RESULTS OF THE ADDITIONAL DELINEATION OF AREAS OF CONCERN A-8, A-9 AND A-17,

Sunnyside Yard
Queens, New York

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October 6, 1994

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1.0 INTRODUCTION

Roux Associates, Inc. (Roux Associates) was retained by the National Railroad Passenger Corporation (AMTRAK) to further delineate the extent of polychlorinated biphenyls (PCBs) in specific areas of concern at the Sunnyside Yard, Queens, New York (Yard) and to evaluate the need for a soil interim remedial measure (IRM). The Yard, which consists of a railroad maintenance and storage facility, is shown in Figure 1. Roux Associates, on behalf of AMTRAK, is conducting a facility-wide Remedial Investigation/Feasibility Study (RI/FS) at the Yard. A review of soil quality data generated during performance of the Phase 1 and Phase 2 RIs indicated that Areas of Concern A-8A, A-8B, A-8C, A-9 and A-17, (Plate 1, Figure 2, and Plate 2, respectively) required additional delineation for polychlorinated biphenyls (PCBs).

To develop the data necessary for the additional delineation of PCBs in the above-referenced areas of concern, Roux Associates prepared a scope of work which included soil boring and sampling, field analysis of soil samples for PCBs using immunoassay test kits, and confirmatory laboratory analysis of selected samples. This scope of work was presented to the New York State Department of Environmental Conservation (NYSDEC) in Roux Associates' "Work Plan for the Additional Delineation of Areas A-8, A-9 and A-17", dated July 28, 1993 (Work Plan) and was approved by the NYSDEC on October 27, 1993. Based on a review of the Phase 1 data, additional delineation (Phase 2) was deemed necessary and the NYSDEC was notified of the need for the additional work in a June 2, 1994, letter from Roux Associates. As expressed to the NYSDEC in an April 8, 1993, letter from Mr. R. Noonan of AMTRAK, a PCB concentration of 25 parts per million (ppm) was used for this delineation and will also be used as the action level for the IRM soil remediation, if required.

2.0 PREVIOUS INVESTIGATIONS

During performance of the Phase 1 RI, PCBs were detected in soil samples from areas of concern A-8 (A-8A, A-8B and A-8C), A-9, and A-17. During performance of the Phase 2 RI, additional soil samples from these areas of concern were collected to delineate the extent of PCB contamination. PCBs were detected at concentrations ranging from less than 1 ppm (Area A-8A) to 20,000 ppm (area A-8C). Additionally, soils excavated from the Area A-8B track beds during routine maintenance contained PCBs.

As a result of the distribution and magnitude of the additional detections during the Phase 2 RI, further delineation was deemed necessary.

3.0 METHODS OF INVESTIGATION

The initial (Phase 1) soil boring and sampling program and PCB immunoassay field screening activities were conducted during the period from March 16 through 24, 1994. A review of the Phase 1 data indicated the need for a Phase 2 investigation to complete the delineation of PCBs in Areas A-8A, A-8C and A-17 to the 25 ppm action level. The Phase 2 soil boring and sampling and PCB immunoassay field screening was conducted during the periods from August 9 through August 18 and August 25 through August 29, 1994. All field work for the investigation was performed in accordance with the Work Plan. The Phase 1 soil borings were completed by Aquifer Drilling and Testing, Inc., of Long Island City, New York, and the Phase 2 soils borings were completed by Land, Air, Water Environmental Services, Inc., of Center Moriches, New York, under the direct supervision of a Roux Associates hydrogeologist. All soil sampling was performed by Roux Associates, and the PCB field screening using Millipore EnviroGard™ immunoassay field kits was performed by Millipore (Phase 1) and Roux Associates (Phase 2) personnel. Ms. Betty Seeley and Mr. Fred Woodward, chemists with the NYSDEC's Bureau of Technical Services in Albany, New York, visited the Yard and observed the PCB field screening performed by Roux Associates on March 22, 1994.

Based on a review of the initial Phase 1 immunoassay results and concerns regarding the validity of the data, selected samples were re-analyzed by Roux Associates, but the results were inconclusive. As a result, Millipore representatives visited Roux Associates and the results were further evaluated by Millipore research scientists. Based on their evaluation, it was deemed necessary to re-analyze all of the Phase 1 samples. This work was performed on April 13, 1994, by Millipore at their research laboratory using the original soil extracts which had remained refrigerated. The Millipore-generated Phase 1 results and the Roux Associates-generated Phase 2 results, are presented in this report. The methods of investigation are summarized in the following sections.

3.1 Soil Boring and Sampling

In accordance with the Work Plan scope of work, 55 Phase 1 soil borings (designated SB-1 through SB-55) and 32 Phase 2 soil borings (designated SB-56 through SB-87) were completed in Areas A-8, A-9 and A-17. Of the 87 soil borings completed, 34 soil borings

(SB-1 through SB-18 and SB-56 through SB-71) were completed in Area A-8, nine soil borings (SB-19 through SB-27) were completed in Area A-9, and 44 soil borings (SB-28 through SB-55 and SB-72 through SB-87) were completed in Area A-17. In addition, based on a review of the Phase 1 results, deeper samples were collected at five Phase 1 boring locations during the Phase 2 investigation. Seven soil borings in Area A-17 were moved due to obstructions; the remaining soil borings were completed at the locations specified in the Work Plan and in the subsequent June 2, 1994, letter from Roux Associates to the NYSDEC regarding the need for the Phase 2 investigation. The actual locations of all soil borings in Areas A-8, A-9 and A-17 are shown in Plate 1, Figure 2 and Plate 2, respectively.

Based on a review of previous results, seven soil borings in Area A-8 (SB-2, SB-3, SB-11, SB-12, SB-15, SB-16 and SB-17) were designed to be advanced and analyzed to six feet below land surface (bls). As presented in the Work Plan, the remaining soil borings were proposed to be advanced to six feet bls or until an interval with a PCB concentration of less than 25 ppm was reached. The Work Plan specified the collection of soil samples initially from the 0 to 1 foot depth interval at all locations with subsequent deeper samples to be collected, as required, based on the results of the PCB field screening. However, due to actual field conditions and time constraints encountered during the investigation, soil samples were collected in one-foot intervals to a depth of up to three feet bls from most soil borings prior to performing the PCB field screening. These soil samples were stored in ice-filled coolers, while the shallower intervals from each boring were analyzed. This modification was designed to minimize the need to return to numerous boreholes to collect deeper (i.e., greater than 1 foot bls) samples. Based on the results of the PCB field screening, several soil borings were continued to depths greater than three feet bls. A summary of the soil samples collected in each area of concern is provided in Table 1.

At each soil boring location, soil samples were collected using decontaminated hand tools, which included post-hole diggers, shovels, digging bars, hand augers and hand-driven split-spoon samplers. Decontamination was performed in accordance with the Work Plan.

Each one-foot interval soil sample was placed on clean plastic sheeting and a composite of the recovered material was placed into a laboratory-supplied 8-ounce glass bottle after removing any non-representative material (e.g., cinders, pieces of railroad ties, asphalt). The bottle was then labeled with the soil boring designation, depth interval of the sample, and the time and date collected. In addition, a chain of custody record was implemented for all samples as they were collected. Soil samples selected for laboratory analysis were placed in an ice-filled cooler and protected from light immediately following collection. Soil samples were shipped via overnight express to IEA Laboratories, Monroe, Connecticut, for PCB analysis using United States Environmental Protection Agency (USEPA) Method 8080. All soil borings were backfilled with cuttings upon completion.

Field data for each soil boring and all soil samples were recorded in bound notebooks. These data included weather conditions, location of boring, depth interval of samples, the sequence in which the borings were completed and lithologic descriptions. In addition, detailed field notes were kept regarding the observation of evidence (i.e., staining and odors) of hydrocarbons at each sampling location and sample interval, as well as throughout each area of concern. A discussion of field observations regarding the presence of hydrocarbons is included in Section 4.1.

3.2 PCB Field Screening and Laboratory Analysis

In accordance with the Work Plan, 182 soil samples from the 87 soil borings located in Areas A-8, A-9 and A-17 were analyzed for PCBs using Millipore EnviroGard™ immunoassay field test kits. Based on discussions with Ms. Betty Seeley and Millipore, the test kit standards were calibrated based on PCB Aroclor 1260, the Aroclor most commonly detected during previous investigations.

Samples from the shallowest (i.e., 0 to 1 foot bls) interval were analyzed first, and if the results indicated a concentration greater than 25 ppm of PCBs the next deeper interval was analyzed, until the results indicated less than 25 ppm PCBs, or until a total depth of six feet was reached. All work was performed in accordance with the Millipore-provided training sessions and the Millipore-prepared instructions for use of the test kits as detailed in Appendix A. A brief overview of the test kit analytical procedure is provided below.

An extract of each soil sample was obtained with methanol using an EnviroGard™ soil extraction kit. The extracts were then analyzed using EnviroGard™ PCB Test Kits, which consisted of test tubes coated with PCB antibodies; Standard Calibrators; Assay Diluent; Enzyme Conjugate; Substrate; and Stop Solution.

The immunoassay was performed by adding specific amounts of assay diluent and a standard calibrator or sample extract to test tubes coated with PCB antibodies and mixing. PCBs present in the standard or sample extract are bound to these antibodies during a first incubation period. After washing, the remaining unbound antibody sites are then bound with an enzyme conjugate during a second incubation. Following a second wash, the substrate was added to the tubes which reacts with the enzyme conjugate to create a color change. The stop solution ends the color development reaction. Color development is directly proportional to enzyme concentration and inversely proportional to PCB concentration in the sample. The concentration of PCBs in the sample was determined based on color, measured as optical density with a portable spectrophotometer relative to the standard assay calibrators.

With each group of samples analyzed, a set of known concentration and negative control (0 ppm) standards were analyzed and the optical density of each standard was plotted on semilog paper at their known concentrations to provide a standard curve. The optical density of each sample result was compared with this curve to determine the concentration of PCBs. One duplicate analysis was run for every five samples analyzed for quality control at the request of the NYSDEC technical services personnel.

In addition, 20 soil samples (greater than 20 percent of the immunoassay samples) were submitted to IEA Laboratories for confirmatory PCB analysis by USEPA Method 8080. All laboratory data, both wet-weight and dry-weight, are provided in Appendix B. Laboratory-generated soil PCB results are presented on a wet-weight basis for comparison with the results of test kit analyses (Table 2), which were performed on extracts from undried samples.

It is important to note that the distribution of contaminants in soil is not uniform (i.e., not homogeneous). Soil samples were placed in 8-ounce (i.e., 227 gram) jars and the extracts for the field kit analyses were prepared using only 5 grams of soil, while the laboratory confirmatory samples were prepared using the remaining soil from the same depth interval. As a result, the samples were not exact duplicates. Therefore, some variations in field test kit results versus laboratory results were expected.

4.0 DISCUSSION OF RESULTS

The findings of the investigation, including observations regarding the evidence of petroleum hydrocarbons and the results of PCB test kit and confirmatory laboratory analyses of soil samples in each area of concern, are presented below.

4.1 Results of Petroleum Hydrocarbon Observations

During the investigation, the evidence of petroleum hydrocarbons in soil samples in each area of concern was evaluated based on observations of staining, odor and field screening with a photoionization detector (PID). Based on previous investigations at the Yard, soil and other material which ranged in color from dark brown or gray-brown to black were considered to be impacted by petroleum hydrocarbons. In contrast, obviously unstained areas of the land surface, and subsurface soil which ranged in color from brown, light brown or tan to red-brown or yellow-brown, were considered not to be impacted by petroleum hydrocarbons. The presence of petroleum-like odors and above background readings on a PID were of limited use in determining the presence of petroleum hydrocarbons due to the apparent limited volatility of the petroleum hydrocarbons at the Yard.

Based on visual observation of staining, the presence of petroleum hydrocarbons was indicated in each area of concern and in the shallow soil sample(s) from all but one soil boring (SB-33, Area A-17; Plate 2). Key observations specific to each area of concern are discussed below.

4.1.1 Area A-8A Observations

The bed of Track 15 (Plate 1) was covered by new-looking ballast (8 to 15 inches thick at Soil Borings SB-1 through SB-4) which precluded making detailed observations regarding the extent of surface staining in this area of concern. However, stained soil associated with the presence of petroleum hydrocarbons was observed underlying the ballast to depths which ranged from 0.5 feet (Soil Boring SB-2) to 1.25 feet (Soil Boring SB-4). Soil underlying the stained intervals was observed to be brown to tan in color. No petroleum-like odors or above background PID readings were noted in any of the samples collected from this area.

4.1.2 Area A-8B Observations

The bed of Track 20 (Plate 1) was also covered by new-looking ballast (14 to 16 inches thick at Soil Borings SB-5 through SB-9), and subsurface conditions regarding the presence of petroleum hydrocarbons were similar to those observed in Area A-8A. Stained soil was observed underlying the ballast to a depth of approximately one foot at Soil Borings SB-5, SB-6, SB-8 and SB-9, and to a depth of 2 feet at Soil Boring SB-7. Soil underlying the stained intervals was observed to be brown to tan in color, and no petroleum-like odors or above background PID readings were noted in any of the samples collected from this area.

4.1.3 Area A-8C Observations

The bed of Track 25 consisted of stained ballast and soil beginning at land surface. This staining extended along the track bed throughout this area of concern, and ranged in depth from 1.2 feet at Soil Borings SB-11 and SB-13 to 4 feet at Soil Boring SB-12. The soil underlying the stained intervals ranged in color from light brown or brown to orange-brown in color. No petroleum-like odors were noted in any of the samples from this area; however, above-background PID readings up to 0.5 ppm were recorded for Soil Borings SB-11 (3 to 4 feet), SB-12 (0 to 2 feet) and SB-13 (0 to 3 feet) during the Phase 1 investigation. No petroleum-like odors or PID readings above background were noted in any of the samples collected from this area during the Phase 2 investigation.

The bed of Track 26 was covered by a geotextile fabric overlain by several inches of new-looking ballast which precluded making detailed observations regarding the presence of petroleum hydrocarbon staining of the land surface. Stained soil mixed with ballast and occasional cinders was observed to depths ranging from 1.25 feet at Soil Boring SB-15 to 1.8 feet at Soil Borings SB-14, SB-17 and SB-18 in this area. No petroleum-like odors or above-background PID readings were noted in any of the samples from this area.

4.1.4 Area A-9 Observations

Surface staining associated with petroleum hydrocarbons was observed at all soil boring locations within Area A-9 (Figure 2). Staining was most prevalent in the vicinity of the compressor area and was observed at depths ranging from 0.25 feet (Soil Boring SB-20) to 2.5 feet (Soil Boring SB-25) where refusal was encountered. It is noted that staining was

also observed to a depth of 2 feet in Soil Boring SB-26, which was the final depth of this soil boring. With the exception of Soil Borings SB-25 and SB-26, the stained interval at each soil boring location was underlain by soil which ranged from brown or light brown to tan in color. Consistent with observations of staining, petroleum-like odors were noted for samples collected from Soil Borings SB-22, SB-25 and SB-26. Above-background PID readings were limited to 0.1 ppm in the 0 to 1 foot sample from Soil Boring SB-26, located adjacent to the compressor area.

4.1.5 Area A-17 Observations

The Area A-17 (Plate 2) surface soil and track beds consisted of ballast mixed with soil. Staining was observed along the track beds and discontinuous staining was observed throughout the area. Stained soil associated with the presence of petroleum hydrocarbons was observed at all soil boring locations in this area except Soil Boring SB-33. The staining was generally dark brown in color and ranged in depth from 1 foot at Soil Borings SB-32 and SB-45 to 2.5 feet at Soil Boring SB-28. Dark gray-brown and black staining was observed at Soil Borings SB-42 and SB-43, respectively. No petroleum-like odors were noted in any soil samples collected from this area. Above-background PID readings, ranging from 0.1 to 2.3 ppm, were observed in soil samples collected from Soil Borings SB-42, SB-51 and SB-53 during the Phase 1 investigation. No above-background PID readings were noted in any samples collected from this area during the Phase 2 investigation.

4.2 Results of PCB Test Kit and Confirmatory Laboratory Analyses

Roux Associates prepared extracts from a total of 122 of the 180 soil samples collected during the Phase 1 investigation (Soil Borings SB-1 through SB-55). These extracts were analyzed for PCBs by Millipore personnel using immunoassay field test kits. Phase 2 of the investigation (Soil Borings SB-56 through SB-87 and additional depth intervals at Phase 1 soil boring locations SB-12, SB-13, SB-16, SB-17 and SB-45) consisted of the collection of 119 soil samples of which 62 were extracted and analyzed for PCBs by Roux Associates using the Millipore immunoassay field test kits. Confirmatory laboratory analyses for PCBs by USEPA Method 8080 were performed for 20 replicate soil samples collected during this investigation. The PCB data developed during the investigation are summarized in Tables 2 through 5.

As shown in Table 2, a good correlation exists between the immunoassay test kit results and the confirmatory laboratory analyses. Only three of the 20 results that were confirmed displayed immunoassay results less than 25 ppm and laboratory analyses greater than 25 ppm. As discussed in Section 3.2, some variations between the immunoassay test kit results and the confirmatory laboratory analyses were expected. Based on the fact that 85 percent of the results were confirmed, the remaining immunoassay test kit results were used independently (i.e., without laboratory confirmation) to delineate the extent of soil PCB concentrations of 25 ppm or greater in areas of concern A-8A, A-8B, A-8C (Plate 1), A-9 (Figure 2), and A-17 (Plate 2). The average concentration was used for samples where duplicate or multiple analyses were performed. The results for each area of concern are discussed below.

4.2.1 Area A-8A Analytical Results

A total of 19 samples from Soil Borings SB-1 through SB-4 and SB-56 through SB-59 were analyzed for PCBs using the immunoassay test kits (Table 3). As shown in Plate 1, soil PCB concentrations of 25 ppm or greater were detected in the 0 to 1 foot sample interval from Soil Borings SB-1, SB-2 and SB-3. Soil PCB concentrations of less than 25 ppm were detected in the deeper sample interval from these soil borings and in the 0 to 1 foot sample interval from all other soil borings in this area, ranging from 0.3 ppm (SB-59) to 24.5 ppm (SB-56).

4.2.2 Area A-8B Analytical Results

A total of six samples from Soil Borings SB-5 through SB-9 were analyzed for PCBs using the immunoassay test kits (Table 3). Soil PCB concentrations were less than 25 ppm (1 to 4 ppm) in all samples from this area (Plate 1).

4.2.3 Area A-8C Analytical Results

A total of 69 samples from Soil Borings SB-10 through SB-18 and SB-60 through SB-71 were analyzed for PCBs using the immunoassay test kits (Table 3). As shown in Plate 1, soil PCB concentrations of 25 ppm or greater were detected at all sampling locations except Soil Borings SB-10 in Phase 1 and SB-60, SB-61, SB-63, SB-64, and SB-65 in Phase 2. Soil PCB

concentrations of 25 ppm or greater were detected in Soil Boring SB-16 to a depth of seven feet bls and to six feet bls from Soil Borings SB-12 and SB-17. Soil PCB concentrations were less than 25 ppm in the next deeper sample interval from these locations (3.7 ppm, 14.9 ppm, and 4.8 ppm, respectively).

4.2.4 Area A-9 Analytical Results

A total of nine samples from Soil Borings SB-19 through SB-27 were analyzed for PCBs using the immunoassay test kits (Table 4). As shown in Figure 2, soil PCB concentrations detected were less than 25 ppm in all 0-1 foot sample intervals ranging from 2 ppm (SB-24) to 7.7 ppm (SB-22).

4.2.5 Area A-17 Analytical Results

A total of 79 sample intervals from Soil Borings SB-28 through SB-55 and SB-72 through SB-87 were analyzed for PCBs using the immunoassay test kits. As shown in Table 5 and Plate 2, soil PCB concentrations of 25 ppm or greater were detected in the 0 to 1 foot sample interval from Soil Borings SB-30, SB-47, SB-50, SB-80, SB-83 and SB-84, to the 1 to 2 foot sample interval from Soil Boring SB-49, and to the 2 to 3 feet sample interval from Soil Boring SB-45. Soil PCB concentrations of less than 25 ppm were detected in the next deeper sample interval from all the above-mentioned soil borings ranging from 1.3 ppm in SB-45 (3 to 4 feet) to 22.9 ppm in SB-30 (1 to 2 feet).

4.3 Summary

A review of the visual observations regarding the evidence of petroleum hydrocarbons and the analytical results indicate the following:

- stained soil associated with the presence of petroleum hydrocarbons was observed in the shallow (e.g., less than 2 feet bls) samples at all locations except Soil Boring SB-33, and down to 4 feet bls at Soil Boring SB-12;

- although soil PCB concentrations of 25 ppm or greater were detected in some samples where staining was observed, the presence of petroleum hydrocarbon staining was not always indicative of elevated soil PCB concentrations (e.g., staining was most prevalent in Area A-9, where all PCB test kit results were less than 25 ppm; and soil PCB concentrations of 25 ppm or greater were detected in some samples, Areas A-8 and A-17, that were not visibly stained);

- soil PCB concentrations were less than 25 ppm in all Phase 1 samples from Areas A-8B and A-9; therefore, delineation in these areas was considered complete after the Phase 1 investigation; and

- in accordance with the Work Plan, the further delineation of PCBs in soil at a concentration of 25 ppm or greater in Areas A-8A, A-8C, and A-17 was accomplished during the Phase 2 investigation with the exception of five locations.

These five locations are:

- A-8C east of SB-71;
- A-17 vicinity of SB-47;
- A-17 west of SB-83;
- A-17 east of SB-84; and
- A-17 south of SB-80.

Based on limited access due to above-ground obstructions and the shallow (i.e., 0 to 1 foot bls) occurrence of the PCB detections, further delineation is not proposed in the five above-mentioned locations. Therefore, at this time delineation is considered complete in Areas A-8, A-9 and A-17 and in accordance with the Work Plan, the nature and extent of PCBs will be evaluated to determine if soil excavation is appropriate for any of these areas.

TABLES

Table 1. Summary of Soil Quality Sampling and Field Observations During Delineation Investigation, Sunnyside Yard, Queens, New York.

Soil Boring Number	Sampled Interval(s)	Test Kit Analyses	Confirmatory Lab Analyses	Field Observations Regarding Evidence of Petroleum Hydrocarbons
SB-1	0-1	X		dark brown soil and ballast to 1 ft
	1-2	X		
	2-3			
SB-2	0-1	X		dark brown soil, trace cinders to 0.5 ft
	1-2	X		
	2-3	XX		
	3-4	X		
	4-5	X		
	5-6	X		
SB-3	0-1	X		dark brown soil and cinders to 1 ft
	1-2	XX		
	2-3	X		
	3-4	X		
	4-5	X		
	5-6	X		
SB-4	0-1	X	X	dark gray soil and ballast to 1.25 ft
	1-2			
	2-3			
SB-5	0-1	XX	X	dark brown soil, trace cinders to 1 ft
	1-2	X		
	2-3			
SB-6	0-1	X		dark gray-brown soil and ballast to 0.9 ft
	1-2			
	2-3			
SB-7	0-1	X		dark gray-brown soil and ballast to 1 ft
	1-2			gray-brown soil 1 to 2 ft
	2-3			
SB-8	0-1	XX		dark brown soil, trace cinders to 1 ft
	1-2			
	2-3			
SB-9	0-1	X		dark brown soil, trace cinders to 1 ft
	1-2			
	2-3			
SB-10	0-1	XX		dark brown to black soil to 1.2 ft
	1-2			cinders 1.2 to 1.3 ft
	2-3			
SB-11	0-1	X		dark gray-brown soil and ballast to 1.2 ft
	1-2	X		
	2-3	XX		
	3-4	X		
	4-5	X		
	5-6	X		
SB-12	0-1	X		dark brown to black soil, ballast and debris to 2 ft
	1-2	XX		dark brown soil 2 to 3 ft
	2-3	X		oily staining and 0.2 PPM on PID 3.5 to 4 ft
	3-4	X		
	4-5	X		
	5-6	X		
	6-7	X	X	
SB-13	0-1	XX		black soil and ballast to 1.2 ft
	1-2			0.4 to 0.5 PPM on PID to 3 ft
	2-3			
	3-4	X		
SB-14	0-1	X		dark brown to black soil and ballast to 1.8 ft
	1-2	X		
	2-3	X		

Table 1. Summary of Soil Quality Sampling and Field Observations During Delineation Investigation, Sunnyside Yard, Queens, New York.

Soil Boring Number	Sampled Interval(s)	Test Kit Analyses	Confirmatory Lab Analyses	Field Observations Regarding Evidence of Petroleum Hydrocarbons
SB-15	0-1	X		dark brown to black soil, ballast and cinders to 1.25 ft
	1-2	XX		
	2-3	X		
	3-4	X		
	4-5	X	X	
	5-6	X		
SB-16	0-1	XX		dark brown to black soil and ballast, trace fly ash to 1.5 ft
	1-2	X		
	2-3	X		
	3-4	XX		
	4-5	X		
	5-6	XX		
	6-7	X	X	
	7-8	X		
	8-9	X		
SB-17	0-1	X		dark brown soil, trace cinders to 1.8 ft
	1-2	X		
	2-3	X		
	3-4	X		
	4-5	XXX		
	5-6	X		
	6-7	X		
SB-18	0-1	X	X	dark brown soil and ballast, trace cinders to 1.8 ft
	1-2	XX		
	2-3	XX		
SB-19	0-1	XX		dark brown soil and ballast to 0.5 ft
	1-2			
SB-20	0-1	X		dark brown soil and ballast to 0.25 ft
	1-2			
	2-3			
SB-21	0-1	X		dark brown soil to 1 ft
	1-2			
SB-22	0-1	XX		dark brown to gray-brown soil to 1.9 ft
	1-2			petroleum-like odor 1 to 2 ft
SB-23	0-1	X		black to dark brown soil to 1.9 ft
	1-2			
	2-3			
SB-24	0-1	XX		black soil and ballast to 1 ft
	1-2			
SB-25	0-1	X		black soil to 1.5 ft
	1-2			0.1 PPM on PID, petroleum-like odor
	2-2.5			
SB-26	0-1	X		black to dark gray-brown soil to 2 ft
	1-2			petroleum-like odor
SB-27	0-1	X		dark brown to black soil to 1 ft
	1-2			
SB-28	0-1	X		dark brown soil and ballast 2.5 ft
	1-2			trace cinders 2 to 2.5 ft
	2-3			
SB-29	0-1	XX		dark brown soil and cobbles to 1.5 ft
	1-2			
SB-30	0-1	X		dark brown soil and ballast to 2 ft
	1-2	XX		trace cinders 1 to 2 ft
	2-3	X	X	
SB-31	0-1	XX		dark brown soil and ballast to 1.2 ft
	1-2	XXX		
	2-3	X		
	3-4	X		

Table 1. Summary of Soil Quality Sampling and Field Observations During Delineation Investigation, Sunnyside Yard, Queens, New York.

Soil Boring Number	Sampled Interval(s)	Test Kit Analyses	Confirmatory Lab Analyses	Field Observations Regarding Evidence of Petroleum Hydrocarbons
SB-32	0-1	XX		dark gray-brown soil to 1 ft
	1-2			
	2-3			
SB-33	0-1	X	X	no evidence of petroleum hydrocarbons
	1-2			
	2-3			
SB-34	0-1	XX	X	dark brown soil and ballast to 1.5 ft
	1-2			
SB-35	0-1	X		dark brown soil and ballast to 1.5 ft
	1-2			
	2-3			
SB-36	0-1	X	X	dark brown soil and ballast to 2 ft
	1-2			
	2-3			
SB-37	0-1	X		dark brown soil and ballast to 2 ft
	1-2	X		
	2-3	XX		
SB-38	0-1	X		dark brown soil and ballast to 1.5 ft
	1-2	X		
	2-3			
SB-39	0-1	X		dark brown to brown soil to 2 ft
	1-2			cinders 1.5 to 2 ft
	2-3			
SB-40	0-1	X		dark brown soil, ballast and cinders to 1.5 ft
	1-2			
SB-41	0-1	XX		dark brown soil and ballast to 1 ft
SB-42	0-1	X		dark gray-brown soil and ballast to 2 ft
	1-2	X		trace cinders, 0.9 to 0.3 PPM on PID
	2-3	X		
SB-43	0-1	X		dark brown to black soil and ballast to 2 ft
	1-2	XX		trace cinders
	2-3			
SB-44	0-1	X		dark brown soil and ballast to 1.5 ft
	1-2			
	2-3			
SB-45	0-1	X	X	dark brown soil and ballast to 1 ft
	1-2	X		
	2-3	X		
	3-4	X		
	4-5	X		
SB-46	0-1	XX		dark brown soil and ballast to 1.5 ft
	1-2	X		
	2-3			
SB-47	0-1	XX		dark brown soil and ballast to 1 ft
	1-2	X		cinders 1 to 2 ft
	2-3			
SB-48	0-1	X	X	dark brown soil and ballast to 1.5 ft
	1-2	XX	X	
	2-3	X	X	
SB-49	0-1	X		dark brown soil and ballast to 2 ft
	1-2	X		
	2-3	XX		
	3-4	XX		
	4-5	X		
	5-6	X		

Table 1. Summary of Soil Quality Sampling and Field Observations During Delineation Investigation, Sunnyside Yard, Queens, New York.

Soil Boring Number	Sampled Interval(s)	Test Kit Analyses	Confirmatory Lab Analyses	Field Observations Regarding Evidence of Petroleum Hydrocarbons
SB-50	0-1	XX		dark brown soil and ballast to 2 ft
	1-2	XX		
	2-3	XXX		
	3-4	X		
	4-5			
SB-51	0-1	X		dark brown soil to 1.5 ft
	1-2			faint odor, 2.3 PPM on PID 1 to 1.5 ft
SB-52	0-1	X		dark brown soil and ballast to 2 ft
	1-2			
SB-53	0-1	X		dark brown soil to 3 ft
	1-2			1.7 and 0.1 PPM on PID to 2 ft
	2-3			
SB-54	0-1	XX		dark brown soil and cinders to 2 ft
	1-2			staining 2 to 2.1 ft
	2-3			
SB-55	0-1	X		dark brown soil and ballast to 2 ft
	1-2	X		
SB-56	0-1	XX		brown soil, trace cinders and ballast to 2 ft bls
	1-2			
	2-3			
SB-57	0-1	XX	X	brown soil, trace cinders and ballast to 1 ft bls
	1-2			
	2-3			
SB-58	0-1	X		brown soil, trace cinders and ballast to 1 ft bls
	1-2			brown soil to 3 ft bls
	2-3			
SB-59	0-1	X		brown soil, trace cinders and ballast to 1 ft bls
	1-2			brown soil to 3 ft bls
	2-3			
SB-60	0-1	X		dark brown soil and ballast to 1 ft bls
	1-2			
	2-3			
SB-61	0-1	X	X	dark brown soil, trace cinders and ballast to 1 ft bls
	1-2			brown soil, trace cinders 1-2 ft bls
	2-3			
SB-62	0-1	X		dark brown soil, trace cinders and ballast to 2 ft bls
	1-2	X		brown soil 2-3 ft bls
	2-3	X		
SB-63	0-1	X		dark brown soil, trace cinders and ballast to 1 ft bls
	1-2			brown soil, trace cinders 1-2 ft bls
	2-3			
SB-64	0-1	X	X	dark brown to brown soil, trace cinders to 3 ft bls
	1-2			
	2-3			
SB-65	0-1	X		dark brown soil and cinders to 1 ft bls
	1-2			brown soil 1-2 ft bls
	2-3			
SB-66	0-1	X		dark brown soil and cinders to 1 ft bls
	1-2	X		brown soil 1-2 ft bls
	2-3	X		
SB-67	0-1	X	X	dark brown soil, trace cinders and ballast to 1 ft bls
	1-2	X		brown soil 1-2 ft bls
	2-3	X		
SB-68	0-1	X	X	dark brown soil, trace cinders and ballast to 1 ft bls
	1-2	X		brown soil, trace cinders 1-2 ft bls
	2-3	X		

Table 1. Summary of Soil Quality Sampling and Field Observations During Delineation Investigation, Sunnyside Yard, Queens, New York.

Soil Boring Number	Sampled Interval(s)	Test Kit Analyses	Confirmatory Lab Analyses	Field Observations Regarding Evidence of Petroleum Hydrocarbons
SB-69	0-1	XX		dark brown soil, trace cinders and ballast to 1 ft bls
	1-2	XX		
	2-3	X		
SB-70	0-1	X		dark brown soil, trace cinders and ballast to 1 ft bls
	1-2	X		brown soil, trace cinders 1-2 ft bls
	2-3	X		
SB-71	0-1	X	X	dark brown soil, trace cinders and ballast to 1 ft bls
	1-2	X		brown soil, trace cinders 1-3 ft bls
	2-3			
SB-72	0-1	X		dark brown soil, trace ballast to 1 ft bls
	1-2			black/brown soil, trace ballast 1-2 ft bls
	2-3			black/brown soil, 2-3 ft bls
SB-73	0-1	X		dark brown soil, trace ballast to 1 ft bls
	1-2			brown soil, 1-3 ft bls
	2-3			
SB-74	0-1	XX		black/brown soil, trace ballast to 2 ft bls
	1-2			
	2-3			
SB-75	0-1	X		black/brown soil, trace ballast to 2 ft bls
	1-2			
	2-3			
SB-76	0-1	XX		dark brown soil with ballast, trace cinders to 1.5 ft bls
	1-2	X		
	2-3			
SB-77	0-1	X		dark brown soil with ballast to 1 ft bls
	1-2	X		
	2-3			
SB-78	0-1	X		dark brown soil with ballast to 1 ft bls
	1-2	X		dark brown soil, trace cinders 1-2 ft bls
	2-3			
SB-79	0-1	X		dark brown soil with ballast, trace cinders to 1.5 ft bls
	1-2	X		
	2-3			
SB-80	0-1	XX		dark brown soil, trace ballast to 1 ft bls
	1-2	XX		black soil, trace cinders 1-2 ft bls
	2-3			brown soil, trace cinders 2-3 ft bls
SB-81	0-1	X		dark brown soil, trace ballast to 1 ft bls
	1-2			black/brown soil, trace cinders 1-2 ft bls
	2-3			
SB-82	0-1	XX		dark brown soil, trace cinders and ballast to 1 ft bls
	1-2	X		grey/brown
	2-3			
SB-83	0-1	X		dark brown soil, trace ballast to 1 ft bls
	1-2	X		brown soil, trace cinders 1-2 ft bls
	2-3			
SB-84	0-1	X		dark brown soil, trace ballast to 1.5 ft bls
	1-2	X		
	2-3			
SB-85	0-1	X		dark brown soil, trace ballast to 1 ft bls
	1-2			brown soil, trace cinders 1-2 ft bls
	2-3			
SB-86	0-1	X		black/dark brown soil, trace cinders and ballast to 2 ft bls
	1-2			
	2-3			
SB-87	0-1	XX		black/dark brown soil, trace cinders and ballast to 2 ft bls
	1-2			
	2-3			

Table 2. Summary of Laboratory Confirmation Data for Polychlorinated Biphenyl Concentrations Detected in Samples during Additional Delineation Investigation, Sunnyside Yard, Queens, New York.

Area of Concern	Sample Designation	Sample Depth (ft bls)	Sample Date	PCB Concentration Immunoassay Analysis (ppm)	PCB Concentration Laboratory Analysis (ppm)
A-8A	SB-4	0 - 1	3/23/94	15.8	22
	SB-57	0 - 1	8/9/94	1.6	6.4
A-8B	SB-5	0 - 1	3/23/94	3	2.3
A-8C	SB-12	6 - 7	8/9/94	14.9	29
	SB-15	4 - 5	3/24/94	<0.75	0.1 J
	SB-16	6 - 7	8/9/94	85	380
	SB-18	0 - 1	3/24/94	>48	2,400
	SB-61	0 - 1	8/9/94	18	200
	SB-64	0 - 1	8/9/94	14.9	130
	SB-67	0 - 1	8/9/94	>100	9,700
	SB-68	0 - 1	8/9/94	>100	25,000
	SB-71	0 - 1	8/9/94	77	680
A-17	SB-30	2 - 3	3/21/94	2	0.52
	SB-33	0 - 1	3/23/94	6	2.4
	SB-34	0 - 1	3/24/94	3	4.4
	SB-35	0 - 1	3/24/94	5	3.1
	SB-45	0 - 1	3/22/94	>48	790
	SB-48	0 - 1	3/22/94	10	21
	SB-48	1 - 2	3/22/94	10	8.7
	SB-48	2 - 3	3/22/94	3	3.1

NOTES:

PCB - Polychlorinated biphenyls
ppm - Parts per million
J - Denotes an estimated concentration
ft bls - Feet below land surface

Table 3. Summary of Polychlorinated Biphenyl Concentrations Detected in Area A-8 Samples During Additional Delineation Investigation, Sunnyside Yard, Queens, New York.

Area of Concern	Sample Designation	Sample Depth (ft bls)	Sample Date	Total PCB Concentration (based on Immunoassay Analysis) (ppm)
Area A-8A	SB-1	0 - 1	3/23/94	>48
		1 - 2	3/23/94	3
	SB-2	0 - 1	3/23/94	>48
		1 - 2	3/23/94	2
		2 - 3	3/23/94	2
		3 - 4	3/23/94	3
		4 - 5	3/23/94	1
		5 - 6	3/23/94	1
	SB-3	0 - 1	3/23/94	>48
		1 - 2	3/23/94	1
		2 - 3	3/23/94	2
		3 - 4	3/23/94	2
		4 - 5	3/23/94	5
		5 - 6	3/23/94	2
	SB-4	0 - 1	3/23/94	15.8
	SB-56	0 - 1	8/9/94	24.5
	SB-57	0 - 1	8/9/94	1.6
	SB-58	0 - 1	8/9/94	0.9
	SB-59	0 - 1	8/9/94	0.3
Area A-8B	SB-5	0 - 1	3/23/94	3
		1 - 2	3/23/94	1
	SB-6	0 - 1	3/23/94	2
	SB-7	0 - 1	3/23/94	3
	SB-8	0 - 1	3/23/94	2
	SB-9	0 - 1	3/23/94	4
Area A-8C	SB-10	0 - 1	3/24/94	11
	SB-11	0 - 1	3/24/94	48
		1 - 2	3/24/94	10
		2 - 3	3/24/94	>48
		3 - 4	3/24/94	5
		4 - 5	3/24/94	3
		5 - 6	3/24/94	2
	SB-12	0 - 1	3/24/94	>48
		1 - 2	3/24/94	>48
		2 - 3	3/24/94	>48
		3 - 4	3/24/94	>48
		4 - 5	3/24/94	>48
		5 - 6	3/24/94	>48
		6 - 7	8/9/94	14.9
	SB-13	0 - 1	3/24/94	>48
		3 - 4	8/9/94	5.8
	SB-14	0 - 1	3/24/94	>48
		1 - 2	3/24/94	48
		2 - 3	3/24/94	8
	SB-15	0 - 1	3/24/94	>48
		1 - 2	3/24/94	>48
		2 - 3	3/24/94	>48
		3 - 4	3/24/94	9
		4 - 5	3/24/94	<0.75
		5 - 6	3/24/94	<0.75

Table 3. Summary of Polychlorinated Biphenyl Concentrations Detected in Area A-8 Samples During Additional Delineation Investigation, Sunnyside Yard, Queens, New York.

Area of Concern	Sample Designation	Sample Depth (ft bls)	Sample Date	Total PCB Concentration (based on Immunoassay Analysis) (ppm)
Area A-8C	SB-16	0 - 1	3/24/94	>48
		1 - 2	3/24/94	>48
		2 - 3	3/24/94	>48
		3 - 4	3/24/94	15.7
		4 - 5	3/24/94	>48
		5 - 6	3/24/94	>48
		6 - 7	8/9/94	85
		7 - 8	8/9/94	3.7
		8 - 9	8/9/94	0
	SB-17	0 - 1	3/24/94	>48
		1 - 2	3/24/94	>48
		2 - 3	3/24/94	>48
		3 - 4	3/24/94	>48
		4 - 5	3/24/94	>48
		5 - 6	3/24/94	>48
		6 - 7	8/9/94	4.8
	SB-18	0 - 1	3/24/94	>48
		1 - 2	3/24/94	72
		2 - 3	3/24/94	14.4
	SB-60	0 - 1	8/9/94	5.3
	SB-61	0 - 1	8/9/94	18
	SB-62	0 - 1	8/9/94	>100
		1 - 2	8/9/94	>100
		2 - 3	8/9/94	16
	SB-63	0 - 1	8/9/94	14
	SB-64	0 - 1	8/9/94	14.9
	SB-65	0 - 1	8/9/94	9.7
	SB-66	0 - 1	8/9/94	>100
		1 - 2	8/9/94	>100
		2 - 3	8/9/94	>100
	SB-67	0 - 1	8/9/94	>100
		1 - 2	8/9/94	>100
		2 - 3	8/9/94	>100
	SB-68	0 - 1	8/9/94	>100
		1 - 2	8/9/94	>100
		2 - 3	8/9/94	>100
	SB-69	0 - 1	8/9/94	>100
		1 - 2	8/9/94	>100
		2 - 3	8/9/94	90
	SB-70	0 - 1	8/9/94	>100
		1 - 2	8/9/94	>100
		2 - 3	8/9/94	>100
	SB-71	0 - 1	8/9/94	77
		1 - 2	8/9/94	5.8

PCB - Polychlorinated biphenyls
ppm - Parts per million
ft bls - Feet below land surface

Table 4. Summary of Polychlorinated Biphenyl Concentrations Detected in Area A-9 Samples During Additional Delineation Investigation, Sunnyside Yard, Queens, New York.

Sample Designation	Sample Depth (ft bls)	Sample Date	Total PCB Concentration (based on Immunoassay Analysis) (ppm)
SB-19	0 - 1	3/21/94	2.5
SB-20	0 - 1	3/21/94	3
SB-21	0 - 1	3/21/94	5
SB-22	0 - 1	3/21/94	7.7
SB-23	0 - 1	3/21/94	4
SB-24	0 - 1	3/21/94	2
SB-25	0 - 1	3/21/94	4
SB-26	0 - 1	3/21/94	6
SB-27	0 - 1	3/21/94	3

PCB - Polychlorinated biphenyls
ppm - Parts per million
ft bls - Feet below land surface

Table 5. Summary of Polychlorinated Biphenyl Concentrations Detected in Area A-17 Samples During Additional Delineation Investigation, Sunnyside Yard, Queens, New York.

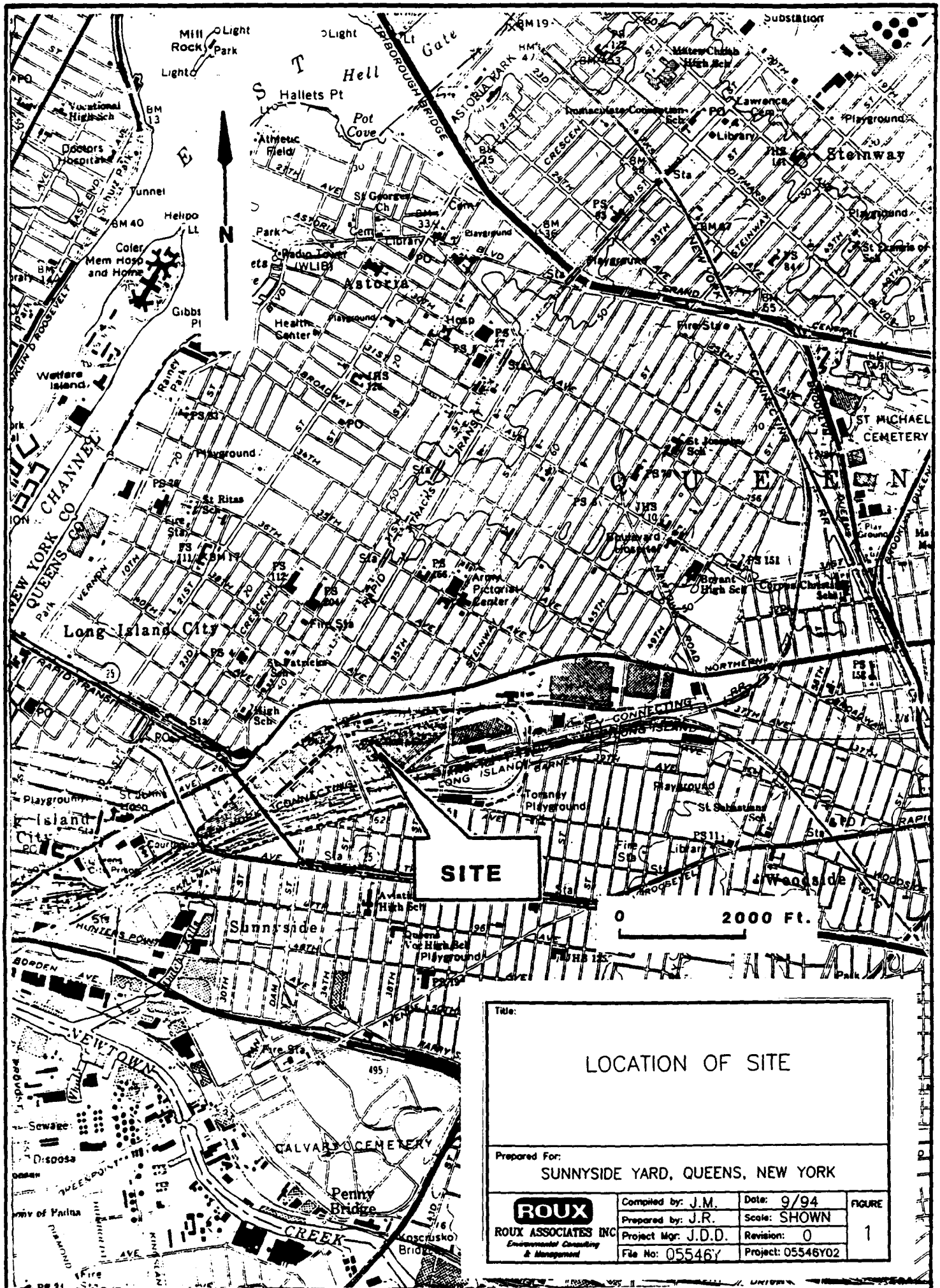
Sample Designation	Sample Depth (ft bls)	Sample Date	Total PCB Concentration (based on Immunoassay Analysis) (ppm)
SB-28	0 - 1	3/21/94	2
SB-29	0 - 1	3/21/94	4.5
SB-30	0 - 1	3/21/94	>48
	1 - 2	3/21/94	22.9
	2 - 3	3/23/94	2
SB-31	0 - 1	3/21/94	17.8
	1 - 2	3/21/94	14.1
	2 - 3	3/23/94	5
	3 - 4	3/23/94	1
SB-32	0 - 1	3/23/94	11.7
SB-33	0 - 1	3/24/94	6
SB-34	0 - 1	3/21/94	3
SB-35	0 - 1	3/22/94	5
SB-36	0 - 1	3/22/94	4
SB-37	0 - 1	3/22/94	10
	1 - 2	3/22/94	6
	2 - 3	3/22/94	1.5
SB-38	0 - 1	3/22/94	6
	1 - 2	3/22/94	2
SB-39	0 - 1	3/22/94	2
SB-40	0 - 1	3/21/94	2
SB-41	0 - 1	3/22/94	5.5
SB-42	0 - 1	3/22/94	7
	1 - 2	3/22/94	4
	2 - 3	3/22/94	1
SB-43	0 - 1	3/22/94	10
	1 - 2	3/22/94	3
SB-44	0 - 1	3/22/94	7
SB-45	0 - 1	3/22/94	>48
	1 - 2	3/22/94	>48
	2 - 3	3/22/94	>48
	3 - 4	8/25/94	1.3
	4 - 5	8/25/94	1.5
SB-46	0 - 1	3/22/94	9
	1 - 2	3/22/94	1
SB-47	0 - 1	3/22/94	29.1
	1 - 2	3/22/94	5
SB-48	0 - 1	3/22/94	10
	1 - 2	3/22/94	10
	2 - 3	3/22/94	3
SB-49	0 - 1	3/22/94	>48
	1 - 2	3/22/94	>48
	2 - 3	3/22/94	13.5
	3 - 4	3/22/94	9.5
	4 - 5	3/22/94	<0.75
	5 - 6	3/22/94	3
SB-50	0 - 1	3/22/94	67.8
	1 - 2	3/22/94	11.7
	2 - 3	3/22/94	6.1
	3 - 4	3/22/94	<0.75
SB-51	0 - 1	3/21/94	<0.75
SB-52	0 - 1	3/21/94	3
SB-53	0 - 1	3/23/94	6

Table 5. Summary of Polychlorinated Biphenyl Concentrations Detected in Area A-17 Samples During Additional Delineation Investigation, Sunnyside Yard, Queens, New York.

Sample Designation	Sample Depth (ft bls)	Sample Date	Total PCB Concentration (based on Immunoassay Analysis) (ppm)
SB-54	0 - 1	3/22/94	3
SB-55	0 - 1	3/24/94	6
	1 - 2	3/24/94	8
SB-72	0 - 1	8/10/94	4.9
SB-73	0 - 1	8/10/94	10.2
SB-74	0 - 1	8/10/94	23.8
SB-75	0 - 1	8/10/94	17
SB-76	0 - 1	8/25/94	4.5
	1 - 2	8/25/94	1.7
SB-77	0 - 1	8/25/94	6.8
	1 - 2	8/25/94	1.1
SB-78	0 - 1	8/25/94	5
	1 - 2	8/25/94	1.8
SB-79	0 - 1	8/25/94	7
	1 - 2	8/25/94	3.7
SB-80	0 - 1	8/10/94	70
	1 - 2	8/10/94	5
SB-81	0 - 1	8/10/94	16
SB-82	0 - 1	8/25/94	18
SB-83	0 - 1	8/25/94	65
	1 - 2	8/25/94	2.1
SB-84	0 - 1	8/10/94	43
	1 - 2	8/10/94	3.4
SB-85	0 - 1	8/10/94	4
SB-86	0 - 1	8/10/94	0
SB-87	0 - 1	8/10/94	0.6

PCB - Polychlorinated biphenyls
ppm - Parts per million
ft bls - Feet below land surface

FIGURES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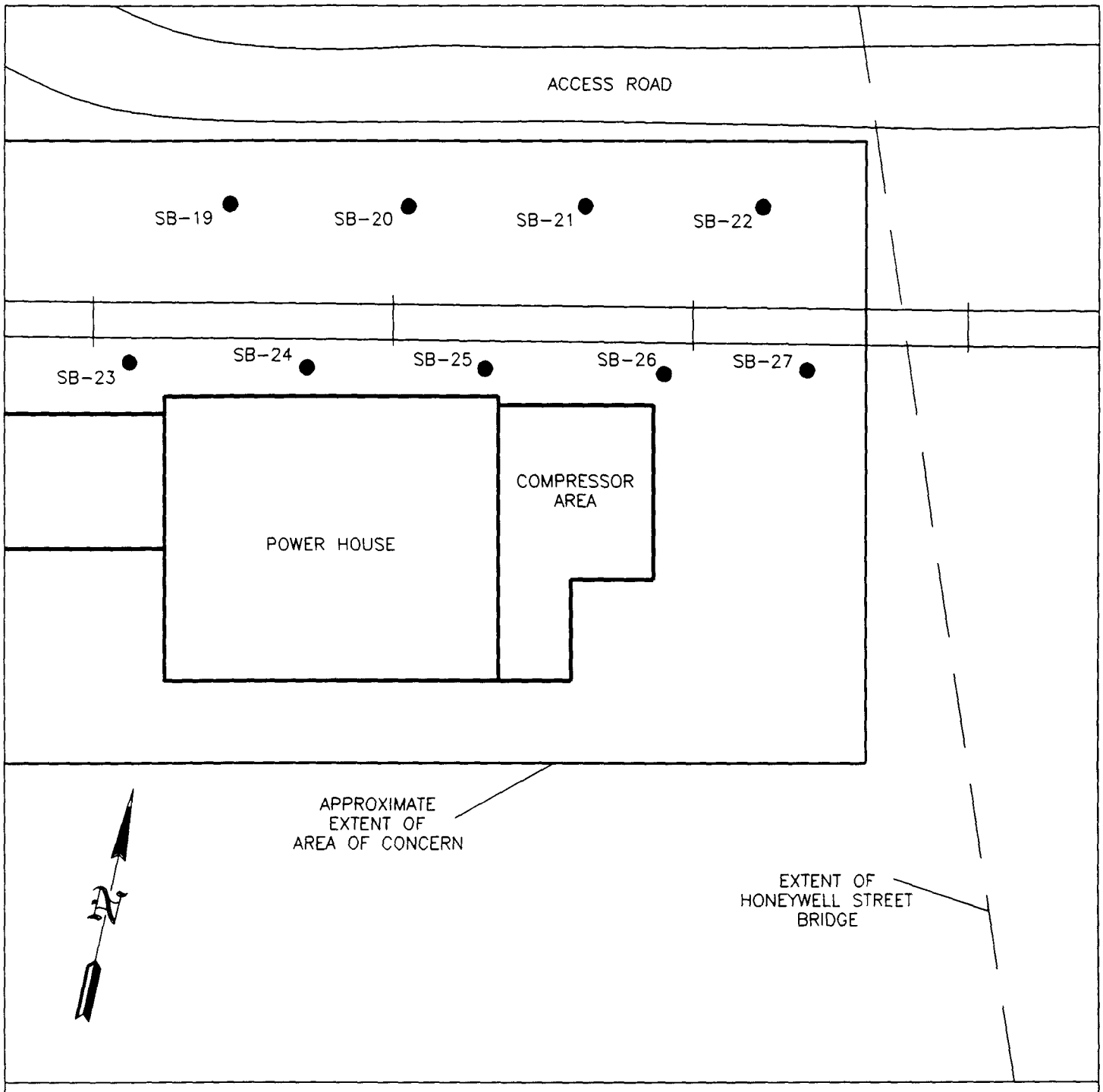
Sunnyside
Woodside
Astoria
Steinway
Queens
Hallets Pt
Pot Cove
Mill Rock Park
Hell Gate
Tunnel
Penny Bridge
CALVARY CEMETERY
NEWTOWN CREEK
QUEENS CO
NEW YORK CO
Title:
LOCATION OF SITE
Prepared For:
SUNNYSIDE YARD, QUEENS, NEW YORK
ROUX
ROUX ASSOCIATES INC
Environmental Consulting & Management
Compiled by: J.M.
Prepared by: J.R.
Project Mgr: J.D.D.
File No: 05546Y
Date: 9/94
Scale: SHOWN
Revision: 0
Project: 05546Y02
FIGURE
1



EXPLANATION

SB-19 ● SOIL BORING LOCATION AND DESIGNATION, NO PCBs DETECTED AT CONCENTRATIONS GREATER THAN 25 ppm (PARTS PER MILLION)

0 20 40 FT.

Title:

POLYCHLORINATED BIPHENYL CONCENTRATIONS DETECTED IN SOILS AREA A-9

Prepared For:

SUNNYSIDE YARD, QUEENS, NEW YORK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: H.G.	Date: 9/94	FIGURE 2
Prepared by: J.R.	Scale: SHOWN	
Project Mgr: J.D.D.	Revision:	
File No: 05546001	Project: 05546Y02	

PLATES

TRACK 15

AREA A-8A

TRACK 16

TRACK 20

AREA A-8B

TRACK 21

TRACK 25

AREA A-8C

TRACK 26

CONCRETE WALKWAY

CONCRETE WALKWAY

CONCRETE WALKWAY

EXTENT OF HONEYWELL STREET BRIDGE

SB-56 (15'-17') 24.5 ppm

SB-2 (0-1) >48 ppm

SB-57 6.9 ppm

SB-1 (0-1) 748 ppm

SB-58 0.9

SB-59 0.3

SB-3 (0-1) 748 ppm

SB-53

SB-4 (15'-18') 22 ppm

SB-5 3 ppm

SB-6 2 ppm

SB-7 3 ppm

SB-8 2 ppm

SB-9 4 ppm

SB-10

SB-11 (0-1) >48 ppm

SB-60

SB-61

SB-12 (5-6) 39 ppm

SB-62 (1-2)

SB-63 14 ppm

SB-64 130 (C)

Hot Spots REMOVED 12/98

SB-13 (2-3) 2,000 ppm.

SB-65 >48 ppm.

SB-14 (1-2)

SB-15 (2-3)

SB-66 (2-3) >100 ppm.

SB-67 (2-3) 9,700 ppm

SB-16 (6-7) 280 ppm

SB-68 (2-3) 25,000 ppm

SB-69 (2-3)

SB-17 (5-6)

SB-70 (2-3) >100 ppm

SB-18 (1-2)

SB-71 (0-1) 680 ppm

EXPLANATION

- HONEYWELL STREET BRIDGE SUPPORT
- SB-9 ● SOIL BORING LOCATION AND DESIGNATION, NO PCBS DETECTED AT CONCENTRATIONS GREATER THAN 25 ppm (PARTS PER MILLION)
- SB-71 (0-1) ● SOIL BORING LOCATION AND DESIGNATION, PCBS DETECTED AT CONCENTRATIONS GREATER THAN 25 ppm (0-1 SAMPLE INTERVAL INDICATED (FEET BELOW LAND SURFACE)).

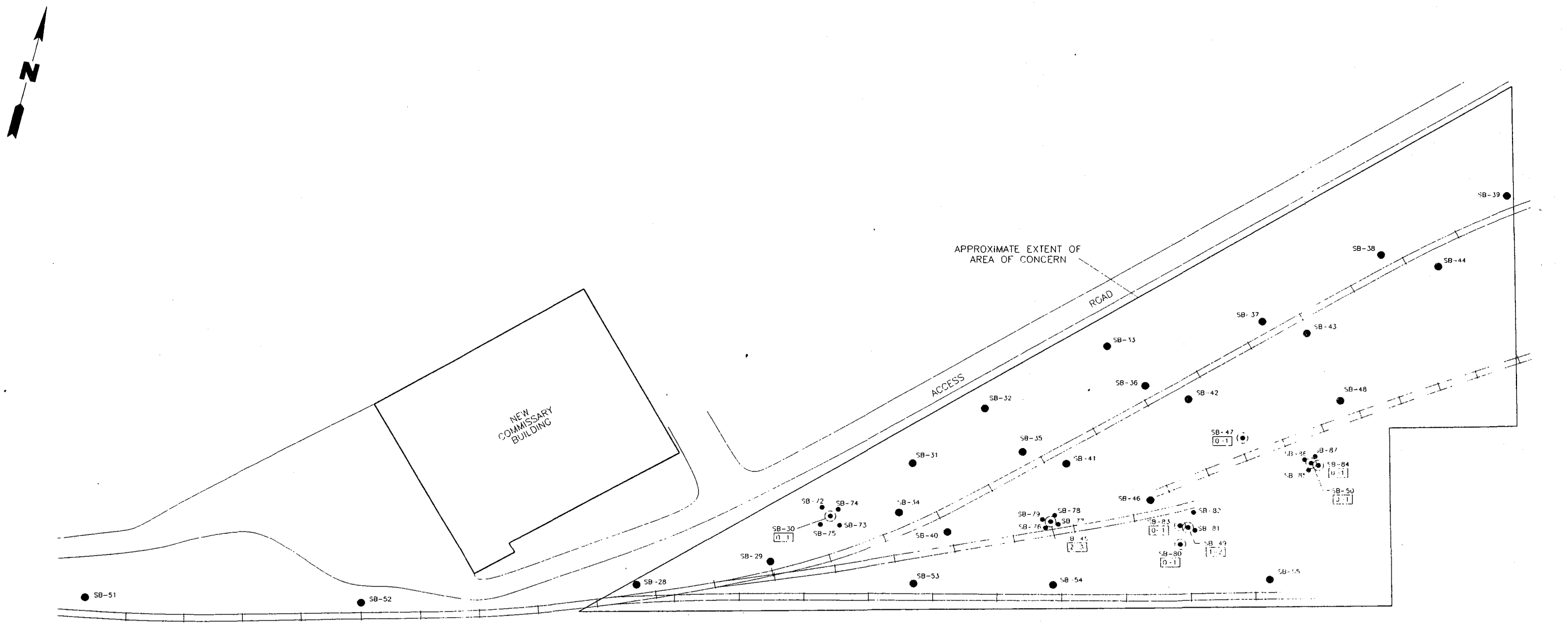
0 10 20 FT

Title: POLYCHLORINATED BIPHENYL CONCENTRATION DETECTED IN SOILS AREA A-8A, A-8B, AND A-8C

Prepared for: SUNNYSIDE YARD, QUEENS, NEW YORK

ROUX ASSOCIATES INC Environmental Consulting & Management

Compiled by H.G.	Date 9/94	PLATE
Prepared by P.R.	Scale SHOWN	1
Project Mgr J.D.D.	Revision	
File No. AM546C05	Project 05546r02	



EXPLANATION

SB-28 ● SOIL BORING LOCATION AND DESIGNATION, NO PCBS DETECTED AT CONCENTRATIONS GREATER THAN 25 PPM (PARTS PER MILLION).

SB-50 [0-1] ⊙ SOIL BORING LOCATION AND DESIGNATION, PCBS DETECTED AT CONCENTRATIONS GREATER THAN 25 PPM TO SAMPLE INTERVAL INDICATED (FEET BELOW LAND SURFACE).

0 40 80 FT

Title
POLYCHLORINATED BIPHENYL CONCENTRATION DETECTED IN SOILS AREA A-17

Prepared For
SUNNYSIDE YARD, QUEENS, NEW YORK

ROUX ASSOCIATES INC Environmental Consulting & Management	Compiled by H.G.	Date: 9/94	PLATE
	Prepared by R.R.	Scale SHOWN	
	Project Mgr J.D.D.	Revision	2
	File No AM546C04	Project 05546Y02	

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 2
47-40 21st Street
Long Island City, New York 11101
(718) 482-4995 Fax: (718) 482-6358

John P. Cahill
Commissioner

October 29, 1998

Mr. Joseph Duminuco
Principal Hydrogeologist
Roux Associates, Inc.
1377 Motor Parkway
Islandia, New York 11788

Re: Amtrak, Sunnyside Yard, Queens, New York
Operable unit 3 4

Dear Mr. Duninuco:

OF AMTRAK'S INTENT

Pursuant to your verbal notification of Monday, October 26, 1998 to excavate PCBs and lead contaminated soil from Area-8C along with the removal of other hot spots along Track 25, I have reviewed past sampling results including your letter of September 2, 1998. The Department agrees that removing the contaminated soils from Area 8C at the same time as removal of the Track 25 ballast interval contaminated-soil would likely be cost-effective and a least disruptive action. Amtrak may therefore proceed with the removal action as planned, provided the following concerns are adequately addressed.

Amtrak must however recognize that the 1994 "delineation" of Area 8-C is somewhat tentative, since it was done using mostly Immunoassay field-kit method, and the co-relation between the field method and the confirmatory lab method was not very good. Therefore, depending upon how much of a slab Amtrak plans to remove, this places a greater emphasis on the number and location of post excavation samples. For example, unless Amtrak was planning to remove all soil between sampling points SB-10 and SB-64 down to the maximum depth of contamination, post-ex samples must be collected at or near SB-11 and SB-13 in addition to other post-ex samples at unbiased locations, as dictated by sound engineering judgment. Amtrak must also recognize that Area 8-C was "delineated" for PCBs only, and was not sampled for other contaminants of concern. Based upon results of delineation sampling in other locations in the vicinity and the post-ex sampling results, ~~a judgment must be made~~ IT MUST BE DEMONSTRATED that other contaminants of concern are no longer present above their clean-up standards. To resolve the above concerns, please provide a profile of the planned excavation together with number and location of proposed post-excavation samples. It is understood that additional samples may need to be collected based upon field observations.

If you have any questions, please contact me immediately at 718 - 482-4909 or Mr.

Richard Gardineer, P.E. at 718- 482-4895.

Sincerely,

Hari O. Agrawal, P.E.
Environmental Engineer

CC: Rosalie Rusinko
Richard Gardineer / file
Sal Ervolina, DER, Albany, 7010
Steve Bates, NYSDOH, Albany

150' x 10' x [illegible]' TO 7' TO 3'