METROPOLITAN TRANSPORTATION AUTHORITY
LONG ISLAND RAIL ROAD

DELINEATION PHASE 2 SITE ASSESSMENT
FOR
NASSAU BOULEVARD SUBSTATION

REMEDIAL ACTION WORK PLAN

Prepared for:

METROPOLITAN TRANSPORTATION AUTHORITY
LONG ISLAND RAIL ROAD

Prepared by:

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1.0 INTRODUCTION

The Long Island Rail Road (LIRR) has entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) in order to investigate and remediate potential mercury contamination associated with the operation and subsequent decommissioning and removal of mercury-containing rectifiers at the Nassau Boulevard Electric Substation.

In 1999, the LIRR conducted environmental assessments at 20 of its electric substations which were identified as having previously utilized mercury-containing rectifiers. Among the substations investigated was the Nassau Boulevard Substation which detected mercury at concentrations above NYSDEC recommended cleanup objectives in soil at the facility. In order to further delineate and remediate impacted soil at the 20 substations, the LIRR agreed to undertake and complete what is referred to as "Delineation Phase 2 Site Assessments" under the NYSDEC's Voluntary Cleanup Program (VCP). As part of this Delineation Phase 2 Site Assessment program, an investigation was undertaken at the Nassau Boulevard Substation in September of 2005. Additional follow-up field work was also completed through March 2007. The results of these investigations were documented in a report prepared by D&B entitled, "Delineation Phase 2 Site Assessment Investigation Report for the Nassau Boulevard Substation," dated June 2007.

This Remedial Action Work Plan (RAWP) has been prepared by Dvirka and Bartilucci Consulting Engineers (D&B), under contract with the LIRR, to address mercury contamination identified in several areas of the Nassau Boulevard as documented in the June 2007 "Delineation Phase 2 Site Assessment Investigation Report."

As an agency under the Metropolitan Transportation Authority (MTA), the LIRR operates under the auspices of the Public Authorities Law. Section 1266, paragraph 11 of this law exempts the LIRR from the requirements of the State Environmental Quality Review Act (SEQRA) for projects, "which will not change in a material respect the general character of such prior transportation use." With this in mind, the LIRR is proceeding with the remediation of the

existing substation and construction of the new substation building at Nassau Boulevard without SEQRA evaluation.

1.1 Project Background

The LIRR initiated the operation of electric substations with mercury rectifiers from approximately the early 1930s through 1951. The 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. Based on a detailed review of its operating records, the LIRR identified 20 substations located throughout Queens, Nassau and Suffolk Counties (including the Nassau Boulevard Substation) that once utilized mercury containing rectifiers.

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, maintenance and decommissioning 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.

As mentioned above, in 1999, the LIRR conducted environmental assessments at 20 of its electric substations, which previously utilized mercury-containing rectifiers. The results of these assessments were documented in a report prepared by 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 Nassau Boulevard Substation, at concentrations above NYSDEC recommended cleanup objectives. In order to further delineate and remediate impacted soil at the 20 substations, the LIRR agreed to undertake and complete Delineation Phase 2 Site Assessments under the NYSDEC's VCP. In support of this VCP, the LIRR completed Delineation Phase 2 Site Assessment activities at the Nassau

Boulevard Substation which were completed by March of 2007. Section 1.3 provides a summary of key findings associated with this investigation.

1.2 Site Description

The Nassau Boulevard Substation site is located in Garden City, Nassau County, New York (see Figure1-1). The substation consists of an approximately 625 square foot one-story brick building, shown on Figure 1-2. An approximately 2,100 square foot transformer yard is located adjacent to the substation to the west and is enclosed by a chain-linked fence. The substation building and transformer yard are presently utilized to convert AC to DC for the LIRR-Hempstead branch. The areas surrounding the substation and the transformer yard are currently utilized as vehicular parking and residential areas.

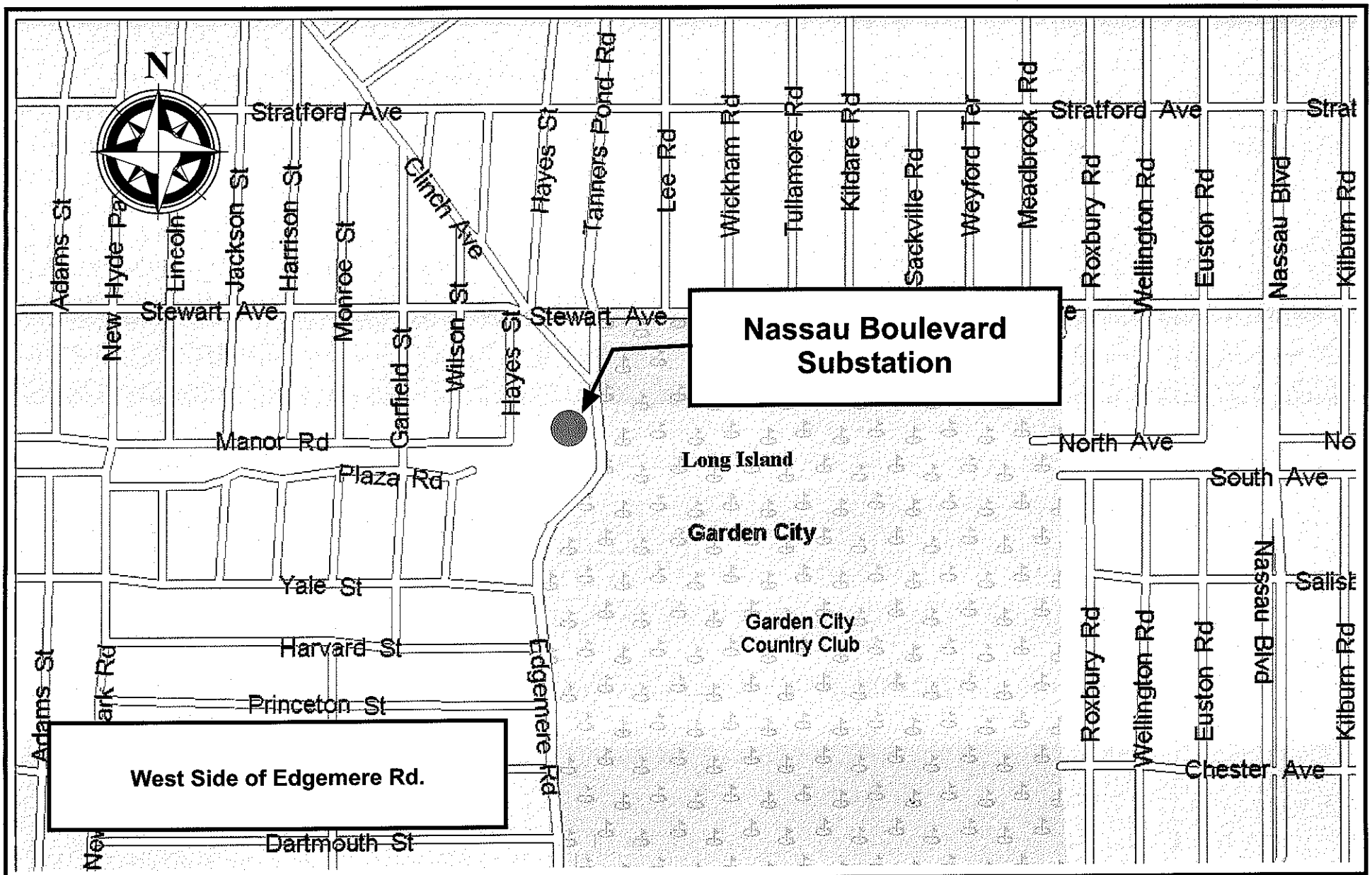
The Nassau Boulevard Substation is equipped with sanitary and water services along with a utility trench system. The interior of the substation consists of one active solid-state rectifier located over a separate pit that once serviced a mercury-containing rectifier. The existing rectifier pit leads to a basement that extends throughout the majority of the substation.

The initial site inspection revealed a water meter pit located along the southern wall of the substation with an earthen bottom covered by a metal plate. Two PVC pipes were also observed to discharge from the roof along the southern exterior wall of the substation. During the site investigation, a trap and clean-out were observed along the west side of the substation.

Based on the results of the Delineation Phase II Site Investigation, the depth to groundwater at this site is approximately 40 feet below grade.

1.3 Summary of Prior Investigations

The LIRR completed an initial environmental site assessment of the Nassau Boulevard Substation in 1999, as documented in the report entitled, "Site Assessment of 20 Substations for Mercury Contamination," dated December 2000. Investigation methods utilized during the initial



KRB/2229 (LIRR)/RAWP Site Map.cdr(10/11/07)

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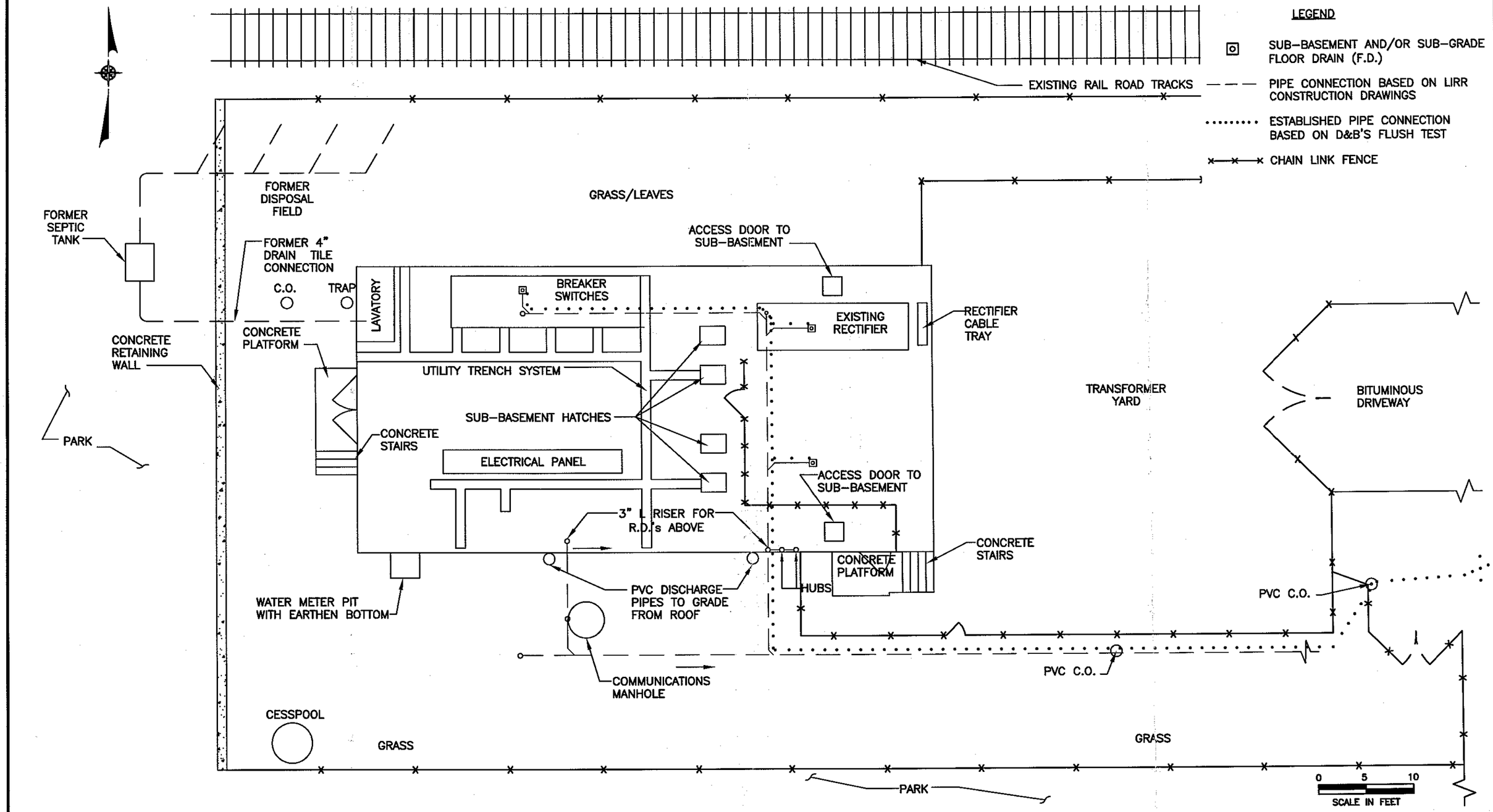
LONG ISLAND RAIL ROAD
REMEDIAL ACTION WORK PLAN

SITE LOCATION MAP
NASSAU BOULEVARD SUBSTATION (V00399-1)

NOT TO SCALE

FIGURE 1-1



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LONG ISLAND RAIL ROAD
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SITE PLAN
NASSAU BLVD. SUBSTATION (V00399-1)

FIGURE 1-2

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site assessment included a site inspection, mercury vapor measurements, drainage determinations and a geophysical survey. In addition, samples of various environmental media were collected at the site for laboratory analysis. Samples collected for laboratory analysis included seven surface soil samples, twelve subsurface soil samples and two concrete cores.

As discussed in Section 1.1 and subsequent to the Initial Site Assessment, a Delineation Phase 2 Site Assessment was completed in March of 2007. As part of this investigation, a total of 59 surface soil samples, 104 subsurface soil samples and 3 groundwater samples, were collected for chemical analysis. In addition, several below grade structures were investigated for Underground Injection Control (UIC) applicability.

Mercury was detected in surface and subsurface soil at the Nassau Boulevard Substation. The most significant mercury concentrations were identified in subsurface soil collected off the southeast corner of the substation building, 2 to 3 feet south of the concrete platform, with concentrations of up to 21,000 mg/kg. Significant mercury concentrations were also detected in surface soil to the southeast of the substation building, adjacent to the south of the concrete platform and steps, with concentrations up to 1,480 mg/kg.

The depth to groundwater beneath the Nassau Boulevard Substation is approximately 40 feet below ground surface. Mercury was found to exceed the NYSDEC Class GA Standard of 0.7 ug/l in the unfiltered samples collected from groundwater probes, NBGP-01, NBGP-02, and NBGP-03 at concentrations of 0.89 ug/l, 0.71 ug/l and 1.86 ug/l, respectively. NBGP-01 is located upgradient with respect to the substation building. Furthermore, mercury was not detected in any of the filtered samples.

The below grade structures investigated for UIC applicability included the water meter pit located at the southwestern corner of the substation building, the communications manhole located to the south of the substation building, the cesspool located off the southwest corner of the substation building, and a pipe connected to floor drains located in the substation building. It was determined that the water meter pit and communications manhole were not designed as drainage structures and their primary functions are not to accept fluids, and the floor drains and

associated piping were found to discharge to the Nassau County Sewer System via a manhole in Edgemere Road. Based on the results of these investigations, these structures did not meet the definition of a UIC structure. The cesspool was designed to accept fluids from the substation; as such, this structure did meet the definition of a UIC structure.

During the initial site investigation in 1999, a geophysical survey was also completed in the area of the former septic tank and disposal clay tile field presumed to be located off the northwest corner of the substation building. Based on the results of the survey, anomalous features detected in the area did not correspond to a buried septic system.

Two soil samples were collected from the cesspool, including one grab sample from the surface of the cesspool and one subsurface soil sample from 2 to 4 feet below the bottom of the cesspool. Both soil samples were analyzed for polychlorinated biphenyls (PCBs), Resource Conservation and Recovery Act (RCRA) metals, semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPHs) and volatile organic compounds (VOCs). No analyte was detected at a concentration above its respective soil cleanup objective (SCO).

Additional details concerning the above findings are presented in the Delineation Phase 2 Site Assessment Report for the Nassau Boulevard Substation, submitted to the NYSDEC in June of 2007.

1.4 Summary of Environmental Conditions at the Site

This section briefly describes the current and future conditions of the Nassau Boulevard Substation. The Nassau Boulevard Substation is actively used by the LIRR to convert AC obtained from the local electrical provider, the Long Island Power Authority (LIPA), to 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 substation is only accessible by authorized LIRR personnel and its subcontractors. In addition, the substations are not occupied by LIRR personnel on a 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 fenced and locked, preventing public access to the property.

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

Based on the results of the Delineation Phase 2 Site Assessment Report, three areas to the southeast of the substation building and one area to the north of the substation building will require remediation. This includes three areas to a depth of 1 foot below ground surface and one area to a depth of 15 feet below ground surface.

The areas requiring remediation are depicted on Figure 2-1 in a "conceptual fashion" and are described in the Initial Site Assessment and the Delineation Phase 2 Site Assessment of the Nassau Boulevard Substation and the NYSDEC-approved "Delineation Phase 2 Site Assessment Investigation Report for the Nassau Boulevard Substation," dated June 2007. Specific details regarding the soil excavation will be included in the plans and specifications prepared for implementation of the remedy.

1.5 Contemplated Use of the Site

As part of the LIRR's overall system upgrade in response to increased ridership, the Nassau Boulevard Substation will be decommissioned and a new substation building will be constructed. This upgrade will occur in three phases: abatement and demolition of the substation building, excavation of contaminated soil, and construction of a new substation building.

All remedial excavation activities will be overseen by a LIRR representative and will be completed in accordance with the Contractor's Construction Health and Safety Plan (CHASP) as detailed in Section 5.0. In addition, full-time air monitoring will be performed in accordance

with the CHASP and the Community Air Monitoring Plan (CAMP), as detailed in Appendix A. Specific details regarding remedial activities will be included in the plans and specifications.

The abatement and demolition of the Nassau Boulevard Substation building will be performed by a qualified abatement and demolition contractor and supervised by the LIRR's abatement and demolition consultant. All demolition work will be performed in accordance with a site-specific work plan approved by the LIRR. Areas to be excavated as part of the remedial excavation activities will be covered by 6-inches of track ballast prior to commencement of the abatement and demolition to prevent the disturbance of the contaminated soil. Furthermore, the foundation walls and associated structures adjacent and within 2 feet of the areas to be excavated as part of the remedial excavation activities will be left in place to be demolished and removed by the remedial contractor. All UIC structures located next to the substation building will also be capped and protected during demolition and left in place for proper closure by the remedial contractor. The LIRR's abatement and demolition consultant will be on-site at all times to ensure that all work is performed in accordance with applicable codes and regulations. The abatement and demolition consultant will conduct air monitoring throughout demolition activities. In addition, the LIRR will have on-site a full-time representative to observe the demolition of the building and to identify and document any mercury-related contamination that may be uncovered during the demolition process. If mercury contamination is identified, this contamination will be remediated by the remediation contractor in accordance with the procedures set forth in this RAWP.

As part of the decommissioning, all electric transformers and equipment will be shutdown, drained and removed from the site and the existing substation building will be demolished. All debris generated from the demolition of the subsurface building walls will be properly characterized and disposed by the abatement and demolition contractor in accordance with all applicable regulations.

Finally, once remedial and demolition activities are completed, the LIRR will construct a new substation building in the footprint of the existing substation building. Once construction is complete, the LIRR will evaluate the potential for soil vapor intrusion. After installation of the

new substation building, the LIRR will not be disturbing or excavating in the Nassau Boulevard Substation for the foreseeable future. As a result, future exposure to residual contamination, if any, is not expected.

2.0 REMEDIAL ACTION SELECTION

The purpose of this section is to provide an engineering evaluation of the selected remedial alternative to address the surface and subsurface soil contamination in the three areas defined in the Delineation Phase 2 Site Assessment Investigation Report. The goal of this evaluation is to demonstrate how the selected remedy would meet the remedial goals and remedial action objectives presented in Section 2.1 below.

2.1 Remedial Goals and Remedial Action Objectives

Remedial action objectives (RAOs) are goals developed for the protection of human health and the environment. Definition of these objectives requires an assessment of the media of concern, migration pathways, exposure routes and potential receptors. Typically, remedial goals are established based on standards, criteria and guidelines (SCGs) to protect human health and the environment. SCGs for the site, which were developed in the Site Assessment Investigation Report, include New York Codes, Rules and Regulations Title 6 (6 NYCRR), Part 375 Environmental Remediation Programs. Within Part 375, SCOs for Industrial Use are presented. These SCOs have been utilized to define areas requiring remediation.

While mercury has been detected above the SCOs for Industrial Use in soil at four areas of the Nassau Boulevard Substation, the completed exposure assessment has determined that the surrounding community is not exposed to these contaminants due to the restricted nature of the facility. Furthermore, direct exposure to mercury by LIRR workers (on-site receptors) who are required to periodically enter the site for equipment maintenance and repair is not expected. LIRR workers and subcontractors could be potentially exposed to these compounds during excavation activities. However, the LIRR has instituted standard operating procedures to prevent the excavation of contaminated soil at LIRR properties without first identifying and implementing appropriate health and safety measures. Finally, the completed Fish and Wildlife Resources Impact Analysis (FWRIA) determined that there are no significant or special habitats or wildlife within or surrounding the substation property and, therefore, the presence of the soil contaminants do not represent a significant concern with regard to environmental resources.

Based on the nature of the contaminants associated with the site and the findings of the exposure assessment and the FWRIA, the RAOs of this RAWP include the following:

RAO's for Public Health Protection

- Mitigate ingestion/direct contact with contaminated soil and dust.
- Mitigate inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAO's for Environmental Protection

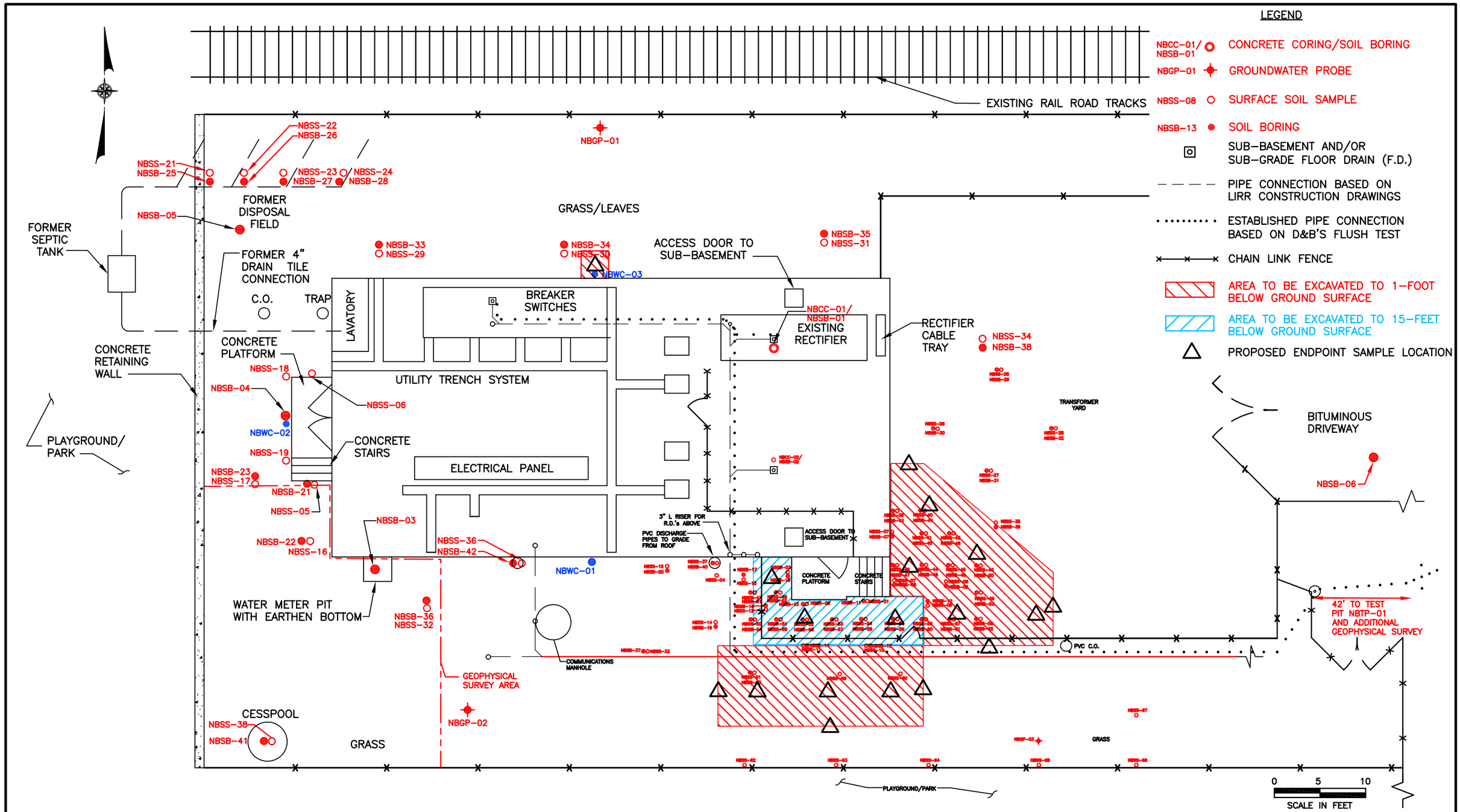
- Mitigate migration of contaminants that would result in groundwater or surface water contamination.

2.2 Summary of Remedy

The approximate locations and limits of areas requiring remediation are depicted on Figure 2-1. The four proposed excavation areas are approximately 582 square feet in total area. As shown on Figure 2-1, the areas to be excavated include the following:

- Two areas to the southeast of the substation building will be excavated to a depth of 1 foot below ground surface. These areas are approximately 450 square feet in area, and will require the removal of approximately 17 cubic yards of soil.
- One area to the north of the substation building will be excavated to a depth of 1 foot below ground surface. This area is approximately 9 square feet in area, and will require the removal of approximately 9 cubic feet of soil.
- One area to the southeast of the substation building will be excavated to a depth of 15 feet below ground surface. This area is approximately 123 square feet in area, and will require the removal of approximately 68 cubic yards of soil.

In addition, approximately 11 cubic yards of track ballast will be excavated and removed. Due to close proximity of the excavation area to the adjacent park, a wind screen will be installed on the entire length of the fence to the south of the substation and an additional air monitoring station will be installed to the south of the substation within the park to limit and monitor the migration of contaminated dust and particulate matter for the duration of the remedial activities.



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REMEDIAL ACTION WORK PLAN

CONCEPTUAL LOCATION OF AREAS OF REMEDIATION OF SOIL CONTAINING MERCURY NASSAU BLVD. SUBSTATION (V00399-1)

FIGURE 2-1

As part of this remediation, the portion of the rectifier drain pipe located within the excavation limits will be removed and the exposed open end will be capped with a cement plug, the concrete foundation walls and platforms located to within two feet of the excavation area will be demolished and removed and the cesspool UIC structure will be closed in-place.

Soil removal will be conducted prior to construction of the new substation building. In the event that additional soil will require removal, this soil will be properly characterized and disposed of by the remedial contractor in accordance with the requirements of the RAWP. The excavated soil will be replaced with clean fill from an off-site approved source.

Generation of dust during the implementation of the remedy will be monitored by utilizing a digital dust monitor and, if necessary, dust controls will be implemented in accordance with the CHASP. Due to the close proximity of the park to the south of the substation property, an additional air monitoring point will be maintained within the park for the duration of the remedial work. Air monitoring is discussed further in Section 5.0 of this report.

Endpoint samples will be collected from the excavation to determine the characteristics of the remaining soil prior to site restoration. The proposed location of each endpoint sample is shown on Figure 2-1. Endpoint sample results will be provided to NYSDEC and New York State Department of Health (NYSDOH) for review. Based on the results of the endpoint sampling, determination will be made between LIRR and NYSDEC with regard to the need for additional excavation. Institutional controls in the form of a deed restriction and/or environmental easement will be implemented to maintain the industrial nature of the property.

2.3 Evaluation of Remedy

The following discussion presents the engineering evaluation of the remedy against the six remedy selection criteria. In accordance with NYSDEC draft VCP Guide, the following discussion evaluates the remedy against the factors presented in 6 NYCRR 375-1.10(c) with the exception of cost effectiveness and community acceptance which will be evaluated by the NYSDEC.

Protection of Human Health and the Environment

As described above, implementation of the remedy will include mitigation of the potential for the direct exposure to contaminated soil through the excavation and off-site transportation and disposal of soil exceeding Part 375 SCOs for Industrial Use. The remedy will meet the RAOs for the site through the removal of contaminated soil and mitigating potential impacts to human health through removal of the potential for exposure through ingestion, direct contact and/or inhalation. The remedy will also meet the RAOs through the implementation of a CHASP that will provide protection of on-site workers and surrounding community during implementation of the remedy. This RAWP also provides information on proper management of contaminated soil and generated waste to mitigate impacts to surrounding community during implementation of the remedy. Therefore, this remedy will provide for the protection of human health and the environment.

Standards, Criteria and Guidance

The selected remedy will comply with applicable regulatory SCGs developed for the site. Applicable regulatory SCGs are considered minimum performance specifications for the remedy. The following is a list of major SCGs that apply to the site:

- 6 NYCRR Part 364 - Waste Transporter Permits
- 6 NYCRR Part 370 - Hazardous Waste Management Systems
- 6 NYCRR Part 375 - Environmental Remediation Programs
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard
- 29 CFR Part 1926 - Safety and Health Regulations for Consideration
- TAGM 4031 - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites

- NYSDOH Generic CAMP
- NYSDEC draft VCP Guide - May 2002

As described above, since the remedy will remove the soil exhibiting contaminants above the 6NYCRR Part 375 SCOs for Industrial Use and will be implemented in accordance with the above standards and guidelines, the remedy will meet the SCGs for the site.

Short-term Effectiveness and Impacts

Evaluation of short-term effectiveness and impacts includes defining potential health and environmental risks likely to exist during implementation of the remedy and the ability to control the risks during implementation. Excavation and off-site disposal of approximately 85 cubic yards of soil from the surface and shallow subsurface of the site will pose a low risk to health and the environment. Generation of dust during excavation will be monitored and controlled through dust suppression techniques, if necessary. Due to the close proximity of the park to the south of the substation property, an additional air monitoring point will be maintained within the park for the duration of the remedial work. Due to the small volume of soil requiring excavation and off-site disposal, the remedy will be completed in less than 1 month; however, the schedule will be coordinated with the upgrade of the substation. Remedial activities will only occur during normal business hours and noise levels will be maintained to meet local noise ordinances. Since the Nassau Boulevard Substation is only accessible by authorized LIRR personnel and its subcontractors, access to the site is limited and therefore impacts to the community during implementation of the remedy would be negligible. Impacts to the on-site workers would include exposure to contaminated soil, vapors and dust; however, these impacts would be minimized through the implementation of the CHASP. Implementation of appropriate storm water management, soil erosion and sediment control techniques during construction will be designed to minimize the potential for migration of contaminated soil off-site. In addition, vehicles used to transport contaminated soil will be tarped before departing the site and equipment contacting contaminated soil would be properly decontaminated as per the CHASP, prior to moving off-site, also minimizing the potential for off-site migration of contaminated soil and impacts to the community.

Long-term Effectiveness and Permanence

Excavation and off-site disposal of the soil exceeding the Part 375 SCOs for Industrial Use will be a long-term permanent and effective remedy for the site. The potential for exposure to this contaminated soil at the site in the future will be eliminated. Although it is anticipated that a majority of the soil exceeding the Part 375 SCOs for Industrial Use will be removed from the site, the results of endpoint sampling will be evaluated to determine the need for additional excavation. Institutional controls in the form of a deed restriction and/or environmental easement will be implemented to maintain the industrial nature of the property.

Reduction of Toxicity, Mobility or Volume

Removal of approximately 85 cubic yards of contaminated soil from the site will effectively reduce the toxicity, mobility and volume of contamination at the site. The contaminated soil will be disposed of at a permitted off-site disposal facility, which would minimize the potential for mobility of the contaminants.

Implementability

Excavation and off-site disposal of contaminated soil at the site can be completed with standard equipment. Since the remedy will be implemented in conjunction with the upgrade of the site, all utilities and structures in the area of the contaminated soil will be removed and, therefore, there will not be any impacts to existing utilities or structures. All necessary labor, equipment and supplies are readily available. This remedy will require coordination with NYSDEC, which is not expected to impact implementation.

As described above the selected remedy for the site meets the objectives of the six remedy selection criteria as defined in the draft VCP Guide.

3.0 REMEDIAL CONSTRUCTION

As detailed in Section 2.0, the LIRR has identified four areas at the Nassau Boulevard Substation requiring remediation. This section describes the activities to be undertaken to complete the implementation of the remedy. Specific details regarding soil excavation will be included in the plans and specifications prepared for the implementation of the remedy.

3.1 Mobilization

Site mobilization activities by the remediation contractor will occur prior to initiation of the implementation of the remedial measure. Staging areas for construction equipment and excavated material storage and handling, decontamination areas and temporary facilities will be established in the area of the existing substation as directed by LIRR.

Equipment and personnel decontamination facilities will be described in detail in the CHASP to be provided by the contractor. All equipment exposed to contaminated soil will be decontaminated on-site in accordance with the CHASP and removed at the conclusion of remedial activities.

All personnel and visitors will be required to sign in and sign out upon arrival and departure. Personnel and visitors entering the site will be required to have 40-hour HAZWOPER training and participate in a medical surveillance program.

Prior to the initiation of the remedial activities, utilities will be identified and located by the contractor in coordination with the LIRR in accordance with local and state requirements.

3.2 Excavation and Material Handling

As discussed in Section 2.0, excavation activities will commence following demolition of the substation building and prior to construction of the new substation building. The approximate areas of surface and subsurface soil to be excavated as part of the remedial

measures presented as part of this RAWP are presented in Figure 2-1. The actual extents of the area to be remediated will be staked and marked by a land surveyor in the field prior to excavation. Sheeting and shoring of the 15-foot deep excavation area shall be conducted in accordance with all Occupational Safety and Health Administration (OSHA) regulations and designed by a licensed New York State Professional Engineer. The concrete foundation walls, stairs and platform located within two feet of the excavation areas will be demolished and removed during the excavation activities.

Air monitoring will be performed throughout the duration of the work and will dictate actions required to control emissions. A detailed air-monitoring program including action levels will be included in the CHASP. If dust is generated during implementation of the remedy at levels that exceed minimum action levels, standard dust suppression techniques will be employed. Standard dust suppression techniques that may be employed during excavation activities, as well as any other material handling activities include:

- Application of wetting agents to soil, stockpiles, buckets and equipment; and
- Covering/tarping of containers, excavations and stockpiles.

If dust suppression techniques do not lower the particulate concentrations to an acceptable level, work will be suspended until acceptable corrective measures are implemented. As part of the CHASP, the contractor will prepare a CAMP prior to mobilization. In particular, the CAMP will include requirements for the placement of air monitoring stations upwind and downwind of the work zone, as well as a permanent station within the area of the park to the south of the substation property. The contractor will be responsible for implementing the CAMP. The plan will comply with the requirements of the NYSDOH Generic CAMP included in Appendix A.

3.3 Soil Characterization

Pre-characterization sampling of the soil directly adjacent to the substation building was completed as part of the Site Assessment Investigation Report to characterize the soil to be

removed as part of the new substation building construction. A total of three surface and three subsurface soil samples were selected for waste characterization. All samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals (including mercury), TCLP SVOCs, TCLP VOCs, RCRA waste characteristics (ignitability, reactivity and corrosivity), RCRA metals, total PCBs, and target compound list pesticides/herbicides. The results of the pre-characterization sample analysis are provided as Appendix B. All RCRA waste characterization results were compared to appropriate criteria and no exceedances of these criteria were identified.

The results of this laboratory analysis will be provided in the detailed plans and specifications for reference purposes only. The remedial contractor will be required to collect and analyze waste characterization samples from the areas to be excavated prior to performance of the remedial work. The samples shall conform to the requirements of the permitted off-site LIRR approved disposal facility.

3.4 Waste Transportation and Disposal

As discussed above, prior to the off-site transportation of the excavated material, the remedial contractor will need to obtain confirmation from the disposal facility that the contaminated soil will be accepted at the facility. Permitted transporters approved by the LIRR will transport the soil to permitted off-site LIRR approved disposal facilities. All trucks will have functional intact tarps to cover their loads.

LIRR will be the generator of record. Soil will not be transported for disposal without prior approval from LIRR. Documentation of transportation and disposal of all material will be maintained in the project files.

3.5 Endpoint Sampling

Upon reaching the final excavation depth, samples will be collected by the contractor from the base and sidewall of the excavation to determine the characteristics of the remaining

soil prior to site restoration. Figure 2-1 provides the proposed location of each endpoint sample location. Although the draft NYSDEC VCP Guide does not provide guidance regarding endpoint sampling, the NYSDEC Draft DER-10 Technical Guidance recommends sampling from the bottom of the excavation every 900 square feet and from the sidewall of the excavation every 30 linear feet. Since each area is less than 900 square feet, a minimum of one endpoint sample for each area would be required. In addition, to minimize the total amount of extra soil that would need to be removed in the event the endpoint samples exceed the SCOs, additional endpoint samples are proposed. Sidewall samples are proposed only in the areas where sufficient sampling was not completed during the Delineation Phase 2 Site Assessment. The proposed endpoint sample locations are shown on Figure 2-1.

Each sample will be collected and analyzed for mercury. Expedited 2-day turnaround analysis will be performed to determine the characteristics of remaining soil prior to completion of site redevelopment and site restoration. The Part 375 SCOs for Industrial Use will be used to screen the endpoint samples. The actual need for additional remediation will be determined by the LIRR in consultation with the NYSDEC and NYSDOH. When available, the LIRR will transmit the data to the NYSDEC and NYSDOH for review, along with a sample location map. The NYSDEC will be available for a conference call with the LIRR to discuss the provided data and to determine if additional remediation is necessary within 1 day of receipt of the endpoint sample analysis data. Field sampling procedures and quality assurance protocols will be conducted in accordance with the Quality Assurance/Quality Control (QA/QC) Plan prepared by the remedial contractor.

3.6 Underground Injection Control Structure Closure

As shown on Figure 2-1, one UIC structure located at the Nassau Boulevard Substation will need to be properly closed as part of the planned demolition and remediation of the existing substation building. The UIC structure is the cesspool located off the southwest corner of the substation building. The closure procedures utilized to decommission the cesspool will be in accordance with all USEPA and NCDH UIC regulations.

The contents of the cesspool, if present, will be pumped out and contained within Department of Transportation (DOT)-approved 55-gallon drums and/or lined and covered roll-offs. The cesspool cover will be removed, disposed and backfilled with clean fill. The cesspool will then be capped with a pre-cast concrete cover.

All waste generated as a part of the closure will be characterized congruent to NYSDEC regulations and disposed off-site by the remedial contractor at a State regulated disposal facility.

3.7 Backfill

As discussed in Section 2.0, the LIRR plans to decommission and demolish the existing substation building as part of the planned upgrade of the Nassau Boulevard Substation. As part of that work, excavation of soil will be required in order to construct a new substation building in this area. This soil will be tested and compared to Part 375 SCOs. If the soil is below all applicable Part 375 SCOs, it will be used as backfill as needed for site restorations purposes. Excess soil not used for site restoration will be disposed off-site congruent to State and Federal regulations. If additional backfill material is needed, clean fill from an off-site source approved by the LIRR will be used. The fill will consist of mostly 3/4-inch crushed stone, commonly referred to as track ballast, and general fill containing no organic material, rubbish or debris and being capable of being compacted to a relative compaction of 90 percent.

The fill material will be accompanied by a Certificate of Clean Fill certifying that the area from which the fill originated was never used for industrial purposes and that the fill is free of contaminants. Details regarding backfill requirements will be included in the plans and specifications. The Certificate of Clean Fill will be submitted with the name of the supplier, the source of fill and the history of the location where the fill was obtained for approval by the LIRR and NYSDEC prior to use of the fill. Upon receipt, the LIRR and NYSDEC will review the information provided regarding the backfill and shall determine the acceptability of the material and its source. Copies of the Certificates of Clean Fill will be submitted in the final Engineering Report.

3.8 Site Restoration

The excavated areas will be restored as part of site redevelopment. Areas outside the excavation area disturbed during implementation of the remedy will be restored as necessary to coincide with site redevelopment.

Final construction of the substation area will include the construction of a new substation building. Endpoint samples will be collected from the soil in the area of the demolished substation building footprint to determine the characteristics of the soil beneath the new substation building. Once construction is completed, the LIRR will conduct an investigation to assess the potential for soil vapor intrusion.

3.9 Erosion Controls

Storm water management, soil erosion and sediment control will be performed in accordance with New York State Guidelines for Urban Erosion and Sediment Controls. The contractor will be responsible for preventing off-site migration of storm water during implementation of the remedy.

If it will be necessary to stockpile contaminated soil, it will be placed on bermed plastic liners and covered with plastic tarps to prevent erosion. Stockpiles of clean fill will also be placed on bermed liners and covered. Liners will be secured in place with stakes or concrete.

4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

A Construction QA/QC Plan will be prepared by the contractor for review by the LIRR and for review and acceptance by the NYSDEC. The plan will identify procedures to be utilized to ensure the quality of the work performed meets the objectives of this RAWP. The QA/QC plan will include, at a minimum, the following:

- A description of the quality control organization including a chart showing the lines of authority.
- The names, qualifications, duties and responsibilities of each person assigned a QC function.
- Procedures for scheduling and managing submittals including those from subcontractors.
- The location, number and type of each sample to be collected and analysis to be performed for all samples to be collected, including waste characterization and endpoint sampling requirements.
- Description of sample collection methods for each sample matrix including sample containers, sample custody, sample packaging, storage and shipping procedures.
- The analytical protocols to be utilized.
- Quality control methods and procedures for each specific test to be used during construction.
- The name, address and qualifications of each proposed testing laboratory and the intended project-specific function.
- A description of all instrumentation and equipment to be used for testing on-site, as well as operating and calibration procedures.
- Reporting procedures for quality assurance activities including proposed reporting formats.
- Method for notification of changes.

The contractor will be responsible for implementing the QA/QC plan.

5.0 HEALTH AND SAFETY

The remedial contractor will prepare a CHASP. Site personnel performing remedial work will be required to read and comply with the requirements of the CHASP.

The CHASP will be submitted to LIRR and NYSDEC for review and acceptance prior to initiation of the project. The CHASP will be required to address all the appropriate federal, state and local regulatory requirements necessary to undertake and successfully complete implementation of the remedy. The CHASP will be prepared in accordance with 29 CFR 1910.129 and will include the following items:

- Health and safety organization, including résumés of personnel responsible for health and safety
- Project site description and hazard assessment
- Training requirements
- Medical surveillance requirements
- Project site control procedures
- Standard operating procedures and engineering controls
- Personnel protective equipment requirements
- Personnel hygiene and decontamination protocols
- Equipment decontamination procedures
- Air monitoring requirements
- Emergency equipment/first aid requirements
- Emergency responses/contingency procedures
- Heat and cold stress procedures
- Record keeping requirements
- Community protection plan

The contractor will be responsible for ensuring that the CHASP and all work associated with the implementation of the remedy is performed in accordance with safe working practices including all OSHA requirements. All site personnel will be trained and certified in the proper use of personal protective equipment and will have knowledge and understanding of construction standards. Certifications regarding training and expertise will be required prior to the start of work.

As part of the CHASP, the remedial contractor will prepare a CAMP prior to mobilization. In particular, the CAMP will include requirements for the placement of air monitoring stations upwind and downwind of the work zone, as well as a permanent station within the area of the park to the south of the substation property. The remedial contractor will be responsible for implementing the CAMP. The plan will comply with the requirements of the NYSDOH Generic CAMP included as Appendix A.

6.0 REPORTING AND DOCUMENTATION

The remedial contractor will be required to prepare progress reports each week during implementation of the remedy. Each report will include information on the work completed during the week, the anticipated schedule for the following weeks, and a description of any problems encountered which will impact project progress and their resolution. Progress reports will be available for regulatory agency review.

Throughout implementation of the remedy, records will be maintained by the remedial contractor and engineer performing construction inspection to document activities completed on-site. Records that will be maintained include the following:

- Daily field activity reports
- Visitor sign-in/sign-out logs
- Construction photographs
- Instrument calibration logs
- Waste manifests/bills of lading and disposal facility receipts
- Waste characterization sampling results and waste treatment/ disposal facility prequalification forms
- Chain-of-custody forms
- Air monitoring forms
- Contractor submittals
- Measurements of material quantities for progress payments
- Incident/accident reports
- Meeting minutes
- Endpoint sampling results

Following completion of the remedy, and in accordance with the draft VCP Guide, within 90 days of completion of the remedy, a Remediation Report will be prepared. This report will include the following:

- Description of remedial actions performed;
- Deviations from the RAWP, if any;
- Copies of records maintained during the remediation;
- Problems encountered during construction and their resolution;

- A discussion on the quantification and listing of soil removed from the site;
- Detailed "as-built" drawings showing limits of the excavation and the locations of documentation samples;
- Copies of the Certificates of Clean Fill;
- Copies of all records documenting off-site disposal of soil; and
- Endpoint sampling results.

Also in accordance with the draft VCP Guide, the report will include a certification by a Professional Engineer registered in New York State, stating that the work was implemented and construction activities were completed in substantial conformance with this RAWP.

7.0 PROJECT MANAGEMENT

7.1 Key Participants and Responsibilities

Key participants involved in the remediation of the LIRR Nassau Boulevard Substation site under the VCP include the following:

Key Participants	Primary Responsibilities
Volunteer: Long Island Rail Road	Oversee planning, implementation and reporting for remedial construction in accordance with approved RAWP, including procuring and directing contractors and consultants for design, remedial construction and site development in accordance with approved RAWP.
Regulatory Agencies: New York State Department of Environmental Conservation and New York State Department of Health	Regulatory oversight.
Remedial Engineer: Dvirka and Bartilucci Consulting Engineers	Construction inspection, record keeping, reporting and preparation of the Remediation Report.
Remedial Contractor: [to be determined]	Furnish labor, material, supplies, etc. for remedial construction in accordance with approved plans.

7.2 Project Communication and Management

Throughout the project, project meetings will be held to discuss work progress, plan upcoming activities for the week and discuss any unanticipated site conditions encountered. The remedial contractor's superintendent, as well as LIRR's Project Manager, will be required to attend the project meetings. Representatives of NYSDEC and NYSDOH will be made aware of the schedule for project meetings. Following an initial pre-construction meeting, project meetings will be held once per week at the site during the remediation.

During remedial construction, D&B will provide full-time on-site inspection of the work, engage in day-to-day communications with the remedial contractor's superintendent and maintain records and prepare reports as described in Section 6.0.

8.0 PROJECT SCHEDULE AND KEY MILESTONES

A preliminary schedule for implementation of the remedy is provided below. Key milestones are identified in order to monitor work progress.

Schedule Milestone	Tentative Completion Date
• Submittal of Draft RAWP for NYSDEC Review	10/31/07
• Receive Comments from NYSDEC	12/06/07
• Submittal of Final RAWP	1/8/08
• Complete Preparation of Specifications for Remedial Contractor	01/08/08
• NYSDEC to issue Fact Sheet	1/11/08
• Solicitation/Selection of Contractor	2/15/08
• Mobilization	6/1/08
• Completion of Remedial Measures	6/30/08
• Submit Remediation Report to NYSDEC	9/30/08

APPENDIX A

NEW YORK STATE DEPARTMENT OF HEALTH
GENERIC COMMUNITY AIR MONITORING PLAN

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

APPENDIX B

PRE-CHARACTERIZATION SOIL SAMPLING ANALYTICAL RESULTS

TABLE 21
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PARAMETERS

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	US-TCLP/C	NBWC-01 NBWC-01(S) 03/08/2007 0.00	NBWC-01 NBWC-01(2-4) 03/08/2007 4.00	NBWC-02 NBWC-02(S) 03/08/2007 0.00	NBWC-02 NBWC-02(2-4) 03/08/2007 4.00	NBWC-03 NBWC-03(S) 03/08/2007 0.00
1,1-Dichloroethylene (TCLP)	(ug/l)	700	2.1U	2.1U	2.1U	2.1U	2.1U
1,2-Dichloroethane (TCLP)	(ug/l)	500	1.7U	1.7U	1.7U	1.7U	1.7U
2,4,5-Trichlorophenol (TCLP)	(ug/l)	400000	1.7U	1.7U	1.7U	1.7U	1.7U
2,4,6-Trichlorophenol (TCLP)	(ug/l)	2000	1.6U	1.6U	1.6U	1.6U	1.6U
2,4-D (TCLP)	(ug/l)	10000	1.670U	1.670U	1.670U	1.670U	1.670U
2,4-Dinitrotoluene (TCLP)	(ug/l)	130	1.7U	1.7U	1.7U	1.7U	1.7U
Arsenic (TCLP)	(ug/l)	5000	31.0U	44.0J	51.2J	63.2J	78.1J
Barium (TCLP)	(ug/l)	100000	474J	556	490J	343J	427J
Benzene (TCLP)	(ug/l)	500	1.9U	1.9U	1.9U	1.9U	1.9U
Cadmium (TCLP)	(ug/l)	1000	28.6J	22.8J	33.2	28.6J	22.3J
Carbon tetrachloride (TCLP)	(ug/l)	500	5.7U	5.7U	5.7U	5.7U	5.7U
Chlordane (TCLP)	(ug/l)	30	0.2734U	0.2734U	0.2734U	0.2734U	0.2734U
Chlorobenzene (TCLP)	(ug/l)	100000	2.3U	2.3U	2.3U	2.3U	2.3U
Chloroform (TCLP)	(ug/l)	6000	1.7U	1.7U	1.7U	1.7U	1.7U
Chromium (TCLP)	(ug/l)	5000	33.0J	22.4J	39.5J	39.0J	18.0J
Endrin (TCLP)	(ug/l)	20	0.0099U	0.0099U	0.0099U	0.0099U	0.0099U
Heptachlor (TCLP)	(ug/l)	8.0	0.0324U	0.0324U	0.0324U	0.0324U	0.0324U
Heptachlor epoxide (TCLP)	(ug/l)	8.0	0.0173U	0.0173U	0.0173U	0.0173U	0.0173U
Hexachlorobenzene (TCLP)	(ug/l)	130	1.8U	1.8U	1.8U	1.8U	1.8U
Hexachlorobutadiene (TCLP)	(ug/l)	500	1.9U	1.9U	1.9U	1.9U	1.9U
Hexachloroethane (TCLP)	(ug/l)	3000	1.7U	1.7U	1.7U	1.7U	1.7U

ug/l: microgram/liter
USTCLP/C: Federal Regulatory Limits

Qualifiers defined in Appendix B: Data Flag/Qualifiers

TABLE 21
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PARAMETERS

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	US-TCLP/C	NBWC-01 NBWC-01(S) 03/08/2007 0.00	NBWC-01 NBWC-01(2-4) 03/08/2007 4.00	NBWC-02 NBWC-02(S) 03/08/2007 0.00	NBWC-02 NBWC-02(2-4) 03/08/2007 4.00	NBWC-03 NBWC-03(S) 03/08/2007 0.00
Lead (TCLP)	(ug/l)	5000	147	62.4	168	49.6J	217
Lindane (TCLP)	(ug/l)	400	0.0101U	0.0101U	0.0101U	0.0101U	0.0101U
Mercury (TCLP)	(ug/l)	200	1.0849999U	1.0849999U	1.0849999U	1.0849999U	1.0849999U
Methoxychlor (TCLP)	(ug/l)	10000	0.0102U	0.0102U	0.0102U	0.0102U	0.0102U
Methyl ethyl ketone (TCLP)	(ug/l)	200000	5.7U	5.7U	5.7U	5.7U	5.7U
Nitrobenzene (TCLP)	(ug/l)	2000	2.2U	2.2U	2.2U	2.2U	2.2U
2-Methylphenol (TCLP)	(ug/l)	200000	2.1U	2.1U	2.1U	2.1U	2.1U
Pentachlorophenol (TCLP)	(ug/l)	100000	2.3U	2.3U	2.3U	2.3U	2.3U
4-Methylphenol (TCLP)	(ug/l)	200000	1.9U	1.9U	1.9U	1.9U	1.9U
1,4-Dichlorobenzene (TCLP)	(ug/l)	7500	1.7U	1.7U	1.7U	1.7U	1.7U
Pyridine (TCLP)	(ug/l)	5000	1.4U	1.4U	1.4U	1.4U	1.4U
Selenium (TCLP)	(ug/l)	1000	62.4J	64.5J	47.6J	59.6J	59.2J
Silver (TCLP)	(ug/l)	5000	34.3J	18.4J	44.4J	43.4J	20.7J
Silvex (TCLP)	(ug/l)	1000	1.670U	1.670U	1.670U	1.670U	1.670U
Tetrachloroethylene (TCLP)	(ug/l)	700	2.4U	2.4U	2.4U	2.4U	2.4U
Toxaphene (TCLP)	(ug/l)	500	0.1286U	0.1286U	0.1286U	0.1286U	0.1286U
Trichloroethylene (TCLP)	(ug/l)	500	2.3U	2.3U	2.3U	2.3U	2.3U
Vinyl chloride (TCLP)	(ug/l)	200	1.6U	1.6U	1.6U	1.6U	1.6U

Qualifiers defined in Appendix B: Data Flag/Qualifiers

ug/l: microgram/liter
USTCLP/C: Federal Regulatory Limits

TABLE 21
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PARAMETERS

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	US-TCLP/C	NBWC-03 NBWC-03(2-4) 03/08/2007 4.00
1,1-Dichloroethylene (TCLP)	(ug/l)	700	2.1U
1,2-Dichloroethane (TCLP)	(ug/l)	500	1.7U
2,4,5-Trichlorophenol (TCLP)	(ug/l)	400000	1.7U
2,4,6-Trichlorophenol (TCLP)	(ug/l)	2000	1.6U
2,4-D (TCLP)	(ug/l)	10000	1.670U
2,4-Dinitrotoluene (TCLP)	(ug/l)	130	1.7U
Arsenic (TCLP)	(ug/l)	5000	34.8J
Barium (TCLP)	(ug/l)	100000	372J
Benzene (TCLP)	(ug/l)	500	1.9U
Cadmium (TCLP)	(ug/l)	1000	21.7J
Carbon tetrachloride (TCLP)	(ug/l)	500	5.7U
Chlordane (TCLP)	(ug/l)	30	0.2734U
Chlorobenzene (TCLP)	(ug/l)	100000	2.3U
Chloroform (TCLP)	(ug/l)	6000	1.7U
Chromium (TCLP)	(ug/l)	5000	23.1J
Endrin (TCLP)	(ug/l)	20	0.0099U
Heptachlor (TCLP)	(ug/l)	8.0	0.0324U
Heptachlor epoxide (TCLP)	(ug/l)	8.0	0.0173U
Hexachlorobenzene (TCLP)	(ug/l)	130	1.8U
Hexachlorobutadiene (TCLP)	(ug/l)	500	1.9U
Hexachloroethane (TCLP)	(ug/l)	3000	1.7U

ug/l: microgram/liter
USTCLP/C: Federal Regulatory Limits

Qualifiers defined in Appendix B: Data Flag/Qualifiers

TABLE 21
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PARAMETERS

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	US-TCLP/C	NBWC-03 NBWC-03(2-4) 03/08/2007 4.00
Lead (TCLP)	(ug/l)	5000	66.3
Lindane (TCLP)	(ug/l)	400	0.0101U
Mercury (TCLP)	(ug/l)	200	1.0849999U
Methoxychlor (TCLP)	(ug/l)	10000	0.0102U
Methyl ethyl ketone (TCLP)	(ug/l)	200000	5.7U
Nitrobenzene (TCLP)	(ug/l)	2000	2.2U
2-Methylphenol (TCLP)	(ug/l)	200000	2.1U
Pentachlorophenol (TCLP)	(ug/l)	100000	2.3U
4-Methylphenol (TCLP)	(ug/l)	200000	1.9U
1,4-Dichlorobenzene (TCLP)	(ug/l)	7500	1.7U
Pyridine (TCLP)	(ug/l)	5000	1.4U
Selenium (TCLP)	(ug/l)	1000	84.2J
Silver (TCLP)	(ug/l)	5000	19.0J
Silvex (TCLP)	(ug/l)	1000	1.670U
Tetrachloroethylene (TCLP)	(ug/l)	700	2.4U
Toxaphene (TCLP)	(ug/l)	500	0.1286U
Trichloroethylene (TCLP)	(ug/l)	500	2.3U
Vinyl chloride (TCLP)	(ug/l)	200	1.6U

Qualifiers defined in Appendix B: Data Flag/Qualifiers

ug/l: microgram/liter
USTCLP/C: Federal Regulatory Limits

TABLE 22
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
RCRA CHARACTERISTICS

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT		SITE SAMPLE ID DATE DEPTH (ft)	NBWC-01 NBWC-01(S) 03/08/2007 0.00	NBWC-01 NBWC-01(2-4) 03/08/2007 4.00	NBWC-02 NBWC-02(S) 03/08/2007 0.00	NBWC-02 NBWC-02(2-4) 03/08/2007 4.00	NBWC-03 NBWC-03(S) 03/08/2007 0.00	NBWC-03 NBWC-03(2-4) 03/08/2007 4.00
Corrosivity (as pH)	(ppm)		5.8	6.8	6.5	6.7	5.6	7.0
Reactive Cyanide	(mg/kg)		10.00U	10.00U	10.00U	10.00U	10.00U	10.00U
Ignitability (degrees F)	(ppm)		140	140	140	140	140	140
Reactive Sulfide	(mg/kg)		40.00U	40.00U	40.00U	40.00U	40.00U	40.00U

mg/kg: milligram/kilogram

Qualifiers defined in Appendix B: Data Flag/Qualifiers

TABLE 23
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
RCRA METALS

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-01 NBWC-01(S) 03/08/2007 0.00	NBWC-01 NBWC-01(2-4) 03/08/2007 4.00	NBWC-02 NBWC-02(S) 03/08/2007 0.00	NBWC-02 NBWC-02(2-4) 03/08/2007 4.00	NBWC-03 NBWC-03(S) 03/08/2007 0.00
Arsenic	(mg/kg)	16	12.2	2.090	2.980	1.960	4.470
Barium	(mg/kg)	10000	26.6	15.2	30.9	15.4	30.8
Cadmium	(mg/kg)	60	0.449	0.132J	0.494	0.117J	0.440
Chromium	(mg/kg)	6800	8.910	4.870	6.040	4.830	8.890
Lead	(mg/kg)	3900	95.3	8.590	36.4	6.490	129
Selenium	(mg/kg)	6800	0.197U	0.189U	0.188U	0.188U	0.226U
Silver	(mg/kg)	6800	0.197U	0.189U	0.188U	0.188U	0.226U
Mercury	(mg/kg)	5.7	0.277	0.034U	0.221	0.072JD	[16.900D]

mg/kg: milligram/kilogram
SCO: Soil Cleanup Objectives

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO

TABLE 23
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
RCRA METALS

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-03 NBWC-03(2-4) 03/08/2007 4.00
Arsenic	(mg/kg)	16	1.500
Barium	(mg/kg)	10000	8.700
Cadmium	(mg/kg)	60	0.076J
Chromium	(mg/kg)	6800	7.240
Lead	(mg/kg)	3900	3.530
Selenium	(mg/kg)	6800	0.188U
Silver	(mg/kg)	6800	0.188U
Mercury	(mg/kg)	5.7	0.034UD

mg/kg: milligram/kilogram
SCO: Soil Cleanup Objectives

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO

TABLE 24
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-01 NBWC-01(S) 03/08/2007 0.00	NBWC-01 NBWC-01(2-4) 03/08/2007 4.00	NBWC-02 NBWC-02(S) 03/08/2007 0.00	NBWC-02 NBWC-02(2-4) 03/08/2007 4.00	NBWC-03 NBWC-03(S) 03/08/2007 0.00
Aroclor 1016	(ug/kg)		2.7U	2.6U	2.6U	2.6U	3.2U
Aroclor 1221	(ug/kg)		4.2U	4.1U	4.1U	4.0U	4.9U
Aroclor 1232	(ug/kg)		6.3U	6.2U	6.1U	6.0U	7.3U
Aroclor 1242	(ug/kg)		5.6U	5.5U	5.5U	5.4U	6.5U
Aroclor 1248	(ug/kg)		2.7U	2.7U	2.7U	2.6U	3.2U
Aroclor 1254	(ug/kg)		1.8U	1.7U	1.7U	1.7U	2.1U
Aroclor 1260	(ug/kg)		4.5U	4.4U	4.4U	4.3U	91
Total PCBs (subsurface soil)	(ug/kg)	25000	0	0	0	0	91

ug/kg: microgram/kilogram
SCO: Soil Cleanup Objective

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO

TABLE 24
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
POLYCHLORINATED BIPHENYLS (PCBs)

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-03 NBWC-03(2-4) 03/08/2007 4.00
Aroclor 1016	(ug/kg)		2.6U
Aroclor 1221	(ug/kg)		4.1U
Aroclor 1232	(ug/kg)		6.1U
Aroclor 1242	(ug/kg)		5.4U
Aroclor 1248	(ug/kg)		2.6U
Aroclor 1254	(ug/kg)		1.7U
Aroclor 1260	(ug/kg)		25
Total PCBs (subsurface soil)	(ug/kg)	25000	25

ug/kg: microgram/kilogram
SCO: Soil Cleanup Objective

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO

TABLE 25
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
PESTICIDES and HERBICIDES

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-01 NBWC-01(S) 03/08/2007 0.00	NBWC-01 NBWC-01(2-4) 03/08/2007 4.00	NBWC-02 NBWC-02(S) 03/08/2007 0.00	NBWC-02 NBWC-02(2-4) 03/08/2007 4.00	NBWC-03 NBWC-03(S) 03/08/2007 0.00
2,4,5-T	(ug/kg)		37.3U	36.3U	36.5U	35.8U	43.5U
2,4-D	(ug/kg)		37.3U	36.3U	36.5U	35.8U	43.5U
2,4-DB	(ug/kg)		37.3U	36.3U	36.5U	35.8U	43.5U
4,4-DDD	(ug/kg)	180000	0.75U	0.72U	0.73U	0.73U	0.87U
4,4-DDE	(ug/kg)	120000	0.84U	0.81U	0.82U	0.82U	0.97U
4,4-DDT	(ug/kg)	94000	0.77U	0.74U	0.75U	0.75U	0.89U
Aldrin	(ug/kg)	1400	1.3U	1.3U	1.3U	1.3U	1.5U
alpha-BHC	(ug/kg)	6800	0.68U	0.66U	0.67U	0.66U	0.79U
alpha-Chlordane	(ug/kg)		0.89U	0.86U	0.87U	0.87U	1.0U
beta-BHC	(ug/kg)	14000	0.94U	0.90U	0.91U	0.91U	1.1U
delta-BHC	(ug/kg)	1000000	1.7U	1.7U	1.7U	1.7U	2.0U
Dicamba	(ug/kg)		37.3U	36.3U	36.5U	35.8U	43.5U
Dichlorprop	(ug/kg)		37.3U	36.3U	36.5U	35.8U	43.5U
Dieldrin	(ug/kg)	2800	0.88U	0.85U	0.86U	0.86U	1.0U
Dinoseb	(ug/kg)		37.3U	36.3U	36.5U	35.8U	43.5U
Endosulfan I	(ug/kg)	920000	0.94U	0.91U	0.92U	0.91U	1.1U
Endosulfan II	(ug/kg)	920000	1.0U	0.98U	0.98U	0.98U	1.2U
Endosulfan sulfate	(ug/kg)	920000	1.2U	1.1U	1.1U	1.1U	1.3U
Endrin	(ug/kg)	410000	0.91U	0.88U	0.89U	0.88U	1.1U
Endrin aldehyde	(ug/kg)		1.1U	1.0U	1.0U	1.0U	1.2U
Endrin ketone	(ug/kg)		0.88U	0.85U	0.86U	0.85U	1.0U

ug/kg: microgram/kilogram
SCO: Soil Cleanup Objective

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO

TABLE 25
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
PESTICIDES and HERBICIDES

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-01 NBWC-01(S) 03/08/2007 0.00	NBWC-01 NBWC-01(2-4) 03/08/2007 4.00	NBWC-02 NBWC-02(S) 03/08/2007 0.00	NBWC-02 NBWC-02(2-4) 03/08/2007 4.00	NBWC-03 NBWC-03(S) 03/08/2007 0.00
gamma-Chlordane	(ug/kg)		0.93U	0.90U	0.91U	0.91U	1.1U
Heptachlor	(ug/kg)	29000	0.99U	0.96U	0.97U	0.96U	1.1U
Heptachlor epoxide	(ug/kg)		1.1U	1.1U	1.1U	1.1U	1.3U
Lindane	(ug/kg)	23000	0.77U	0.74U	0.75U	0.75U	0.89U
Methoxychlor	(ug/kg)		0.92U	0.89U	0.90U	0.89U	1.1U
Silvex	(ug/kg)	1000000	37.3U	36.3U	36.5U	35.8U	43.5U
Toxaphene	(ug/kg)		3.8U	3.7U	3.7U	3.7U	4.4U

ug/kg: microgram/kilogram
SCO: Soil Cleanup Objective

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO

TABLE 25
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
PESTICIDES and HERBICIDES

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-03 NBWC-03(2-4) 03/08/2007 4.00
2,4,5-T	(ug/kg)		35.8U
2,4-D	(ug/kg)		35.8U
2,4-DB	(ug/kg)		35.8U
4,4-DDD	(ug/kg)	180000	0.73U
4,4-DDE	(ug/kg)	120000	0.82U
4,4-DDT	(ug/kg)	94000	0.75U
Aldrin	(ug/kg)	1400	1.3U
alpha-BHC	(ug/kg)	6800	0.67U
alpha-Chlordane	(ug/kg)		0.87U
beta-BHC	(ug/kg)	14000	0.91U
delta-BHC	(ug/kg)	1000000	1.7U
Dicamba	(ug/kg)		35.8U
Dichlorprop	(ug/kg)		35.8U
Dieldrin	(ug/kg)	2800	0.86U
Dinoseb	(ug/kg)		35.8U
Endosulfan I	(ug/kg)	920000	0.91U
Endosulfan II	(ug/kg)	920000	0.98U
Endosulfan sulfate	(ug/kg)	920000	1.1U
Endrin	(ug/kg)	410000	0.89U
Endrin aldehyde	(ug/kg)		1.0U
Endrin ketone	(ug/kg)		0.86U

ug/kg: microgram/kilogram
SCO: Soil Cleanup Objective

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO

TABLE 25
LONG ISLAND RAILROAD
DELINEATION PHASE II SITE ASSESSMENT
NASSAU BOULEVARD SUBSTATION
WASTE CHARACTERIZATION SAMPLE RESULTS
PESTICIDES and HERBICIDES

PERIOD: From 03/08/2007 thru 03/08/2007 - Inclusive
SAMPLE TYPE: Soil

CONSTITUENT	SITE SAMPLE ID DATE DEPTH (ft)	6NYCRR Part 375 Industrial Use SCOs	NBWC-03 NBWC-03(2-4) 03/08/2007 4.00
gamma-Chlordane	(ug/kg)		0.91U
Heptachlor	(ug/kg)	29000	0.97U
Heptachlor epoxide	(ug/kg)		1.1U
Lindane	(ug/kg)	23000	0.75U
Methoxychlor	(ug/kg)		0.90U
Silvex	(ug/kg)	1000000	35.8U
Toxaphene	(ug/kg)		3.7U

ug/kg: microgram/kilogram
SCO: Soil Cleanup Objective

Qualifiers defined in Appendix B: Data Flag/Qualifiers
[ ]: Value exceeds 6 NYCRR Part 375 Industrial Use SCO