WORK PLAN FOR THE ADDITIONAL INVESTIGATION OF THE SEWER SYSTEM

Sunnyside Yard
Queens, New York

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Prepared for:

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1.0 INTRODUCTION

The "Work Plan for the Additional Investigation of the Sewer System at the Sunnyside Yard, Queens, New York" was prepared by Roux Associates, Inc. (Roux Associates) on behalf of the National Railroad Passenger Corporation (AMTRAK) and the New Jersey Transit Corporation. The location of the Sunnyside Yard (Yard) is shown in Figure 1. Analytical data gathered during performance of the Phase II Remedial Investigation (RI) by Roux Associates at the Yard identified polychlorinated biphenyls (PCBs) in water and sediment in the sewer system at the Yard. This work plan was prepared to address the concerns of AMTRAK and the New York State Department of Environmental Conservation (NYSDEC) that PCB contamination may be leaving the Yard via the sewer system.

Initially, an interim remedial measure (IRM) work plan was intended to be developed. However, based upon preliminary review of the existing data, the need for a more complete understanding of the sewer system before implementing an IRM became apparent. Therefore, this work plan for an additional investigation was prepared.

At this time a comprehensive (and time sensitive) investigation of all potential source areas (i.e., floor drains and related points of inflow, in addition to points of infiltration) is not proposed. Rather, a phased approach is proposed that will allow a more rapid collection of data and determination of sources. Two types of contaminant source areas may be present, alone or in combination, at the Yard. Based upon a review of the available data, it is not possible to determine if the previously detected contamination resulted from historical events (i.e., past practices of waste handling) and associated residuals that may remain in the sewer system, or is resulting from current discharges from continuing sources (e.g., infiltration from surface runoff of contaminated sediments, re-mobilization of historical discharges, interconnection with the separate-phase petroleum contamination in Area 1, etc.). The type of the source(s) of the contamination detected in the manholes will be the predominant factor in determining what the subsequent actions will be. Therefore, this investigation will focus on the determination of the contaminant sources.

The sampling program (Task 1) will be used to determine which Yard-wide manholes are appropriate for further investigation. Based upon the data previously collected during the Phase II RI and past experience at the Yard, sediment removal locations in Area 1 are

included in this work plan. The sediment removal program (Task 2) and subsequent monitoring (Task 4) will be used to evaluate the sources. If there are no detections of contamination after the sediment is removed, the contamination will be considered to have been derived from a historical source. If contamination is detected after the sediment is removed, it will be considered to be derived from continuing sources. If a continuing source is indicated for certain manholes, an additional focused investigation will be implemented to further delineate only those potential source areas (e.g., floor drains, surface runoff, etc.) in the vicinity of the contamination. The need for IRMs will be evaluated on an area-by-area basis and, if necessary, the scope of the IRM will be designed based upon the conditions of the specific area.

In addition to the above-mentioned scope of work, Task 3 - Oil/Water Separator Inspection and Evaluation is included. This task is necessary to evaluate the impact of the separator on the sewer system in Area 1.

1.1 Background

The facility-wide sewer system at the Yard (Plate 1) consists of two separate subsystems, the primary system in the main section of the Yard (i.e., Area 1, commissary area, body tracks, etc.) and the secondary system in the western section of the Yard. Details of the primary sewer system components located in Area 1 are shown in Plate 2. Each of these systems consists of combined sanitary and storm water sewer lines. During the performance of the Phase II RI at the Yard, water and sediment samples were collected from selected sewer manhole locations in both the primary and secondary sewer systems as shown in Plate 3. This sampling was designed to determine if the sewer systems were acting as conduits for off-site migration of contaminants. PCBs were identified in some of these sediment samples and water samples (Tables 1 and 2, respectively). An additional delineation of PCBs in the sewer system was required based upon a review of these results.

Prior to preparation of this work plan, representatives of Roux Associates conducted a preliminary field survey of the Yard to verify the locations, flow directions and dimensions of the sewer system at the Yard.

1.2 Preliminary Sewer Survey Results

On May 19 and 20, 1993 Roux Associates, accompanied by a representative of AMTRAK's Building and Bridge Division, conducted a preliminary sewer (i.e., primary and secondary) survey to confirm the current understanding (based upon Yard engineering drawings), and to identify any previously unknown conditions of the sewer system at the Yard. A site walk was conducted tracing the sewer lines identified on AMTRAK-supplied sewer maps. Manhole locations identified on the maps were opened if found (i.e., not buried or paved over) and inspected to confirm sewer line diameters and flow directions, the existence of sediment, and for comparison, the relative flow velocity and volume of water in the sewer (Tables 3 and 4). The locations and designations of these manhole locations are shown on Plate 1. The results of the survey are presented below.

It is important to note that flow increases to the north across the "Body Tracks" between MH-43 and MH-2, and MH-47 and MH-52, indicating the presence of track drains not shown on the sewer maps but identified by AMTRAK personnel and observed by Roux Associates in the western section of the "Body Tracks." In addition, the planned construction of a new "Honey House" to be located west of the new Commissary Building and connected to the sewer at MH-72, will result in an increase in flow toward MH-2.

Several discrepancies were noted between the sewer maps and the actual conditions observed in the field and are summarized below.

- The existence of a sewer line south of the abandoned REA building (MH-18 through MH-22).
- The existence of two possible drywells (MH-29 and MH-54).
- The existence of a catch basin (CB-8) and sewer flowing west into MH-39.
- The existence of an 8" hose discharging into CB-9.
- The existence of a sewer line extending north of MH-65.
- The existence of a buried vessel containing some petroleum between MH-65 and the Thompson Avenue bridge support.
- The existence of a sewer line previously thought to connect manholes MH-14 through MH-17 was not confirmed and appears to not have been built.

- The existence of a 36" sewer line entering MH-69 from the east with water flowing out of it. This line appears as an unfinished "stub" on AMTRAK-supplied drawings.

Based upon historical (i.e., early 1900s) engineering drawings, it appears that an outfall from the secondary sewer system to the Dutch Kills (i.e., surface water) existed at that time. However, telephone discussions with representatives of the Queens Borough Section of the New York City Sewer Department indicated that all sewers located north of the Long Island Expressway in Queens County (i.e., where the Yard is situated) discharge to the Bowery Bay Sewage Treatment Plant in Astoria, Queens. Therefore, it appears there is no current discharge to Dutch Kills, and no additional work is proposed at this time.

1.3 Objectives

The objectives of the limited investigation of the sewer system are summarized below:

- determine if the previously detected PCBs in the sewer system are representative of historical events or indicate ongoing sources of contaminants;
- further delineate the extent of PCBs currently in the sewer water and sediment at the Yard;
- determine if the PCBs are in the sewer water or sediment (i.e., filtered and unfiltered samples);
- determine if PCBs have migrated offsite through the sewer system;
- determine the Yard-wide areas that require sediment removal; and
- if the existence of continuing source areas are indicated, identify the possible source areas.

Once the investigation is completed, existing PCB-contaminated sediment will be removed from selected locations of the sewer system. In addition, a monitoring program will be developed to determine if PCBs are continuing to be introduced into the sewer system, thereby indicating a continuing source area, or if the PCBs do not re-occur in the sewer system, thereby indicating historical contamination. If a continuing source(s) is indicated, and IRM will be developed to mitigate the source(s). If PCBs do not re-occur, an IRM will not be necessary.

2.0 SCOPE OF WORK

The investigation is designed to follow a phased approach. Initially, a limited investigation will be performed to define locations requiring sediment removal. The sediment will be removed from selected locations, and these locations will then be monitored to evaluate the source of the PCBs (i.e., historical or continuing). If contaminated sediment re-occurs following completion of the initial sediment removal, additional work will be performed to further define the source(s) of the contamination and, if necessary, an IRM will be proposed.

The Additional Investigation scope of work includes the following:

- collection and analysis of a sewer water and sediment sample at the first manhole after leaving the Yard boundary of both the primary and secondary sewer systems;
- collection and analysis of water samples and sediment samples from manhole locations to further delineate the extent of PCBs in the primary and secondary sewer systems at the Yard, including multiple influent sampling;
- collection and analysis of filtered and unfiltered aqueous samples from select locations to determine if PCBs are in the water or the sediment;
- removal of sediment from manholes identified as containing PCB-contaminated sediment;
- inspection and evaluation of an oil/water separator in Area 1; and
- development and implementation of a monitoring program to evaluate the source(s) of the PCBs.

The scope of work is divided into the following four tasks:

- **Task 1**: Sewer Sampling;
- **Task 2**: Sediment Removal;
- **Task 3**: Oil/Water Separator Inspection and Evaluation; and
- **Task 4**: Sewer System Monitoring.

The scope of each task is summarized below.

2.1 Task 1 - Sewer Sampling

The Sampling and Analysis Plan (SAP), included as Appendix A, describes the types of samples (i.e., sewer water and sewer sediment) to be collected and the procedures to be followed (e.g., decontamination, sample collection) during the sewer sampling activities conducted at the Yard. The locations of the Yard-wide manholes to be sampled are shown in Plate 3. MH-75, not shown in Plate 3, will be located and verified with the assistance of the New York City Department of Environmental Protection. The Health and Safety Plan (HASP) is included as Appendix B. All work performed at the Yard by Roux Associates and subcontractors will be in accordance with the HASP.

The proposed sewer system sampling investigation will consist of the collection of 19 aqueous and 24 sediment samples in the primary sewer system and six aqueous and six sediment samples in the secondary sewer system (Plate 3). The justifications for the water and sediment sampling locations in the primary and secondary systems are summarized in Tables 5 and 6, respectively. As shown in Plate 3, manholes across the Yard have multiple influent pipes entering into them. To aid in the determination of possible source areas six representative (five primary and one secondary sewer system) manholes were chosen for multiple influent sampling (Plate 3). The Yard-wide sampling program is designed to delineate the extent of PCB contamination in each of the two sewer systems, and based upon the results, to determine the areas for sediment removal. A summary of the proposed sampling plan is shown in Table 1. It is important to note that the proposed samples are dependent on the presence of sufficient quantities of water and/or sediment at the time of sampling. If sufficient quantities of water and/or sediment are not present in influent pipes at multiple influent sampling locations, but water and/or sediment is present in the manhole, then the sample will be collected from the manhole and noted as such.

All samples will be analyzed on a standard 28-day turnaround. Sediment samples will be analyzed for PCBs by the United States Environmental Protection Agency (USEPA) Method 8080. Water samples will be analyzed for PCBs by the NYSDEC Analytical Services Protocols (ASP) Method 89-3. The NYSDEC 1991 Analytical Services Protocols will be followed for all sampling and analysis. A summary of practical quantitation limits (PQLs) for sediment and method detection limits for water samples are included in Tables 8 and 9, respectively.

2.2 Task 2 - Sediment Removal

This task is designed to remove the contaminated sediment from the manhole locations to preclude the immediate possibility of off-site transport through the sewer system and to evaluate the source(s) of the PCBs. Based upon a review of the results of the Phase II RI sewer sampling discussed in Section 1.1 and the current understanding of the Yard, additional sampling is not needed in Area 1 to determine areas for sediment removal. Therefore, ten locations for sediment removal have been selected in Area 1. As discussed in Section 1.0, the current delineation of PCBs in the Yard-wide sewer system is not sufficient to determine areas for sediment removal, therefore, based upon a review of the Task 1 results, locations for sediment removal outside of Area 1 will be determined.

2.2.1 Area 1 Sediment Removal

Based upon a review of the results of PCB sampling in sewer water and sediment collected during the Phase II RI and previous experience at the Yard, four manholes and six catch basins have been selected in Area 1 and are shown in Plate 4. The justifications for the sediment removal locations in Area 1 are summarized in Table 10.

2.2.2 Yard-Wide Sediment Removal

Based upon a review of the Task 1 results, locations for sediment removal outside of Area 1 will be determined. At that time a letter report will be submitted to the NYSDEC presenting the methods and the results of the Task 1 sampling and analysis, and the proposed locations for sediment removal activities.

Upon approval of the scope of work by the NYSDEC, the sediment removal program (i.e., Area 1 and Yard-wide) will be implemented. Upon completion of the program, contaminated sediment, and any water collected during the process, will be disposed of in accordance with applicable state and federal regulations. A letter report will be submitted to the NYSDEC summarizing the sediment removal program and the results of the oil/water separator investigation (Task 3).

2.3 Task 3 - Oil/Water Separator Inspection and Evaluation

An oil/water separator located at the northeast corner of the Engine House in Area 1 (Plate 2), contains separate-phase petroleum within one of the vessels that comprise the separator. The water from the separator apparently discharges to the sewer system in Area 1.

Since the construction details, the discharge of the effluent water, the source of petroleum and the current operational status of the unit have not been determined, an investigation and evaluation are proposed.

Initially, the contents of both vessels (i.e., petroleum and water) will be pumped out of the separator and stored in the on-site storage tank for proper disposal. Once the separator is empty, it will be examined to determine the number, type, and location of influent and effluent lines. The separator will be left for a period of three days and re-examined to verify that no additional petroleum has accumulated.

The results of the investigation and evaluation will be included in the letter report to the NYSDEC summarizing the sediment removal program (Task 2). Recommendations will be included to address the final disposition of the oil/water separator.

2.4 Task 4 - Sewer-System Monitoring

To determine if PCBs are no longer being introduced into the sewer system (i.e., contamination resulted from historical events) or are still being introduced into the sewer system (i.e., contamination is resulting from a continuous source[s]), post-sediment-removal monitoring will be performed. The monitoring will consist of the inspection of the removal locations and the collection of sewer-water and sewer-sediment samples. The results of the monitoring program will be submitted to the NYSDEC.

2.4.1 Sewer-Sediment Monitoring

After Task 2 is completed and the contaminated sediment has been removed from the manholes/catch basins, each of the removal locations will be visually inspected with regard to sediment buildup in accordance with the following schedule:

- the day following the completion of sediment removal;

- once each week for the first three months;
- once every two weeks for the next three months;
- once each month for the next six months; and
- following the first precipitation event after sediment removal.

During the monitoring schedule if sediment is observed to be accumulating at any removal location, and a sufficient volume exists, a sample will be collected and analyzed to determine if PCBs are present.

2.4.2 Sewer-Water Monitoring

Concurrent with the post-removal sewer-sediment monitoring, sewer water will be sampled (unfiltered) and analyzed from each of the sediment removal locations in accordance with the following schedule:

- one week following the completion of sediment removal;
- one month after sediment removal;
- three months after sediment removal; and
- following the first precipitation event after sediment removal.

If PCBs are detected during this scheduled monitoring program, filtered and unfiltered samples will be collected and the monitoring will be performed monthly to verify the existence of the PCB contamination.

If PCBs are not detected in water during the initial stages (i.e., as of the three month sample) of the monitoring program, then only Manholes MH-1 and MH-2 will be sampled every three months for the remainder of one year after sediment removal. If PCBs are detected in either MH-1 or MH-2, the monitoring/sampling will revert back to being performed monthly at all of the sediment removal locations on that branch of the sewer system in an effort to pinpoint the source(s) of contamination.

2.4.3 Reporting

A letter report summarizing the results of the monitoring program will be submitted to the NYSDEC monthly for the first three months following sediment removal and then every three months for the remainder of one year. After the one year sampling is performed, a summary report including a schedule for future monitoring will be provided to the NYSDEC.

If PCBs are detected in the sediment or water samples, the NYSDEC will be notified immediately. If PCBs are detected in any manhole during two consecutive monthly sampling rounds, a work plan for an additional investigation, to determine the source area(s) of continuing contamination, will be submitted to the NYSDEC. The work plan will be designed to provide the data necessary to mitigate the source of continuing contamination through an IRM.

If sediment buildup is not observed during the monitoring period, or if a buildup occurs, but does not contain PCBs and PCBs are not detected during the concurrent water sampling, the source(s) will be considered historical (i.e., not indicative of continuing sources). In addition, it will be assumed that under the conditions at that time, contaminated sediment is not being transported off-site through the sewer system and therefore, an IRM will not be necessary.

3.0 SCHEDULE

The estimated schedule to implement this scope of work is provided in Figure 2. This schedule was prepared assuming that field work will commence within four weeks of approval of the work plan by the NYSDEC. The proposed schedule is an estimate only and will be altered depending on actual conditions encountered. Every effort will be made to adhere to the schedule and the NYSDEC will be notified immediately if any changes are necessary.

TABLES

Table 1. Summary of Polychlorinated Biphenyl Compound Concentrations Detected in Sewer-Sediment Samples Collected During Phase II Investigation, Sunnyside Yard, Queens, New York

Sample Designation: Sample Date:	MHS-2 2/9/93	MHS-3 2/8/93	MHS-8DL 2/9/93
Compound			
Aroclor-1016	5,400 U	4,100 U	430 U
Aroclor-1221	11,000 U	8,400 U	870 U
Aroclor-1232	5,400 U	4,100 U	430 U
Aroclor-1242	5,400 U	3,000 JP	430 U
Aroclor-1248	5,400 U	4,100 U	430 U
Aroclor-1254	24,000	29,000 P	1,300 JPD
Aroclor-1260	58,000	22,000 P	2,900 D

Concentrations in µg/kg - micrograms per kilogram (parts per billion).

NOTES:

Some samples were analyzed at a secondary (higher) dilution and are designated DL. Based upon data validation, either the primary or secondary results of some Aroclor species are considered to be more representative of actual conditions.

U - The compound as analyzed for but not detected.
D - Compound identified in an analysis at a secondary dilution.
P - There is a greater than 25 percent difference for detected concentrations between the two GC columns Aroclor target analyte.
V - Qualifier added and/or value altered during validation.

Table 2. Summary of Polychlorinated Biphenyl Compound Concentrations Detected in Sewer-Water Samples Collected During Phase II Investigation, Sunnyside Yard, Queens, New York

Sample Designation: / Sample Date:	MHW-1 2/9/93	MHW-2 2/9/93	MHW-3 2/8/93	MHW-5 2/8/93
Compounds				
Aroclor-1016	0.066 U	0.065 U	0.065 U	0.065 U
Aroclor-1221	0.066 U	0.065 U	0.065 U	0.065 U
Aroclor-1232	0.066 U	0.065 U	0.065 U	0.065 U
Aroclor-1242	0.066 U	0.065 U	0.065 U	0.065 U
Aroclor-1248	0.066 U	0.065 U	0.065 U	0.065 U
Aroclor-1254	0.33 UBV	1.1 JV	0.32 U V	0.065 U
Aroclor-1260	0.13 UBV	1.2 JV	0.31 UBV	0.065 U

Sample Designation: / Sample Date:	MHW-6 2/8/93	MHW-7 2/8/93	MHW-8 2/9/93
Compounds			
Aroclor-1016	0.067 U	0.32 U	0.33 U
Aroclor-1221	0.067 U	0.32 U	0.33 U
Aroclor-1232	0.067 U	0.32 U	0.33 U
Aroclor-1242	0.067 U	0.32 U	0.33 U
Aroclor-1248	0.067 U	2.6	0.33 U
Aroclor-1254	0.48 UBV	5.9	9.6 JV
Aroclor-1260	0.33 UBV	6.3	11.0

Concentrations in μg/L - micrograms per liter (parts per billion).

NOTES:

U - The compound was analyzed for but not detected.
B - The analyte was found in the blanks as well as in the sample.
J - Estimated value.
V - Qualifier added and/or value altered during validation.

Table 3. Summary of Preliminary Survey Observations of the Primary Sewer System, Sunnyside Yard, Queens, New York

Manhole/Catch Basin Designation	Description	Observations
MH-2	Solid Cover Manhole	(2) 48" and 36" pipes entering, 4'x8' pipe leaving, high velocity, sediment present
MH-3	Solid Cover Manhole	42" pipe entering, 42" pipe leaving, medium velocity, sediment present
MH-4	Not Located	Buried under soil pile
MH-5	Solid Cover Manhole	36" and 18" pipes entering, 36" pipe leaving, moderate velocity, sediment present
MH-6	Solid Cover Manhole	(1) 6" and (3) 4" pipes entering, 12" pipe leaving, high velocity, no sediment
MH-7	Solid Cover Manhole	(2) 4" and 8" pipes entering, 8" pipe leaving, low velocity, no sediment
MH-8	Solid Cover Manhole	6" and 18" pipes entering, 18" pipe leaving, low velocity, sediment present
MH-9	Solid Cover Manhole	6" and 18" pipes entering, 18" pipe leaving, low velocity, sediment present
MH-10	Not Located	Buried under soil pile
MH-11	Not Located	Buried under soil pile
MH-12	Not Located	Buried under soil pile
MH-13	Not Located	Buried under soil pile
MH-14	Not Located	Buried under soil pile
MH-15	Not Located	Section of sewer presumed not built
MH-16	Not Located	Section of sewer presumed not built
MH-17	Not Located	Section of sewer presumed not built

Table 3. Summary of Preliminary Survey Observations of the Primary Sewer System, Sunnyside Yard, Queens, New York

Manhole/Catch Basin Designation	Description	Observations
MH-18	Solid Cover Manhole	Unknown entering, 10" pipe leaving, no water, sediment present
MH-19	Solid Cover Manhole	10" pipe entering, 10" pipe leaving, no water, sediment present
MH-20	Solid Cover Manhole	8" and 10" pipes entering, 10" pipe leaving, no water, sediment present
MH-21	Solid Cover Manhole	10" pipe entering, 10" pipe leaving, no water, sediment present
MH-22	Grated Cover Manhole	10" and 18" pipes entering, unknown leaving, low velocity, sediment present
MH-23	Not Located	Buried by construction activities
MH-24	Not Located	Buried by construction activities
MH-25	Not Located	Buried by construction activities
MH-26	Not Located	Buried by construction activities
MH-27	Not Located	Buried by construction activities
MH-28	Solid Cover Manhole	8" pipe entering, 12" pipe leaving, low velocity, no sediment
MH-29	Solid Cover Manhole	Possible drywell, 3 feet of water
MH-30	Solid Cover Manhole	6" and 12" pipes entering, 12" pipe leaving, low velocity, no sediment
MH-31	Not Located	Buried under soil pile
MH-32	Solid Cover Manhole	12" pipe entering, 12" pipe leaving, low velocity, no sediment
MH-33	Solid Cover Manhole	12" pipe entering, 12" pipe leaving, low velocity, no sediment
MH-34	Solid Cover Manhole	(2) 8" and 12" pipes entering, 12" pipe leaving, low velocity, no sediment

Table 3. Summary of Preliminary Survey Observations of the Primary Sewer System, Sunnyside Yard, Queens, New York

Manhole/Catch Basin Designation	Description	Observations
MH-35	Solid Cover Manhole	12" pipe entering, 18" pipe leaving, low velocity, no sediment
MH-36	Not Located	Paved over
MH-37	Solid Cover Manhole	18" pipe entering, 18" pipe leaving, medium velocity, no sediment
MH-38	Solid Cover Manhole	18" pipe entering, 24" pipe leaving, medium velocity, no sediment
MH-39	Solid Cover Manhole	18" and (2) 24" pipes entering, 36" pipe leaving, medium velocity, sediment present
MH-40	Not Located	Buried under soil pile
MH-41	Not Located	Paved over
MH-42	Solid Cover Manhole	12" and 42" pipes entering, 48" pipe leaving, low velocity
MH-43	Open Grate Manhole	36" and 42" pipes entering, 42" pipe leaving, low velocity, sediment present
MH-44	Not Located	Manhole located inside Substation 1a, building locked
MH-45	Solid Cover Manhole	12" and 24" pipes entering, 42" pipe leaving, medium velocity, sediment present
MH-46	Solid Cover Manhole	12" and 18" pipes entering, 24" pipe leaving, medium velocity, sediment present
MH-47	Not Located	Paved over
MH-48	Not Located	Paved over
MH-49	Solid Cover Manhole	12" pipe entering, 12" pipe leaving, low velocity, sediment present
MH-50	Not Located	Paved over
MH-51	Open Grate Manhole	15" pipe entering, 18" pipe leaving, medium velocity, sediment present

Table 3. Summary of Preliminary Survey Observations of the Primary Sewer System, Sunnyside Yard, Queens, New York

Manhole/Catch Basin Designation	Description	Observations
MH-52	Solid Cover Manhole	18" and 42" pipes entering, 48" pipe leaving, medium velocity, sediment present
MH-53	Solid Cover Manhole	6", 18" and 48" pipes entering, 48" pipe leaving, medium velocity, sediment present
MH-54	Unknown	12" and 18" pipes entering, possible drywell
MH-55	Solid Cover Manhole	4", 8" and 48" pipes entering, 48" pipe leaving, medium velocity, sediment present
MH-56	Not Located	Buried under soil pile
MH-57	Solid Cover Manhole	24" pipe entering, 42" pipe leaving, standing water, unable to determine presence of sediment
MH-66	Not Located	Buried under soil pile
MH-67	Open Grate Manhole	Dry, filled with sediment
MH-68	Not Located	Buried under soil pile
MH-69	Open Grate Manhole	18" and 36" pipes entering, 36" pipe leaving, low velocity and volume from 36" pipe
MH-70	Open Grate Manhole	36" pipe entering, 36" pipe leaving, low velocity, sediment present
MH-71	Open Grate Manhole	36" pipe entering, 36" pipe leaving, low velocity, sediment present
MH-72	Open Grate Manhole	36" pipe entering, 36" pipe leaving, low velocity, sediment present
MH-73	Not Located	Buried by construction activities
MH-74	Not Located	Buried by construction activities
CB-1	Catch Basin	Flowing water, sediment present
CB-2	Catch Basin	Flowing water, sediment present
CB-3	Catch Basin	Flowing water, sediment present

Table 3. Summary of Preliminary Survey Observations of the Primary Sewer System, Sunnyside Yard, Queens, New York

Manhole/Catch Basin Designation	Description	Observations
CB-4	Catch Basin	Flowing water, sediment present
CB-5	Not Located	Buried
CB-6	Catch Basin	Standing water, sediment present
CB-7	Catch Basin	Standing water, sediment present
CB-8	Catch Basin	Standing water, unable to determine presence of sediment
CB-9	Catch Basin	Standing water, unable to determine presence of sediment
CB-10	Catch Basin	Flowing water, sediment present
CB-11	Catch Basin	Flowing water, sediment present
CB-12	Catch Basin	Flowing water, sediment present
CB-13	Catch Basin	Standing water, sediment present
CB-14	Not Located	Possibly buried
CB-15	Not Located	Buried by soil pile
CB-16	Not Located	Buried by soil pile
CB-17	Catch Basin	Standing water, sediment present
CB-19	Catch Basin	Standing water, unable to determine presence of sediment
CB-29	Catch Basin	Standing water, unable to determine presence of sediment
CB-30	Catch Basin	Standing water, unable to determine presence of sediment
CB-31	Catch Basin	Standing water, unable to determine presence of sediment

Table 4. Summary of Preliminary Survey Observations of the Secondary Sewer System, Sunnyside Yard, Queens, New York

Manhole/Catch Basin Designation	Description	Observations
MH-1	Solid Cover Manhole	12", 24" and 48" pipes entering, 48" pipe leaving, large volume of water, low velocity, presence of sediment unable to be determined
MH-58	Solid Cover Manhole	24" pipe entering, 24" pipe leaving, low velocity, sediment present
MH-59	Solid Cover Manhole	12" and 24" pipes entering, 24" pipe leaving, low velocity, sediment present
MH-60	Solid Cover Manhole	24" pipe entering, 24" pipe leaving, low velocity, sediment present
MH-61	Not Located	Buried
MH-62	Not Located	Buried
MH-63	Solid Cover Manhole	24" pipe entering, 24" pipe leaving, large volume of water, low velocity, unable to determine presence of sediment
MH-64	Not Located	Presumed buried by construction activities
MH-65	Solid Cover Manhole	Unknown entering, 48" pipe leaving, large volume of water, low velocity, unable to determine presence of sediment
CB-18	Not Located	Possibly buried
CB-20	Catch Basin	Flowing water, sediment present
CB-21	Catch Basin	Standing water, unable to determine presence of sediment
CB-22	Catch Basin	Standing water, unable to determine presence of sediment
CB-23	Catch Basin	Standing water, unable to determine presence of sediment
CB-24	Catch Basin	Standing water, unable to determine presence of sediment

Table 4. Summary of Preliminary Survey Observations of the Secondary Sewer System, Sunnyside Yard, Queens, New York

Manhole/Catch Basin Designation	Description	Observations
CB-25	Catch Basin	Standing water, unable to determine presence of sediment
CB-26	Catch Basin	Standing water, unable to determine presence of sediment
CB-27	Catch Basin	Standing water, unable to determine presence of sediment
CB-28	Catch Basin	Standing water, unable to determine presence of sediment
CB-32	Not Located	Possibly Buried

Table 5. Primary Sewer Sampling Location Justifications, Sunnyside Yard, Queens, New York

Manhole Location	Justification	Samples Proposed
MH-2[b]	Characterize conditions at the yard boundary	Water Sediment
MH-22[ab]	Characterize conditions in grated manhole adjacent to PCB contaminated soil pile	Water Sediment
MH-29	Characterize conditions in possible drywell, not shown on engineering drawings	Water Sediment
MH-35 MH-37 MH-38 MH-42 MH-49 MH-51	Characterize conditions in sewer passing through "Body Tracks"	Sediment
MH-39[a]	Characterize conditions of previously unknown sewer line located upstream of MH-39	Water Sediment
MH-40[ab]	Characterize conditions in the first off-site manhole as the primary sewer system exits the yard	Water Sediment
MH-43[a]	Characterize conditions in grated sewer adjacent to Area of Concern A-9	Water Sediment
MH-45	Characterize conditions downstream of Area of Concern A-12 (Car Washer)	Sediment
MH-52[ab]	Characterize conditions leaving western section of primary sewer	Water Sediment
MH-54	Characterize conditions in possible drywell, not shown on engineering drawings	Water Sediment
MH-55	Characterize sediment entering MH-2 from west	Sediment
MH-69[a]	Characterize sediment in grated manhole downstream of Wheel Truing Shop and New Commissary Building	Water Sediment

a - Samples will be collected from each of the influent pipes entering the manhole.

b - A filtered and an unfiltered water sample will be collected for comparison. When a filtered water sample is to be collected from a multiple influent sampling location, the influent pipe selected for sampling will be based upon field observations.

Table 6. Secondary Sewer Sampling Location Justifications, Sunnyside Yard, Queens, New York

Manhole Location	Justification	Samples Proposed
MH-1[b]	Characterize conditions at the yard boundary	Water Sediment
MH-59	Characterize conditions downstream of catch basins	Sediment
MH-61[a]**	Characterize conditions downstream of catch basins	Water Sediment
MH-65	Characterize conditions downstream of previously unknown sewer	Sediment
MH-75[b]*	Characterize conditions in the first off-site manhole as the secondary sewer system exits the yard	Water Sediment

* MH-75 will be located and verified with the assistance of the New York City Department of Environmental Protection.

** MH-61 was not located during the preliminary investigation. A second attempt will be made to locate; if not found, the next previously located manhole downstream (MH-63) will be sampled.

a - Samples will be collected from each of the influent pipes entering the manhole.

b - A filtered and an unfiltered water sample will be collected for comparison. When a filtered water sample is to be collected from a multiple influent sampling location, the influent pipe selected for sampling will be based upon field observations.

Table 7. Summary of Sewer-Sampling Program, Sunnyside Yard, Queens, New York

Primary Sewer System			
Sampling Location	**Water Sample Designation***	**Filtered Water Sample Designation****	**Sediment Sample Designation***
MH-2	MHW-2	MHWF-2	MHS-2
MH-22	MHW-22 (10) MHW-22 (18)	MHWF-22	MHS-22 (10) MHS-22 (18)
MH-29	MHW-29		MHS-29
MH-35			MHS-35
MH-37			MHS-37
MH-38			MHS-38
MH-39	MHW-39 (18) MHW-39 (24N) MHW-39 (24S)		MHS-39 (18) MHS-39 (24N) MHS-39 (24S)
MH-40	MHW-40 (48) MHW-40 (4x8)	MHWF-40	MHS-40 (48) MHS-40 (4x8)
MH-42			MHS-42
MH-43	MHW-43 (36) MHW-43 (42)		MHS-43 (36) MHS-43 (42)
MH-45			MHS-45
MH-49			MHS-49
MH-51			MHS-51
MH-52	MHW-52 (18) MHW-52 (42)	MHWF-52	MHS-52 (18) MHS-52 (42)
MH-54	MHW-54		MHS-54
MH-55			MHS-55
MH-69	MHW-69 (18) MHW-69 (36)		MHS-69 (18) MHS-69 (36)

Table 7. Summary of Sewer-Sampling Program, Sunnyside Yard, Queens, New York

Secondary Sewer System			
Sampling Location	**Water Sample Designation***	**Filtered Water Sample Designation****	**Sediment Sample Designation***
MH-1	MHW-1	MHWF-1	MHS-1
MH-59			MHS-59
MH-61***	MHW-61 (24E) MHW-61 (24N)		MHS-61 (24E) MHS-61 (24N)
MH-65			MHS-65
MH-75	MHW-75	MHWF-75	MHS-75

* If sufficient quantities of water and/or sediment are not present in influent pipes at multiple influent sampling locations, but water and/or sediment is present in the manhole, then the samples will be collected from the manhole.

** When a filtered water sample is to be collected from a multiple influent sampling location, the influent pipe selected for sampling will be based upon field observations.

*** MH-61 was not located during preliminary investigation. A second attempt will be made to locate; if not found, the next previously located manhole downstream (MH-63) will be sampled.

Table 8. Summary of Practical Quantitation Limits for Polychlorinated Biphenyl Analyses in Sewer-Sediment Samples, Sunnyside Yard, Queens, New York

Compound	Practical Quantitation Limit (µg/kg)
Aroclor-1016	33
Aroclor-1221	67
Aroclor-1232	33
Aroclor-1242	33
Aroclor-1248	33
Aroclor-1254	33
Aroclor-1260	33

µg/kg - micrograms per kilogram

Note: All Practical Quantitation Limits (PQLs) are shown with no dilution and are based on wet weight. PQLs will be higher based on the percent moisture in each sample. In addition, PQLs are highly matrix dependent.

PQLs are shown instead of Method Detection Limits (MDLs) because soil/sediment analyses are so variable (e.g., pH, moisture content, total organic carbon content, matrix interferences, etc.) that MDLs are unavailable. Detections of analytes below the PQLs will be reported, but flagged as estimated.

Table 9. Summary of Method Detection Limits for Polychlorinated Biphenyl Compound Analyses in Sewer-Water Samples, Sunnyside Yard, Queens, New York

Compound	Method Detection Limit (µg/L)
Aroclor-1016	0.065
Aroclor-1221	0.065
Aroclor-1232	0.065
Aroclor-1242	0.065
Aroclor-1248	0.065
Aroclor-1254	0.065
Aroclor-1260	0.065

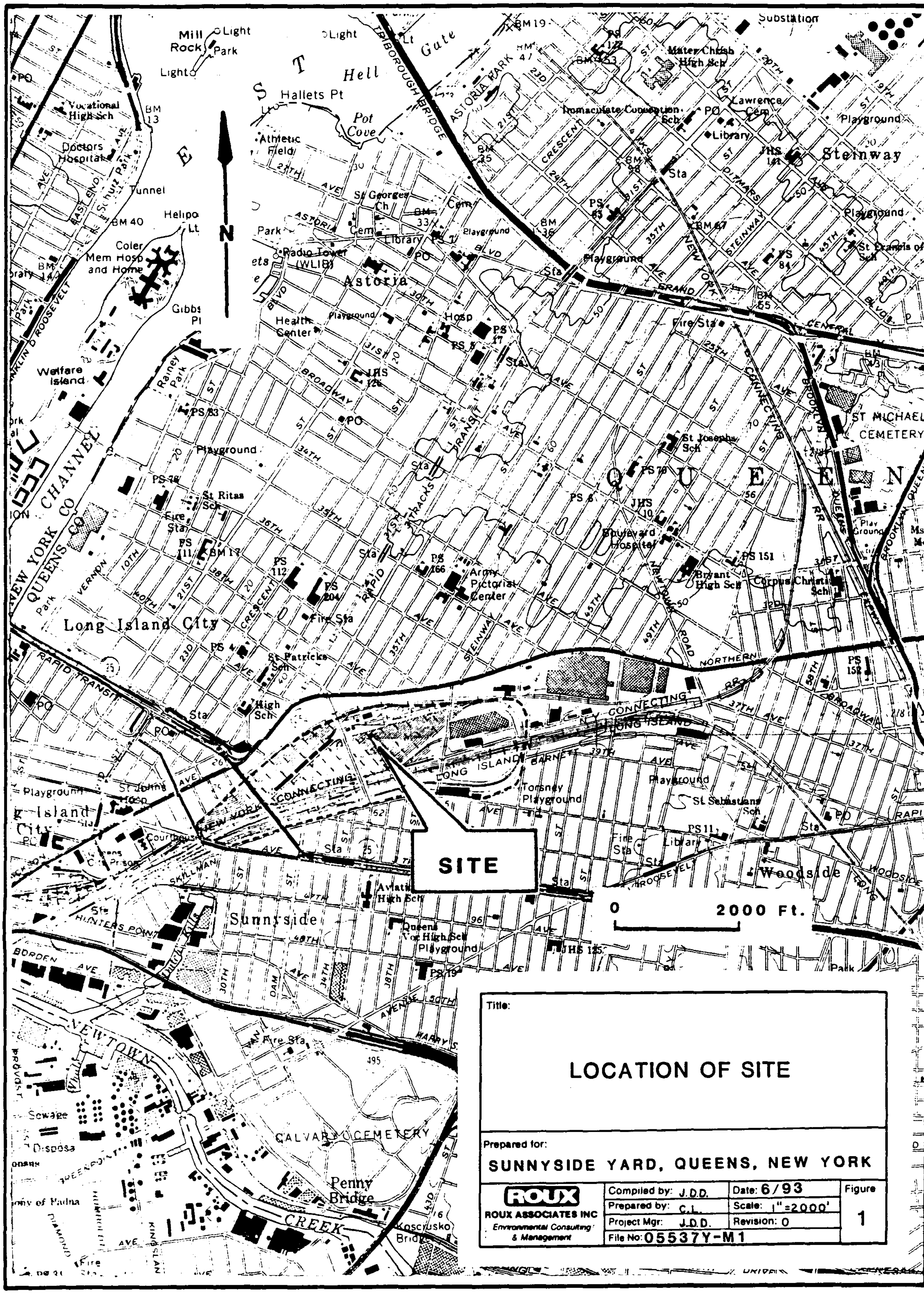
µg/L - micrograms per liter

Note: Detection of analytes below the Practical Quantitation Limit will be reported, but flagged as estimated.

Table 10. Proposed Area 1 Sediment Removal Location Justifications, Sunnyside Yard, Queens, New York

Manhole/ Catch Basin Location	Justification
CB-1 CB-2 CB-3 CB-4	Eliminate potentially contaminated surface runoff from catch basins at the east side of the Engine House in the vicinity of the former fuel transfer area and to evaluate the source(s) of PCB contamination
CB-6 CB-7	Eliminate potentially contaminated surface runoff sediments from catch basins at the west side of the Engine House in the vicinity of the drum storage area and to evaluate the source(s) of PCB contamination
MH-3 MH-5	Eliminate contaminated sediments from manholes located on Long Island Railroad property to the north of area and to evaluate the source(s) of PCB contamination
MH-7 MH-8	Eliminate contaminated sediments from manholes located adjacent to the Metro Shop and to evaluate the source(s) of PCB contamination

FIGURES



Title:

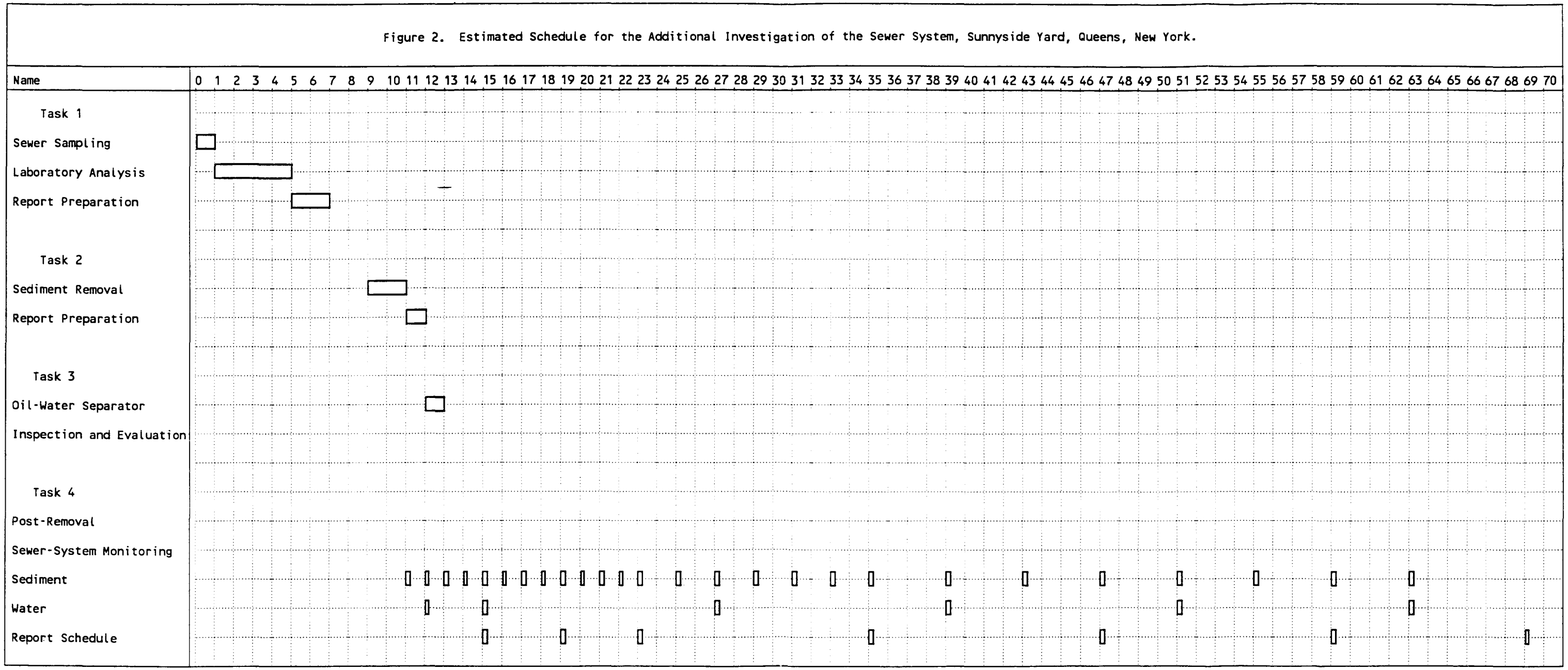
LOCATION OF SITE

Prepared for:

SUNNYSIDE YARD, QUEENS, NEW YORK

ROUX ASSOCIATES INC Environmental Consulting & Management	Compiled by: J.D.D.	Date: 6/93	Figure
	Prepared by: C.L.	Scale: 1"=2000'	1
	Project Mgr: J.D.D.	Revision: 0	
	File No: 05537Y-M1		

Figure 2. Estimated Schedule for the Additional Investigation of the Sewer System, Sunnyside Yard, Queens, New York.



Note: Project start is assumed to be four weeks from NYSDEC approval of the work plan.

APPENDICES

APPENDIX A

APPENDIX A

Sampling and Analysis Plan

CONTENTS

1.0 OBJECTIVES

This sampling and analysis plan (SAP) describes the types of samples to be collected, the analysis proposed and the procedures to be followed during site characterization and remedial investigation activities at the Sunnyside Yard, Queens, New York (Yard). Data generated by this SAP will be used to implement an interim remedial measures (IRM) work plan to mitigate off-site migration of polychlorinated biphenyl (PCB) contamination through the sewer system.

2.0 SAMPLING LOCATIONS

The locations of all proposed sewer sampling are identified in Plate 3 of the Work Plan for the Additional Investigation of the Sewer System. The rationale for the selection of these locations is provided in Section 2.0 and Tables 5 and 6 of the Work Plan.

3.0 SAMPLE CATALOGING

All aqueous sewer samples will be identified by a MHW prefix (manhole-water), followed by the manhole number. An example is "MHW-22", which identifies a water sample collected from manhole number twenty two. Filtered water samples will be identified with an F prefix preceding the manhole number. An example is "MHWF-22."

Sewer sediment samples will be identified by a MHS prefix (manhole-sediment), followed by the manhole number. An example is "MHS-22", which identifies a sediment sample collected at manhole number twenty two.

Multiple influent samples (sediment and water) will be identified by the diameter of the influent pipe. An example is "MHW-22(18)." If more than one influent pipe are of the same diameter, they will be identified by the compass direction at which they enter the manhole. An example is "MHW-22(18-N)."

Field blanks will be identified by FB WATER for blanks collected through the sewer-water collection device, and FB SED for blanks collected through the sewer-sediment collection device.

These numbering systems will be used by all contracted laboratories to identify samples collected for laboratory analysis during the sampling program. All chain-of-custody documentation will also adhere to these numbering systems.

Samples collected will be prelabeled with the following information:

- manhole number;
- time and date of sample collection;
- type of analysis to be performed; and
- affiliation of person(s) collecting the sample.

All sampling information will be recorded into a project field book.

4.0 PROTOCOL FOR SEWER SYSTEM SAMPLING

This protocol outlines procedures and equipment for sewer system sampling at the Sunnyside Yard, Queens, New York. Aqueous (unfiltered) and sediment samples will be collected at selected manhole locations (Plate 3). In addition, filtered samples will also be collected at representative locations. The filtered and unfiltered results will be compared to evaluate which phase (i.e., sediment or water) the contamination is present in.

4.1 Sampling Tool Cleaning Procedures

Prior to sewer system sampling, all tools used for sample collection will be cleaned in the following manner:

- remove all loose material and soil;
- wash thoroughly with detergent and tap water, utilizing a scrub brush;
- rinse with tap water;
- rinse with distilled or deionized water;
- rinse with pesticide-grade methanol; and
- rinse with distilled or deionized water.

4.2 Aqueous Sample Collection Procedures

The sampling points (manholes) will be located and opened. All manholes will be resecured when sampling is completed and at any time the sampling crew leaves the area of the manhole.

Water samples will be obtained using a clean polyvinyl chloride (PVC) collection container lowered into the water stream. At manhole locations where this procedure is not applicable (i.e., standing water or insufficient space), a peristaltic (or vacuum) pump and disposable tubing will be utilized. The tubing will be lowered into the water, the pump activated, and the sample collected. Disposable gloves will be worn while handling the sampling apparatus. Care will be taken to prevent the apparatus from coming into contact with the sewer walls or other surfaces that may affect the results. The sampling apparatus will be cleaned between use at each location as outlined in Section 4.1.

The water samples selected for filtered/unfiltered sampling will be collected following the same procedure as the other water samples. The unfiltered portion will be placed directly in the sample container. The filtration procedure will be as follows:

- properly decontaminate the filtering apparatus;
- place a clean (new) 0.45 micron pore-size filter in the funnel;
- pass the water sample through the 0.45 micron filter into the flask. If the sample contains significant sediment, then pass it through a pre-filter before using the 0.45 micron filter. Apply a vacuum pump if need to facilitate filtering; and
- transfer the filtered water sample to the appropriate, pre-labeled sample container.

All samples intended for laboratory analysis will be placed on ice and protected from light immediately after collection and during transport to the laboratory. All samples will be delivered to the laboratory no longer than 48 hours after collection.

The December 1991 NYSDEC ASP guidelines for sample containers, preservatives and holding times will be followed. PCB analysis will be by a modified 89-3 ASP Method which allows for a lower detection limit. Aroclor-specific data will be reported. The PCB analytical results will be reported at the Practical Quantitation Limit (PQL). PQLs and

method detection limits, without dilution, for PCB analyses in water samples are shown in Table 9. Analytes detected below the PQLs will be reported, but will be flagged as estimated.

Parameter[1]	Container[2]	Preservative	Maximum Holding Time by Laboratory
Polychlorinated Biphenyls (PCBs) by modified 89-3 ASP Method	Amber colored glass with teflon lined lid - 1 liter	Cool to 4°C	5 days before extraction, 40 days after receipt by laboratory

(1) Practical Quantitation Limits (PQL) will be reported for the analytical methods listed.
(2) All samples should be collected with a 1-inch air space in container.

4.3 Sediment Sample Collection

If sediment is present in sufficient quantities at the selected sediment sampling locations outlined in Section 2.0 and Tables 5 and 6 of the Work Plan, sediment samples will be collected for analysis.

The samples will be obtained using a clean PVC collection container and/or a decontaminated trowel as sediment quantity or manhole conditions (i.e., water flow, manhole dimensions, etc) dictate. The sampling apparatus will be cleaned between use at each location as outlined in Section 4.1.

Care will be taken to place only solids into the laboratory-supplied sample bottles. All samples intended for laboratory analyses will be placed on ice and protected from light immediately after collection and during transport to the lab. All samples will be delivered to the laboratory within 48 hours after collection.

The December 1991 NYSDEC ASP will be followed for PCB analysis in soil by Method 8080 including guidelines for sample containers, preservatives and holding times. Aroclor-specific data will be reported. The PCB analytical results will be reported at the PQL. PQLs, without dilution, for PCB analyses in soil samples are summarized in Table 8. Analytes detected below the PQLs will be reported, but will be flagged as estimated.

Parameter[1]	Container	Preservative	Maximum Holding Time by Laboratory
Polychlorinated Biphenyls (PCBs) by USEPA Method 8080	Amber widemouth glass with Teflon lined lid - 2 - 8 oz	Cool to 4° C	5 days before extraction 40 days after receipt by laboratory
1 Practical Quantitation Limits (PQL) will be reported for the analytical methods listed.			

4.4 Quality Assurance/Quality Control

Field sample collection procedures will be monitored through the use of the blind field replicates and field blanks.

4.4.1 Field Replicates

A total of 5 percent blind field replicates will be collected for the purposes of validating the precision of the aqueous sampling technique.

4.4.2 Field Blanks

Prior to any sampling, field blanks will be collected from a dedicated aqueous, and a cleaned sediment sampling apparatus from the final rinse of deionized/distilled water. The analytical laboratory will supply the deionized/distilled water. Analyses of the field blanks for the same parameters as the aqueous and sediment samples will verify the efficacy of the equipment cleaning procedure.

4.5 Record Keeping

The following records will be maintained by the field sampler during the sampling program.

4.5.1 Field Data

All field data will be recorded in the field sampler's bound notebook. This data will include: weather conditions, conditions of the sewer at each location, flow velocity where measured, and the sequence in which the samples were collected.

4.5.2 Chain of Custody

A chain of custody form will be completed following the collection of the aqueous and the sediment samples.

APPENDIX B

APPENDIX B

Health and Safety Plan

CONTENTS

1.0 INTRODUCTION

This plan outlines health and safety procedures to be followed by Roux Associates, Inc. (Roux Associates) employees and subcontractors hired by Roux Associates during any site investigation and cleanup activities performed at the Sunnyside Yard, Queens, New York (Yard). This health and safety plan was developed in accordance with current Occupational Safety and Health Administration (OSHA) guidelines outlined in 29 CFR Part 1910.

These procedures include emergency chain of command, personnel protective equipment, basic safety equipment, air monitoring, training program, employee medical surveillance program, and decontamination of personnel and equipment.

A Health and Safety Officer (HSO) will be appointed to ensure that all Health and Safety Plan (HASP) activities are correctly implemented. The HSO's resume will be submitted to the New York State Department of Environmental Conservation (NYSDEC) prior to the start of the investigation.

2.0 EMERGENCY PROCEDURES

If a medical emergency occurs, only limited first aid will be available onsite. If the victim(s) cannot be transported without substantial risk, call for an ambulance. If the victim(s) can be transported without substantial risk of additional injury, the nearest hospital is :

Astoria General Hospital
25-10 30th Avenue
Astoria, NY
General Phone Number : (718) 932-1000

2.1 Emergency Phone Numbers

In case of the need for emergency help, the following phone numbers will be maintained at the site:

Police Emergency	911
AMTRAK Police	(212) 630-7113
AMTRAK Environmental Control	(212) 630-7249
AMTRAK Yard Facility Manager	(212) 630-7565
Fire Emergency	847-6600

Ambulance	911
Poison Control Center	(800) 962-1253
National Response Center	(800) 424-8802

2.2 Chain of Command

In case of difficulties at the site requiring notification of Roux Associates, the following is Roux Associates' contacts listed in order of priority:

Roux Associates, Inc.
775 Park Avenue, Suite 255
Huntington, New York 11743
Phone Number: (516) 673-7200

Joseph Duminuco, Project Manager
Home Phone Number: (516) 735-3140

Harry Gregory, Site Health and Safety Officer

3.0 PERSONNEL PROTECTIVE EQUIPMENT

Based on the available information, it is anticipated that a modified version of Level D protection will be adequate for most tasks to be performed at the site.

The modified Level D protection will consist of:

- coveralls, disposable (poly-coated Tyvek);
- gloves, chemical resistant, disposable;
- boots, chemical resistant, disposable or Super Dielectric overboot;
- hard hat; and
- safety glasses or chemical splash goggles.

A photoionization detector will continuously monitor air in the work zone for changes in organic vapor levels. Level D areas are defined as areas where gross ambient organic vapor levels in air (monitored on a real time basis) range from site background up to 5 parts per million (ppm).

Level D protection will be upgraded to Level C protection if concentrations of organic vapors in ambient air exceed 5 ppm or the presence of toxic airborne substances is known or suspected.

Level C areas are defined as areas where gross ambient organic vapor levels in air (monitored on a real-time basis) are greater than 5 ppm but less than 500 ppm, or where the presence of toxic airborne substances is known or suspected.

Level C Protection consists of:

- full face air-purifying respirator (OSHA/National Institute for Occupational Safety and Health [NIOSH] approved);
- coveralls, disposable (poly-coated Tyvek or Saranex);
- gloves, chemical resistant, disposable (taped to coveralls);
- boots, chemical resistant, disposable (taped to coveralls); and
- hard hat.

Work will cease if levels of organic vapors exceed 500 ppm. If this condition persists in the work zone, the Work Plan will be modified to a higher level of protection.

When the possibility exists that explosive gases may be released from the manholes or catch basins during sampling, excavation and removal operations, the atmosphere will be monitored with an explosimeter. When levels approach the lower explosive limit (25 percent L.E.L.), work will cease until explosive gases have sufficiently dispersed.

It will be the responsibility of the senior on-site Roux Associates representative to inform all on-site Roux Associates personnel of the level of personnel protection required in all work situations. All contractors and subcontractors are responsible for supplying their personnel with the necessary safety equipment.

Basic safety equipment will be kept on-site for monitoring and responding to emergency situations. In addition to equipment previously mentioned, basic safety equipment will include, but is not limited to, the following:

- portable eye wash;
- ABC type fire extinguishers;
- first aid kits; and
- photoionization detector.

4.0 EMPLOYEE MEDICAL SURVEILLANCE PROGRAM

All Roux Associates employees involved in field operations have had medical examinations. Follow-up exams are conducted at a frequency of every 12 months for employees involved in field investigations. All contractors and subcontractors are responsible for their own medical surveillance programs.

5.0 TRAINING PROGRAM

All personnel who enter the work zone (the designated area where activities are being performed pursuant to this Work Plan) must have received a minimum of forty hours of comprehensive health and safety training in accordance with 29 CFR Part 1910. All contractors and subcontractors will assume responsibility for the training of their personnel.

It will be required that all Roux Associates personnel (including all contractors and subcontractors) scheduled to perform work in the work zone review a copy of this HASP.

In addition to the procedures outlined in this HASP, all Roux Associates personnel (including all contractors and subcontractors) will be informed of any applicable Yard safety rules to be observed while working at the Yard.

6.0 DEFINITION OF WORK AREAS AND DECONTAMINATION PROCEDURES

Based on health and safety considerations, certain areas at the Yard where water and/or sediment sample collection and sediment remediation will be conducted may be considered a restricted "work zone" while work is taking place. If restricted access is necessary, the appropriate work zone, including but not limited to any excavation and removal equipment

and all associated sampling equipment located therein, will be a restricted access area. Entry to and exit from the work zone will be provided only to those persons directly involved in tasks associated with the Work Plan and only if the prescribed level of personal protection is worn. Prior to leaving a restricted access area all personnel and equipment will be decontaminated.

If 5 ppm of organic vapor is exceeded in the ambient air or the work (exclusion) zone, air monitoring will be undertaken between the exclusion zone and the nearest downwind, non-Remedial Investigation (RI) related target population. Work will be suspended if readings exceed 5 ppm outside of the exclusion zone.

Areas are defined as Levels C or D corresponding to the level of personal protection required for each situation.

6.1 Restricted Access Area Level D

Level D access will apply to areas in which no health hazards are known to exist and where organic vapor concentrations are below 5 ppm in ambient air. All Roux Associates personnel entering the work zone are required to be wearing Level D personal protection as described in Section 3.0 of this HASP.

Decontamination procedures prior to leaving Level D areas will consist of brushing loose soil from clothing and equipment, and washing equipment with mild detergent and water. Disposable gloves, boots, scoops, paper towels and Tyvek suits will be discarded in the trash receptacles provided within these areas. Excavation and removal equipment will be brushed clean of soil and, if necessary, proceed to the heavy equipment cleaning zone.

6.2 Restricted Access Area Level C

Level C access will apply to those areas where organic vapors exceed 5 ppm (but are less than 500 ppm) in ambient air, or where the presence of toxic airborne substances is known or suspected to exist.

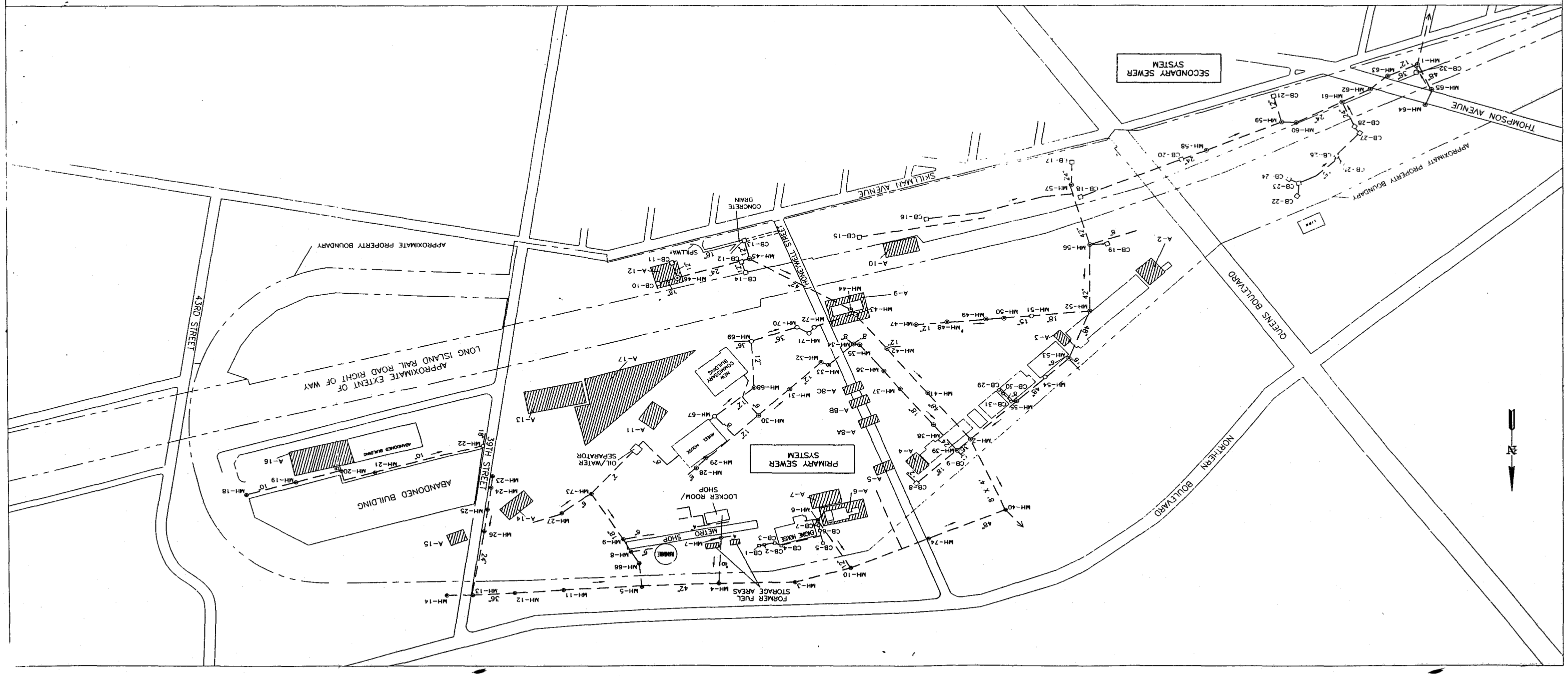
Entry to Level C areas will be provided only to those Roux Associates and subcontractor personnel wearing Level C personal protection as described in Section 3.0 of this HASP.

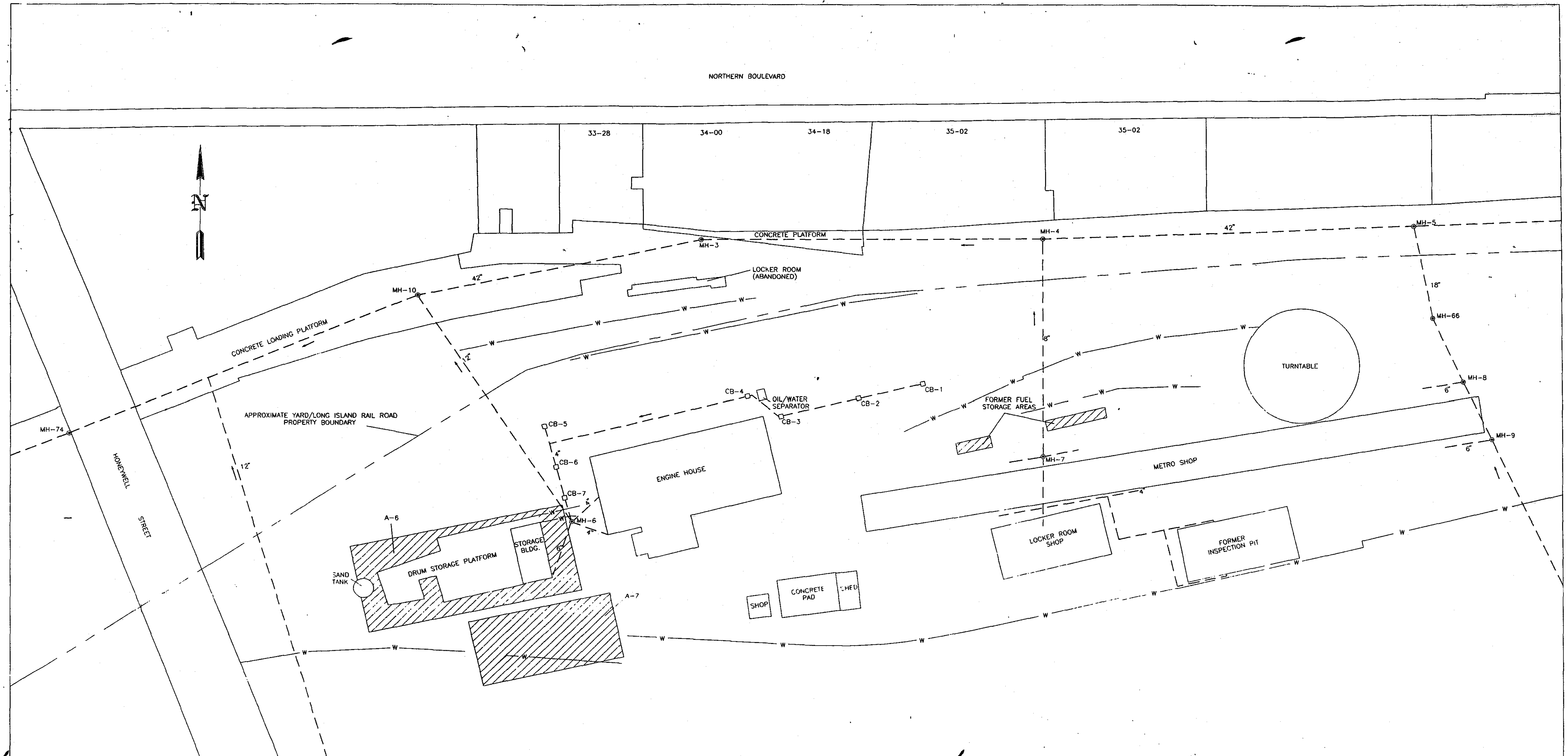
Level C areas will be delineated into a work zone and a decontamination zone. When exiting the work zone, workers will enter the decontamination zone. The decontamination zone will be provided with a plastic liner to contain wash solutions and contaminated soil. Instruments, sample containers, and reusable equipment will be placed on a plastic covered table. These items will be cleaned with the appropriate solutions. The workers will then decontaminate their protective clothing. Disposable items will be discarded in trash receptacles which will be provided within the decontamination area.

After decontamination, personnel will leave the decontamination zone, with respirators being removed last. Heavy equipment will be cleaned of gross contamination while in the work zone, after which the equipment will be moved to the heavy equipment cleaning area.

Dry material such as suits and gloves will be disposed in accordance with state and federal guidelines.

PLATES


SECONDARY SEWER SYSTEM
PRIMARY SEWER SYSTEM
THOMPSON AVENUE
SKILLMAN AVENUE
QUEENS BOULEVARD
NORTHERN BOULEVARD
43RD STREET
39TH STREET
HONEYWELL STREET
APPROXIMATE PROPERTY BOUNDARY
APPROXIMATE EXTENT OF LONG ISLAND RAIL ROAD RIGHT OF WAY
ABANDONED BUILDING
CONCRETE DRAIN
SPILLWAY
FORMER FUEL STORAGE AREAS
OIL/WATER SEPARATOR
LOCKER ROOM/ SHOP
METRO SHOP
NEW CONCESSION BUILDING
METER HOUSE
ENGINE HOUSE
TANK
0 200 400 FEET
EXPLANATION
DIRECTION OF SEWER FLOW
APPROXIMATE LOCATION OF SEWER
APPROXIMATE DIAMETER OF SEWER
CB-1 GRATE COVER CATCH BASIN LOCATION AND DESIGNATION
MH-1 SOLID COVER MANHOLE LOCATION AND DESIGNATION
MH-22 GRATE COVER MANHOLE LOCATION AND DESIGNATION
A-2 LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN
APPROXIMATE PROPERTY BOUNDARY
NOTES: LOCATIONS AND DIAMETERS OF SEWER COMPONENTS BASED UPON A REVIEW OF ENGINEERING DIAGRAMS AND LIMITED FIELD SURVEY
SEWER LINE CONNECTING MH-14 THROUGH MH-17 PREVIOUSLY IDENTIFIED ON ENGINEERING DIAGRAMS WAS NOT LOCATED DURING FIELD SURVEY AND IS PRESUMED NOT TO HAVE BEEN CONSTRUCTED. AND THEREFORE DOES NOT APPEAR ON THIS PLATE
Title
FACILITY WIDE SEWER PLAN
Prepared for
SUNNYSIDE YARD, QUEENS, NEW YORK
ROUX ASSOCIATES INC. Environmental Consulting & Management
Prepared by C.G. | Date 8/93
Project Mgr J.D.B. | Revision 0
Prepared by J.R. | Scale SHOWN
File No. AN69A61 | Project 05537Y
PLATE 1



EXPLANATION

- DIRECTION OF SEWER FLOW
- 12" APPROXIMATE LOCATION OF SEWER
- APPROXIMATE DIAMETER OF SEWER
- CB-1 GRATE COVER CATCH BASIN LOCATION AND DESIGNATION
- MH-4 SOLID COVER MANHOLE LOCATION AND DESIGNATION
- A-6 LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN
- APPROXIMATE PROPERTY BOUNDARY

NOTE: LOCATIONS AND DIAMETERS OF SEWER COMPONENTS BASED UPON A REVIEW OF ENGINEERING DIAGRAMS AND LIMITED FIELD SURVEY

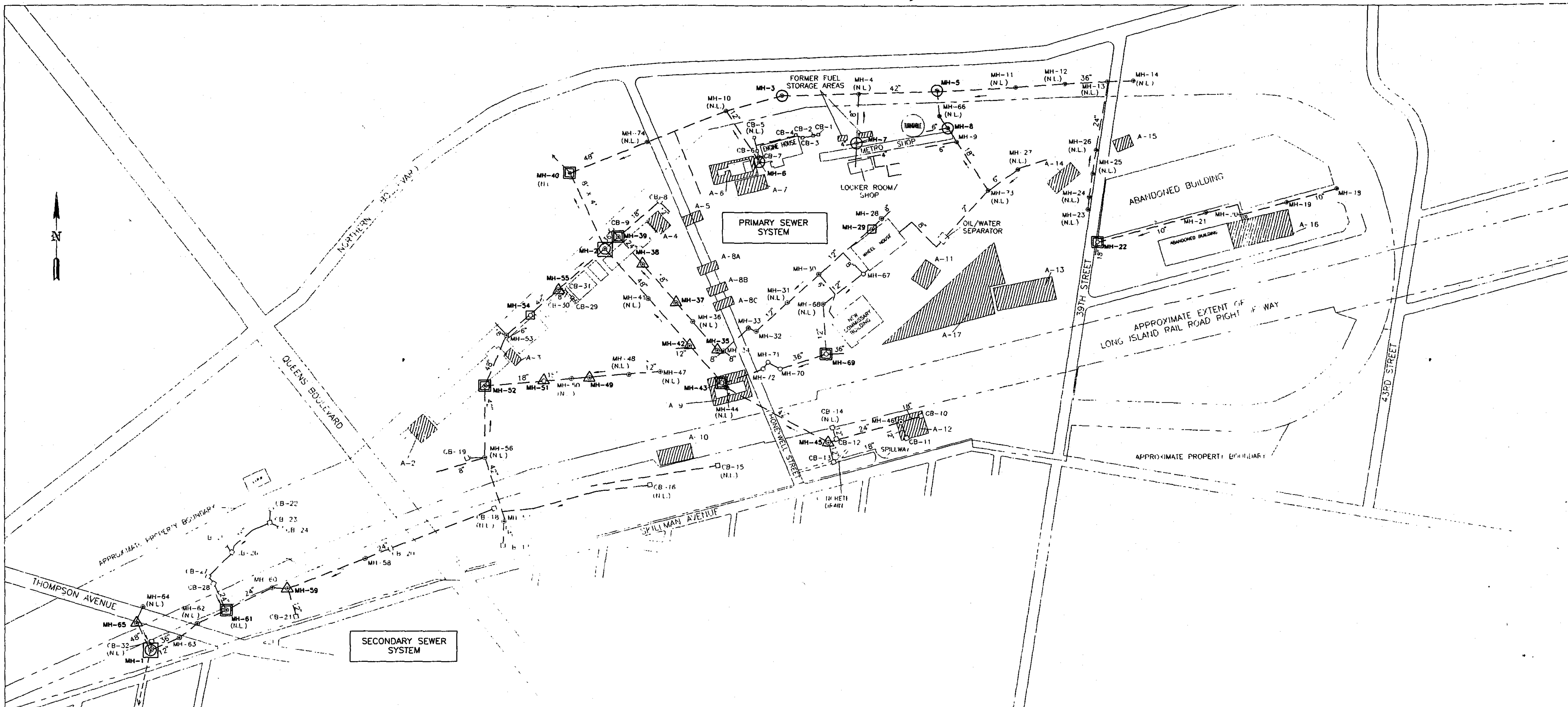
0 40 80 FEET

Title: AREA 1 SEWER PLAN

Prepared For: SUNNYSIDE YARD, QUEENS NEW YORK

ROUX ASSOCIATES Environmental Consulting & Management

Compiled by: H.G.	Date: 8/93	PLATE
Prepared by: J.R	Scale: SHOWN	2
Project Mgr: J.D.D.	Revision:	
File No. AM537A5S	Project: 05537Y	



EXPLANATION

MH-3	LOCATION AND DESIGNATION OF MANHOLE SAMPLED DURING THE PHASE II REMEDIAL INVESTIGATION
MH-29	PROPOSED SEWER WATER AND SEDIMENT SAMPLING LOCATION AND DESIGNATION
MH-2	PROPOSED SEWER WATER AND SEDIMENT SAMPLING LOCATION AND DESIGNATION AT A PREVIOUSLY SAMPLED MANHOLE
MH-22	PROPOSED MULTIPLE INFLUENT SEWER WATER AND SEDIMENT SAMPLING LOCATION AND DESIGNATION
MH-29	PROPOSED SEWER SEDIMENT ONLY SAMPLING LOCATION AND DESIGNATION
(N.L.)	INDICATES MANHOLE/CATCH BASIN WAS NOT LOCATED (I.E., PAVED OVER OR BURIED) DURING PRELIMINARY SURVEY, HOWEVER, ENGINEERING DIAGRAMS INDICATE THAT LOCATION HAS BEEN FOUND IN THE PAST
	DIRECTION OF SEWER FLOW
	APPROXIMATE LOCATION OF SEWER
12"	APPROXIMATE DIAMETER OF SEWER
CB-1	GRATE COVER CATCH BASIN LOCATION AND DESIGNATION
MH-47	SOLID COVER MANHOLE LOCATION AND DESIGNATION
MH-70	GRATE COVER MANHOLE LOCATION AND DESIGNATION
A-	LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN
	APPROXIMATE PROPERTY BOUNDARY

NOTES: LOCATIONS AND DIAMETERS OF SEWER LINES ARE BASED UPON A REVIEW OF ENGINEERING DIAGRAMS AND LIMITED FIELD SURVEY.

SEWER LINE CONNECTING MH-14 THRU ... WAS IDENTIFIED ON ENGINEERING DIAGRAMS, ... DURING PRELIMINARY SURVEY AND IS PRESUMED ... HAS BEEN CONSTRUCTED, AND THEREFORE DOES NOT APPEAR ON THIS PLATE

0 200 400 FEET

Title: PROPOSED SEWER SAMPLING LOCATIONS

Prepared For: SUNNYSIDE YARD, QUEENS, NEW YORK

ROUX ASSOCIATES INC Environmental Consulting & Management	Compiled by:	Date: 8/93	PLATE
	Prepared by:	Scale: SHOWN	3
	Project Mgr: JDO	Revision: 0	
	File No: AM17760	Project: 05571	

NORTHERN BOULEVARD

33-28 | 34-00 | 34-18 | 35-02 | 35-02

N

CONCRETE PLATFORM

MH-3

MH-4 (N.L.)

42"

MH-5

MH-10 (N.L.)

LOCKER ROOM (ABANDONED)

CONCRETE LOADING PLATFORM

W

18"

MH-66 (N.L.)

12"

8"

TURNTABLE

MH-8

6"

CB-4

OIL/WATER SEPARATOR

CB-3

CB-2

CB-1

FORMER FUEL STORAGE AREAS

APPROXIMATE YARD/LONG ISLAND RAIL ROAD PROPERTY BOUNDARY

MH-74 (N.L.)

CB-5 (N.L.)

4"

CB-6

ENGINE HOUSE

MH-9

6"

HONEYWELL STREET

CB-7

MH-7

METRO SHOP

A-6

MH-6

STORAGE BLDG.

DRUM STORAGE PLATFORM

SAND TANK

LOCKER ROOM SHOP

FORMER INSPECTION PIT

A-7

SHOP

CONCRETE PAD

SHED

EXPLANATION

MH-3 — PROPOSED SEWER SEDIMENT REMOVAL LOCATION AND DESIGNATION

CB-1 — PROPOSED CATCH BASIN SEDIMENT REMOVAL LOCATION AND DESIGNATION

(N.L.) — INDICATES MANHOLE/CATCH BASIN WAS NOT LOCATED (I.E. PAVED OVER OR BURIED) DURING PRELIMINARY SURVEY, HOWEVER, ENGINEERING DIAGRAMS INDICATE THAT LOCATION HAS BEEN FOUND IN THE PAST

DIRECTION OF SEWER FLOW

12" — APPROXIMATE LOCATION OF SEWER

APPROXIMATE DIAMETER OF SEWER

CB-5 — GRATE COVER CATCH BASIN LOCATION AND DESIGNATION

MH-4 — SOLID COVER MANHOLE LOCATION AND DESIGNATION

A-6 — LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN

APPROXIMATE PROPERTY BOUNDARY

NOTE: LOCATIONS AND DIAMETERS OF SEWER COMPONENTS BASED UPON A REVIEW OF ENGINEERING DIAGRAMS AND LIMITED FIELD SURVEY

0 40 80 FEET

Title

PROPOSED AREA 1 SEDIMENT REMOVAL LOCATIONS

Prepared For

SUNNYSIDE YARD, QUEENS NEW YORK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: C.C.	Date: 8/93		PLATE
Prepared by: J.R.	Scale: SHOWN		4
Project Mgr: J.D.D.	Revision:		
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