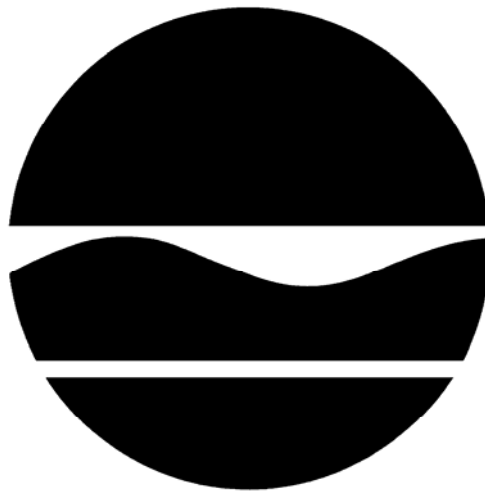


PROPOSED REMEDIAL ACTION PLAN
Amtrak Sunnyside Yard
Operable Unit No. 4
Long Island City, Queens County, New York
Site No. 241006

February 2009



Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for Operable Unit 4 (OU-4) at Amtrak Sunnyside Yard, Site No. 241006. OU-4 is defined as soil above the water table. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, releases associated with fueling operations, maintenance activities, train-mounted transformers, historic fill activities, and peeling lead-based paint from New York City Department of Transportation (NYCDOT) bridges have resulted in the disposal of hazardous wastes, including polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons considered by the NYSDOH to be carcinogenic (cPAHs), and lead. CPAHs are a subset of SVOCs. As a result of these releases, PCBs, SVOCs, and lead have been identified as compounds of concern (COCs). These wastes have contaminated the unsaturated soil at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to soil impacted with PCBs, cPAHs, SVOCs, and lead.
- a significant environmental threat associated with the potential impacts of contaminants to groundwater.

To eliminate or mitigate these threats, the Department proposes excavation and off-site disposal of soil impacted with the COCs in excess of the modified Site-specific Soil Cleanup Levels for these COCs.

The proposed remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform to officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria, and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The Department will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The Department has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the "Operable Unit 4

Remedial Investigation Report” (RI), dated October 2, 2008, the “Operable Unit 4 Feasibility Study” (FS), dated January 30, 2009 and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

Queens Public Library, Sunnyside Branch

43-06 Greenpoint Avenue

Long Island City, New York 11104

718-784-3033

Monday and Thursday 1:00 PM to 8:00 PM

Tuesday 1:00 PM to 6:00 PM

Wednesday and Friday 10:00AM to 6:00 PM

Saturday 1:00 PM to 5:00 PM

Sunday Closed

NYSDEC Region 2 Office

1 Hunter's Point Plaza

47-40 21st Street

Long Island City, NY 11101-5407

Contact: Shaun Bollers

718-482-4096

The Department seeks input from the community on all PRAPs. A public comment period has been set from February 27, 2009 to March 30, 2009 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for March 18, 2009 at the NYSDEC annex office located at 11-15 47th Avenue in Long Island City beginning at 7:00 PM.

At the meeting, the results of the RI/FS will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Shaun Bollers at the above address through March 30, 2009.

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department’s final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

Sunnyside Yard (the Site) is located at 39-29 Honeywell Street, Long Island City, Queens County, New York. The Site is a railroad maintenance and storage facility that currently encompasses approximately 133 acres. As shown on Figure 1, Newtown Creek, which defines the border between Queens and Kings Counties, is located less than 0.5 mile south of the western portion of the Site. The Site is bordered by commercial/residential properties, with Northern Boulevard located to the north, 42nd Place located to the east, Thompson Avenue to the west, and Skillman Avenue located to the south.

The Site (including OU-4) is underlain by the following geologic units (in order of increasing depth): fill (including ballast, cinders/ash), wetland deposits, Upper Pleistocene glacial deposits, and crystalline bedrock. Fill activities, which were part of major topographic changes engineered at the Site, occurred during construction in the early 1900's.

The fill is predominantly comprised of reworked glacial deposits (unstratified sand, silt, clay and gravel) and railroad ballast, with lesser amounts of ash, cinders and construction debris. With the exception of paved areas, buildings, and vegetated areas, the railroad ballast is ubiquitous at the surface throughout the Site.

Groundwater beneath the Site (including OU-4) occurs under water-table (unconfined) conditions in fill deposits, wetlands, or the Upper Pleistocene glacial deposits. The saturated Upper Pleistocene deposits comprise the Upper Glacial aquifer. The depth to groundwater across OU-4 varies from one to fifteen feet below ground surface (bgs).

Groundwater within the shallow deposits flows predominantly west across the Site. However, groundwater between Queens Boulevard and Honeywell Street flows northerly and northwesterly toward the buried flow path of the Dutch Kills Creek and/or East River. In the deeper deposits, groundwater predominantly flows west across the Site.

Operable Unit (OU) No. 4, which is the subject of this document, consists of the soil above the water table (unsaturated zone) at the Site, excluding OU-1, OU-2, and OU-3. OU-4 comprises 120 of the total 133 acres. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The remaining operable units for this site are:

- OU-1: Soil above the water table within the footprint of the High Speed Trainset Facility Service and Inspection (HSTF S&I) Building. A ROD was issued for OU-1 in August 1997, and the remedial work was completed in April 1998.
- OU-2: Soil above the water table within the footprint of the HSTF S&I Building ancillary structures. A No Further Action ROD was issued for OU-2 in November 1997.
- OU-3: Soil and separate phase petroleum hydrocarbon accumulation above the water table and soil below the water table within 8 acres in the north central portion of the Site. A ROD was issued for OU-3 in March 2007. Remediation is ongoing.
- OU-5: Sewer system (water and sediment) beneath the Site. The RI is ongoing.
- OU-6: Saturated soil and the groundwater beneath the Site. The RI is ongoing.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Pennsylvania Tunnel and Terminal Company, a subsidiary of the Pennsylvania Railroad, later known as the Penn Central Transportation Company, originally constructed Sunnyside Yard in the early 1900's. The Site officially opened on November 27, 1910. On April 1, 1976, the Consolidated Rail Corporation (Conrail) acquired the Site, and the same day conveyed it to Amtrak, which has continued to operate it as a storage and maintenance and train layover facility for electric and diesel locomotives and railroad cars for Amtrak and New Jersey Transit Corporation (NJTC).

Past releases of PCBs is likely attributable to losses from and maintenance of train-mounted transformers over time. Transformers were also mounted on the Honeywell Street Bridge. Specific locations, dates, or quantities of PCB releases are not known. Usage of PCB-containing equipment was significantly more predominant by predecessor railroads than by Amtrak.

In the past, coal fired locomotives, coal fired boilers, and onsite incinerators were widely used for railroad operations. These activities generated significant amounts of cinders and coal ash as a waste byproduct. Prior to Amtrak's ownership of the Site, these cinders and ash were used from time to time as fill material throughout OU-4 and are still present at the Site today. Cinders and ash are known to contain high levels of lead and semivolatile organic compounds (SVOCs), primarily cPAHs. In addition to the fill activities, the presence of lead is attributed to maintenance of the four bridges that span the Site, as shown on Figure 2.

3.2: Remedial History

In December 1986, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The Department, Amtrak, and NJTC entered into a Consent Order on September 21, 1989, modified on August 25, 1993 and February 4, 1998. The Order obligates the responsible parties to implement a RI/FS only remedial program. The Department and the PRPs (Amtrak and NJTC) are currently in the process of negotiating a separate Consent Order to implement the selected remedy.

SECTION 5: SITE CONTAMINATION

An RI/FS has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between October 1990 and August 2007. The field activities and findings of the investigation are described in the RI report. Investigations in OU-4 include the Phase I RI, Phase II RI, numerous track maintenance activities, utility installation, and construction related sampling activities. Seventeen Areas of Concern (Areas) were identified during the Phase I and Phase II. Subsequently, the Site was divided into Operable Units, as described in Section 2. With the exception of Areas 1, 6, and 7, the remaining fourteen Areas are located within OU-4 and are often referenced by Area designation.

The Phase I RI, performed from October 1990 through March 1991, was a comprehensive, facility-wide investigation to identify and determine the nature and extent of contamination primarily associated with the separate phase petroleum previously identified in Area 1 (OU-3), but also to provide an overall assessment of any other areas of contamination at the Site. The Phase II RI was performed from August 1992 through August 1994. The prime objectives of the Phase II RI in relation to OU-4 were to provide

further delineation of contaminated areas and confirm analytical results of samples collected during the Phase I RI.

Subsequent to the Phase I and Phase II RIs, numerous soil sampling investigations were performed, on behalf of Amtrak and NJTC, to coincide with track maintenance, utility installation, and construction. Soil sample locations are shown on Figure 3. Several of these remedial investigations identified soil samples with concentrations exceeding the Site soil cleanup levels for the COCs. As part of these Site maintenance activities, the identified COC exceedances were often excavated so the maintenance/construction activities could be completed and consequently serving as an Interim Remedial Measure (IRM). Similarly, UST IRMs consisting of the removal or abandonment of several USTs were performed. IRMs are discussed further in Section 5.2.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the unsaturated soil contains contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels" and 6 NYCRR Subpart 375-6 – Remedial Program Soil Cleanup Objectives) for total SVOCs (500 ppm).
- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

As described in the RI report, many soil samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants that exceed their SCGs are PCBs, inorganics (metals), and total cPAHs. For comparison purposes, where applicable, SCGs are provided for each medium. Chemical concentrations are reported in parts per million (ppm).

Figures 4 through 10 and Table 1 summarize the degree of contamination for the contaminants of concern in unsaturated soil and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil

A total of 851 surface soil samples were collected within the confines of OU-4 and analyzed for one or more of the analyte groups. As shown on Table 1, the number of surface soil samples analyzed was 786 for PCBs, 471 for lead, 14 for other metals, 13 for VOCs, 33 for SVOCs, and 436 for cPAHs. The Site specific soil cleanup levels were exceeded as follows: PCBs (60 out of 786); lead (52 out of 471); and cPAHs (31 out of 436). Many of these exceedances were in surface soils which were remediated

through the IRMs. The remaining surface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Subsurface Soil

A total of 456 subsurface soil samples were collected from OU-4 and analyzed for one or more of the analyte groups. As shown on Table 1, the number of subsurface samples analyzed was 455 for PCBs, 354 for lead, 20 for other metals, 48 for VOCs, 47 for SVOCs, and 376 for cPAHs. The Site specific soil cleanup levels were exceeded as follows: PCBs (13 out of 455); lead (17 out of 354); and cPAHs (18 out of 376). Many of these exceedances were in subsurface soils which were remediated through the IRMs. The remaining subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Waste Materials

Sample PIT-4, shown on Figure 3, is a sediment sample that was collected from within the Track 4 Inspection Pit. This sample exceeded the total PCB soil cleanup level with a concentration of 470 ppm. The Track 4 Inspection Pit is constructed of concrete and measures approximately 50 feet long, 6 feet wide, and 2 feet deep. This subsurface structure and surrounding soil requires additional investigation and will be addressed in the remedy selection process.

Groundwater

Groundwater contamination beneath OU-4 will be addressed during the ongoing OU-6 RI.

PCBs were detected in sewer water and sewer sediment samples. Sewer water and sediment will be addressed during the ongoing OU-5 RI.

Surface Water

No site-related surface water contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

No site-related sediment contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for sediment.

Soil Vapor/Sub-Slab Vapor/Air

Since groundwater contamination will be addressed in OU-6, any potential soil vapor impacts will be addressed in OU-6.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. Several of the remedial investigation activities that were performed for track maintenance, construction, and bridge rehabilitation identified soil samples with concentrations exceeding the Site soil cleanup levels for the COCs. As part of these Site maintenance activities, the identified COC exceedances were often excavated so the maintenance/construction activities could be completed and consequently served as an IRM. In summary, 29 PCB exceedances, 28 cPAH exceedances, and 15 lead exceedances were removed by soil IRMs, totaling 7,200 cubic yards of soil. Similarly, UST IRMs consisting of the

removal or abandonment of several USTs were performed. The locations of soil IRMs and UST IRMs are shown on Figure 12.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 7.0 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Potential Exposure Pathways

Soil

Receptors may come into direct contact with contaminated soil within OU-4 while performing routine job-related activities. During the course of contacting the soil on their skin, persons, may under some circumstances, accidentally ingest the soil. While exposure to fugitive dust may occur on a limited basis, the primary routes for on-site receptors to come into contact with chemicals present in soil are dermal absorption and incidental ingestion.

Inhalation of fugitive dust is not considered a viable exposure pathway because the 120-acre area of OU-4 is 96% covered by surface cover and lies in a basin-like area with ground elevations that range from approximately 10 to 25 feet below the surrounding land surface (Figure 11). The surface cover consists of the following:

- Track – includes tracks, ballast, concrete and paved walkways (54.27%);
- Asphalt/Concrete Pavement and Buildings (24.66%);
- Brush/Vegetation (17.21%); and
- Exposed Ground (3.82%).

The Site topography and drainage patterns are strongly influenced by a large number of railroad tracks and bulkheaded areas throughout the Site. Stormwater at the Site partly infiltrates *in situ* and is partly collected in catch basins of the combined sanitary and stormwater sewer system. Overland surface runoff does not appear to be a source of contamination to adjacent properties. Therefore, exposure to stormwater from the Site at off-site properties is an incomplete exposure pathway. The potential exposure to contaminants in the sewer system will be addressed as part of the OU-5 RI/FS.

Inhalation of vapors from volatile organic compounds volatilizing from soils into the ambient air during soil moving activities is not considered a viable exposure pathway because the number of VOCs detected in soil are limited and concentrations are sufficiently low (maximum concentrations below 0.5 ppm) that ambient air levels could not rise to a level of concern. While exposure to fugitive dust may occur on a very limited basis, the primary exposure routes for on-site receptors to chemicals present in soil is via dermal absorption and incidental ingestion.

Future potential exposures that could occur during soil excavations will be addressed in the Health and Safety Plan for the site workers and a Soils Management Plan.

Groundwater

Ingestion or dermal contact with contaminated groundwater by site occupants is not expected because the area is served by public water and no private supply wells have been identified in the vicinity of the site. Construction or utility workers conducting subsurface activities that intersect the groundwater could be exposed site-related contaminants of concern via dermal contact and/or incidental ingestion. Inhalation of vapors from volatile organic compounds (VOC) volatilizing from the soil into the ambient air during soil moving activities is not considered a likely exposure pathway since the number of VOC detected in the soil are limited and sufficiently low that ambient levels would not rise to a level of concern. The higher VOC concentrations are at depth and therefore, do not have a viable exposure pathway to volatilize into the ambient air.

The potential exposure to contaminants in groundwater (including associated soil vapor) will be addressed as part of the OU-6 RI/FS.

One of the onsite petroleum releases is in OU-3 and is being remediated at this time in accordance with the NYSDEC ROD. Performance monitoring will be conducted to evaluate the effectiveness of the OU-3 remedy. The other release adjacent to Area 14 will be addressed in the OU-6 RI/FS. This release has naturally attenuated from a one-time detection of petroleum sheen to no exceedances of groundwater quality standards. It will be monitored as part of OU-6.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The following environmental exposure pathways and ecological risks have been identified:

The site poses an environmental threat associated with the potential impacts of contaminants to groundwater from soils impacted with the COCs. There are no wetlands or other exposure pathways to fish and wildlife receptors in OU-4. Off-site related impacts to groundwater will be addressed as part of the ongoing OU-6 RI.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats

to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this operable unit are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to PCBs, cPAHs, SVOCs, and lead in soil and Track 4 Inspection Pit; and
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards.

Further, the remediation goals for the site include attaining to the extent practicable:

- The selected set of Site specific soil cleanup levels for PCBs, lead, and SVOCs and/or cPAHs;
- Technical and Administrative Guidance Memorandum [TAGM] 4046 for residual contamination in soil and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives; and
- PCB cleanup requirements in 40 CFR Section 761.61 (pertaining to PCB remediation waste).

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies, or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for OU-4 were identified, screened, and evaluated in the FS report which is available at the document repositories established for this site.

Due to the ongoing nature of operations at the Site, thermal desorption and incineration were not considered as viable remedial alternatives for the PCBs (which is the driver of the technology selection). Therefore, the remaining presumptive/proven remedial technology for PCBs, as per NYSDEC Guidance Policy DER-15, is excavation and off-site disposal. . Given this regulatory requirement, excavation and off-site disposal is the presumptive remedy for addressing this soil. Rather than evaluating various technology based alternatives, the OU-4 FS evaluated the use of excavation and off-site disposal for various COC cleanup levels scenarios

A summary of the remedial alternatives that were considered for this site is discussed below.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated unsaturated surface and subsurface soil at the site. As stated above, sewer water and sediment, saturated soil, and groundwater would be addressed as part of OU-5 and OU-6 at a later date.

For ease of reference and assembly of remedial alternatives, areas with exceedances of the Site specific cleanup levels have been designated Remedial Zones PCB-1 through PCB-12, CPAH-1 through CPAH-9, and LEAD-1 through LEAD-20. The Remedial Zones are shown on Figures 14 and 15.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This

alternative would leave OU-4 in its present condition and would not provide any additional protection to human health or the environment. Since there are no remedial actions for this alternative, there is no capital cost associated with Remedial Alternative 1.

Alternative 2: Soil Excavation/Off-site Disposal - Predisposal Unrestricted Use SCOs

Remedial Alternative 2 consists of the excavation of soil impacted with PCBs, lead, and cPAHs at concentrations above the 6 NYCRR Part 375 Unrestricted Use SCOs and removal of the Track 4 Pit. Development of this alternative satisfies the remediation goal of evaluating the technical feasibility of remediation to predisposal conditions. Remediation to predisposal conditions would entail excavation of all soil containing PCB concentrations and historic fill containing cPAH and lead concentrations greater than the Unrestricted Use SCOs.

The approximate areal extent of OU-4 is 120 acres. As shown on Figure 13, comparison of the analytical dataset to the Unrestricted Use SCOs indicates that the majority of OU-4 would need to be addressed under this alternative. However, there are buildings that have been present at the Site since the early 1900s which would not have cause for underlying historic fill or PCB-impacted soil. Similarly, there are areas of the Site that have been remediated by soil IRMs, as discussed in the OU-4 RI. The buildings and remediated areas comprise approximately 5 acres. To compensate for the basin like topography of the Site (side slopes totaling up to 4 to 5 acres would potentially need to be addressed by a remedy using Unrestricted Use SCOs), the estimated areal extent of 120 acres was used for evaluation purposes. The extent of COC impacted soil and historic fill is typically limited to 3 ft bgs. Based on these assumptions, this alternative would result in the removal of approximately 508,800 cubic yards of soil. The Track 4 pit would also be removed in its entirety.

The cost to implement Alternative 2 is presented below. Although an estimated cost has been included in the capital cost to account for logistical planning, the Alternative cost does **not** include Amtrak's expense for the removal and replacement of railroad tracks, temporary facilities, utilities, pavement, roadways, and other work areas, expenses associated with additional track out of service time, and overtime costs for Amtrak personnel.

| | |
|-----------------------------|----------------------|
| <i>Present Worth:</i> | <i>\$180,000,000</i> |
| <i>Capital Cost:</i> | <i>\$180,000,000</i> |
| <i>Annual Costs:</i> | |
| <i>(Years 1-5):</i> | <i>\$0</i> |
| <i>(Years 5-30):</i> | <i>\$0</i> |

Alternative 3: Soil Excavation/Off-site Disposal – Existing Site Specific Soil Cleanup Levels

For Remedial Alternative 3, soil with COC concentrations exceeding the existing Site specific soil cleanup levels would be excavated. The existing Site specific soil cleanup levels are:

- Total PCBs – 25 ppm;
- Total cPAHs – 25 ppm; and
- Lead – 1,000 ppm.

An estimated 1,430 cubic yards of PCB impacted soil (Remedial Zones PCB-1 through PCB-12), 910 cubic yards of cPAH impacted soil (Remedial Zones CPAH-1 through CPAH-9), and 1,360 cubic yards

of lead impacted soil (Remedial Zones LEAD-1 through LEAD -20) would require removal. Areas of soil containing COC concentrations above the existing Site specific soil cleanup levels are shown on Figure 14. Pre-characterization samples would be collected prior to excavation in areas not horizontally and vertically delineated. The soil within these delineated areas would be excavated and transported off-site for disposal. In total, an estimated 3,700 cubic yards of soil would be excavated. Each excavation would be backfilled with clean fill from off-site sources.

Several of the Remedial Zones are located within active tracks that cannot be addressed without extensive disturbance to the Site's daily operations. Detailed planning and coordination would be required for scheduling track outages, rerouting trains to maintain operations, and the removal and reconstruction of track. There are Remedial Zones, however, that are located in open areas that are more easily accessible and could be addressed on a shorter timetable. For those remedial zones that would not be addressed in the short term, the existing pavement would serve as an asphalt/concrete cover until soil excavation is performed. Similarly, the trackbed ballast would serve as an interim engineering control that prevents direct contact with underlying COC impacted soil.

Remedial Zone PCB-2 consists of the concrete inspection pit within Track 4. This pit would be removed in its entirety. Characterization soil samples would be collected from soil at each end and below the bottom of Track 4 Pit to identify any impacts to soil from historical usage of this inspection pit. In the event the soil sampling results indicate that PCB concentrations exist above the existing Site specific soil cleanup level in the surrounding and underlying soil, excavation would be performed. It is estimated that 30 cubic yards of soil may require excavation. Post-excavation samples would be collected only if the characterization soil sample results do not provide horizontal and vertical delineation of the extent of contamination.

Remediation-derived waste to be transported off-site for disposal would include:

- PCB-impacted non-hazardous soil – 120 cubic yards (estimated)
- NYS B007 hazardous waste/TSCA PCB Remediation Waste – 1,310 cubic yards (estimated)
- Non-hazardous soil (cPAH and lead impacted) – 2,270 cubic yards (estimated)
- Bulk concrete from the Track 4 Pit removal – 27 cubic yards (estimated)

A Community Air Monitoring Plan (CAMP) that specifies the components of this program would be developed in accordance with the NYSDOH Generic Community Air Monitoring Plan. The air monitoring program would include real-time continuous particulate monitoring using particulate monitoring devices. VOCs and odors are not expected to be a concern due to the nature of impacts present in OU-4. Dust would be controlled by spraying a water mist over the work area if perimeter action levels established in the CAMP are exceeded. This would be generated by connecting a misting device to a hose, which would be connected to any potable water source. The degree to which these measures would be used would depend on particulate levels in ambient air at the perimeter of the Site as determined through implementation of the CAMP.

Implementation of this alternative would remediate OU-4 for restricted industrial use. For this reason, a Site Management Plan that outlines the long-term institutional and engineering control plan would be developed. A Site Management Plan would be developed to include the Soil Management Plan and a program for institutional and engineering controls. An Environmental Easement would be recorded to include: 1) Site Management Plan; 2) prohibition on use of groundwater as a source of potable water; 3) a condition of no change in site use; and 4) controlled access to the site.

The cost to implement Alternative 3 is presented below. Although an estimated cost has been included in the capital cost to account for logistical planning, the Alternative cost does **not** include Amtrak's expense for the removal and replacement of railroad tracks, temporary facilities, utilities, pavement, roadways, and other work areas, expenses associated with additional track out of service time, and overtime costs for Amtrak personnel.

| | |
|-----------------------------|-------------|
| <i>Present Worth:</i> | \$2,200,000 |
| <i>Capital Cost:</i> | \$2,200,000 |
| <i>Annual Costs:</i> | |
| <i>(Years 1-5):</i> | \$0 |
| <i>(Years 5-30):</i> | \$0 |

Alternative 4: Soil Excavation/Off-site Disposal – Modified Site Specific Soil Cleanup Levels

For Remedial Alternative 4, soil with COC concentrations exceeding the proposed Site soil cleanup levels would be excavated and transported off-site for disposal. The modified Site specific soil cleanup levels are as follows:

- Total PCBs – 25 ppm, in accordance with 6 NYCRR Part 375
- Total SVOCs – 500 ppm, in accordance with TAGM 4046
- Lead – 3,900 ppm, in accordance with 6 NYCRR Part 375

An estimated 1,430 cubic yards of PCB impacted soil (Remedial Zones PCB-1 through PCB-12) and 60 cubic yards of lead impacted soil (Remedial Zone 20) would require removal. There are no exceedances of the proposed total SVOC soil cleanup level. Areas of soil containing PCB and lead concentrations above the proposed Site soil cleanup levels are shown on Figure 15. Pre-characterization samples would be collected prior to excavation in areas not horizontally and vertically delineated. The soil within these delineated areas would be excavated and transported off-site for disposal. In total, an estimated 1,490 cubic yards of soil would be excavated. Each excavation would be backfilled with clean fill from off-site sources.

Several of the Remedial Zones are located within active tracks that cannot be addressed without extensive disturbance to the Site's daily operations. Detailed planning and coordination would be required for scheduling track outages, rerouting trains to maintain operations, and the removal and reconstruction of track. There are Remedial Zones, however, that are located in open areas that are more easily accessible and could be addressed on a shorter timetable. For those remedial zones that would not be addressed in the short term, the existing pavement would serve as an asphalt/concrete cap until soil excavation is performed. Similarly, the trackbed ballast would serve as an interim engineering control that prevents direct contact with underlying PCB and lead impacted soil.

Remedial Zone PCB-2 consists of the concrete inspection pit within Track 4. This pit would be removed in its entirety. Characterization soil samples would be collected from soil at each end and below the bottom of Track 4 Pit to identify any impacts to soil from historical usage of this inspection pit. In the event the soil sampling results indicate that PCB concentrations exist above the modified Site specific soil cleanup level in the surrounding and underlying soil, excavation would be performed. It is estimated that 30 cubic yards of soil may require excavation. Post-excavation samples would be collected only if the characterization soil sample results do not provide horizontal and vertical delineation of the extent of contamination.

Remediation-derived waste to be transported off-site for disposal would include:

- PCB-impacted non-hazardous soil – 120 cubic yards (estimated)
- NYS B007 hazardous waste/TSCA PCB Remediation Waste – 1,310 cubic yards (estimated)
- Non-hazardous lead impacted soil – 60 cubic yards (estimated)
- Bulk concrete from the Track 4 Pit removal – 27 cubic yards (estimated)

A CAMP that specifies the components of this program would be developed in accordance with the NYSDOH Generic Community Air Monitoring Plan. The air monitoring program would include real-time continuous particulate monitoring using particulate monitoring devices. VOCs and odors are not expected to be a concern due to the nature of impacts present in OU-4. Dust would be controlled by spraying a water mist over the work area if perimeter action levels established in the CAMP are exceeded. This would be generated by connecting a misting device to a hose, which would be connected to any potable water source. The degree to which these measures would be used would depend on particulate levels in ambient air at the perimeter of the Site as determined through implementation of the CAMP.

Implementation of this alternative would remediate OU-4 for restricted industrial use. For this reason, a Site Management Plan that outlines the long term institutional and engineering control plan would be developed. A Site Management Plan would be developed to include the Soil Management Plan and a program for institutional and engineering controls. An Environmental Easement would be recorded to include: 1) Site Management Plan; 2) prohibition on use of groundwater as a source of potable water; 3) a condition of no change in site use; and 4) controlled access to the site.

The cost to implement Alternative 4 is presented below. Although an estimated cost has been included in the capital cost to account for logistical planning, the Alternative cost does **not** include Amtrak's expense for the removal and replacement of railroad tracks, temporary facilities, utilities, pavement, roadways, and other work areas, expenses associated with additional track out of service time, and overtime costs for Amtrak personnel.

| | |
|-----------------------------|--------------------|
| <i>Present Worth:</i> | <i>\$1,100,000</i> |
| <i>Capital Cost:</i> | <i>\$1,100,000</i> |
| <i>Annual Costs:</i> | |
| <i>(Years 1-5):</i> | <i>\$0</i> |
| <i>(Years 5-30):</i> | <i>\$0</i> |

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed “threshold criteria” and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The next five “primary balancing criteria” are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility, or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the site. 6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 4.

This final criterion is considered a “modifying criterion” and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Remedial Alternative 4: Soil Excavation/Off-site Disposal – Modified Site Specific Soil Cleanup Levels as the remedy for this site. The elements of this remedy are described at the end of this section.

The proposed remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 4 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by removing all soil with PCB, SVOC and lead concentrations exceeding the modified Site specific soil cleanup levels, which pose the most significant threat to public health and the environment.

Alternative 1 would not adequately satisfy the threshold criteria for protecting human health and the environment nor comply with the SCGs. Alternative 2 would best satisfy the threshold criteria for protecting human health and the environment and comply with the SCGs, but is not feasible to implement at an active railyard and is prohibitively expensive. Therefore, Alternatives 1 and 2 are not considered further in this evaluation.

Because Alternatives 3 and 4 satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternatives 3 and 4 provide similar levels of long-term effectiveness and permanence. By employing the same technology, Alternatives 3 and 4 provide fairly equal levels of long term effectiveness and permanence of the remedy. Soil containing hazardous levels of PCBs would be permanently removed from OU-4 under both alternatives. Excavation to the selected set of Site specific soil cleanup levels (i.e., either existing or modified levels) would satisfy requirements for addressing COC impacted soil through permanent removal from OU-4.

Alternative 3 and 4 both include removal of all soil characterized as NYS B007 listed PCB hazardous waste. Based on the varying cleanup levels for SVOCs/cPAHs and lead associated with Alternatives 3 and 4, varying volumes of non-hazardous levels of COCs would remain following soil excavation. Remedial Alternative 3 would remove 3,700 cubic yards of soil and Alternative 4 would remove 1,490 cubic yards of soil.

The quantities of excavated soil associated with Alternatives 3 and 4 represent manageable, medium scale excavations and would pose comparable short term impacts to remedial and Amtrak workers. The short term impacts are increased for Remedial Alternative 3 based on the increased volume of soil to be removed, requiring more truck traffic. The short term concerns can be reduced through the use of engineering controls.

Alternatives 3 and 4 would be technically feasible to implement. Although technically feasible, Remedial Alternative 3 and 4 would both pose implementability difficulties due to the location of some of the remedial zones in active track areas. Remedial zones in open areas are accessible with little administrative effort and could be addressed shortly after remedy selection. The remaining remedial zones in railroad track areas would be excavated on a scheduled program consistent with track maintenance and new construction activities with existing surface covers being maintained in the interim. Based on the increased number of remedial zones to be addressed for Alternative 3 and their locations within track areas, this alternative is anticipated to require a significantly greater impact on Site operations and a much longer timeframe to complete than Alternative 4. Amtrak is presently coordinating with internal track and operation departments to develop an implementation schedule. A detailed schedule would be provided in the Remedial Action Work Plan.

The cost of the alternatives varies significantly. The direct costs for Alternative 3 are significantly greater than Alternative 4 primarily associated with soil disposal to address cPAHs and lead at existing Site specific cleanup levels. Alternative 4 provides a more cost effective alternative to Alternative 3 while achieving an equivalent level of protection of human health and the environment.

The estimated capital cost to implement the remedy is \$1,100,000.

The elements of the proposed remedy are as follows:

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program, which included pre-excavation soil characterization.
2. Excavation and off-site disposal of soil classified as PCB hazardous waste;
3. Excavation and off-site disposal of soil exceeding the modified Site specific soil cleanup levels for PCBs, SVOCs and lead.
4. Removal of the Track 4 Inspection Pit, characterization of soil surrounding the inspection pit, and excavation of surrounding soil with concentrations exceeding the proposed Site soil cleanup levels, if required.
5. All excavations would be backfilled with clean fill from off-site sources. Imported material would meet the more stringent requirements for Protection of Public Health for commercial use or Protection of Groundwater as defined in 6 NYCRR Part 375-6.7(d).
6. Existing surface covers in the active rail yard would be maintained. A one foot thick clean cover consisting of clean fill, as referenced in bullet 5. above, or ballast would be established and/or maintained over areas that are known to contain cPAHs at concentrations greater than the existing site specific soil cleanup levels of 25 ppm and are not presently covered by buildings, tracks or pavement.
7. Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.
8. Development of a site management plan which would include the following institutional and engineering controls: (a) address residual contaminated soils that may be excavated onsite during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; (b) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) identification of any use restrictions on the site; (d) fencing to control site access.
9. The property owner would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the

Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

TABLE 1
Nature and Extent of Contamination
October 1990 to August 2007

| SURFACE SOIL | Potential Contaminants of Concern | Concentration Range Detected¹ (ppm)^a | Screening Criteria^b (ppm)^a | Frequency Exceeding Screening Criteria |
|--|--|---|---|---|
| <i>Volatile Organic Compounds (VOCs)</i> | Acetone | 0.02 - 0.035 | 1000 | 0/13 |
| | Carbon Disulfide | 0.0044 - 0.0077 | -- | 0/13 |
| | Chloroform | 0.0038 - 0.0038 | 700 | 0/13 |
| | Methylene Chloride | 0.003 - 0.032 | 1000 | 0/13 |
| | Tetrachloroethene | 0.005 - 0.005 | 300 | 0/13 |
| | Toluene | 0.002 - 0.0048 | 1000 | 0/13 |
| | Trichloroethene | 0.003 - 0.003 | 400 | 0/13 |
| | Xylenes (total) | 0.0044 - 0.0044 | 1000 | 0/13 |
| <i>Semivolatile Organic Compounds (SVOCs)</i> (Excludes Samples analyzed for cPAH^c only) | Total SVOCs | ND - 98.456 | 500 | 0/33 |
| <i>Total cPAHs^c</i> | Total cPAHs | ND - 113.1 | 25 | 31/436 |
| <i>Inorganic Compounds</i> | Aluminum | 1690 - 8330 | -- | 0/14 |
| | Antimony | 1.9 - 10.7 | -- | 0/14 |
| | Arsenic | 3.7 - 45.6 | 16 | 6/14 |
| | Barium | 23 - 444 | 10000 | 0/14 |
| | Beryllium | 0.44 - 1.9 | 2700 | 0/14 |
| | Cadmium | 1.3 - 9.2 | 60 | 0/14 |
| | Calcium | 468 - 8680 | -- | 0/14 |
| | Chromium | 11.9 - 124 | -- | 0/14 |
| | Cobalt | 2.3 - 13 | -- | 0/14 |
| | Copper | 7.8 - 629 | 10000 | 0/14 |
| | Iron | 5610 - 91800 | -- | 0/14 |
| | Lead | 2.5 - 7020 | 1000 | 52/471 |
| | Magnesium | 610 - 3810 | -- | 0/14 |
| | Manganese | 36.5 - 667 | 10000 | 0/14 |
| | Mercury | 0.23 - 22.5 | 5.7 | 1/14 |
| | Nickel | 5.6 - 168 | 10000 | 0/14 |
| | Potassium | 350 - 928 | -- | 0/14 |
| | Selenium | 0.52 - 1.9 | 6800 | 0/14 |

TABLE 1
Nature and Extent of Contamination
October 1990 to August 2007

| SURFACE SOIL | Potential Contaminants of Concern | Concentration Range Detected¹ (ppm)^a | Screening Criteria^b (ppm)^a | Frequency Exceeding Screening Criteria |
|---|--|---|---|---|
| | Silver | 0.56 - 0.56 | 6800 | 0/14 |
| | Sodium | 120 - 1770 | -- | 0/14 |
| | Vanadium | 11 - 97 | -- | 0/14 |
| | Zinc | 22 - 1310 | 10000 | 0/14 |
| Polychlorinated Biphenyls (PCBs) | Total Arochlors | ND - 25000 | 25 | 60/786 |
| Pesticides | None | All ND | | 0/10 |

| SUBSURFACE SOIL | Potential Contaminants of Concern | Concentration Range Detected¹ (ppm)^a | Screening Criteria^b (ppm)^a | Frequency Exceeding Screening Criteria |
|--|--|---|---|---|
| Volatile Organic Compounds (VOCs) | 1,2,4-Trimethylbenzene | 0.002 - 0.7 | 380 | 0/48 |
| | 4-Chlorotoluene+1,3,5-Trimethylbenzene | 0.0026 - 1 | 380 | 0/48 |
| | Acetone | 0.011 - 0.308 | 1000 | 0/48 |
| | Carbon Disulfide | 0.0051 - 0.017 | -- | 0/48 |
| | Ethylbenzene | 0.0013 - 0.22 | 780 | 0/48 |
| | Isopropylbenzene | 0.0035 - 0.3 | -- | 0/48 |
| | m+p-Xylene | 0.0022 - 0.2 | -- | 0/48 |
| | Methylene Chloride | 0.0036 - 0.258 | 1000 | 0/48 |
| | Naphthalene | 0.0024 - 0.55 | 1000 | 0/48 |
| | n-Butylbenzene | 0.0014 - 1.8 | 1000 | 0/48 |
| | n-Propylbenzene | 0.0022 - 0.57 | 1000 | 0/48 |
| | o-Xylene | 0.0013 - 0.59 | -- | 0/48 |
| | p-Isopropyltoluene | 0.013 - 0.28 | -- | 0/48 |
| | sec-Butylbenzene | 0.0052 - 0.0052 | 1000 | 0/48 |
| | Toluene | 0.00046 - 0.031 | 1000 | 0/48 |
| | Xylenes (total) | 0.137 - 0.137 | 1000 | 0/48 |

TABLE 1
Nature and Extent of Contamination
October 1990 to August 2007

| SUBSURFACE SOIL | Potential Contaminants of Concern | Concentration Range Detected ¹ (ppm) ^a | Screening Criteria ^b (ppm) ^a | Frequency Exceeding Screening Criteria |
|---|-----------------------------------|--|--|--|
| <i>Semivolatile Organic Compounds (SVOCs)</i> <i>(Excludes Samples analyzed for cPAH^c only)</i> | Total SVOCs | ND - 18.663 | 500 | 0/47 |
| <i>Total cPAHs^c</i> | Total cPAHs | ND - 119.2 | 25 | 18/376 |
| <i>Inorganic Compounds</i> | Aluminum | 2030 - 11100 | -- | 0/20 |
| | Arsenic | 0.73 - 11 | 16 | 0/20 |
| | Barium | 14 - 296 | 10000 | 0/20 |
| | Beryllium | 0.26 - 0.44 | 2700 | 0/20 |
| | Cadmium | 0.64 - 1.3 | 60 | 0/20 |
| | Calcium | 442 - 18100 | -- | 0/20 |
| | Chromium | 1.6 - 53 | -- | 0/20 |
| | Cobalt | 1.3 - 11 | -- | 0/20 |
| | Copper | 4.8 - 57 | 10000 | 0/20 |
| | Iron | 3080 - 18900 | -- | 0/20 |
| | Lead | 1.4 - 2600 | 1000 | 17/354 |
| | Magnesium | 874 - 4280 | -- | 0/20 |
| | Manganese | 30.6 - 342 | 10000 | 0/20 |
| | Mercury | 0.086 - 0.98 | 5.7 | 0/20 |
| | Nickel | 4.4 - 15 | 10000 | 0/20 |
| | Potassium | 220 - 1060 | -- | 0/20 |
| | Selenium | 0.22 - 0.22 | 6800 | 0/20 |
| | Silver | 0.59 - 0.59 | 6800 | 0/20 |
| | Sodium | 67 - 456 | -- | 0/20 |
| | Vanadium | 5.2 - 25 | -- | 0/20 |
| | Zinc | 16 - 270 | 10000 | 0/20 |
| <i>Polychlorinated Biphenyls (PCBs)</i> | Total Arochlors | ND - 3532.476 | 25 | 13/455 |
| <i>Pesticides</i> | Dieldrin | 1.521 | 2.8 | 0/13 |
| | Endrin | 1.422 | 410 | 0/13 |
| | Heptachlor | 0.485 | 29 | 0/13 |

TABLE 1
Nature and Extent of Contamination
October 1990 to August 2007

^a ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

^b SCG = standards, criteria, and guidance values

Soil:

PCBs - NYSDEC Site-Specific Cleanup Level (25 ppm)

Total cPAHs - NYSDEC Site-Specific Cleanup Level (25 ppm)

Lead - NYSDEC Site-Specific Cleanup Level (1,000 ppm)

SVOCs – NYSDEC TAGM 4046 (500 ppm)

Remaining soil parameters - NYSDEC Part 375 Industrial Standards

^c cPAHs = Seven specific polycyclic aromatic hydrocarbons (PAHs) the NYSDOH considers to be carcinogenic: (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene).

TABLE 2
Alternative 3
Summary of Soil Samples Exceeding Existing Site Specific Soil Cleanup Levels

| Remedial Zone | Designation | Depth ¹ | Concentration of Exceedance (ppm) ² | | |
|---------------|-------------|--------------------|--|-------|------|
| | | | PCBs | cPAHs | Lead |
| CPAH-1 | S-43 | 0-2 | - | 42.59 | - |
| CPAH-2 | TS36-13 | 0-1 | - | 30.2 | - |
| CPAH-2 | TS36-14 | 0-1 | - | 25.54 | - |
| CPAH-3 | TU-3 | 0-1 | - | 35.7 | - |
| CPAH-3 | TU-3 | 1-2 | - | 80.2 | - |
| CPAH-3 | TU-3 | 2-3 | - | 59.6 | - |
| CPAH-4 | TU-2 | 1-2 | - | 30.4 | - |
| CPAH-5 | TU-13 | 0-1 | - | 43.3 | - |
| CPAH-6 | CB-2 | 0-1 | - | 27.8 | - |
| CPAH-6 | CB-2E | 1-2 | - | 32.74 | - |
| CPAH-6 | CB-2W | 1-2 | - | 34.6 | - |
| CPAH-6 | CB-2W | 2-3 | - | 28.2 | - |
| CPAH-6 | CB-2WS | 1-2 | - | 34 | - |
| CPAH-6 | CB-2WS | 2-3 | - | 30.6 | - |
| CPAH-6 | PC-8 | 1-2 | - | 30.92 | - |
| CPAH-6 | PC-8SE | 0-1 | - | 35 | - |
| CPAH-7 | LP2-9 | 0-1 | - | 40.3 | - |
| CPAH-8 | SSY-57 | 1.5-2 | - | 40.95 | - |
| CPAH-9 | LLS-22 | 0-1 | - | 41.55 | - |
| CPAH-9 | LLS-23 | 0-1 | - | 70.8 | - |
| Lead-1 | QC-1 | 0-1 | - | - | 2520 |
| Lead-2 | QC-2 | 0-1 | - | - | 1760 |
| Lead-3 | QB-7 | 0-1 | - | - | 1940 |
| Lead-4 | QB-1A | 0-1 | - | - | 1020 |
| Lead-4 | QB-1E | 0-1 | - | - | 1120 |
| Lead-5 | QB-2 | 0-1 | - | - | 2990 |
| Lead-5 | QB-3 | 0-1 | - | - | 1050 |
| Lead-5 | QB-4 | 0-1 | - | - | 1040 |
| Lead-5 | QB-4 | 1-2 | - | - | 1690 |
| Lead-5 | QB-4A | 0-1 | - | - | 1180 |
| Lead-6 | QB-1 | 0-1 | - | - | 1140 |
| Lead-7 | HB-10 | 0-1 | - | - | 1030 |
| Lead-7 | HB-12 | 0-1 | - | - | 1110 |
| Lead-7 | HB-12+20 | 0-1 | - | - | 1180 |
| Lead-8 | HB-11 | 0-1 | - | - | 1010 |
| | | | Concentration of Exceedance (ppm) ² | | |

TABLE 2
Alternative 3
Summary of Soil Samples Exceeding Existing Site Specific Soil Cleanup Levels

| Remedial Zone | Designation | Depth ¹ | PCBs | cPAHs | Lead |
|---------------|-------------|--------------------|--|-------|------|
| Lead-9 | HB-13 | 0-1 | - | - | 1060 |
| Lead-9 | HB-13 | 1-2 | - | - | 1010 |
| Lead-9 | HB-13-20 | 0-1 | - | - | 1010 |
| Lead-9 | HB-13-40 | 0-1 | - | - | 1160 |
| Lead-10 | HB-19 | 1-2 | - | - | 1120 |
| Lead-10 | HB-21 | 1-2 | - | - | 1150 |
| Lead-10 | HB-21+20 | 0-1 | - | - | 1150 |
| Lead-10 | HB-21+40 | 0-1 | - | - | 1120 |
| Lead-11 | HB-20 | 1-2 | - | - | 1460 |
| Lead-12 | HB-3 | 0-1 | - | - | 2110 |
| Lead-12 | HB-3 | 1-2 | - | - | 1260 |
| Lead-12 | HB-3-20 | 0-1 | - | - | 2150 |
| Lead-12 | HB-3-20 | 1-2 | - | - | 2600 |
| Lead-12 | HB-3-40 | 0-1 | - | - | 2350 |
| Lead-12 | MW-31 | 0-2 | - | - | 1290 |
| Lead-13 | HBR-3 | 1-2 | - | - | 1510 |
| Lead-13 | HBR-4 | 0-1 | - | - | 1890 |
| Lead-13 | HBR-4 | 1-2 | - | - | 1320 |
| Lead-13 | HBR-4 | 2-3 | - | - | 1630 |
| Lead-14 | HBR-7 | 0-1 | - | - | 1700 |
| Lead-15 | HB-27 | 0-1 | - | - | 1260 |
| Lead-16 | HB-30 | 0-1 | - | - | 1350 |
| Lead-16 | HB-30 | 1-2 | - | - | 1380 |
| Lead-16 | HB-30 | 2-3 | - | - | 1320 |
| Lead-17 | HB-31 | 0-1 | - | - | 1860 |
| Lead-18 | TU-8 | 1-2 | - | - | 1100 |
| Lead-19 | FT-3 | 0-2 | - | - | 1320 |
| Lead-20 | LLS-15 | 0-1 | - | - | 7020 |
| PCB-1 | CS-47 | 2-4 | 49 | - | - |
| PCB-2 | PIT-4 | - | 470 | - | - |
| PCB-3 | CS-53 | 0-2 | 88 | - | - |
| PCB-3 | HB-17 | 0-1 | 4148.576 | - | 1110 |
| PCB-3 | HB-17 | 1-2 | 3532.476 | - | 1090 |
| PCB-3 | HB-17 | 2-3 | 1034.226 | - | - |
| PCB-3 | HB-17+20 | 0-1 | 29.086 | - | - |
| Remedial Zone | Designation | Depth ¹ | Concentration of Exceedance (ppm) ² | | |
| | | | PCBs | cPAHs | Lead |

TABLE 2
Alternative 3
Summary of Soil Samples Exceeding Existing Site Specific Soil Cleanup Levels

| PCB-3 | S-53 | 0-2 | 71.16 | - | - |
|---------------|-------------|--------------------|--|-------|------|
| PCB-3 | S-114 | 0-2 | 90 | - | - |
| PCB-4 | HB-22 | 0-1 | 77.663 | - | 1900 |
| PCB-4 | HB-22-20 | 0-1 | 103.63 | - | 1340 |
| PCB-4 | HB-22-40 | 0-1 | 84 | - | 1870 |
| PCB-4 | HB-23 | 0-1 | 525.6 | - | 2130 |
| PCB-4 | HB-23 | 1-2 | 866.944 | - | 2080 |
| PCB-4 | HB-23 | 2-3 | 806.914 | - | - |
| PCB-4 | HB-23+20 | 0-1 | 2572.294 | - | 2100 |
| PCB-4 | HB-23+40 | 0-1 | 40 | - | 2760 |
| PCB-4 | S-104 | 0-2 | 860 | - | - |
| PCB-4 | S-105 | 0-2 | 15000 | - | - |
| PCB-4 | S-106 | 0-2 | 20000 | - | - |
| PCB-4 | SB-16 | 6-7 | 380 | - | - |
| PCB-4 | SB-18 | 0-1 | 2400 | - | - |
| PCB-4 | SB-67 | 0-1 | 9700 | - | - |
| PCB-4 | SB-68 | 0-1 | 25000 | - | - |
| PCB-4 | SB-71 | 0-1 | 680 | - | - |
| PCB-5 | FT-2 | 0-2 | 73 | - | - |
| PCB-6 | PC-6 | 2-3 | 37 | - | - |
| PCB-7 | PC-10 | 0-1 | - | - | 2500 |
| PCB-7 | PC-10 | 1-2 | 26 | - | - |
| PCB-8 | 925-3 | 0-0.67 | 264 | - | - |
| PCB-8 | 925-3S | 0-1 | 54 | - | - |
| PCB-9 | S-101 | 0-2 | 71 | - | 1190 |
| PCB-10 | SB-45 | 0-1 | 790 | - | - |
| PCB-10 | SB-45E | 0-1 | 110 | - | - |
| PCB-10 | SB-45EE | 0-1 | 1200 | - | - |
| PCB-10 | SB-45EE | 1-2 | 33 | - | - |
| PCB-10 | SB-45EEE | 0-1 | 43 | - | - |
| PCB-10 | SB-45EES | 0-1 | 140 | - | - |
| PCB-10 | SB-45EN | 0-1 | 60 | - | - |
| PCB-10 | SB45-D1 | 0-1 | 29 | - | - |
| PCB-10 | SB45-D3 | 0-1 | 38 | - | - |
| PCB-10 | SB45-D3 | 1-2 | 940 | - | - |
| Remedial Zone | Designation | Depth ¹ | Concentration of Exceedance (ppm) ² | | |
| | | | PCBs | cPAHs | Lead |
| PCB-11 | LLS-11A | 1-2 | 92.2 | - | - |

TABLE 2
Alternative 3
Summary of Soil Samples Exceeding Existing Site Specific Soil Cleanup Levels

| | | | | | |
|--------|--------|-----|------|------|---|
| PCB-12 | LLS-21 | 0-1 | 38.9 | - | - |
| PCB-12 | LP2-3 | 0-1 | 68 | 42.5 | - |

Notes:

¹ - Depth is in feet below ground surface (ft bgs)

² - ppm = parts per million, which is equivalent to milligrams per kilogram (mg/kg)

Dash (-) indicates result did not exceed existing Site Soil Cleanup Objective.

TABLE 3
Alternative 4
Summary of Soil Samples Exceeding Modified Site Specific Soil Cleanup Levels

| Remedial Zone | Designation | Depth ¹ | Concentration of Exceedance (ppm) ² | | |
|---------------|-------------|--------------------|--|-------|------|
| | | | PCBs | cPAHs | Lead |
| Lead-20 | LLS-15 | 0-1 | - | - | 7020 |
| PCB-1 | CS-47 | 2-4 | 49 | - | - |
| PCB-2 | PIT-4 | - | 470 | - | - |
| PCB-3 | CS-53 | 0-2 | 88 | - | - |
| PCB-3 | HB-17 | 0-1 | 4148.576 | - | - |
| PCB-3 | HB-17 | 1-2 | 3532.476 | - | - |
| PCB-3 | HB-17 | 2-3 | 1034.226 | - | - |
| PCB-3 | HB-17+20 | 0-1 | 29.086 | - | - |
| PCB-3 | S-53 | 0-2 | 71.16 | - | - |
| PCB-3 | S-114 | 0-2 | 90 | - | - |
| PCB-4 | HB-22 | 0-1 | 77.663 | - | - |
| PCB-4 | HB-22-20 | 0-1 | 103.63 | - | - |
| PCB-4 | HB-22-40 | 0-1 | 84 | - | - |
| PCB-4 | HB-23 | 0-1 | 525.6 | - | - |
| PCB-4 | HB-23 | 1-2 | 866.944 | - | - |
| PCB-4 | HB-23 | 2-3 | 806.914 | - | - |
| PCB-4 | HB-23+20 | 0-1 | 2572.294 | - | - |
| PCB-4 | HB-23+40 | 0-1 | 40 | - | - |
| PCB-4 | S-104 | 0-2 | 860 | - | - |
| PCB-4 | S-105 | 0-2 | 15000 | - | - |
| PCB-4 | S-106 | 0-2 | 20000 | - | - |
| PCB-4 | SB-16 | 6-7 | 380 | - | - |
| PCB-4 | SB-18 | 0-1 | 2400 | - | - |
| PCB-4 | SB-67 | 0-1 | 9700 | - | - |
| PCB-4 | SB-68 | 0-1 | 25000 | - | - |
| PCB-4 | SB-71 | 0-1 | 680 | - | - |
| PCB-5 | FT-2 | 0-2 | 73 | - | - |
| PCB-6 | PC-6 | 2-3 | 37 | - | - |
| PCB-7 | PC-10 | 0-1 | - | - | - |
| PCB-7 | PC-10 | 1-2 | 26 | - | - |
| PCB-8 | 925-3 | 0-0.67 | 264 | - | - |
| PCB-8 | 925-3S | 0-1 | 54 | - | - |
| PCB-9 | S-101 | 0-2 | 71 | - | - |
| PCB-10 | SB-45 | 0-1 | 790 | - | - |
| | | | Concentration of Exceedance (ppm) ² | | |

TABLE 3
Alternative 4
Summary of Soil Samples Exceeding Modified Site Specific Soil Cleanup Levels

| Remedial Zone | Designation | Depth¹ | PCBs | cPAHs | Lead |
|----------------------|--------------------|--------------------------|-------------|--------------|-------------|
| PCB-10 | SB-45E | 0-1 | 110 | - | - |
| PCB-10 | SB-45EE | 0-1 | 1200 | - | - |
| PCB-10 | SB-45EE | 1-2 | 33 | - | - |
| PCB-10 | SB-45EEE | 0-1 | 43 | - | - |
| PCB-10 | SB-45EES | 0-1 | 140 | - | - |
| PCB-10 | SB-45EN | 0-1 | 60 | - | - |
| PCB-10 | SB45-D1 | 0-1 | 29 | - | - |
| PCB-10 | SB45-D3 | 0-1 | 38 | - | - |
| PCB-10 | SB45-D3 | 1-2 | 940 | - | - |
| PCB-11 | LLS-11A | 1-2 | 92.2 | - | - |
| PCB-12 | LLS-21 | 0-1 | 38.9 | - | - |
| PCB-12 | LP2-3 | 0-1 | 68 | - | - |

Notes:

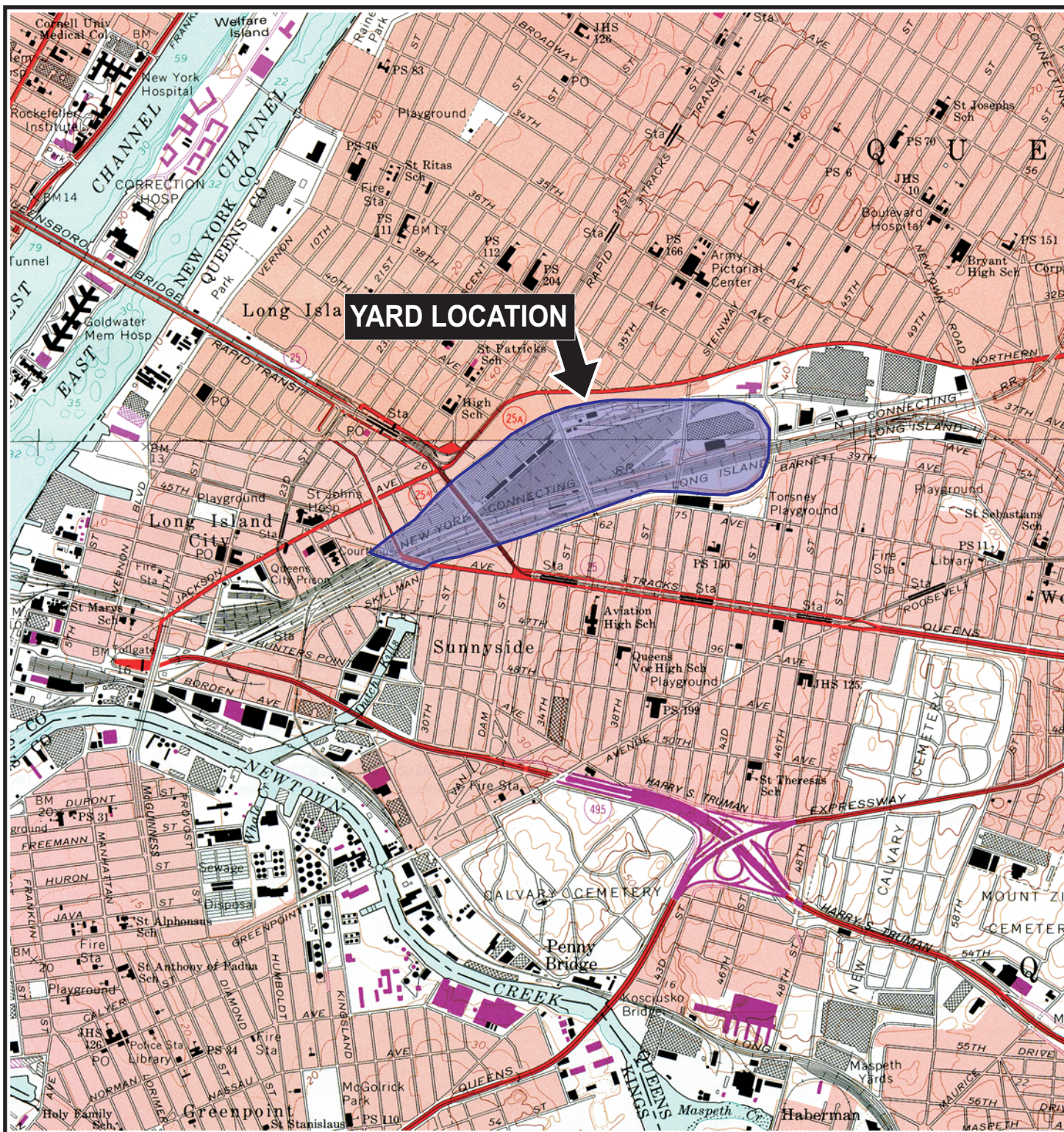
¹ - Depth is in feet below ground surface (ft bgs)

² - ppm = parts per million, which is equivalent to milligrams per kilogram (mg/kg)

Dash (-) indicates result did not exceed modified Site Soil Cleanup Objective.

Table 4
Remedial Alternative Costs

| Remedial Alternative | Capital Cost (\$) | Annual Costs (\$) | Total Present Worth (\$) |
|---|--------------------------|--------------------------|---------------------------------|
| 1. No Action | \$0 | \$0 | \$0 |
| 2. Soil Excavation/Off-site Disposal - Predisposal Unrestricted Use SCO's | <i>\$180,000,000</i> | \$0 | \$180,000,000 |
| 3. Soil Excavation/Off-site Disposal – Existing Site Specific Soil Cleanup Levels | <i>\$2,200,000</i> | \$0 | \$2,200,000 |
| 4. Soil Excavation/Off-site Disposal – Modified Site Specific Soil Cleanup Levels | <i>\$1,100,000</i> | \$0 | \$1,100,000 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |



SOURCE:
CENTRAL PARK AND BROOKLYN, NEW YORK
QUADRANGLE 7.5 MINUTE SERIES (TOPOGRAPHIC)



QUADRANGLE
LOCATION

0 2000'



Title:

LOCATION OF SITE

OU-4 PROPOSED
REMEDIAL ACTION PLAN

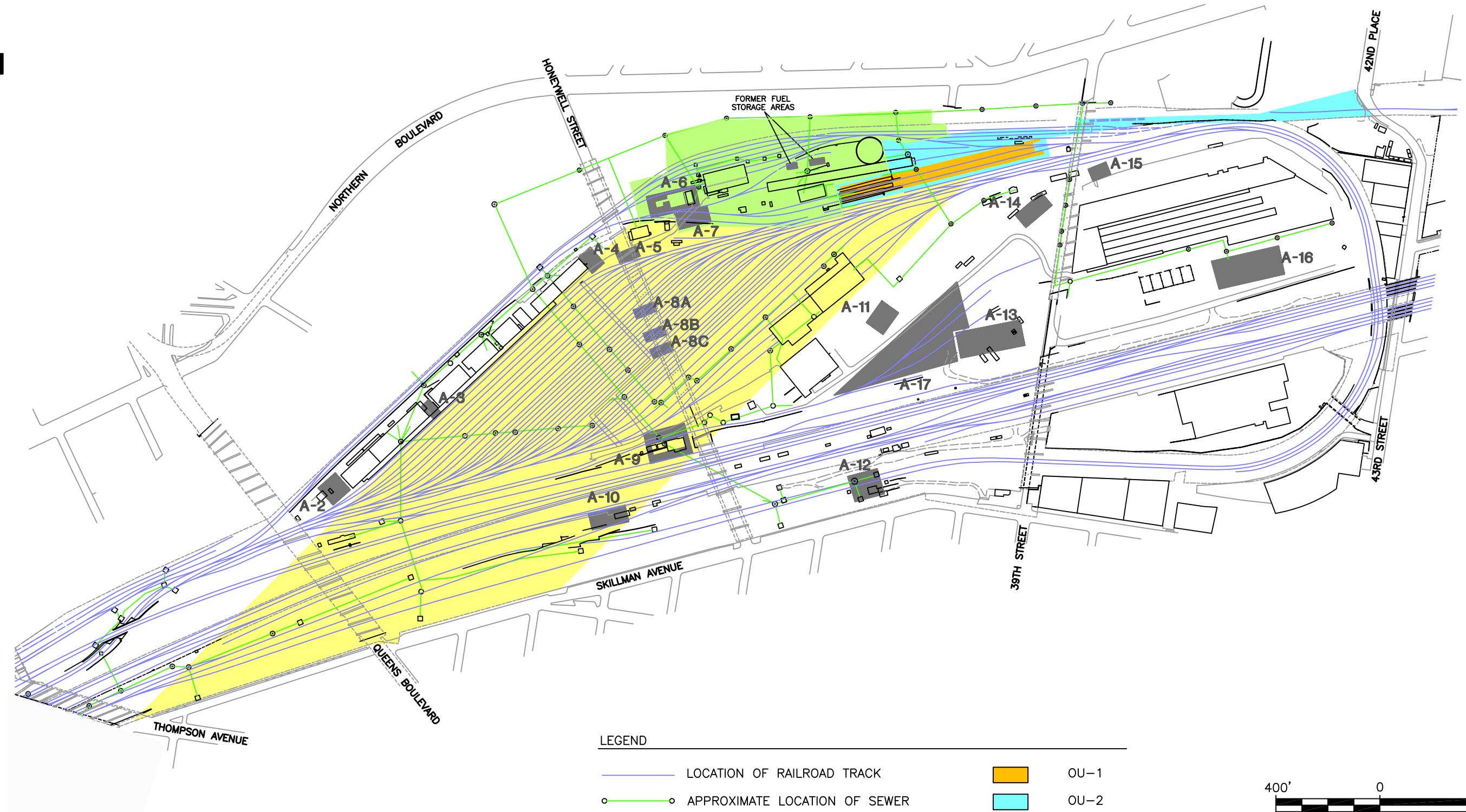
Prepared for:

AMTRAK

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting
& Management

| | | |
|---------------------------|-----------------------|--------------------|
| Compiled by: H.G. | Date: 11FEB09 | FIGURE 1 |
| Prepared by: J.A.D. | Scale: 1"=2000' | |
| Project Mgr.: H.G. | Office: NY | |
| File No.: AM71.146.01.CDR | Project No.: 05571Y09 | |

N:\PROJECTS\AM055\AM71\146\AM71.146.02.DWG

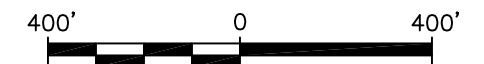


NOTES

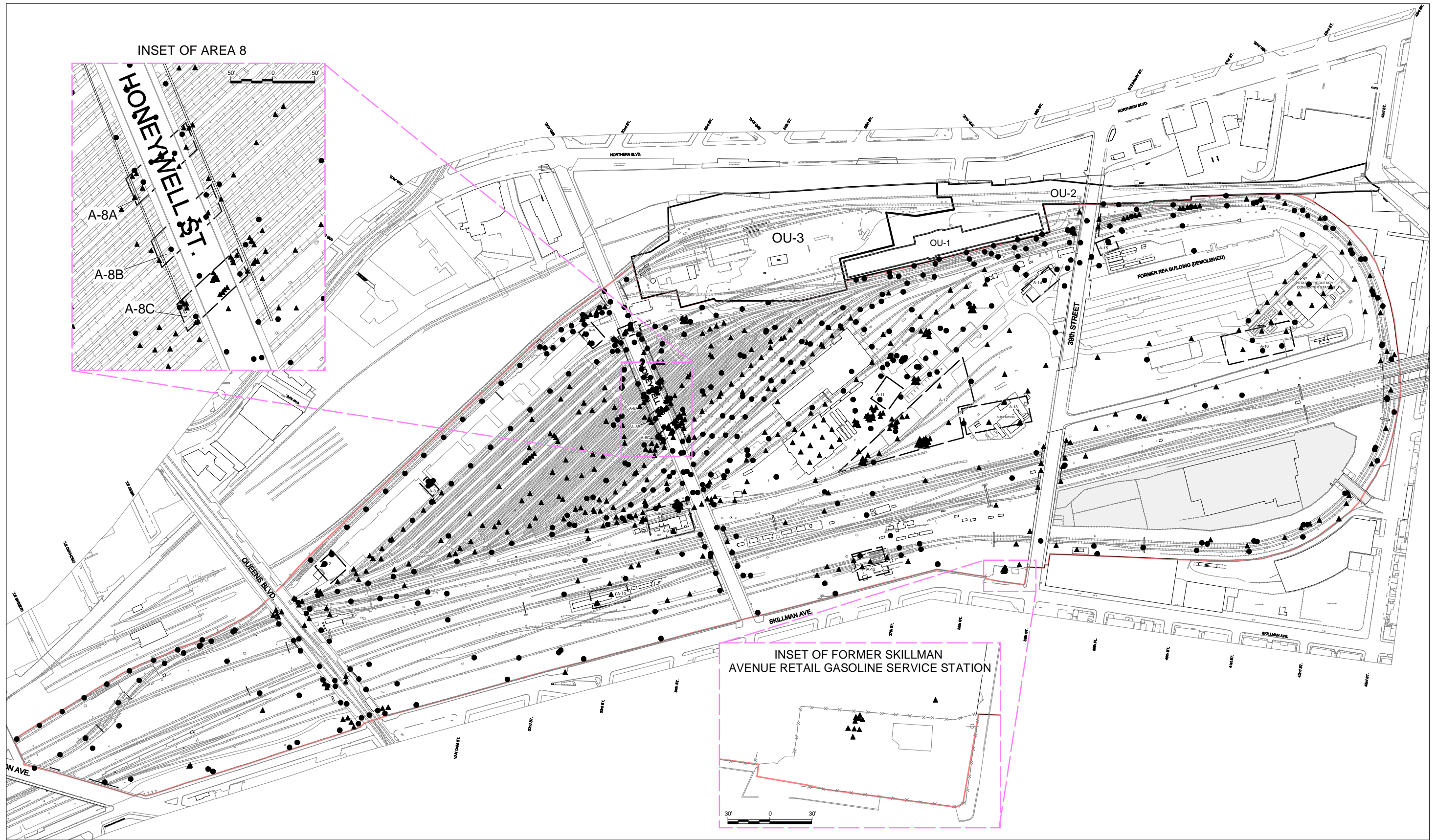
1. LOCATIONS OF SEWER COMPONENTS BASED UPON A REVIEW OF AMTRAK-SUPPLIED ENGINEERING DIAGRAM AND LIMITED FIELD SURVEY.
2. OU-6, GROUND WATER BENEATH THE YARD, IS NOT SHOWN.
3. LIRR - LONG ISLAND RAIL ROAD

LEGEND

| | | | |
|--|---|--|------|
| | LOCATION OF RAILROAD TRACK | | OU-1 |
| | APPROXIMATE LOCATION OF SEWER | | OU-2 |
| | GRATE COVER CATCH BASIN LOCATION | | OU-3 |
| | SOLID COVER MANHOLE LOCATION | | OU-4 |
| | GRATE COVER MANHOLE LOCATION | | OU-5 |
| | LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN | | |
| | APPROXIMATE PROPERTY BOUNDARY | | |



| | | | |
|---|----------------------|-------------------|--------------------|
| Title: AMTRAK YARD LAYOUT | | | |
| OU-4 PROPOSED REMEDIAL ACTION PLAN | | | |
| Prepared For: AMTRAK | | | |
| ROUX ASSOCIATES, INC. Environmental Consulting & Management | Compiled by: H.G. | Date: 11FEB09 | FIGURE 2 |
| | Prepared by: J.A.D. | Scale: AS SHOWN | |
| | Project Mgr: H.G. | Office: NY | |
| | File No: AM71.146.02 | Project: 05571Y09 | |



- LOCATION OF SOIL BORING COMPLETED IN OU-4 AND ANALYZED FOR PCBs, cPAHS, AND LEAD
- ▲ LOCATION OF SOIL BORING COMPLETED IN OU-4 AND ANALYZED FOR ONE OR TWO OF THE FOLLOWING: PCBs, cPAHS, OR LEAD, BUT NOT ALL THREE

— APPROXIMATE EXTENT OF OU-4 BOUNDARY

EXPLANATION

- [A-9] LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)
- PRIVATE PROPERTY NOT OWNED BY AMTRAK (NOT PART OF SUNNYSIDE YARD)

NOTES:

OU-4 - OPERABLE UNIT 4

PCB - POLYCHLORINATED BIPHENYL

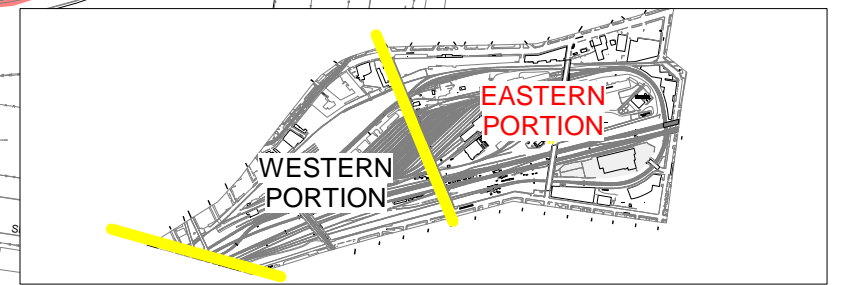
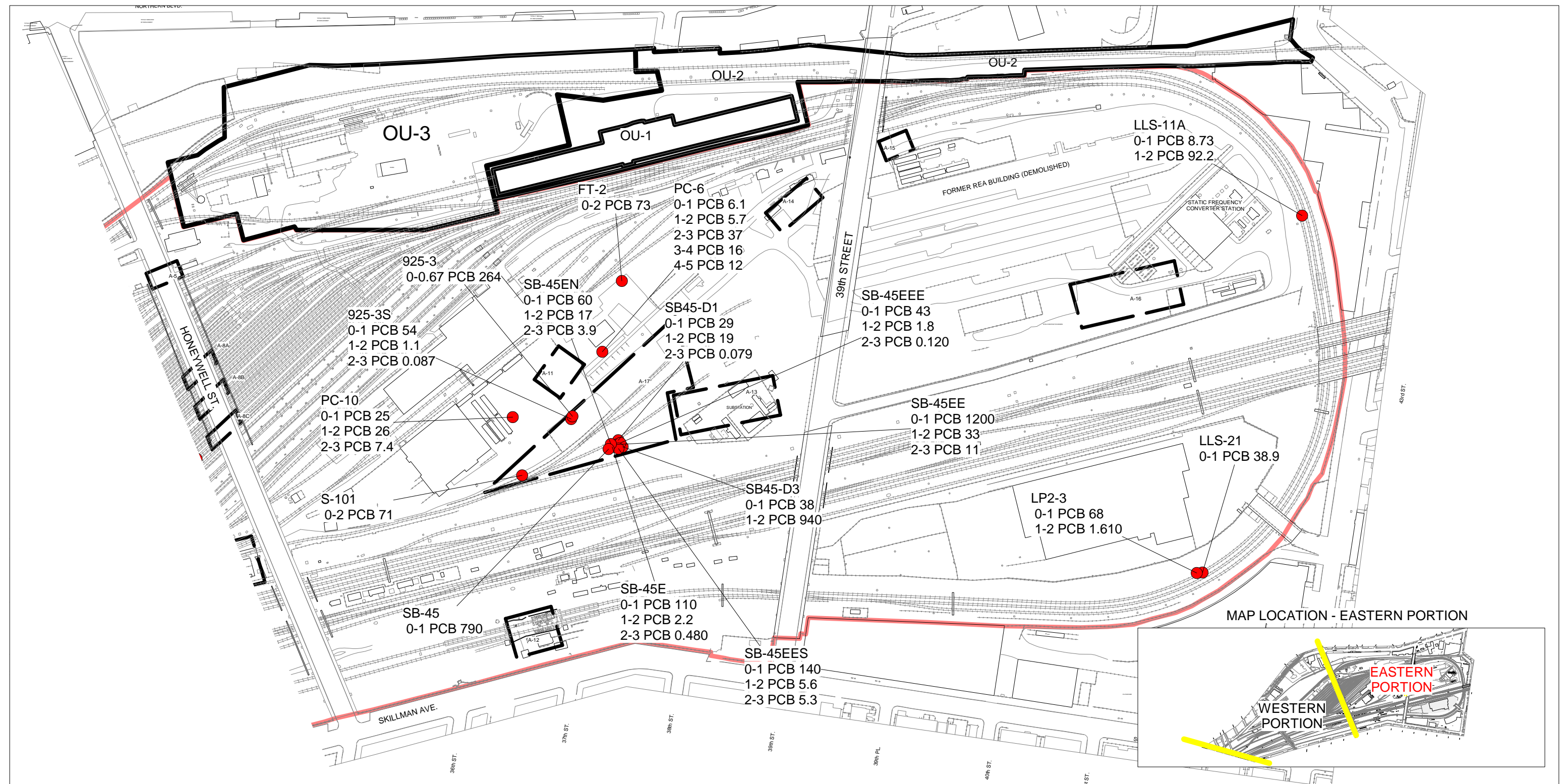
cPAHS - SEVEN SPECIFIC POLYCYCLIC AROMATIC HYDROCARBONS CONSIDERED BY THE NYSDEC TO BE CARCINOGENIC



OU-4 SOIL BORING LOCATIONS

OU-4 PROPOSED REMEDIAL ACTION PLAN

| | | | |
|--------------------------|----------------------------|------------------------|--------|
| Prepared For: | | AMTRAK | |
| ROUX ASSOCIATES INC. | Prepared By: RSKLD | Date: 3/13/2008 | FIGURE |
| Environmental Consulting | Project Manager: RSKLD | Scale: 1/4"=1'-0" | 3 |
| 1000 Broadway | Project No: 00111400010100 | Project: 10015.0071100 | |



SOIL SAMPLE EXPLANATION

DESIGNATION

S-101
0-2 PCB 71

TOTAL PCB
CONCENTRATION
IN SOIL (MG/KG)

SAMPLE DEPTH
(FT BLS)

LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN THE YARD SOIL CLEANUP LEVEL, AND STILL PRESENT AT YARD

A-9

LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)

APPROXIMATE EXTENT OF OU-4 BOUNDARY

240' 0 240'

Title:

OU-4 SOIL QUALITY

TOTAL PCB EXCEEDANCES IN SOIL
(EASTERN PORTION OF YARD)

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For:

AMTRAK

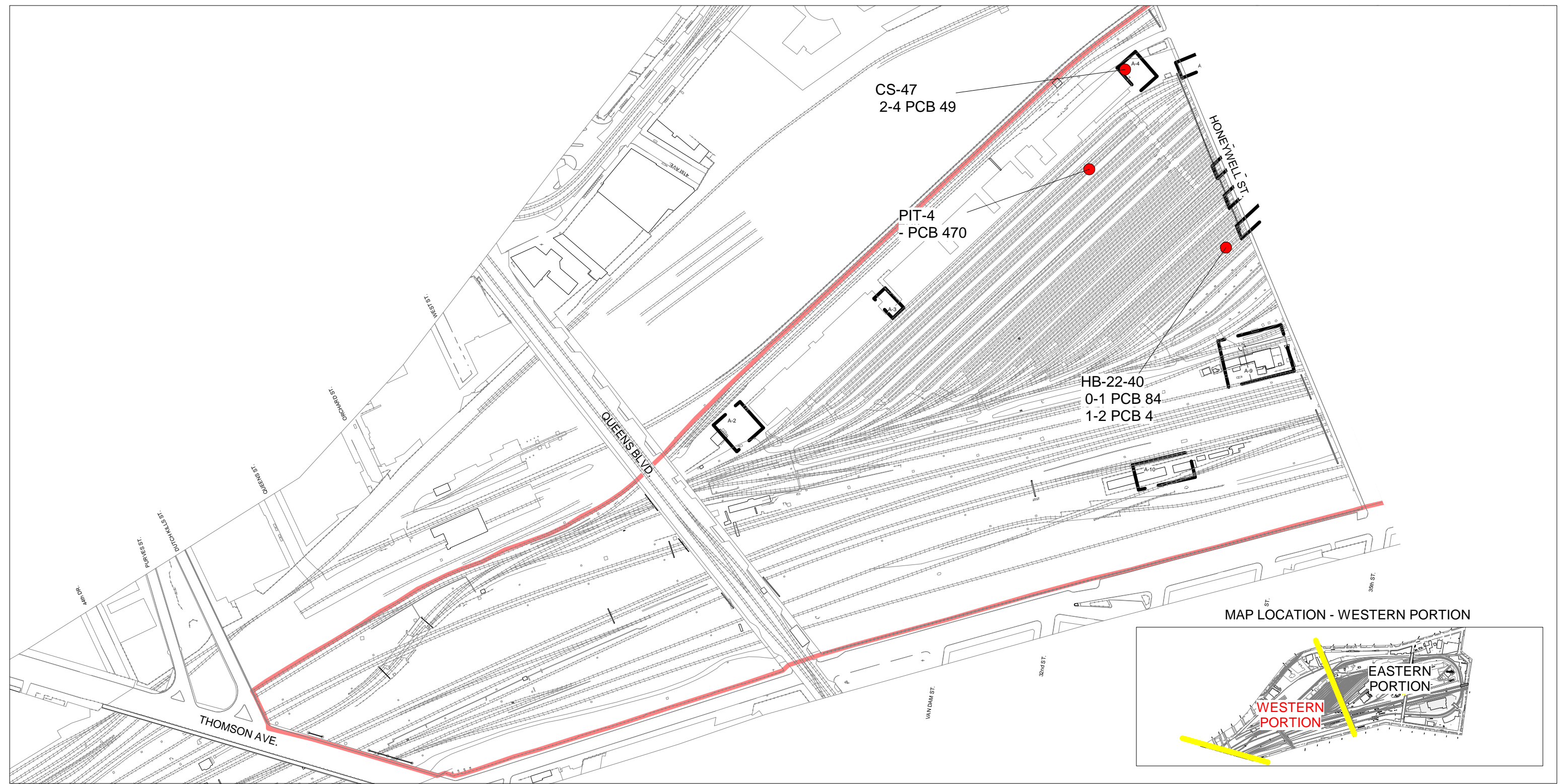
ROUX
ROUX ASSOCIATES INC
Environmental Consulting
& Management

Compiled by: RSK
Prepared by: RSK
Project Mgr: HG

Date: 2/10/2009
Scale: SHOWN
Office: NY
Project: 0055.0071Y009

FIGURE

4



SOIL SAMPLE EXPLANATION

DESIGNATION

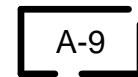
CS-47
2-4 PCB 49

TOTAL PCB
CONCENTRATION
IN SOIL (MG/KG)

SAMPLE DEPTH
(FT BLS)



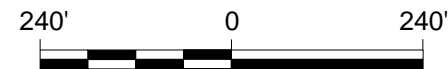
LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN THE YARD SOIL CLEANUP LEVEL, AND STILL PRESENT AT YARD



LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)



APPROXIMATE EXTENT OF OU-4 BOUNDARY



Title:

OU-4 SOIL QUALITY

TOTAL PCB EXCEEDANCES IN SOIL
(WESTERN PORTION OF YARD)

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For:



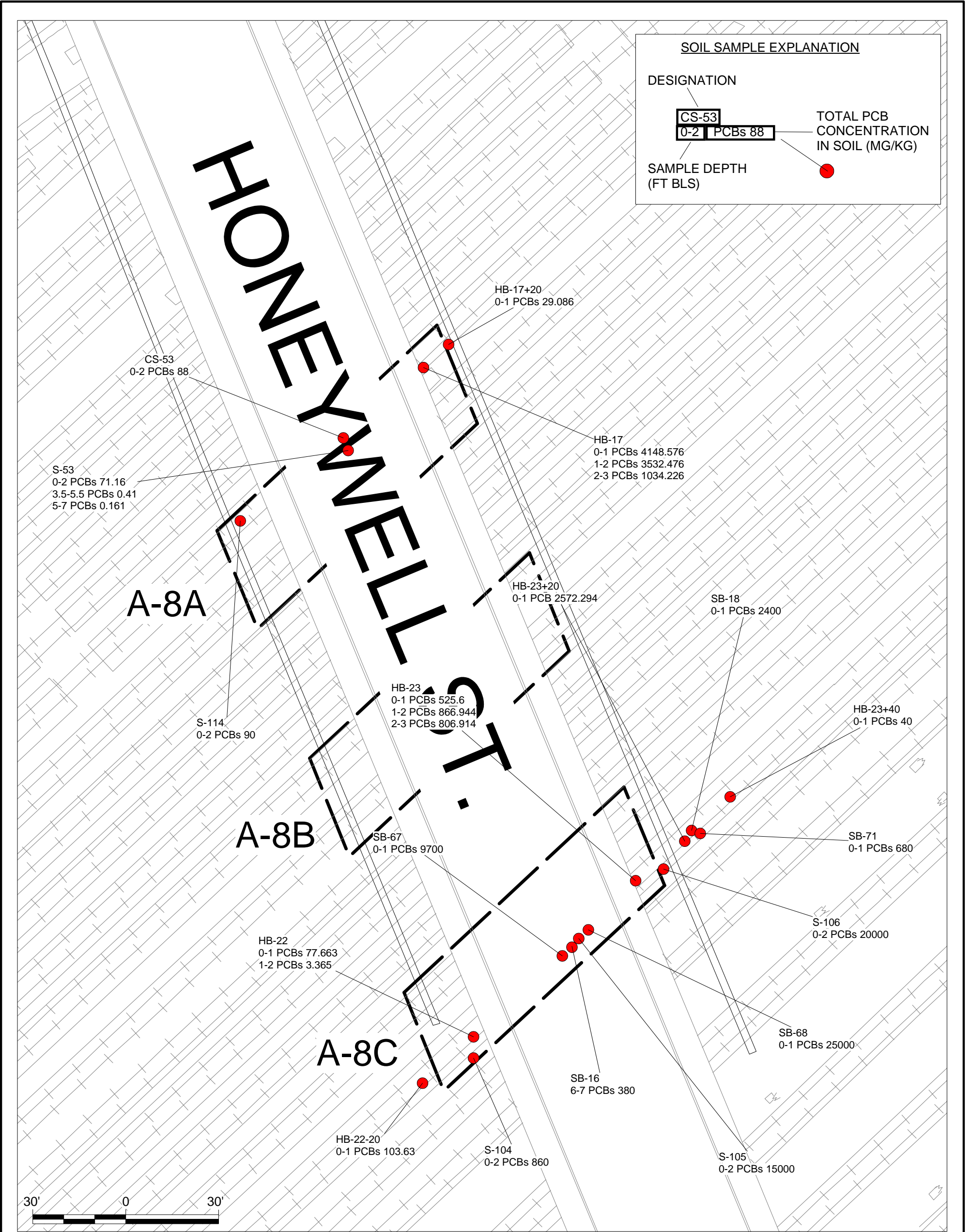
ROUX
ROUX ASSOCIATES INC
Environmental Consulting
& Management

Compiled by: RSK
Prepared by: RSK
Project Mgr: HG
File No: AM7114604B.WOR

Date: 2/10/2009
Scale: SHOWN
Office: NY
Project: 0055.0071Y009

FIGURE

5



LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN THE YARD SOIL CLEANUP LEVEL, AND STILL PRESENT AT YARD

LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)

NOTES:

YARD SOIL CLEANUP LEVEL FOR PCBs - 25 MG/KG

OU-4 - OPERABLE UNIT 4

PCB - POLYCHLORINATED BIPHENYL

cPAHS - SEVEN SPECIFIC POLYCYCLIC AROMATIC HYDROCARBONS CONSIDERED BY THE NYSDEC TO BE CARCINOGENIC

MG/KG - MILLIGRAMS PER KILOGRAM

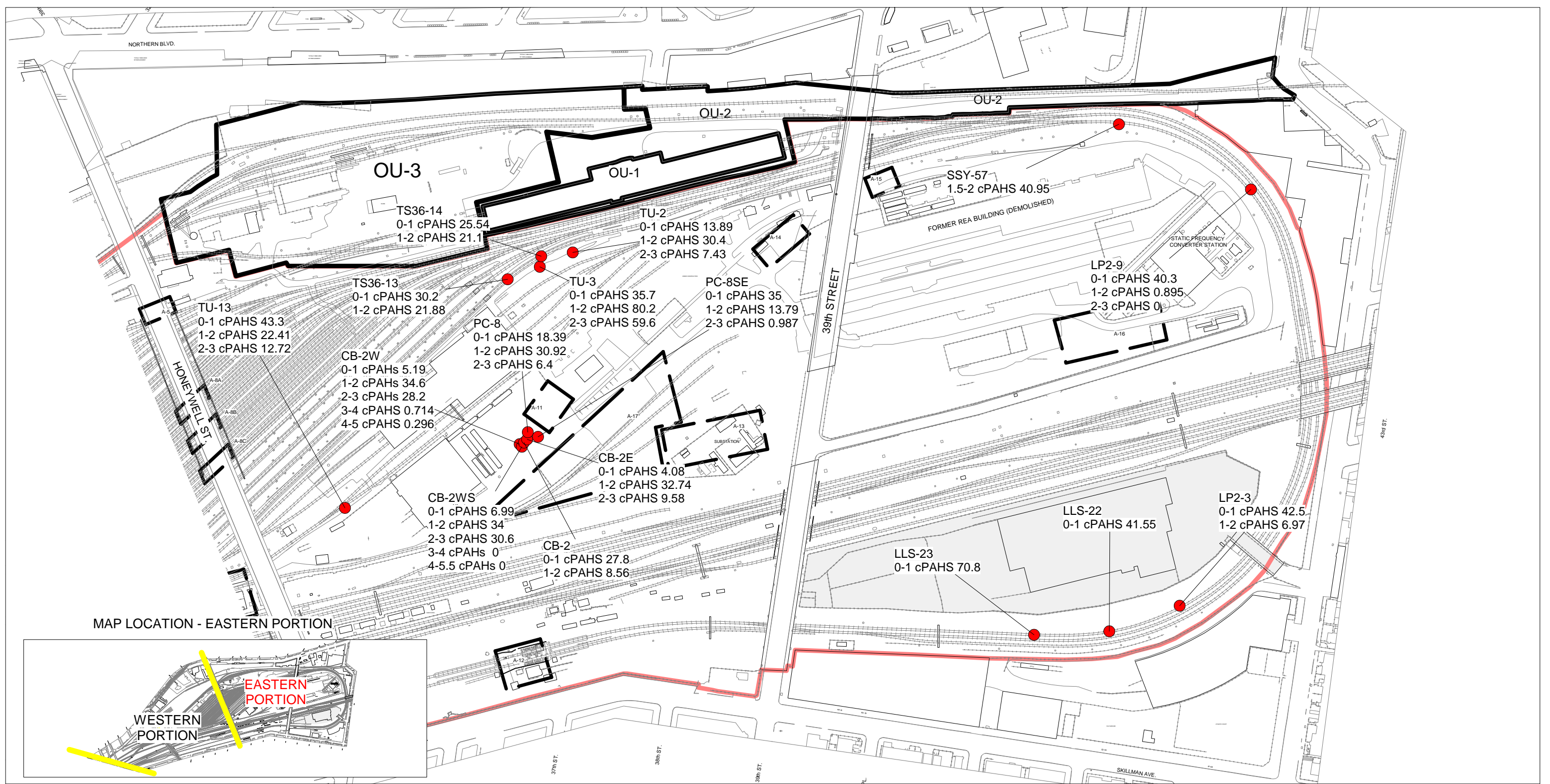
FT BLS - FEET BELOW LAND SURFACE

Title: **OU-4 SOIL QUALITY-
TOTAL PCB EXCEEDANCES
IN SOIL (AREA 8)**

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For:

| | | | |
|---|------------------------|------------------------|--------------------|
| ROUX ASSOCIATES INC Environmental Consulting & Management | Compiled by: RSK | Date: 2/10/2009 | FIGURE 6 |
| | Prepared by: RSK/LD | Scale: SHOWN | |
| | Project Mgr: HG | Office: NY | |
| | File No: AM7114605.WOR | Project: 0055.0071Y009 | |



SOIL SAMPLE EXPLANATION

DESIGNATION

SSY-57
1.5-2 cPAHS 40.95

SAMPLE DEPTH
(FT BLS)

TOTAL cPAHS
CONCENTRATION
IN SOIL (MG/KG)

LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR cPAHS GREATER THAN THE CURRENT YARD SOIL CLEANUP LEVEL, AND STILL PRESENT AT YARD (AMTRAK HAS REQUESTED AN ALTERNATE CLEANUP LEVEL)

A-9

PRIVATE PROPERTY NOT OWNED BY AMTRAK
(NOT PART OF SUNNYSIDE YARD)

LOCATION AND DESIGNATION OF PREVIOUSLY
DETERMINED AREA OF CONCERN (AREA)

APPROXIMATE EXTENT OF OU-4
BOUNDARY

Title:

OU-4 SOIL QUALITY

TOTAL cPAH EXCEEDANCES IN SOIL
(EASTERN PORTION OF YARD)

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For:

AMTRAK

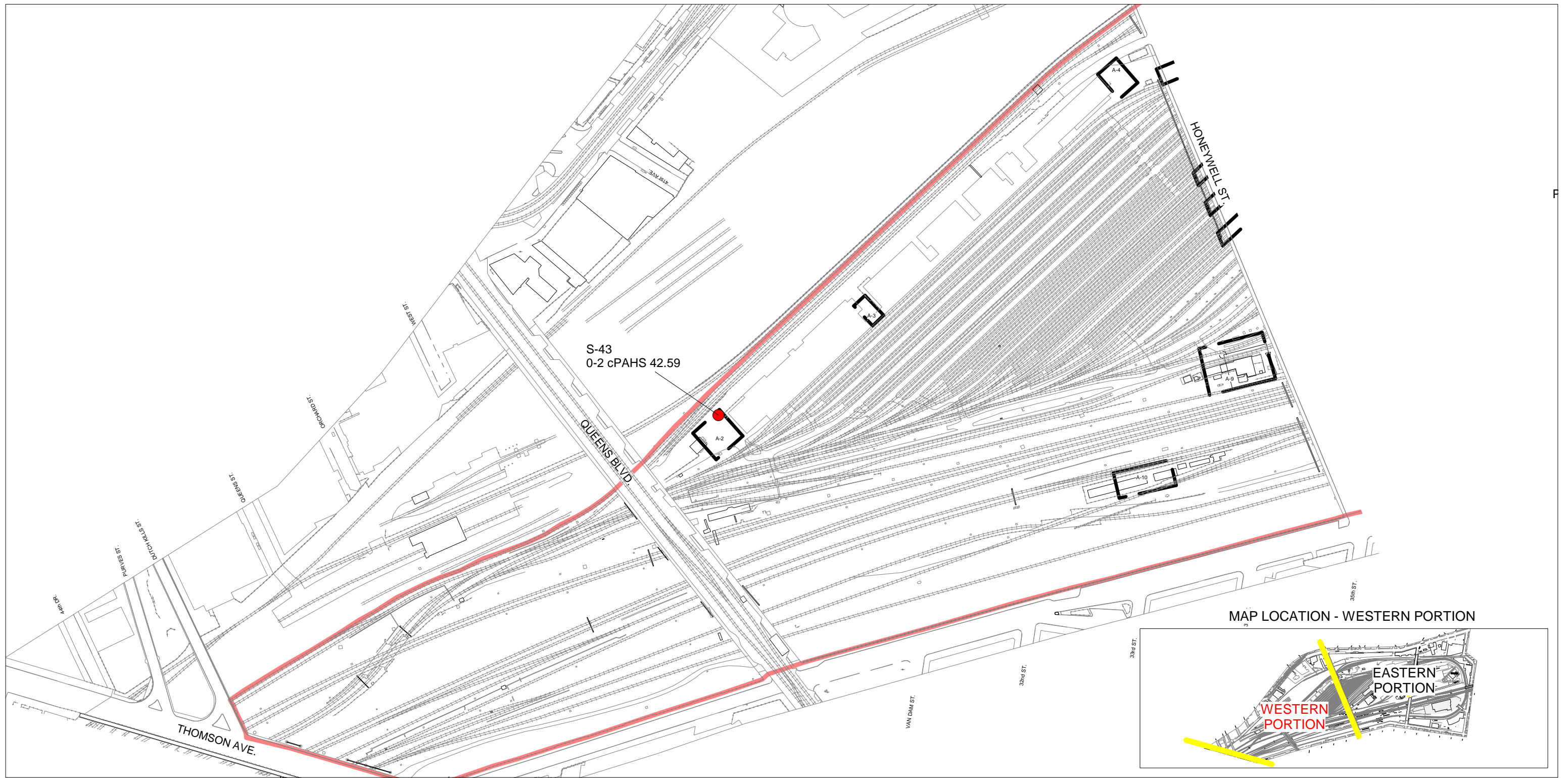
ROUX
ROUX ASSOCIATES INC.
Environmental Consulting
& Management

| | |
|-------------------------|--------------------------|
| Compiled by: LD | Date: 2/10/2009 |
| Prepared by: LD | Scale: 1 INCH = 200 FEET |
| Project Mgr: HG | Office: NY |
| File No: AM7114606A.WOR | Project: 0055.0071Y009 |

FIGURE

7

240' 0 240'



SOIL SAMPLE EXPLANATION

DESIGNATION

SSY-57
1.5-2 cPAHS 40.95

SAMPLE DEPTH
(FT BLS)

TOTAL cPAHS
CONCENTRATION
IN SOIL (MG/KG)

LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR cPAHS GREATER THAN THE CURRENT YARD SOIL CLEANUP LEVEL, AND STILL PRESENT AT YARD (AMTRAK HAS REQUESTED AN ALTERNATE CLEANUP LEVEL)

A-9

LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)

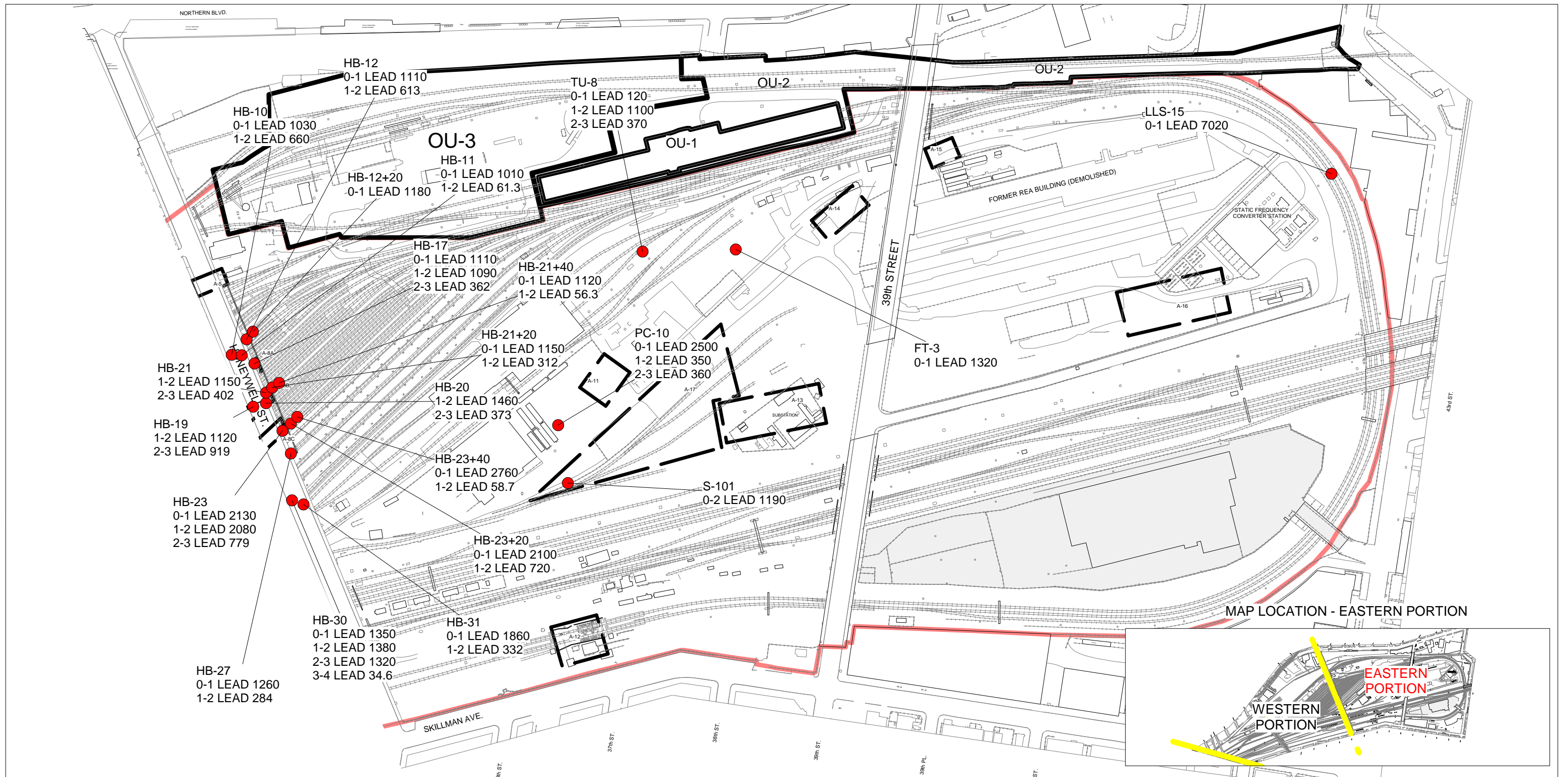
APPROXIMATE EXTENT OF OU-4 BOUNDARY



Title: **OU-4 SOIL QUALITY**
TOTAL cPAH EXCEEDANCES IN SOIL
(WESTERN PORTION OF YARD)
OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For: **AMTRAK**

| | | | |
|--|-------------------------|--------------------------|--------------------|
| ROUX ROUX ASSOCIATES INC Environmental Consulting & Management | Compiled by: LD | Date: 2/10/2009 | FIGURE 8 |
| | Prepared by: LD | Scale: 1 INCH = 240 FEET | |
| | Project Mgr: HG | Office: NY | |
| | File No: AM7114606B.WOR | Project: 0055.0071Y009 | |



SOIL SAMPLE EXPLANATION

DESIGNATION

HB-23
0-1 LEAD 2130

TOTAL LEAD
CONCENTRATION
IN SOIL (MG/KG)

SAMPLE DEPTH
(FT BLS)

LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR LEAD GREATER THAN THE CURRENT YARD SOIL CLEANUP LEVEL, AND STILL PRESENT AT YARD (AMTRAK HAS REQUESTED 3,900 MG/KG IN ACCORDANCE WITH 6NYCRR PART 375)

A-9

PRIVATE PROPERTY NOT OWNED BY AMTRAK
(NOT PART OF SUNNYSIDE YARD)

LOCATION AND DESIGNATION OF PREVIOUSLY
DETERMINED AREA OF CONCERN (AREA)

APPROXIMATE EXTENT OF OU-4
BOUNDARY

240' 0 240'

Title:

OU-4 SOIL QUALITY

TOTAL LEAD EXCEEDANCES IN SOIL
(EASTERN PORTION OF YARD)

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For:

AMTRAK

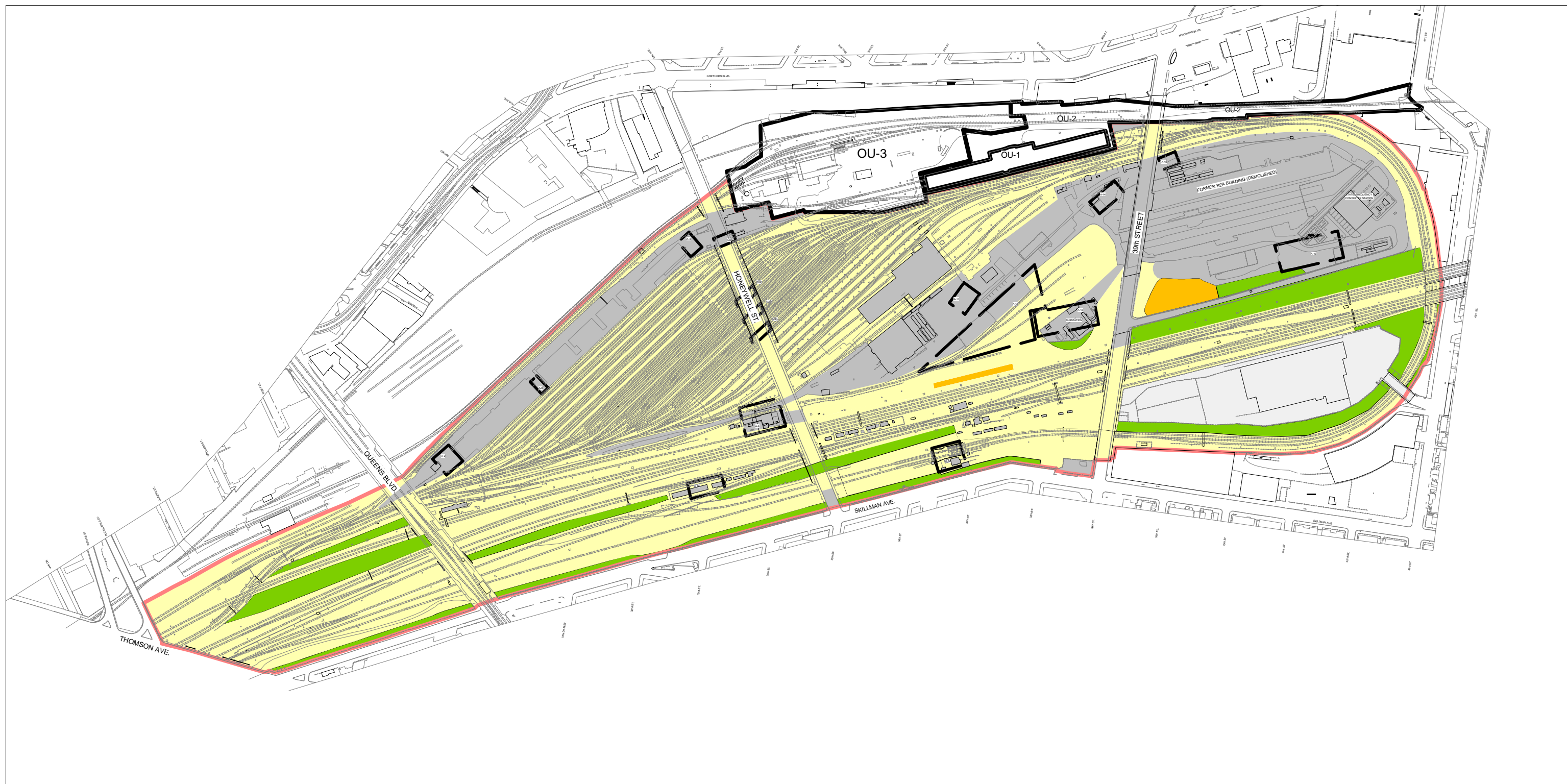
ROUX
Environmental Consulting
& Management

Compiled by: LD
Prepared by: LD
Project Mgr: HG

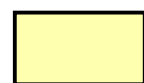
Date: 2/10/2009
Scale: 1 INCH = 200 FEET
Office: NY
Project: 0055.0071Y009

FIGURE

9



DESCRIPTION OF LAND SURFACE COVER



TRACK (INCLUDES TRACKS, BALLAST,
CONCRETE AND PAVED WALKWAYS)
(65.13 ACRES - 54.27%)



BRUSH/VEGETATION
(20.66 ACRES - 17.21%)



EXPOSED GROUND
(4.59 ACRES - 3.82%)



APPROXIMATE EXTENT OF OU-4
BOUNDARY

NOTE:
APPROXIMATE TOTAL AREA OF
OPERABLE UNIT 4 IS 120 ACRES.



Title:

OU-4 - LAND SURFACE COVER

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For:



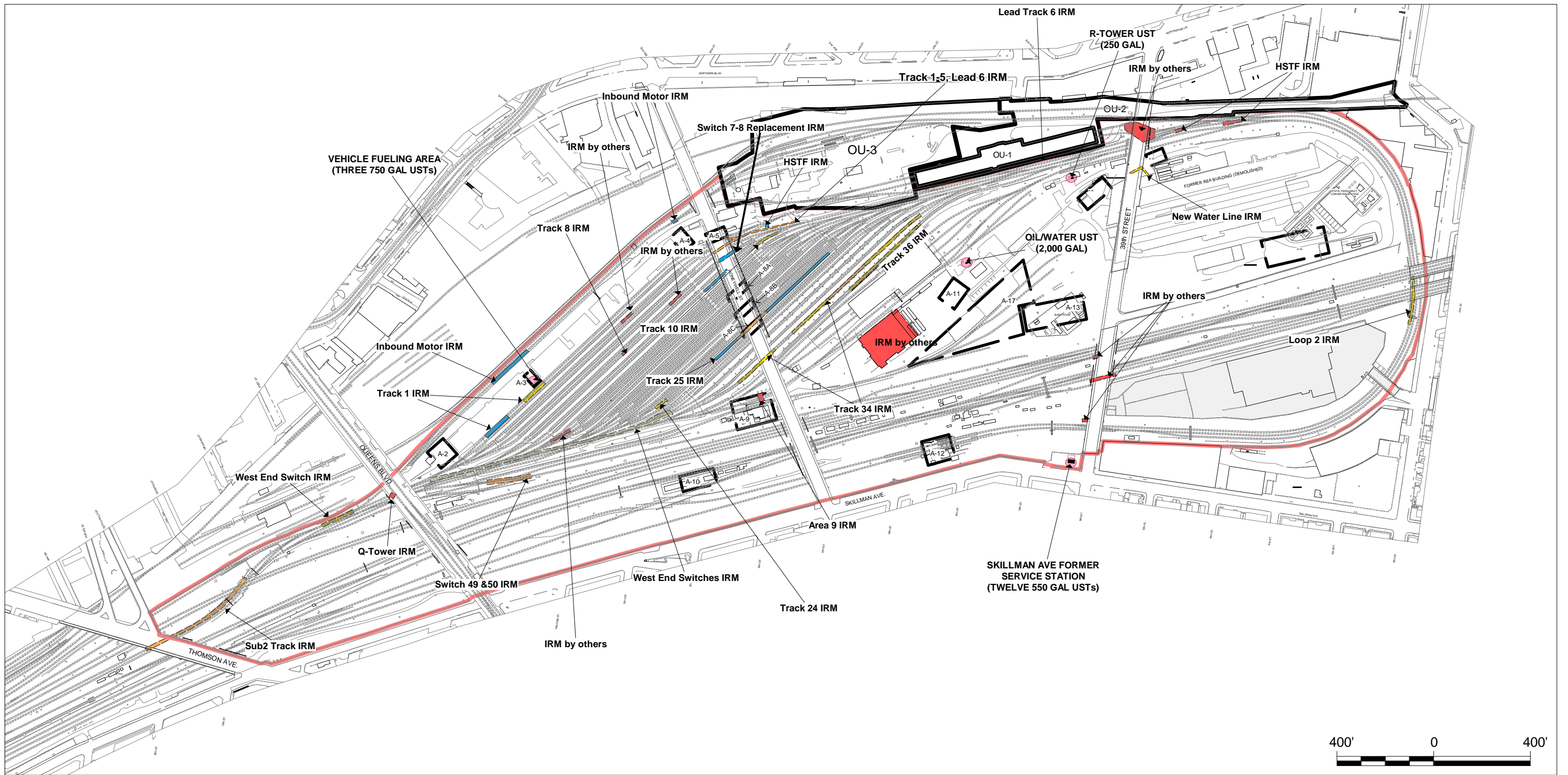
ROUX
ROUX ASSOCIATES INC
Environmental Consulting
& Management

Compiled by: RSK
Prepared by: RSK
Project Mgr: HG
File No: AM7114608.WOR

Date: 1/16/2009
Scale: 1 INCH = 400 FEET
Office: NY
Project: 0055.0071Y009

FIGURE

11



APPROXIMATE EXTENT OF IRM EXCAVATION COMPLETED TO ADDRESS PCB EXCEEDANCE (25 MG/KG)



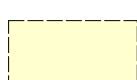
APPROXIMATE EXTENT OF IRM EXCAVATION COMPLETED TO ADDRESS LEAD EXCEEDANCE (1,000 MG/KG)



APPROXIMATE EXTENT OF IRM EXCAVATION COMPLETED TO ADDRESS TOTAL cPAH EXCEEDANCE (25 MG/KG)



APPROXIMATE EXTENT OF IRM EXCAVATION COMPLETED TO ADDRESS AN EXCEEDANCE OF MULTIPLE COCs



APPROXIMATE EXTENT OF IRM EXCAVATION COMPLETED TO ADDRESS TOTAL cPAH EXCEEDANCE OF FORMER YARD SOIL CLEANUP LEVEL (10 MG/KG)

NOTES:

THE SOIL IRMS DESIGNATED AS "IRM BY OTHERS" REFERS TO THE SEVEN PCB-RELATED IRMS PERFORMED BY AMTRAK CONTRACTORS

IRM - INTERIM REMEDIAL MEASURE

OU-4 - OPERABLE UNIT 4

COCs - COMPOUNDS OF CONCERN FOR THE YARD (PCBs, TOTAL cPAHS, AND LEAD)

MG/KG - MILLIGRAMS PER KILOGRAM

UST - UNDERGROUND STORAGE TANK

Title:

SUMMARY OF SOIL AND UST REMOVAL IRMS PREVIOUSLY COMPLETED IN OU-4

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For:



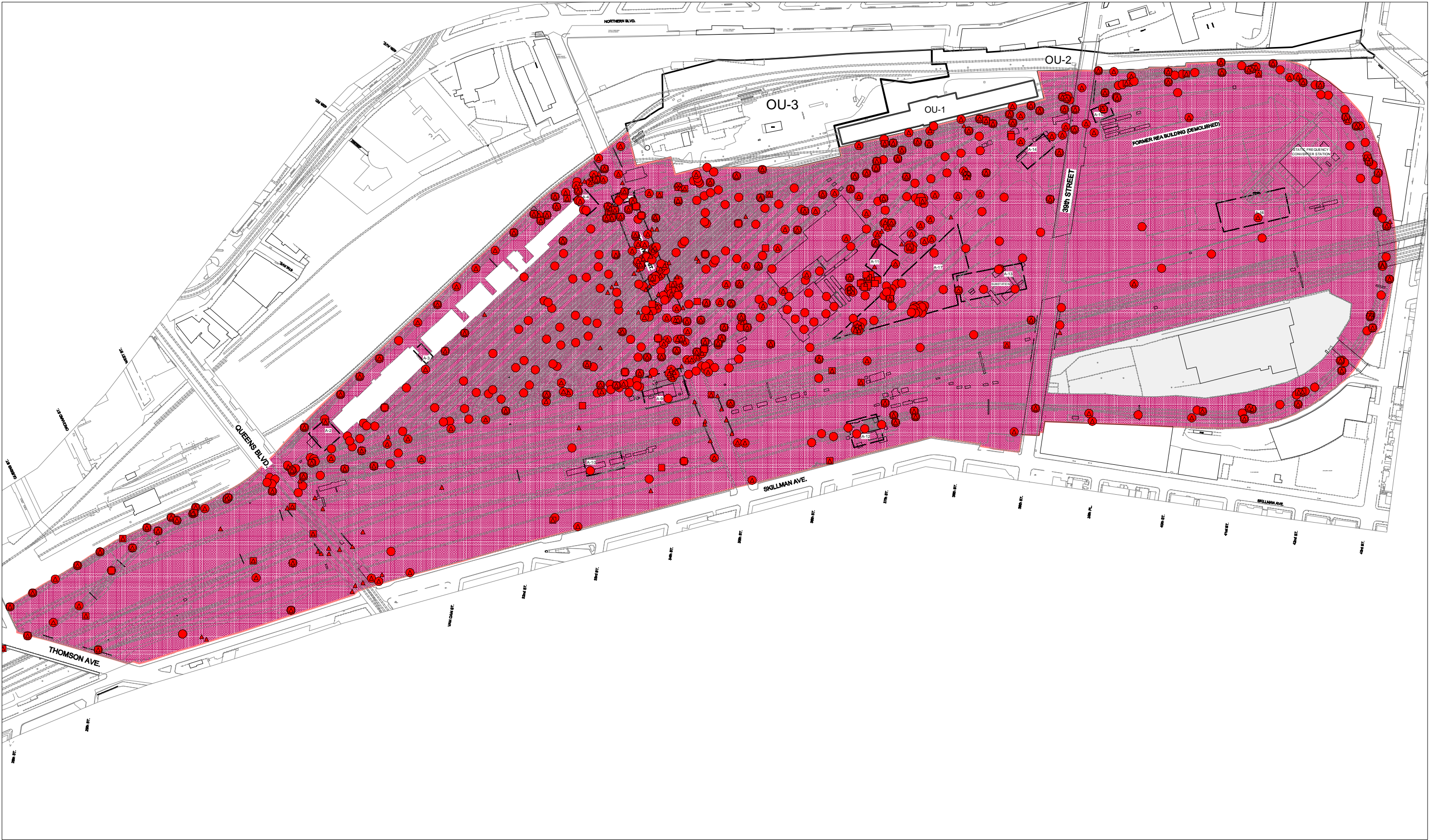
ROUX
ROUX ASSOCIATES INC
Environmental Consulting
& Management

Compiled by: RSK
Prepared by: RSK
Project Mgr: HG
File No: AM7114609.WOR

Date: 2/11/2009
Scale: 1 INCH = 400 FEET
Office: NY
Project: 0055.0071Y009

FIGURE

12



- LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN THE NYSDEC 6 NYCRR PART 375 UNRESTRICTED USE CRITERIA
- LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS GREATER THAN THE NYSDEC 6 NYCRR PART 375 UNRESTRICTED USE CRITERIA FOR ONE OR MORE cPAH COMPOUNDS

▲ LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR LEAD GREATER THAN THE NYSDEC 6 NYCRR PART 375 UNRESTRICTED USE CRITERIA

APPROXIMATE EXTENT OF PROPOSED REMEDIAL ALTERNATIVE 2 EXCAVATION TO ADDRESS YARD COC EXCEEDANCES OF THE NYSDEC 6 NYCRR PART 375 UNRESTRICTED USE CRITERIA



NYSDEC 6 NYCRR PART 375 UNRESTRICTED USE CRITERIA

| COMPOUND | CRITERIA | UNITS |
|------------------------|----------|-------|
| PCBs | 0.1 | MG/KG |
| LEAD | 63 | MG/KG |
| BENZO(A)ANTHRACENE | 1 | MG/KG |
| BENZO(A)PYRENE | 1 | MG/KG |
| BENZO(B)FLUORANTHENE | 1 | MG/KG |
| BENZO(K)FLUORANTHENE | 0.8 | MG/KG |
| CHRYSENE | 1 | MG/KG |
| DIBENZO(A,H)ANTHRACE | 0.33 | MG/KG |
| INDENO(1,2,3-CD)PYRENE | 0.5 | MG/KG |

- A-9 LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AOC)
- PRIVATE PROPERTY NOT OWNED BY AMTRAK (NOT PART OF SUNNYSIDE YARD)
- APPROXIMATE EXTENT OF OU-4 BOUNDARY

NOTES:


- OU-4 - OPERABLE UNIT 4
- SCOs - SOIL CLEANUP OBJECTIVES
- MG/KG - MILLIGRAMS PER KILOGRAM




13

ALTERNATIVE 2 - SOIL EXCAVATION TO UNRESTRICTED USE SCOs

OU-4 PROPOSED REMEDIAL ACTION PLAN

Prepared For: 

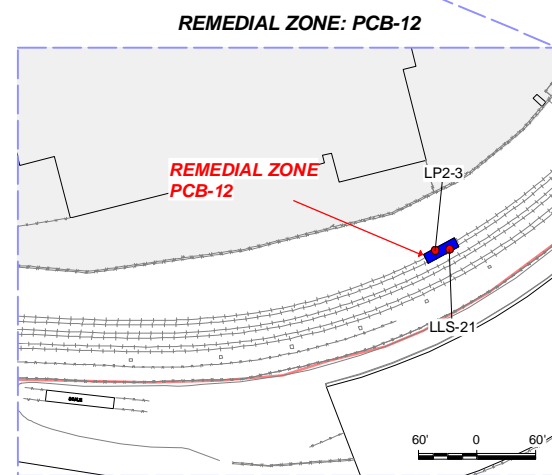
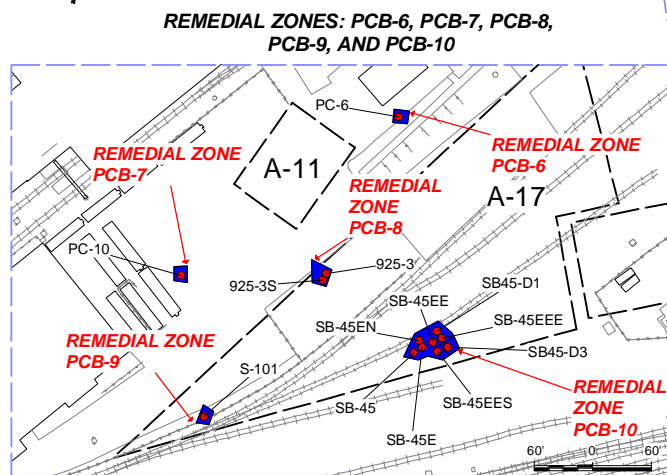
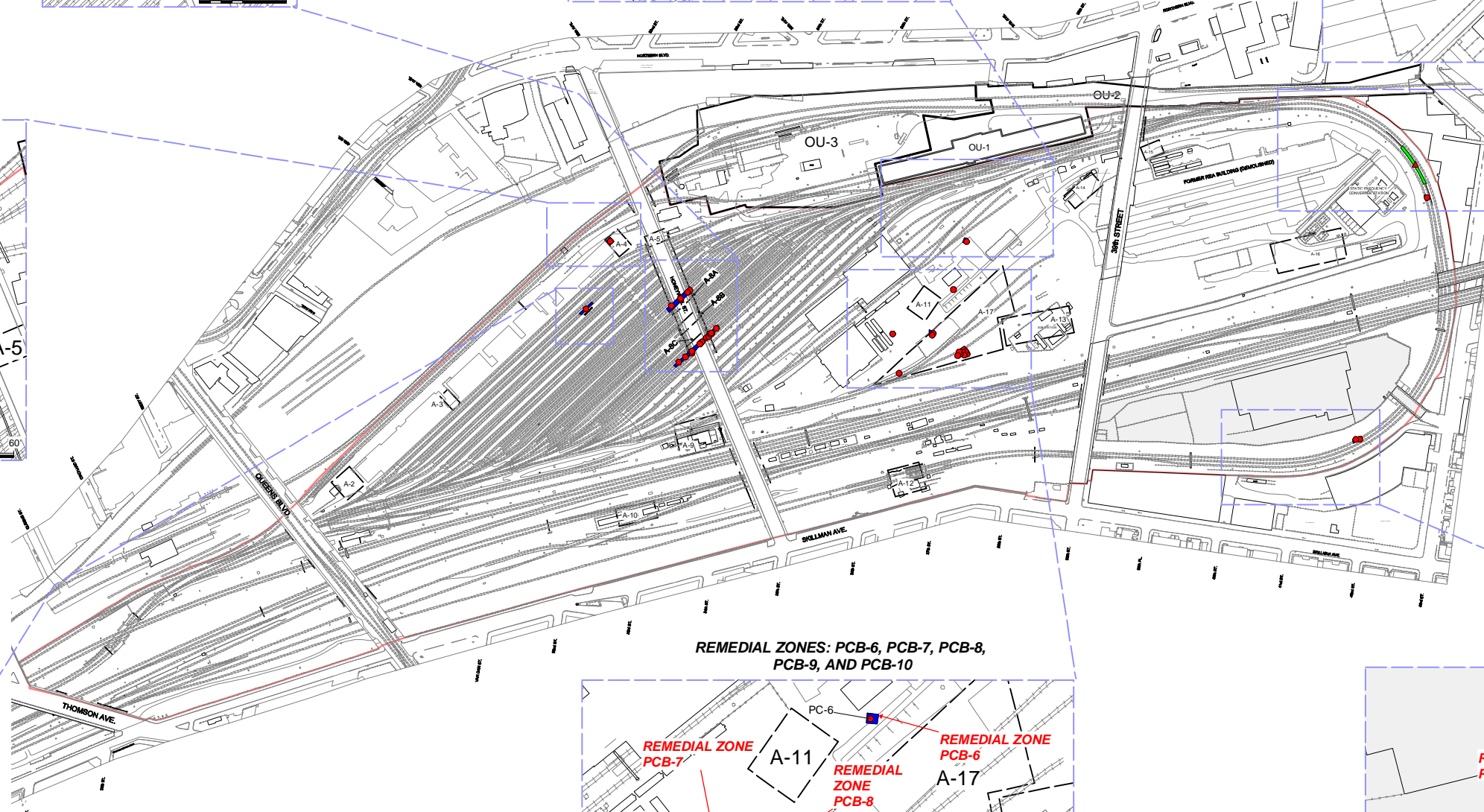
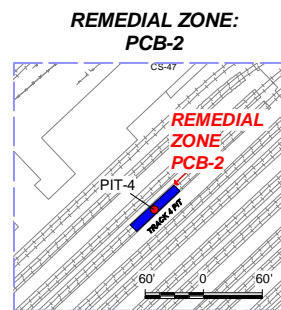
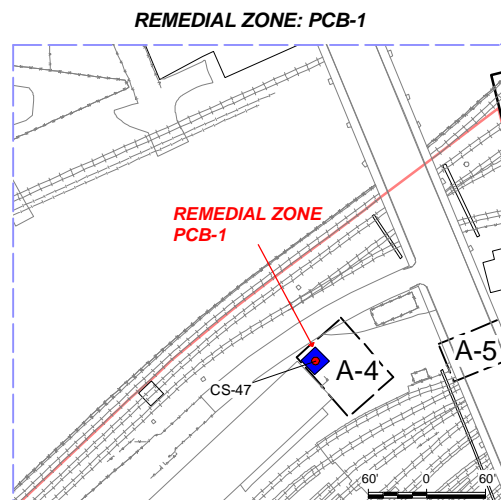
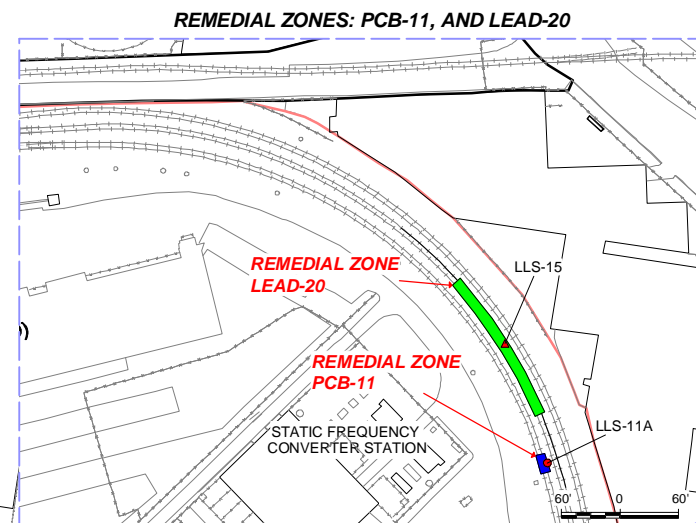
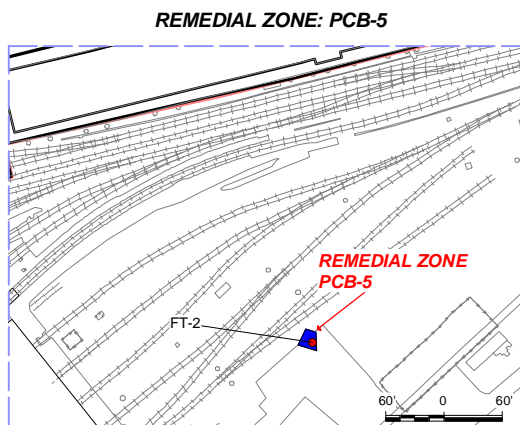
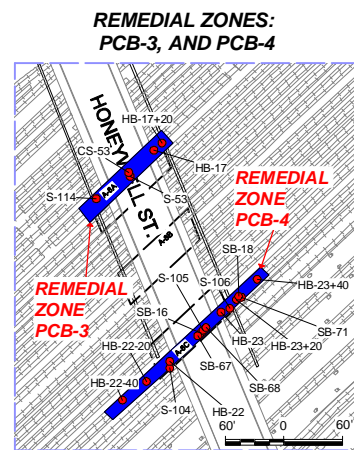
Prepared By:  ROUX ASSOCIATES INC. Environmental Consulting & Management

Date: 10/22/2020

Scale: 20'X10'

Office: NY

Project: 2020.001.Y17005



S-114 LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN THE EXISTING SITE SPECIFIC SOIL CLEANUP LEVEL (25 MG/KG) AND STILL PRESENT AT YARD

LLS-15 LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR LEAD GREATER THAN THE MODIFIED SITE SPECIFIC SOIL CLEANUP LEVEL (3,900 MG/KG, CONSISTENT WITH 6NYCRR PART 375) AND STILL PRESENT AT YARD

EXPLANATION

- APPROXIMATE EXTENT OF PROPOSED REMEDIAL ALTERNATIVE 4 EXCAVATION TO ADDRESS PCB EXCEEDANCE OF 25 MG/KG
- APPROXIMATE EXTENT OF PROPOSED REMEDIAL ALTERNATIVE 4 EXCAVATION TO ADDRESS LEAD EXCEEDANCE OF 3,900 MG/KG

- LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)
- PRIVATE PROPERTY NOT OWNED BY AMTRAK (NOT PART OF SUNNYSIDE YARD)
- APPROXIMATE EXTENT OF OU-4 BOUNDARY

NOTES:
1. MG/KG - MILLIGRAMS PER KILOGRAM
2. OU-4 - OPERABLE UNIT 4

