology. Also, PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically-bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

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New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067002
Analyte: ASBESTOS
Date Received: 6/16/00
Date Analyzed: 6/16/00
Batch #: 0006B292

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunny Side Yard "A" - NYAR Repair Shop*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	*DESCRIPTION / LOCATION*	*COLOR*	*ASBESTOS DETECTED?*	*TOTAL % OF ASBESTOS*	*CONSTITUENTS*	
005 6/15/00 6886 005B	**Low Roof/ Exhaust Fan/ Sample of Roof Sealant	GRAY	NO	0%	SYNF NFIB	15% 85%
006 6/15/00 6887 006B	**Low Roof/ Perimeter/ Sample of Roof Sealant	GRAY	NO	0%	SYNF NFIB	15% 85%
007 6/15/00 6888 007C	**1st Floor/ Office/ Sample of Door Frame Caulking	CREAM	NO	0%	NFIB	100%
008 6/15/00 6889 008C	**1st Floor/ Tool Storage Room/ Sample of Door Frame Caulking	CREAM	NO	0%	NFIB	100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

ASBESTOS CONSTITUENTS
CHRY = Chrysotile Asbestos
AMOS = Amosite Asbestos
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TREM = Tremolite Asbestos
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NON-ASBESTOS CONSTITUENTS
PAPF = Paper Fiber
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SYNF = Synthetic Fibers
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ORGM = Organic Material
WOLL = Wollastonite
HSHR = Horse Hair
OTHR = Other

Al Wallner
Al Wallner
Laboratory Director

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NVLAP Lab Code: 101953

Project No.: 00-1067002
Analyte: ASBESTOS
Date Received: 6/16/00
Date Analyzed: 6/16/00
Batch #: 0006B292

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunny Side Yard "A" - NYAR Repair Shop*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED?	TOTAL % OF ASBESTOS	CONSTITUENTS	
009 6/15/00 6890 009C	**1st Floor/ Air Compressor Room/ Sample of Door Frame Caulking	CREAM	NO	0%	NFIB	100%
010 6/15/00 6891 010D	**1st Floor/ Lunch Room/ Sample of Window Caulking	LIGHT GRAY	NO	0%	NFIB	100%
011 6/15/00 6893 011D	**1st Floor/ Inspection Pit/ Wall Fan Opening/ Sample of Window Caulking	LIGHT GRAY	NO	0%	NFIB	100%
012 6/15/00 6894 012D	**1st Floor/ Inspection Pit/ Wall Fan Opening/ Sample of Window Caulking	LIGHT GRAY	NO	0%	NFIB	100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

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New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

Project No.: 00-1067002
Analyte: ASBESTOS
Date Received: 6/16/00
Date Analyzed: 6/16/00
Batch #: 0006B292

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunny Side Yard "A" - NYAR Repair Shop*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED?	TOTAL % OF ASBESTOS	CONSTITUENTS
013 6/15/00 6895 013E	1st Floor/ Lunch Room/ Sample of 2'x4' Ceiling Tile	TAN	NO	0%	CELL 60% FBGL 25% NFIB 15%
014 6/15/00 6896 014E	1st Floor/ Ladies Toilet/ Sample of 2'x4' Ceiling Tile	TAN	NO	0%	CELL 55% FBGL 30% NFIB 15%
015 6/15/00 6897 015E	1st Floor/ Locker Room/ Sample of 2'x4' Ceiling Tile	TAN	NO	0%	CELL 50% FBGL 30% NFIB 20%
016 6/15/00 6898 016F	1st Floor/ Inspection Pit/ North Wall/ Sample of Brick Mortar	BEIGE	NO	0%	NFIB 100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

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WOLL = Wollastonite
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Al Wallner

Al Wallner
Laboratory Director

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NVLAP Lab Code: 101953

Project No.: 00-1067002
Analyte: ASBESTOS
Date Received: 6/16/00
Date Analyzed: 6/16/00
Batch #: 0006B292

SUMMARY OF ANALYTICAL RESULTS - PLM

Site: *Sunny Side Yard "A" - NYAR Repair Shop*

SAMPLE # / DATE COLLECTED / LAB # / CLIENT'S SAMPLE #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED?	TOTAL % OF ASBESTOS	CONSTITUENTS	
017 6/15/00 6899 017F	1st Floor/ Parts Room/ North Wall/ Sample of Brick Mortar	BEIGE	NO	0%	NFIB	100%
018 6/15/00 6900 017F	1st Floor/ Locker Room/ North Wall/ Sample of Brick Mortar	BEIGE	NO	0%	NFIB	100%

*INSUFFICIENT MATERIAL SUBMITTED **TEM RECOMMENDED ***NOT ANALYZED POSITIVE STOP

Sample Analysis by:
Polarized Light Microscopy-Dispersion Staining (PLM-DS)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" USEPA/ 600/ R-93/116, July 1993.

Instrumentation:
Olympus PLM, Model BH-2/VM Stereomicroscope, Model VMZ 1x-4x.

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HSHR = Horse Hair
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Al Wallner

Al Wallner
Laboratory Director

CERTIFICATES OF ANALYSIS

BY

TRANSMISSION ELECTRON MICROSCOPY

JLC
_NVIRONMENTAL CONSULTANTS, INC

June 26, 2000

STV Incorporated
225 Park Avenue South
New York, NY 10003

Attention: Mr. Jeff Buttler

Reference: Sunny Side Yard "A" - NYAR Repair Shop

Dear Mr. Buttler:

Enclosed please find the analytical results for TEM Bulk samples collected at Sunny Side Yard "A" - NYAR Repair Shop.

All samples were collected by JLC Environmental Consultants, Inc. (JLC) at the request of STV Incorporated.

The samples were analyzed by means of Transmission Electron Microscopy (TEM) in accordance with the ELAP "TEM Method for Identifying and Quantitating Asbestos in Non-Fibrous Organically Bound Bulk Samples" Revision 198.4, 8/3/92.

Any questions concerning results and/or documentation should be directed to Al Wallner, our laboratory director.

JLC Environmental Consultants, Inc. appreciates the opportunity to serve your organization. Please contact us with any further questions. We look forward to working with you again in the future.

Sincerely,
JLC Environmental Consultants, Inc.

Al Wallner

Al Wallner
Laboratory Director
cc: File

) Park Ave South, Suite 1001 New York, New York 10003 • Tel: (212) 420-8119 • Fax: (212) 420-6092

JLC ENVIRONMENTAL CONSULTANTS, INC.
200 Park Avenue South, Suite 1001, New York, New York 10003
Phone: (212) 420-8119 Fax: (212) 420-6092

Project No.:	00-1067002
Analyte:	ASBESTOS
Date Collected:	6/15/00
Date Relinquished:	6/16/00
Date Received:	6/16/00
Date Analyzed:	6/16/00
Batch #:	200062533

;TV Incorporated
'25 Park Avenue South
lew York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunny Side Yard "A" - NYAR Repair Shop*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
008 6889	1st Floor/ Tool Storage Room/ Sample of Door Frame Caulking	CREAM	YES	<1.0%	CHRY	<1.0%
009 6890	1st Floor/ Air Compressor Room/ Sample of Door Frame Caulking	CREAM	TRACE	<1%	CHRY	TRACE%
010 6891	1st Floor/ Lunch Room/ Sample of Window Caulking	LIGHT GRAY	NO	0%	NAD	0%
011 6893	1st Floor/ Inspector Pit/ Wall Fan Opening/ Sample of Window Caulking	LIGHT GRAY	NO	0%	NAD	0%

Insufficient Material Submitted** ****Weight of Residue is <1%, Analysis Unnecessary** ** Not Analysis Positive Stop**

Sample Analysis by:
Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the ELAP "TEM Method for Identifying and Quantitating Asbestos in Non-Fibrous Organically Bound Bulk Samples" Revision 198.4, 8/3/92.

ASBESTOS CONSTITUENTS
CHRY = Chrysotile Asbestos
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PAPF = Paper Fiber
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CELL = Cellulose
NFIB = Non-Fibrous
OTHR = Other
ORGM = Organic Material
RESI = Residue
CARB = Carbonate

Al Wallner
Al Wallner
Laboratory Director

Quantitative transmission electron microscopy is currently the only method that can be used to determine absolutely if this material can be considered or treated as non-asbestos containing.

Note: The above samples were analyzed by Sci Lab, a NIST-NVLAP and NYS-ELAP accredited laboratory and a sub-contractor of JLC Environmental Consultants, Inc. (NVLAP # 101904-1, ELAP # 11480)

JLC ENVIRONMENTAL CONSULTANTS, INC.
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ELAP Lab Code: 11029
NIOSH and AIHA Lab Code: 100273
NVLAP Lab Code: 101953

ΓV Incorporated
'5 Park Avenue South
rk, NY 10003

Project No.: 00-1067002
Analyte: ASBESTOS
Date Collected: 6/15/00
Date Relinquished: 6/16/00
Date Received: 6/16/00
Date Analyzed: 6/16/00
Batch #: 200062533

SUMMARY OF ANALYTICAL RESULTS - TEM

Site: *Sunny Side Yard "A" - NYAR Repair Shop*

SAMPLE # LAB # CLIENT'S SAMPLE ID #	DESCRIPTION / LOCATION	COLOR	ASBESTOS DETECTED	TOTAL % OF ASBESTOS	CONSTITUENTS	
)12 3894	1st Floor/ Inspector Pit/ Wall Fan Opening/ Sample of Window Caulking	LIGHT GRAY	NO	0%	NAD	0%

Insufficient Material Submitted ****Weight of Residue is <1%, Analysis Unnecessary*** ***** Not Analysis Positive Stop***

Sample Analysis by:
Transmission Electron Microscopy (TEM)

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the ELAP "TEM Method for Identifying and Quantitating Asbestos in Non-Fibrous Organically Bound Bulk Samples" Revision 198.4, 8/3/92.

Al Wallner

Al Wallner
Laboratory Director

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Quantitative transmission electron microscopy is currently the only method that can be used to determine absolutely if this material can be considered or treated as non-asbestos containing.

Note: The above samples were analyzed by Sci Lab, a NIST-NVLAP and NYS-ELAP accredited laboratory and a sub-contractor of JLC Environmental Consultants, Inc. (NVLAP # 101904-1, ELAP # 11480)

CERTIFICATES OF LEAD PAINT ANALYSIS

BY

ATOMIC ABSORPTION SPECTROSCOPY

JLC
ENVIRONMENTAL CONSULTANTS, INC

June 26, 2000

STV Incorporated
225 Park Avenue South
New York, NY 10003

Attention: Mr. Jeff Buttler

Reference: Sunny Side Yard "A" - NYAR Repair Shop

Dear Mr. Buttler:

Enclosed please find the analytical results for lead samples collected at Sunny Side Yard "A" - NYAR Repair Shop.

The samples were analyzed using an Atomic Absorption Spectrometry (AAS) using an air-acetylene flame and background correction in accordance with the Environmental Protection Agency Method EPA SW846-3050-7420. HUD guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter or 0.5% by weight (5,000 PPM) as Lead Based Paint (LBP).

Any questions concerning results and/or documentation should be directed to Al Wallner, our laboratory director.

JLC Environmental Consultants, Inc. appreciates the opportunity to serve your organization. Please contact us with any further questions. We look forward to working with you again in the future.

Sincerely,
JLC Environmental Consultants, Inc.

Al Wallner

Al Wallner
Laboratory Director

cc: File

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New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA (PAT, BAQAP ELPAT) Lab Code:100273
NVLAP Lab Code: 101953

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # Lab # Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
1 8198 001	Grounds/ North Entrance/ 4 Feet Safety Pole/ Sample of 2"X2" Paint Chip	<0.02
2 8199 002	Grounds/ North-West by Entrance/ 5 Leg Pipes/ Sample of 2"X2" Paint Chip	1.53
3 8200 003	Grounds/ North-West/ Waste Oil Tank/ Sample of 2"X2" Paint Chip	<0.02
4 8201 004	Grounds/ North-West/ Compressed Air Tank/ Sample of 2"X2" Paint Chip	<0.02
5 8202 005	Grounds/ North-West/ Compressed Air Dryer Tank/ Sample of 2"X2" Paint Chip	<0.02
6 8203 006	Grounds/ North-West/ Compressed Air Supply Pipe/ Sample of 2"X2" Paint Chip	0.03
7 8204 007	1st Floor/ Inspection Pit/ North/ Wall-A/ Exterior/ Sample of 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

.IUD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

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NVLAP Lab Code: 101953

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # **Lab #** **Client's Sample ID**	**Description / Location**	**LEAD CONTENT** **mg/ cm2**
8 8205 008	1st Floor/ Inspection Pit/ North/ Wall-A/ Interior/ Sample of 2"X2" Paint Chip	<0.02
9 8206 009	1st Floor/ Inspection Pit/ East Wall-B/ locker/Sample of 2"X2" Paint Chip	<0.02
10 8207 010	1st Floor/ Inspection Pit/ Chain Fence Pipe/ Sample of 2"X2" Paint Chip	<0.02
11 8208 011	1st Floor/ Air Compressor Room/ Door/ Sample of 2"X2" Paint Chip	<0.02
12 8209 012	1st Floor/ Air Compressor Room/ Door-Frame/ Sample of 2"X2" Paint Chip	<0.02
13 8210 013	1st Floor/ Air Compressor Room/ Steam Riser/ Sample of 2"X2" Paint Chip	<0.02
14 8211 014	1st Floor/ Air Compressor Room/ Pump Box/ Sample of 2"X2" Paint Chip	0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:

Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:

All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director
Minimum Dectection Limit = <0.02

HUD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

JLC ENVIRONMENTAL CONSULTANTS, INC.
200 Park Avenue South, Suite 1001, New York, New York 10003
Phone: (212) 420-8119 Fax: (212) 420-6092

ELAP Lab Code: 11029
NIOSH and AIHA (PAT, BAQAP ELPAT) Lab Code:100273
NVLAP Lab Code: 101953

TV Incorporated
.5 Park Avenue South
New York, NY 10003

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # / Lab # / Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
15 / 8212 / 015	1st Floor/ Tool Storage Room/ Closet/ Sample of 2"X2" Paint Chip	<0.02
16 / 8213 / 016	1st Floor/ Office Room/ Electric Supply Pipe/ Sample of 2"X2" Paint Chip	<0.02
17 / 8214 / 017	1st Floor/ Air Brake Work Room/ Work Station/ Sample of 2"X2" Paint Chip	<0.02
18 / 8215 / 018	1st Floor/ Air Brake Work Room/ Lockers/ Sample 2"X2" Paint Chip	<0.02
19 / 8216 / 019	1st Floor/ Air Brake Work Room/ Shelves/ Sample 2"X2" Paint Chip	<0.02
20 / 8217 / 020	1st Floor/ Air Brake Work Room/ Cupboard/ Sample 2"X2" Paint Chip	0.03
21 / 8218 / 021	1st Floor/ Air Brake Work Room/ Door/ Sample 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.
Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director
Minimum Dectection Limit = <0.02

JD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

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STV Incorporated
225 Park Avenue South
New York, NY 10003

ELAP Lab Code: 11029
NIOSH and AIHA (PAT, BAQAP ELPAT) Lab Code:100273
NVLAP Lab Code: 101953

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # / Lab # / Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
22 8219 022	1st Floor/ Air Brake Work Room/ Door-Frame/ Sample 2"X2" Paint Chip	<0.02
23 8220 023	1st Floor/ Inspection Pit/ Iron Beaus/ Sample 2"X2" Paint Chip	<0.02
24 8221 024	1st Floor/ Inspection Pit/ Supply Pipe/ Sample 2"X2" Paint Chip	<0.02
25 8222 025	1st Floor/ Inspection Pit/ Wall-D/ Sample 2"X2" Paint Chip	<0.02
26 8223 026	1st Floor/ Inspection Pit/ 3 Ton Crane/ Sample 2"X2" Paint Chip	<0.02
27 8224 027	1st Floor/ Inspection Pit/ Paint Locker/ Sample 2"X2" Paint Chip	<0.02
28 8225 028	1st Floor/ Inspection Pit/ Lube Oil Drums/ Sample 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

HUD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

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NVLAP Lab Code: 101953

V Incorporated
_5 Park Avenue South
New York, NY 10003

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # / Lab # / Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
29 8226 029	1st Floor/ Inspection Pit/ Wall-C/ Door/ Sample 2"X2" Paint Chip	<0.02
30 8227 030	1st Floor/ Inspection Pit/ Wall-C/ Door-Frame/ Sample 2"X2" Paint Chip	<0.02
31 8228 031	Grounds/ Exterior/ Southside/ Barrier Pole/ Sample 2"X2" Paint Chip	0.61
32 8229 032	1st Floor/ Parts Room/ Door/ Sample 2"X2" Paint Chip	<0.02
33 8230 033	1st Floor/ Parts Room/ Door-Frame/ Sample 2"X2" Paint Chip	<0.02
34 8231 034	1st Floor/ Men's Bathroom/ Door/ Sample 2"X2" Paint Chip	<0.02
35 8232 035	1st Floor/ Men's Bathroom/ Door-Frame/ Sample 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

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Laboratory Director

Minimum Dectection Limit = <0.02

_UD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

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NVLAP Lab Code: 101953

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # **Lab #** **Client's Sample ID**	**Description / Location**	**LEAD CONTENT** **mg/ cm2**
36 8233 036	1st Floor/ Women's Bathroom/ Door/ Sample 2"X2" Paint Chip	<0.02
37 8234 037	1st Floor/ Women's Bathroom/ Door-Frame/ Sample 2"X2" Paint Chip	<0.02
38 8235 038	1st Floor/ Hallway by Women's Bathroom/ Wall-B/ Sample 2"X2" Paint Chip	<0.02
39 8236 039	1st Floor/ Kitchen/ Electric Supply Pipe/ Sample 2"X2" Paint Chip	<0.02
40 8237 040	1st Floor/ Kitchen/ Wall-A/ Sample 2"X2" Paint Chip	<0.02
41 8238 041	1st Floor/ Tool Room/ Door/ Sample 2"X2" Paint Chip	0.04
42 8239 042	1st Floor/ Tool Room/ Door-Frame/ Sample 2"X2" Paint Chip	0.03

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:

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Method of Sample Preparation and Analysis:

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Minimum Dectection Limit = <0.02

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TV Incorporated
5 Park Avenue South
New York, NY 10003

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # / Lab # / Client's Sample ID	Description / Location	LEAD CONTENT mg/ cm2
43 8240 043	1st Floor/ Tool Room/ Closet Shelves/ Sample 2"X2" Paint Chip	<0.02
44 8241 044	1st Floor/ Tool Room/ Cabinet/ Sample 2"X2" Paint Chip	<0.02
45 8242 045	1st Floor/ Tool Room/ Door/ Sample 2"X2" Paint Chip	<0.02
46 8243 046	1st Floor/ Tool Room/ Door-Frame/ Sample 2"X2" Paint Chip	<0.02
47 8244 047	1st Floor/ Locker Room/ Door/ Sample 2"X2" Paint Chip	<0.02
48 8245 048	1st Floor/ Locker Room/ Door-Frame/ Sample 2"X2" Paint Chip	<0.02
49 8246 049	Grounds/ Outside Building/ Southside/ Brake Shoe Bucket/Sample 2"X2" Paint Chip	0.27

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:
Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner

Al Wallner
Laboratory Director

Minimum Dectection Limit = <0.02

ID Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

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ELAP Lab Code: 11029
NIOSH and AIHA (PAT, BAQAP ELPAT) Lab Code:100273
NVLAP Lab Code: 101953

Project No. 00-1067002
Analyte: LEAD (paint) AREA
Date Collected: 6/15/00
Date Received: 6/16/00
Date Analyzed: 6/17/00
Lab Batch #: 0006L713

Summary of Analytical Results

Site: **Sunny Side Yard "A" - NYAR Repair Shop**

Sample # **Lab #** **Client's Sample ID**	**Description / Location**	**LEAD CONTENT** **mg/ cm2**
50 8247 050	Grounds/ Outside Building/ Southside/ Brake Shoe/ Sample 2"X2" Paint Chip	<0.02

**COMPOSITE = Multiple Layers of Paint

Sample Analysis by:

Atomic Absorption Spectrometry (AAS) using an air-acetylene flame with background correction.

Method of Sample Preparation and Analysis:

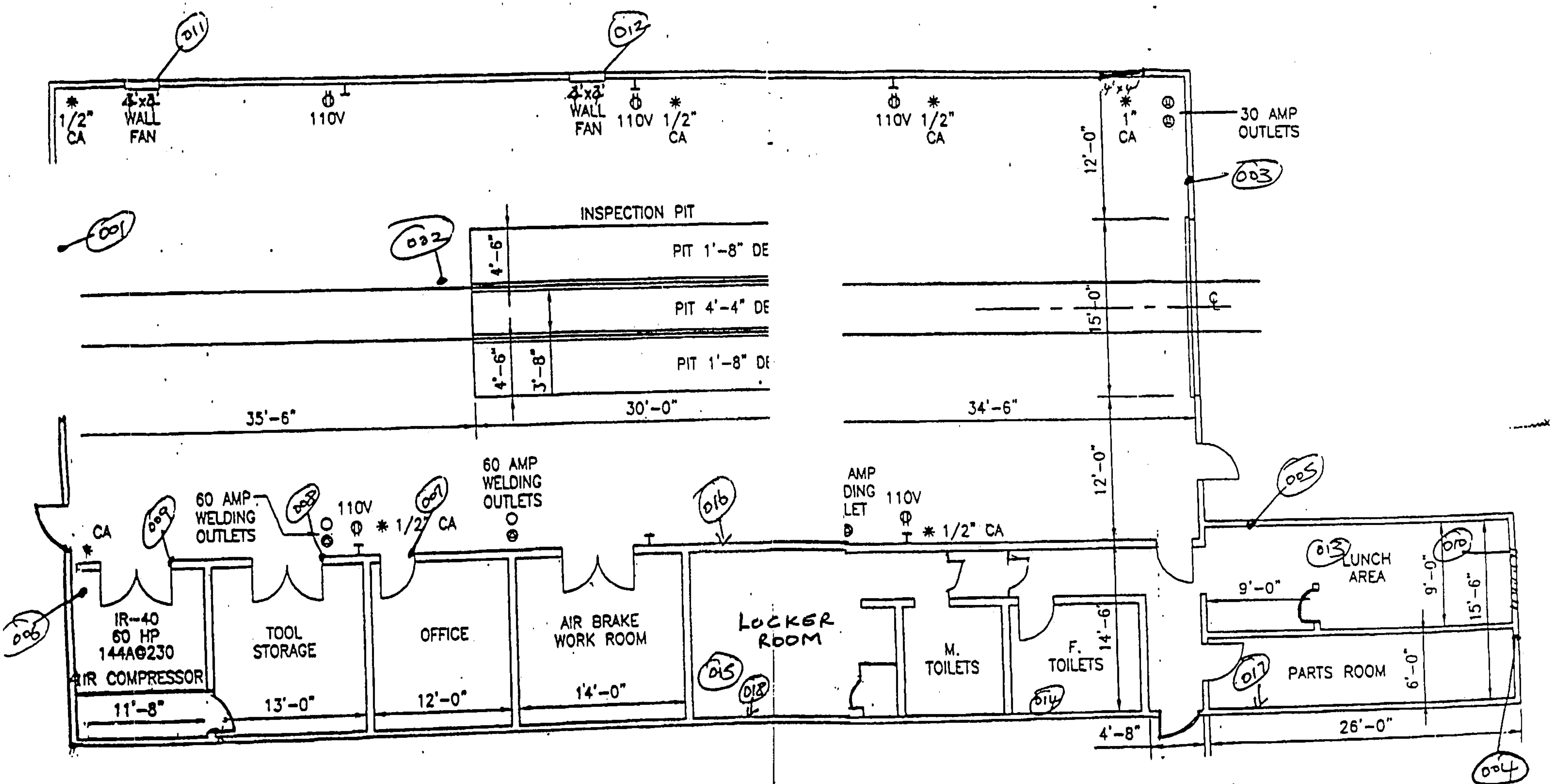
All samples were prepared and analyzed in accordance with the Environmental Protection Agency Method EPA SW846-3050/7420.

Al Wallner
Al Wallner
Laboratory Director
Minimum Dectection Limit = <0.02

HUD Guidelines define paint containing lead levels equal to or greater than 1.0 milligrams per square centimeter (1.0 mg/cm²).

APPENDIX B

ASBESTOS SAMPLE LOCATION PLAN

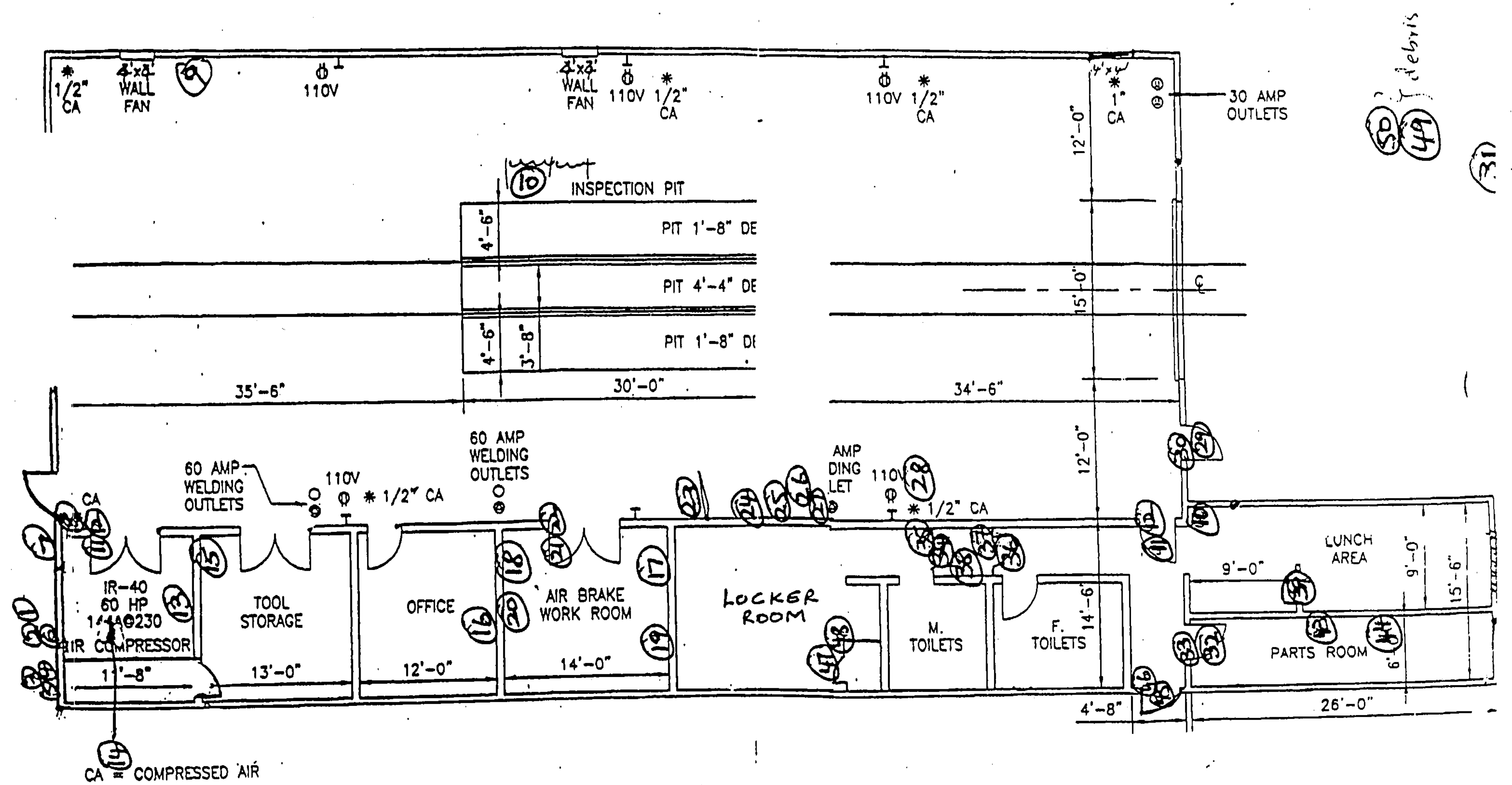


CA = COMPRESSED AIR

SKETCH #1: EXISTING LAYOUT

APPENDIX C

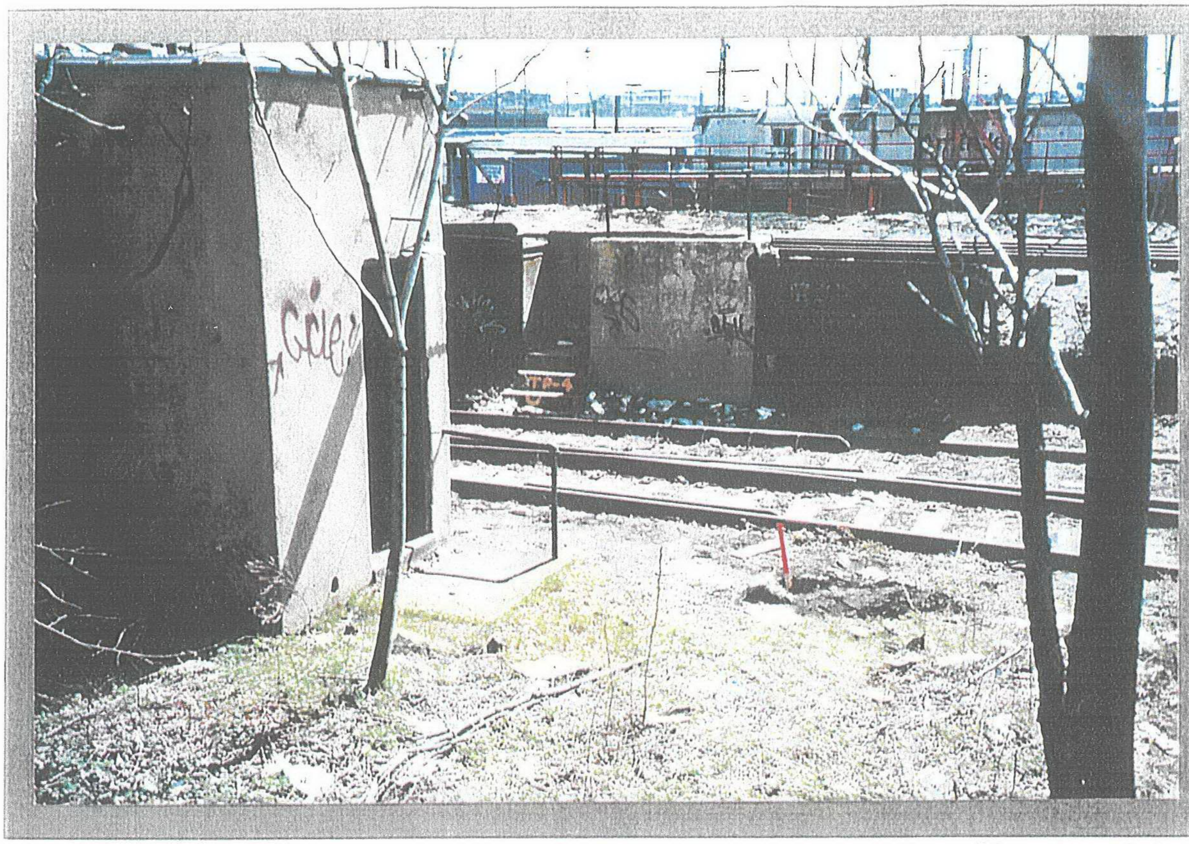
LEAD PAINT SAMPLE LOCATION PLAN



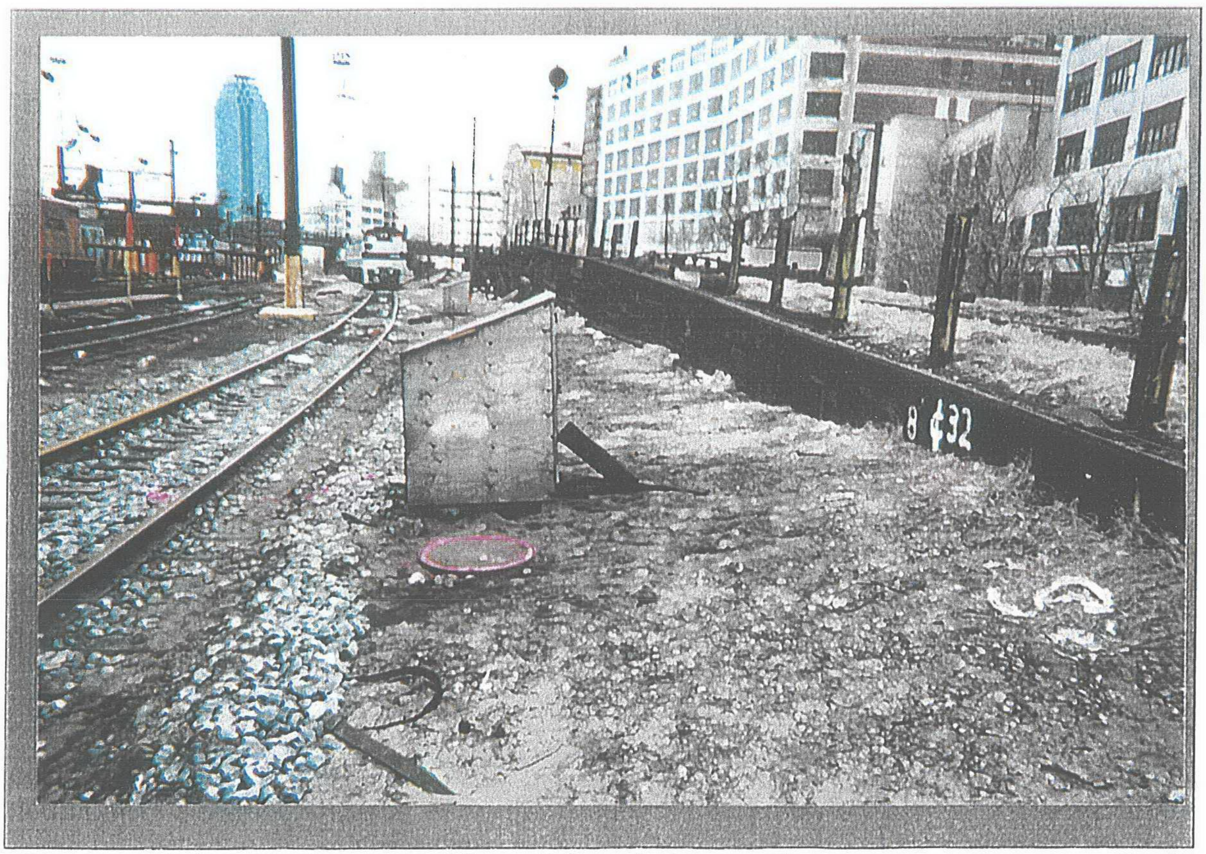
SKETCH #1: EXISTING LAYOUT

SCALE: 1/

APPENDIX F-1



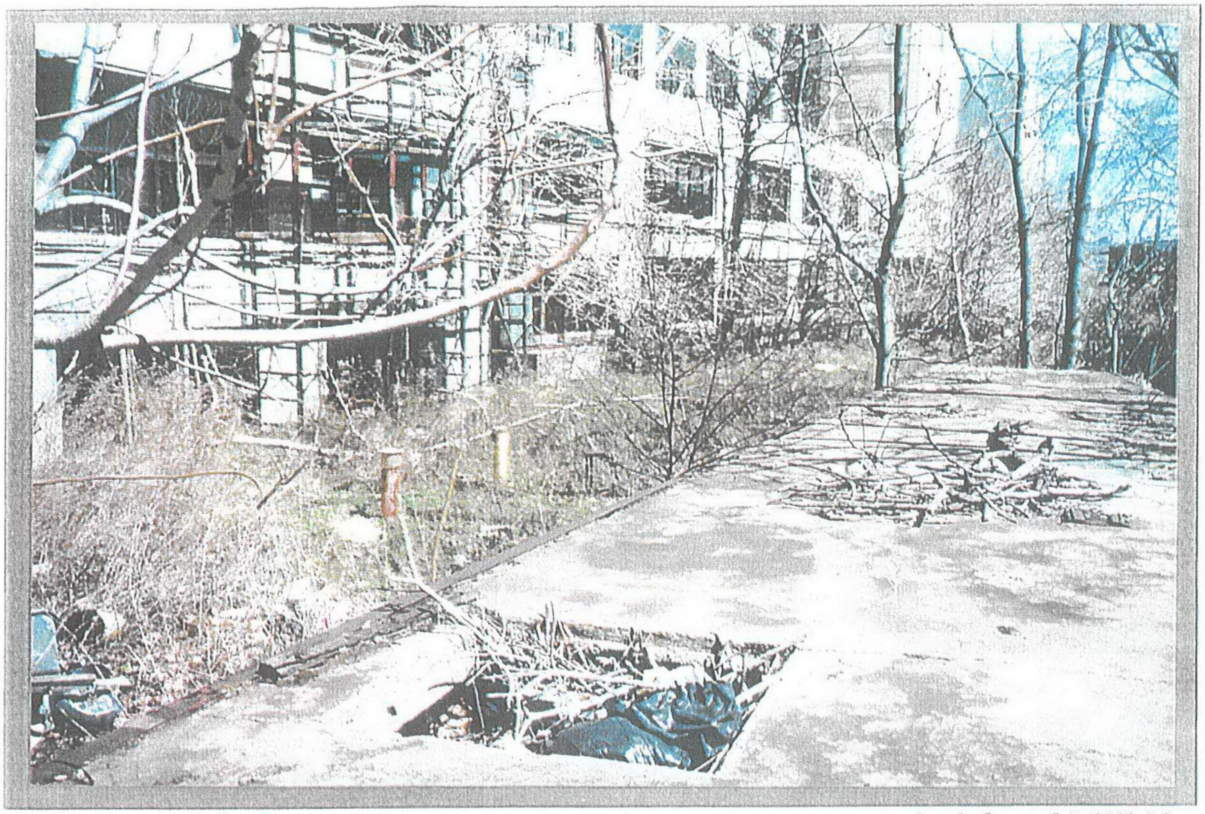
Photograph # 1: Facing south. View of the west end of the building. Hump track is in foreground and is on the ROW line.



Photograph # 2: Facing west. View of the existing product recovery system south of the hump track.

Photograph # 3: Facing east. Back of building area. Note suspect mound.

Photograph # 4: Facing east. Front of building. TA well P-10 is located within the rails of the track.



Photograph # 5: **Facing east. Note monitoring wells MW-19 on the left and MW-39 on the right.**

Photograph # 6: **Facing west. North of loading dock. There is another suspect mound.**

Photograph # 7: Facing west. Sewer line is adjacent to the loading dock. Trash pile in the back.

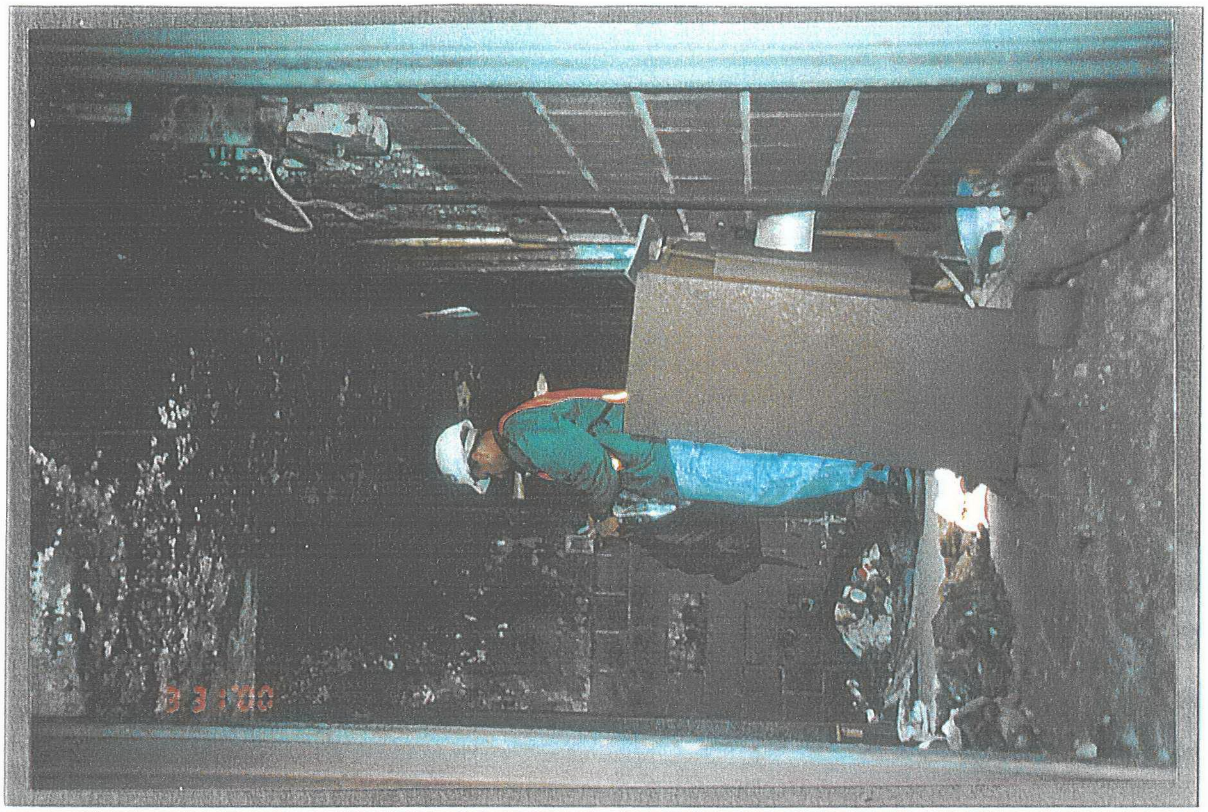
Photograph # 8: Facing west. Close up of trash pile.

Photograph # 9: Facing east. Monitoring well MW-36 in center and manhole MH-3 to left.

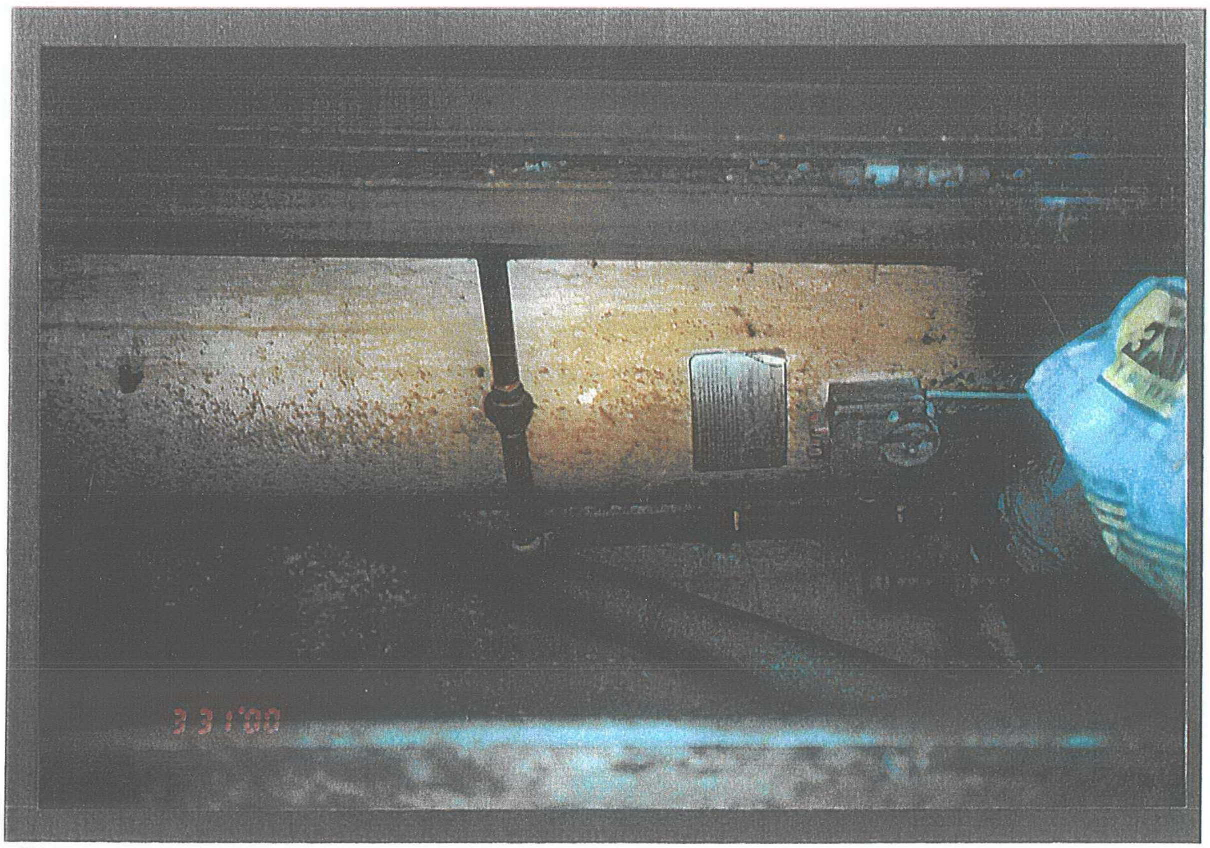
Photograph # 10: Facing north. Close up of manhole MH-3 seen in Photograph #9.

Photograph # 11: General condition of the interior of the building.

Photograph # 12: General condition of the interior of the building, continued.

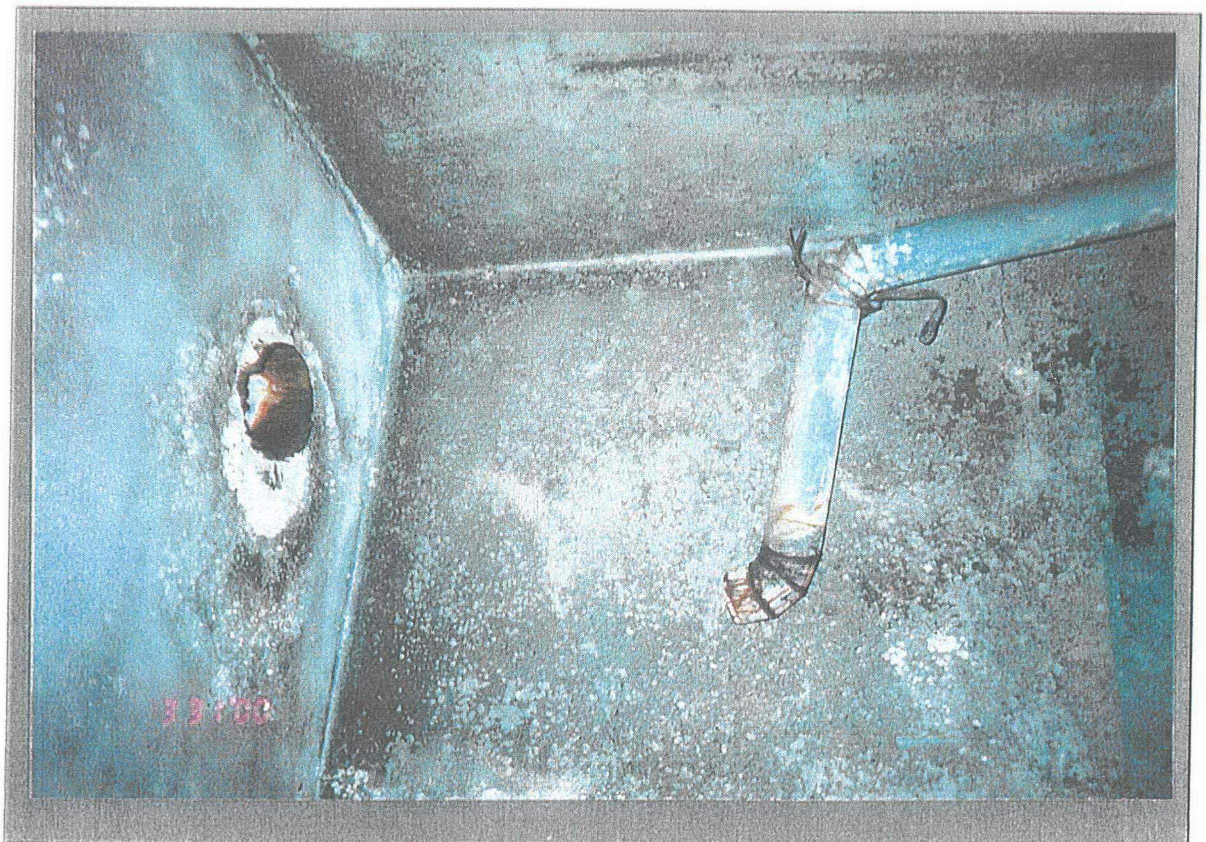


Photograph # 13: Conducting the ACM/LCM inspection in the east end of the building.



Photograph # 14: Defunct water heater.

Photograph # 15: Front building. Note subsurface utility mark out in red.



Photograph # 16: Ceiling to left. One of many exhaust pipes leading to roof.

APPENDIX F-2

Photograph # 1: Maintenance shop near/East building and outdoor work area.

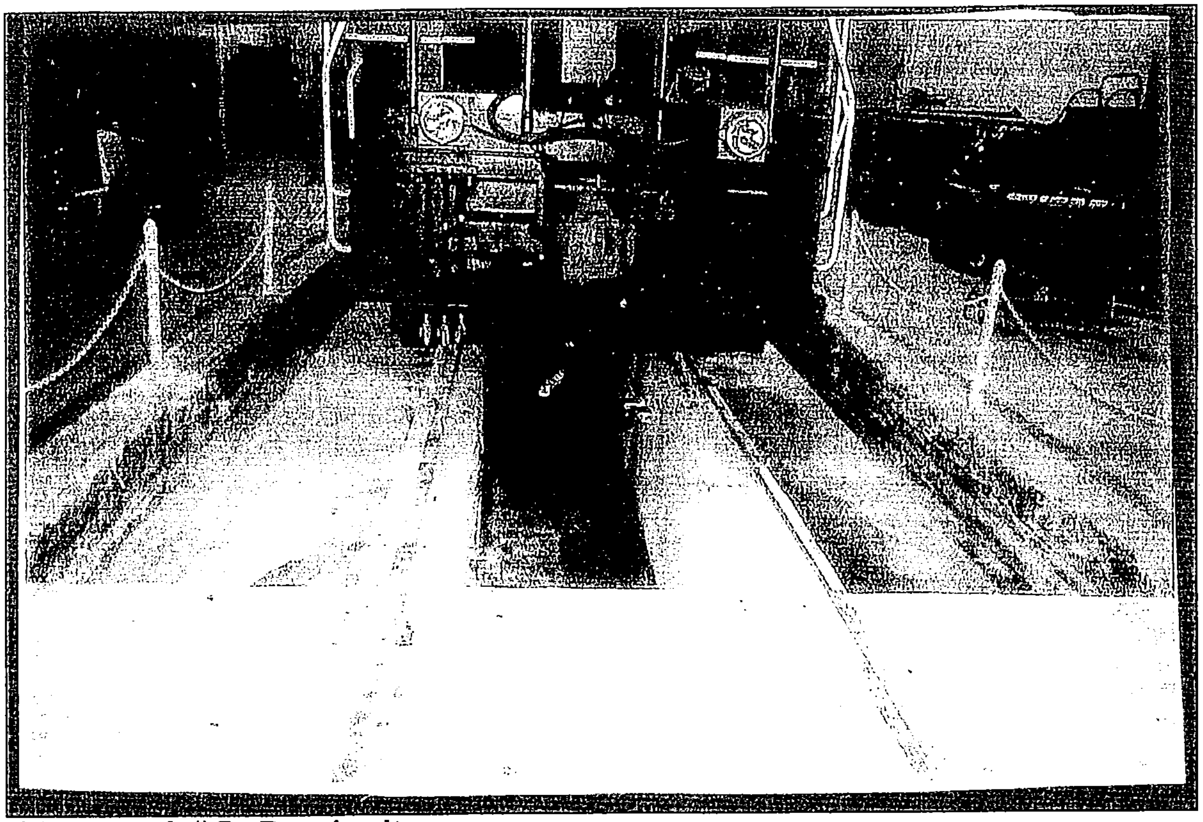
Photograph # 2: Close-up of stained pavement.

Photograph # 3: NY&AR locomotive on track through south parking lot in west Yard A.

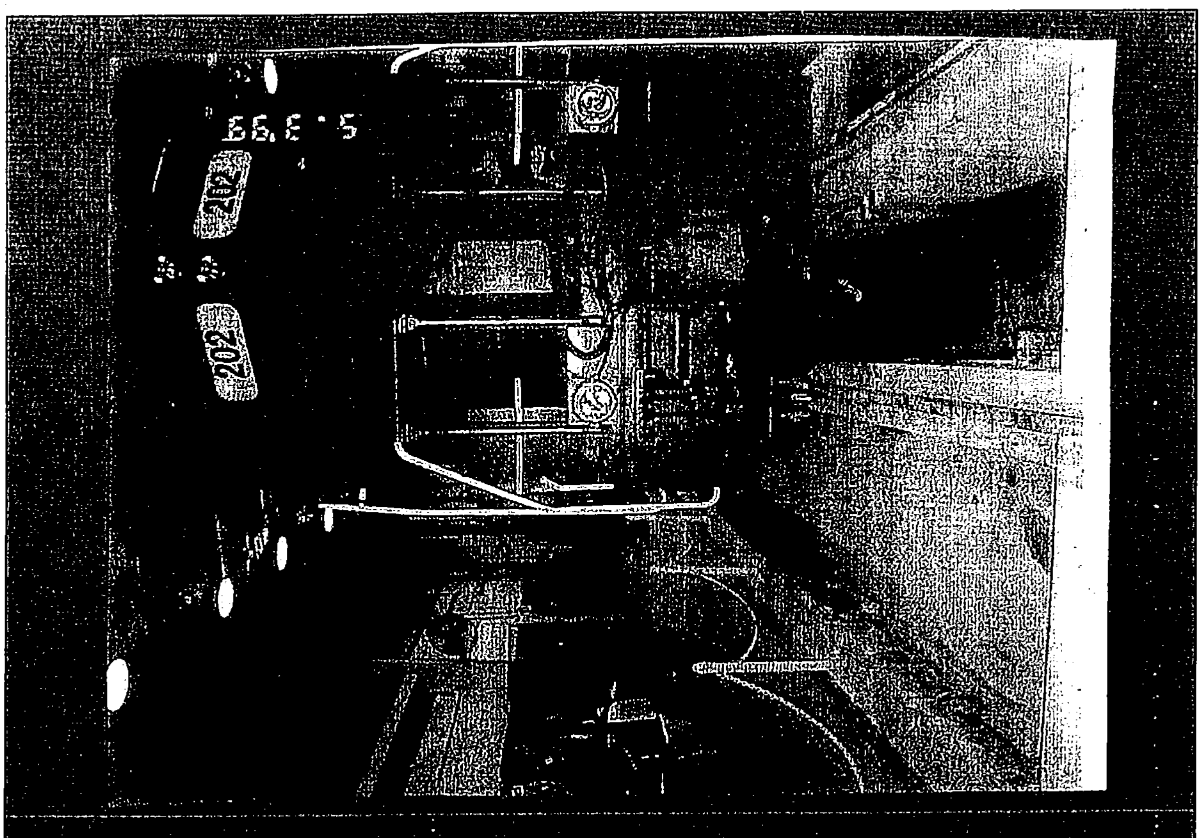
Photograph # 4: North side of NY&AR Maintenance building.

Photograph # 5: Yard A Maintenance Shop: Side/North building elevation. Track Adjacent to shop is utilized as a work area for repair of bad order cars.

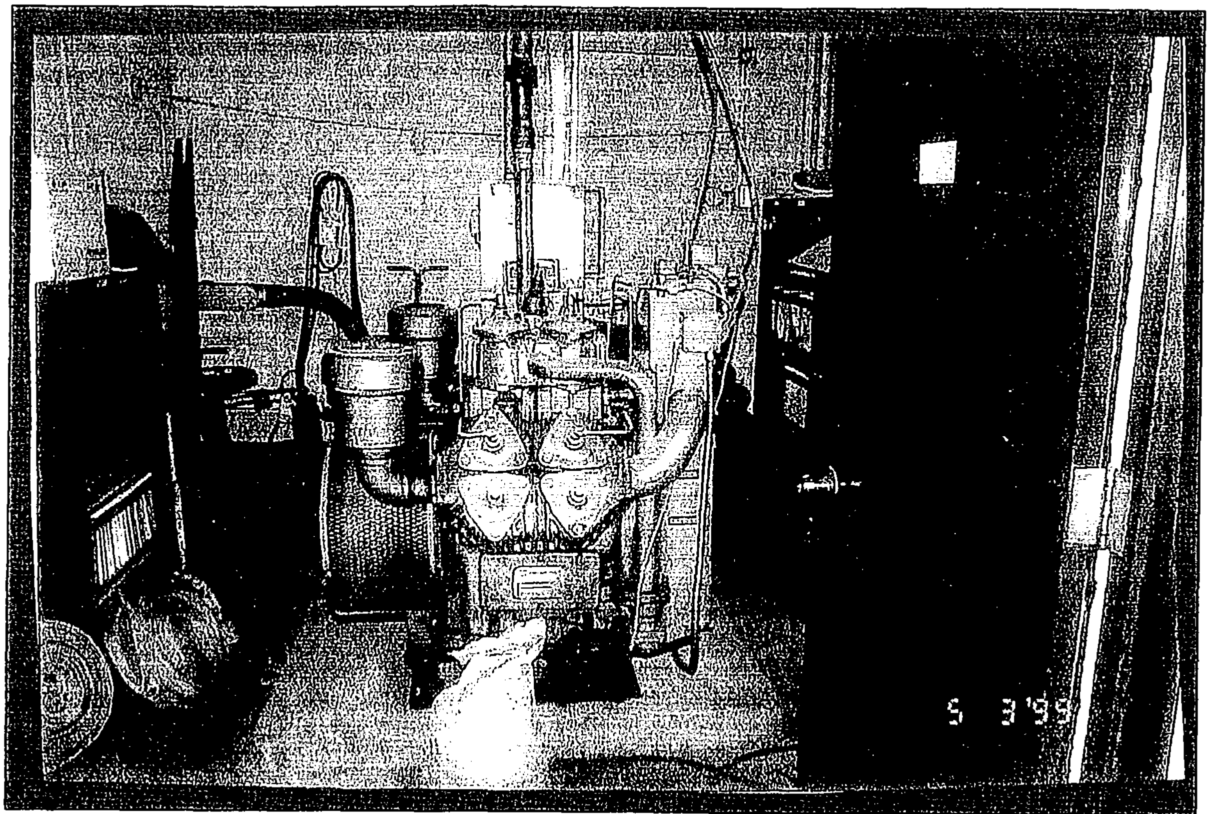
Photograph # 6: Close-up of Maintenance Shop front/west elevation.



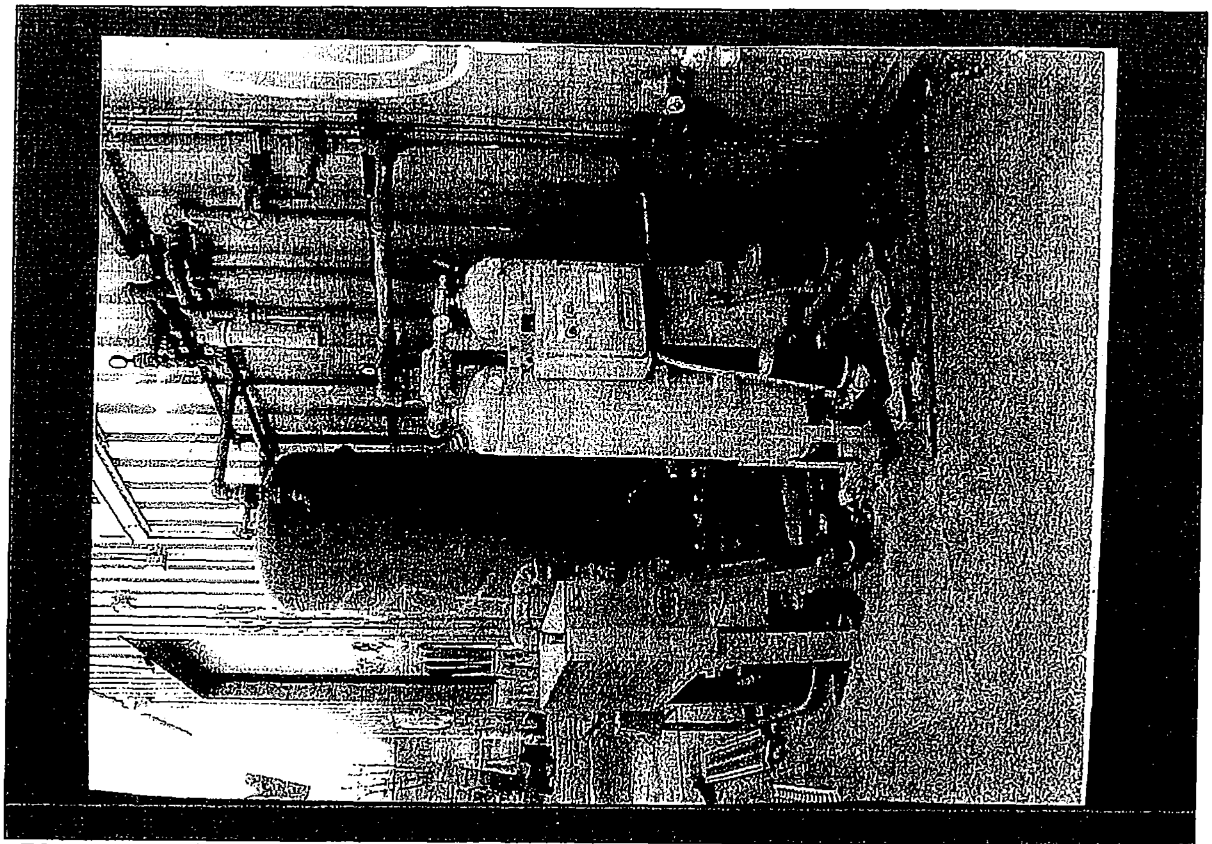
Photograph # 7: Repair pit.



Photograph # 8: Repair pit.



Photograph # 9: 60 Hp base mounted air compressor.



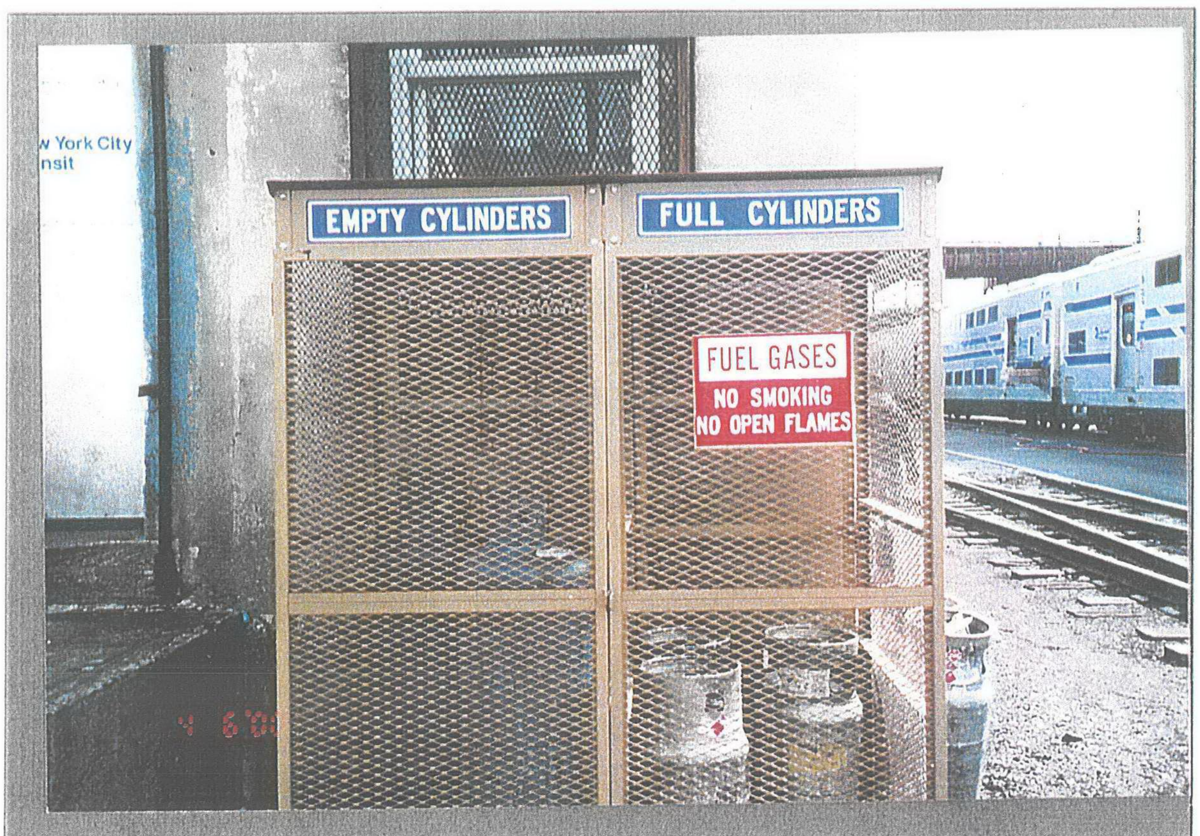
Photograph # 10: Compressed air receiver, dessicant dryer and air cooler are located outdoors at rear of shop.

APPENDIX F-3

Photograph # 1: Front West façade of Yardmaster's building.

Photograph # 2: North side of Yardmaster's building.

Photograph # 3: East side of Yardmaster's building.



Photograph # 4: West side of Yardmaster's building. Empty and full cylinders.

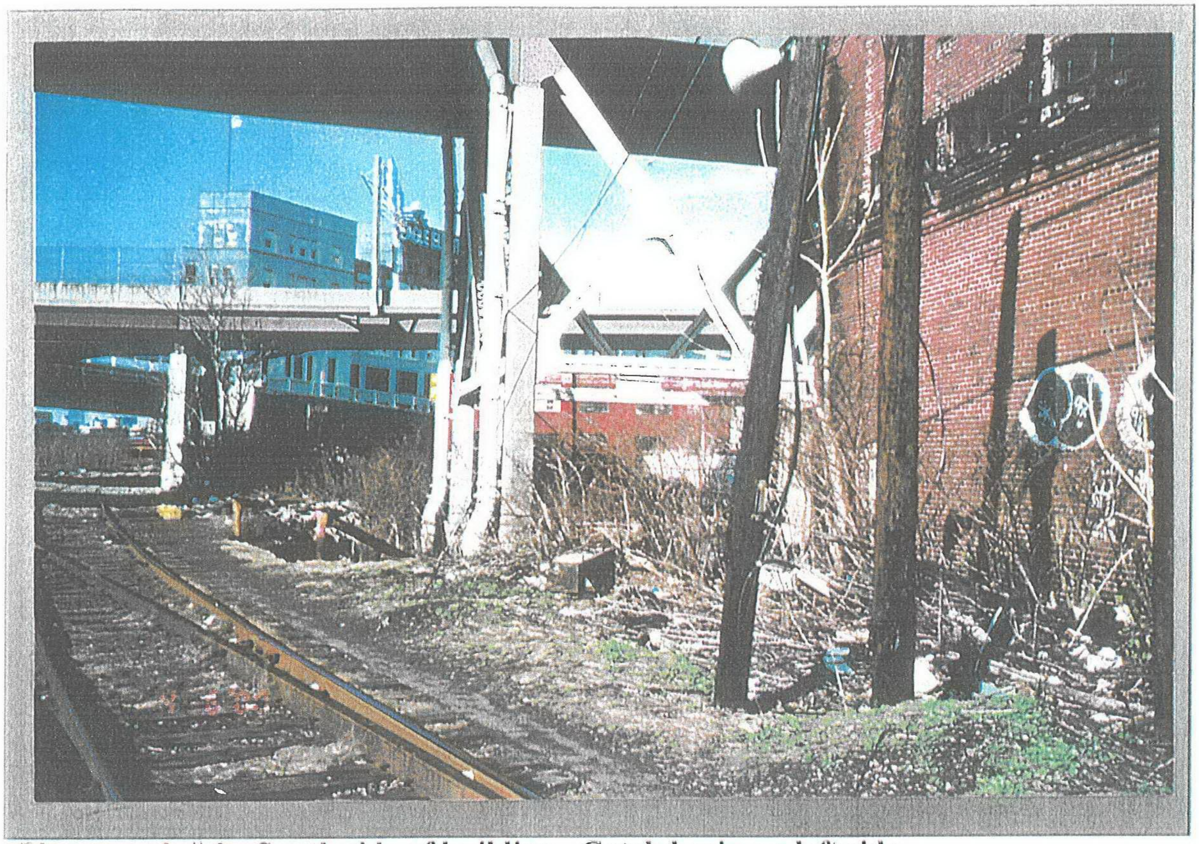
Photograph # 5: South side of Yardmaster's building.

Photograph # 6: South side of Yardmaster's building.

APPENDIX F-4

Photograph # 1: View looking west of 2 towers and abandoned substation building.

Photograph # 2: Close-up of south face of abandoned substation.



Photograph # 3: South side of building. Catch basin on left side.

Photograph # 4: Close-up of catch basin (full of debris).

Photograph # 5: North side of abandoned substation. Garbage compactor belongs to next door neighbor.

Photograph # 6: East side of abandoned building.

APPENDIX G

PERTINENT AMTRAK MONITORING WELLS IN YARD A - WELL CONSTRUCTION INFORMATION

WATER-LEVEL ELEVATIONS AND SEPARATE-PHASE PETROLEUM THICKNESS MEASUREMENTS
JUNE 1997

EXISTING RAIL YARD
PB/STV East Side Access Project
Long Island City, NY

Well I.D. No.	Location	Date Installed	Surface Elevation (feet)^	Screened Interval (ft-bg)	Screened Interval (feet)^	Elevation Top of Casing (feet)^	Depth to Water (ft-bmp)	Water Level Elevation	Depth to Petroleum (ft-bmp)	Petroleum Thickness (ft)
Existing Monitoring Wells										
MW-19+	East Yard A	12/20/90	317.75	4 - 14	313.75 - 303.75	320.13	7.88	312.25	ND	ND
MW-20+	East Yard A	12/11/90	317.07	2.5 - 12.5	314.75 - 304.57	319.09	4.63	314.74*	4.31	0.32
MW-21+	East Yard A	12/6/90	317.86	2 - 12	315.86 - 305.86	319.06	4.77	314.29	ND	ND
MW-29+	West Yard A	11/17/90	309.11	1 - 11	308.11 - -301.89	312.29	4.67	307.62	ND	ND
MW-30+	West Yard A	11/30/90	313.88	4 - 14	309.88 - -300.12	316.39	8	308.39	ND	ND
MW-35+	East Yard A	1/15/91	316.35	3 - 13	313.35 - 303.35	318.68	6.25	312.43	ND	ND
MW-36+	East Yard A	1/15/91	317.31	3 - 13	314.31 - 304.31	320.01	8.65	313.13*	6.62	2.03
MW-39D+	East Yard A	12/16/93	317.85	30.5 - 40.5	-312.7 - -322.7	320.12	7.19	312.93	ND	ND
MW-42	Cut-and cover	1/18/93	314.71	2 - 12	312.71 - 302.71	315.71	6.84	308.87	ND	ND
MW-43	Cut-and cover	1/29/93	314.11	2.5 - 12.5	311.61 - 301.61	315.14	6.29	308.85	ND	ND
MW-44D	Cut-and cover	1/20/93	313.92	29.7 - 39.7	-315.8 - -325.8	314.27	5.51	308.76	ND	ND

NOTES
PVC: Schedule 40 polyvinyl chloride piping
NGVD: National Geodetic Vertical Datum of 1929
Ft-bg: Feet below surface grade
Ft-bmp: Feet below measuring point (surveyed top of casing)
^300 feet added to NGVD for ESA project elevation
*Water table elevation corrected where product present (corrected elevation = specific density of the product times the apparent thicknes + the uncorrected elevation).
Correction assumes density of 0.874 (the average specific density of yard petroleum samples).
+' Monitoring well is situated on LIRR property.
All monitoring wells are 4 inch in diameter.