MTA Long Island Rail Road

Delineation Phase II
Site Assessment Investigation Report
Bayside Substation: Site No. V00386-2

November 2009

DVIRKA AND BARTILUCCI
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Jamaica Station
Jamaica, NY 11435-4380
718 558-7400

Helena E. Williams
President

Long Island Rail Road

November 30, 2009

Robert H. Filkins, Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 11th Floor
Albany, NY 12233-7016

Re: LIRR Bayside (NYSDEC VCA No. V00386-2)
Delineation Phase II Site Assessment Investigation Report

Dear Mr. Filkins:

Enclosed please find three copies of the Report entitled:

"Delineation Phase II Site Assessment Investigation Report
LIRR Bayside Substation
(NYSDEC VCA No. V00386-2)"

Please be advised that the LIRR will be decommissioning the Bayside Substation as part of an overall capital program system upgrade project. Note that a Remedial Action Work Plan (RAWP) will be submitted to your Department subsequent to your approval of the proposed remedial actions presented in the enclosed document.

Please do not hesitate to contact me at (718) 558-3620 if you have any questions or comments.

Very truly yours,

Andrew Wilson, P.E.
Project Manager

AW/SET/jmy
cc: Case Attorney (NYSDEC)
S. Shearer (NYSDOH)
D. Miles (NYSDOH)
C. Hillenbrand (USEPA)
C. Channer (MTA)
G. Russo (LIRR)
T. Fox (D&B)
♦2801\MISC09LTR.doc-11(R04)

METROPOLITAN TRANSPORTATION AUTHORITY

LONG ISLAND RAIL ROAD

DELINEATION PHASE II SITE ASSESSMENT FOR BAYSIDE SUBSTATION (V00386-2)

INVESTIGATION REPORT

Prepared for:

METROPOLITAN TRANSPORTATION AUTHORITY

LONG ISLAND RAIL ROAD

Prepared by:

DVIRKA AND BARTILUCCI CONSULTING ENGINEERS

WOODBURY, NEW YORK 11797

NOVEMBER 2009

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT FOR
BAYSIDE SUBSTATION
INVESTIGATION REPORT

TABLE OF CONTENTS

Section	Title	Page
Title Page		
1.0	**INTRODUCTION**	1-1
1.1	Project Background	1-1
1.2	Site Description	1-3
1.3	Summary of Prior Investigations	1-6
2.0	**INVESTIGATION METHODS**	2-1
2.1	Introduction	2-1
2.2	Surface Soil Sampling	2-1
2.3	Subsurface Soil Sampling	2-5
2.4	Groundwater Probe Installations and Sampling	2-6
2.5	Underground Injection Control (UIC) and Below Grade Structures	2-6
2.6	Air Sampling	2-9
3.0	**FINDINGS**	3-1
3.1	Surface Soil	3-4
3.2	Subsurface soil	3-6
3.3	Groundwater	3-7
3.4	Underground Injection Control (UIC) and Below Grade Structures	3-9
3.5	Waste Characterization	3-12
3.6	Data Usability Summary Report (DUSR)	3-12
4.0	**QUALITATIVE EXPOSURE ASSESSMENT**	4-1
4.1	Introduction	4-1
4.2	Properties, Fate and Transport of COPCs at the Bayside Substation	4-2
4.2.1	Mercury	4-2
4.2.2	Arsenic	4-3
4.3	General Substation Conditions	4-4
4.4	Surface and Subsurface Soil	4-6
4.5	Groundwater	4-6
4.6	Air	4-6
4.7	Future Use of the Bayside Substation	4-7

TABLE OF CONTENTS (continued)

Section	Title	Page
5.0	**Conclusions and Recommendations**	5-1
5.1	Nature and Extent of Contamination	5-1
5.2	Recommendations	5-2

List of Appendices

Existing Initial Site Assessment Analytical Data ..... A

Data Qualifiers/ Delineation Phase II Analytical Data ..... B

Delineation Phase II Boring Logs C

Data Validator Resume ..... D

LIRR Procedure/Instruction EE03-001 ..... E

Security Fencing Photographs ..... F

List of Figures

1-1	Site Location Map	1-4
1-2	Site Plan	1-5
2-1	Sample Location Map	2-2
2-2	Additional Delineation Sample Location Map	2-3
3-1	Contaminant Concentration Map	3-2
3-2	Additional Delineation Mercury Concentration Map	3-3
5-1	Proposed Areas of Remediation Map	5-4
5-2	Proposed Areas of Remediation Map (North)	5-5

List of Tables

2-1	Delineation Phase II Site Assessment Summary of Completed Work	2-4

1.0 INTRODUCTION

This Investigation Report presents the results of the Delineation Phase II Site Assessment, conducted at the Long Island Rail Road (LIRR) Bayside Substation which was completed in accordance with fully executed Voluntary Cleanup Agreement No. V00386-2.

The objectives of the Delineation Phase II Site Assessment included the following:

- Define the nature and extent of impacts to surface and subsurface soil;
- Determine if site-related contaminants have impacted groundwater quality;
- Identify potential impacts to human health and/or the environment associated with site-related contaminants; and
- Obtain sufficient data to determine the need for remedial action and to evaluate remedial alternatives that may be implemented as a final long-term remedy for the site.

Field activities and sampling procedures associated with the Delineation Phase II Site Assessment at the Bayside Substation were completed in accordance with the NYSDEC-approved "Investigation Work Plan" dated June 2005.

The following subsections provide relevant project background information, including detailed descriptions of the Bayside Substation site, as well as a summary of the findings of prior investigation work.

1.1 Project Background

The LIRR designed, constructed and operated substations from the early 1930's through 1951 that utilized mercury rectifiers. These rectifiers allowed the LIRR to receive 60-cycle, alternating current (AC) from local utilities and convert it to direct current (DC) for use as a source of electric power for its locomotives and electric passenger car fleet. The LIRR identified

20 substations located throughout Queens, Nassau and Suffolk Counties that once utilized mercury containing rectifiers, including the Bayside Substation.

It is believed that during the early 1980s, the mercury rectifiers were taken out of service and physically removed from these LIRR substations and replaced with non-mercury containing solid state equipment. However, due to uncertainties surrounding the work practices that may have been employed when managing the operation and maintenance of these mercury rectifiers, the LIRR believed it necessary to conduct environmental assessments at these 20 electric substations to determine the potential effects that may have occurred to the surrounding environment.

Between 1999 and 2000, the LIRR conducted environmental assessments at the 20 electric substations previously utilizing mercury-containing rectifiers. The results of these assessments were documented in a report prepared by Dvirka and Bartilucci Consulting Engineers (D&B), entitled, "Site Assessment of 20 Substations for Mercury Contamination," dated December 2000. Based on the findings of that report, mercury was identified in soil at all 20 substations, including the Bayside Substation, at concentrations above the New York State Department of Environmental Conservation's (NYSDEC's) recommended cleanup objectives (TAGM 4046). Note that, in April 2000, the LIRR conducted an Interim Remedial Measure (IRM), consisting of the removal of 6 inches of mercury-contaminated soil and replacement with poly sheeting and crushed stone in a targeted area to the west of the Bayside Substation. This IRM action was documented in a report prepared by D&B, entitled "Interim Remedial Measure Oversight Report, "dated January 2001. In order to further delineate and remediate impacted soil at the 20 substations, the LIRR has agreed to undertake and complete Delineation Phase II Site Assessments under the NYSDEC Voluntary Cleanup Program (VCP). In support of this VCP, the LIRR elected to conduct Delineation Phase II Site Assessment activities at the Bayside Substation.

The report discusses the data generated as part of the Initial Site Assessment and Delineation Phase II Site Assessment activities conducted at the Bayside Substation.

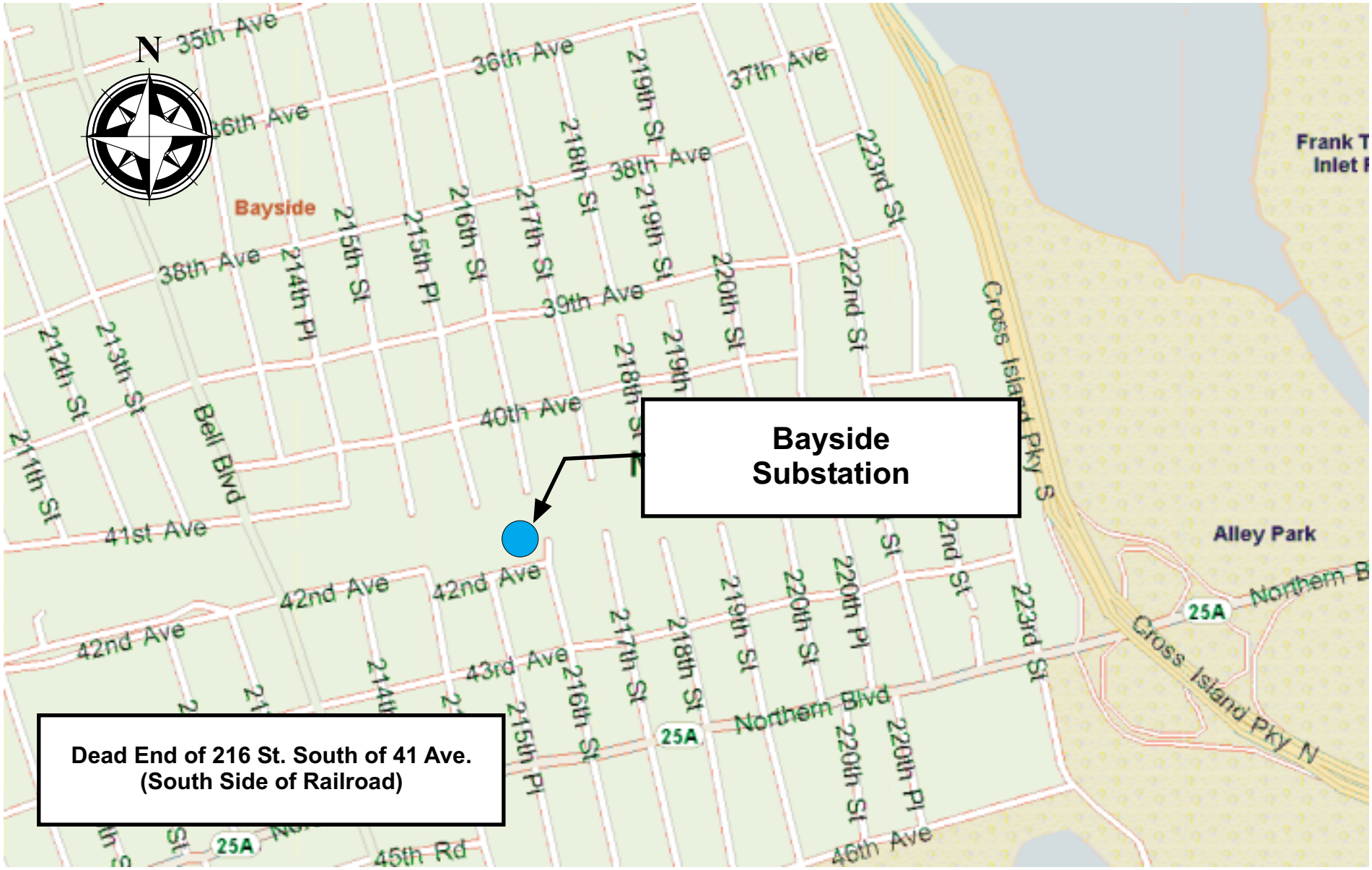
1.2 Site Description

The Bayside substation site is located in Bayside, Queens County, New York, as depicted on Figure 1-1. The substation consists of an approximately 1,800 square foot one-story brick building depicted on Figure 1-2. An approximate 3,600 square foot transformer yard is located to the east of the substation building and is enclosed by a chain-link fence. The substation building and transformer yard are presently utilized to convert alternating current to direct current. The areas surrounding the substation and the transformer yards are currently utilized as vehicular parking and residential areas.

The Bayside substation is equipped with a basement, sanitary and water services and a utility trench system, as well as an office area utilized by LIRR personnel. The interior of the substation consists of an active solid-state rectifier located over a pit leading to the basement that once serviced a mercury-containing rectifier. In addition, the substation contained a second wooden covered rectifier pit not currently in use. It should also be noted that the Bayside Substation contains a bank of active lead-acid batteries located in a room in the northwest corner of the substation to provide back-up electricity.

The initial site inspection identified a water meter pit with an earthen bottom located along the western wall of the substation, as well as a communications manhole filled with water and debris located off the northwest corner of the substation. In addition, a steel covered manhole conduit filled with water and debris was observed approximately 5 feet north of the substation and a steel covered conduit pit containing a floor drain filled with ballast was observed within the transformer yard.

Based on the results of the Delineation Phase II Site Assessment, the depth to groundwater at this site is approximately 75 feet below ground surface.



KRB/2229 (LIRR)/sitemaps.cdr(03/29/04)

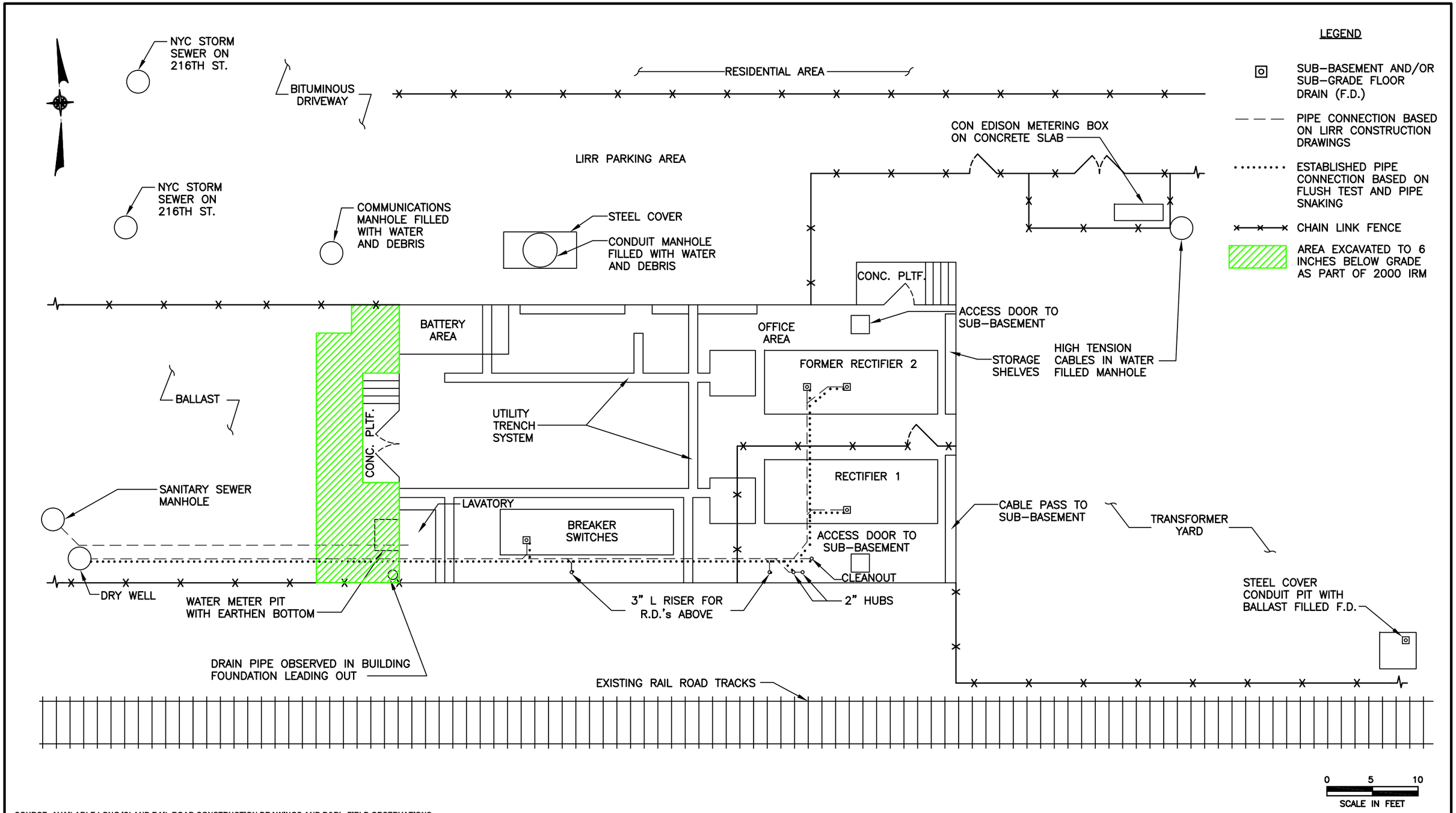
Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

SITE LOCATION MAP
BAYSIDE SUBSTATION (V00386-2)

NOT TO SCALE

FIGURE 1-1



SOURCE: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS AND D&B's FIELD OBSERVATIONS

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

SITE PLAN
BAYSIDE SUBSTATION (V00386-2)

FIGURE 1-2

F:\2229\BAYSIDE\2229-FIG 1-2 Site Plan.dwg, SITE (2), 11/30/2009 11:15:27 AM, Adobe PDF, Tabloid, 1:1

1.3 Summary of Prior Investigations

The LIRR completed an Initial Site Assessment of the Bayside Substation in 1999, as documented in the report entitled, "Site Assessment of 20 Substations for Mercury Contamination," dated December 2000. Investigation methods utilized during this Initial Investigation included a site inspection, mercury vapor measurements, an exploratory excavation and drainage determinations. In addition, samples of various environmental media were collected at the site for laboratory analysis. These media included surface soil, subsurface soil and concrete cores. Analytical data generated from the Initial Site Assessment is presented in Appendix A of this report.

Additional details regarding the Initial Site Assessment of the Bayside Substation are presented in the previously referenced report "Site Assessment of 20 Substations for Mercury Contamination." Note that the findings of the 2000 Initial Site Assessment were utilized as the basis for developing the investigation scope of work for the Delineation Phase II Site Assessment investigation. Below is a summary of the findings of the Initial Site Assessment of the Bayside Substation.

Drainage Determination

Available LIRR construction drawings indicate that the substation lavatory and floor drains discharge to the New York City sanitary and storm sewer systems, respectively, located on 216th Street. Accordingly, D&B conducted flush and dye tests to confirm these discharge points. Several sewer manholes located along 216th Street were observed while water and dye was flushed through the lavatory and floor drains. The suspected discharge point of the lavatory and floor drains could not be confirmed. Consequently, D&B undertook a program to mechanically snake these drainage points.

As depicted on Figure 1-2, four drain pipes located within the Bayside Substation were traced utilizing conventional geophysical techniques. It was determined that the two drain pipes located in the northern rectifier pit are connected to a drain pipe in the southern rectifier pit, then

connect to a fourth drain located in the southern rectifier pit. The pipe located in the southern pit then exits the west wall of the substation building where it was, at that time, determined to end approximately 8-10 feet west of the west wall of the substation building.

In order to determine the discharge point of the rectifier drainage pipe, D&B hand excavated this area (due to the presence of utilities) to a depth of approximately 5 feet below ground surface (bgs) where a 6-inch diameter clay pipe was exposed. At that time, it appeared as if the pipe turned towards the southwest and continued beyond the fence to the west of the substation building, where no observable discharge features (i.e., dry wells, manholes or trench covers) were located. In addition, available LIRR construction drawings did not indicate any drainage features in this vicinity. Note, that, in order to further investigate the discharge point of this pipe, a geophysical survey and an additional excavation were performed as part of the Delineation Phase II Site Assessment, which is detailed in Section 2.5.

Sampling and Analysis

The following subsections describe the findings associated with surface soil, subsurface soil and concrete core samples collected from the Bayside Substation during the completed previous investigations. All samples were analyzed for mercury. Samples collected during this phase of the investigation were compared to the TAGM 4046 Recommended Soil Cleanup Objectives (RSCOs); however, as of December 2006, the NYSDEC has mandated new cleanup objectives, and as such, all Initial Site Assessment data has been reevaluated and compared to the NYCRR Subpart 375 Soil Cleanup Objectives (SCOs) for industrial sites. Note that, as per the United States Environmental Protection Agency (USEPA), all soil samples collected from or associated with Underground Injection Control (UIC) structures will be compared to TAGM 4046. Sample Locations are provided on Figure 2-1 in Section 2. Results for the mercury analysis are provided in Appendix A.

Surface Soil

Four surface soil samples were collected for mercury analysis. Two of the four collected surface soil samples exhibited detectable concentrations of mercury in exceedance of the SCO for mercury of 5.7 mg/kg, ranging in concentration from 105 mg/kg to a maximum concentration of 384 mg/kg. The maximum concentration of mercury was detected in BSSS-04, collected adjacent to the south of the concrete platform and steps located on the west side of the substation building.

Subsurface Soil

Ten subsurface soil samples were collected for mercury analysis. Mercury was not detected at concentrations exceeding its SCO of 5.7 mg/kg in any of the collected subsurface soil samples.

Concrete

Two concrete core samples were collected from the interior of the substation building for mercury analysis. Both of the collected concrete core samples exhibited detectable concentrations of mercury in exceedance of the SCO for mercury of 5.7 mg/kg, ranging in concentration from 6.9 mg/kg to a maximum concentration of 19.9 mg/kg. The maximum concentration of mercury was detected in BSCC-02, collected from beneath the south rectifier pit.

IRM Activities

In April 2000, the LIRR conducted an Interim Remedial Measure (IRM), consisting of the removal of 6 inches of contaminated soil and replacement with poly sheeting and crushed stone in a targeted area to the west of the Bayside Substation in order to reduce the potential for exposure to mercury in surface soil in this area. Note that this area is currently enclosed by a locked chain link fence. Photos of the fenced area located to the west of the substation building

are provided in Appendix F. Note that this area is utilized by the LIRR for staff parking. As depicted on Figure 2-1, IRM activities were conducted in the vicinity of the concrete platform and steps located on the west side of the substation building. Three post excavation soil samples were collected from a depth of 6 inches bgs. Post-excavation soil sample data are provided in Appendix A. All three post excavation soil samples exhibited detectable concentrations of mercury in exceedance of the SCO for mercury of 5.7 mg/kg, ranging in concentration from 8.0 mg/kg to a maximum concentration of 68.4 mg/kg. The maximum concentration of mercury was detected in BSEP-02, collected approximately 2-feet west of the concrete platform and steps on the west of the substation building.

2.0 INVESTIGATION METHODS

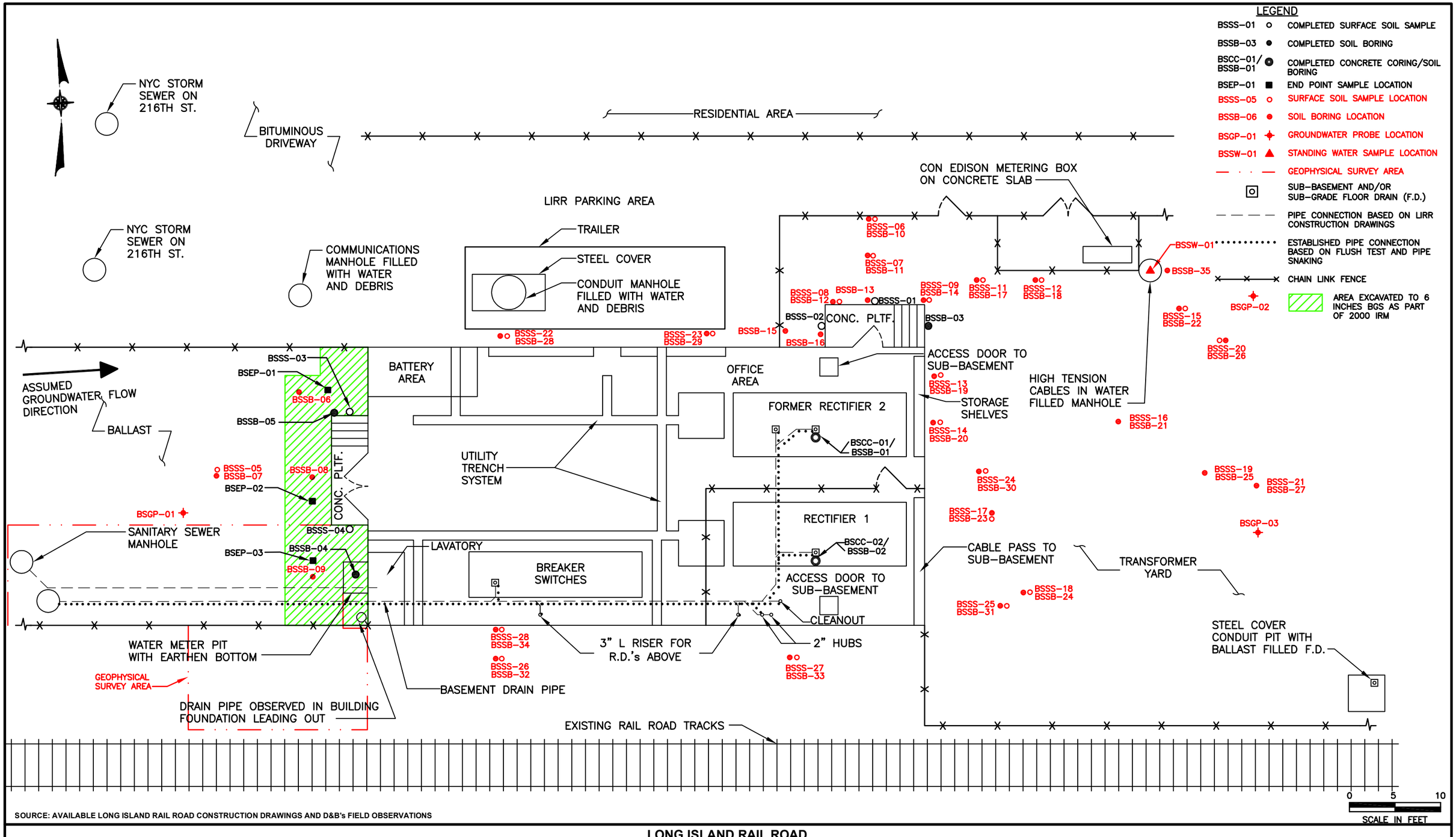
2.1 Introduction

This section provides a description of the field activities conducted at the Bayside Substation site as part of the Delineation Phase II Site Assessment. The initial scope of work was completed in accordance with the New York State Department of Environmental Conservation (NYSDEC) approved Work Plan, dated June 2005, in September 2005. Based on the results of this sampling, D&B provided the LIRR and the NYSDEC with a May 2006 Preliminary Evaluation as to the nature and extent of contamination along with recommendations for additional sampling and analysis. Based on the findings of the 2005 investigation, additional soil samples were collected in April 2008 and March 2009 in areas exhibiting the greatest mercury concentrations. Note that the additionally proposed sampling locations were necessary to sufficiently define the identified elevated mercury concentrations in site soil and to develop an appropriate remedial plan for the substation. All additional sampling at the Bayside Substation was completed by D&B in March 2009.

Sample locations associated with the Delineation Phase II Site Assessment are depicted on Figure 2-1. Figure 2-2 depicts the locations of the 2008 and 2009 additional delineation sample locations completed based on the results of the 2005 investigation. In addition, a sampling and analysis summary for the above listed investigation phases is provided on Table 2-1. Laboratory data generated as part of the Delineation Phase II Site Assessment is included in Appendix B.

2.2 Surface Soil Sampling

A total of 42 surface soil samples were collected at the Bayside Substation as part of the Delineation Phase II Site Assessment. Surface soil samples were collected from a depth of 0 to 2 inches below ground surface. All samples were collected utilizing a dedicated polyethylene scoop and placed into laboratory-supplied glass bottles. Filled sample bottles were then placed into an ice-filled cooler for subsequent shipment to the analytical laboratory.



SOURCE: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS AND D&B's FIELD OBSERVATIONS

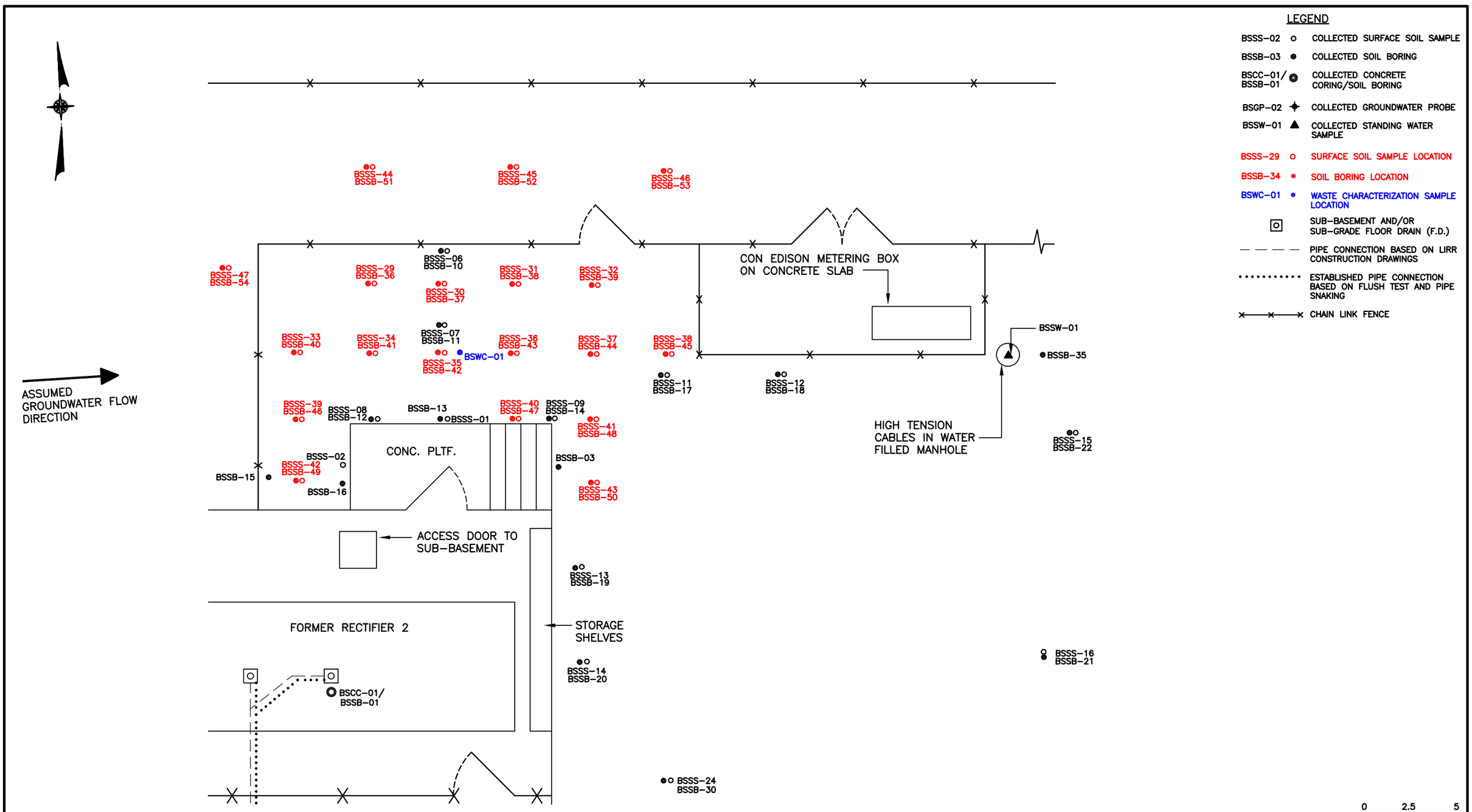
Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

SAMPLE LOCATION MAP
BAYSIDE SUBSTATION (V00386-2)

FIGURE 2-1

F:\2229\BAYSIDE\2229-FIG 5-8.dwg, LOCATION, 10/16/2009 9:40:16 AM, dbcadd



SOURCE: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS AND D&B's FIELD OBSERVATIONS

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

ADDITIONAL DELINEATION SAMPLE LOCATION MAP
BAYSIDE SUBSTATION (V00386-2)

FIGURE 2-2

F:\2229\BAYSIDE\2229-FIG 2-2 Additional Delin.dwg, LOCATION, 10/16/2009 9:40:48 AM, dbcadd

TABLE 2-1
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT - SEVENTEEN SUBSTATIONS
BAYSIDE (V00386-2) SUMMARY OF COMPLETED WORK (9/29/05 through 3/10/09)

Location	Sample Designation	SURFACE SOIL SAMPLES**	SOIL PROBES/BORINGS			No. of Storm Water Samples	GROUNDWATER PROBES		Recommended Analyses								Comments
			No. of Probes	No. of Samples	Soil Sampling Interval		No. of Probes	Approximate Total Depth of Probes	Mercury	RCRA Metals	TAL Metals	PCBs	VOCs	SVOCs	Full TCLP/ RCRA Waste Characteristics	USEPA UIC Constituents *	
West Side of Substation	BSSS-05 BSSB-06 through 09	1	4	4	2-4' bgs	-	-	-	5	-	-	-	-	-	-	-	No deviations from original scope.
Northeast Corner of Substation	BSSS-06 through 09 BSSB-10 through 16	4	7	7	2-4' bgs	-	-	-	11	-	-	-	-	-	-	-	BSSS-10 was unable to be analyzed for mercury concentration. BSSS-42 was collected and analyzed in a corresponding location as part of the additional delineation in 2008.
	BSSS-11 through 14 BSSB-17 through 20	4	4	8	2-6' bgs Cont.	-	-	-	12	-	-	-	-	-	-	-	BSSS-11 and 12 and BSSB-17 and 18 were moved north 5', due to utility obstructions.
	BSSS-29 through 43 BSSB-33 through 50	15	15	15	1-2' bgs	-	-	-	30	-	-	-	-		-		No deviations from original scope.
	BSSS-44 through 47 BSSB-51 through 54	4	4	4	1-2' bgs	-	-	-	8	-	-	-	-				No deviations from original scope.
Communications Manhole, Conduit Manhole, and High Tension Cable Manhole	BSSW-01 BSSB-35	-	1	1	6-7' bgs.	1	-	-	-	-	-	-	-	-	-	2	The communications manhole was inspected and observed to be filled with approximately 2' of water and debris and have a solid bottom. The integrity of the bottom of the high tension manhole could not be confirmed, due to water and debris on the manhole bottom. A storm water sample (BSSW-01) was collected and a soil boring (BSSB-35) was advanced adjacent to the manhole and sampled at the 6'-7' interval, corresponding to the manhole bottom. The soil sample was advanced adjacent to the manhole due to the presence of submerged live wires in the manhole. The conduit manhole could not be inspected due to a trailer positioned on the cover.
Roof Drains	BSSS-28 BSSB-34	1	1	1	2-4' bgs Cont.	-	-	-	2	-	-	-	-	-	-	-	No deviations from original scope.
Groundwater	BSGP-01 through 03	-	-	-	-	-	3	74'	-	-	6***	-	3	-	-	-	BSGP-02 was moved approximately 14' east and BSGP-03 was moved approximately 13' east due to utility obstructions.
Transformers	BSSS-15 through 21 BSSB-21 through 27	7	7	14	0-4' bgs Cont.	-	-	-	-	21	-	21	-	21	-	-	No deviations from original scope.
Potential Releases	BSSS-22 through 27 BSSB-28 through 33	6	6	6	2-4' bgs	-	-	-	12	-	-	-	-	-	-	-	No deviations from original scope.
Geophysical Survey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	The geophysical survey could not establish the presence or location of the pipe connected to the rectifiers noted on LIRR construction maps. However, the geophysical survey and a flush test did confirm a drain leading from the lavoratory to the sewer. This was the only pipe observed to originate from the southeast corner of the substation in this investigation.
Discharge Pipe Excavation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	An excavation performed in 2008 located the discharge point of the rectifier discharge pipe, originating from the southwest corner of the substation building. The piping was tracked to a dry well located to the west of the substation building, where one sediment sample was collected for UIC parameter analysis.
Waste Characterization	BSWC-01	1	1	1	1-2' bgs	-	-	-	-	-	-	-	-	-	1	-	No deviations from original scope.
		43	50	61	-	1	3	-	80	21	6	21	3	21	1	3	Total

NOTES:
bgs: below ground surface.
bpb: below pit bottom.
Cont.: Continuous 2-foot soil sampling
-: Not Applicable
* USEPA UIC Constituents include VOCs by Method 8260b, RCRA Metals including Mercury by Methods 6010b/7471a, SVOCs by Method 8270c, PCBs by Method 8082, and TPHs by Method 8015b.
** Surface soil samples to be collected at 0-2" interval.
*** Filtered and Unfiltered Samples

All samples were screened utilizing a mercury vapor analyzer (MVA) for the presence of mercury vapor and a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). In areas of the substation property where the ground surface was covered with railroad ballast or crushed stone, this material was removed prior to collecting the surface soil sample, and returned when sampling was completed.

2.3 Subsurface Soil Sampling

A total of 59 subsurface soil samples were collected at the Bayside Substation as part of the Delineation Phase II Site Assessment. All subsurface soil borings were hand-cleared to a depth of five feet below ground surface in order to avoid impacting any underground utilities. In general, subsurface soil samples collected from less than five feet below ground surface were collected using a decontaminated hand auger and/or post hole digger, and subsurface soil borings collected from more than five feet below ground surface were collected using direct push (Geoprobe®) sampling techniques with a decontaminated probe sampler. The samples were screened for mercury vapor, utilizing a MVA, and for VOCs, utilizing a PID; inspected for staining, discoloration; checked for odors; and logged by a geologist in a dedicated field logbook. Boring logs are provided in Appendix C.

Before commencement of soil probing, all "down-hole" probing equipment (i.e., macro-core samplers, probe rods, etc.) was decontaminated using a steam cleaner/pressure washer and/or Alconox and water prior to use. Soil probe samplers were also decontaminated between each use by thoroughly washing with Alconox and water, using a brush to remove particulate matter or surface film, followed by a thorough rinsing with tap water.

In addition to monitoring VOC and mercury vapor concentrations in the collected soil samples, an MVA and a PID were used to monitor mercury vapor and VOCs, respectively, in the breathing zone and at the probe holes and boreholes. The PID was calibrated on at least a daily basis, using isobutylene gas at a concentration of 100 parts per million (ppm) in air. The MVA was factory-calibrated as per the manufacture's specifications.

Upon completion of the soil probes, recovered sample material which was not retained for laboratory analysis was returned to the borehole from which it came. The remainder of the borehole was filled with clean sand, bentonite pellets and/or concrete, where appropriate. All probe holes were restored to grade with the same material that was originally in place.

2.4 Groundwater Probe Installations and Sampling

Three groundwater probes, consisting of one probe located upgradient of the substation building, and two probes located downgradient of the substation building were advanced and groundwater samples were collected from these locations. The groundwater samples were collected by driving decontaminated probe rods to the designated sample depth and inserting dedicated polyethylene tubing and a decontaminated stainless steel check valve into the rod assembly. The check valve and tubing were then manually oscillated to purge approximately two to three gallons of groundwater prior to sample collection. Each groundwater sample, upon retrieval, was analyzed in the field for pH, conductivity, dissolved oxygen, turbidity, and temperature. Groundwater samples were then collected from the tubing/check valve assembly into laboratory-supplied glass bottles. Any evidence of odors, sheens or the presence of free product was noted. All observations and results were logged in the project field books.

Upon completion, each probe hole was backfilled with clean sand and/or bentonite pellets. All probe holes were restored at grade with the same material that was originally in place.

2.5 Underground Injection Control (UIC) and Below Grade Structures

Five below grade structures were investigated for Underground Injection Control (UIC) applicability as part of the Delineation Phase II Site Assessment. The structures investigated included a communications manhole located off the northwest corner of the substation building, a conduit manhole located north of the substation building, a high tension cable manhole located off the northeast corner of the substation building and the lavatory discharge and rectifier discharge piping, which according to available LIRR construction drawings, were suspected to

discharge through the southwest wall of the substation building. The investigations were conducted as follows:

Communications Manhole

The communications manhole located approximately eight feet northwest of the substation building was visually inspected for the presence of a solid bottom and discharge piping during the Delineation Phase II Site Assessment. A solid bottom was observed in the communications manhole; therefore, samples were not collected from this structure.

Conduit Manhole

The conduit manhole located approximately five feet north of the substation building was not inspected due to a trailer being located on the manhole throughout the duration of the Delineation Phase II Site Assessment. Note that the conduit manhole structures investigated at the various other LIRR substation sites were designed as access points for power and communication cables and were not designed as drainage structures; as such, their primary function is not to accept fluids. Therefore, it is assumed that this is not a UIC structure.

High Tension Manhole

The high tension manhole located approximately twenty-two feet northeast of the substation building was visually inspected for the presence of a solid bottom and discharge piping during the Delineation Phase II Site Assessment. Due to the manhole being partially filled with debris and water and electrical safety concerns, the competency of the bottom could not be verified. As a result, one soil boring was advanced to the immediate east of the manhole, downgradient of the manhole with respect to groundwater flow, and one subsurface soil sample was collected from this soil boring. In addition, one water sample was collected from the storm water within the high tension manhole.

Lavatory Discharge Piping

As discussed in Section 1.3, flush testing and mechanical snaking were performed in order to investigate the lavatory discharge piping during the Initial Site Assessment. The discharge point of the lavatory was unable to be determined at that time, and recommendations to further investigate the discharge point of this pipe during the Delineation Phase II Site Assessment were made.

A geophysical survey, consisting of a ground penetrating radar (GPR) and electromagnetic (EM) survey, and a flush test were performed in order to further investigate the lavatory discharge piping exiting the southwest corner of the substation building. The geophysical survey identified a sewer manhole cover located approximately 38 feet west of the substation building. A flush test later confirmed that the substation lavatory discharges to this sewer manhole. Samples were not collected as part of this investigation, as sediment was not present in the sewer manhole structure.

Rectifier Discharge Piping

As discussed in Section 1.3, an exploratory excavation was performed in order to investigate the rectifier discharge piping during the Initial Site Assessment. The discharge point of the rectifier piping was unable to be determined during this excavation, and recommendations to further investigate the discharge point of this pipe during the Delineation Phase II Site Assessment were made.

A geophysical survey, consisting of a GPR and EM survey, was performed in September 2005 in order to further investigate the rectifier discharge piping exiting the southwest corner of the substation building. The geophysical survey was unable to identify the rectifier discharge piping at that time. During the April 2008 additional delineation fieldwork, an exploratory excavation was performed, in which the rectifier discharge piping was uncovered and tracked to a dry well located approximately 35 feet west of the substation building. One soil sample was collected for chemical analysis from the sediment located within the dry well structure.

2.6 Air Sampling

As discussed above, a Jerome MVA was utilized to screen all surface and subsurface soil samples for the presence of mercury vapor, and a PID was utilized to screen all surface and subsurface soil samples for the presence of VOCs. The mercury vapor and VOC results for subsurface soil are summarized on the boring logs provided in Appendix C.

3.0 FINDINGS

The findings from the Initial Site Assessment, conducted in 1999, were the basis for the sample locations chosen for the "Delineation Phase II Site Assessment," completed in September 2005. Additional delineation sampling activities completed in April 2008 and March 2009 were based on the September 2005 results.

Surface and subsurface soil sample results are compared to the New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Subpart 375 Soil Cleanup Objectives (SCOs) for industrial (fenced areas) and residential (non-fenced areas) sites. Soil samples collected from Underground Injection Control (UIC) features are compared to the Technical and Administrative Guidance Memorandum (TAGM) 4046 SCOs. Groundwater sample results are compared to the Class GA Groundwater Standards/Guidance Values listed in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1. Analytical results from the Delineation Phase II Site Assessment are summarized in Appendix B. Boring logs generated from the advancement of subsurface soil borings are provided in Appendix C. A concentration map, provided as Figure 3-1, depicts the site-wide mercury and arsenic concentration data generated from the Initial Site Assessment and the preliminary Delineation Phase II Site Assessment at the Bayside Substation. Figure 3-2 depicts mercury concentration data generated from the 2008 and 2009 additional delineation samples collected during the Delineation Phase II Site Assessment. The additional delineation soil samples were collected in areas where the greatest mercury concentrations were detected, primarily to the northeast of the substation building,

Below is a discussion of the evaluation of data generated as part of the Delineation Phase II Site Assessment at the Bayside Substation.

LEGEND

BSSS-01 ○ SURFACE SOIL SAMPLE COLLECTED PRIOR TO PHASE II DELINEATION

BSSB-03 ● SOIL BORING COLLECTED PRIOR TO PHASE II DELINEATION

BSCC-01/ BSSB-01 ◎ CONCRETE CORING/SOIL BORING COLLECTED PRIOR TO PHASE II DELINEATION

BSEP-01 ■ ENDPOINT SAMPLE LOCATION COLLECTED PRIOR TO PHASE II DELINEATION

BSSS-05 ○ SURFACE SOIL SAMPLE LOCATION

BSSB-06 ● SOIL BORING LOCATION

⊡ SUB-BASEMENT AND/OR SUB-GRADE FLOOR DRAIN (F.D.)

— — — — PIPE CONNECTION BASED ON LIRR CONSTRUCTION DRAWINGS

• • • • • • • • • • • ESTABLISHED PIPE CONNECTION BASED ON FLUSH TEST AND PIPE SNAKING

×—×—× CHAIN LINK FENCE

(0.079) BSSS-05 NUMBER IN PARENTHESIS ADJACENT TO SAMPLE NAME DENOTES MERCURY CONCENTRATION IN SURFACE SOIL

AREA REMEDIATED TO 6 INCHES BGS AS PART OF IRM

"<" QUALIFIER DENOTES A CONCENTRATION BELOW THE GIVEN INSTRUMENT DETECTION LIMIT

ALL CONCENTRATIONS PRESENTED IN MG/KG

RESIDENTIAL AREA

BITUMINOUS DRIVEWAY

LIRR PARKING AREA

CON EDISON METERING BOX ON CONCRETE SLAB

HIGH TENSION CABLES IN WATER FILLED MANHOLE

TRAILER

STEEL COVER

COMMUNICATIONS MANHOLE FILLED WITH WATER AND DEBRIS

CONDUIT MANHOLE FILLED WITH WATER AND DEBRIS

BSEP-01

BATTERY AREA

CONC. PLTF.

BSSS-02 (5.1)

BSSB-16

BSSS-01

BSSB-03

BSSB-15

BSSS-22 (1.8) BSSB-28

(2.4) BSSS-23 BSSB-29

BSSS-03 (105)

BSSB-06

BSSB-05

BSEP-02

BSSB-04

BSSS-05 (0.079) BSSB-07

BSSB-08

BSSS-04 (384)

BSEP-03

BSSB-09

UTILITY TRENCH SYSTEM

FORMER RECTIFIER 2

BSCC-01/ BSSB-01 (6.9)

RECTIFIER 1

BSCC-02/ BSSB-02 (19.9)

ACCESS DOOR TO SUB-BASEMENT

CLEANOUT

2" HUBS

3" L RISER FOR R.D.'s ABOVE

LAVATORY

BREAKER SWITCHES

BALLAST

SANITARY SEWER MANHOLE

WATER METER PIT WITH EARTHEN BOTTOM

DRY WELL

DRAIN PIPE OBSERVED IN BUILDING FOUNDATION LEADING OUT

BASEMENT DRAIN PIPE

EXISTING RAIL ROAD TRACKS

TRANSFORMER YARD

ASSUMED GROUNDWATER FLOW DIRECTION

STEEL COVER CONDUIT PIT WITH BALLAST FILLED F.D.

BSSS-06 (6.5) BSSB-10

BSSS-07 (116) BSSB-11

BSSS-08 (12.7) BSSB-12

BSSB-13 (5.5)

BSSS-09 (11.5) BSSB-14

BSSS-11 (3.5) BSSB-17

BSSS-12 (0.644) BSSB-18

BSSB-35

BSSS-15 BSSB-22

BSSS-20 BSSB-26

BSSS-13 (1.6) BSSB-19

BSSS-14 (0.541) BSSB-20

BSSS-16 BSSB-21

BSSS-24 (0.888) BSSB-30

BSSS-17 BSSB-23

BSSS-18 BSSB-24

BSSS-25 (0.084) BSSB-31

BSSS-26 (0.229) BSSB-32

BSSS-27 (0.894) BSSB-33

BSSS-28 (0.314) BSSB-34

BSSS-19 BSSB-25

BSSS-21 BSSB-27

DEPTH	CONC.
6 in.	24.5
2–4 ft.	0.603
0–2 ft.	<0.047
4–6 ft.	<0.052
2–4 ft.	0.087
2–4 ft.	0.11
6 in.	8.0
2–4 ft.	4.8
6 in.	68.4
3.5–5.5 ft.	<0.058
7.5–9.5 ft.	<0.057
2–4 ft.	<0.075
2–4 ft.	0.192
0–2 ft.	0.086
4–6 ft.	<0.054
2–4 ft.	<0.065
0–2 ft.	<0.059
4–6 ft.	<0.057
2–4 ft.	0.089
2–4 ft.	<0.068
2–4 ft.	0.947
2–4 ft.	0.079
2–4 ft.	1.1
2–4 ft.	0.38
0–2 ft.	2.4
4–6 ft.	0.10
2–4 ft.	0.261
2–4 ft.	0.351
2–4 ft.	0.234
2–4 ft.	<0.070
4–6 ft.	<0.069
2–4 ft.	0.128
4–6 ft.	<0.069
2–4 ft.	<0.068
4–6 ft.	<0.071
2–4 ft.	<0.068
4–6 ft.	<0.069
2–4 ft.	<0.065
2–4 ft.	0.095

DEPTH	CONC. Hg	CONC. As
6–7 ft.	<0.064	1.85
0–2 in.	<0.066	23.0
0–2 ft.	<0.068	30.8
2–4 ft.	<0.067	38.5
0–2 in.	0.235	22.3
0–2 ft.	0.182	20.3
2–4 ft.	<0.066	3.76
0–2 in.	0.262	69.0
0–2 ft.	0.182	28.1
2–4 ft.	<0.069	16.6
0–2 in.	0.430	21.3
0–2 ft.	0.123	45.7
2–4 ft.	<0.068	45.2
0–2 in.	0.206	11.1
0–2 ft.	<0.067	45.7
2–4 ft.	<0.068	6.03
0–2 in.	0.531	21.6
0–2 ft.	0.076	14.0
2–4 ft.	<0.069	17.8
0–2 in.	0.078	15.7
0–2 ft.	0.083	17.0
2–4 ft.	<0.070	7.68

SOURCE: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS AND D&B's FIELD OBSERVATIONS

0 5 10

SCALE IN FEET

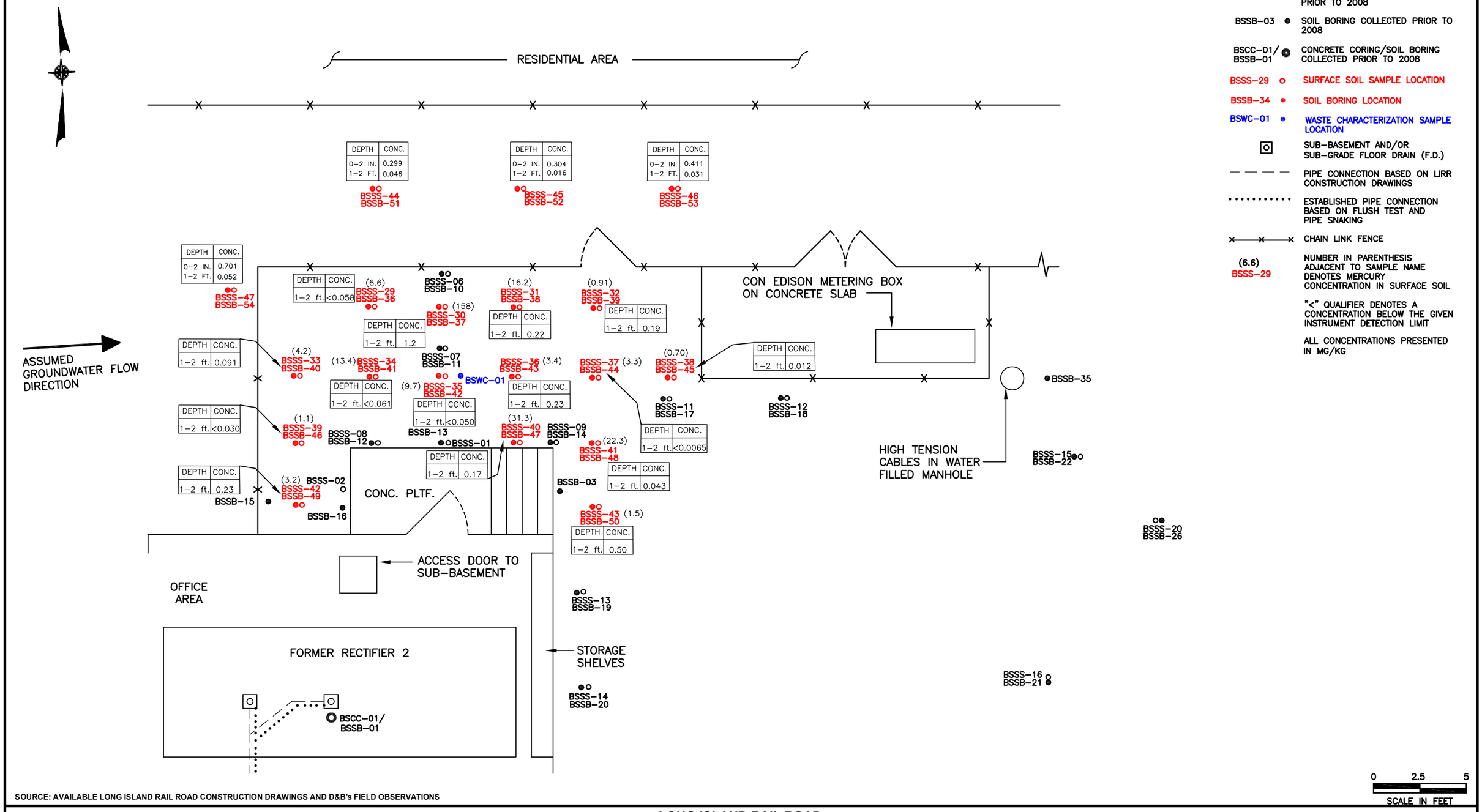
Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

CONTAMINANT CONCENTRATION MAP
BAYSIDE SUBSTATION (V00386-2)

FIGURE 3-1

F:\2229\BAYSIDE\2229-FIG 3-1 Cont Conc Map.dwg, LOCATION, 10/16/2009 9:41:20 AM, dbcadd



SOURCE: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS AND D&B's FIELD OBSERVATIONS

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

ADDITIONAL DELINEATION MERCURY CONCENTRATION MAP BAYSIDE SUBSTATION (V00386-2)

FIGURE 3-2

F:\2229\BAYSIDE\2229-FIG 3-2 Addl- Delin.dwg, Conc, 10/16/2009 9:41:54 AM, dbcadd

3.1 Surface Soil

Metals

A total of 42 surface soil samples were collected for mercury analysis as part of the Delineation Phase II Site Assessment: six collected from outside the fenced in substation area, and thirty-six collected from inside the fenced-in substation areas. All mercury concentration data associated with the surface soil samples collected from outside the fenced areas are summarized on Table 1 (Residential Use SCO) soil samples collected from within the fenced areas are summarized on Table 2 (Industrial Use SCO), provided in Appendix B. Due to the need to compare the sample data to these two separate SCOs, the below discussion has accordingly been divided into two sections, as follows:

Non-Fenced Area

Of the six surface soil samples collected in the non-fenced area of the Bayside Substation, two samples exhibited detectable concentrations of mercury in exceedance of the Residential SCO of 0.81 mg/kg, ranging in concentration from 1.8 mg/kg to 2.4 mg/kg. The greatest surficial mercury concentration was detected in surface soil sample BSSS-23, located adjacent to the north of the substation building, between the substation building and the trailer.

Fenced Area

Of the 36 collected surface soil samples collected in the fenced area of the Bayside Substation, 11 samples exhibited detectable concentrations of mercury in exceedance of the Industrial SCO of 5.7 mg/kg, ranging in concentration from 6.5 mg/kg to a maximum concentration of 158 mg/kg. The greatest surficial mercury concentrations were generally detected in the vicinity of the concrete platform and steps, located on the northeast corner of the substation building. Two of the collected surface soil samples exhibited mercury at concentrations of greater than 100 mg/kg, including:

- BSSS-07, at 116 mg/kg, located approximately 5 feet north of the concrete platform and steps, located on the northeast corner of the substation building; and

- BSSS-30, at 158 mg/kg, located approximately 7 feet north of the concrete platform and steps, located on the northeast corner of the substation building.

In addition to mercury, seven surface soil samples were analyzed for Resource Conservation and Recovery Act (RCRA) metals. All RCRA metals data associated with the surface soil samples are summarized on Table 3, provided in Appendix B. All seven RCRA metals, in addition to mercury, were detected in one or more of all of the collected surface soil samples, including arsenic, barium, cadmium, chromium, lead, selenium and silver. Arsenic was detected at concentrations exceeding its Industrial SCO of 16.0 mg/kg in five surface soil samples ranging in concentrations from 21.3 mg/kg to a maximum concentration of 69.0 mg/kg. The greatest arsenic concentration was detected in surface soil sample BSSS-16, located in the transformer yard approximately 21 feet east of the substation building.

Semivolatile Organic Compounds

Seven surface soil samples were analyzed for semivolatile organic compounds (SVOCs). All SVOC data associated with the surface soil samples are summarized in Table 4, provided in Appendix B. SVOCs were not detected at concentrations exceeding their respective Industrial SCOs in any surface soil sample, with the exception of benzo(a)pyrene. Benzo(a)pyrene, at a concentration of 1,800 ug/kg, was detected slightly in exceedance of its SCO of 1,100 ug/kg in surface soil sample BSSS-18, located in the transformer yard, approximately 11 feet east of the substation building.

Polychlorinated Biphenyls

Seven surface soil samples were selected for polychlorinated biphenyls (PCBs) analysis. All PCB concentration data associated with the surface soil samples are summarized in Table 5, provided in Appendix B. PCBs were not detected at concentrations exceeding their respective SCOs in any surface soil sample.

3.2 Subsurface Soil

Metals

A total of 59 subsurface soil samples were collected for mercury analysis as part of the Delineation Phase II Site Assessment: six collected from outside the fenced in substation area, and 53 collected from within the fenced-in substation areas. All mercury concentration data associated with the subsurface soil samples collected from outside the fenced areas are summarized on Table 6 (Residential Use SCO) soil samples collected from within the fenced areas are summarized on Table 7 (Industrial Use SCO), provided in Appendix B. Due to the need to compare the sample data to these two separate SCOs, the below discussion has accordingly been divided into two sections, as follows:

Non-Fenced Area

None of the six subsurface soil samples collected in the non-fenced area of the Bayside Substation exhibited detectable concentrations of mercury in exceedance of the Residential SCO of 0.81 mg/kg.

Fenced Area

None of the 53 subsurface soil samples collected in the fenced areas of the Bayside Substation exhibited detectable concentrations of mercury in exceedance of the Industrial SCO of 5.7 mg/kg.

In addition to mercury, fourteen subsurface soil samples were analyzed for Resource Conservation and Recovery Act (RCRA) metals. All RCRA metals data associated with the subsurface soil samples are summarized on Table 8, provided in Appendix B. All seven RCRA metals, in addition to mercury, were detected in one or more of all of the collected subsurface soil samples, including arsenic, barium, cadmium, chromium, lead, selenium and silver. Arsenic was detected at concentrations exceeding its Industrial SCO of 16.0 mg/kg in ten subsurface soil

samples ranging in concentrations from 16.6 mg/kg to a maximum concentration of 45.7 mg/kg. The greatest arsenic concentrations were detected in subsurface soil samples BSSB-25 (0 to 2) and BSSB-27 (0 to 2), both located in the transformer yard approximately 31 feet and 36 feet east of the transformer building, respectively.

Semivolatile Organic Compounds

Fourteen subsurface soil samples were analyzed for SVOCs. All SVOC data associated with the subsurface soil samples are summarized in Table 9, included in Appendix B. Several SVOCs were detected in one or more collected subsurface soil sample, including anthracene, atrazine, benzaldehyde, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, caprolactam, carbazole, 2-chlorophenol, chrysene, dibenzo(a,h)anthracene, di-n-butylphthalate, di-n-octylphthalate fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnapthalene, naphthalene, p-nitrophenol, phenanthrene and pyrene; however, no SVOC was detected at a concentration exceeding its respective SCO in any subsurface soil sample.

Polychlorinated Biphenyls

Fourteen subsurface soil samples were analyzed for PCBs. All PCB concentration data associated with the subsurface soil samples are summarized in Table 10, included in Appendix B. PCBs were not detected at concentrations exceeding their respective SCOs in any subsurface soil sample.

3.3 Groundwater

A total of three groundwater samples were collected for chemical analysis from the Bayside Substation using a Geoprobe groundwater point sampler. All samples were analyzed for Target Analyte List (TAL) metals (including mercury) and VOCs. Due to the highly turbid nature of the groundwater samples, all samples collected for metals analysis included filtered and unfiltered samples. Below is a discussion of the analytical results:

Metals

Groundwater probes BSGP-01, BSGP-02 and BSGP-03 did not exhibit exceedances of the NYSDEC Class GA standard for mercury of 0.7 ug/l in any of the collected groundwater samples. All metals data associated with the groundwater samples collected at the Bayside Substation are summarized in Table 11, included in Appendix B.

Several other metals including antimony, arsenic, barium, beryllium, chromium, copper, iron, lead, magnesium, manganese, nickel, sodium and zinc were detected above their respective Class GA Standards in one or more unfiltered groundwater sample. However, these same metals were generally not detected, or detected at much lower concentrations in the filtered groundwater samples. Due to the high turbidity of the groundwater samples collected using Geoprobe equipment, the metals data associated with the unfiltered samples will be biased high. Therefore, the filtered samples will more closely represent true metals concentrations in groundwater.

In all three filtered groundwater samples, iron, manganese and sodium exceeded their respective Class GA Standards, as well as antimony in BSGP-01 and nickel in BSGP-03. It should be noted that exceedances of the Class GA standards were identified for all of these metals (with the exception of nickel) in the upgradient groundwater sample. Furthermore these metals are not considered contaminants of concern associated with LIRR substation operations.

Volatile Organics

Several chlorinated VOCs including, cis-1,2-dichloroethylene, tetrachloroethylene, trichloroethylene and vinyl chloride, and methyltert-butylether (MTBE) were detected above their respective Class GA Standards and Guidance Values. All VOC data associated with the groundwater samples collected at the Bayside Substation are summarized in Table 12, included in Appendix B. Note that these compounds are typically associated with dry cleaner and gas station sites, and are not contaminants of concern associated with LIRR substation operations. In addition, the majority of the compounds were detected in the upgradient groundwater sample.

3.4 Underground Injection Control (UIC) and Below Grade Structures

As described in Section 2.5, five below grade structures were investigated for Underground Injection Control (UIC) applicability as part of the Delineation Phase II Site Assessment. The structures investigated included a communications manhole located off the northwest corner of the substation building, a conduit manhole located north of the substation building, a high tension cable manhole located off the northeast corner of the substation building and the lavatory discharge and rectifier discharge piping, which according to the available LIRR construction drawings, were suspected to discharge through the southwest wall of the substation building. The results of the investigations are as follows:

Communications Manhole

The communications manhole located approximately eight feet northwest of the substation building was visually inspected for the presence of a solid bottom and discharge piping during the Delineation Phase II Site Assessment. A solid bottom was observed in the communications manhole; as a result, samples were not collected from this structure. In addition, discharge piping was not observed in the communications manhole structure. Note that the communications manhole was not designed as a drainage structure, and as such, its primary function is not to accept fluids. Therefore, this is not UIC structure.

Conduit Manhole

The conduit manhole located approximately five feet north of the substation building was not inspected due to a trailer being located on the manhole throughout the duration of the Delineation Phase II Site Assessment. Note that, the conduit manhole structures investigated at the various other LIRR substation sites were designed as access points for power and communication cables and were not designed as a drainage structures; as such, their primary function is not to accept fluids. Therefore, it is assumed that this is not a UIC structure.

High Tension Manhole

The high tension manhole located approximately twenty-two feet northeast of the substation building was visually inspected for the presence of a solid bottom and discharge piping during the Delineation Phase II Site Assessment. Due to electrical safety concerns associated with a high tension manhole being partially filled with debris and water, the integrity of the manhole bottom could not be verified. However, discharge piping was not observed in the high tension manhole structure. Note that, the high tension manhole structures investigated at the various LIRR substation sites were designed as access points for high tension cables and were not designed as drainage structures; as such, their primary function is not to accept fluids. Therefore, this structure is not UIC structure, and the water observed in the manhole was the result of storm water accumulation. However, in accordance with the NYSDEC-approved scope of work, samples were collected from within, and in the vicinity of, this structure.

Due to the water and debris preventing soil samples from being collected from the manhole, one soil boring (BSSB-35) was advanced to the immediate east of the manhole, downgradient of the manhole with respect to groundwater flow, where one subsurface soil sample was collected from 6 to 7 feet below ground surface for UIC parameter analysis and compared to TAGM. Subsurface soil sample results are summarized on Tables 13 through 18, provided in Appendix B. No analyte was detected at concentrations exceeding their respective TAGM SCOs in subsurface soil sample BSSB-35 (6 to 7 feet).

In addition, one water sample (BSSW-01) was collected from the storm water within the high tension manhole for UIC parameters analysis. Due to the lack of applicable storm water standards, the data was compared to the Class GA Groundwater Standards and Guidance Values. Storm water sample results are summarized on Tables 19 through 23, provided in Appendix B. No analyte was detected at concentrations exceeding their respective Class GA standard or guidance value, with the exception of lead. Lead was detected at a concentration of 35.4 ug/l, exceeding its Class GA standard of 25.0 ug/l. Note that the downgradient groundwater samples collected from the site did not exhibit exceedances for lead.

Lavatory Discharge Piping

As discussed in Section 1.3, flush testing and mechanical snaking were performed in order to investigate the lavatory discharge piping during the Initial Site Assessment. The discharge point of the lavatory was unable to be determined at that time, and recommendations to further investigate the discharge point of this pipe during the Delineation Phase II Site Assessment were made.

A geophysical survey, consisting of a ground penetrating radar (GPR) and electromagnetic (EM) survey, and a flush test were performed in order to further investigate the lavatory discharge piping exiting the southwest corner of the substation building. The geophysical survey was unable to identify the lavatory discharge piping, however a sewer manhole cover located approximately 38 feet west of the substation building was identified during this survey. A flush test later confirmed that the substation lavatory discharges to this sewer manhole. Samples were not collected as part of this investigation, as sediment was not present in the sewer manhole structure.

Rectifier Discharge Piping

As discussed in Section 1.3, an exploratory excavation was performed in order to investigate the rectifier discharge piping during the Initial Site Assessment. The discharge point of the rectifier piping was unable to be determined during this excavation, and recommendations to further investigate the discharge point of this pipe during the Delineation Phase II Assessment were made.

A geophysical survey, consisting of a GPR and EM survey, was performed in September 2005 in order to further investigate the rectifier discharge piping exiting the southwest corner of the substation building. The geophysical survey was unable to identify the rectifier discharge piping at that time. During the April 2008 additional delineation fieldwork, an exploratory excavation was performed, in which the below grade rectifier discharge piping was located and tracked to a dry well located approximately 35 feet west of the substation building. One soil

sample (BSDW-01) was collected for UIC parameter analysis from the sediment located within the dry well and compared to TAGM. Sediment soil sample results are summarized in Tables 24 through 27, provided in Appendix B. No analyte was detected at concentrations exceeding their respective TAGM SCO, with the exceptions of mercury and benzo(a)pyrene. Mercury, at a concentration of 2.2 mg/kg, was detected at a concentration exceeding its TAGM SCO of 0.10 mg/kg. Benzo(a)pyrene, at a concentration of 210 ug/kg, was detected at a concentration exceeding its TAGM SCO of 61.0 ug/kg.

3.5 Waste Characterization

A total of two soil samples were collected for waste characterization analysis as part of the April 2008 sampling event, in order to "pre-characterize" site soil surrounding the substation building. Sample locations were selected in the field and are depicted on Figure 2-1. All waste characterization samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals (including mercury), TCLP SVOCs, TCLP VOCs and RCRA waste characteristics (ignitability, reactivity, etc.). Analytical data have been compared to RCRA hazardous waste criteria. All waste characterization data are presented in Tables 28 and 29, provided in Appendix B. Several metals were detected, including arsenic, barium, cadmium, chromium, lead, mercury and selenium. However, no exceedances of the RCRA waste criteria were detected for any sample collected.

3.6 Data Usability Summary Report (DUSR)

Surface soil, subsurface soil, groundwater and waste characterization samples were collected as part of the Delineation Phase II Site Assessment at the LIRR Bayside Substation, completed in October of 2005, April 2008 and March of 2008. The soil samples were primarily analyzed for mercury. Several of the soil samples were analyzed for PCBs, RCRA metals, VOCs and SVOCs. The groundwater sample was analyzed for TAL metals and VOCs. Four waste characterization samples were analyzed for TCLP metals (including mercury), TCLP SVOCs, TCLP VOCs, RCRA waste characteristics (ignitability, reactivity, etc.), RCRA metals and TCLP pesticides/herbicides.

Chemtech Laboratories and Mitkem Laboratories, subcontractors to Dvirka and Bartilucci Consulting Engineers (D&B), analyzed all samples in accordance with the USEPA SW-846 methods as stipulated in the work plan. The samples collected in 2005 and 2009 were analyzed by Chemtech and Mitkem analyzed the samples collected in 2008. The data packages submitted by Chemtech and Mitkem have been reviewed by Ms. Donna M. Brown, D&B's Quality Assurance/Quality Control Officer. Ms. Brown meets the NYSDEC requirements of a data validator as listed in the Draft DER-10 Technical Guidance for Site Investigation and Remediation, and her resume is included in Appendix D.

The data packages have been reviewed for completeness and compliance with NYSDEC QA/QC requirements, as well as the requirements for development of Data Usability Summary Reports as listed in Appendix 2B of the Draft DER-10 Technical Guidance for Site Investigations and Remediation dated December 2002. Each data package was reviewed for the following:

- Was a NYSDEC Category B deliverable data package submitted?
- Have all holding times been met?
- Does all QA/QC data fall within QA/QC limits and specifications?
- Were appropriate methods followed?
- Does the raw data conform to that reported on the data summary sheets?
- Have the correct data qualifiers been utilized?

NYSDEC ASP Category B deliverable data packages have been submitted for all sample delivery groups (SDG), T4979, T4980, T4981, T4995, MG0549, MG0550 and A1788. The findings of the data review process are summarized below.

All samples were analyzed within the method-specified holding times. The calibrations, blank results, surrogate recoveries, internal standard areas, laboratory duplicate and spike recoveries were within QC limits, except for the following:

- In SDG T4981: The following metals were detected in preparation blank and were qualified as non-detect (U) for dissolved chromium, cobalt, copper, silver and total cadmium in BSGP-01; selected samples were qualified as estimated (J/UJ) due to continuing calibration above QC limit for tetrachloroethene, carbazole, caprolactam, 4-nitrophenol, benzo(k)fluoroanthene, hexachlorocyclopentadiene, phenanthrene, indeno(1,2,3-cd)pyrene, hexachloroethane, and 4-chlorophenyl-phenylether; MS/MSD %R and RPDs outside QC limit for benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate and aroclor 1260; spike %R outside QC limits for total and dissolved magnesium, manganese, potassium, silver and total barium and mercury; duplicate RPD above QC limits for mercury; laboratory control samples outside QC limits for caprolactam, benzo(a)anthracene and benzaldehyde; SVOC internal standard retention areas below QC limits for BSSS-18, BSSS-19, BSSB-26 (0-2), BSSB -21 (2-4); a PCB surrogate was above QC criteria in BSSS-17, BSSS-18, BSSB-21 (0-2) BSSB-27 (2-4), both PCB surrogates were above QC criteria in BSSB-21 (2-4); and both TPH surrogate were below QC criteria in BSSW-01.

- In SDG T4995: The following metals were detected in field blank and were qualified as non-detect (U) for dissolved aluminum, chromium and vanadium in BSBD-03, BSGP-03 and BSGP-02; and dissolved copper in BSGP-03 and BSGP-02; selected samples were qualified as estimated (J/UJ) due to continuing calibration above QC limit for chloroethane, 1,1,2-trichlorofluoroethane, carbon disulfide, methylcyclohexane, 2,4-dinitrophenol, caprolactam, 4-nitrophenol and benzo(k)fluoranthene; MS/MSD %R outside QC limit for aroclor 1260; spike %R outside QC limits for dissolved iron and potassium, total chromium, copper, nickel, antimony, selenium and mercury; duplicate RPD above QC limits for total antimony and mercury; laboratory control samples outside QC limits for dichlorodifluoromethane, chloroethane and benzaldehyde; SVOC internal standard retention areas below QC limits for BSSB-25 (0-2); and a TPH surrogate was above QC criteria in BSSSB-35 (6-7).

- In SDG MG0549: The following metals were detected in preparation blanks and were qualified as non-detect (U) for silver in BSDW-01 (S); and mercury in BSSB-34 (1-2), BSSB-39 (1-2), BSSB-40 (1-2) and BSSB-44 (1-2); selected samples were qualified as estimated (J/UJ) due to continuing calibration above QC limit for 2,2-oxybis(1-chloropropane) 2,4-dinitrophenol, 4-nitrophenol and 3,3-dichlorobenzidine; spike %R outside QC limits for mercury; duplicate RPD above QC limits for mercury; and laboratory control samples outside QC limits for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol.

- In SDG MG0550: The following metals were detected in preparation blanks and were qualified as non-detect (U) for selenium and chromium in BSWC-01 (S) and BSWC-01 (1-2); and cadmium in BSWC-01 (S); and selected samples were qualified as estimated (J/UJ) due to laboratory control samples outside QC limits for heptachlor and reactive cyanide

No other problems were found with the sample results. All results have been deemed valid and usable, as qualified above, for environmental assessment purposes.

4.0 QUALITATIVE EXPOSURE ASSESSMENT

4.1 Introduction

The purpose of this exposure assessment is to determine how and when an individual may be exposed to contaminants of potential concern (COPCs) associated with the LIRR Bayside Substation. A COPC is any chemical detected above the NYSDEC cleanup guidelines in a medium, which could produce adverse health effects under the right conditions of dose and exposure. For exposure to occur, there must be a complete "pathway of exposure" where a person can come into contact with contaminants of potential concern. For a pathway to be complete, there must be: 1) a source or medium containing the COPC; 2) a location where human contact could take place (i.e., an exposure point); and 3) a feasible means for the COPC to enter into the person's body. In the case of the LIRR substations, there would be two types of potential receptors, with personnel who work at the facilities considered on-site receptors and individuals who may live or be in close proximity to the substation properties considered off-site receptors. The person who could come into contact with the COPC at an exposure point is called a "receptor." The ways in which the COPC can enter the body are called "routes of exposure." Ingestion (by mouth), dermal (contact with skin) and inhalation (breathing into the lungs) are the routes of exposure considered in this and other human health risk assessments. Consistent with the New York State Department of Health (NYSDOH) and other regulatory agencies, this assessment considers both current and potential future exposures.

As with any exposure assessment, this assessment is not intended to predict disease outcome, but rather, is meant to be used as a tool to make decisions regarding the need for remediation or the institution of precautionary measures, such as limiting the affected area to nonresidential land uses. Given the available information and keeping the purpose of the assessment in mind, the following evaluation for the Bayside Substation is qualitative in nature.

4.2 Properties, Fate and Transport of COPCs at the Bayside Substation

4.2.1 Mercury

Based on the results of the completed investigations of the Bayside Substation, the COPCs are mercury (Hg) and arsenic (As). The following is a summary of the fate and transport properties of mercury and arsenic in surface and subsurface soil:

The mercury (Hg) found at the Bayside Substation is assumed to have entered the soil in the form of liquid elemental mercury that was utilized in mercury-containing rectifiers. Elemental mercury (Hg^0) is a heavy, silver-white metal with a specific gravity approximately 13.5 times that of water and is the only metal to exist in the liquid phase at room temperature. Hg^0 has a relatively high vapor pressure and is the most volatile of all metals. Overall, however, it is considered only slightly volatile when compared to most liquids. Hg^0 volatilizes into a colorless, odorless and tasteless gas.

Mercury is a naturally occurring element that has been distributed throughout the environment by natural processes. Mercury exists in three possible oxidation states: elemental mercury (Hg^0), mercurous (Hg^{1+}), and mercuric (Hg^{2+} or Hg[II]). Atmospheric deposition to the surface from anthropogenic and natural air emissions is considered a major source of mercury in the environment and is primarily in the form of Hg(II), either during precipitation events or adsorbed onto airborne particulates. The mercurous and mercuric forms of mercury will complex and form numerous organic and inorganic compounds. Hg(II) is commonly found as mercuric sulfide (HgS), a stable inorganic species that is essentially insoluble in water and is therefore considered a major long-term sink for mercury in soil. Moderately soluble forms of Hg(II), such as mercuric chloride ($HgCl_2$), can potentially contaminate surface soil and groundwater. Both the mercurous and mercuric forms of mercury will adsorb to clay minerals, oxides and organic matter and tend not to leach. Methylmercury (MeHg) is the most widespread organic form of mercury in the environment and is formed from the methylation of inorganic mercury by bacteria in aquatic environments. Methylation is generally negligible in terrestrial soil.

Liquid elemental mercury has a tendency to form globules or beads and therefore is generally not uniformly distributed among soil particles. It will sink under the force of gravity and split up into available pore spaces. Despite this fact, Hg^0 is only slightly soluble in water and, therefore, is unlikely to leach into groundwater via infiltrating precipitation. In fact, spills of liquid mercury to shallow subsurface soil have been found to be persistent in this environment. Elemental mercury is assumed to be removed from unsaturated soil primarily through its potential to volatilize to the soil vapor and the outside air. Although liquid mercury is volatile, the process is not rapid and globules of Hg^0 may persist for a long time before completely volatilizing. In addition, mercury globules can become coated with a stable layer of insoluble HgS, especially in anaerobic conditions, and can remain inert for long periods of time. Mercury vapor released to the outdoor air will dissipate rapidly into the atmosphere.

4.2.2 Arsenic

Arsenic is a naturally occurring tasteless, odorless element that has been distributed throughout the environment by natural and anthropogenic processes. Because arsenic is a natural part of the environment, low levels of arsenic are present in soil, water and air. Atmospheric deposition to the ground surface is considered a major source of anthropogenic arsenic in the environment. Pure arsenic is a gray metal-like material, which is usually found in the environment combined with other elements such as oxygen, chlorine, and sulfur, in the form of organic compounds. Arsenic can also combine with carbon and hydrogen to form organic arsenic compounds. Organic forms are usually less toxic than the inorganic forms. Inorganic arsenic occurs naturally in many kinds of rock, especially in ores that contain copper or lead. When these ores are smelted, most of the arsenic enters the air as a fine dust. Smelters collect this dust and purify the arsenic for several uses. The main use is as a preservative for wood to make it resistant to rotting and decay. Arsenic is also used to make several types of herbicides and pesticides.

Due to its relatively soluble nature, arsenic can potentially contaminate surface water and groundwater. Arsenic can leach from soil or rock into filtrating groundwater; however, because many arsenic compounds tend to adsorb to soil and sediment, leaching usually results in transportation only over short distances. Transportation of arsenic in water is dependent upon its

chemical species, oxidation state and on interactions with other minerals present. Soluble forms may be carried long distances through rivers. However, arsenic may be adsorbed from water onto sediment or soil, especially clays, iron oxides, aluminum hydroxides, manganese compounds and organic material. In an oxidized environment, arsenic is generally present as arsenate (As^{5+}), an immobilized form that will be ionically bound to soil. However, under reduced conditions, arsenic is generally present as arsenite (As^{3+}), which is water soluble and therefore, more mobile. Arsenic is not broken down or destroyed in the environment. However, it can change from one form to another by natural chemical reactions, and also by the action of bacteria that live in soil or water. Although some fish and shellfish build up arsenic in their tissues, most of this is in a form (often called "fish arsenic") that is not toxic. Arsenic is considered a moderate inhalation hazard due to its tendency to adsorb to fine soil particles which may become airborne when disturbed.

As detailed in Section 3.0, arsenic has been detected to the east of the substation building, within the limits of the fenced-in transformer yard, in surface and subsurface soil, up to a maximum concentration of 69.0 mg/kg, and above the Industrial SCO of 16.0 mg/kg. Due to the tendency of arsenic to adsorb to soil and sediment, significant migration of arsenic has not likely occurred.

4.3 General Substation Conditions

This section briefly describes the current and future conditions of the Bayside Substation. The Bayside Substation is actively used by the LIRR to convert alternating current (AC) to direct current (DC) for use in powering the LIRR's electric train fleet. As discussed in Section 1.1, the substation has been used for this purpose since 1948.

The Bayside Substation is only accessible by authorized LIRR personnel and their subcontractors. In addition, the substation is not occupied by LIRR personnel on a continuous or full-time basis. Under normal operating conditions, access to the substation property only occurs when equipment requires monitoring, maintenance or repair. The substation building is locked at all times and all associated outside electrical equipment (i.e., transformers) are secured by a

locked fence. In addition, the property surrounding the substation is bounded by track to the south and bounded by fencing to the north, east and west, limiting public access to the property. Note that photographs of site security fencing located on the west side of the substation building are provided in Appendix F. Note that a residential area bounds the substation to the north; however, the residential area is separated from the site by site fencing. The areas immediately surrounding the substation building are partially covered by crushed stone. The transformer yard, located to the south of the substation building is covered with approximately two inches of crushed stone.

The Bayside Substation is serviced by public water and on-site groundwater is not used for any purpose.

As part of the LIRR's overall system upgrade in response to increased ridership, the Bayside Substation will be decommissioned as part of the LIRR's 2010 to 2015 Capital Program. The LIRR's current plan includes the abatement of the existing substation building and reusing this structure for storage. Prior to the excavation of site soil as part of the installation of the new substation building, the LIRR intends to remediate the most significant mercury and arsenic contamination by excavation and off-site disposal. Therefore, this planned site redevelopment will remove the most significant soil contamination, and as a result future exposure to mercury and arsenic contamination at the Bayside Substation site is not expected.

While elevated mercury concentrations have been detected in surface and subsurface soil to the west and east of the substation building and in the dry well located to the west of the substation building, and elevated arsenic concentrations have been detected in surface and subsurface soil to the east of the substation building, the LIRR maintains strict control over conducting soil excavation activities within LIRR properties known to contain contaminants in order to avoid the excavation and handling of contaminated soil without undertaking appropriate health and safety measures. The LIRR Procedure/Instruction EE03-001, which defines the procedures that must be undertaken prior to conducting excavation activities at LIRR properties, is provided as Appendix E.

4.4 Surface and Subsurface Soil

Elevated concentrations of mercury were detected in surface and subsurface soil to the north, west and east of the substation building and in the dry well located to the west of the substation building. The highest mercury concentrations were detected in surface soil located in the vicinity of the concrete platform and steps located on the northeast corner of the substation building, with a maximum mercury concentration of 158 mg/kg. Elevated concentrations of arsenic were detected in surface and subsurface soil to the east of the substation building. The highest arsenic concentrations were detected in surface soil located in the transformer yard to the east of the substation building, with a maximum arsenic concentration of 69.0 mg/kg. Note that some areas surrounding the substation are not covered with crushed stone; therefore, direct exposure to site contamination of LIRR workers (on-site receptors) who are required to periodically enter the site for equipment maintenance and repair is possible. In addition, LIRR workers and subcontractors could be potentially exposed to this contaminant source during excavation activities as the result of dermal contact and inhalation of windblown dust. However, as discussed above, the LIRR has in place procedures to avoid the excavation and handling of contaminated soil without undertaking appropriate health and safety measures. In addition and as described above, the Bayside Substation property is secured on all sides, mitigating the potential of trespassers entering the site. Note that photographs of site security fencing located on the west side of the substation building are provided in Appendix F.

4.5 Groundwater

As discussed in Section 3.3, groundwater has not been adversely impacted by the presence of mercury in on-site soil. In addition, on-site groundwater is not used as a potable water source or for any other uses. Therefore, groundwater is not considered a potential exposure pathway.

4.6 Air

VOCs were not detected in site soil. As a result, inhalation of contaminants released to the air through volatilization of contaminants from surface soil and subsurface soil does not represent a potential exposure pathway for on-site or off-site receptors. While the volatilization of mercury present in the surface and subsurface soil can occur, this process occurs at a very slow rate and inhalation of mercury vapor from on-site sources is not expected to be a significant exposure pathway. However, as discussed above, inhalation of windblown dust of surface soil does represent a potential for exposure to off-site receptors.

4.7 Future Use of the Bayside Substation

The LIRR will be decommissioning and redeveloping the Bayside Substation as part of an overall capital program system upgrade project. A new substation building will be constructed adjacent to the east of the existing substation building. The existing substation building will be abated and used for storage. Subsequent to the building abatement, a mercury vapor evaluation, consistent with the October 2006 NYSDOH Soil Vapor Intrusion Guidance (SVIG), will be performed within the substation building in order to determine whether there exists the potential for mercury vapor intrusion following completion of the remediation recommendations detailed in Section 5.2. Based on the results of the mercury vapor evaluation, abatement measures may be undertaken, if warranted, in order to mitigate this potential exposure pathway. All existing substation components will be removed and properly recycled. In addition, the LIRR intends to remediate the most significant mercury contamination by excavation and off-site disposal. Therefore this planned site redevelopment will remove the most significant soil contamination, and as a result future exposure to mercury contamination at the Bayside Substation site is not expected.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents a discussion of the conclusions and recommendations associated with the investigation of the Bayside Substation. Note that the conclusions and recommendations presented take into consideration the findings of the Qualitative Human Health Exposure Assessment presented in Section 4.0, as well as the intended future use of the Bayside Substation site.

Upon receiving NYSDEC approval of the recommendations for site remediation presented in this investigation report, the LIRR intends to quickly proceed with development of a Remedial Action Work Plan (RAWP) which will detail the selected remedial technologies that will be used to remediate the Bayside Substation.

5.1 Nature and Extent of Contamination

Mercury was detected in surface and shallow subsurface soil at the Bayside Substation. Elevated concentrations of mercury were detected in surface and subsurface soil to the north, west and east of the substation building and in the dry well located to the west of the substation building. The highest mercury concentrations were detected in surface soil located in the vicinity of the concrete platform and steps located on the northeast corner of the substation building, with a maximum mercury concentration of 158 mg/kg. In addition, arsenic was detected in several surface and subsurface soil samples collected from the transformer yard, with the highest arsenic concentrations detected in surface soil located approximately 21 feet east of the substation building, with a maximum arsenic concentration of 69.0 mg/kg

Groundwater has not been impacted by the presence of mercury in on-site soil.

The property surrounding the substation is bounded by track to the south and bounded by fencing to the east and west, mitigating public access to the property. Note that photographs of site security fencing located on the west side of the substation building are provided in Appendix F. Note that a residential area bounds the substation to the north; however, the residential area is

separated from the site by site fencing. The areas immediately surrounding the substation building are partially covered by crushed stone. The transformer yard, located to the south of the substation building is covered with approximately 2 inches of crushed stone. Therefore, direct exposure to mercury contamination of LIRR workers (on-site receptors) who are required to periodically enter the site for equipment maintenance and repair is possible. LIRR workers and subcontractors could be potentially exposed to this contaminant source during excavation activities as the result of dermal contact and inhalation of windblown dust. However, as discussed in Section 4.3, the LIRR has in place procedures to avoid the excavation and handling of contaminated soil without undertaking appropriate health and safety measures.

5.2 Recommendations

As part of the LIRR's overall system upgrade in response to increased ridership, the Bayside Substation will be decommissioned as part of the LIRR's 2010 to 2015 Capital Program. The LIRR's current plan includes the abatement of the existing substation building and reusing this structure for storage. Prior to the excavation of site soil as part of the installation of the new substation building, the LIRR intends to remediate the most significant mercury and arsenic contamination by excavation and off-site disposal. Therefore this planned site redevelopment will remove the most significant soil contamination, and as a result future exposure to mercury and arsenic contamination at the Bayside Substation site is not expected.

Based on available information, the arsenic detected in shallow soil at the Bayside Substation is not directly associated with the historical operation of the substation, but is more likely associated with the coal combustion byproducts (i.e., coal ash and clinker) present in this soil. Regardless of its origin, and in order to minimize any potential exposure of on-site workers to elevated arsenic concentrations during the future substation upgrade work, the LIRR proposes to remediate areas where arsenic has been previously identified in excess of the Industrial SCO (16.0 mg/kg), to the extent practicable, as part of the mercury delineation activities. This includes impacts identified in shallow soil inside the boundaries of the Bayside Substation property.

In order to remediate the highest mercury and arsenic concentrations detected at the Bayside Substation, the LIRR proposes to excavate soil to the north, west and east of the substation building to a depth ranging from 1 to 4 feet below ground surface, as depicted on Figures 5-1 and 5-2.

Due to the irregular distribution of mercury in site soil, the remedial excavations of soil exhibiting elevated mercury concentrations have been divided into one 1-foot excavation area and one 2-foot excavation area, as depicted on Figures 5-1 and 5-2. As depicted on Figure 5-2, the proposed 1-foot excavation is approximately 445 square feet in total area, and will require the excavation of approximately 17 cubic yards of soil. As depicted on Figure 5-1, the proposed 2-foot excavation is approximately 455 square feet in total area, and will require the excavation of approximately 34 cubic yards of soil. After removal of the soil, post excavation samples will be collected for mercury analysis in order to document the effectiveness of the remediation and any residual mercury remaining.

In addition, due to the arsenic exceedances detected in the transformer yard to the east of the substation building, one additional 4-foot excavation will be conducted in this area, as depicted on Figure 5-2. This proposed 4-foot excavation is approximately 1,073 square feet in area and will require the excavation of approximately 159 cubic yards of soil. After removal of the soil, post excavation samples will be collected for arsenic analysis in order to document the effectiveness of the remediation and any residual arsenic remaining.

These areas are approximately 1,973 square feet in total area, and will require the excavation of a combined total of approximately 210 cubic yards of soil. After excavation, the remediated areas will be backfilled with clean fill in conformance with the Industrial SCOs, at a minimum. Note that, in addition to this site wide soil remediation, the LIRR intends to close and remediate soil associated with the dry well located to the west of the substation building, as described below.

LEGEND

BSSS-01 COMPLETED SURFACE SOIL SAMPLE

BSSB-03 COMPLETED SOIL BORING

BSCC-01/ BSSB-01 COMPLETED CONCRETE CORING/SOIL BORING

BSSS-05 SURFACE SOIL SAMPLE

BSSB-06 SOIL BORING

SUB-BASEMENT AND/OR SUB-GRADE FLOOR DRAIN (F.D.)

PIPE CONNECTION BASED ON LIRR CONSTRUCTION DRAWINGS

ESTABLISHED PIPE CONNECTION BASED ON FLUSH TEST AND PIPE SNAKING

CHAIN LINK FENCE

AREA REMEDIATED AS PART OF IRM TO 6 INCHES BGS

AREA OF PROPOSED REMEDIATION TO 4 FEET BGS

AREA OF PROPOSED REMEDIATION TO 2 FEET BGS

NYC STORM SEWER ON 216TH ST.

BITUMINOUS DRIVEWAY

RESIDENTIAL AREA

CON EDISON METERING BOX ON CONCRETE SLAB

LIRR PARKING AREA

TRAILER

STEEL COVER

CONDUIT MANHOLE FILLED WITH WATER AND DEBRIS

NYC STORM SEWER ON 216TH ST.

COMMUNICATIONS MANHOLE FILLED WITH WATER AND DEBRIS

BSSB-35

BSSS-06 BSSB-10

BSSS-07 BSSB-11

BSSS-08 BSSB-12

BSSB-13

BSSS-09 BSSB-14

BSSS-11 BSSB-17

BSSS-12 BSSB-18

BSSS-01

BSSS-02

CONC. PLTF.

BSSB-03

BSSB-15

BSSB-16

BSSS-22 BSSB-28

BSSS-23 BSSB-29

ACCESS DOOR TO SUB-BASEMENT

BSSS-15 BSSB-22

BSSS-20 BSSB-26

BSSS-03

BSEP-01

BSSB-06

BATTERY AREA

OFFICE AREA

HIGH TENSION CABLES IN WATER FILLED MANHOLE

ASSUMED GROUNDWATER FLOW DIRECTION

BALLAST

BSSB-05

FORMER RECTIFIER 2

BSCC-01/ BSSB-01

STORAGE SHELVES

BSSS-13 BSSB-19

BSSS-14 BSSB-20

BSSS-16 BSSB-21

BSSS-05 BSSB-07

BSSB-08

BSEP-02

CONC. PLTF.

UTILITY TRENCH SYSTEM

BSSS-24 BSSB-30

BSSS-19 BSSB-25

BSSS-21 BSSB-27

BSSS-17 BSSB-23

RECTIFIER 1

BSCC-02/ BSSB-02

SANITARY SEWER MANHOLE

BSSS-04

BSEP-03

BSSB-04

BSSB-09

LAVATORY

BREAKER SWITCHES

ACCESS DOOR TO SUB-BASEMENT

TRANSFORMER YARD

BSSS-18 BSSB-24

BSSS-25 BSSB-31

CLEANOUT

STEEL COVER CONDUIT PIT WITH BALLAST FILLED F.D.

WATER METER PIT WITH EARTHEN BOTTOM

BSSS-28 BSSB-34

3" L RISER FOR R.D.'s ABOVE

2" HUBS

BSSS-26 BSSB-32

BSSS-27 BSSB-33

BASEMENT DRAIN PIPE

DRAIN PIPE OBSERVED IN BUILDING FOUNDATION LEADING OUT

EXISTING RAIL ROAD TRACKS

0 5 10

SCALE IN FEET

SOURCE: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS AND D&B's FIELD OBSERVATIONS

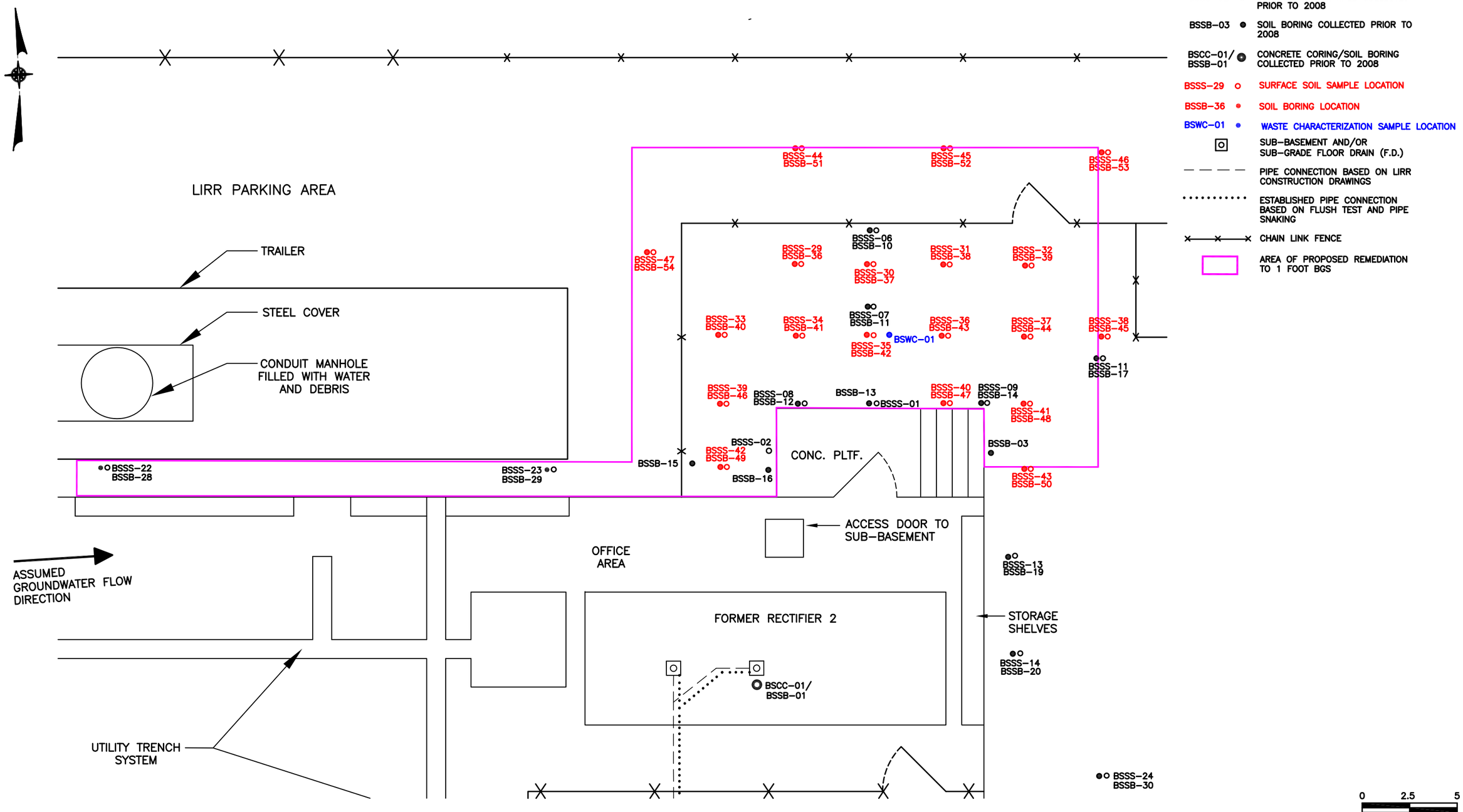
LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

PROPOSED AREAS OF REMEDIATION MAP
BAYSIDE SUBSTATION (V00386-2)

FIGURE 5-1

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

F:\2229\BAYSIDE\2229-FIG 5-1 Proposed Area of Rem.dwg, LOCATION, 11/30/2009 11:16:41 AM, Adobe PDF, Tabloid, 1:1



SOURCE: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS AND D&B's FIELD OBSERVATIONS

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

PROPOSED AREA OF REMEDIATION MAP (NORTH)
BAYSIDE SUBSTATION (V00386-2)

FIGURE 5-2

F:\2229\BAYSIDE\2229s-FIG 5-2 Proposed Area of Rem (N).dwg, Conc, 11/30/2009 11:17:23 AM, Adobe PDF, Tabloid, 1:1

Due to a mercury concentration of 2.2 mg/kg detected in the sediment of the dry well located to the west of the substation building, the LIRR recommends that soil be removed from this structure to a depth of 2 feet below the dry well bottom. In addition, the support rings and cover will be removed and disposed of and the discharge piping will be plugged with a concrete cap. It is anticipated that approximately 4 cubic yards of soil will be removed from this structure. One post excavation soil sample will be collected from below the former dry well structure and analyzed for UIC parameter analysis. The dry well will then be backfilled with clean fill to grade.

As discussed previously, upon approval of the recommendations described above, the LIRR intends to proceed with the development of a RAWP that will fully detail the methods and procedures that will be employed by the LIRR in order to execute the above recommendations and to allow the LIRR to meet the planned schedule for the Bayside Substation redevelopment. In addition, the RAWP will include provisions for a Community Air Monitoring Plan (CAMP) to be included in the Contractor Health and Safety Plan (CHASP) to be submitted by the remedial contractor to the LIRR and the NYSDEC for review and approval. Note that, as will be stated in the RAWP, the CAMP will comply with the requirements of the New York State Department of Health (NYSDOH) Generic CAMP, which will also be included in the RAWP. It is anticipated that the remediation of the Bayside Substation will be conducted in conjunction or immediately following the substation redevelopment.

In addition to the above-described site remediation and in order to further protect the community and LIRR employees, the LIRR has elected to file a Declaration of Covenant of Restrictions for the Bayside property, which will be provided subsequent to remediation in the upcoming Site Management Plan (SMP).

APPENDIX A

EXISTING INITIAL SITE ASSESSMENT ANALYTICAL DATA

TABLE D-13B

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SURFACE SOIL SAMPLING RESULTS - BAYSIDE-N06
MERCURY

LOCATION	North of Northeast Corner Concrete Platform	West of Northeast Corner Concrete Platform	North of West Side Concrete Stairs	South of West-Side Concrete Stairs				
SAMPLE ID	BSSS-01	BSSS-02	BSSS-03	BSSS-04			Instrument Detection Limits	Eastern USA Background Levels[1]
SAMPLE DEPTH (in.)	0-6	0-6	0-6	0-6				
DATE OF COLLECTION	12/1/99	12/1/99	12/1/99	12/1/99				
PERCENT SOLIDS	90	89	84	86				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			(ug/L)	(mg/kg)
Mercury	5.5	5.1	105	384			0.1	0.001 - 0.2

NOTES:

[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

TABLE D-13A

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - BAYSIDE-N06
MERCURY

LOCATION	North Rectifier Pit		South Rectifier Pit		East of Northeast Corner Concrete Stairs			
SAMPLE ID	BSSB-01	BSSB-01	BSSB-02	BSSB-02	BSSB-03	BSSB-03	Instrument	Eastern USA
SAMPLE DEPTH (ft.)	0-2	4-6	0-2	4-6	0-2	4-6	Detection	Background
DATE OF COLLECTION	12/1/99	12/1/99	12/1/99	12/1/99	12/1/99	12/1/99	Limits	Levels[1]
PERCENT SOLIDS	86	92	85	83	86	83		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	0.086 B	0.054 U	0.059 U	0.057 U	2.4	0.10 B	0.1	0.001-0.2

NOTES:

[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

QUALIFIERS:

U: Constituent analyzed for but not detected.

B: Constituent concentration is less than the CRDL, but greater than the IDL.

TABLE D-13A (continued)

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - BAYSIDE-NO6
MERCURY

LOCATION	Southwest Exterior Corner Water Meter Pit		North of West-Side Concrete Stairs					
SAMPLE ID	BSSB-04	BSSB-04	BSSB-05	BSSB-05	BSFB-01		Instrument Detection Limits	Eastern USA Background Levels[1]
SAMPLE DEPTH (ft.)	3.5-5.5	7.5-9.5	0-2	4-6	----			
DATE OF COLLECTION	12/1/99	12/1/99	12/1/99	12/1/99	12/1/99			
PERCENT SOLIDS	86	88	85	91	----			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)		(ug/L)	(mg/kg)
Mercury	0.058 U	0.057 U	0.047 U	0.052 U	0.16 U		0.1	0.001-0.2

NOTES:
[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.
----: Not applicable.

QUALIFIERS:
U: Constituent analyzed for but not detected.

TABLE D-13C

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
CONCRETE CORE SAMPLING RESULTS - BAYSIDE-N06
MERCURY

LOCATION	North Rectifier Pit	South Rectifier Pit					
SAMPLE ID	BSCC-01	BSCC-02	BSFB-02				Instrument Detection Limits
DATE OF COLLECTION	12/1/99	12/1/99	12/1/99				
PERCENT SOLIDS	96	96	----				
UNITS	(mg/kg)	(mg/kg)	(ug/L)				(ug/L)
Mercury	6.9	19.9	0.15 U				0.1

NOTES:
----: Not applicable.

QUALIFIERS:
U: Constituent analyzed for but not detected.

TABLE 4-6

LONG ISLAND RAIL ROAD SUBSTATION IRM
ENDPOINT SAMPLING RESULTS - BAYSIDE-NO6
MERCURY

SAMPLE ID	BSEP-01	BSEP-02	BSEP-03	Instrument Detection Limits	Eastern USA Background Levels'
SAMPLE DEPTH (IN.)	6	6	6		
DATE OF COLLECTION	4/27/00	4/27/00	4/27/00		
PERCENT SOLIDS	89	87	85		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	24.5	68.4	8	0.1	0.001-0.2

NOTES:

(1) Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

APPENDIX B

DATA QUALIFIERS/
DELINEATION PHASE II ANALYTICAL DATA

Data Flag/Qualifiers:

U Not Detected. This compound was analyzed-for but not detected. For Organics analysis the reporting limit (lowest standard concentration) is the value listed. For Inorganics analysis, the value listed is the detection limit. For Inorganics analyzed using SW-846 methods, the detection limit is the Method Detection Limit, for Inorganics analyzed using EPA CLP and NY ASP CLP methods, the detection limit is the Instrument Detection Limit.

J For Organics analysis, this flag indicates an estimated value due to either
- the compound was detected below the reporting limit, or
- estimated concentration for Tentatively Identified Compound

B For Organic analyses, this flag indicates the compound was also detected in the associated Method Blank. The B flag has an alternative meaning for Inorganics analyses, indicating a "trace" concentration below the reporting limit and equal to or above the detection limit.

D For Organics analysis, this flag indicates the compound concentration was obtained from a diluted analysis

E For Organics analysis, this flag indicates the compound concentration exceeded the Calibration Range. The E flag has an alternative meaning for Inorganics analyses, indicating an estimated concentration due to the presence of interferences, as determined by the serial dilution analysis.

P This flag is used for Pesticides/PCB/Herbicide compound when there is a greater than 40% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. This difference typically indicates an interference, causing one value to be unusually high. The **lower** of the two values is reported in the Analysis Report.

A Used to flag Semivolatile Organic Tentatively Identified Compound library search results for compounds identified as aldol condensation byproducts.

N Used to flag results for Volatile and Semivolatile Organics analysis Tentatively Identified Compounds where an analyte has passed the identification criteria, and is considered to be positively identified. For Inorganics analysis the N flag indicates the matrix spike recovery falls outside of the control limit.

* For Inorganics analysis the * flag indicates Relative Percent Difference for duplicate analyses is outside of the control limit.

Table 1
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
RESIDENTAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 03/10/2009 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Part 375 Residental SCOs	BSSS-22 BSSS-22 09/29/2005	BSSS-23 BSSS-23 09/29/2005	BSSS-44 BSSS-44 03/10/2009	BSSS-45 BSSS-45 03/10/2009	BSSS-46 BSSS-46 03/10/2009
Mercury	(mg/kg)	0.81	1.8 D	2.4 D	0.299	0.304	0.411

mg/kg: milligrams per kilogram

Table 1
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
RESIDENTAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 03/10/2009 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Part 375 Residental SCOs	BSSS-47 BSSS-47 03/10/2009
Mercury	(mg/kg)	0.81	0.701 D

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-05 BSSS-05 09/29/2005	BSSS-06 BSSS-06 09/29/2005	BSSS-07 BSSS-07 09/29/2005	BSSS-08 BSSS-08 09/29/2005	BSSS-09 BSSS-09 09/29/2005
Mercury	(mg/kg)	5.7	0.079 D	6.5 D	116 D	12.700 D	11.500 D

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-11 BSSS-11 09/29/2005	BSSS-12 BSSS-12 09/29/2005	BSSS-13 BSSS-13 09/29/2005	BSSS-14 BSSS-14 09/29/2005	BSSS-15 BSSS-15 09/29/2005
Mercury	(mg/kg)	5.7	3.5 D	0.644 D	1.6 D	0.541 D	0.066 U D J

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-16 BSSS-16 09/29/2005	BSSS-17 BSSS-17 09/29/2005	BSSS-18 BSSS-18 09/29/2005	BSSS-19 BSSS-19 09/29/2005	BSSS-20 BSSS-20 09/29/2005
Mercury	(mg/kg)	5.7	0.262 D J	0.531 D J	0.078 D J	0.430 D J	0.235 D J

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-21 BSSS-21 09/29/2005	BSSS-24 BSSS-24 09/29/2005	BSSS-25 BSSS-25 09/29/2005	BSSS-26 BSSS-26 09/29/2005	BSSS-27 BSSS-27 09/29/2005
Mercury	(mg/kg)	5.7	0.206 D J	0.888 D	0.084 D	0.229 D	0.894 D

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-28 BSSS-28 09/29/2005	BSSS-29 BSSS-29 04/17/2008	BSSS-30 BSSS-30 04/17/2008	BSSS-31 BSSS-31 04/17/2008	BSSS-32 BSSS-32 04/17/2008
Mercury	(mg/kg)	5.7	0.314 D	6.6 J	158 J	16.2 J	0.91

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-33 BSSS-33 04/17/2008	BSSS-34 BSSS-34 04/17/2008	BSSS-35 BSSS-35 04/17/2008	BSSS-36 BSSS-36 04/17/2008	BSSS-37 BSSS-37 04/17/2008
Mercury	(mg/kg)	5.7	4.2 J	13.4 J	9.7 J	3.4 J	3.3

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-38 BSSS-38 04/17/2008	BSSS-39 BSSS-39 04/17/2008	BSSS-40 BSSS-40 04/17/2008	BSSS-41 BSSS-41 04/17/2008	BSSS-42 BSSS-42 04/17/2008
Mercury	(mg/kg)	5.7	0.70	1.1 J	31.3 J	22.3	3.2 J

mg/kg: milligrams per kilogram

Table 2
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-43 BSSS-43 04/17/2008
Mercury	(mg/kg)	5.7	1.5

mg/kg: milligrams per kilogram

Table 3
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) METALS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-15 BSSS-15 09/29/2005	BSSS-16 BSSS-16 09/29/2005	BSSS-17 BSSS-17 09/29/2005	BSSS-18 BSSS-18 09/29/2005	BSSS-19 BSSS-19 09/29/2005
Arsenic	(mg/kg)	16	23.0	69.0	21.6	15.7	21.3
Barium	(mg/kg)	10000	56.7	180	80.2	79.9	38.6 J
Cadmium	(mg/kg)	60	0.783	16.7	0.766	0.632	2.490
Chromium	(mg/kg)	6800	9.900	16.3	20.9	15.9	13.6
Lead	(mg/kg)	3900	234	774	959	1410	181
Selenium	(mg/kg)	6800	0.513	0.761	1.210	0.799	0.635
Silver	(mg/kg)	6800	3.730	1.910	5.340	1.810	1.380

mg/kg: milligrams per kilogram

Table 3
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) METALS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-20 BSSS-20 09/29/2005	BSSS-21 BSSS-21 09/29/2005
Arsenic	(mg/kg)	16	22.3	11.1
Barium	(mg/kg)	10000	131 J	63.3 J
Cadmium	(mg/kg)	60	1.050	0.371
Chromium	(mg/kg)	6800	13.7	12.1
Lead	(mg/kg)	3900	379	339
Selenium	(mg/kg)	6800	2.540	0.682
Silver	(mg/kg)	6800	2.420	1.070

mg/kg: milligrams per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-15 BSSS-15 09/29/2005	BSSS-16 BSSS-16 09/29/2005	BSSS-17 BSSS-17 09/29/2005	BSSS-18 BSSS-18 09/29/2005	BSSS-19 BSSS-19 09/29/2005
2,2-oxyblis (1-chloropropane)	(ug/kg)		120 U	130 U	130 U	320 U	300 U
2,4,5-Trichlorophenol	(ug/kg)		110 U	120 U	120 U	300 U	290 U
2,4,6-Trichlorophenol	(ug/kg)		110 U	110 U	120 U	290 U	280 U
2,4-Dichlorophenol	(ug/kg)		140 U	140 U	150 U	360 U	350 U
2,4-Dimethylphenol	(ug/kg)		120 U	120 U	130 U	310 U	300 U
2,4-Dinitrophenol	(ug/kg)		640 U	660 U	680 U	1700 U	1600 U
2,4-Dinitrotoluene	(ug/kg)		110 U	110 U	120 U	290 U	280 U
2,6-Dinitrotoluene	(ug/kg)		110 U	110 U	110 U	280 U	270 U
2-Chloronaphthalene	(ug/kg)		120 U	130 U	130 U	330 U	310 U
2-Chlorophenol	(ug/kg)		120 U	120 U	130 U	310 U	300 U
2-Methylnaphthalene	(ug/kg)		130 U	130 U	130 U	330 U	320 U
3,3-Dichlorobenzidine	(ug/kg)		130 U	130 U	140 U	340 U	320 U
4,6-Dinitro-o-cresol	(ug/kg)		150 U	150 U	150 U	380 U J	370 U
4-Bromofluorobenzene	(ug/kg)		110 U	120 U	120 U	290 U J	280 U
4-Chlorophenylphenyl ether	(ug/kg)		120 U	120 U	130 U	310 U	300 U
Acenaphthene	(ug/kg)	1000000	130 U	140 U	140 U	350 U	340 U
Acenaphthylene	(ug/kg)	1000000	120 U	130 U	130 U	320 U	310 U

ug/kg: micrograms per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-15 BSSS-15 09/29/2005	BSSS-16 BSSS-16 09/29/2005	BSSS-17 BSSS-17 09/29/2005	BSSS-18 BSSS-18 09/29/2005	BSSS-19 BSSS-19 09/29/2005
Acetophenone	(ug/kg)		110 U	110 U	120 U	290 U	280 U
Anthracene	(ug/kg)	1000000	160 J	140 J	120 U	300 U J	290 U
Atrazine	(ug/kg)		110 U	120 U	120 U	300 U J	290 U
Benzaldehyde	(ug/kg)		150 U	160 U	160 U	400 U J	390 U J
Benzo(a)anthracene	(ug/kg)	11000	110 J	150 J	140 J	520 J	420 J
Benzo(a)pyrene	(ug/kg)	1100	130 J	120 U	130 J	1800 J	300 U J
Benzo(b)fluoranthene	(ug/kg)	11000	220 J	180 J	190 J	1800 J	400 J
Benzo(ghi)perylene	(ug/kg)	1000000	210 J	130 U	130 U	2800 J	310 U J
Benzo(k)fluoranthene	(ug/kg)	110000	160 U	170 U	170 U	430 U J	460 J
Biphenyl	(ug/kg)		120 U	130 U	130 U	320 U	310 U
Bis(2-chloroethoxy)methane	(ug/kg)		120 U	130 U	130 U	320 U	310 U
Bis(2-chloroethyl)ether	(ug/kg)		120 U	120 U	130 U	310 U	300 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)		210 J	1000 J	230 J	380 U	360 U
Butyl benzyl phthalate	(ug/kg)		120 U	130 U	130 U	320 U	310 U
Caprolactam	(ug/kg)		120 U J	120 U J	130 U J	320 U J	300 U J
Carbazole	(ug/kg)		110 U	120 U	120 U	300 U J	290 U
Chrysene	(ug/kg)	110000	160 J	210 J	190 J	1500 J	500 J

ug/kg: micrograms per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-15 BSSS-15 09/29/2005	BSSS-16 BSSS-16 09/29/2005	BSSS-17 BSSS-17 09/29/2005	BSSS-18 BSSS-18 09/29/2005	BSSS-19 BSSS-19 09/29/2005
Dibenzo(a,h)anthracene	(ug/kg)	1100	94 U	97 U	100 U	390 J	240 U J
Dibenzofuran	(ug/kg)	1000000	120 U	130 U	130 U	320 U	310 U
Diethyl phthalate	(ug/kg)		130 U	130 U	140 U	340 U	330 U
Dimethyl phthalate	(ug/kg)		120 U	120 U	130 U	320 U	300 U
Di-n-butyl phthalate	(ug/kg)		110 U	570 J	120 U	300 U J	290 U
Di-n-octyl phthalate	(ug/kg)		130 U	130 U	140 U	330 U J	320 U J
Fluoranthene	(ug/kg)	1000000	400 J	310 J	330 J	290 U J	980 J
Fluorene	(ug/kg)	1000000	130 U	130 U	130 U	330 U	320 U
Hexachlorobenzene	(ug/kg)	12000	120 U	120 U	130 U	310 U J	300 U
Hexachlorobutadiene	(ug/kg)		120 U	120 U	120 U	300 U	290 U
Hexachlorocyclopentadiene	(ug/kg)		120 U J	120 U J	130 U J	310 U	300 U
Hexachloroethane	(ug/kg)		130 U	130 U	130 U	330 U	320 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	11000	95 U J	99 U J	100 U J	820 J	240 U J
Isophorone	(ug/kg)		110 U	120 U	120 U	300 U	280 U
m-Nitroaniline	(ug/kg)		97 U	100 U	100 U	260 U	250 U
Naphthalene	(ug/kg)	1000000	130 U	130 U	140 U	340 U	320 U
Nitrobenzene	(ug/kg)		160 U	170 U	170 U	430 U	410 U

ug/kg: micrograms per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-15 BSSS-15 09/29/2005	BSSS-16 BSSS-16 09/29/2005	BSSS-17 BSSS-17 09/29/2005	BSSS-18 BSSS-18 09/29/2005	BSSS-19 BSSS-19 09/29/2005
N-Nitrosodiphenylamine	(ug/kg)		120 U	130 U	130 U	320 U J	310 U
N-Nitrosodipropylamine	(ug/kg)		120 U	130 U	130 U	330 U	310 U
o-Cresol	(ug/kg)	1000000	120 U	130 U	130 U	330 U	310 U
o-Nitroaniline	(ug/kg)		95 U	99 U	100 U	250 U	240 U
o-Nitrophenol	(ug/kg)		120 U	120 U	120 U	300 U	290 U
p-Chloroaniline	(ug/kg)		89 U	92 U	95 U	230 U	230 U
p-Chloro-m-cresol	(ug/kg)		100 U	110 U	110 U	270 U	260 U
PCP	(ug/kg)	55000	170 U	180 U	180 U	450 U J	440 U
p-Cresol	(ug/kg)	1000000	120 U	120 U	130 U	310 U	300 U
Phenanthrene	(ug/kg)	1000000	160 J	190 J	160 J	310 U J	400 J
Phenol	(ug/kg)	1000000	110 U	120 U	120 U	300 U	290 U
p-Nitroaniline	(ug/kg)		130 U	130 U	140 U	340 U	320 U
p-Nitrophenol	(ug/kg)		93 U J	96 U J	98 U J	240 U J	230 U J
Pyrene	(ug/kg)	1000000	320 J	260 J	260 J	350 U	950 J
Total Semivolatile Organics	(ug/kg)		2080	3010	1630	9630	4110

ug/kg: micrograms per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-20 BSSS-20 09/29/2005	BSSS-21 BSSS-21 09/29/2005
2,2-oxyblis (1-chloropropane)	(ug/kg)		130 U	120 U
2,4,5-Trichlorophenol	(ug/kg)		120 U	110 U
2,4,6-Trichlorophenol	(ug/kg)		120 U	110 U
2,4-Dichlorophenol	(ug/kg)		150 U	140 U
2,4-Dimethylphenol	(ug/kg)		130 U	120 U
2,4-Dinitrophenol	(ug/kg)		680 U	640 U
2,4-Dinitrotoluene	(ug/kg)		120 U	110 U
2,6-Dinitrotoluene	(ug/kg)		110 U	110 U
2-Chloronaphthalene	(ug/kg)		130 U	120 U
2-Chlorophenol	(ug/kg)		130 U	120 U
2-Methylnaphthalene	(ug/kg)		130 U	130 U
3,3-Dichlorobenzidine	(ug/kg)		140 U	130 U
4,6-Dinitro-o-cresol	(ug/kg)		150 U	150 U
4-Bromofluorobenzene	(ug/kg)		120 U	110 U
4-Chlorophenylphenyl ether	(ug/kg)		130 U	120 U
Acenaphthene	(ug/kg)	1000000	140 U	130 U
Acenaphthylene	(ug/kg)	1000000	130 U	120 U

ug/kg: micrograms per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-20 BSSS-20 09/29/2005	BSSS-21 BSSS-21 09/29/2005
Acetophenone	(ug/kg)		120 U	110 U
Anthracene	(ug/kg)	1000000	120 U	110 U
Atrazine	(ug/kg)		130 J	120 U
Benzaldehyde	(ug/kg)		160 U J	150 U J
Benzo(a)anthracene	(ug/kg)	11000	680 J	560 J
Benzo(a)pyrene	(ug/kg)	1100	700 J	530 J
Benzo(b)fluoranthene	(ug/kg)	11000	670 J	560 J
Benzo(ghi)perylene	(ug/kg)	1000000	340 J	230 J
Benzo(k)fluoranthene	(ug/kg)	110000	950 J	830 J
Biphenyl	(ug/kg)		130 U	120 U
Bis(2-chloroethoxy)methane	(ug/kg)		130 U	120 U
Bis(2-chloroethyl)ether	(ug/kg)		130 U	120 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)		160 J	140 U
Butyl benzyl phthalate	(ug/kg)		130 U	120 U
Caprolactam	(ug/kg)		130 U J	120 U J
Carbazole	(ug/kg)		120 U	110 U
Chrysene	(ug/kg)	110000	790 J	650 J

ug/kg: micrograms per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-20 BSSS-20 09/29/2005	BSSS-21 BSSS-21 09/29/2005
Dibenzo(a,h)anthracene	(ug/kg)	1100	100 U	94 U
Dibenzofuran	(ug/kg)	1000000	130 U	120 U
Diethyl phthalate	(ug/kg)		140 U	130 U
Dimethyl phthalate	(ug/kg)		130 U	120 U
Di-n-butyl phthalate	(ug/kg)		370 J	120 J
Di-n-octyl phthalate	(ug/kg)		140 U	130 U
Fluoranthene	(ug/kg)	1000000	1100	1100
Fluorene	(ug/kg)	1000000	130 U	130 U
Hexachlorobenzene	(ug/kg)	12000	130 U	120 U
Hexachlorobutadiene	(ug/kg)		120 U	120 U
Hexachlorocyclopentadiene	(ug/kg)		130 U	120 U
Hexachloroethane	(ug/kg)		130 U	130 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	11000	180 J	110 J
Isophorone	(ug/kg)		120 U	110 U
m-Nitroaniline	(ug/kg)		100 U	98 U
Naphthalene	(ug/kg)	1000000	140 U	130 U
Nitrobenzene	(ug/kg)		170 U	160 U

ug/kg: micrograms per kilogram

Table 4
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-20 BSSS-20 09/29/2005	BSSS-21 BSSS-21 09/29/2005
N-Nitrosodiphenylamine	(ug/kg)		130 U	120 U
N-Nitrosodipropylamine	(ug/kg)		130 U	120 U
o-Cresol	(ug/kg)	1000000	130 U	120 U
o-Nitroaniline	(ug/kg)		100 U	95 U
o-Nitrophenol	(ug/kg)		120 U	120 U
p-Chloroaniline	(ug/kg)		95 U	89 U
p-Chloro-m-cresol	(ug/kg)		110 U	100 U
PCP	(ug/kg)	55000	180 U	170 U
p-Cresol	(ug/kg)	1000000	130 U	120 U
Phenanthrene	(ug/kg)	1000000	450 J	410 J
Phenol	(ug/kg)	1000000	120 U	110 U
p-Nitroaniline	(ug/kg)		140 U	130 U
p-Nitrophenol	(ug/kg)		98 U J	93 U J
Pyrene	(ug/kg)	1000000	1100	1100
Total Semivolatile Organics	(ug/kg)		7620	6200

ug/kg: micrograms per kilogram

Table 5
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-15 BSSS-15 09/29/2005	BSSS-16 BSSS-16 09/29/2005	BSSS-17 BSSS-17 09/29/2005	BSSS-18 BSSS-18 09/29/2005	BSSS-19 BSSS-19 09/29/2005
Aroclor 1016	(ug/kg)		2.9 U	3.0 U	3.0 U	3.0 U	2.9 U
Aroclor 1221	(ug/kg)		4.5 U	4.6 U	4.7 U	4.7 U	4.5 U
Aroclor 1232	(ug/kg)		6.7 U	6.9 U	7.1 U	7.0 U	6.8 U
Aroclor 1242	(ug/kg)		5.9 U	6.2 U	6.3 U	6.2 U	6.0 U
Aroclor 1248	(ug/kg)		2.9 U	3.0 U	3.1 U	3.0 U	2.9 U
Aroclor 1254	(ug/kg)		1.9 U	2.0 U	2.0 U	2.0 U	1.9 U
Aroclor 1260	(ug/kg)		67 J	250 J	70 J	260 J	27 J
Total PCBs	(ug/kg)	25000	67	250	70	260	27

ug/kg: micrograms per kilogram

Table 5
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 09/29/2005 thru 09/29/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSS-20 BSSS-20 09/29/2005	BSSS-21 BSSS-21 09/29/2005
Aroclor 1016	(ug/kg)		3.0 U	2.9 U
Aroclor 1221	(ug/kg)		4.7 U	4.5 U
Aroclor 1232	(ug/kg)		7.1 U	6.7 U
Aroclor 1242	(ug/kg)		6.3 U	5.9 U
Aroclor 1248	(ug/kg)		3.1 U	2.9 U
Aroclor 1254	(ug/kg)		2.0 U	1.9 U
Aroclor 1260	(ug/kg)		35 J	4.8 U J
Total PCBs	(ug/kg)	25000	35	0

ug/kg: micrograms per kilogram

Table 6
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
RESIDENTAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 03/10/2009 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Part 375 Residental SCOs	BSSB-28 BSSB-28(2-4) 09/29/2005	BSSB-29 BSSB-29(2-4) 09/29/2005	BSSB-51 BSSB-51[1-2] 03/10/2009	BSSB-52 BSSB-52[1-2] 03/10/2009	BSSB-53 BSSB-53[1-2] 03/10/2009
Mercury	(mg/kg)	0.81	0.075 U D J	0.192 D J	0.046	0.016	0.031

mg/kg: milligrams per kilogram

Table 6
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
RESIDENTAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 03/10/2009 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Part 375 Residental SCOs	BSSB-54 BSSB-54[1-2] 03/10/2009
Mercury	(mg/kg)	0.81	0.052

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-06 BSSB-06(2-4) 09/30/2005	BSSB-07 BSSB-07(2-4) 09/30/2005	BSSB-08 BSSB-08(2-4) 09/30/2005	BSSB-09 BSSB-09(2-4) 09/30/2005	BSSB-10 BSSB-10(2-4) 09/29/2005
Mercury	(mg/kg)	5.7	0.603	0.087 J D	0.110 D J	4.8 D	0.079 D

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-11 BSSB-11(2-4) 09/29/2005	BSSB-12 BSSB-12(2-4) 09/29/2005	BSSB-13 BSSB-13(2-4) 09/29/2005	BSSB-14 BSSB-14(2-4) 09/29/2005	BSSB-15 BSSB-15(2-4) 09/29/2005
Mercury	(mg/kg)	5.7	1.1 D	0.947 D	0.380 D	0.234 D	0.261 D

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-16 BSSB-16(2-4) 09/29/2005	BSSB-17 BSSB-17(2-4) 09/29/2005	BSSB-17 BSSB-17(4-6) 09/29/2005	BSSB-18 BSSB-18(2-4) 09/29/2005	BSSB-18 BSSB-18(4-6) 09/29/2005
Mercury	(mg/kg)	5.7	0.351 D	0.128 D	0.069 U	0.070 U	0.069 U

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-19 BSSB-19(2-4) 09/29/2005	BSSB-19 BSSB-19(4-6) 09/29/2005	BSSB-20 BSSB-20(2-4) 09/29/2005	BSSB-20 BSSB-20(4-6) 09/29/2005	BSSB-21 BSSB-21(0-2) 09/29/2005
Mercury	(mg/kg)	5.7	0.068 U	0.071 U	0.068 U	0.069 U	0.182 D J

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-21 BSSB-21(2-4) 09/29/2005	BSSB-22 BSSB-22(0-2) 09/29/2005	BSSB-22 BSSB-22(2-4) 09/29/2005	BSSB-23 BSSB-23(0-2) 09/30/2005	BSSB-23 BSSB-23(2-4) 09/30/2005
Mercury	(mg/kg)	5.7	0.069 U J	0.068 U J	0.067 U J	0.076 D J	0.069 U J

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-24 BSSB-24(0-2) 09/30/2005	BSSB-24 BSSB-24(2-4) 09/30/2005	BSSB-25 BSSB-25(0-2) 09/30/2005	BSSB-25 BSSB-25(2-4) 09/30/2005	BSSB-26 BSSB-26(0-2) 09/29/2005
Mercury	(mg/kg)	5.7	0.083 D J	0.070 U J	0.123 D J	0.068 U J	0.182 D J

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-26 BSSB-26(2-4) 09/29/2005	BSSB-27 BSSB-27(0-2) 09/30/2005	BSSB-27 BSSB-27(2-4) 09/30/2005	BSSB-30 BSSB-30(2-4) 09/29/2005	BSSB-31 BSSB-31(2-4) 09/29/2005
Mercury	(mg/kg)	5.7	0.066 U J	0.067 U J	0.068 U J	0.065 U	0.095 D J

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-32 BSSB-32(2-4) 09/29/2005	BSSB-33 BSSB-33(2-4) 09/29/2005	BSSB-34 BSSB-36(2-4) 09/29/2005	BSSB-36 BSSB-36 (1-2) 04/17/2008	BSSB-37 BSSB-37 (1-2) 04/17/2008
Mercury	(mg/kg)	5.7	0.065 U	0.089 D	0.068 U	0.058 U J	1.2 J

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-38 BSSB-38 (1-2) 04/17/2008	BSSB-39 BSSB-39 (1-2) 04/17/2008	BSSB-40 BSSB-40 (1-2) 04/17/2008	BSSB-41 BSSB-41 (1-2) 04/17/2008	BSSB-42 BSSB-42 (1-2) 04/17/2008
Mercury	(mg/kg)	5.7	0.22	0.19	0.091 J	0.061 U J	0.050 U J

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-43 BSSB-43 (1-2) 04/17/2008	BSSB-44 BSSB-44 (1-2) 04/17/2008	BSSB-45 BSSB-45 (1-2) 04/17/2008	BSSB-46 BSSB-46 (1-2) 04/17/2008	BSSB-47 BSSB-47 (1-2) 04/17/2008
Mercury	(mg/kg)	5.7	0.23 J	0.0065 U	0.012 B	0.030 U J	0.17 J

mg/kg: milligrams per kilogram

Table 7
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
MERCURY

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-48 BSSB-48 (1-2) 04/17/2008	BSSB-49 BSSB-49 (1-2) 04/17/2008	BSSB-50 BSSB-50 (1-2) 04/17/2008
Mercury	(mg/kg)	5.7	0.043	0.23 J	0.50

mg/kg: milligrams per kilogram

Table 8
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) METALS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-21 BSSB-21(0-2) 09/29/2005	BSSB-21 BSSB-21(2-4) 09/29/2005	BSSB-22 BSSB-22(0-2) 09/29/2005	BSSB-22 BSSB-22(2-4) 09/29/2005	BSSB-23 BSSB-23(0-2) 09/30/2005
Arsenic	(mg/kg)	16	28.1	16.6	30.8	38.5	14.0
Barium	(mg/kg)	10000	72.7 J	69.2 J	86.6 J	50.7 J	47.5
Cadmium	(mg/kg)	60	3.930	1.150	2.400	0.038 U	0.038 U
Chromium	(mg/kg)	6800	11.4	14.4	7.510	14.5	15.9
Lead	(mg/kg)	3900	310	67.8	122	46.9	24.4
Selenium	(mg/kg)	6800	0.396 U	0.400 U	1.990	0.389 U	0.645
Silver	(mg/kg)	6800	1.530	0.928	1.840	0.823	0.092 U

mg/kg: milligrams per kilogram

Table 8
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) METALS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-23 BSSB-23(2-4) 09/30/2005	BSSB-24 BSSB-24(0-2) 09/30/2005	BSSB-24 BSSB-24(2-4) 09/30/2005	BSSB-25 BSSB-25(0-2) 09/30/2005	BSSB-25 BSSB-25(2-4) 09/30/2005
Arsenic	(mg/kg)	16	17.8	17.0	7.680	45.7	45.2
Barium	(mg/kg)	10000	44.4	45.9	63.1	51.2	36.5
Cadmium	(mg/kg)	60	0.039 U	0.209	0.039 U	3.230	0.038 U
Chromium	(mg/kg)	6800	16.5	12.3	17.8	12.0	14.5
Lead	(mg/kg)	3900	18.0	35.9	23.0	58.5	10.8
Selenium	(mg/kg)	6800	0.549	0.658	0.831	1.010	0.706
Silver	(mg/kg)	6800	0.094 U	0.090 U	0.094 U	0.090 U	0.091 U

mg/kg: milligrams per kilogram

Table 8
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) METALS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-26 BSSB-26(0-2) 09/29/2005	BSSB-26 BSSB-26(2-4) 09/29/2005	BSSB-27 BSSB-27(0-2) 09/30/2005	BSSB-27 BSSB-27(2-4) 09/30/2005
Arsenic	(mg/kg)	16	20.3	3.760	45.7	6.030
Barium	(mg/kg)	10000	57.4 J	51.7 J	50.1 J	39.8 J
Cadmium	(mg/kg)	60	0.276	0.038 U	0.123	0.039 U
Chromium	(mg/kg)	6800	7.960	12.9	13.5	22.6
Lead	(mg/kg)	3900	124	36.6	66.1	11.3
Selenium	(mg/kg)	6800	0.875	0.389 U	0.668	0.428
Silver	(mg/kg)	6800	1.280	0.863	1.090	0.989

mg/kg: milligrams per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-21 BSSB-21(0-2) 09/29/2005	BSSB-21 BSSB-21(2-4) 09/29/2005	BSSB-22 BSSB-22(0-2) 09/29/2005	BSSB-22 BSSB-22(2-4) 09/29/2005	BSSB-23 BSSB-23(0-2) 09/30/2005
2,2-oxyblis (1-chloropropane)	(ug/kg)		130 U	63 U	120 U	120 U	62 U
2,4,5-Trichlorophenol	(ug/kg)		120 U	60 U	120 U	120 U	59 U
2,4,6-Trichlorophenol	(ug/kg)		120 U	58 U	110 U	110 U	57 U
2,4-Dichlorophenol	(ug/kg)		150 U	73 U	140 U	140 U	71 U
2,4-Dimethylphenol	(ug/kg)		120 U	62 U	120 U	120 U	61 U
2,4-Dinitrophenol	(ug/kg)		670 U	340 U	660 U	650 U	330 U
2,4-Dinitrotoluene	(ug/kg)		120 U	58 U	110 U	110 U	57 U
2,6-Dinitrotoluene	(ug/kg)		110 U	56 U	110 U	110 U	55 U
2-Chloronaphthalene	(ug/kg)		130 U	65 U	130 U	130 U	64 U
2-Chlorophenol	(ug/kg)		130 U	63 U	130 J	120 U	62 U
2-Methylnaphthalene	(ug/kg)		130 U	66 U	210 J	130 U	65 U
3,3-Dichlorobenzidine	(ug/kg)		130 U	67 U	130 U	130 U	66 U
4,6-Dinitro-o-cresol	(ug/kg)		150 U	76 U	150 U	150 U	75 U
4-Bromofluorobenzene	(ug/kg)		120 U	59 U	120 U	110 U	58 U
4-Chlorophenylphenyl ether	(ug/kg)		120 U	62 U	120 U	120 U	61 U
Acenaphthene	(ug/kg)	1000000	140 U	70 U	140 U	130 U	69 U
Acenaphthylene	(ug/kg)	1000000	130 U	64 U	130 U	120 U	63 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-21 BSSB-21(0-2) 09/29/2005	BSSB-21 BSSB-21(2-4) 09/29/2005	BSSB-22 BSSB-22(0-2) 09/29/2005	BSSB-22 BSSB-22(2-4) 09/29/2005	BSSB-23 BSSB-23(0-2) 09/30/2005
Acetophenone	(ug/kg)		110 U	58 U	110 U	110 U	57 U
Anthracene	(ug/kg)	1000000	120 U	59 U	120 U	110 U	190 J
Atrazine	(ug/kg)		120 U	60 U	180 J	120 U	59 U
Benzaldehyde	(ug/kg)		160 U J	81 U J	160 U J	160 U J	79 U J
Benzo(a)anthracene	(ug/kg)	11000	240 J	100 J	550 J	200 J	350 J
Benzo(a)pyrene	(ug/kg)	1100	190 J	63 U	730 J	150 J	220 J
Benzo(b)fluoranthene	(ug/kg)	11000	290 J	66 J	690 J	160 J	200 J
Benzo(ghi)perylene	(ug/kg)	1000000	130 U J	65 U	640 J	130 U	64 U
Benzo(k)fluoranthene	(ug/kg)	110000	220 J	96 J	940 J	210 J	290 J
Biphenyl	(ug/kg)		130 U	65 U	130 U	120 U	64 U
Bis(2-chloroethoxy)methane	(ug/kg)		130 U	65 U	130 U	120 U	64 U
Bis(2-chloroethyl)ether	(ug/kg)		120 U	62 U	120 U	120 U	61 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)		150 U	75 U	150 U	150 U	74 U
Butyl benzyl phthalate	(ug/kg)		130 U	64 U	130 U	120 U	62 U
Caprolactam	(ug/kg)		130 U J	63 U J	120 U J	120 U J	62 U J
Carbazole	(ug/kg)		120 U	60 U	120 U	120 U	74 J
Chrysene	(ug/kg)	110000	270 J	110 J	580 J	220 J	340 J

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-21 BSSB-21(0-2) 09/29/2005	BSSB-21 BSSB-21(2-4) 09/29/2005	BSSB-22 BSSB-22(0-2) 09/29/2005	BSSB-22 BSSB-22(2-4) 09/29/2005	BSSB-23 BSSB-23(0-2) 09/30/2005
Dibenzo(a,h)anthracene	(ug/kg)	1100	98 U J	49 U	97 U	95 U	48 U
Dibenzofuran	(ug/kg)	1000000	130 U	65 U	130 U	130 U	64 U
Diethyl phthalate	(ug/kg)		140 U	68 U	130 U	130 U	67 U
Dimethyl phthalate	(ug/kg)		130 U	63 U	120 U	120 U	62 U
Di-n-butyl phthalate	(ug/kg)		120 U	170 J	120 U	130 J	59 U
Di-n-octyl phthalate	(ug/kg)		130 U J	67 U	130 U	130 U	66 U
Fluoranthene	(ug/kg)	1000000	370 J	190 J	1400	480 J	830
Fluorene	(ug/kg)	1000000	130 U	66 U	130 U	130 U	82 J
Hexachlorobenzene	(ug/kg)	12000	130 U	63 U	120 U	120 U	62 U
Hexachlorobutadiene	(ug/kg)		120 U	60 U	120 U	120 U	59 U
Hexachlorocyclopentadiene	(ug/kg)		130 U	63 U	120 U	120 U	62 U
Hexachloroethane	(ug/kg)		130 U	67 U	130 U	130 U	66 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	11000	100 U J	50 U	320 J	96 U	49 U
Isophorone	(ug/kg)		120 U	59 U	120 U	110 U	58 U
m-Nitroaniline	(ug/kg)		100 U	51 U	100 U	99 U	50 U
Naphthalene	(ug/kg)	1000000	130 U	67 U	160 J	130 U	66 U
Nitrobenzene	(ug/kg)		170 U	86 U	170 U	170 U	84 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-21 BSSB-21(0-2) 09/29/2005	BSSB-21 BSSB-21(2-4) 09/29/2005	BSSB-22 BSSB-22(0-2) 09/29/2005	BSSB-22 BSSB-22(2-4) 09/29/2005	BSSB-23 BSSB-23(0-2) 09/30/2005
N-Nitrosodiphenylamine	(ug/kg)		130 U	65 U	130 U	120 U	64 U
N-Nitrosodipropylamine	(ug/kg)		130 U	65 U	130 U	130 U	64 U
o-Cresol	(ug/kg)	1000000	130 U	65 U	130 U	130 U	64 U
o-Nitroaniline	(ug/kg)		100 U	50 U	98 U	96 U	49 U
o-Nitrophenol	(ug/kg)		120 U	60 U	120 U	120 U	59 U
p-Chloroaniline	(ug/kg)		93 U	47 U	92 U	90 U	46 U
p-Chloro-m-cresol	(ug/kg)		110 U	54 U	110 U	100 U	53 U
PCP	(ug/kg)	55000	180 U	91 U	180 U	180 U	89 U
p-Cresol	(ug/kg)	1000000	120 U	62 U	120 U	120 U	61 U
Phenanthrene	(ug/kg)	1000000	190 J	74 J	540 J	370 J	800
Phenol	(ug/kg)	1000000	120 U	60 U	120 U	110 U	59 U
p-Nitroaniline	(ug/kg)		130 U	67 U	130 U	130 U	66 U
p-Nitrophenol	(ug/kg)		97 U J	49 U J	96 U J	94 U J	48 U J
Pyrene	(ug/kg)	1000000	340 J	220 J	1400	390 J	720
Total Semivolatile Organics	(ug/kg)		2110	1026	8470	2310	4096

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-23 BSSB-23(2-4) 09/30/2005	BSSB-24 BSSB-24(0-2) 09/30/2005	BSSB-24 BSSB-24(2-4) 09/30/2005	BSSB-25 BSSB-25(0-2) 09/30/2005	BSSB-25 BSSB-25(2-4) 09/30/2005
2,2-oxyblis (1-chloropropane)	(ug/kg)		63 U	120 U	64 U	120 U	62 U
2,4,5-Trichlorophenol	(ug/kg)		60 U	120 U	61 U	110 U	59 U
2,4,6-Trichlorophenol	(ug/kg)		58 U	110 U	58 U	110 U	56 U
2,4-Dichlorophenol	(ug/kg)		73 U	140 U	74 U	140 U	71 U
2,4-Dimethylphenol	(ug/kg)		62 U	120 U	63 U	120 U	61 U
2,4-Dinitrophenol	(ug/kg)		340 U	660 U	340 U	640 U	330 U
2,4-Dinitrotoluene	(ug/kg)		58 U	110 U	58 U	110 U	56 U
2,6-Dinitrotoluene	(ug/kg)		56 U	110 U	56 U	110 U	54 U
2-Chloronaphthalene	(ug/kg)		65 U	130 U	66 U	120 U	64 U
2-Chlorophenol	(ug/kg)		63 U	120 U	63 U	120 U	61 U
2-Methylnaphthalene	(ug/kg)		66 U	130 U	66 U	120 U	64 U
3,3-Dichlorobenzidine	(ug/kg)		67 U	130 U	68 U	130 U	66 U
4,6-Dinitro-o-cresol	(ug/kg)		76 U	150 U	77 U	140 U	74 U
4-Bromofluorobenzene	(ug/kg)		59 U	110 U	59 U	110 U	57 U
4-Chlorophenylphenyl ether	(ug/kg)		62 U	120 U	63 U	120 U	61 U
Acenaphthene	(ug/kg)	1000000	70 U	140 U	71 U	130 U	68 U
Acenaphthylene	(ug/kg)	1000000	64 U	120 U	65 U	120 U	62 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-23 BSSB-23(2-4) 09/30/2005	BSSB-24 BSSB-24(0-2) 09/30/2005	BSSB-24 BSSB-24(2-4) 09/30/2005	BSSB-25 BSSB-25(0-2) 09/30/2005	BSSB-25 BSSB-25(2-4) 09/30/2005
Acetophenone	(ug/kg)		58 U	110 U	58 U	110 U	56 U
Anthracene	(ug/kg)	1000000	59 U	120 U	60 U	110 U	58 U
Atrazine	(ug/kg)		60 U	120 U	61 U	110 U	59 U
Benzaldehyde	(ug/kg)		81 U J	160 U J	82 U J	150 U J	79 U J
Benzo(a)anthracene	(ug/kg)	11000	55 U	480 J	56 U	350 J	54 U
Benzo(a)pyrene	(ug/kg)	1100	63 U	560 J	64 U	250 J	61 U
Benzo(b)fluoranthene	(ug/kg)	11000	43 U	470 J	44 U	320 J	42 U
Benzo(ghi)perylene	(ug/kg)	1000000	65 U	340 J	66 U	120 U J	63 U
Benzo(k)fluoranthene	(ug/kg)	110000	87 U J	750 J	88 U J	420 J	84 U
Biphenyl	(ug/kg)		65 U	130 U	66 U	120 U	63 U
Bis(2-chloroethoxy)methane	(ug/kg)		65 U	130 U	65 U	120 U	63 U
Bis(2-chloroethyl)ether	(ug/kg)		62 U	120 U	63 U	120 U	61 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)		75 U	150 U	76 U	140 U	74 U
Butyl benzyl phthalate	(ug/kg)		64 U	120 U	64 U	120 U	62 U
Caprolactam	(ug/kg)		63 U J	120 U J	64 U J	120 U J	62 U
Carbazole	(ug/kg)		60 U	120 U	61 U	110 U	59 U
Chrysene	(ug/kg)	110000	71 U	480 J	71 U	440 J	69 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-23 BSSB-23(2-4) 09/30/2005	BSSB-24 BSSB-24(0-2) 09/30/2005	BSSB-24 BSSB-24(2-4) 09/30/2005	BSSB-25 BSSB-25(0-2) 09/30/2005	BSSB-25 BSSB-25(2-4) 09/30/2005
Dibenzo(a,h)anthracene	(ug/kg)	1100	49 U	96 U	50 U	94 U J	48 U
Dibenzofuran	(ug/kg)	1000000	65 U	130 U	66 U	120 U	63 U
Diethyl phthalate	(ug/kg)		68 U	130 U	69 U	130 U	66 U
Dimethyl phthalate	(ug/kg)		63 U	120 U	64 U	120 U	62 U
Di-n-butyl phthalate	(ug/kg)		60 U	120 U	61 U	110 U	58 U
Di-n-octyl phthalate	(ug/kg)		67 U	130 U	68 U	130 U J	65 U
Fluoranthene	(ug/kg)	1000000	58 U	760 J	89 J	730 J	57 U
Fluorene	(ug/kg)	1000000	66 U	130 U	67 U	130 U	65 U
Hexachlorobenzene	(ug/kg)	12000	63 U	120 U	64 U	120 U	61 U
Hexachlorobutadiene	(ug/kg)		61 U	120 U	61 U	110 U	59 U
Hexachlorocyclopentadiene	(ug/kg)		63 U	120 U	63 U	120 U	61 U
Hexachloroethane	(ug/kg)		67 U	130 U	68 U	130 U	65 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	11000	50 U	150 J	51 U	95 U J	49 U
Isophorone	(ug/kg)		59 U	120 U	60 U	110 U	58 U
m-Nitroaniline	(ug/kg)		51 U	100 U	52 U	97 U	50 U
Naphthalene	(ug/kg)	1000000	67 U	130 U	68 U	130 U	66 U
Nitrobenzene	(ug/kg)		86 U	170 U	87 U	160 U	84 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-23 BSSB-23(2-4) 09/30/2005	BSSB-24 BSSB-24(0-2) 09/30/2005	BSSB-24 BSSB-24(2-4) 09/30/2005	BSSB-25 BSSB-25(0-2) 09/30/2005	BSSB-25 BSSB-25(2-4) 09/30/2005
N-Nitrosodiphenylamine	(ug/kg)		65 U	130 U	66 U	120 U	63 U
N-Nitrosodipropylamine	(ug/kg)		65 U	130 U	66 U	120 U	64 U
o-Cresol	(ug/kg)	1000000	65 U	130 U	66 U	120 U	64 U
o-Nitroaniline	(ug/kg)		50 U	97 U	51 U	95 U	49 U
o-Nitrophenol	(ug/kg)		61 U	120 U	61 U	110 U	59 U
p-Chloroaniline	(ug/kg)		47 U	91 U	47 U	89 U	46 U
p-Chloro-m-cresol	(ug/kg)		54 U	110 U	55 U	100 U	53 U
PCP	(ug/kg)	55000	91 U	180 U	92 U	170 U	89 U
p-Cresol	(ug/kg)	1000000	62 U	120 U	63 U	120 U	61 U
Phenanthrene	(ug/kg)	1000000	63 U	270 J	63 U	460 J	61 U
Phenol	(ug/kg)	1000000	60 U	120 U	60 U	110 U	58 U
p-Nitroaniline	(ug/kg)		67 U	130 U	68 U	130 U	66 U
p-Nitrophenol	(ug/kg)		49 U J	95 U J	49 U J	93 U J	48 U
Pyrene	(ug/kg)	1000000	70 U	840	81 J	710 J	68 U
Total Semivolatile Organics	(ug/kg)		0	5100	170	3680	0

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-26 BSSB-26(0-2) 09/29/2005	BSSB-26 BSSB-26(2-4) 09/29/2005	BSSB-27 BSSB-27(0-2) 09/30/2005	BSSB-27 BSSB-27(2-4) 09/30/2005
2,2-oxyblis (1-chloropropane)	(ug/kg)		350 U	120 U	120 U	62 U
2,4,5-Trichlorophenol	(ug/kg)		330 U	110 U	120 U	59 U
2,4,6-Trichlorophenol	(ug/kg)		310 U	110 U	110 U	57 U
2,4-Dichlorophenol	(ug/kg)		400 U	140 U	140 U	72 U
2,4-Dimethylphenol	(ug/kg)		340 U	120 U	120 U	62 U
2,4-Dinitrophenol	(ug/kg)		1800 U	640 U	650 U	330 U
2,4-Dinitrotoluene	(ug/kg)		310 U	110 U	110 U	57 U
2,6-Dinitrotoluene	(ug/kg)		300 U	110 U	110 U	55 U
2-Chloronaphthalene	(ug/kg)		360 U	120 U	130 U	64 U
2-Chlorophenol	(ug/kg)		340 U	120 U	120 U	62 U
2-Methylnaphthalene	(ug/kg)		390 J	120 U	130 U	65 U
3,3-Dichlorobenzidine	(ug/kg)		370 U	130 U	130 U	66 U
4,6-Dinitro-o-cresol	(ug/kg)		420 U	150 U	150 U	75 U
4-Bromofluorobenzene	(ug/kg)		320 U	110 U	110 U	58 U
4-Chlorophenylphenyl ether	(ug/kg)		340 U	120 U	120 U	61 U
Acenaphthene	(ug/kg)	1000000	380 U	130 U	140 U	69 U
Acenaphthylene	(ug/kg)	1000000	350 U	120 U	120 U	63 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-26 BSSB-26(0-2) 09/29/2005	BSSB-26 BSSB-26(2-4) 09/29/2005	BSSB-27 BSSB-27(0-2) 09/30/2005	BSSB-27 BSSB-27(2-4) 09/30/2005
Acetophenone	(ug/kg)		310 U	110 U	110 U	57 U
Anthracene	(ug/kg)	1000000	320 U	110 U	110 U	59 U
Atrazine	(ug/kg)		330 U	110 U	120 U	59 U
Benzaldehyde	(ug/kg)		440 U J	150 U J	160 U J	80 U
Benzo(a)anthracene	(ug/kg)	11000	300 U	100 U	200 J	54 U J
Benzo(a)pyrene	(ug/kg)	1100	340 U J	120 U	160 J	62 U
Benzo(b)fluoranthene	(ug/kg)	11000	240 U J	82 U	170 J	43 U
Benzo(ghi)perylene	(ug/kg)	1000000	350 U J	120 U	130 U	64 U
Benzo(k)fluoranthene	(ug/kg)	110000	470 U J	160 U J	220 J	85 U J
Biphenyl	(ug/kg)		350 U	120 U	130 U	64 U
Bis(2-chloroethoxy)methane	(ug/kg)		350 U	120 U	120 U	64 U
Bis(2-chloroethyl)ether	(ug/kg)		340 U	120 U	120 U	61 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)		410 U	140 U	150 U	74 U
Butyl benzyl phthalate	(ug/kg)		350 U	120 U	120 U	63 U
Caprolactam	(ug/kg)		340 U J	120 U J	120 U J	62 U
Carbazole	(ug/kg)		330 U	110 U	120 U J	59 U
Chrysene	(ug/kg)	110000	380 U	130 U	260 J	70 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-26 BSSB-26(0-2) 09/29/2005	BSSB-26 BSSB-26(2-4) 09/29/2005	BSSB-27 BSSB-27(0-2) 09/30/2005	BSSB-27 BSSB-27(2-4) 09/30/2005
Dibenzo(a,h)anthracene	(ug/kg)	1100	270 U J	94 U	95 U	49 U
Dibenzofuran	(ug/kg)	1000000	350 U	120 U	130 U	64 U
Diethyl phthalate	(ug/kg)		370 U	130 U	130 U	67 U
Dimethyl phthalate	(ug/kg)		340 U	120 U	120 U	62 U
Di-n-butyl phthalate	(ug/kg)		330 U	110 U	120 U	310 J
Di-n-octyl phthalate	(ug/kg)		360 U J	130 U	130 U	66 U
Fluoranthene	(ug/kg)	1000000	320 U	110 U	500 J	58 U
Fluorene	(ug/kg)	1000000	360 U	130 U	130 U	65 U
Hexachlorobenzene	(ug/kg)	12000	340 U	120 U	120 U	62 U
Hexachlorobutadiene	(ug/kg)		330 U	110 U	120 U	60 U
Hexachlorocyclopentadiene	(ug/kg)		340 U	120 U	120 U	62 U
Hexachloroethane	(ug/kg)		360 U	130 U	130 U	66 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	11000	270 U J	95 U	96 U	49 U
Isophorone	(ug/kg)		320 U	110 U	110 U	58 U
m-Nitroaniline	(ug/kg)		280 U	97 U	99 U	51 U
Naphthalene	(ug/kg)	1000000	370 U	130 U	130 U	66 U
Nitrobenzene	(ug/kg)		470 U	160 U	170 U	85 U

ug/kg: micrograms per kilogram

Table 9
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/29/2005 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-26 BSSB-26(0-2) 09/29/2005	BSSB-26 BSSB-26(2-4) 09/29/2005	BSSB-27 BSSB-27(0-2) 09/30/2005	BSSB-27 BSSB-27(2-4) 09/30/2005
N-Nitrosodiphenylamine	(ug/kg)		350 U	120 U	130 U	64 U
N-Nitrosodipropylamine	(ug/kg)		350 U	120 U	130 U	64 U
o-Cresol	(ug/kg)	1000000	360 U	120 U	130 U	64 U
o-Nitroaniline	(ug/kg)		270 U	95 U	96 U	49 U
o-Nitrophenol	(ug/kg)		330 U	110 U	120 U	60 U
p-Chloroaniline	(ug/kg)		260 U	89 U	90 U	46 U
p-Chloro-m-cresol	(ug/kg)		300 U	100 U	100 U	54 U
PCP	(ug/kg)	55000	500 U	170 U	180 U	90 U
p-Cresol	(ug/kg)	1000000	340 U	120 U	120 U	61 U
Phenanthrene	(ug/kg)	1000000	340 U	120 U	270 J	62 U
Phenol	(ug/kg)	1000000	320 U	110 U	110 U	59 U
p-Nitroaniline	(ug/kg)		370 U	130 U	130 U	66 U
p-Nitrophenol	(ug/kg)		270 U J	93 U J	94 U J	48 U
Pyrene	(ug/kg)	1000000	380 U	130 U	370 J	69 U
Total Semivolatile Organics	(ug/kg)		390	0	2150	310

ug/kg: micrograms per kilogram

Table 10
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 09/29/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-21 BSSB-21(0-2) 09/29/2005	BSSB-21 BSSB-21(2-4) 09/29/2005	BSSB-22 BSSB-22(0-2) 09/29/2005	BSSB-22 BSSB-22(2-4) 09/29/2005	BSSB-23 BSSB-23(0-2) 09/30/2005
Aroclor 1016	(ug/kg)		3.0 U	3.0 U	3.0 U	2.9 U	3.0 U
Aroclor 1221	(ug/kg)		4.7 U	4.7 U	4.6 U	4.5 U	4.6 U
Aroclor 1232	(ug/kg)		7.0 U	7.0 U	6.9 U	6.7 U	6.9 U
Aroclor 1242	(ug/kg)		6.2 U	6.2 U	6.1 U	6.0 U	6.1 U
Aroclor 1248	(ug/kg)		3.0 U	3.0 U	3.0 U	2.9 U	3.0 U
Aroclor 1254	(ug/kg)		2.0 U	2.0 U	1.9 U	1.9 U	1.9 U
Aroclor 1260	(ug/kg)		150 J	24 J	58 J	4.8 U J	4.9 U J
Total PCBs	(ug/kg)	25000	150	24	58	0	0

ug/kg: micrograms per kilogram

Table 10
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 09/29/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-23 BSSB-23(2-4) 09/30/2005	BSSB-24 BSSB-24(0-2) 09/30/2005	BSSB-24 BSSB-24(2-4) 09/30/2005	BSSB-25 BSSB-25(0-2) 09/30/2005	BSSB-25 BSSB-25(2-4) 09/30/2005
Aroclor 1016	(ug/kg)		3.0 U	2.9 U	3.1 U	2.9 U	2.9 U
Aroclor 1221	(ug/kg)		4.7 U	4.6 U	4.7 U	4.5 U	4.6 U
Aroclor 1232	(ug/kg)		7.0 U	6.8 U	7.1 U	6.7 U	6.8 U
Aroclor 1242	(ug/kg)		6.2 U	6.1 U	6.3 U	5.9 U	6.1 U
Aroclor 1248	(ug/kg)		3.0 U	3.0 U	3.1 U	2.9 U	2.9 U
Aroclor 1254	(ug/kg)		2.0 U	1.9 U	2.0 U	1.9 U	1.9 U
Aroclor 1260	(ug/kg)		5.0 U J	4.9 U J	5.1 U J	4.8 U J	4.9 U J
Total PCBs	(ug/kg)	25000	0	0	0	0	0

ug/kg: micrograms per kilogram

Table 10
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
SUBSURFACE SOIL SAMPLE RESULTS
INDUSTRIAL USE SOIL CLEANUP OBJECTIVES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 09/29/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	Industrial Use SCOs	BSSB-26 BSSB-26(0-2) 09/29/2005	BSSB-26 BSSB-26(2-4) 09/29/2005	BSSB-27 BSSB-27(0-2) 09/30/2005	BSSB-27 BSSB-27(2-4) 09/30/2005
Aroclor 1016	(ug/kg)		3.3 U	2.9 U	2.9 U	3.0 U
Aroclor 1221	(ug/kg)		5.1 U	4.5 U	4.5 U	4.6 U
Aroclor 1232	(ug/kg)		7.6 U	6.7 U	6.7 U	6.9 U
Aroclor 1242	(ug/kg)		6.8 U	6.0 U	6.0 U	6.2 U
Aroclor 1248	(ug/kg)		3.3 U	2.9 U	2.9 U	3.0 U
Aroclor 1254	(ug/kg)		2.2 U	1.9 U	1.9 U	1.9 U
Aroclor 1260	(ug/kg)		5.5 U J	4.8 U J	4.8 U J	4.9 U J
Total PCBs	(ug/kg)	25000	0	0	0	0

ug/kg: micrograms per kilogram

TABLE 11
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
GROUNDWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
TAL METALS AND MERCURY

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSGP-01 BSGP-01 09/30/2005	BSGP-01 BSGP-01F 09/30/2005	BSGP-02 BSGP-02 09/30/2005	BSGP-02 BSGP-02F 09/30/2005	BSGP-03 BSGP-03 09/30/2005
Aluminum	(ug/l)		77400	70.4	44700	40.3 U	55100
Antimony	(ug/l)	3	3.170 U	9.850	94.5 J	3.170 U	3.170 J U
Arsenic	(ug/l)	25	41.0	4.150	33.7	3.320 U	36.3
Barium	(ug/l)	1000	972	106	967	133	1000
Beryllium	(ug/l)	3	4.640	0.090 U	3.560	0.090 U	4.260
Cadmium	(ug/l)	5	1.860 U	0.327 U	0.327 U	0.327 U	0.327 U
Calcium	(ug/l)		66500	68600	67300	57000	80200
Chromium	(ug/l)	50	1050	1.27 U	1060 J	1.850 U	1590 J
Cobalt	(ug/l)		118	21.7 U	104	14.5	118
Copper	(ug/l)	200	383	17.0 U	334 J	12.5 U	445 J
Iron	(ug/l)	300	235000	5870	192000	1690 J	244000
Lead	(ug/l)	25	104	2.180 U	148	2.180 U	215
Magnesium	(ug/l)	35000	53900 J	31500	41300	22000	57600
Manganese	(ug/l)	300	7180 J	3630	9010	4060	8760
Mercury	(ug/l)	0.7	0.2600	0.0300 U	0.3200	0.0300 U	0.4300
Nickel	(ug/l)	100	438	75.7	534 J	68.2	612 J
Potassium	(ug/l)		32900 J	5350	21700	3680 J	28200

ug/l: micrograms per liter

TABLE 11
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
GROUNDWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
TAL METALS AND MERCURY

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSGP-01 BSGP-01 09/30/2005	BSGP-01 BSGP-01F 09/30/2005	BSGP-02 BSGP-02 09/30/2005	BSGP-02 BSGP-02F 09/30/2005	BSGP-03 BSGP-03 09/30/2005
Selenium	(ug/l)	10	8.280	3.040 U	3.040 U J	3.040 U	4.890 J
Silver	(ug/l)	50	19.8 J	4.2 U	3.250	1.640 U	5.850
Sodium	(ug/l)	20000	113000	119000	120000	112000	104000
Thallium	(ug/l)	0.5	3.050 U	3.050 U	3.050 U	3.050 U	3.050 U
Vanadium	(ug/l)		293	12.0	212	5.1 U	287
Zinc	(ug/l)	2000	1240	83.4	1460	86.1	2120

ug/l: micrograms per liter

TABLE 11
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
GROUNDWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
TAL METALS AND MERCURY

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSGP-03 BSGP-03F 09/30/2005
Aluminum	(ug/l)		65.4 U
Antimony	(ug/l)	3	3.170 U
Arsenic	(ug/l)	25	3.320 U
Barium	(ug/l)	1000	125
Beryllium	(ug/l)	3	0.090 U
Cadmium	(ug/l)	5	0.327 U
Calcium	(ug/l)		68400
Chromium	(ug/l)	50	0.860 U
Cobalt	(ug/l)		24.6
Copper	(ug/l)	200	6.96 U
Iron	(ug/l)	300	2770 J
Lead	(ug/l)	25	2.180 U
Magnesium	(ug/l)	35000	34100
Manganese	(ug/l)	300	10300
Mercury	(ug/l)	0.7	0.0300 U
Nickel	(ug/l)	100	103
Potassium	(ug/l)		7170 J

ug/l: micrograms per liter

TABLE 11
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
GROUNDWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
TAL METALS AND MERCURY

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSGP-03 BSGP-03F 09/30/2005
Selenium	(ug/l)	10	3.040 U
Silver	(ug/l)	50	1.640 U
Sodium	(ug/l)	20000	104000
Thallium	(ug/l)	0.5	3.050 U
Vanadium	(ug/l)		4.08 U
Zinc	(ug/l)	2000	46.8

ug/l: micrograms per liter

Table 12
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
GROUNDWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSGP-01 BSGP-01 09/30/2005	BSGP-02 BSGP-02 09/30/2005	BSGP-03 BSGP-03 09/30/2005
1,1,1-Trichloroethane	(ug/l)	5	0.32U	0.32U	0.32U
1,1,2,2-Tetrachloroethane	(ug/l)	5	0.30U	0.30U	0.30U
1,1,2-Trichloroethane	(ug/l)	1	0.41U	0.41U	0.41U
1,1-Dichloroethane	(ug/l)	5	0.38U	0.38U	0.38U
1,1-Dichloroethylene	(ug/l)	5	0.42U	0.42U	0.42U
1,2,4-Trichlorobenzene	(ug/l)	5	0.46U	0.46U	0.46U
1,2-Dichloroethane	(ug/l)	0.6	0.34U	0.34U	0.34U
1,2-Dichloropropane	(ug/l)	1	0.40U	0.40U	0.40U
2-Hexanone	(ug/l)	50	1.7U	1.7U	1.7U
Acetone	(ug/l)	50	2.3U	2.3U	9.8J
Benzene	(ug/l)	1.0	0.63J	0.39U	0.78J
Benzene, 1-methylethyl-	(ug/l)	5	0.44U	0.44U	0.44U
Bromodichloromethane	(ug/l)	50	0.33U	0.33U	0.33U
Bromoform	(ug/l)	50	0.32U	0.32U	0.32U
Carbon disulfide	(ug/l)	60	0.40U	0.40UJ	0.40UJ
Carbon tetrachloride	(ug/l)	5	1.1U	1.1U	1.1U
Chlorobenzene	(ug/l)	5	0.47U	0.47U	0.47U

ug/l: micrograms per liter

Table 12
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
GROUNDWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSGP-01 BSGP-01 09/30/2005	BSGP-02 BSGP-02 09/30/2005	BSGP-03 BSGP-03 09/30/2005
Chloroethane	(ug/l)	5	0.83U	0.83UJ	0.83UJ
Chloroform	(ug/l)	7	0.33U	0.33U	0.33U
cis-1,2-Dichloroethylene	(ug/l)	5	5.9	7.2	21
cis-1,3-Dichloropropene	(ug/l)	0.4	0.36U	0.36U	0.36U
Cyclohexane	(ug/l)		0.36U	0.36U	1.5J
DBCP	(ug/l)	0.04	0.38U	0.38U	0.38U
Dibromochloromethane	(ug/l)	50	0.26U	0.26U	0.26U
Dichlorodifluoromethane	(ug/l)	5	0.17U	0.17UJ	0.17UJ
EDB	(ug/l)	0.0006	0.32U	0.32U	0.32U
Ethene, 1,2-dichloro-, (E)-	(ug/l)	5	0.40U	0.40U	0.40U
Ethylbenzene	(ug/l)	5	0.45U	0.45U	0.45U
Freon 113	(ug/l)		1.3U	1.3UJ	1.3UJ
m-Dichlorobenzene	(ug/l)	3	0.50U	0.50U	0.50U
Methyl Acetate	(ug/l)		0.20U	0.20U	0.20U
Methyl bromide	(ug/l)	5	0.41U	0.41U	0.41U
Methyl chloride	(ug/l)	5	0.34U	0.34U	0.34U
Methyl ethyl ketone	(ug/l)	50	1.1U	1.1U	1.1U

ug/l: micrograms per liter

Table 12
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
GROUNDWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSGP-01 BSGP-01 09/30/2005	BSGP-02 BSGP-02 09/30/2005	BSGP-03 BSGP-03 09/30/2005
Methyl isobutylketone (MIBK)	(ug/l)		1.6U	1.6U	1.6U
Methylcyclohexane	(ug/l)		0.34U	0.34U	0.34U
Methylene chloride	(ug/l)	5	0.43U	0.43U	0.43U
Methyltert-butylether	(ug/l)	10	66	8.0	100
o-Dichlorobenzene	(ug/l)	3	0.44U	0.44U	0.44U
o-Xylene	(ug/l)	5	0.46U	0.46U	0.46U
p-Dichlorobenzene	(ug/l)	3	0.54U	0.54U	0.54U
p-Xylene	(ug/l)	5	1.2U	1.2U	1.2U
Styrene	(ug/l)	5	0.41U	0.41U	0.41U
Tetrachloroethylene	(ug/l)	5	1.3J	13	5.4
Toluene	(ug/l)	5	0.36U	0.36U	0.36U
trans-1,3-Dichloropropene	(ug/l)	0.4	0.32U	0.32U	0.32U
Trichloroethylene	(ug/l)	5	0.46U	3.1J	7.1
Trichlorofluoromethane	(ug/l)	5	0.22U	0.22U	0.22U
Vinyl chloride	(ug/l)	2	3.9J	3.2J	0.33U
TOTAL VOLATILE ORGANICS	(ug/kg)		77.1	34.5	144.8

ug/l: micrograms per liter

Table 13
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
MERCURY

Date: 06/04/2009

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
Mercury	(mg/kg)	0.10	0.064 D U J

mg/kg: milligrams per kilogram

Table 14
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) METALS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
Arsenic	(mg/kg)	7.5	1.850
Barium	(mg/kg)	300	44.1
Cadmium	(mg/kg)	10	0.037 U
Chromium	(mg/kg)	50	27.1
Lead	(mg/kg)	400	5.630
Selenium	(mg/kg)	2	0.947
Silver	(mg/kg)		0.586

mg/kg: milligrams per kilogram

Table 15
LONG ISLANSD RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
1,1,1-Trichloroethane	(ug/kg)	800	0.46U
1,1,2,2-Tetrachloroethane	(ug/kg)	600	0.34U
1,1,2-Trichloroethane	(ug/kg)		0.33U
1,1-Dichloroethane	(ug/kg)	200	0.30U
1,1-Dichloroethylene	(ug/kg)	400	0.63U
1,2,4-Trichlorobenzene	(ug/kg)	3400	0.76U
1,2-Dichloroethane	(ug/kg)	100	0.34U
1,2-Dichloropropane	(ug/kg)		0.44U
2-Hexanone	(ug/kg)		4.0U
Acetone	(ug/kg)	200	3.7U
Benzene	(ug/kg)	60	0.44U
Benzene, 1-methylethyl-	(ug/kg)		0.46U
Bromodichloromethane	(ug/kg)		0.37U
Bromoform	(ug/kg)		0.34U
Carbon disulfide	(ug/kg)	2700	0.41U
Carbon tetrachloride	(ug/kg)	600	0.49U
Chlorobenzene	(ug/kg)	1700	0.40U

ug/kg: micrograms per kilogram

Table 15
LONG ISLANSD RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
Chloroethane	(ug/kg)	1900	2.4U
Chloroform	(ug/kg)	300	0.39U
cis-1,2-Dichloroethylene	(ug/kg)		0.36U
cis-1,3-Dichloropropene	(ug/kg)		0.37U
Cyclohexane	(ug/kg)		0.36U
DBCP	(ug/kg)		1.0U
Dibromochloromethane	(ug/kg)		0.25U
Dichlorodifluoromethane	(ug/kg)		0.95U
EDB	(ug/kg)		0.44U
Ethene, 1,2-dichloro-, (E)-	(ug/kg)	300	0.71U
Ethylbenzene	(ug/kg)	5500	0.39U
Freon 113	(ug/kg)		0.74U
m-Dichlorobenzene	(ug/kg)	1600	0.62U
Methyl Acetate	(ug/kg)		0.96U
Methyl bromide	(ug/kg)		2.2U
Methyl chloride	(ug/kg)		0.94U
Methyl ethyl ketone	(ug/kg)	300	3.1U

ug/kg: micrograms per kilogram

Table 15
LONG ISLANSD RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
Methyl isobutylketone (MIBK)	(ug/kg)	1000	2.2U
Methylcyclohexane	(ug/kg)		0.46UJ
Methylene chloride	(ug/kg)	100	2.0U
Methyltert-butylether	(ug/kg)		0.41U
o-Dichlorobenzene	(ug/kg)	7900	0.43U
o-Xylene	(ug/kg)		0.42U
p-Dichlorobenzene	(ug/kg)	8500	0.60U
p-Xylene	(ug/kg)		0.96U
Styrene	(ug/kg)		0.51U
Tetrachloroethylene	(ug/kg)	1400	0.81U
Toluene	(ug/kg)	1500	0.45U
trans-1,3-Dichloropropene	(ug/kg)		0.40U
Trichloroethylene	(ug/kg)	700	0.34U
Trichlorofluoromethane	(ug/kg)		1.4U
Vinyl chloride	(ug/kg)	200	0.91U
TOTAL VOLATILE ORGANICS	(ug/kg)	10000	0

ug/kg: micrograms per kilogram

Table 16
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
2,2-oxyblis (1-chloropropane)	(ug/kg)		59 U
2,4,5-Trichlorophenol	(ug/kg)	100	56 U
2,4,6-Trichlorophenol	(ug/kg)		54 U
2,4-Dichlorophenol	(ug/kg)	400	68 U
2,4-Dimethylphenol	(ug/kg)		58 U
2,4-Dinitrophenol	(ug/kg)	200	310 U J
2,4-Dinitrotoluene	(ug/kg)		54 U
2,6-Dinitrotoluene	(ug/kg)	1000	52 U
2-Chloronaphthalene	(ug/kg)		61 U
2-Chlorophenol	(ug/kg)	800	58 U
2-Methylnaphthalene	(ug/kg)	36400	61 U
3,3-Dichlorobenzidine	(ug/kg)		63 U
4,6-Dinitro-o-cresol	(ug/kg)		71 U
4-Bromofluorobenzene	(ug/kg)		55 U
4-Chlorophenylphenyl ether	(ug/kg)		58 U
Acenaphthene	(ug/kg)	50000	65 U
Acenaphthylene	(ug/kg)	41000	59 U

ug/kg: micrograms per kilogram

Table 16
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
Acetophenone	(ug/kg)		54 U
Anthracene	(ug/kg)	50000	55 U
Atrazine	(ug/kg)		56 U
Benzaldehyde	(ug/kg)		75 U J
Benzo(a)anthracene	(ug/kg)	224	51 U
Benzo(a)pyrene	(ug/kg)	61	59 U
Benzo(b)fluoranthene	(ug/kg)	1100	40 U
Benzo(ghi)perylene	(ug/kg)	50000	61 U
Benzo(k)fluoranthene	(ug/kg)	1100	81 U
Biphenyl	(ug/kg)		60 U
Bis(2-chloroethoxy)methane	(ug/kg)		60 U
Bis(2-chloroethyl)ether	(ug/kg)		58 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)	50000	70 U
Butyl benzyl phthalate	(ug/kg)	50000	59 U
Caprolactam	(ug/kg)		59 U
Carbazole	(ug/kg)		56 U
Chrysene	(ug/kg)	400	66 U

ug/kg: micrograms per kilogram

Table 16
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
Dibenzo(a,h)anthracene	(ug/kg)	14	46 U
Dibenzofuran	(ug/kg)	6200	61 U
Diethyl phthalate	(ug/kg)	7100	63 U
Dimethyl phthalate	(ug/kg)	2000	59 U
Di-n-butyl phthalate	(ug/kg)	8100	56 U
Di-n-octyl phthalate	(ug/kg)	50000	62 U
Fluoranthene	(ug/kg)	50000	54 U
Fluorene	(ug/kg)	50000	62 U
Hexachlorobenzene	(ug/kg)	410	59 U
Hexachlorobutadiene	(ug/kg)		56 U
Hexachlorocyclopentadiene	(ug/kg)		58 U
Hexachloroethane	(ug/kg)		62 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	3200	46 U
Isophorone	(ug/kg)	4400	55 U
m-Nitroaniline	(ug/kg)	500	48 U
Naphthalene	(ug/kg)	13000	63 U
Nitrobenzene	(ug/kg)	200	80 U

ug/kg: micrograms per kilogram

Table 16
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
N-Nitrosodiphenylamine	(ug/kg)		60 U
N-Nitrosodipropylamine	(ug/kg)		61 U
o-Cresol	(ug/kg)	100	61 U
o-Nitroaniline	(ug/kg)	430	46 U
o-Nitrophenol	(ug/kg)	330	56 U
p-Chloroaniline	(ug/kg)	220	44 U
p-Chloro-m-cresol	(ug/kg)	240	51 U
PCP	(ug/kg)	1000	85 U
p-Cresol	(ug/kg)	900	58 U
Phenanthrene	(ug/kg)	50000	58 U
Phenol	(ug/kg)	30	55 U
p-Nitroaniline	(ug/kg)		63 U
p-Nitrophenol	(ug/kg)	100	45 U
Pyrene	(ug/kg)	50000	65 U
Total Semivolatile Organics	(ug/kg)	500000	0

ug/kg: micrograms per kilogram

Table 17
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
Aroclor 1016	(ug/kg)	10000	2.8 U
Aroclor 1221	(ug/kg)	10000	4.4 U
Aroclor 1232	(ug/kg)	10000	6.5 U
Aroclor 1242	(ug/kg)	10000	5.8 U
Aroclor 1248	(ug/kg)	10000	2.8 U
Aroclor 1254	(ug/kg)	10000	1.8 U
Aroclor 1260	(ug/kg)	10000	4.7 U J
Total PCBs	(ug/kg)	10000	0

ug/kg: micrograms per kilogram

Table 18
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
HIGH-TENSION MANHOLE SUBSURFACE SOIL SAMPLE RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
TOTAL PETROLEUM HYDROCARBONS (TPH)

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSSB-35 BSSB-35(6-7) 09/30/2005
TPH	(ug/kg)		6858 U J

ug/kg: micrograms per kilogram

TABLE 19
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
RCRA METALS & MERCURY

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
Arsenic	(ug/l)	25	3.320 U
Barium	(ug/l)	1000	124
Cadmium	(ug/l)	5	0.450
Chromium	(ug/l)	50	2.610
Lead	(ug/l)	25	35.4
Mercury	(ug/l)	0.7	0.0300 U
Selenium	(ug/l)	10	4.670
Silver	(ug/l)	50	3.450 J

ug/l: micrograms per liter

Table 20
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
1,1,1-Trichloroethane	(ug/l)	5	0.32U
1,1,2,2-Tetrachloroethane	(ug/l)	5	0.30U
1,1,2-Trichloroethane	(ug/l)	1	0.41U
1,1-Dichloroethane	(ug/l)	5	0.38U
1,1-Dichloroethylene	(ug/l)	5	0.42U
1,2,4-Trichlorobenzene	(ug/l)	5	0.46U
1,2-Dichloroethane	(ug/l)	0.6	0.34U
1,2-Dichloropropane	(ug/l)	1	0.40U
2-Hexanone	(ug/l)	50	1.7U
Acetone	(ug/l)	50	2.3U
Benzene	(ug/l)	1.0	0.39U
Benzene, 1-methylethyl-	(ug/l)	5	0.44U
Bromodichloromethane	(ug/l)	50	0.33U
Bromoform	(ug/l)	50	0.32U
Carbon disulfide	(ug/l)	60	0.40U
Carbon tetrachloride	(ug/l)	5	1.1U
Chlorobenzene	(ug/l)	5	0.47U

ug/l: micrograms per liter

Table 20
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
Chloroethane	(ug/l)	5	0.83U
Chloroform	(ug/l)	7	0.33U
cis-1,2-Dichloroethylene	(ug/l)	5	0.29U
cis-1,3-Dichloropropene	(ug/l)	0.4	0.36U
Cyclohexane	(ug/l)		0.36U
DBCP	(ug/l)	0.04	0.38U
Dibromochloromethane	(ug/l)	50	0.26U
Dichlorodifluoromethane	(ug/l)	5	0.17U
EDB	(ug/l)	0.0006	0.32U
Ethene, 1,2-dichloro-, (E)-	(ug/l)	5	0.40U
Ethylbenzene	(ug/l)	5	0.45U
Freon 113	(ug/l)		1.3U
m-Dichlorobenzene	(ug/l)	3	0.50U
Methyl Acetate	(ug/l)		0.20U
Methyl bromide	(ug/l)	5	0.41U
Methyl chloride	(ug/l)	5	0.34U
Methyl ethyl ketone	(ug/l)	50	1.1U

ug/l: micrograms per liter

Table 20
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
Methyl isobutylketone (MIBK)	(ug/l)		1.6U
Methylcyclohexane	(ug/l)		0.34U
Methylene chloride	(ug/l)	5	0.43U
Methyltert-butylether	(ug/l)	10	0.28U
o-Dichlorobenzene	(ug/l)	3	0.44U
o-Xylene	(ug/l)	5	0.46U
p-Dichlorobenzene	(ug/l)	3	0.54U
p-Xylene	(ug/l)	5	1.2U
Styrene	(ug/l)	5	0.41U
Tetrachloroethylene	(ug/l)	5	0.48UJ
Toluene	(ug/l)	5	0.36U
trans-1,3-Dichloropropene	(ug/l)	0.4	0.32U
Trichloroethylene	(ug/l)	5	0.46U
Trichlorofluoromethane	(ug/l)	5	0.22U
Vinyl chloride	(ug/l)	2	0.33U
TOTAL VOLATILE ORGANICS	(ug/kg)		0

ug/l: micrograms per liter

Table 21
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
2,2-oxyblis (1-chloropropane)	(ug/l)		1.2U
2,4,5-Trichlorophenol	(ug/l)	1	1.2U
2,4,6-Trichlorophenol	(ug/l)	1	1.2U
2,4-Dichlorophenol	(ug/l)	5	1.4U
2,4-Dimethylphenol	(ug/l)	50	1.2U
2,4-Dinitrophenol	(ug/l)	10	3.5U
2,4-Dinitrotoluene	(ug/l)	5	1.2U
2,6-Dinitrotoluene	(ug/l)	5	1.3U
2-Chloronaphthalene	(ug/l)	10	1.4U
2-Chlorophenol	(ug/l)	1	1.2U
2-Methylnaphthalene	(ug/l)		1.1U
3,3-Dichlorobenzidine	(ug/l)	5	1.1U
4,6-Dinitro-o-cresol	(ug/l)		1.6U
4-Bromofluorobenzene	(ug/l)		1.5U
4-Chlorophenylphenyl ether	(ug/l)		1.4UJ
Acenaphthene	(ug/l)	20	1.4U
Acenaphthylene	(ug/l)		1.3U

ug/l: micrograms per liter

Table 21
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
Acetophenone	(ug/l)		1.2U
Anthracene	(ug/l)	50	1.4U
Atrazine	(ug/l)		1.3U
Benzaldehyde	(ug/l)		1.7U
Benzo(a)anthracene	(ug/l)	0.002	1.1U
Benzo(a)pyrene	(ug/l)	0	1.2U
Benzo(b)fluoranthene	(ug/l)	0.002	0.760U
Benzo(ghi)perylene	(ug/l)		1.1U
Benzo(k)fluoranthene	(ug/l)	0.002	1.9UJ
Biphenyl	(ug/l)		1.4U
Bis(2-chloroethoxy)methane	(ug/l)	5	1.4U
Bis(2-chloroethyl)ether	(ug/l)	1	1.5U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/l)	5	1.5U
Butyl benzyl phthalate	(ug/l)	50	1.4U
Caprolactam	(ug/l)		1.3UJ
Carbazole	(ug/l)		1.3U
Chrysene	(ug/l)	0.002	1.7U

ug/l: micrograms per liter

Table 21
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
Dibenzo(a,h)anthracene	(ug/l)		0.870U
Dibenzofuran	(ug/l)		1.3U
Diethyl phthalate	(ug/l)	50	1.3U
Dimethyl phthalate	(ug/l)	50	1.3U
Di-n-butyl phthalate	(ug/l)	50	18
Di-n-octyl phthalate	(ug/l)	50	1.3U
Fluoranthene	(ug/l)	50	1.2U
Fluorene	(ug/l)	50	1.4U
Hexachlorobenzene	(ug/l)	0.04	1.2U
Hexachlorobutadiene	(ug/l)	0.5	1.4U
Hexachlorocyclopentadiene	(ug/l)	5	1.2UJ
Hexachloroethane	(ug/l)	5	1.2UJ
Indeno(1,2,3-cd)pyrene	(ug/l)	0.002	0.840U
Isophorone	(ug/l)	50	1.3U
m-Nitroaniline	(ug/l)	5	1.0U
Naphthalene	(ug/l)	10	1.4U
Nitrobenzene	(ug/l)	0.4	1.6U

ug/l: micrograms per liter

Table 21
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
N-Nitrosodiphenylamine	(ug/l)	50	1.3U
N-Nitrosodipropylamine	(ug/l)		1.4U
o-Cresol	(ug/l)	1	1.5U
o-Nitroaniline	(ug/l)	5	1.1U
o-Nitrophenol	(ug/l)	1	1.4U
p-Chloroaniline	(ug/l)	5	0.870U
p-Chloro-m-cresol	(ug/l)	1	1.4U
PCP	(ug/l)	1	1.6U
p-Cresol	(ug/l)	1	1.3U
Phenanthrene	(ug/l)	50	1.4U
Phenol	(ug/l)	1	1.3U
p-Nitroaniline	(ug/l)	5	1.1U
p-Nitrophenol	(ug/l)	1	3.1U
Pyrene	(ug/l)	50	1.5U
Total Semivolatile Organics	(ug/kg)		18

ug/l: micrograms per liter

TABLE 22
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
Aroclor 1016	(ug/l)	0.1	0.148 U
Aroclor 1221	(ug/l)	0.1	0.173 U
Aroclor 1232	(ug/l)	0.1	0.111 U
Aroclor 1242	(ug/l)	0.1	0.085 U
Aroclor 1248	(ug/l)	0.1	0.043 U
Aroclor 1254	(ug/l)	0.1	0.038 U
Aroclor 1260	(ug/l)	0.1	0.1600 U J
Total PCBs	(ug/l)		0

ug/l: micrograms per liter

TABLE 23
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
STORMWATER SAMPLE RESULTS
TOGS GA STANDARDS AND GUIDANCE VALUES
TOTAL PETROLEUM HYDROCARBONS (TPH)

PERIOD: From 09/30/2005 thru 09/30/2005 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	NYSDEC SCG	BSSW-01 BSSW-01 09/30/2005
TPH	(ug/l)		96.9 U J

ug/l: micrograms per liter

Table 24
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
RCRA METALS & MERCURY

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
Arsenic	(mg/kg)	7.5	2.2
Barium	(mg/kg)	300	85.4
Cadmium	(mg/kg)	10	0.58
Chromium	(mg/kg)	50	11.5
Lead	(mg/kg)	400	46.8
Mercury	(mg/kg)	0.10	2.2 J
Selenium	(mg/kg)	2	0.11 U
Silver	(mg/kg)		0.072 J

mg/kg: milligrams per kilogram

Table 25
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
1,1,1,2-Tetrachloroethane	(ug/kg)		0.50 U
1,1,1-Trichloroethane	(ug/kg)	800	0.55 U
1,1,2,2-Tetrachloroethane	(ug/kg)	600	0.75 U
1,1,2-Trichloroethane	(ug/kg)		0.64 U
1,1-Dichloroethane	(ug/kg)	200	0.43 U
1,1-Dichloroethylene	(ug/kg)	400	1.2 U
1,1-Dichloropropene	(ug/kg)		0.86 U
1,2,3-Trichlorobenzene	(ug/kg)		0.55 U
1,2,3-Trichloropropane	(ug/kg)	400	1.2 U
1,2,4-Trichlorobenzene	(ug/kg)	3400	0.33 U
1,2-Dichloroethane	(ug/kg)	100	0.47 U
1,2-Dichloropropane	(ug/kg)		0.38 U
1,3-Dichloropropane	(ug/kg)	300	0.53 U
2,2-Dichloropropane	(ug/kg)		0.43 U
2-Hexanone	(ug/kg)		1.3 U
4-Isopropyltoluene	(ug/kg)		0.29 U
Acetone	(ug/kg)	200	2.0 U

ug/kg: micrograms per kilogram

Table 25
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
Benzene	(ug/kg)	60	0.43 U
Benzene, 1,2,4-trimethyl	(ug/kg)		0.43 U
Benzene, 1,3,5-trimethyl-	(ug/kg)		0.39 U
Benzene, 1-methylethyl-	(ug/kg)		0.38 U
Bromobenzene	(ug/kg)		0.38 U
Bromodichloromethane	(ug/kg)		0.36 U
Bromoform	(ug/kg)		0.75 U
Carbon disulfide	(ug/kg)	2700	0.36 U
Carbon tetrachloride	(ug/kg)	600	0.39 U
Chlorobenzene	(ug/kg)	1700	0.62 U
Chlorobromomethane	(ug/kg)		1.0 U
Chloroethane	(ug/kg)	1900	1.1 U
Chloroform	(ug/kg)	300	0.38 U
cis-1,2-Dichloroethylene	(ug/kg)		0.93 U
cis-1,3-Dichloropropene	(ug/kg)		0.42 U
DBCP	(ug/kg)		0.88 U
Dibromochloromethane	(ug/kg)		0.37 U

ug/kg: micrograms per kilogram

Table 25
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
Dichlorodifluoromethane	(ug/kg)		0.63 U
EDB	(ug/kg)		0.47 U
trans-1,2-Dichloroethene	(ug/kg)	300	0.75 U
Ethylbenzene	(ug/kg)	5500	0.51 U
Hexachlorobutadiene	(ug/kg)		0.80 U
m-Dichlorobenzene	(ug/kg)	1600	0.39 U
Methyl bromide	(ug/kg)		1.3 U
Methyl chloride	(ug/kg)		1.1 U
Methyl ethyl ketone	(ug/kg)	300	1.7 U
Methyl iodide	(ug/kg)		0.34 U
Methyl isobutylketone (MIBK)	(ug/kg)	1000	1.1 U
Methylene bromide	(ug/kg)		0.63 U
Methylene chloride	(ug/kg)	100	0.99 U
Methyltert-butylether	(ug/kg)		0.99 U
Naphthalene	(ug/kg)	13000	0.47 U
n-Butylbenzene	(ug/kg)		0.36 U
n-Propylbenzene	(ug/kg)		0.58 U

ug/kg: micrograms per kilogram

Table 25
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
o-Chlorotoluene	(ug/kg)		0.74 U
o-Dichlorobenzene	(ug/kg)	7900	0.58 U
o-Xylene	(ug/kg)		0.58 U
p-Chlorotoluene	(ug/kg)		0.32 U
p-Dichlorobenzene	(ug/kg)	8500	0.33 U
p-Xylene	(ug/kg)		1.1 U
sec-Butylbenzene	(ug/kg)		0.36 U
Styrene	(ug/kg)		0.37 U
tert-Butylbenzene	(ug/kg)		0.38 U
Tetrachloroethylene	(ug/kg)	1400	0.51 U
Toluene	(ug/kg)	1500	0.72 U
trans-1,3-Dichloropropene	(ug/kg)		0.34 U
Trichloroethylene	(ug/kg)	700	0.46 U
Trichlorofluoromethane	(ug/kg)		0.36 U
Vinyl Acetate	(ug/kg)		0.66 U
Vinyl chloride	(ug/kg)	200	0.57 U
Xylene (total)	(ug/kg)	1200	0.58 U

ug/kg: micrograms per kilogram

Table 25
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
VOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
TOTAL VOLATILE ORGANICS	(ug/kg)	10000	0.0

ug/kg: micrograms per kilogram

Table 26
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
1,2,4-Trichlorobenzene	(ug/kg)	3400	90 U
2,4,5-Trichlorophenol	(ug/kg)	100	81 U
2,4,6-Trichlorophenol	(ug/kg)		96 U
2,4-Dichlorophenol	(ug/kg)	400	91 U
2,4-Dimethylphenol	(ug/kg)		48 U
2,4-Dinitrophenol	(ug/kg)	200	230 U J
2,4-Dinitrotoluene	(ug/kg)		120 U
2,6-Dinitrotoluene	(ug/kg)	1000	120 U
2-Chloronaphthalene	(ug/kg)		96 U
2-Chlorophenol	(ug/kg)	800	87 U
2-Methylnaphthalene	(ug/kg)	36400	84 U
3,3-Dichlorobenzidine	(ug/kg)		97 U J
4,6-Dinitro-o-cresol	(ug/kg)		81 U J
4-Bromophenyl-phenylether	(ug/kg)		110 U
4-Chlorophenylphenyl ether	(ug/kg)		97 U
Acenaphthene	(ug/kg)	50000	47 J
Acenaphthylene	(ug/kg)	41000	99 U

ug/kg: micrograms per kilogram

Table 26
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
Anthracene	(ug/kg)	50000	110 U
Benzo(a)anthracene	(ug/kg)	224	220 J
Benzo(a)pyrene	(ug/kg)	61	210 J
Benzo(b)fluoranthene	(ug/kg)	1100	330 J
Benzo(ghi)perylene	(ug/kg)	50000	100 U
Benzo(k)fluoranthene	(ug/kg)	1100	140 J
Bis(2-chloro-1-methylethyl)ether	(ug/kg)		88 U J
Bis(2-chloroethoxy)methane	(ug/kg)		90 U
Bis(2-chloroethyl)ether	(ug/kg)		91 U
Bis(2-ethylhexyl)phthalate (BEHP)	(ug/kg)	50000	150 J
Butyl benzyl phthalate	(ug/kg)	50000	120 U
Carbazole	(ug/kg)		120 U
Chrysene	(ug/kg)	400	210 J
Dibenzo(a,h)anthracene	(ug/kg)	14	110 U
Dibenzofuran	(ug/kg)	6200	97 U
Diethyl phthalate	(ug/kg)	7100	110 U
Dimethyl phthalate	(ug/kg)	2000	110 U

ug/kg: micrograms per kilogram

Table 26
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
Di-n-butyl phthalate	(ug/kg)	8100	130 U
Di-n-octyl phthalate	(ug/kg)	50000	130 U
Fluoranthene	(ug/kg)	50000	470
Fluorene	(ug/kg)	50000	100 U
Hexachlorobenzene	(ug/kg)	410	110 U
Hexachlorobutadiene	(ug/kg)		83 U
Hexachlorocyclopentadiene	(ug/kg)		78 U
Hexachloroethane	(ug/kg)		86 U
Indeno(1,2,3-cd)pyrene	(ug/kg)	3200	49 J
Isophorone	(ug/kg)	4400	87 U
m-Dichlorobenzene	(ug/kg)	1600	86 U
m-Nitroaniline	(ug/kg)	500	100 U
Naphthalene	(ug/kg)	13000	88 U
Nitrobenzene	(ug/kg)	200	78 U
N-Nitrosodiphenylamine	(ug/kg)		110 U
N-Nitrosodipropylamine	(ug/kg)		78 U
o-Cresol	(ug/kg)	100	77 U

ug/kg: micrograms per kilogram

Table 26
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
SEMIVOLATILE ORGANIC COMPOUNDS

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
o-Dichlorobenzene	(ug/kg)	7900	90 U
o-Nitroaniline	(ug/kg)	430	96 U
o-Nitrophenol	(ug/kg)	330	110 U
p-Chloroaniline	(ug/kg)	220	51 U
p-Chloro-m-cresol	(ug/kg)	240	100 U
PCP	(ug/kg)	1000	23 U
p-Cresol	(ug/kg)	900	93 U
p-Dichlorobenzene	(ug/kg)	8500	88 U
Phenanthrene	(ug/kg)	50000	300 J
Phenol	(ug/kg)	30	78 U
p-Nitroaniline	(ug/kg)		100 U
p-Nitrophenol	(ug/kg)	100	440 U J
Pyrene	(ug/kg)	50000	380 J
Total Semivolatile Organics	(ug/kg)	500000	2506

ug/kg: micrograms per kilogram

Table 27
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
UNDERGROUND INJECTION CONTROL STRUCTURE SEDIMENT RESULTS
TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 04/16/2008 thru 04/16/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	TAGM 4046 RSCOs	BSDW-01 BSDW-01 (S) 04/16/2008
Aroclor 1016	(ug/kg)	10000	4.8 U
Aroclor 1221	(ug/kg)	10000	3.5 U
Aroclor 1232	(ug/kg)	10000	2.1 U
Aroclor 1242	(ug/kg)	10000	3.4 U
Aroclor 1248	(ug/kg)	10000	1.7 U
Aroclor 1254	(ug/kg)	10000	3.4 U
Aroclor 1260	(ug/kg)	10000	4.6 U J
Total PCBs	(ug/kg)	10000	0

ug/kg: micrograms per kilogram

TABLE 28
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

PERIOD: From 04/17/2008 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	TCLP Regulatory Levels	BSWC-01 BSWC-01 (S) 04/17/2008	BSWC-01 BSWC-01 (1-2) 04/17/2008
2,4,5-Trichlorophenol (TCLP)	(ug/l)	400000	2.5 U	2.5 U
2,4,6-Trichlorophenol (TCLP)	(ug/l)	2000	3.0 U	3.0 U
2,4-D (TCLP)	(ug/l)	10000		0.77 U
2,4-Dinitrotoluene (TCLP)	(ug/l)	130	3.7 U	3.7 U
Arsenic (TCLP)	(ug/l)	5000	2.5 U	3.2
Barium (TCLP)	(ug/l)	100000	321	210
Cadmium (TCLP)	(ug/l)	1000	20.2 U	5.9
Chlordane (TCLP)	(ug/l)	30	1.6 U	1.6 U
Chromium (TCLP)	(ug/l)	5000	1.6 U	1.6 U
Endrin (TCLP)	(ug/l)	20	0.060 U	0.060 U
Heptachlor (TCLP)	(ug/l)	8.0	0.023 U J	0.023 U J
Heptachlor epoxide (TCLP)	(ug/l)	8.0	0.026 U	0.026 U
Hexachlorobenzene (TCLP)	(ug/l)	130	3.2 U	3.2 U
Hexachlorobutadiene (TCLP)	(ug/l)	500	2.3 U	2.3 U
Hexachloroethane (TCLP)	(ug/l)	3000	2.4 U	2.4 U
Lead (TCLP)	(ug/l)	5000	486	49.2
Lindane (TCLP)	(ug/l)	400	0.023 U	0.023 U

ug/l: micrograms per liter

TABLE 28
LONG ISLAND RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

PERIOD: From 04/17/2008 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Water

CONSTITUENT	SITE SAMPLE ID DATE	TCLP Regulatory Levels	BSWC-01 BSWC-01 (S) 04/17/2008	BSWC-01 BSWC-01 (1-2) 04/17/2008
Mercury (TCLP)	(ug/l)	200	0.021	0.022
Methoxychlor (TCLP)	(ug/l)	10000	0.43 U	0.43 U
Nitrobenzene (TCLP)	(ug/l)	2000	3.0 U	3.0 U
o-Cresol (TCLP)	(ug/l)	200000	4.0 U	4.0 U
PCP (TCLP)	(ug/l)	100000	2.4 U	2.4 U
p-Cresol (TCLP)	(ug/l)	200000	3.7 U	3.7 U
p-Dichlorobenzene (TCLP)	(ug/l)	7500	2.1 U	2.1 U
Pyridine (TCLP)	(ug/l)	5000	2.9 U	2.9 U
Selenium (TCLP)	(ug/l)	1000	15.7 U	20.0 J
Silver (TCLP)	(ug/l)	5000	1.2 U	1.2 U
Silvex (TCLP)	(ug/l)	1000		0.057 U
Toxaphene (TCLP)	(ug/l)	500	1.4 U	1.4 U

ug/l: micrograms per liter

Table 29
LONG ISLANSD RAILROAD - 17 SUBSTATIONS
BAYSIDE SUBSTATION
WASTE CHARACTERIZATION SOIL SAMPLE RESULTS
RCRA CHARACTERISTICS

PERIOD: From 04/17/2008 thru 04/17/2008 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE	BSWC-01 BSWC-01 (S) 04/17/2008	BSWC-01 BSWC-01 (1-2) 04/17/2008
Cyanide(reactive)	(mg/kg)	1.1UJ	1.2UJ
Hydrogen ion	(ppm)	6.4	6.2
Ignitability	(ppm)	200U	200U
Sulfide	(mg/kg)	1.1U	1.2U

mg/kg: milligrams per kilogram
ppm: parts per million

APPENDIX C

DELINEATION PHASE II BORING LOGS

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-06
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/30/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/30/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Blackish-brown, fine to medium silty SAND, some fine to medium gravel.	
2' - 4'	2	HA	24	0.000	0.0	Orange-brown, fine to medium SAND, some clay and fine gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis were collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2229 **Project Name:** Long Island Railroad Bayside Substation	**Boring No.:** BSSB-07 **Sheet** 1 **of** 1 **By:** Stephen Tauss
Drilling Contractor: L.A.W.E.S. **Driller:** --- **Drill Rig:** --- **Date Started:** 9/30/05	**Geologist:** Stephen Tauss **Drilling Method:** --- **Drive Hammer Weight:** NA **Date Completed:** 9/30/05	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Blackish-brown, fine to medium silty SAND, some fine to coarse gravel.	
2' - 4'	2	HA	24	0.000	0.0	Orange-brown, clayey fine to medium SAND, little fine to medium gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2229 **Project Name:** Long Island Railroad Bayside Substation	**Boring No.:** BSSB-08 **Sheet** 1 **of** 1 **By:** Stephen Tauss
Drilling Contractor: L.A.W.E.S. **Driller:** --- **Drill Rig:** --- **Date Started:** 9/30/05	**Geologist:** Stephen Tauss **Drilling Method:** --- **Drive Hammer Weight:** NA **Date Completed:** 9/30/05	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	0' - 6" BLUESTONE. 6" - 1.5' Black, fine to medium silty SAND, some fine to medium gravel. 1.5' - 2' Brown, fine to medium silty SAND, some fine to medium gravel.	
2' - 4'	2	HA	24	0.000	0.0	Dark-brown, fine to medium silty SAND, some fine to medium gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229 **Project Name:** Long Island Railroad Bayside Substation		**Boring No.:** BSSB-09 **Sheet** 1 **of** 1 **By:** Stephen Tauss
Drilling Contractor: L.A.W.E.S. **Driller:** --- **Drill Rig:** --- **Date Started:** 9/30/05	**Geologist:** Stephen Tauss **Drilling Method:** --- **Drive Hammer Weight:** NA **Date Completed:** 9/30/05	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	0' - 6" BLUESTONE. 6" - 1.5' Black, fine to medium silty SAND, some fine to medium gravel, trace brick fragments. 1.5' - 2' Brown, fine to medium silty SAND, some fine to medium gravel.	
2' - 4'	2	HA	24	0.000	0.0	Dark-brown, fine to medium silty SAND, some fine to medium gravel, little clay.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-10
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, trace coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown to black, silty SAND, loose, wet, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-11
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, trace coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown to black, silty SAND, loose, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-12
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, trace coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown to black, silty SAND, loose, wet, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-13
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, trace coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown to black, silty SAND, loose, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-14
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, medium to coarse SAND, some coarse gravel, subangular poorly sorted, trace concrete/brick fragments, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown to black, medium to coarse SAND, some coarse gravel, subangular poorly sorted, trace silt and concrete/brick fragments, loose, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-15
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown, fine to coarse SAND, some coarse gravel, subangular poorly sorted loose, some brick fragments, dry, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to coarse SAND, some coarse gravel, subangular poorly sorted loose, some brick and concrete fragments, dry, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-16
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown, medium to coarse SAND, some coarse gravel, subangular poorly sorted, some concrete and brick fragments, loose, dry, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown, medium to coarse SAND, some coarse gravel, subangular poorly sorted, some concrete and brick fragments, trace silt, loose, wet, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2229 **Project Name:** Long Island Railroad Bayside Substation	**Boring No.:** BSSB-17 **Sheet** 1 **of** 1 **By:** Stephen Tauss
Drilling Contractor: L.A.W.E.S. **Driller:** --- **Drill Rig:** Geoprobe **Date Started:** 9/29/05	**Geologist:** Stephen Tauss **Drilling Method:** --- **Drive Hammer Weight:** NA **Date Completed:** 9/29/05	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, trace coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium SAND, trace silt, dense, moist, no odor.	
4' - 6'	4	GP	24	0.000	0.0	Brown, silty CLAY, dense, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for mercury analysis were collected at 2'-4' and 4'-6'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-18
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: Geoprobe
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 6'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to medium SAND, some coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium SAND, some silt, dense, moist, no odor.	
4' - 6'	3	HA	24	0.000	0.0	Brown, silty CLAY, dense, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for mercury analysis were collected at 2'-4' and 4'-6'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-19
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: Geoprobe
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 6'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, trace coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Same as above.	
4' - 6'	3	HA	24	0.000	0.0	Brown, silty CLAY, dense, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for mercury analysis were collected at 2'-4' and 4'-6'.

Dvirka and Bartilucci
CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-20
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: Geoprobe
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 6'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, trace coarse gravel, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Same as above.	
4' - 6'	3	GP	24	0.000	0.0	Brown, silty CLAY, dense, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for mercury analysis were collected at 2'-4' and 4'-6'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-21
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown, fine to medium silty SAND, some fine to coarse gravel.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium silty SAND, some fine to coarse gravel, trace silt and clay.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for PCB, SVOC and RCRA metals analysis were collected at 0-2' and 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2229 **Project Name:** Long Island Railroad Bayside Substation	**Boring No.:** BSSB-22 **Sheet** 1 **of** 1 **By:** Stephen Tauss
Drilling Contractor: L.A.W.E.S. **Driller:** --- **Drill Rig:** Geoprobe **Date Started:** 9/29/05	**Geologist:** Stephen Tauss **Drilling Method:** --- **Drive Hammer Weight:** NA **Date Completed:** 9/29/05	**Boring Completion Depth:** 4 **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to coarse SAND, brick bits and slag of gravel.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium SAND, some fine to medium gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for PCB, SVOC and RCRA metals analysis were collected at 0-2' and 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-23
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/30/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/30/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to medium silty SAND, some gravel.	
2' - 4'	2	HA	24	0.004	0.004	Brown, fine to medium silty SAND, some clay, moist.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for PCB, SVOC and RCRA metals analysis were collected at 0-2' and 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229 **Project Name:** Long Island Railroad Bayside Substation		**Boring No.:** BSSB-24 **Sheet** 1 **of** 1 **By:** Stephen Tauss
Drilling Contractor: L.A.W.E.S. **Driller:** --- **Drill Rig:** --- **Date Started:** 9/30/05	**Geologist:** Stephen Tauss **Drilling Method:** --- **Drive Hammer Weight:** NA **Date Completed:** 9/30/05	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to coarse silty SAND, some gravel.	
2' - 4'	2	HA	24	0.000	0.0	Dark brown, fine to medium silty SAND, little gravel, trace clay.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for PCB, SVOC and RCRA metals analysis were collected at 0-2' and 2'-4'.

Dvirka and Bartilucci
CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-25
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/30/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/30/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to medium silty SAND, some fine to coarse gravel.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium silty SAND, some fine to coarse gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for PCB, SVOC and RCRA metals analysis were collected at 0-2' and 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-26
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to coarse SAND, brick fragments and coal clinker.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium SAND, some fine to medium gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for PCB, SVOC and RCRA metals analysis were collected at 0-2' and 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-27
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/30/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/30/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to medium silty SAND, some fine to coarse gravel.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium SAND, some fine to medium gravel and clay.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for PCB, SVOC and RCRA metals analysis were collected at 0-2' and 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-28
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown, fine to medium silty SAND, some fine to medium gravel, poorly sorted subangular, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium silty SAND, some fine to medium gravel, trace clay, poorly sorted subangular, loose, moist, no odor	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-29
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown, fine to medium SAND, some coarse gravel, poorly sorted subangular, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci
CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-30
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black, fine to medium SAND, subangular poorly sorted, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium SAND, loose, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci
CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad
Bayside Substation

Boring No.: BSSB-31
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown to black, fine to medium SAND, loose, moist, no odor.	
2' - 4'	2	HA	24	0.000	0.0	Brown, silty SAND, loose, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-32
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brow to gray, silty SAND, some fine gravel and crushed gravel.	
2' - 4'	2	HA	24	0.000	0.0	Orange to brown, silty fine SAND, little fine to medium gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-33
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown, silty fine to medium SAND, some fine to medium gravel.	
2' - 4'	2	HA	24	0.000	0.0	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-34
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: ---
Date Started: 9/29/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/29/05

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Brown, fine to medium silty SAND, some fine to medium gravel, crushed gravel.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium silty SAND, some fine to medium gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Sample for mercury analysis was collected at 2'-4'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-35
Sheet 1 **of** 1
By: Stephen Tauss

Drilling Contractor: L.A.W.E.S.
Driller: ---
Drill Rig: Geoprobe
Date Started: 9/30/05

Geologist: Stephen Tauss
Drilling Method: ---
Drive Hammer Weight: NA
Date Completed: 9/30/05

Boring Completion Depth: 7'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	0.000	0.0	Black to brown, fine to medium silty SAND, some fine to medium gravel.	
2' - 4'	2	HA	24	0.000	0.0	Brown, fine to medium silty SAND, trace of fine to medium gravel.	
4' - 6'	3	HA	24	0.000	0.0	Orange to brown, clayey fine to medium SAND.	
6' - 7'	4	HA	12	0.000	0.0	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples for RCRA Metals, VOCs, SVOCs, PCBs and TPH analysis were collected at 6'-7'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-36
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder and concrete fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-37
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder and concrete fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-38
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-39
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder and concrete fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-40
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder and concrete fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-41
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to tan, fine to medium clayey SAND, some cinder and brick fragments.	
1' – 2'	2	HA	12	0.000	0.0	Dark brown to tan, fine to medium clayey SAND, trace cinder and brick fragments.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-42
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Black to tan, fine to medium silty SAND, some cinder and brick fragments.	
1' – 2'	2	HA	12	0.000	0.0	Tan to brown, fine to medium silty SAND, some brick fragments.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-43
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Black to tan, fine to medium silty SAND, some cinder and brick fragments.	
1' – 2'	2	HA	12	0.000	0.0	Tan to brown, fine to medium clayey SAND, trace cinder and brick fragments.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-44
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-45
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to tan, fine to medium clayey SAND, some cinder and brick fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2801 **Project Name:** Long Island Railroad Bayside Substation	**Boring No.:** BSSB-46 **Sheet** 1 **of** 1 **By:** Chris Kiernan
Drilling Contractor: -- **Driller:** -- **Drill Rig:** -- **Date Started:** 4/17/2008	**Geologist:** Paul Barusich **Drilling Method:** -- **Drive Hammer Weight:** NA **Date Completed:** 3/10/2009	**Boring Completion Depth:** 2' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Black to tan, fine to medium silty SAND, some cinder and brick fragments.	
1' – 2'	2	HA	12	0.000	0.0	Tan to brown, fine to medium silty SAND, some brick fragments.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

\\Nt3\jobs_HazWaste\2801 (LIRR)\Bayside\Bayside boring\BSSB-46.doc

Dvirka and Bartilucci
CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-47
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-48
Sheet 1 **of** 1
By: Chris Kiernan

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Black to dark brown, fine to medium silty SAND, some cinder and brick fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-49
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 4/17/2008

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium clayey SAND, some cinder fragments.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2801 **Project Name:** Long Island Railroad Bayside Substation	**Boring No.:** BSSB-50 **Sheet** 1 **of** 1 **By:** Paul Barusich
Drilling Contractor: -- **Driller:** -- **Drill Rig:** -- **Date Started:** 3/10/2009	**Geologist:** Paul Barusich **Drilling Method:** -- **Drive Hammer Weight:** NA **Date Completed:** 3/10/2009	**Boring Completion Depth:** 2' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	0	HA	12	0.000	0.0	Dark brown to black, fine to coarse GRAVEL, and fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	1	HA	12	0.000	0.0	Tan to light brown, fine to medium SAND, some silt, trace fine gravel, no staining, no odor, moist from 1.5' – 2'.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-51
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to coarse GRAVEL, and fine-medium SAND, some silt, no staining, no odor.	
1' – 2'	2	HA	12	0.000	0.0	Tan to light brown, fine to medium SAND, some silt, trace fine gravel, no staining, no odor.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' - 2'.
MS/MSD collected.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-52
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	0	HA	12	0.000	0.0	Dark brown to black, fine to coarse GRAVEL, and fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	1	HA	12	0.000	0.0	Tan to light brown, fine to medium SAND, some silt, trace fine gravel, no staining, no odor, moist from 1.5' – 2'.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-53
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to medium SAND, and fine to medium GRAVEL, no staining, no odor.	
1' – 2'	2	HA	12	0.000	0.0	1' – 1.5' Same as above. 1.5' – 2' Tan to light brown, fine to medium SAND, and fine to medium GRAVEL, some silt, no staining, no odor, wet.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-54
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: ---
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	0 - 1" Bluestone. 1" - 12" Tan to dark brown, fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-55
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: ---
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to coarse GRAVEL, fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	2	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2801
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-56
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: ---
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to coarse GRAVEL, fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	2	HA	12	0.000	0.0	Same as above, moist from 1.5' – 2'.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-57
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to coarse GRAVEL, fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	2	HA	12	0.000	0.0	Tan to light brown, fine to medium SAND, some silt, trace fine gravel, no staining, no odor, wet from 1.5' – 2'.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2229
Project Name: Long Island Railroad Bayside Substation

Boring No.: BSSB-58
Sheet 1 **of** 1
By: Paul Barusich

Drilling Contractor: --
Driller: --
Drill Rig: --
Date Started: 3/10/2009

Geologist: Paul Barusich
Drilling Method: --
Drive Hammer Weight: NA
Date Completed: 3/10/2009

Boring Completion Depth: 2'
Ground Surface Elevation: ---
Boring Diameter: ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	1	HA	12	0.000	0.0	Dark brown to black, fine to coarse GRAVEL, fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	2	HA	12	0.000	0.0	Tan to light brown, fine to medium SAND, some silt, trace fine gravel, no staining, no odor, wet from 1.5' – 2'.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2801 **Project Name:** Long Island Railroad Bayside Substation	**Boring No.:** BSSB-59 **Sheet** 1 **of** 1 **By:** Paul Barusich
Drilling Contractor: -- **Driller:** --- **Drill Rig:** -- **Date Started:** 3/10/2009	**Geologist:** Paul Barusich **Drilling Method:** -- **Drive Hammer Weight:** NA **Date Completed:** 3/10/2009	**Boring Completion Depth:** 2' **Ground Surface Elevation:** --- **Boring Diameter:** ---

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' – 1'	0	HA	12	0.000	0.0	0 - 1" Bluestone. 1" - 12" Tan to dark brown, fine to medium SAND, some silt, no staining, no odor.	
1' – 2'	1	HA	12	0.000	0.0	Same as above.	

Sample Types:
HA = Hand Auger

NOTES:
Sample for Hg analysis was collected at 1' – 2'.

APPENDIX D

DATA VALIDATOR RESUME

DONNA M. BROWN

GEOLOGIST III

EDUCATION

N.Y. Institute of Technology, Westbury, New York, M.S. (Environmental Technology) - 2000
State University of New York at Stony Brook, B.S. (Geology) - 1992

PROFESSIONAL EXPERIENCE

Ms. Brown has over 16 years of experience in project management, data validation, data management and field geology. She has worked as the site geologist at a variety of commercial and industrial sites. She has prepared and conducted Phase I and Phase II Environmental Site Assessments in accordance with the American Society for Testing and Materials Standards, federal, state and local agencies, as well as with the guidelines established by various lending institutions. Her experience with field activities include supervision of the installation of groundwater monitoring wells, temporary well points, and soil borings in support of subsurface investigations; groundwater and soil sampling for quantitative analysis; obtaining water level measurements; and utilizing portable field instruments.

Ms. Brown developed and managed the Data Validation and Data Management Group for the northeast region of a worldwide environmental consulting firm and was responsible for coordination of validation work load for over 40 projects. In addition, she was responsible for training data validators, providing cost estimates for validation work, preparation of Quality Assurance Project Plans (QAPPs) and Sampling and Analysis Plans (SAPs), validation of data in accordance with the USEPA National Functional Guidelines, USEPA Region II and III, New York State Department of Environmental Conservation (NYSDEC) ASP, New Jersey Department of Environmental Protection, and USEPA Hazardous Waste Support. Ms. Brown also managed and maintained over 20 projects in the GIS/Key database system, interfaced with the analytical laboratories to ensure the successful transfer of electronic laboratory data into the database system; and manipulation of geologic, laboratory, and hydrogeologic data within the Fox Pro, GIS/Key, MS Access, Grapher, Surfer, and AutoCAD programs .

In addition, Ms. Brown is trained in and utilized Environmental Visualization System (EVS) software. EVS software enables the user to provide three-dimensional animations to illustrate subsurface technical issues.

Ms. Brown was responsible for performing data validation of chemical data collected on and offsite at a clean fill demolition debris site and at several aerospace industrial client sites on Long Island utilizing the following protocols:

- USEPA Contract Laboratory Program National Functional Guidelines Organic and Inorganic;
- USEPA Hazardous Waste Support Branch, Validating Air Samples; and
- USEPA Region II, Volatile Organics Analysis of Ambient Air in Canisters By Method TO-15.

In addition, she updated GIS/Key database for chemistry and water level data, proved tables, graphs, and figures associated with project reports; conducted water level and water quality sampling; and prepared quarterly groundwater quality monitoring reports.

She also was responsible for performing data validation of chemical data collected at automotive industry owned sites in New Jersey using New Jersey Department of Environmental Protection Quality Assurance Data Validation of Analytical Deliverables TCL-Organics and TAL-Inorganics, and USEPA Hazardous Waste Support Branch, Validating Air Samples, Volatile Organics Analysis of Ambient Air in Canisters By Method TO-15.

As a Project Manager she was responsible for client communications, coordination of field sampling, reviewed and interpreted geologic, hydrogeologic, and chemistry data, report preparation, maintained the database, and data validation for former chemical site in upstate New York.

Ms. Brown was responsible for maintaining the database which contains information from over 20 years of quarterly groundwater monitoring wells and four recovery well; performed data validation of chemical data using USEPA Contract Laboratory Program National Functional Guidelines Organic and Inorganic; proved tables, graphs, and figures associated with project reports, and updated GIS/Key database for chemistry and water level data at a chemical manufacturing site in Albuquerque, New Mexico.

APPENDIX E

LIRR PROCEDURE/INSTRUCTION EE03-001

Procedure/Instruction: EE03-001
EXCAVATING SOILS AT RAILROAD LOCATIONS **Effective DATE: August 11, 2003**

A. Introduction:

At existing railroad shops, yards, substations, right-of-ways and other locations, past operations may have resulted in the chance of soils containing very low levels of chemical substances. Examples may include; trace levels of metals around old painted structures, oils and greases around train yards and repair locations, greasy or sooty compounds left from coal ash ("clinker").

This Procedure/Instruction has been prepared to eliminate any risk that may be posed to LIRR workers who must dig in these locations. It is to be applied on a case by case basis, with any questions referred to Department Management and System Safety.

B. Required Steps/Actions:

1. The first step of any LIRR excavation, regarding the soil composition and possible presence of contaminates, is to review the current System Safety Environmental Audit Map. This map includes all LIRR sites with documented soil contaminates. If your site appears on the map in red it may have soil concerns that could affect your project, contact System Safety before proceeding. If your site is not shown or is shown in black (does not have soil concerns) proceed to Step 2 as follows;

2. When digging at an existing railroad facility, the recommended procedures include:
   a. Wherever possible excavate with mechanical means, such as backhoes, ditch-witches or excavators.

   b. Wash facilities must be available for use by workers at the end of the task, before breaks, before meals, or at the end-of-shift. For field operations, wet-wipes are acceptable for fulfilling this requirement.

   c. Where hand digging must be used, workers must be instructed to brush soil from clothing and shoes. Disposable coveralls, shoe coverings and gloves should be made available upon workers request. Work clothing should be laundered.

   d. All equipment should be cleaned before leaving the worksite. The preferred method is hosing down with water, removing any clumps of dirt and soil. If water is not available, equipment should be brushed clean of any dirt and soil using a broom or stiff brush. Disposable items can be placed in the trash, no special disposal is necessary.

3. Where evidence of soil contamination is found, such as an odor, a stain or visible contaminant, the soil feels greasy, or results from laboratory analysis indicate a contaminant;

   a. Stop any excavation work or only excavate by mechanical means and

   b. Immediately Contact System Safety (information below) to assess the situation.

C. Regulations or Policy References: LIRR Corporate Environmental Policy; Section IV, B, 5

D. System Safety Contacts:

Environmental Engineer;	718-558-3252
Environmental Field Engineer;	718-558-3081

E. Forms & Attachments: None.

APPENDIX F

SECURITY FENCING PHOTOGRAPHS





Current high-security fencing showing LIRR employee parking area and elevated pedestrian walkway located to the west of the substation building.