March 31, 2008

Sondra Martinkat
New York State Department of Environmental Conservation – Region 2
1 Hunters Point Plaza
47-40 21st Street
Long Island City, New York 11101-54070

Re: Remedial Action Report – Volume 3
East 75th/East 76th Street Site, Manhattan
Voluntary Cleanup Program No. V00425-2
AKRF Project No. 30164

Dear Ms. Martinkat:

AKRF, Inc. is pleased to submit a draft of Volume 3 as an addendum to the Remedial Action Report for the East 75th/East 76th Street Site in Manhattan, New York. This report includes a summary of remedial activities that occurred on the East 75th/East 76th Street Site and investigative studies of off-site soil, groundwater, and soil gas conditions. The report also includes an Exposure Assessment, reflective of current and future site conditions, and a Site Management Plan, which includes detailed procedures for operation and maintenance of the site engineering controls.

If you should have any questions or comments regarding the enclosed report, please do not hesitate to contact me at (914) 922-2356.

Sincerely,

AKRF Engineering, P.C.

Marc S. Godick
Senior Vice President

Enc.

East 75th/76th Street Site

VCP Index No. V00425-2

NEW YORK, NEW YORK

Remedial Action Report Addendum - Volume 3

AKRF Project Number: 30164

Prepared for:

The Denihan Company
511 West 37th Street
New York, New York 10018

Prepared by:

AKRF, Inc.
440 Park Avenue South
New York, NY 10016
212-696-0670

MARCH 2008

CERTIFICATIONS

I, Michelle Lapin, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the Lycee Francais de New York Site (NYSDEC VCA Index No. V00425-2).

I certify that the Site description presented in this RAR is identical to the Site descriptions presented in the Deed Restriction, the Site Management Plan, and the Voluntary Cleanup Agreement for Lycee Francais de New York Site and related amendments.

I certify that the Remediation Work Plan dated February 2001 and all associated documents approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with. I certify that the remedial activities were observed by qualified environmental professionals under my supervision and that the remediation requirements set forth in the Remediation Work Plan have been achieved.

I certify that the data submitted to the Department demonstrates that the remediation requirements set forth in the Remediation Work Plan have been achieved in accordance with the work plan.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and all operation and maintenance requirements applicable to the Site are contained in a Deed Restriction and that all affected local governments have been notified that such restriction has been recorded within thirty (30) days of the date of the NYSDEC letter approving the final Remedial Action Report. A Site Management Plan has been submitted by the Applicant for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by NYSDEC.I certify that all export of contaminated soil, fill, water or other material from the property was performed in accordance with the Remediation Work Plan, and were taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that all import of soils from off-Site, including source approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remediation Work Plan.

I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the Remediation Work Plan.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

_____	_____	_____
NYS Professional Engineer #	Date	Signature

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

VOLUME 3

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

AKRF Engineering, P.C. (AKRF) was retained by The Denihan Company (affiliated entities include Manhattan East Suite Hotels and East 75th/East76th Street Development Company, LLC) to perform the remediation of a former dry cleaning facility and auto garage located at 503-509 East 75th Street/504-512 East 76th Street in the Upper East Side neighborhood of Manhattan, New York. The legal definition of the property is Tax Block 1487, Lots 4, 5 and 8. The project site is shown in Figure 1 and a site plan is provided as Figure 7. The site will be referred to as the "East 75th/76th Street Site," the "Project Site" or the "Site" in this report. Figures 2 through 6 are included in Volume 1 of Remedial Action Report (RAR).

The remediation was performed through the New York State Department of Environmental Conservation's (NYSDEC's) Voluntary Cleanup Program (VCP) (Site No. V00425-2). The remediation at the Site was performed in accordance with the following documents:

- Remedial Work Plan (AKRF - February 2001);
- Comment Letter on Remedial Work Plan (NYSDEC – May 2, 2001);
- Addendum Letter to Voluntary Cleanup Program Remedial Work Plan (AKRF - May 9, 2001);
- Memorandum: Spill #0130013 (AKRF - August 31, 2001);
- Comment Letter on Addendum to Remedial Work Plan (NYSDEC - October 18, 2001);
- Response Letter to DEC Comment Letter Dated October 18, 2001 (AKRF - January 18, 2002);
- Two e-mails from Sondra Martinkat of NYSDEC to Marcus Simons of AKRF regarding Category B Quality Assurance/Quality Control Sampling during endpoint samples (NYSDEC – February 26, 2003);
- Memorandum: Excavating the former elevator piston from 75/76 Street Site, Manhattan (AKRF – March 6, 2002);
- Proposed Installation of Vapor Barrier (AKRF - April 11, 2002);
- Revised Exposure Assessment (AKRF - May 12, 2002);
- Contingency in the Voluntary Cleanup Remedial Work Plan – Water Treatment System (AKRF-May 31, 2002);
- *Off-Site Study* (AKRF - June 18, 2002);
- *Operation and Maintenance Outline* (Lawler, Matusky & Skelly Engineers LLP [LMS] – June 18, 2002);
- Update of Operations and Maintenance Outline (LMS – August 2, 2002);
- Air Monitoring Discussion at June 18, 2002 Project Meeting (NYSDEC – August 16, 2002);
- Addendum to the Off-Site Study – Voluntary Cleanup Remedial Work Plan (AKRF - September 6, 2002);
- Two *Comment Letters* (NYSDEC - both dated October 1, 2002); and
- *AKRF Facsimile* (AKRF - November 7, 2002) regarding the relocation of three boring locations in the Off-Site Study.

The Remedial Work Plan for the VCP was approved by the NYSDEC in a letter dated June 18, 2002.

The objective of the Remedial Action at the East 75th/East 76th Street Site was to remediate on-site contamination and to investigate the potential for off-site contamination. The on-site remediation occurred in three phases:

- **Phase 1—January 9 through January 18, 2001 and January 29, 2001**—The first phase of remediation was conducted after the VCP Application had been submitted to NYSDEC, but before the VCP Work Plan had been prepared. This first phase of remediation was performed to gain a better understanding of the scope of contamination that would need to be addressed by the VCP Remedial Work Plan (February 2001). The remediation was conducted while the four structures formerly occupying the East 75th/East 76th Street Site were present and was focused on locating underground storage tanks (USTs) in the 507-509 East 75th Street buildings. Eleven aboveground storage tanks (ASTs), drums, and four USTs were removed from the Project Site, but no soil was removed. The soil located beneath four 1,080-gallon underground storage tanks located at 507-509 East 75th Street was sampled to determine characterization for disposal at a later date. No Phase 1 endpoint samples were collected.
- **Phase 2—April 10 through May 2, 2001**—The second phase of remediation was performed after the VCP Work Plan had been submitted to NYSDEC and after the four on-site structures had been demolished. Four USTs and associated contaminated soil were removed from the property. Once apparent limits of contamination were reached for each tank area, Phase 2 endpoint samples were collected. At the completion of the second phase of remediation, it was expected that only a limited volume of contaminated soil was present in the southwestern corner of the site. This soil was not removed during the second phase of remediation because its removal would have threatened the structural integrity of a small garage southwest and adjacent to the Site.
- **Phase 3—January 29 through August 14, 2002**—The third phase of remediation occurred simultaneously with general excavation for the private school constructed on the Project Site. Four additional USTs were removed from the Project Site. After the commencement of the excavation, it was discovered that the soil/bedrock interface throughout the site, consisting of weathered bedrock, was contaminated with volatile organic compounds. This material was deemed non-hazardous contaminated material and was removed from the site and disposed of in accordance with a DEC 'Contained-in Determination' (NYSDEC letter dated May 2, 2001).

An off-site investigation was required for two reasons: the VCP Applicant had formerly operated dry cleaning equipment on-site and was thus a Potentially Responsible Party (PRP); and endpoint sampling indicated the potential for off-site migration of contamination. The first phase of the off-site investigation included the collection of soil samples at the bedrock interface and the collection of groundwater samples from open-hole bedrock wells. The findings of the Off-Site Study are presented in a separate document: *Remedial Action Report–Off-Site Study* (AKRF–July 2003).

In a meeting at NYSDEC offices in Long Island City on May 6, 2004, AKRF, Inc. (AKRF) was informed that the New York State Department of Health (NYSDOH) required soil gas sampling as an additional part of the off-site investigation for the site. The purpose of the Soil Gas Investigation was to assess the potential for indoor air quality in neighboring buildings to be affected by groundwater contamination associated with the project site. The Soil Gas Investigation was completed in February 2005 and consisted of the advancement and sampling of 12 soil gas sampling points in the sidewalks surrounding the Project Site. The findings of the exterior soil-gas investigation are presented in a separate document: *Soil Gas Investigation Report* (AKRF, July 2005).

Based on the results of the February 2005 off-site soil gas investigation, the NYSDOH required sub-slab soil gas and indoor air samples to be collected from buildings located on the five properties adjacent to the Project Site. Four of the five property owners did not allow access to collect the NYSDOH-required

samples, and the investigation consisted of collecting two sub-slab and two ambient air samples inside the west-adjacent property located at 1420 York Avenue, and re-sampling three existing sidewalk points from the February 2005 investigation. The sampling was completed in May 2007 and the findings are presented in a separate document: *Soil Gas Investigation Report* (AKRF, July 2007). A description of the investigation activities and results for each off-site investigation is summarized in Section 5.0 of this report.

This RAR Addendum report summarizes the Remedial Actions completed for the East 75th/East 76th Street Site and is intended to supplement Volume 1 and Volume 2 of the original RAR submitted in July 2003. The actions, in combination with laboratory results, demonstrate that all remedial requirements have been satisfied; the foundation water treatment to meet NYCDEP discharge requirements continues to operate according to a Site Management Plan that is described in Section 7, and is included as Appendix N.

2.0 BACKGROUND

2.1 Phase I Environmental Site Assessments and Additional Historical Research

A Phase I Environmental Site Assessment (ESA) was performed on the site in 1996 by AKRF and updated in 1999. Both reports were provided to NYSDEC in the VCP Application submitted in 2000. Historical Sanborn Maps, supplemented by blueprints, permits, memos and other documentation provided by The Denihan Company, indicated that the site was developed prior to 1911 with residential structures and a bakery. Circa 1939, two garages with three gasoline tanks were shown to occupy the portion of the property fronting East 75th Street. Floor plan drawings circa 1950 showed this area to have been operated as a dry cleaning facility. Historical Sanborn Maps from 1994 indicated that the buildings fronting East 76th Street were occupied by a garage.

The Phase I ESA concluded that the following were potential source areas of on-site contamination:

Table 1
Tanks, Drums, Pistons and Areas of Potential On-Site Contamination

Number of Tanks	Capacity (gallons)	Source Type	Contents	Location
1	275	AST	fuel oil	507-509 East 75th Street
4	1,080	UST	dry cleaning solvents	507-509 East 75th Street
7	55	AST	hydraulic oil	506-512 East 76th Street
10	55	Drums	empty	503-505 East 75th Street
1	5,000	UST	fuel oil	507-509 East 75th Street
2	550	UST	gasoline	503-505 East 75th Street
n/a	n/a	former dry cleaning equipment area	n/a	503-509 East 75th Street
2	n/a	elevator pistons	hydraulic oil	506-512 East 76th Street
1	550	UST	gasoline	502-504 East 76th Street
2	550	UST	gasoline	507-509 East 75thStreet

Notes: AST = Aboveground Storage Tank
UST = Underground Storage Tank n/a = Not Applicable

2.2 Previous Investigations

The 1996 Phase II Environmental Site Investigation performed by AKRF (provided in the VCP Application) included a soil gas, soil, and groundwater sampling program to characterize

subsurface conditions. The investigation was performed using a Bosch Drill with a ⅝-diameter, one foot long, stainless steel shaft that was used to collect soil gas, soil and groundwater samples. Soil gas was collected from the point of refusal at nine locations. Soil was collected from a depth of approximately one foot above refusal at eight locations. Groundwater (presumably perched) was encountered and sampled at one location.

This investigation detected elevated levels of volatile organic compounds (VOCs) above 5 parts per million (ppm) in soil gas samples at six of nine sampling locations, located on the East 75th Street side of the site. Petroleum-related contamination was detected in soils located under the 507-509 East 75th Street building. Soil in the location of the former dry cleaning equipment (northern portions of the 503-505 and the 507-509 East 75th Street buildings) exhibited low levels of VOCs, including tetrachloroethene (PCE) and 1,2-dichloroethene (DCE—a decomposition product of PCE). Levels detected were below Technical and Administrative Guidance Memorandum (TAGM) 4046 Recommended Soil Cleanup Objectives (TAGM RSCO, 1994) (maximum levels detected were 0.005 ppm of PCE and 0.16 ppb of DCE). Two soil samples were collected in the vicinity of the former 1,080-gallon dry cleaning solvent tanks (507-509 East 76th Street building), but no VOCs were detected. Low levels of petroleum hydrocarbons were detected in the one groundwater sample collected.

3.0 SITE DEVELOPMENT

The East 75th/East 76th Street site currently contains a multi-level building used by Lycee Francais de New York as a private school for children. Construction of the building was completed in September 2003. The project site was excavated to approximately 30 feet below grade to accommodate the foundation for the school. On-site remediation occurred prior to and during the excavation for the foundation. A water/vapor barrier was constructed beneath the building foundation and around footings and basement sidewalls. The design of this waterproofing system allows for the collection of groundwater. The collected water is currently being pretreated in an on-site treatment system prior to discharge into the New York City sewer system. Section 4.5 includes additional information on the installation of the water/vapor barrier. Section 4.6 includes additional information on the design, implementation and maintenance of the water treatment system. Architectural design drawings for the foundation and water/vapor barrier are included in Volume 1, Appendix A.

4.0 REMEDIAL ACTION

Phase 1 Remediation occurred prior to the preparation of the VCP Work Plan, while the former on-site structures were standing. Phase 2 Remediation occurred after the VCP Work Plan had been submitted to NYSDEC and after the on-site structures had been demolished. Phase 3 Remediation occurred during general excavation for the current structure. All material above bedrock (foundation concrete, tanks and soil) and at least ten feet of bedrock were removed from the site during Phase 3 Remediation.

A Data Usability Summary Report (DUSR) was prepared for all analytical data collected during remedial activities on the East 75th/East 76th Street site, including characterization samples, endpoint samples and weep samples. The DUSR included in Volume 1, Appendix B of the RAR. The DUSR determined that the data was usable for the purpose of the investigation.

American Analytical Laboratories of Farmingdale, NY performed laboratory analysis during Phase 1 and Phase 2 Remediation. American Analytical Laboratories is a New York State Department of Health (NYSDOH) ELAP-certified laboratory (Certification No. 11418). Category A deliverables were received

for analysis performed by American Analytical Laboratories. During a meeting with NYSDEC on June 16, 2001, NYSDEC requested that an NYSDOH CLP ELAP-certified laboratory perform any further laboratory analysis. In accordance with DER-10 2.1(b) and 2.1(f), Category B deliverables were received for Phase 3 endpoint samples from an ELAP CLP-certified laboratory, Severn Trent Laboratories of Shelton, CT (ELAP CLP Certification No. 10602). Complete laboratory deliverables are available upon request.

4.1 Phase 1 Remediation

An attempt to locate and remove suspected underground storage tanks (four 1,080-gallon former dry cleaning solvent tanks, two 550-gallon gasoline tanks and one 5,000-gallon oil tank) from the 507-509 East 75th Street building and aboveground storage tanks and drums from the four on-site buildings occurred from January 9-18 and January 29, 2001. All aboveground and four 1,080-gallon underground storage tanks were located and removed from the site during Phase 1 Remediation. The remaining 5,000-gallon underground oil tank was located and removed during Phase 2 Remediation and the two 550-gallon gasoline tanks were removed during Phase 3 Remediation.

Phase 1 Remediation was performed to gain a better understanding of the scope of contamination that would need to be addressed by the VCP Remedial Work Plan (February 2001). The VCP Remedial Work Plan summarized the Phase 1 Remediation and was prepared after the completion of this phase of remediation.

During Phase 1 Remediation, AKRF personnel directed and oversaw remedial activities and Brookside Environmental Services, Inc. coordinated the removal of storage tanks and their contents. Evidence of petroleum contamination was discovered on-site during these activities, therefore, a spill report was filed with the NYSDEC on January 11, 2001 (Spill No. 0011107).

Table 2 describes the source areas that were removed during Phase 1 Remediation.

These Source Areas are shown on Figure 3 in Volume 1 of the RAR. Tanks and their contents were sampled, manifested, removed and disposed of off-site in accordance with federal, state and local regulations during Phase 1 Remediation (as shown on Table 3). No soil was removed from the site at this time. Volume 1, Appendix C includes summary tables of laboratory data for characterization results, and Volume 1, Appendix D contains non-soil manifests. The wastes described above were manifested, as applicable, under EPA Identification Number NYR000092221.

Table 2
Phase 1 Remediation—Source Areas of Contamination

Number of Tanks	Capacity (gallons)	Source Type	Contents Disposed of Off-Site(as manifested)	Location
1	275	AST	4 x 55-gallon drums of petroleum solids	507-509 East 75th Street
4	1,080	UST	3,185-gallons of tetrachloroethene-contaminated water; 6 drums of tetrachloroethene - contaminated tank sludge; 2 drums of tetrachloroethene - contaminated solid tank bottoms; 2,340 gallons of solvent-contaminated petroleum waste; and1,600-gallons of petroleum liquid waste contaminated with solvents	507-509 East 75th Street
10	35	AST	9 x 55-gallon drums of hydraulic oil	506-512 East 76th Street
15	55	drums	13 x 55-gallon drums (empty) and 2 x 55-gallon drums hydraulic oil	13 drums at 503-505 East 75th Street, 2 drums at 506-512 East 76th Street

Notes: AST=Aboveground Storage Tank
UST=Underground Storage Tank

Table 3
Phase 1 Remediation—Liquids Manifested for Off-Site Disposal

Date of Generation	Manifest Number(s)	Quantity	Hazardous Waste	Material (as manifested)	Disposal Facility
1/10/01	NJA 3192661 BR008049	3,185 gallons	X	Liquid NOS (F002)	E.I. duPont deNemours & Co., Inc., NJ
1/12/01	SC0080*	2,340 gallons	X	Liquid NOS (F002, F005)	Southeastern Chemical & Solvent, Sumter, NJ
1/18/01	003	1 drum		Petroleum Mixture Liquid (N003) (hydraulic oil was water)	Clean Water of NY, Staten Island, NY
		1 drum		Petroleum Mixture Solid (N011) (PPE with oil)	
1/18/01	8561	8 drums		Hydraulic Oil	Clean Water of NY, Staten Island, NY
		2 drums		Petroleum Mixture Solid (PPE)	
		1 drum		Petroleum Mixture (grease)	
1/18/01	SC008085	5 drums	X	Liquid NOS (F002, F005)	Southeastern Chemical & Solvent, Sumter, NJ
		2 drums	X	Solid NOS (F002, F005)	
1/29/01	(Brookside) 006	2 drums		Petroleum Mixture, Liquid (N003) (hydraulic oil and water)	Clean Water of NY, Staten Island, NY

Notes: AST=Above Ground Storage Tank
UST=Underground Storage Tank * Numbers not legible

The removal of contaminated soil associated with the four 1,080-gallon USTs was deferred to Phase 2 Remediation. Two soil samples were collected for characterization from soil located above and beneath the four former tanks. Laboratory analytical results indicated that this soil contained volatile organic compounds likely associated with petroleum products. No chlorinated VOCs were detected in either sample.

4.2 Phase 2 Remediation Overview

The VCP Remedial Work Plan was submitted to NYSDEC in February 2001. All four on-site structures were demolished during March and April 2001. Phase 2 Remediation occurred from April 10 to May 2, 2001. The purpose of Phase 2 Remediation was to locate and remove remaining USTs and associated contaminated soil in accordance with federal, state and local regulations.

During Phase 2 Remediation, AKRF personnel directed and oversaw remedial activities and Brookside Environmental Services, Inc. performed the removal and coordinated the disposal of USTs, their contents and contaminated soil.

4.2.1 Source Area Removal

Table 4 describes the source areas of contamination that were removed during Phase 2 Remediation.

These Source Area Locations are shown on Figure 3 in Volume 1 of the RAR. Tanks and their contents were sampled, manifested, removed and disposed of off-site in accordance with federal, state and local regulations during Phase 2 Remediation, as summarized in Table 5.

Copies of laboratory data for characterization results are included in Volume 1, Appendix C. Non-soil manifests are included in Volume 1, Appendix D, and soil manifests generated during Phase 2 Remediation are included in Volume 2, Appendix L of the RAR.

Table 4
Phase 2 Remediation
Source Areas of Contamination

Number of Tanks	Capacity (gallons)	Source Type	Contents Disposed of Off-Site (as manifested)	Location
1	5,000	UST	5,505-gallons of petroleum waste contaminated with solvents	507-509 East 75th Street
1	550	UST	515 gallons of gasoline/water mix	503-505 East 75th Street
1	550	UST	1,285-gallons of gasoline/water mix; and 8 x 55-gallon drums of petroleum tank bottoms	506-512 East 76th Street
1	1,000	UST		506-512 East 76th Street
2	n/a	elevator pistons	1,275-gallons of non-hazardous hydraulic oil/water mix; and 4 drums of hydraulic oil/sand/PPE mix	506-512 East 76th Street

Notes: UST = Underground Storage Tank
n/a = Not Applicable

Table 5
Phase 2 Remediation
Liquids Manifested for Off-Site Disposal

Date of Generation	Manifest Number(s)	Quantity	Hazardous Waste	Material (as manifested)	Disposal Facility
4/13/01	none visible	515 gallons		Gasoline mixture - flammable	Tyree, Farmingdale, NY
4/16/01	SC008085	5,305 gallons	X	Liquid NOS (D012, D039, F002, F003, F005)	Southeastern Chemical & Solvent, Sumter, NJ
4/18/01	45206	1,285 gallons		Water contaminated with gasoline (N018)	AB Oil Service Ltd., Bohemia, NY
4/29/01	42701 BR008421	1,600 gallons	X	Liquid NOS (D018, D039, F002, F003, F005)	Southeastern Chemical & Solvent, Sumter, NJ
4/30/01	8757	8 drums		Waste oil sludge	MXI Environmental, Abingdon, VA
4/30/01	04301 BR0085001	4 drums	X	Liquid NOS (F002, F005)	Southeastern Chemical & Solvent, Sumter, NJ

4.2.2 Soil Removal

During and after tank removal, any associated contaminated soil (determined through visual and olfactory observations and/or PID readings) was stockpiled on plastic sheeting and sampled for VOCs (EPA Method 8260) and semivolatile organic compounds (SVOCs)(EPA Method 8270). For each excavation area, one sample was additionally analyzed for pesticides (EPA Method 8081), polychlorinated biphenyls (PCBs)(EPA Method 8082) and target analyte list metals.

Based on manifests and weigh tickets provided in Volume 2, Appendix L of the RAR, a total of 343.44 tons of solvent-contaminated soil and 765.14 tons of non-hazardous contaminated soil were removed, as detailed in Table 6. At the start of Phase 2 Remediation, soil with chlorinated solvents was manifested as a hazardous waste. On May 2, 2001, NYSDEC issued a 'Contained-in Determination,' allowing solvent-contaminated soil to be managed as non-hazardous waste, provided certain conditions were met. Starting on May 7, 2001, soil was disposed of as non-hazardous waste in accordance with the criteria set forth in the Contained-in Determination. Additional information on the Contained-In Determination is included in Section 4.2.4.

Table 6
Phase 2 Remediation
Disposal Facilities for Contaminated Soil and Bedrock

Disposal Facility	Amount of Material Disposed (tons)	Type of Material
Wayne Disposal, Inc. 49250 N. I-94 Service Drive Belleville, Michigan 48111	343.44	Hazardous material
Waste Management - High Acres Landfill 425 Perrinton Parkway Fairport, NY 14450	765.14	Non-hazardous contaminated material

4.2.3 Phase 2 Endpoint Samples

Phase 2 Endpoint samples were collected at each excavation area when no soil staining, odor, or elevated PID readings were observed in the excavation, or when further excavation threatened to undermine the structural integrity of adjacent buildings and/or sidewalks. Phase 2 remediation endpoint sample locations are shown on Figure 4, which is included in Volume 1 of the RAR. All endpoint samples were analyzed for VOCs (EPA Method 8260) and SVOCs (EPA Method 8270 STARS) in accordance with the Work Plan, except for endpoint samples around the 550-gallon tank removed from 503-505 East 75th Street. Endpoint samples around this tank were analyzed for VOCs (EPA Method 8021 STARS) and SVOCs (EPA Method 8270 STARS), due to an error by the personnel conducting the sampling. Three endpoint samples (2C2, 2C3 and 2-507-10) were additionally analyzed for SVOCs (EPA Method 8270) and one endpoint sample (the bottom sample from the tanks removed from 506-512 East 76th Street) was additionally analyzed for PCBs (EPA Method 8081), pesticides (EPA Method 8082) and target analyte list (TAL) metals.

At four sampling locations (C-2, C-3, 507-10 and Bottom 503-505 75th), contaminated soil or bedrock was detected. At these locations, an additional approximately 10 feet of soil or bedrock were removed laterally and vertically and were disposed of at an appropriate facility. A second round of endpoint samples was collected at these locations (2-C-2, 2-C-3, 2-507-10 and 2-Bottom 503-505 75th). No contaminated soil or bedrock was detected at these locations. Phase 2 Remediation endpoint sample results are included in Volume 1, Appendix E of the RAR.

At the completion of Phase 2 Remediation at the East 75th/East 76th Street site, it was expected that only a limited area of petroleum-contaminated soil remained in the southwestern corner of the former 503-505 East 75th Street building. A 550-gallon gasoline tank was removed from this area. Excavation activities threatened to undermine the west-adjacent building and the south-adjacent sidewalk. The removal of this soil, therefore, was deferred to Phase 3 Remediation, which occurred during general excavation activities, when shoring was constructed to support the adjacent building and sidewalk.

4.2.4 Contained In Determination

At the start of Phase 2 Remediation, soil was being disposed of as hazardous waste based on characterization results that showed the soil to contain solvent levels up to 0.18 ppm. On May 1, 2001, AKRF petitioned the NYSDEC to allow non-liquid on the Project Site contaminated with solvents at levels below 12 ppm (the lower of the EPA Generic Soil

Screening Level for Ingestion or 10 times the Non-Waste Water Universal Treatment Standard) to be managed as non-hazardous waste. On May 2, 2001, NYSDEC issued a "Contained In Determination," allowing this to occur as long as the material was disposed of in a solid waste landfill with a Part 360 permit, liner, and leachate collection system, or in a thermal treatment unit with a Part 360 permit that allowed for the treatment of soil that met the "Contained In" criteria. Starting on May 7, 2001 and continuing through the end of Phase 3 Remediation, soil not considered regulated waste was disposed of as a non-hazardous contaminated material at facilities with documentation showing they met the criteria set forth by NYSDEC. These facilities are listed in Tables 6 and 9.

4.3 Phase 3 Remediation Overview

Phase 3 Remediation occurred between January 28 and August 14, 2002, which coincided with general excavation for the proposed school. During the Phase 3 Remediation, four additional USTs were removed from the Project Site. Hydraulic oil was removed from two elevator pistons in the 506-512 East 76th Street portion of the site. The pistons were then power grouted and sealed in place (see Section 4.3.3 for more detailed information). During this phase of remediation, it was discovered that the soil/bedrock interface consisted of weathered bedrock contaminated with organic contamination (and possibly degraded solvents, based on field observations). The contamination affected a layer of soil above the weathered bedrock, the weathered layer of bedrock, and fractured portions of competent bedrock. The bedrock on the East 75th Street portion of the site was shallow (approximately one to five feet below grade). Bedrock sloped down to the north to approximately fifteen to twenty feet below grade on the East 76th Street portion of the site. The layer of contamination within the soil/weathered bedrock zone varied in thickness from approximately four to ten feet below grade and was located throughout the project site footprint. These contaminated materials along with contaminated fractured zones of bedrock were removed from the site and disposed of as a non-hazardous waste.

During Phase 3 Remediation, AKRF personnel directed and oversaw the activities, Mayrich Construction Corp. performed the excavation of USTs and soil, and Mayrich Construction Corp. and Brookside Environmental Services, Inc. arranged for disposal of wastes.

4.3.1 Tank Removal

Table 7 describes the tanks that were removed during Phase 3 Remediation.

Table 7
Phase 3 Remediation
Source Areas of Contamination

Number of Tanks	Capacity (gallons)	Source Type	Contents Disposed of Off-Site (as manifested)	Location
2	550	UST	885 gallons of petroleum/water mix	502-504 East 76th Street
2	550	UST	940 gallons of petroleum/water mix	507-509 East 75th Street

Note: UST = Underground Storage Tank

Tanks and their contents were manifested as non-hazardous waste and disposed of off-site in accordance with federal, state and local regulations, as detailed in Table 8. Contaminated soil associated with the two 550-gallon tanks at 502-504 East 76th Street

was disposed of as petroleum-contaminated. This petroleum-contaminated soil extended vertically to the layer of weathered bedrock. Once bedrock was encountered in this area, this material was isolated and disposed of as non-hazardous waste, in accordance with the Contained In Determination. Section 4.4 includes further detail on the segregation protocol. The two 550-gallon USTs at 507-509 East 75th Street were located within the solvent-contaminated weathered bedrock layer (i.e., at a depth of one to five feet below grade). This material was disposed of as non-hazardous waste. No other USTs were encountered during excavation activities to approximately 30 feet below grade across the site.

Table 8
Phase 3 Remediation - Liquids Manifested for Off-Site Disposal

Date of Generation	Manifest Number(s)	Quantity	Material (as manifested)	Disposal Facility
1/29/02	051 54392	885 gallons	Water contaminated with gasoline (N018)*	AB Oil Service Ltd., Bohemia, NY
2/1/02	54392	945 gallons	Water contaminated with gasoline or oil (N018)*	AB Oil Service Ltd., Bohemia, NY

Note: * Liquid waste was disposed of as non-hazardous.

4.3.2 Contaminated Soil and Bedrock Removal

The solvent-contaminated weathered bedrock layer present across much of the Site was manifested and disposed of off-site as non-hazardous waste. Due to the large volume of contaminated material that required off-site disposal and the timing of the remediation (coinciding with general excavation), amendments to the protocol for screening, stockpiling and sampling contaminated material were made in the field. Section 4.4 includes more specific information regarding these amendments.

Based on manifests and weigh tickets provided in Volume 2, Appendix M of the RAR, a total of 284.59 tons of petroleum-contaminated soil and 28,734.41 tons of solvent-contaminated soil and bedrock were disposed of at the disposal facilities listed in Table 9 during Phase 3 Remediation.

Table 9
Phase 3 Remediation
Disposal Facilities for Contaminated Soil and Bedrock

Disposal Facility	Amount of Material Disposed (tons)	Type of Material
Mt. Hope Recycling 625 Mt. Hope Road Wharton, NJ 07885	284.59	Petroleum-contaminated
Waste Management High Acres Landfill 425 Perrinton Parkway Fairport, NY 14450	2177.59	Non-hazardous contaminated
Rapp Road Landfill Rapp Road Albany, NY	5,249.64	Non-hazardous contaminated
Town of Colonie Landfill NYS Route 9 and Crescent Road Colonie, NY	1,786.48	Non-hazardous contaminated
Town of North Hempstead Port Washington Landfill 802 West Shore Road Port Washington, NY 11050	19,520.70	Non-hazardous contaminated

4.3.3 Piston Remediation

After demolition of the 506-512 East 76th Street building, two elevator piston shafts remained in the northeastern and northwestern corners of the former building footprint. The remediation of the pistons was discussed with NYSDEC in meetings on March 7 and March 11, 2002 and a scope of work for vacuuming pistons of remaining fluid and grouting them in place was agreed to by NYSDEC and AKRF. A memorandum regarding this Scope of Work for piston remediation was prepared by AKRF on March 6, 2002. The hydraulic fluid in the pistons was sampled for PCB content (EPA Method 8081) on March 7, 2002. No PCBs were detected. Hydraulic fluid was vacuumed from the piston shafts on March 12, 2002 and March 14, 2002. On March 14, 2002, the pistons were power grouted with concrete. Once the general excavation reached final grade in the location of the pistons, the pistons were cut flush with grade, vacuumed of contents and grouted in place with concrete. This occurred on April 12, 2002 for the piston in the northeastern corner of the former 506-512 East 76th Street building footprint and on June 11, 2002 for the piston in the northwestern corner. Volume 1, Appendix F includes PCB analytical results and photographs documenting vacuuming, cutting and grouting events for both pistons. Table 10 lists the materials generated during piston removal.

Table 10
Phase 3 Remediation – Piston Removal
Liquids Manifested for Off-Site Disposal

Date of Generation	Manifest(s)	Quantity	Material (as manifested)	Disposal Facility
2/30/02	(AB) 055	35 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY
3/7/02	(AB)	40 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY
3/11/02	(AB)	300 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY
3/12/02	APV 06403	2 drums	Oily sand and PPE	Penn Ohio, Ashtagola, LA
3/14/02	(AB) 055775	500 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY

Note: PPE= Personal Protective Equipment

4.3.4 Phase 3 Endpoint Sampling

Thirty endpoint samples of soil and bedrock were collected by AKRF personnel from the sidewalls and base of the final excavation during Phase 3 Remediation; six from each sidewall and six from the base of the excavation. Sampling locations were selected to characterize the sidewalls of the final excavation, but were biased towards areas of potential contamination. Phase 3 endpoint sample locations are shown in Figure 5 of Volume 1. Samples were screened with a PID and then placed in sample jars using dedicated, disposable sampling spoons. Each sample was analyzed for VOCs (EPA Method 8260). One of every five samples collected was additionally analyzed for SVOCs (EPA Method 8270), PCBs (EPA Method 8081), pesticides (EPA Method 8082), and TAL Metals.

Endpoint samples were collected between February 21 and June 27, 2002, as targeted portions of the sidewalls were uncovered during general excavation. Between two and seven samples were collected in each sampling event. In accordance with two e-mails dated February 26, 2002 from Sondra Martinkat at NYSDEC to Marcus Simons at AKRF, one trip blank and one field blank were collected over the duration of endpoint sampling and one duplicate sample, one matrix spike sample and one matrix spike duplicate sample were collected for each seven day period when endpoint sampling occurred. The trip blank and field blank were collected on February 21, 2002. This sampling protocol remained the same for the duration of the endpoint sampling period.

Additionally, LMS obtained confirmatory data for final soil and rock endpoint samples collected at the site. LMS collected endpoint samples at three locations (with all samples analyzed for VOCs, and one of the samples also analyzed for metals and PCBs). LMS sample results were found to be generally consistent with data obtained by AKRF from samples collected at corresponding locations.

Summary tables of AKRF's laboratory results are located in Volume 1, Appendix G. Summary tables of LMS's laboratory results are located in Volume 1, Appendix K.

Volatile Organic Compounds

Tetrachloroethene was detected in only one sample location, W1 (-13'), at a concentration of 13 ppb. Low levels of carbon disulfide, 2-butanone, methylene chloride, and acetone were detected in various endpoint samples, all at levels below NYSDEC's

TAGM 4046 RSCOs. Methylene chloride and acetone were determined to be laboratory artifacts, as both parameters were detected in laboratory blanks.

Two of the samples analyzed for VOCs, N1 (-10') and W4 (-18'), were analyzed at high dilutions. According to Paul Hobart of STL Laboratories in Shelton, Connecticut, as evidenced by the chromatograms for these samples, a high concentration of late eluting non-target compounds, characteristic of petroleum hydrocarbons, was present in both samples. The samples were analyzed by the medium level preparation, resulting in sample dilution of 1:125. The two chromatograms and laboratory correspondence are included in Volume 1, Appendix H of the RAR.

Semivolatile Organic Compounds

Bis(2-ethylhexyl)phthalate was detected in five of the six endpoint samples analyzed for SVOCs [N1(-10'), N3(-3')], S1(-2'), S3(-3'), and W5(-17')]. This compound was detected in both the equipment blank and in laboratory blanks. Its presence in the five samples is likely either a laboratory or field artifact. No semivolatile organic compounds were detected in the sixth endpoint sample, Base 3(-30').

Three other phthalates (di-n-butylphthalate, butylbenzylphthalate and di-n-octylphthalate) were detected in N1(-10'), all at levels below their respective reporting limits and well below TAGM RSCOs. Phthalates are often used in plastics. The dedicated, disposable plastic spoons used to collect all endpoint samples may have contaminated the samples.

The only other SVOC detected in N1(-10') was phenanthrene, a polycyclic aromatic hydrocarbon, detected below the reporting limit of 45 ppb, which is well below the TAGM RSCO of 50 ppm.

No other SVOCs were detected in any of the endpoint samples.

Metals

Nine metals (barium, beryllium, cadmium, chromium, copper, iron, magnesium, nickel and zinc) were detected above TAGM 4046 RSCOs in the soil samples. The RSCOs also allow for the use of site background as alternative criteria. Although no site background concentrations were established for the site, the similarity of metals concentrations among the soil samples suggests that the soils may represent site background and do not suggest any contaminated area of the site. Six of the metals that exceeded RSCOs (cadmium, chromium, copper, magnesium, nickel and zinc) exceeded the upper limit of their respective Eastern U.S. Background ranges. Neither the TAGM RSCOs nor the Eastern U.S. Background ranges are risk-based cleanup levels. When compared with US EPA Generic Soil Screening Levels (SSLs, health-based levels), the detected levels of metals in soil, with the exception of arsenic, are below levels that would be expected to pose a hazard to human health even if routine exposure were to occur. Arsenic was detected in two endpoint samples at levels below 2 ppm. Per TAGM 4046, the Eastern US Background range is 3 to 12 ppm for arsenic. However, EPA risk-based levels of 0.4 ppm is exceeded in almost all native soil in the US. Exposure will not occur because the foundation for the school occupies the entire site boundary and all soil within the building site has been removed and disposed of off-site. The concentrations of metals detected at the site were consistent with those typical of urban fill.

Polychlorinated Biphenyls

No PCBs were detected in any of the six endpoint samples analyzed.

Pesticides

Dieldrin, alpha-chlordane and gamma-chlordane were detected in soil sample N1 (-10') at levels below TAGM 4046 RSCOs. No other pesticides were detected in any of the samples.

Endpoint Sampling Summary

Low levels of volatile organic compounds, semivolatile organic compounds, metals and pesticides were detected in various endpoint soil samples. Nine metals were detected above TAGM RSCOs, seven of which were detected above the upper limit of the Eastern U.S. Background levels. No other parameters were detected above TAGM RSCOs. The excavation sidewalls have been capped completely with a concrete foundation for the school and a water/vapor barrier, eliminating potential exposure pathways. Section 3.0 includes additional information on foundation construction and Section 4.5 includes information on the water/vapor barrier installed surrounding the foundation of the school. Section 6.0 includes an exposure assessment that more closely examines potential exposure pathways to possible contaminants in sidewalls of the excavation.

4.3.5 Weep Sampling

During Phase 3 Remediation, groundwater weeps were observed in bedrock sidewalls at four locations, as shown on in Figure 6 in Volume 1 of the RAR. The NYSDEC required sampling of weep water during a meeting on March 7, 2002. Weep samples were collected for sample analysis by either holding sample jars beneath the weep and catching the liquid, or by placing a dedicated, disposable metal coring tube into the bedrock sidewall to channel water into sample jars. All weep samples were analyzed for VOCs (EPA Method 8260). Selected weep samples were additionally analyzed for SVOCs (EPA Method 8270), fluoride, total petroleum hydrocarbons, pH, total suspended solids, target analyte list metals, PCBs, pesticides, fingerprint, and additional, non-redundant, parameters set forth under "Routine Parameters" in the Water Quality Analysis Tables of 6 NYCRR Part 360-2.11.

A total of four weep samples (Weep 1 through Weep 4) were collected by AKRF from sidewalls on the project site on April 1, 15 and 19, 2002 and on June 9, 2002, respectively. Weep samples were collected as targeted portions of the sidewalls were uncovered during general excavation. Weeps were collected from reasonably accessible locations. Weeps were monitored for flow duration. Some weeps appeared to flow steadily and others ceased to flow after a couple of days. Because of the sporadic nature of the flows of the weeps, it was difficult to resample them.

One weep sample was collected in each sampling event. Quality Assurance/Quality Control Category B analysis was conducted in accordance with two e-mails dated February 26, 2002 from Sondra Martinkat at NYSDEC to Marcus Simons at AKRF. One field blank was collected during the duration of weep sampling. One trip blank was to accompany each weep sample to the laboratory; however, only three trip blanks were analyzed (with Weeps 1, 2 and 3). Due to a field error, a trip blank did not accompany Weep 4 to the laboratory. Duplicate samples, matrix spike samples and matrix spike duplicate samples were not collected during the sampling period because not enough water could be collected from the weep locations.

Additionally, LMS obtained data from water samples from excavation sidewalls (i.e., "seep" samples) for confirmatory and supplementary purposes. In total, LMS collected

four seep samples. All samples were analyzed for VOCs. A subset of these samples was also analyzed for metals and miscellaneous sewer effluent/geochemical parameters.

AKRF's weep sample summary tables are included in Volume 1, Appendix I. LMS's weep data summary tables are included in Volume 1, Appendix K.

Volatile Organic Compounds

All four weep samples (Weep 1 through Weep 4) were analyzed for VOCs by EPA Method 8260. Benzene, toluene, ethylbenzene and xylene, compounds typically associated with gasoline and commonly known as BTEX, were detected in Weeps 3 and 4 at levels above Class GA Standards. Tetrachloroethene and its breakdown products (trichloroethene and cis-1,2-dichloroethene) were detected in Weeps 1 and 2. Weep 1 contained 33 parts per billion (ppb) of PCE and Weep 2 contained 65 ppb of PCE, which are above the Class GA Standards of 5 ppb and the New York City Department of Environmental Protection (NYC DEP) Sewer Discharge Limit of 20 ppb. Because tetrachloroethene was exceeded both the Class GA Standard and the Sewer Discharge Criteria, a water treatment system was designed for construction dewatering activities. Weeps 1 and 2 were analyzed for methyl-tert-butyl-ether (MTBE), a gasoline additive commonly used since the late 1980s. MTBE was detected at a concentration of 40 ppb in Weep 2. The NYSDEC Sewer Discharge Limit is 10 ppb.

A total of five underground gasoline storage tanks were shown to be located on the project site in historical maps as late as 1951. These tanks were not shown in later maps and there is no documentation showing that any of the gasoline tanks were active after 1980, when MTBE began being added to gasoline. Although a total of five underground gasoline tanks were removed from the project site, because no documentation indicates that these tanks were active during the 1980s, it cannot be determined if the MTBE detected in Weep 2 originated from on- or off-site.

Semivolatile Organic Compounds

Weep 1 and Weep 2 were analyzed for SVOCs by EPA Method 8270. Bis(2-ethylhexyl)phthalate was detected in Weep 1 at a concentration of 98 ppb, above the Class GA Standard of 5 ppb. Phthalates are often used in plastics and are likely present in the samples due to sampling technique or laboratory cross-contamination, however, no phthalates were detected in laboratory or field blanks. There is no known source of bis(2-ethylhexyl)phthalate from historical or tank records. No other SVOCs were detected in either weep sample.

TAL Metals

Weep 1 and Weep 4 were analyzed for total TAL metals. Weep 4 was additionally analyzed for dissolved metals. Several metals were detected at levels exceeding Class GA Standards in the total and dissolved analysis. Weep water (groundwater) is not a potable source in Manhattan. In accordance with the foundation design for the school (discussed in Section 3.0), weep water is collected by a leachate collection system and discharged into the NYC sewer system following pretreatment. Detected levels of metals in total and dissolved weep samples were below NYC DEP Sewer Discharge Criteria.

Polychlorinated Biphenyls

Weep 1 and Weep 3 were analyzed for polychlorinated biphenyls by EPA Method 8082. No PCBs were detected in either sample.

Pesticides

Weep 1 was analyzed for pesticides by EPA Method 8081. No pesticides were detected.

Non-Redundant Part 360 Parameters

Weeps 1 and 2 were analyzed for total petroleum hydrocarbons, pH, and total suspended solids. Weep 4 was analyzed for alkalinity (total as $CaCO_3$), biological oxygen demand (BOD), chemical oxygen demand (COD), hardness (total as $CaCO_3$), bromide, chloride, nitrate, ammonia, total Kjeldahl nitrogen, total organic carbon, total recoverable phenolics and total dissolved solids.

Weeps 1, 2, 3 and 4 were analyzed for fluoride. Fluoride was detected in all four weep samples at concentrations of 0.27 ppm, 0.094 ppm, 0.22 ppm and 0.22 in Weep 1, Weep 2, Weep 3 and Weep 4, respectively. Fluoride is not generally present at detectable levels in groundwater, but is likely present as an additive in city drinking water (up to 1 ppm). This suggests the presence of water from a leaking water main or sewer into the groundwater.

Weep Sampling Summary

Low levels of VOCs, SVOCs and metals were detected in weep samples, in some instances, at levels above Class GA Groundwater Standards. Weep water (groundwater) is not used as a potable drinking water source in Manhattan. Two volatile organic compounds, PCE and MTBE were detected in weep samples at levels above NYC DEP Sewer Discharge Limits. A waterproofing/leachate collection system has been incorporated into the school's foundation that will protect the building foundation from VOCs, collect and treat the water, and discharge it into the NYC sewer system. A water treatment system was designed and implemented to remove VOCs in groundwater prior to discharge into the city sewer in accordance with NYC DEP discharge regulations.

4.4 Additions to and Deviation from Work Plan

Three changes were made to the VCP Remedial Work Plan: the soil screening protocol was modified; a vapor barrier was installed around the school's foundation (detailed in Section 4.5); and a water treatment system was constructed and operated to treat foundation water prior to sewer discharge (detailed in Section 4.6).

The penetration of volatile organic compounds into the bedrock was not anticipated prior to excavation for the construction of the school. During the first two days of this excavation, limited areas of contamination at the bedrock interface were identified and were managed in accordance with the Construction Health and Safety Plan and the VCP Remedial Work Plan. The excavation in these areas was overseen by AKRF personnel, including screening of soil/rock for odors, staining or elevated PID readings while it was being excavated; a method similar to that presented in NYSDEC's STARS Memorandum No. 1 for petroleum-contaminated soils.

Subsequently, as excavation proceeded, this layer of contamination (material exhibiting chemical odors, staining and/or elevated PID readings) was encountered throughout the site, affecting soil above the weathered bedrock, the weathered bedrock itself and fractured bedrock beneath the weathered bedrock. Thereafter, AKRF personnel oversaw excavation and directed the segregation of contaminated material from unregulated material (material not exhibiting odors, staining, or elevated PID readings or any other evidence of potential contamination) and its subsequent disposal, as follows:

- Because the contaminated material could not be considered unregulated material (due to odors, staining and/or elevated PID reading) and because all previous testing at the site had not shown levels of PCE higher than 0.18 ppm [indicating that there was no likelihood of exceeding the 12 ppm threshold for disposing of material under the Contained In Determination (see Section 4.2.4)], it required disposal per the Contained In Determination, i.e., in a landfill with a liner and leachate collection. As such, laboratory testing (as envisioned in the VCP Remedial Work Plan) became superfluous and was not performed. Contaminated material was disposed of per the Contained In Determination.
- Unregulated material was stockpiled or direct-loaded into trucks and sent off-site for rock crushing or reuse. Unregulated material was tested in accordance with the protocols required by the facility accepting the material in accordance with applicable federal, state and local regulations.

4.5 Vapor Barrier Installation

As final endpoint sampling and weep sampling proceeded during Phase 3 Remediation, rock and soil in the final sidewalls of the excavation and in groundwater entering the excavation was found to contain low levels of VOCs. To inhibit the migration of vapors into the school's foundation, a vapor barrier was proposed. The school and its consultants provided design drawings and product specifications for a waterproofing/vapor barrier material to be used around the school's foundation.

AKRF reviewed: building design drawings; letters from the material manufacturer (Grace Construction Products) attesting to the compatibility of the materials with the contaminants found at the site; and a letter from the school's environmental consultant [Lawler, Matusky & Skelly Engineers LLP (LMS)] stating that the membranes (Preprufe 300R, Preprufe 160R, and Bituthene 4000) should effectively function as a vapor barrier. AKRF concurred with the product recommendation and suitability as a vapor barrier in a letter to NYSDEC dated April 11, 2002. Building design drawings, the letter from Grace Construction Products and the letter from LMS were provided to NYSDEC as attachments to AKRF's April 11, 2002 letter. Architectural drawings of the building foundation that include specifications for the vapor barrier are included in Volume 1 Appendix A.

LMS issued two follow-up memoranda to NYSDEC addressing NYSDEC's concerns regarding sidewall preparation and system clogging dated June 18, 2002 and August 2, 2002. The June 18, 2002 memorandum presented information to NYSDEC regarding the preparation of bedrock sidewalls at the Site prior to membrane installation. The August 2, 2002 memorandum documented that drainage board layers installed as bedrock sidewall preparation have not clogged in other similar applications. Construction of the vapor barrier was completed in September 2002.

Summary Tables of LMS/HDR's water treatment system laboratory data are included in Appendix O.

4.6 Water Treatment System

Two of the four weep samples collected during Phase 3 Remediation contained levels of tetrachloroethene above the NYC DEP Sewer Discharge Criteria of 20 ppb. During Phase 3 Remediation, it was determined that dewatering would be necessary temporarily during construction and permanently as part of the foundation design. A sample of standing water in the excavation was collected on March 7, 2002 and analyzed for the NYCDEP Sewer discharge parameters, including BTEX/MTBE, total petroleum hydrocarbons, PCE, naphthalene, flashpoint,

total metals, dissolved metals, pH, hexavalent chromium and dissolved hexavalent chromium. Tetrachloroethene was detected at a concentration of 360 ppb, above the sewer discharge criteria of 20 ppb.

A water treatment system was designed and a Wastewater Quality Control Application and attachments were submitted to NYCDEP on March 14, 2002. The water treatment system was constructed. A pilot test conducted of the effluent sampled on March 20, 2002 did not detect PCE. Conditional authorization to discharge was given by NYCDEP in a letter dated March 20, 2002.

Weekly testing of influent and effluent water was conducted to determine the frequency of carbon change-outs and the need for on-going treatment. Spent carbon was transported as a hazardous waste to Calgon Carbon Corp. in Catlettsburg, Kentucky, a carbon regeneration facility. Spent filter bags were disposed of as hazardous waste at Michigan Disposal Waste Treatment Plant in Belleville, Michigan. Copies of carbon and bag filter manifests are contained in Volume 1, Appendix D.

The water treatment system design was presented to NYSDEC in a letter entitled *Contingency in the Voluntary Cleanup Remedial Work Plan – Water Treatment System*, dated May 31, 2002. Modifications were made to the design and construction of the water treatment system to accommodate sediment control, flow rate and, construction needs with the approval of NYC DEP.

Periodic influent sampling events on the East 75th Street side of the site have continually detected levels of PCE in groundwater above the NYCDEP discharge criteria. After the completion of the foundation, a system was designed and constructed in the basement sump room, and sampling frequency was decreased to monthly. An Operation, Maintenance and Monitoring (OM&M) Plan and a Health and Safety Plan (July 2003) for interim system sampling has been prepared and is included in Volume 1, Appendix J of the RAR. System sampling has been completed in accordance with the OM&M plan through the approval of this report. Tables containing system sampling results is included in Appendix N of this RAR Addendum. At the time that this RAR Addendum is approved, sampling of the system will continue in accordance with the Site Management Plan (SMP). The SMP is described in Section 7.1 and is included in Appendix O of this report. It is anticipated that this system will be operational until sampling events demonstrate PCE levels below 20 ppb and the NYCDEP approves of system decommissioning.

Additionally, LMS/HDR obtained confirmatory and supplemental data for water samples collected at the site (e.g., samples of standing water; samples of influent to water treatment system). A portion of LMS/HDR's samples were collected at different times/locations than those collected by AKRF for the VCP; data from these LMS/HDR samples are considered to be supplemental. Other water samples collected by LMS were collected at the same place/time as AKRF's and can thus be considered as confirmatory. In total, LMS/HDR collected a total of 21 water samples (through May 2003). All samples were analyzed for VOCs. A subset of these samples was also analyzed for metals, SVOCs, and miscellaneous sewer effluent parameters.

Summary Tables of LMS/HDR's water treatment system laboratory data are included in Appendix N.

4.7 Indoor Air Testing

In November 2007, LMS/HDR completed indoor air testing at the project site. Sampling included collection of an indoor air sample from the gymnasium and the library, and an ambient air sample from the exterior vehicle drive through area. The sampling results demonstrate that TCE and PCE were detected at a concentration of 1.24 and 7.8 micrograms per cubic meter

($\mu g/m^3$), respectively, for each indoor air sample. These concentrations were below the NYSDOH Soil Vapor Intrusion Guidance Values of 5 and 100 $\mu g/m^3$, respectively. The ambient air sample contained TCE and PCE at concentrations of 0.81 and 4.14 $\mu g/m^3$, respectively. A table summarizing the laboratory results is included in Appendix N.

5.0 OFF-SITE INVESTIGATION SUMMARY

An off-site investigation was required as part of this VCP because the Applicant was the Potentially Responsible Party (PRP) for the contamination on the Site and because sample results from the sidewalls of the excavation indicated the potential for off-site migration of contamination. The purpose of the Off-site Study was to determine whether contaminants originating on the Site have migrated off-site and to determine whether any off-site sources have contributed to on-site contamination. The Off-site Study was also performed to determine groundwater flow direction and the nature of fracture systems in bedrock around the Project Site. The Off-Site Study was performed in three separate phases between November 2002 and May 2007, and included soil and groundwater sampling, an exterior soil gas investigation, and a vapor intrusion assessment. A site plan depicting the sampling locations is provided as Figure 7. A summary of each phase is included in the following subsections.

5.1 Soil and Groundwater Sampling

The first phase of the Off-Site Study was performed in November and December 2002, and consisted of the advancement and sampling of five soil borings/groundwater monitoring wells in the sidewalks surrounding the Project Site. The Study is summarized in a report entitled *Remedial Action Report – Off-Site Study*, dated July 2003. This section is a summary of this report.

The Off-Site Study consisted of the advancement and sampling of five soil borings/groundwater monitoring wells in the sidewalks surrounding the Project Site. The Off-Site Study was performed in accordance with the following documents:

- AKRF, Inc. Off-Site Study – Voluntary Cleanup Remedial Work Plan (June 18, 2002);
- AKRF, Inc. Addendum to the Off-Site Study – Voluntary Cleanup Remedial Work Plan (September 6, 2002);
- Two NYSDEC Comment Letters (both dated October 1, 2002); and
- AKRF Facsimile (November 7, 2002) regarding the relocation of three boring locations.

The soil borings/groundwater monitoring wells were advanced in the sidewalks in the blocks surrounding the Site from November 1, 2002 to November 15, 2002. The five monitoring wells (MW-1 through MW-5) were developed on November 19, 2002 and were sampled on December 11 and 12, 2002.

Each boring was advanced to approximately 35 feet below grade. One soil sample was collected from weathered bedrock at the soil-bedrock interface. Dark staining and a PID reading of 3.5 ppm were noted at an interval of 2.5 to 3.0 feet below grade in MW-5, therefore, an additional soil samples was collected for laboratory analysis from this interval. Soil samples were analyzed for volatile organic compounds by EPA Method 8260.

Bedrock was located between 2.5 feet and 19.5 feet below grade in the borings. Metal casing was advanced to refusal in bedrock and was left in-place to prevent overburden from falling into the well. The annular space around the casing was sealed with bentonite slurry extending to at least two feet above the bedrock interface and was completed with a cement/cutting mixture to grade.

The wells were finished as open hole bedrock wells; no screens were installed in any of the wells. Wells were completed with a concrete apron with a locking flush-mount cover to prevent drainage of surface runoff toward the boring. One groundwater sample was collected from each well and was analyzed for TCL VOCs (EPA Method 8260), TCL SVOCs (EPA Method 8270), PCBs/Pesticides (EPA Method 8082), priority pollutant metals (unfiltered), and the additional, non-redundant, parameters set forth under "Routine Parameters" in the Water Quality Analysis Tables of 6 NYCRR Part 360-2.11: total Kjeldahl nitrogen, ammonia, nitrate, chemical oxygen demand, biological oxygen demand, total organic carbon, total dissolved solids, sulfate, alkalinity, phenols, chloride, bromide, total hardness, and fluoride.

Additionally, the water used to core the bedrock, NYC hydrant water, was sampled and analyzed for TCL VOCs (EPA Method 8260), TCL SVOCs (EPA Method 8270), PCBs/Pesticides (EPA Method 8082), priority pollutant metals (unfiltered) and fluoride, and the additional, non-redundant, parameters set forth under "Routine Parameters" in the Water Quality Analysis Tables of 6 NYCRR Part 360-2. This analyses was conducted to determine whether the use of NYC hydrant water would affect the sample integrity.

The following conclusions were made based on the results of the Off-Site Study:

- The geology of the soil-bedrock interface in each groundwater monitoring well generally similar to that found on the East 75th/East 76th Street site. However, no indication of significant levels of VOCs was detected in the soil bedrock interface in off-site borings.
- The results of the study indicated that groundwater generally flowed towards the East River and that groundwater in the vicinity of the Site was not significantly tidally influenced. Several factors in the study area, including basements below the water table, active intermittent pumping of groundwater, past filling activities, underground utilities and underground parking garages, may have had a localized affect on groundwater flow direction. The levels of sodium and chloride detected in the wells may indicate past or current impacts by river water from the East River.
- The results of this study indicated that the use of hydrant water during drilling activities had little to no effect on results of groundwater analysis for the monitoring wells.
- Levels of chlorinated solvents typically associated with dry cleaning were detected in groundwater samples MW-1 and MW-2, located in front of two dry cleaning operators on the west side of York Avenue, but not in MW-3, MW-4 or MW-5, the wells located nearest to the Site. Consequently, the contamination detected in MW-1 and MW-2 was likely related to an off-site source(s), including the possibility of the upgradient dry cleaning establishments, rather than the East 75th/East 76th Street site.

The results of the investigation demonstrated that the only significant off-site contamination was likely associated with off-site sources (i.e., potentially the two off-site dry cleaners). Based on this conclusion, no additional off-site investigation work was recommended under the Voluntary Cleanup Program for the East 75th/East 76th Street Site with respect to groundwater.

5.2 Off-Site Soil Gas Investigation

The purpose of the Soil Gas Investigation was to assess the potential for indoor air quality in neighboring buildings to be affected by groundwater contamination associated with the project site. The Soil Gas Investigation consisted of the advancement and sampling of 12 soil gas sampling points in the sidewalks surrounding the Project Site as shown on Figure 7 of this report. This investigation is summarized in a report entitled *Soil Gas Investigation*, dated July 2005. The investigation was performed in accordance with the following documents:

- Off-Site Soil Gas Sampling – Voluntary Cleanup Work Plan, AKRF, Inc., dated November 5, 2004;
- NYSDEC Comment Letter from Sondra Martinkat, Re: East 75th/76th Street Properties, Site No. V00425-2, dated December 17, 2004; and
- AKRF Response Letter from Marc S. Godick, Re: Off-Site Soil Gas Sampling – Voluntary Cleanup Work Plan, dated December 27, 2004.

Each sampling point was cleared for subsurface utilities by hand augering to approximately five feet below grade, or until refusal was encountered on bedrock. If bedrock was not encountered, a deep sampling point was installed using a direct push probe (DPP) to approximately eight feet below grade or until refusal. The stainless steel sampling port with connected tubing was installed through the push probe rods and threaded into the drive point. The push probe rods were then removed and the boring was backfilled with bentonite to approximately four feet below grade. A shallow sampling point was then installed by placing a sampling port with connected tubing on top of the bentonite, and backfilling with sand to the top of the sampling port and bentonite pellets to approximately one foot below grade. At points where bedrock refusal was encountered shallower than five feet, a shallow point was installed by placing a sampling port directly in the hand-augered boring, then backfilling with sand to the top of the sampling port and bentonite pellets to approximately one foot below grade. Colored tape was placed at the top of the sample tubing to seal the tubing and to indicate whether it was connected to a shallow or deep sample port. All soil gas sampling points were completed with a flush-with-grade 3-inch diameter road box with an expandable plug.

Soil gas samples were collected from all shallow and deep sampling points on February 17, 2005. Sampling at each point included purging to ensure that a minimum of one volume of the overall sampling train was purged. During purging, a tracer gas (helium) was introduced inside the road box and the purged air was analyzed in the field using a Marks Model 9822 helium detector to check for short-circuiting of outside air into the sampling port.

Following purging, soil gas samples were collected at each point by connecting the sample tubing to a one-liter Summa canister equipped with a vacuum gauge and flow regulator set to collect a one-liter sample over a 30-minute sampling period. All Summa canisters were analyzed for VOCs using EPA Method TO-14A. One trip blank was included with the shipment.

Elevated concentrations of several VOCs, relative to the NYSDOH mean Background Indoor Air Concentrations, were detected in soil gas samples collected from upgradient/background sampling locations on the southern side of East 75th Street (SG-1S and SG-3S) and along York Avenue (SG-4S, SG-4D, and SG-5S). Samples collected from the western side of York Avenue (SG-4S and SG-4D) also exhibited higher VOC concentrations compared to the sample collected closer to the site on the eastern side of York (SG-5S), indicating a potential contamination source to the west of the project site beyond York Avenue. In addition, samples collected from the southern side of East 75th Street (SG-1S and SG-3S) exhibited generally higher VOC concentrations compared to the sample collected adjacent to the southern side of the project site (SG-2S), indicating potential contamination not attributable to the project site. With the exception of the reported TCE concentration at SG-1S [(7 micrograms per cubic meter (Ug/m^3)], all reported VOC concentrations in samples from both sides of East 75th Street and along York Avenue were below the corresponding NYSDOH indoor air guideline. The reported TCE concentration would likely be attenuated to below the applicable guideline of 5 Ug/m^3 before reaching indoor air in the vicinity of SG-1S. Based on these results, it is unlikely that indoor air in buildings along York Avenue or East 75th Street has been adversely affected by the identified VOC concentrations in soil gas.

The highest concentrations of VOCs were detected in both shallow (SG-7S) and deep (SG-7D) samples collected immediately adjacent to the north side of the project site, on the southern side of East 76th Street. The PCE, TCE, and methylene chloride concentrations in these samples exceeded the NYSDOH indoor air guidelines of 100 µg/m^3, 5 µg/m^3, and 60 µg/m^3, respectively. The project site building was constructed with a sub-slab vapor barrier; and the small basement area that serves as a pump room for the sub-slab drainage system is under negative pressure, which prevents vapor migration into the building. Therefore, there is not a complete exposure pathway for the detected contaminants with respect to the on-site building.

TCE, DCE, and vinyl chloride were not detected in samples from the northern side of East 76th Street (SG-6S, SG-6D, SG-8S, and SG-8D) and PCE concentrations in these samples were below the 100-µg/m^3 NYSDOH guideline. Based on these results, it is unlikely that indoor air in buildings on the northern side of East 76th Street has been adversely affected by identified VOC concentrations in soil gas. The detected contaminant concentrations in SG-7S and SG-7D are also expected to attenuate before reaching indoor air in adjacent buildings to the east and west.

Results from the soil gas sampling indicated that, although elevated VOC concentrations were detected immediately adjacent to the project site, VOC concentrations beyond and downgradient of the site boundary are consistent with regional background/upgradient conditions. In addition, based on the soil gas investigation results, it is likely that soil gas concentrations would be attenuated to below the applicable NYSDOH guidelines before reaching indoor air in adjacent buildings. As a result, on-site contamination is not likely to have resulted in adverse impacts to indoor air in buildings adjacent to the East 75th/76th Street site. Elevated contaminant concentrations were detected in soil gas collected immediately adjacent to the north side of the project site; however, the vapor barrier below the slab and around all subsurface walls and dedicated venting systems in the subsurface rooms (supplying net positive pressure in the basement and sump rooms as compared to sub-slab areas) will prevent the migration of these contaminants into the project site building.

5.3 Offsite Soil Gas And Vapor Intrusion Investigation

Based on the results of the 2005 exterior soil gas investigation, the NYSDEC and NYSDOH requested that AKRF collect sub-slab and ambient air samples to test for vapor intrusion in the five buildings adjacent to the project site. After multiple attempts by AKRF, NYSDEC and NYSDOH, access was denied for four of the five adjacent properties. Based on the available sampling areas, the NYSDEC and NYSDOH requested the following sampling plan:

- Resampling of three existing soil gas points: SG-7S and SG-7D along East 76th Street and SG-2S along East 75th Street.
- Sampling within the west-adjacent property, 1420 York Avenue: two sub-slab soil gas points (SS-1 and SS-2) in the basement level, two indoor air samples in the basement level adjacent to SS-1 and SS-2, and one indoor air sample in the first floor of the building.
- Sampling of ambient (outside) air at one location.

The investigation was performed in accordance with the following documents:

- 75th/76th Street, Soil Vapor Investigation Work Plan, AKRF, Inc., dated November 2006;
- NYSDEC Comment Letter from Sondra Martinkat, Re: East 75th/76th Street Properties, Site No. V00425-2, dated May 17, 2006; and
- AKRF Response email from Marc S. Godick, Re: E75/E76 St, dated April 16, 2007.

On May 4, 2007, Zebra Environmental, Inc. of Lynbrook, New York, installed two sub-slab sampling points (SS-1 and SS-2) at locations shown on Figure 7. Steve Karpinski of NYSDOH was in attendance to determine appropriate sampling locations and then during sampling point installation. Sampling points consisted of a stainless steel probe, including a drive point and internal perforated sampling port with a retractable tip, connected to Teflon sample tubing. An approximately four-inch diameter drill bit was used to remove a circular section of the concrete slab. The sample tubing was placed through the slab and sand added around the tubing below the slab. An aluminum road box was placed over the tubing with the top flush with the top of the slab and fixed in place with cement.

On May 7, 2007, soil gas samples were collected from the three exterior sampling points (SG-7S, SG-7D and SG-2S) in the sidewalk, the two sub-slab (SS-1 and SS-2) and corresponding indoor air locations (IA-1 and IA-2) in the building at 1420 York Avenue, and the exterior ambient air in the alley way north of the building (AA-1) as requested by the NYSDEC and NYSDOH. In addition to the requested samples, an indoor air sample was collected from the stairwell on the first floor of the building (IA-3). Sampling locations are shown on Figure 7.

Sampling of the soil gas points included purging in the presence of a tracer gas for removal of one volume of air from the sample train and to test for short-circuiting of outside air into the sampling port. Following purging, soil gas samples were collected at each point by connecting the sample tubing to a one-liter Summa canister equipped with a vacuum gauge and flow regulator set to collect a one-liter sample over a 30-minute sampling period. The two indoor air samples (IA-1 and IA-2) were collected concurrently with the sub-slab samples. Exterior sub-slab samples in the sidewalk were collected using 1-liter Summa canisters and 30-minute flow regulators. The remaining samples were collected using 6-liter Summa canisters and eight-hour flow regulators. The intakes of the Summa canisters were placed at an elevation between 2.7 feet and 4.3 feet above ground level. Vacuum readings were taken before and after sample collection. All Summa canisters were analyzed for volatile organic compounds (VOCs) using EPA Method TO-15.

PCE results at SG-2S, SG7S, and SG7D were 49, 220, and 180 $\mu g/m^3$, respectively, from sampling in 2005. The corresponding results for sampling in May 2007 were 5.5, 240, and 290 $\mu g/m^3$, respectively. TCE, cis-1,2-DCE, and methylene chloride were also detected in 2007 at lower levels than in 2005. These similar results confirm that conditions were relatively unchanged from previous sampling. Elevated levels of acetone were measured in the sample and duplicate from SG-2S only. Acetone is a common household and industrial solvent and is also found as a laboratory contaminant. The NYSDOH Fuel Oil Study Upper Fence value, which provides a means of comparison to background conditions, is 115 Ug/m^3 for acetone. Although levels in the sample and the duplicate at SG-2S were elevated with values of 130 and 190 Ug/m^3, they are not significantly above the NYSDOH Fuel Oil Study Upper Fence value.

PCE detections of 1.8 and 2.2 $\mu g/m^3$ were recorded at locations SS-1 and SS-2, respectively. Both are significantly lower than the action level of 100 in Matrix 2 and Table 3.1 of the NYSDOH Soil Vapor Intrusion Guidance and also below the NYSDOH Fuel Oil Study Upper Fence value of 2.5 Ug/m^3. Concentrations of TCE, carbon tetrachloride and 1,1,1-trichloroethane were below detection limits. Concentrations of methylene chloride were 2 and 3.8 Ug/m^3, which were significantly below the action level of 60 $\mu g/m^3$ in Table 3.1. Other VOCs such as xylene, ethylbenzene, n-heptane and n-hexane were detected, but at concentrations similar to the NYSDOH Fuel Oil Study Upper Fence value. Acetone was detected but at concentrations significantly less than the NYSDOH Fuel Oil Study Upper Fence value.

There were no exceedances of the action level guidance values from Table 3.1 of the NYSDOH Soil Vapor Intrusion Guidance with the only measured detection of PCE of 2.7 Ug/m^3 from

location IA-2, significantly below the action level of 100 Ug/m^3. Detectable concentrations of methylene chloride at IA-1 and IA-2 of 2.1 and 3.8 Ug/m^3 were similar to values in sub-slab samples and less than the ambient air sample value of 4.9 Ug/m^3. Therefore these detections are unlikely to be attributable to vapor intrusion. The acetone result from IA-2 of 19 Ug/m^3 is similar to the value in the subslab sample of 23 Ug/m^3, and therefore, unlikely to be attributable to vapor intrusion. The sample from the first floor stairwell included results of 1,500 Ug/m^3 for chloroethane and 2,700 Ug/m^3 for isopropyl alcohol. Both were low or below detection limits in all other samples. The low and non-detect values from all other samples indicate that the results are not likely attributable to vapor intrusion.

This sampling data suggests that soil vapor intrusion is not occurring in the sampled building and that the potential for significant soil vapor intrusion to occur is not likely. AKRF concludes that no further investigative or remedial actions are warranted with respect to off-site vapor intrusion. Operation of the sub-slab drainage/treatment system and ventilation systems at the project site building should continue.

6.0 EXPOSURE ASSESSMENT

A Qualitative Human Health Exposure Assessment was prepared in January 2002 and revised in May 2002. This section presents an updated Exposure Assessment to reflect post-remediation site conditions, specifically the removal of site soils and bedrock down to approximately 30 feet below grade and the installation of a waterproofing/vapor barrier and a foundation water treatment and disposal system.

According to Appendix 3B of the DRAFT DER-10 Technical Guidance for Site Investigation and Remediation (December 2002), "An exposure pathway has five elements: (1) a contaminant source; (2) contaminant release and transport mechanisms; (3) a point of exposure; (4) route of exposure; and (5) a receptor population....An exposure pathway is complete when all five elements are documented. A potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future." Each element of the exposure pathway is discussed in this Section.

6.1 Contaminant Source

As previously described, all sources of contamination (tanks, piping, soil) have been removed from the Site. Bedrock has been removed to a depth of approximately 30 feet below grade across the Site. There are only two known areas of residual contamination: contaminated soil/bedrock within the sidewalls of the excavation (located outside the property boundary and under the sidewalk) and contaminated groundwater beneath the school's foundation (sources are known to be contaminated with low levels of tetrachloroethene and other VOCs – as discussed in Sections 4.3.4 and 4.3.5). The new building on the East 75th/East 76th Street site extends to the property boundary.

6.2 Contaminant Release and Transport Mechanisms

The known or potential contamination in soil/bedrock and groundwater can be released or migrate in the following ways:

- Volatilization into air—Vapors from soil or bedrock beyond the foundation would not be expected to migrate through the school's vapor barrier/waterproofing membrane and layer of reinforced concrete. New concrete and asphalt were installed for on-grade areas on the school

property. Beyond the property boundary, the area is entirely paved with asphalt and concrete, which act as migration barriers. Two sub-slab soil gas samples and three indoor air samples were collected from the large building adjacent to the western side of the project site. These samples were collected concurrently with the second round of soil gas samples that were collected from points installed in the sidewalk along 75th and 76th Street. The off-site vapor intrusion assessment demonstrated that the measured parameters in soil gas beneath the sidewalk have remained consistent, indicating there is not a migrating vapor plume coming from the project site, and vapor intrusion was not occurring in the building adjacent to the project site. There is a limited potential for contaminant migration through cracks in the sidewalk and street.

- Groundwater entering the building foundation area passes through a water treatment system located in a sump room in the basement of the building prior to discharge into the New York City sewer system. The system is located in a locked room with an active ventilation system. The room and ventilation system were designed to handle the much higher levels of volatile organic compounds in raw sewage from the sump system, which is also located in this room. The air exchange for the room was designed for negative pressure relative to the surrounding general use areas of the school basement and lower level. Only qualified maintenance personnel have access to this room. The operation, monitoring and maintenance of the water treatment system are governed by the SMP provided in Appendix N.
- Drinking of groundwater—This is not a complete exposure pathway; groundwater in Manhattan (and at the school) is not a potable source. No exposure to on-site foundation water is possible via cleaning and process water, water used for drinking and cooking, showering, laundry, or other use of municipal water.
- Migration of contaminated groundwater off-site to the East River, where secondary contact recreation (e.g. splashing during fishing) can occur and fish could uptake contaminants. This is a potentially complete pathway; however, this pathway is considered insignificant, as the small flow of contaminants (if any) that may migrate into the East River would immediately be diluted by the relatively much greater flow of surface water in this fast-flowing tidal strait. In addition, VOCs are not generally bioaccumulated by fish. Furthermore, laboratory analysis of groundwater from two wells closest to the East River (MW-4 and MW-5) were very close to meeting the surface water standards.

6.3 Point of Exposure

Potential exposure at the location of the water treatment system is discussed in Section 6.1. Exposure is not likely to occur off-site to the local community because only negligible exposure pathways may exist off-site (i.e., through cracks in the sidewalk or street or vapor intrusion to adjacent buildings). As previously discussed, dermal exposure in the East River or exposure from eating fish caught from the East River is insignificant.

6.4 Route of Exposure

It is theoretically possible that authorized workers at the school could be exposed to contaminated media in the following ways, given that water treatment is still required at the site:

- Inhalation of VOC-contaminated air during water treatment system monitoring and maintenance (maintenance personnel); and
- Dermal contact with contaminated water associated with the water treatment system (maintenance personnel).

Authorized workers at the school (i.e., janitorial/maintenance staff) are aware of the operation characteristics of the water treatment system. No students, teachers, visitors, or administrative personnel have access to the sump room, and thus, will not be exposed to foundation water.

These potential routes of exposure are addressed during the operation, maintenance and monitoring of the water treatment system specified in the SMP. By conducting activities in accordance with the SMP, exposure to maintenance personnel should be insignificant.

6.5 Receptor Population

Currently, construction of the building was completed in 2003 and is being used by Lycee Francais de New York as a private school. The current potential future receptor population includes, school children and staff, personnel conducting treatment system monitoring and sampling, and visitors to the school. No off-site receptor populations have been identified.

6.6 Results

The only complete exposure pathway is the operation, monitoring and maintenance of the water treatment system by qualified maintenance personnel. These workers could come into dermal contact with contaminated groundwater or could inhale vapors from contaminated groundwater.

To avoid significant exposures associated with these pathways, an SMP has been prepared and will be implemented whenever monitoring or maintenance of the water treatment system is required. The SMP was designed to ensure that only qualified and trained personnel operate, monitor and maintain the water treatment system. The SMP includes provision for health and safety to protect maintenance workers during these activities in conformance with NYSDOH guidance and the various Occupational Safety and Health Administration (OSHA) regulations.

7.0 POST REMEDIATION DOCUMENTS

7.1 Site Management Plan

There are two known areas of residual contamination associated with the project site: contaminated soil/bedrock within the sidewalls of the excavation (located outside the property boundary and under the sidewalk) and contaminated groundwater beneath the school's foundation. A Site Management Plan (SMP) was prepared to provide procedures for managing the residual contamination. The SMP has been submitted to fulfill the remedial action requirements in accordance with the VCA and is triggered by approval of this RAR Addendum. The SMP provides detailed procedures for implementation of the institutional and engineering controls, implementation of monitoring systems, operation and maintenance of all treatment, containment, or recovery systems, and reporting to the NYSDEC, and defining criteria for termination of treatment system operations. The SMP is included as Appendix N.

The SMP includes four plans: 1) an Engineering and Institutional Control Plan to manage the site controls; 2) a Monitoring Plan for site monitoring; 3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and 4) a Site Management Reporting Plan for submittal of data, recommendations and certifications to the NYSDEC.

7.2 Deed Restriction

A series of Institutional Controls are required under the RWP to implement, maintain and monitor Engineering Control systems and prevent future exposure to residual contamination by controlling disturbances of the subsurface soil. Adherence to these on-Site Institutional Controls

is required under the Deed Restriction and will be implemented under the SMP appended to this RAR. These Institutional Controls for the Site (Controlled Property) are:

- Compliance with the Deed Restriction by the Grantee owner/lessee and the Grantee owner/lessee's successors and adherence of all elements of the SMP is required;
- All Engineering Controls must be operated and maintained as specified in the SMP;
- All Engineering Controls must be inspected and certified at a frequency and in a manner defined in the SMP;
- Indoor air, water discharge, and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management Property must be reported at the frequency and in a manner defined in the SMP;
- On-Site environmental monitoring devices must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP; and
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.
- The use of the groundwater underlying the Site is prohibited without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission from the NYSDEC;
- All future activities on the Site that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil/materials management provisions in the SMP;
- The Site may be used for residential, commercial, or industrial use provided that the long-term Engineering and Institutional Controls included in the SMP are employed;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the Site at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This statement must be certified by an expert that the NYSDEC finds acceptable.
- The Deed Restriction shall run with the land and shall be binding upon all future owners of the Site.

The Deed Restriction will be filed with the New York County Clerks Office within 30 days of the date of the NYSDEC approving the RAR Addendum and includes: a description of the use restriction; a map showing the area of the restriction; a written agreement by the property owner to establish and maintain the institutional and engineering controls; and a copy of the Site Management Plan. A copy of the deed restriction is included in Appendix P of this report.

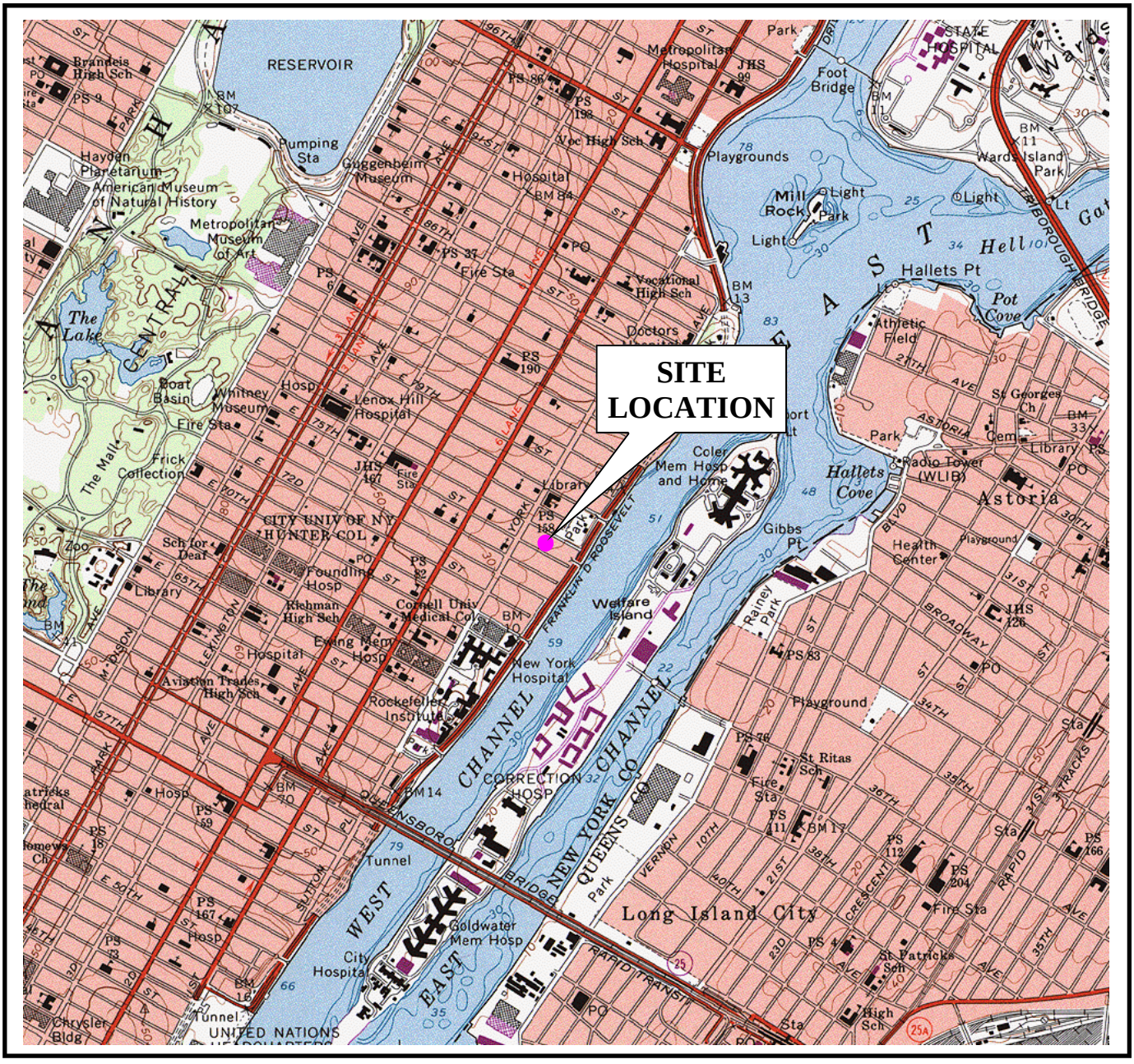
8.0 CONCLUSIONS AND RECOMMENDATIONS

The objective of the remedial action at the East 75th/East 76th Street site was to remediate on-site contamination and to investigate if pollutants released at the site were affecting off-site locations or whether off-site contamination was a contributing factor to contamination detected at the site. The on-site source areas included: aboveground storage tanks; underground storage tanks; drums; and contaminated soil, bedrock, and groundwater. All on-site sources (except groundwater) were removed and disposed of off-site in accordance with the VCP Work Plan, federal, state and local regulations. Results of final endpoint sampling and weep sampling indicated the need for a water proofing system/vapor barrier to protect the school's foundation from VOCs in adjacent soil and groundwater. A water treatment system was designed and implemented to treat tetrachloroethene and other VOCs in groundwater prior to discharge into the NYC sewer system to meet NYCDEP requirements. A Site Management Plan was developed to manage the site controls, ensure the proper operation of the water treatment system, and to protect the health and safety of maintenance workers who may come in contact with untreated water.

The Off-Site Study for the project site was conducted in three separate phases and included: soil, bedrock and groundwater sampling at five locations surrounding the project site; soil gas sampling at twelve exterior locations in the sidewalk surrounding the project site; and sub-slab/indoor air sampling in the building adjacent to the western side of the project site. The results of the study did not indicate significant levels of contaminants of concern in soil or bedrock. Elevated levels of tetrachloroethene were detected in samples collected from two groundwater monitoring wells west of the study site across York Avenue. These wells are located directly in front of active dry cleaning facilities and upgradient of the project site. No tetrachloroethene was detected in the well located between these dry cleaners and the project site, therefore, the groundwater contamination appears to have originated from off-site sources unrelated to the East 75th/East 76th Street project site. The soil gas/indoor air sampling has shown that the detected parameters in soil gas beneath the sidewalk have remained consistent, indicating there is not a migrating vapor plume coming from the project site, and vapor intrusion was not occurring in the building adjacent to the project site.

This report demonstrates that the objectives of the VCP have been satisfied and no further remedial action is necessary, except for the requirements set forth in the Site Management Plan.

FIGURES



SCALE IN FEET

0’ 1000’ 2000’ 4000’

SCALE: 1”=2000’

N

SOURCE:

7.5 MINUTE SERIES USGS TOPOGRAPHIC MAP
QUADRANGLE: CENTRAL PARK, NY 1995

EAST 75th/EAST 76th STREET
NEW YORK, NEW YORK

PROJECT SITE LOCATION

AKRF

Environmental Consultants
440 Park Avenue South, New York, N.Y. 10016

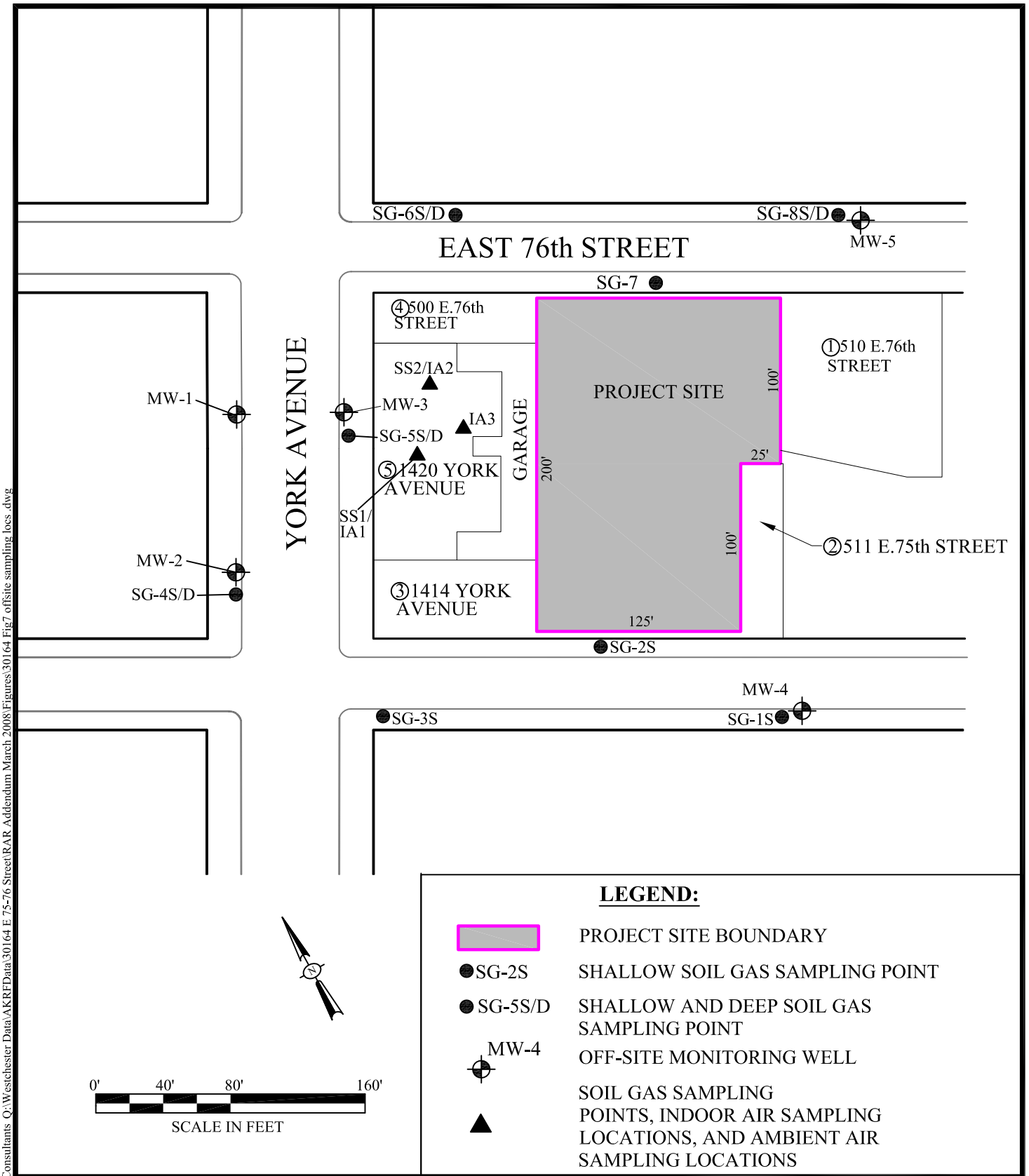
DATE **10.17.06**

PROJECT No. **30164**

SCALE **AS SHOWN**

FIGURE No. **1**

Q:\Westchester Data\AKRFData\30164 E 75-76 Street\Offsite Interior Soil Gas 2006\30164 Fig 1 loc map.pub



EAST 75th/76th STREET
REMEDIAL ACTION REPORT
ADDENDUM VOLUME 3

UPDATED SITE PLAN SHOWING OFFSITE SAMPLING LOCATIONS

AKRF
Environmental Consultants
440 Park Avenue South, New York, N.Y. 10016

DATE	3.18.08
PROJECT No.	30164
SCALE	1"=80'
FIGURE	7

APPENDIX N

SITE MANAGEMENT PLAN

Lycee Francais de New York

NEW YORK, NEW YORK

Site Management Plan

NYSDEC VCA Index Number D2-0001-01-05
VCP Site ID Number: V00425

Prepared for:
Lycee Francais de New York
505 East 75th Street
New York, New York 10021

Prepared by:
HDR
Henningson, Durham, & Richardson Architecture and Engineering
in association with HDR Engineering, Inc.

One Blue Hill Plaza
Pearl River, New York 10965
845-735-8300
HDR File No. 147-27156

MARCH 2008

SITE MANAGEMENT PLAN

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

Acronym	Definition
AHU	Air Handling Unit
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
CAMP	Community Air Monitoring Plan
DCE	1,2-dichloroethene
DER	Division of Environmental Remediation
DUSR	Data Useability Summary Report
EC	Engineering Controls
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
HASP	Health & Safety Plan
HVAC	Heating, Ventilation, Air Conditioning
IC	Institutional Controls
NYCDEP	New York City Department of Environmental Protection
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	Polychlorinated biphenyls
PCE	Perchloroethylene, Tetrachloroethylene
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan
SCO	Soil Cleanup Objectives
SMP	Site Management Plan
STARS	Spill Technology and Remediation Series
TAL	Target Analyte List
TCE	Trichloroethylene
TCL	Target Compound List
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

Summary for Monitoring, Inspection, and Maintenance of Site Engineering Controls

Media	Monitoring Program Frequency*	Inspection Program Frequency	Maintenance Program Frequency	SMP Reference
Indoor Air	Indoor air monitoring; Two times per calendar year in the 2008 heating season (prior to April 15, 2008 and after November 15, 2008) and once during the 2009 heating season, as recommended by NYSDOH. Data will be evaluated by the agencies following the third round of sampling in 2009. The need to continue the indoor air testing will be made by the agencies at that time.	Not applicable	Not applicable	Section 3.1.2 and 3.2.1. Appendix I – Quality Assurance Project Plan
Water Discharge	Water discharge monitoring; Annually, or as required by the NYCDEP discharge approval	Weekly inspection of carbon treatment system, southwest foundation pit, and northeast foundation pit. Bi-monthly inspection of underdrain system cleanouts. Periodic inspection of flow meters	Annual change-out of bag filters and replacement of granular activated carbon. Semi-annual backwash of the two carbon vessels. Bi-annual replacement or reconditioning of the submersible pump.	Section 3.1.2, 3.2.2, and 4.0. Appendix G – Inspection Checklist Appendix K – Routine Maintenance Activities and Schedule Appendix L – Routine Maintenance Form Appendix M – Non-routine Maintenance Form

- The frequency of events will be conducted as specified until otherwise approved by NYSDEC, NYSDOH and NYCDEP.

SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 Introduction

This document is required for fulfillment of Remedial Action at 503-509 East 75th Street and 502-512 East 76th Street (hereafter referred to as the "Site") under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with the Voluntary Cleanup Agreement (VCA) Index# D2-0001-01-05, which was issued on February 15, 2001. The VCP Site ID Number is V00425.

1.1.1 General

The Denihan Company entered into a VCA with the NYSDEC to develop a 0.64 acre property located in New York City, New York. This VCA required The Denihan Company to investigate and remediate contaminated media at the Site. The boundary of this 0.64-acre VCP Site is more fully described in Appendix A – Metes and Bounds. A map of the Site location is shown in Figure 1. The Site boundary is shown in Figure 2.

After completion of the remedial work described in the Remedial Action Work Plan, some contamination was left in the subsurface at this Site, which is hereafter referred to as 'residual contamination.' This Site Management Plan (SMP) was prepared to manage residual contamination at the Site in perpetuity or until extinguishment of the Deed Restriction in accordance with 6 NYCRR Part 375. Remedial Action work on the Site began in January 2001 and was completed in August 2002. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by **HDR,** on behalf of Lycee Francais de New York, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site

Investigation and Remediation, dated December 2002, and the guidelines provided by NYSDEC. This SMP addresses the means for implementation of Institutional Controls (ICs) and Engineering Controls (ECs), which are required by the Deed Restriction for the Site.

1.1.2 Purpose

The Site contains residual contamination left after completion of the Remedial Action performed under the VCP. ECs have been incorporated into the Site remedy to provide proper management of residual contamination in the future to ensure protection of public health and the environment. A Site-specific Deed Restriction has been recorded with the New York County Clerk that provides an enforceable means to ensure the continued and proper management of residual contamination and protection of public health and the environment. It requires strict adherence to all Engineering Controls and all Institutional Controls placed on this Site by NYSDEC by the grantor of the Deed Restriction and any and all successors and assigns of the grantor. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP includes all methods necessary to ensure compliance with all ECs and ICs required by the Deed Restriction for residual contamination at the Site. The SMP has been approved by the NYSDEC, and compliance with this Plan is required by the grantor of the Deed Restriction and grantor's successors and assigns. This plan is subject to change by NYSDEC.

Site management is the last phase of the remedial process and is triggered by the approval of the RAR – Volume 3 and issuance of the Release of Liability and Covenant not to Sue by NYSDEC. The SMP continues in perpetuity or until extinguished in accordance with 6NYCRR Part 375. It is the responsibility of the Deed Restriction grantor, and its successors and assigns to ensure that all Site Management responsibilities under this plan are performed.

The SMP provides a detailed description of all procedures required to manage residual contamination at the Site. This includes: (1) implementation and management of all Engineering and Institutional Controls; (2) implementation of monitoring systems and the Monitoring Plan; (3) development of a plan to operate and maintain all treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper

communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP includes four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC.

Site Management activities, reporting, and EC/IC certification will be scheduled on a NYSDEC-approved certification period basis.

Important notes regarding this SMP are as follows:

- This SMP defines Site-specific implementation procedures as required by the Deed Restriction. The penalty for failure to implement the SMP is revocation of the Release of Liability and Covenant no to Sue;
- The Voluntary Cleanup Agreement (Index # D2-0001-01-05) for the Site requires conformance with this SMP (formerly known as an Operation, Maintenance and Monitoring Plan). The executed deed serves as a contractual binding authority under which this SMP is to be implemented.
- At the time this report was prepared, the SMP and all Site documents related to Remedial Investigation and Remedial Action are maintained at the NYSDEC Region 2 offices in Long Island City. At the time of SMP submission, March 2008, the Site documents can also be found in the repositories established for this project, including:

Lycee Francais de New York

Mr. Terrence Kennedy, Facilities Manager

505 East 75th Street

New York, NY 10021

212-439-3870

Hours: Monday – Friday, 8:00 am – 3:00 pm

AKRF Engineering, P.C.

Ms. Michelle Lapin, P.E.

440 Park Avenue South, 7th Floor

New York, NY 10016

212-696-0670

Hours: Monday – Friday, 9:00 am – 5:00 pm

HDR

Mr. Michael Musso, P.E.

One Blue Hill Plaza, 12th Floor

Pearl River, New York 10965

845-735-8300

Hours: Monday – Friday, 9:00 am – 5:00 pm

1.2 Site Background

1.2.1 Site Location and Description

The Site is located in the County of New York (City), New York and is identified as Block 1487 and Lots 4, 5 and 8 on the New York City Tax Map. The Site is an approximately 0.64-acre area bounded by East 76 Street to the north, East 75 Street to the south, and residential buildings to the east and west (see Figure 3). The boundary of the Site is more fully described in Appendix A – Metes and Bounds.

1.2.2 Site History

The site was developed prior to 1911 with residential structures and a bakery. In 1939, two garages with a total of three gasoline tanks were shown to occupy the portion

of the property fronting East 75th Street. In 1950, a dry cleaning facility was in operation at the Site. In 1994, the buildings fronting East 76th Street were occupied by a garage.

A Phase I Environmental Site Assessment (ESA) was completed by AKRF in 1996 and identified potential sources of on-site contamination including aboveground and underground tanks for the storage of fuel oil, hydraulic oil, gasoline and dry cleaning solvents. A Phase II Environmental Site Investigation (ESI) was performed by AKRF and the report identified volatile organic compounds and petroleum contamination.

A complete description of site history is included in the Remedial Action Reports.

1.2.3 Geological Conditions

A summary of the work performed, lithology, hydrogeology, a geologic section and a groundwater flow map is provided in AKRF's RAR - Volume 3 and in Appendix B of this document. Data in the Remedial Action Report indicates that the bedrock on the East 75th Street portion of the site was located near to grade (approximately one to five feet below grade). Bedrock sloped down to the north to approximately 15 – 20 feet below grade on the East 76th Street portion of the site. Based on AKRF's off-site studies, groundwater generally flows towards the East River and groundwater in the vicinity of the Site is not tidally influenced.

1.3.0 Description of Remedial Investigation Findings

The SMP and all Site documents, including the Remedial Investigation, Remedial Action Work Plan, and Remedial Action Reports, are maintained by the NYSDEC (or successor agency). At the time of publication, these reports could be found at the Region 2 NYSDEC offices in Long Island City, New York.

1.3.1 Summary of Remedial Investigation Findings

Remedial investigation reports include the following:

- Phase I Environmental Site Assessment (AKRF – 1996 and 1999)
- Phase II Environmental Site Investigation (AKRF – 1996)
- Remedial Work Plan (AKRF – February 2001)

The investigation revealed elevated levels of volatile organic compounds in soil and groundwater.

Below is a summary of Remedial Investigation findings.

1.3.1.1 On-Site Soil and Soil Vapor

The 1996 Phase II Environmental Site Investigation (AKRF – 1996), included in the VCP Application, included a soil gas and soil sampling program to characterize subsurface conditions. The investigation was performed using a Bosch Drill with a 5/8 diameter, one foot long, stainless steel shaft that was used to collect soil gas and soil samples. Soil gas was collected from the point of refusal at nine locations. Soil was collected from a depth of approximately one foot above refusal at eight locations. The investigation detected elevated levels of VOCs (above 5 ppm) in soil gas samples at six of nine sampling locations, located on the East 75th Street side of the site. Petroleum-related contamination was detected in soils located under the 507-509 East 75th Street building. Soil in the location of the former dry cleaning equipment (northern portions of the 503-505 and 507-509 East 75th Street buildings) exhibited low levels of priority pollutant VOCs including PCE and DCE. Levels detected were below the TAGM 4046 Recommended Soil Cleanup Objectives. Two soil samples were collected in the vicinity of the former 1,080-gallon dry cleaning solvent tanks (507-509 East 76th Street building) but no priority pollutant VOCs were detected.

1.3.1.2 On-Site Groundwater

The 1996 Phase II Environmental Site Investigation (AKRF – 1996), included in the VCP Application, included collection of one groundwater sample to characterize subsurface conditions. Low levels of petroleum hydrocarbons were detected in the one groundwater sample collected.

A summary of recent on-site groundwater sampling data related to the on-site water treatment system is provided in the RAR - Volume 3.

1.3.1.3 Underground Storage Tanks

The Remedial Action Report (AKRF – 2003), provides information on tanks, drums, pistons and areas of potential on-site contamination. The following USTs were identified and removed from the Site.

- Four 1,080-gallon capacity dry cleaning solvents USTs
- One 5,000-gallon capacity fuel oil UST
- Five 550-gallon capacity gasoline USTs

1.4.0 Description of Remedial Actions

The Site was remediated in accordance with the scope of work presented in the following documents:

- Remedial Work Plan (AKRF - February 2001);
- Comment Letter on Remedial Work Plan (NYSDEC – May 2, 2001);
- Addendum Letter to Voluntary Cleanup Program Remedial Work Plan (AKRF - May 9, 2001);
- Memorandum: Spill #0130013 (AKRF - August 31, 2001);
- Comment Letter on Addendum to Remedial Work Plan (NYSDEC - October 18, 2001);
- Response Letter to DEC Comment Letter Dated October 18, 2001 (AKRF - January 18, 2002);
- Two e-mails from Sondra Martinkat of NYSDEC to Marcus Simons of AKRF regarding Category B Quality Assurance/Quality Control Sampling during endpoint samples (NYSDEC – February 26, 2003);
- Memorandum: Excavating the former elevator piston from 75/76 Street Site, Manhattan (AKRF – March 6, 2002);
- Proposed Installation of Vapor Barrier (AKRF - April 11, 2002);
- Revised Exposure Assessment (AKRF - May 12, 2002);
- Contingency in the Voluntary Cleanup Remedial Work Plan – Water Treatment System (AKRF-May 31, 2002);
- *Off-Site Study* (AKRF - June 18, 2002);
- *Operation and Maintenance Outline* (Lawler, Matusky & Skelly Engineers LLP [LMS] – June 18, 2002);
- Update of Operations and Maintenance Outline (LMS – August 2, 2002);

- Air Monitoring Discussion at June 18, 2002 Project Meeting (NYSDEC – August 16, 2002);
- Addendum to the Off-Site Study – Voluntary Cleanup Remedial Work Plan (AKRF - September 6, 2002);
- Two *Comment Letters* (NYSDEC - both dated October 1, 2002); and
- *AKRF Facsimile* (AKRF - November 7, 2002) regarding the relocation of three boring locations in the Off-Site Study.

The Remedial Work Plan for the VCP was approved by the NYSDEC in a letter dated June 18, 2002.

Below is a summary of the Remedial Actions required and implemented at the Site. Additional information is provided in Appendix B.

1. Excavation of soil/fill.
2. Construction of an engineered vapor barrier consisting of Preprufe 300R, Preprufe 160R, and Bituthene 4000 to prevent significant human exposure to residual contaminated soil/vapor remaining under the Site;
3. Recording of a Deed Restriction to prevent significant future exposure to any residual contamination remaining at the Site (a copy of the Deed Restriction is provided in Appendix C).
4. Institutional Controls as outlined in Section 2.3;
5. A Site Management Plan for long term management of residual contamination as required by the Deed Restriction, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting;
6. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during all intrusive site work;
7. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;

8. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications; and, (2) compliance with all Federal, State and local rules and regulations in handling and transport of material;

9. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, addressed in accordance with all applicable Federal, State and local rules and regulations.

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved RAWP for the Site All deviations from the RAWP are noted below.

This section of the SMP provides a brief summary of the overview provided in AKRF's 2003 Remedial Action Report (section 4.4) and the 2008 Remedial Action Report. As part of the approved remedial activities at the site, the soil screening protocol was modified, an engineered vapor barrier was installed, and a groundwater treatment system was installed so the NYCDEP sewer discharge limits could be achieved.

1.4.1 Removal of Contaminated Materials from the Site

This section of the SMP provides a summary of the overview provided in AKRF's 2003 Remedial Action Report (sections 4.2 and 4.3). During Phase II of the project, contaminated soil identified during removal of four UST and two elevator pistons was stockpiled for further laboratory analysis. A total of 1108.58 tons of contaminated soil was excavated and transported for offsite disposal. During Phase III of the project, four additional USTs were removed and the two elevator pistons were sealed in place. Petroleum contaminated soil was encountered in the vicinity of two of the tanks and a total of 284.59 tons was excavated and removed from the property during Phase III. Solvent-contaminated soil and underlying weathered bedrock was located throughout most of the property and a total of 28,734.41 tons of the solvent-contaminated soil and bedrock was removed and transported for off-site disposal during Phase III.

1.4.2 On-Site and Off-Site Treatment Systems

This section of the SMP provides a summary of the water treatment system provided in AKRF's 2003 Remedial Action Report (section 4.6) and the 2008 Remedial Action Report. Input relating to the operations of the water treatment system since the

school assumed responsibility for operation and maintenance is also included in this section.

Based on environmental data collected during site development, elevated levels of VOCs were identified in the on-site groundwater encountered during the excavation work. As dewatering with discharge to the City sewer system was necessary during construction, pre-treatment was required to meet NYCDEP discharge limits. A temporary water treatment system, approved by the NYCDEP, was constructed and pilot-tested. A discharge authorization was subsequently granted by the NYCDEP for discharge of treated groundwater to the City's sewer system. The system remained in place for the dewatering of excavations on the property during construction activities. Initially, weekly sampling was conducted to ensure the effectiveness of the system. Upon completion of the building's foundation, the groundwater treatment system was configured in the sump/mechanical room in the "lower level 2" (LL2, located in the school's basement) floor of the building.

Currently, groundwater collected in the building's underdrain system continues to be treated and monitored under a NYCDEP permit that is renewed on an annual basis by the school. Based on future influent concentrations of VOCs in the groundwater, and if the NYCDEP sewer discharge standards can be achieved without on-site treatment, the school will petition NYCDEP for shut-down of the water treatment system.

A complete description of the water treatment system components and the associated operation, maintenance, and monitoring plan is included in Sections 3.0 and 4.0 of this SMP.

1.4.3 Residual Contamination

This section of the SMP provides a brief summary of residual on-site contamination. Further details are included in AKRF's 2003 Remedial Action Report and the 2008 Remedial Action Report. Upon completion of excavation activities, the following compounds were detected in endpoint samples above TAGM 4046 Recommended Soil Cleanup Objectives; tetrachloroethylene (PCE), barium, beryllium, cadmium, chromium, copper, iron, magnesium, nickel, zinc. Groundwater weep samples

were collected from the excavation sidewalls and the following compounds were detected above the New York State Class GA drinking water standards: benzene, toluene, ethylbenzene, xylene, PCE, trichloroethylene (TCE), cis-1,2-dichloroethene, bis(2-ethylhexyl)phthalate, and several metals. MTBE was also detected in one weep sample at a concentration of 40 ppb.

1.4.4 Engineering and Institutional Controls

Since residual contamination is present at this Site, Engineering Controls and Institutional Controls have been and will continue to be implemented to protect public health and the environment in the future. The Controlled Property has two primary Engineering Controls. These are a groundwater treatment system and an engineered vapor barrier system . Refer to Section 2.2 for a description of the Engineering Controls.

The property is covered by the building's footprint and a concrete driveway. Concrete sidewalks border the site to the north and south (both onsite and the adjacent public sidewalks). Thus, the entire property is covered and there are no exposure pathways for direct contact with soil or bedrock.

The engineered vapor barrier system (see Section 2.2 and RAR – Volume 3), approved by NYSDEC as part of the VCA, is in-place beneath the entire building foundation and along all subsurface sidewalls of the school building. The vapor barrier system is a "positive-side" application, i.e., the barrier products were installed on the exterior of the building foundation slab and walls. No maintenance or inspection is required for this system; however, procedures for repairing the vapor barrier in the unlikely event that it is disturbed in the future are noted in Section 2.2 of this SMP. Note that the ICs require notification of NYSDEC prior to any planned disturbance of the vapor barrier system.

As background it should be noted that as part of the indoor air quality program at the school, operation procedures for the building's air handling system are in-place, implemented, reviewed, and maintained by the school maintenance staff and outside mechanical contractors. The building's air is currently supplied from nine separate air handling units (AHUs). These AHUs are situated in four areas throughout the building.

These units each take in a minimum of 20% outside air in accordance with ASHRAE standards. The outside air dampers are checked on a regular basis by the school's engineering staff to ensure proper damper operation. The AHUs operate in "summer", "winter" and "economizer" modes, but in each mode the minimum outside air percentage is never below 20%. These units are equipped with coils to cool or warm the air through the unit, maintaining a 74° Fahrenheit return air temperature at each unit. In the economizer mode, if the enthalpy and temperature of the outside air permit, the outside air dampers will open fully for "free cooling" which allows more than 20% of outside air into the system.

The building is currently cooled in warmer months by a 500 ton McQuay Centrifugal Chiller. This unit makes chilled water for the AHUs and the McQuay unit ventilators. These unit ventilators are installed in each classroom and they have their own outside air dampers which are set to a minimum of 20%. The chiller is currently maintained by both the on-site building engineers and McQuay/PremAir technicians. Certain areas of the building are supplemented with split air conditioning systems (i.e., evaporator and condenser are in separate locations). These areas include the IT room, AV room, weight / fitness room, and the elevator machine room. These units are maintained by on-site engineers and the school's mechanical contractor. The building is currently heated by the three gas-fired Arco boilers. These boilers supply hot water between 130° Fahrenheit and 180° Fahrenheit to the AHUs and the unit ventilators as needed. The boilers also supply water to heat exchangers that supply hot water to the kitchen, lounges and bathrooms.

A series of Institutional Controls are required to implement, maintain and monitor these Engineering Controls. The Deed Restriction requires compliance with these Institutional Controls. These Institutional Controls consist of the following:

- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property (the Site) must be inspected and certified at a frequency and in a manner defined in this SMP;
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;

- Data and information pertinent to Site Management for the Site must be reported at the frequency and in a manner defined in this SMP;

The Site has a series of Institutional Controls in the form of Site restrictions. Adherence to these Institutional Controls is required under the Deed Restriction. Site restrictions that apply to the Controlled Property are:

- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for the intended use;
- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil/materials management provisions in this SMP;
- The Controlled Property may be used for residential purposes (or other uses, including a private school for pre-school through twelfth grade [i.e., current site use]), provided the long-term Engineering and Institutional Controls included in the SMP remain in use.

These EC/ICs should:

- Prevent ingestion of groundwater with contamination levels that exceed drinking water standards;
- Prevent contact with or inhalation of volatiles from contaminated groundwater;
- Pre-treat groundwater in accordance with NYCDEP discharge limits;
- Restore groundwater to pre-disposal/pre-release conditions, to the extent practicable; and
- Prevent ingestion/direct contact with contaminated soil, fill material, or weathered bedrock.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 Introduction

2.1.1 General

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved RAWP for the East 75th/East 76th Street Site, Voluntary Cleanup Program Index No. D2-0001-01-05 dated February 2001. The remedial goals included attainment of the NYS Recommended Soil Cleanup Objectives (RSCOs; TAGM 4046) for on-Site soils. The use of RSCOs was approved by NYSDEC; however, it should be noted that for site development purposes, all on-site overburden soils were effectively removed from the Site. A summary of the remedial strategies and EC/ICs implemented at the Site are as follows:

- Excavation and offsite disposal of soils exceeding RSCOs;
- Installation of an engineered vapor barrier to prevent human exposure to vapor from residual contaminated groundwater remaining under the Site;
- Implementation and continued operation, maintenance, and monitoring of an on-site groundwater treatment system to treat residual contaminated groundwater at the Site in accordance with NYCDEP sewer discharge limits; and
- Registration of a Deed Restriction, including Institutional Controls, to prevent future exposure to any contamination remaining at the Site (a copy of the Deed Restriction is provided in Appendix C).

Since residual contaminated groundwater/vapor exists beneath the Site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

The purpose of this Plan is to provide:

- A description of all EC/ICs on the Site;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the ICs created as stated in the Deed Restriction;
- A description of the features that should be evaluated during each inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of EC/ICs; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROL COMPONENTS

2.2.1 Engineering Control Systems

2.2.1.1 Vapor Barrier System

Direct contact exposure to residual contaminated soil/fill/bedrock is prevented by the school building, concrete driveway, and surrounding concrete sidewalks. Exposure to vapors is prevented by an engineered vapor barrier system built on-Site. This composite cover system is comprised of a waterproofing/vapor barrier system installed beneath the entire building slab and along all vertical subsurface walls. The membrane was installed to provide a continuous system with no gaps or penetrations. No current direct contact exposure pathways to possible residual subsurface contamination exist for school occupants. The NYSDEC-approved design for each remedial cover type used on this Site and its location(s) is provided in the RAR - Volume 3.

Grace Construction Products was the manufacturer of the engineered vapor barrier materials used. The manufacturer attested to the compatibility of the material with the contaminants found at the site (i.e., levels of volatile organic compounds in rock

and soil in the final sidewalls of the excavation). The vapor barrier membranes include Preprufe 300R, Preprufe 160R, and Bituthene 4000.

Although contaminated soil and approximately 10 feet of bedrock was removed from the property during construction, a Soil/Materials Management Plan has been prepared to address possible future penetrations of the building foundation and handling of soil, fill material, subsurface drainage materials (pipe, gravel), and weathered bedrock. The Soil/Materials Management Plan is a contingency that addresses on-Site materials only. The procedures required in the event the vapor barrier system is disturbed are outlined and discussed in greater detail in Section 2.3.2 of this EC/IC Plan. No maintenance of the vapor barrier system is required under normal conditions unless the foundation slab or subsurface building sidewalls are disturbed.. Note that the ICs require notification to NYSDEC prior to any planned disturbance of the vapor barrier system.

2.2.1.2 Groundwater Treatment System

Exposure to residual contaminated groundwater is prevented by the school's foundation underdrain system which drains to sump pits located in the LL2 mechanical rooms. Foundation water is pumped mechanically to the City sewer system and is first treated by a water treatment system contained in the southwest mechanical room. The room also contains the school's sanitary sewer pumps and stormwater ejector pumps. Access to the mechanical room is restricted to the school's maintenance staff and contractors, and the room is equipped with a dedicated ventilation system that insures a net negative pressure as compared with the common hallway from where the room is accessed. HDR confirmed the pressure differential in the mechanical during smoke testing conducted in December 2003. The mechanical room is accessed during off-hours (e.g., before or after normal school hours or on weekends). The foundation sump remains covered except for periodic maintenance of the pumps associated with the water treatment system. Sample ports in the mechanical room are used to monitor VOC levels in pre- and post-treated water.

Flow to the foundation sump is routinely monitored by the school. In addition, a series of 11 cleanouts around LL2 (see Figure 4) are inspected bi-monthly (or more

frequently depending on large rain events) by the school staff to determine if any build-up of water or sediment may be occurring and affecting flow to the foundation pit. Cleanouts are accessed for inspection during off-hours, typically on weekends. If lower than normal flow conditions are observed in one or more of the cleanouts, the cleanouts are re-inspected after 1 to 2 days. If low flow persists, a contractor may be mobilized for purposes of flushing the foundation pipes. Flushing of underdrain piping is conducted during school off-hours to minimize any potential exposures to subsurface vapors.

The groundwater treatment system is comprised of two granular activated carbon vessels, bag filters, piping, meters, and pressure gauges. The system equipment and operations is maintained under a NYCDEP discharge permit. Figure 5 shows the location of the groundwater treatment system at the Site.

Groundwater management was required due to the need to dewater during construction activities and as part of the foundation design. Based on water sampling that demonstrated the presence of PCE above the NYCDEP Sewer Discharge Limits, a treatment system was designed and constructed. The NYCDEP provided authorization to discharge to the sewer system on March 20, 2002. Initially, monthly sampling of influent and effluent from the treatment system was conducted to determine requirements for treatment, including sizing of carbon vessels. Currently, carbon change-outs and sampling are performed on an annual basis based on the quantity of flows observed through the underdrain collection system (flow through the system is typically 2-3 gallons per minute, based on observations since 2003), influent VOC levels, and calculated carbon usage. Spent carbon and bag filters are appropriately contained, manifested, and disposed of off-site at approved disposal facilities in accordance with local, State, and Federal regulations. The system is operated and monitored under NYCDEP approval.

Procedures for operating and maintaining the groundwater treatment system are documented in the Operation and Maintenance Plan (Section 4 of this SMP). A description of the treatment system components and contractors currently involved in the operation and maintenance of the system is also included in Section 4. Further procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP).

The Monitoring Plan also addresses severe condition inspections in the event that a severe condition has occurred, such as unexpected high flow through the underdrain system or clogging.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

2.2.2.1 Vapor Barrier System

The engineered vapor barrier system is a permanent control installed on the exterior of the foundation slab and all subsurface sidewalls. The system will remain in place.

2.2.2.2 Groundwater Treatment System

The groundwater treatment system will not be discontinued without written approval by NYCDEP. A proposal to discontinue the groundwater treatment system may be submitted by the property owner after (a) residual contamination concentrations in groundwater as sampled at the influent side of the groundwater treatment system are below NYCDEP effluent discharge standards, or (b) if residual contamination levels are demonstrated to be below the City discharge limits at the point of discharge off-site (without pre-treatment). These sampling/monitoring activities will adhere to specifications outlined in the Monitoring Plan section of the SMP. Any authorization by the NYCDEP to discontinue water treatment will be communicated to NYSDEC prior to termination of treatment. NYSDEC will approve removal of the water treatment system.

2.3 Institutional Controls Components

2.3.1 Institutional Controls

A series of Institutional Controls are required under the RAWP to: (1) implement, maintain and monitor Engineering Control systems; and (2) prevent future exposure to residual contamination by controlling disturbances of the subsurface contamination. Adherence to these Institutional Controls on the Site (Controlled Property) is required under the Deed Restriction and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Deed Restriction by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Site must be inspected and certified at a frequency and in a manner defined in the SMP.
- Groundwater and indoor air monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management for the Site must be reported at the frequency and in a manner defined in this SMP;
- Engineering Controls may not be discontinued without an amendment or the extinguishment of this Deed Restriction.

The Site has a series of Institutional Controls in the form of Site restrictions. Adherence to these Institutional Controls is required by the Deed Restriction. Site restrictions that apply to the Site are:

- The use of the groundwater underlying the Site is prohibited without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission from the NYSDEC;
- All future activities on the Site that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil/materials management provisions in this SMP;
- The Site may be used for residential, commercial, or industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the

Site at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This statement must be certified by an expert that the NYSDEC finds acceptable.

2.3.2 Soil/Materials Management Plan

The Site has been fully remediated for restricted residential use. Any future intrusive work that will disturb the residual contamination and modifications or repairs to the existing water treatment system, and/or the vapor barrier system will be performed in compliance with the procedures outlined below. Intrusive construction work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site. A copy of HDR's HASP is included in Appendix D. A HASP must also be prepared by the selected contractor involved in intrusive work. A CAMP must also be prepared by the selected contractor. The HASP is the responsibility of the contractor and should be in compliance with DER-10 Technical Guide and 29 CFR 1910 and 1926, and all other applicable Federal, State and local regulations. Any intrusive construction work must be certified as compliant with the SMP and included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5). Copies of HASP information and CAMP documents will be prepared by each entity, as appropriate, based on SMP tasks conducted, and included in the annual inspection report.

If subsurface intrusive work is required in the future, such as foundation slab penetration to modify the underdrain piping, any excavated material (pipe, bedding material, weathered bedrock) will be contained (or placed in covered stockpile) and characterized for disposal purposes by a qualified contractor prior to off-site disposal. In addition, the vapor barrier materials disturbed will be replaced using the same Grace Products materials (Preprufe or Bituthene, or product with same or better vapor protection) before the foundation concrete is replaced. The replacement vapor barrier will be installed under Grace (or manufacturer of approved alternate product) supervision by a contractor certified by Grace (or approved alternate manufacturer) to match with the adjacent undisturbed vapor barrier. Subsurface intrusive work that would disturb the vapor barrier system is not anticipated in the future. However, if the site does undergo major intrusive construction, a detailed plan will be developed for approval by NYSDEC.

2.4 Inspections and Notifications

2.4.1 Inspections

Inspections of the water treatment system will be conducted at the frequency specified in SMP Monitoring Plan schedule. A comprehensive Site-wide inspection will be conducted annually, or an alternate period of time that NYSDEC may allow. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Deed Restriction;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Site Management Reporting Plan (Section 5).

If an emergency occurs, such as a natural disaster or an unforeseen failure of any of the ECs, an inspection of the Site will be conducted to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

2.4.2.1 NYSDEC-acceptable Electronic Database

The following information is presented in Appendix E

- A Site summary;
- The name of the current Site owner and/or the remedial party implementing the SMP for the Site;
- The location of the Site;
- The current status of Site remedial activity;

- A copy of the Deed Restriction; and
- A contact name and phone number of a person knowledgeable about the Deed Restriction's requirements, in order for NYSDEC to obtain additional information, as necessary.

This information should be: 1) modified as conditions change; (2) revised in Appendix E of this document; and, (3) submitted to NYSDEC in the Site Monitoring Report. Should the Deed Restriction be modified or terminated, the copy of the revised Deed Restriction will also be updated in this manner.

2.4.2.2 Non-routine Notifications

Non-routine notifications are to be submitted by the property owner(s) to the NYSDEC on an as-needed basis for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are consistent with the terms of the Voluntary Cleanup Agreement.
- 10-day advance notice of any proposed ground-intrusive activities.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action taken to mitigate the damage or defect.
- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, including a summary of action taken and the impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

3.0 MONITORING PLAN

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the implemented ECs in reducing or mitigating contamination at the Site. ECs at the Site include an engineered vapor barrier system and groundwater treatment system. This Monitoring Plan is subject to revision by NYSDEC.

3.1.2 Purpose

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of appropriate media (e.g., groundwater, indoor air);
- Evaluating Site information periodically to confirm that the remedy continues to be effective as per the design; and
- Preparing the necessary reports for the various monitoring activities.
- Assessing achievement of the remedial performance criteria.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements; and
- Required inspection and certification.

Monitoring of the groundwater treatment system and overall reduction in contamination on-Site will be conducted as outlined in Sections 3.1.3 and 3.2.3. No monitoring is required of the vapor barrier system. Trends in contaminant levels in groundwater will be evaluated to determine if the remedy continues to be effective in

achieving City discharge limits. Monitoring programs are summarized in Table 1 and outlined in detail in Sections 3.2 through 3.8, below.

Table 1: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Indoor Air Monitoring	Two times per calendar year in the 2008 heating season (prior to April 15, 2008 and after November 15, 2008) and once during the 2009 heating season, as recommended by NYSDOH. Data will be evaluated by the agencies following the third round of sampling in 2009. The need to continue the indoor air testing will be made by the agencies at that time.	Air	TO-15 (TCE, PCE only)
Water Discharge Monitoring	Annually, or as required by the NYCDEP discharge approval	Water (pre-treatment and post-treatment)	Influent: PCE, TCE de Effluent: NYCDEP sewer discharge parameters

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC, NYSDOH and NYCDEP.

3.2 Engineering Control System Monitoring

3.2.1 Indoor Air Sampling Event Protocol

The following sampling event protocol is based on the approved Indoor Air Sampling Work Plan that was submitted to the NYSDEC on August 31, 2007 and on feedback received from NYSDOH in January 2008. As background, two indoor air

samples (and one ambient sample collected outdoors in the school's driveway) were collected in November 2007 and analyzed for PCE and TCE. All concentrations were below the residential criteria used by NYSDOH, 100 ug/m^3 for PCE and 5 ug/m^3 for TCE.

Two indoor air sample locations have been established and are proposed for future monitoring as noted in the above table; the small (south) gym in LL2 and the library on the Main Floor (street level). Air samples are to be collected in 6-liter Summa canisters with 8-hour flow regulators prepared by a NYS ELAP-certified laboratory. All sampling equipment will be properly decontaminated, calibrated, and leak checked by the laboratory prior to use. Samples are to be collected over a continuous 8-hour period. The samples are to be transported to the laboratory under chain-of-custody procedures and analyzed for PCE and TCE using the EPA TO-15 Method.

A pre-sampling inspection will be performed prior to each sample event to identify and minimize conditions that may interfere with the indoor air sampling. A NYSDOH Indoor Air Quality Questionnaire and Building Inventory Form will be completed. The analytical results obtained from each of the three indoor air sampling events will be forwarded to NYSDEC and NYSDOH in a letter report to be submitted within 14 days following receipt of final laboratory data (data and sampling methods from all indoor air sampling events will also be included in the Site Management Report). If the analytical results continue to demonstrate compliance with the NYSDOH residential criteria after all three sample rounds in 2008-2009, the indoor air testing results will be evaluated by the NYSDEC and NYSDOH to determine if indoor air testing can be discontinued at the site. Regardless of the agencies' determination on the routine indoor air testing, if a significant event (flood, breach in foundation slab or wall) is identified, then further indoor air evaluations will be conducted.

3.2.2 Groundwater Treatment System Monitoring

A description of the on-Site water treatment system is included in the Operation and Maintenance Plan included as Section 4 of the SMP. Monitoring elements include:

- LL2 Cleanout inspection by school staff to generally assess the function of the school's underdrain system
- Monitoring of VOC concentrations in foundation water via sampling and laboratory analysis
- Observations of flow to the basement sumps, to assess underdrain system and to provide information to evaluate carbon usage at the water treatment system.
- Backwashing of the carbon system
- Replacement of granular activated carbon and bag filters
- Waste management

All water treatment system activities and annual NYCDEP permit renewals will continue to be coordinated and monitored by a NYS Professional Engineer. Waste streams (spent carbon and bag filters) have been characterized previously and are manifested, transported, and disposed of in accordance with all applicable rules and regulations. Waste profiles associated with the water treatment system will be kept updated in accordance with the disposal facilities requirements.

3.2.2.1 Groundwater Treatment System Monitoring Schedule

The major elements of the water treatment system will be monitored as follows:

- Minimum of bi-monthly cleanout inspection by school staff
- Annual (or as required by the NYCDEP sewer discharge approval) monitoring of VOC concentrations in foundation water
- Minimum weekly observations of flow to the basement sumps
- Minimum of semi-annual backwashing of the carbon system
- Annual replacement of granular activated carbon and bag filters (frequency may differ based on flow conditions and influent VOC levels)

The above inspection frequencies are subject to change by NYCDEP, NYSDEC, and NYSDOH, and based on carbon use evaluation or flow conditions. A decrease in frequency in any of the above-listed monitoring items will be considered a change in the SMP and will be communicated to NYSDEC and described in the monitoring inspection reports. Unscheduled inspections and/or sampling may take place when a suspected failure of the groundwater treatment system has been reported or an emergency occurs that is deemed likely to affect the operation of the system (e.g., unexpected flows).

Monitoring deliverables for the groundwater treatment system are specified later in this Plan.

3.2.2.2 General Groundwater Treatment System Equipment Monitoring

A visual inspection of the water treatment system is conducted during the above activities, by the school staff, contractors employed to perform the maintenance work, and/or the engineer of record. A report on the equipment, including any modifications or installation of replacement parts, will be included in the Site Management report. A copy of the NYCDEP permit renewal application and authorization will also be appended to the report. A copy of the current NYCDEP discharge permit application and authorization is included in Appendix F.

A complete list of components to be checked is provided in the Inspection Checklist, presented in Appendix G. If any equipment is observed to be malfunctioning, or the system is not performing within specifications, maintenance and repair as per the Operation and Maintenance Plan are required immediately, and the groundwater treatment system restarted.

3.2.3 Groundwater Treatment System Sampling Event Protocol

The following sampling event protocol has been established to evaluate the efficiency of the groundwater treatment system and to comply with NYCDEP effluent discharge requirements. Groundwater sampling will be conducted during July or August on an annual basis, or at a frequency dictated by the NYCDEP effluent discharge authorization.

Two groundwater samples are to be collected at the water treatment system; one influent (prior to entry into the carbon canister) sample and one effluent (after treatment) sample. The water samples are to be collected in dedicated equipment to avoid cross-contamination. Dedicated glassware is to be prepared and provided by a NYS ELAP-certified laboratory. The samples are to be transported to the laboratory under chain-of-custody procedures with influent samples analyzed for PCE and TCE via EPA Method

8260 and effluent samples analyzed for all required NYCDEP sewer discharge parameters.

3.3 Groundwater Monitoring Program

Groundwater monitoring will be performed on a regular basis to assess the performance of the remedy. Monitoring of groundwater conditions at the Site is outlined in Section 3.2.2 above.

3.4 Well Replacement/Repairs and Decommissioning

As there are no groundwater monitoring wells on the property, repairs, replacement, and decommissioning of wells is not applicable.

3.5 Site-wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year, or as otherwise dictated by the NYSDEC. If less frequent site-wide inspections are proposed in the future, the revised schedule will first be approved by NYSDEC prior to implementation. Site-wide inspections should also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix H). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that Site records are up to date.

3.6 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Site (Appendix I). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
- Sample Tracking and Custody;
- Calibration Procedures:
- Analytical Procedures;
- Data Reduction and Validation:
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.7 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-Site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Site Management Report, as specified in the Reporting Plan of the SMP.

All monitoring results will be reported to NYSDEC in the Site Management Report. In addition, a report or letter will be prepared for submission subsequent to each indoor air sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;

- Type of samples collected (e.g., indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (also to be submitted electronically in the NYSDEC-identified format);
- A copy of the laboratory certification;
- Any observations, conclusions, or recommendations; and

Data will be reported in hard copy or digital format as determined by NYSDEC.

A summary of the monitoring program deliverables are summarized in Table 2 below.

Table 2: Monitoring/Inspection Deliverables

Task	Frequency*	Reporting Requirement	Reporting Requirement
Indoor Air Monitoring	Two times per calendar year in the 2008 heating season (prior to April 15, 2008 and after November 15, 2008) and once during the 2009 heating season, as recommended by NYSDOH. Data will be evaluated by the agencies following the third round of sampling in 2009. The need to continue the indoor air testing will be made by the agencies at that time.	After each indoor air sampling event; TO-15 (PCE and TCE only)	Summary of year's data (TO-15 [PCE and TCE only])
Water Treatment System Discharge Monitoring	Annually, or as required by the NYCDEP discharge approval	To be included in the Site Management Report	Influent: PCE, TCE Effluent: NYCDEP sewer discharge parameters

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC, NYSDOH, and NYCDEP.

3.8 Certifications

Site inspections and sampling activities will take place as outlined above. Frequency of inspection is subject to change by NYSDEC. Inspection certification for all ICs and ECs will initially be submitted to NYSDEC on an annual basis and must be submitted with the Site Management Report. Any change in the frequency of required inspections, certifications, and submittal of a Site Management Report must be approved by the NYSDEC. A qualified environmental professional, as determined by NYSDEC, will perform inspection and certification. Further information on the certification requirements are outlined in the Reporting Plan of the SMP.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 Introduction

The Operation and Maintenance Plan describes the measures necessary to operate and maintain the groundwater treatment system. This Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the Site to operate and maintain the groundwater treatment systems;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in Site conditions or the manner in which the treatment system is operated and maintained.

Information on non-mechanical Engineering Controls (i.e. vapor barrier) can be found in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the Site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP. The Operation and Maintenance Plan is subject to NYSDEC revision.

4.2 Engineering Control System Operation and Maintenance

Groundwater Treatment System Monitoring

Continued operation, maintenance, and monitoring of the water treatment system will be conducted in accordance with the NYCDEP discharge permit. System design information is presented in Appendix J. .Change-out of bag filters and replacement of granular activated carbon within the two carbon vessels occurs on an annual basis. Backwash of the two carbon vessels is required two times per year. Replacement or reconditioning of the submersible pump is required once every two years. A description of routine maintenance activities, schedule, and list of vendors is provided in Appendix K.

Inspection of the carbon treatment system, underdrain system cleanouts, southwest foundation pit, and northeast foundation pit and reading of flow meters is a required component of groundwater treatment system operation.

4.3 Maintenance Reporting Requirements

Maintenance reports and any other information generated during regular operations at the Site will be kept on-file on-Site. All reports, forms, and other relevant information generated will be available upon request to the NYSDEC and submitted as part of the Site Management Report, as specified in the Section 5 of this SMP.

4.3.1 Routine Maintenance Reports

Checklists or forms (see Appendix L) will be completed during each routine maintenance event. Checklists/forms will include, but not be limited to the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

4.3.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form (see Appendix M) will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;

- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

4.4 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. An Emergency Response Guide is maintained on site and updated, at a minimum, on an annual basis. The Guide provides information on identifying a crisis, goals for managing a crisis, the executive team and emergency telephone numbers. The Guide outlines procedures to follow when a crisis occurs, including fire/fire drills, evacuation, relocation, intruder/lockdown, earthquake, flood/hurricane/tornado, bomb threat, shelter in place/confinement, early dismissal, hazardous materials, illness/injury on campus, illness/injury off campus, outbreak/epidemic on campus, after hours emergency, suspicious mail, kidnapping, missing/lost/runaway student, death due to suicide, death announcements, expected responses to student death, warning signs of suicidal intention, indication of potential suicide attempts, and speaking to the media.

4.4.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to Mr. Michael Musso at HDR (qualified environmental professional). These emergency contact lists must be maintained in an easily accessible location at the Site.

Table 3: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
Michael Musso [qualified environmental professional]	Work (845) 735-8300 Cell (845) 304-9639
Head of School Yves Thézé	Work (212) 439-3831 Home (212) 758-5122 Cell (646) 420-6040
Director of Operations Dan Cooke	Work (212)439-3859 Home (845) 561-3314 Cell (917) 589-7887
Facilities Manager Terrence Kennedy	Work (212) 439-3870 Cell (917) 710-7907
Security Desk South	(212) 439-3890
Security Desk North	(212) 439-3880

* Note: Contact numbers subject to change and should be updated as necessary

4.4.2 Map and Directions to Nearest Health Facility

Site Location: 505 East 75th Street, NY, NY 10021

Nearest Hospital Name: New York Presbyterian Hospital

Hospital Location: 525 East 68th Street, NY, NY 10021-4885

Hospital Telephone: 212-746-5454

Directions to the Hospital:

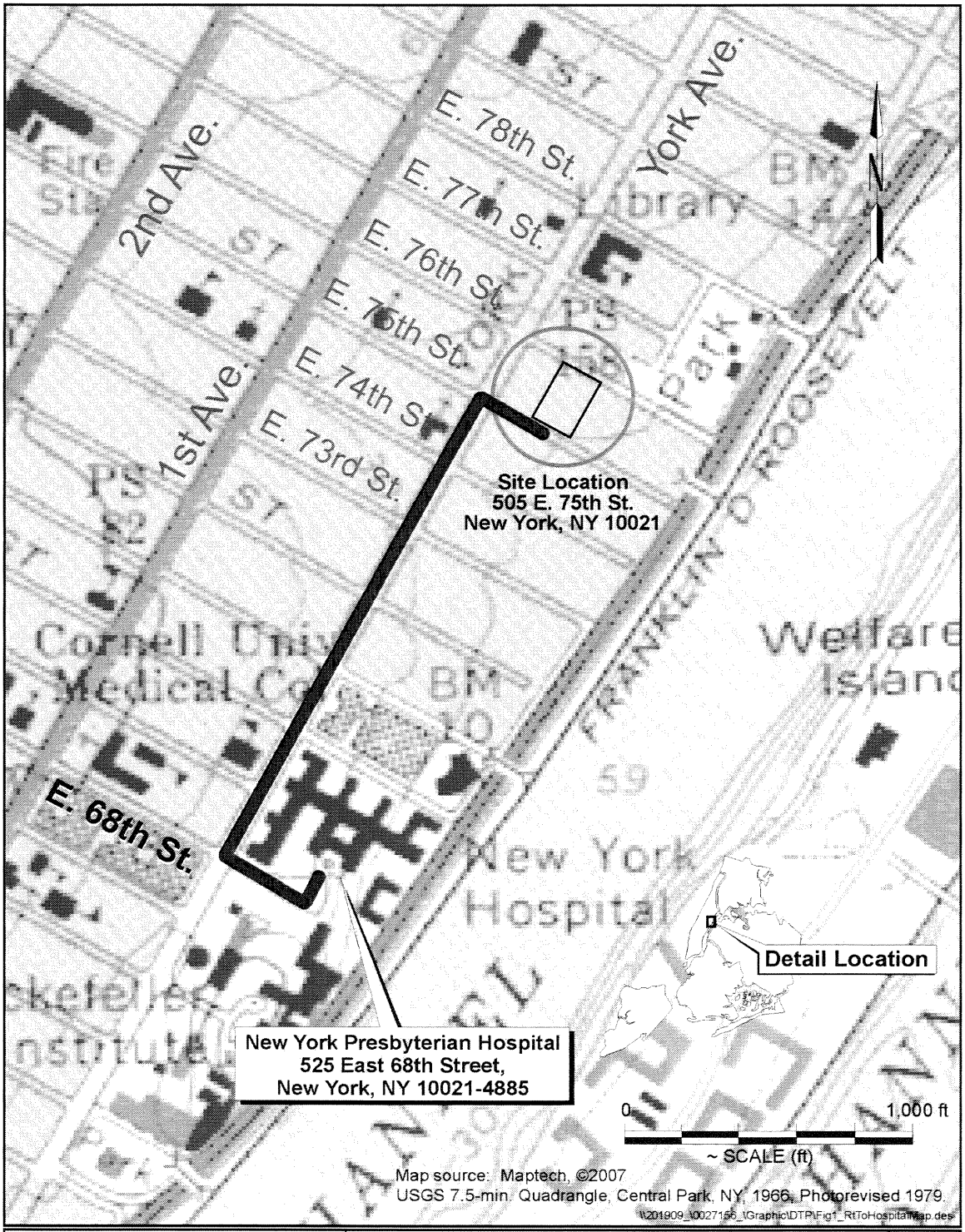
1. Head northwest on East 75the Street toward York Avenue (36 feet).
2. Turn left at York Avenue (0.4 miles).

3. Turn left at East 68th Street (89 feet)

Total Distance: 0.4 miles

Total Estimated Time: 4 minutes

Map Showing Route from the Site to the Hospital:



HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C. in association with HDR Engineering, Inc. One Blue Hill Plaza Pearl River, NY 10965	Map Showing Route from the Site to the Hospital LYCÉE FRANÇAIS • NEW YORK	Figure 1

4.4.3 Response Procedures

4.4.3.1 Emergency Contacts/Notification System

As per the school's *Emergency Response Guide,* the Executive Team, which includes the Head of School, the Director of Operations, and the Facilities Manager will act as an emergency crisis team should the need arise. At any given time, some members of the Executive Team may not be available; consequently, the Head of School will rely on the team members present. In addition, there may be occasion when the Head of School needs to decide and implement a course of action before the entire team can meet.

Procedures for responding to emergency situations are included in the school's *Emergency Response Guide.*

5.0 SITE MANAGEMENT REPORTING PLAN

5.1 Introduction

A Site Management Report will be submitted to NYSDEC by September 15, for the previous 12 months. This schedule is based on the current NYCDEP permit renewal timeframe. Proposed changes to the frequency and timeframe of the Site Management Report submittal will be approved by the NYSDEC. The Site Management Report will be prepared in accordance with NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation requirements. This Site Management Reporting Plan and its requirements are subject to revision by NYSDEC.

This report will include the following:

- Identification of all required EC/ICs required by the Remedial Action Work Plan for the Site;
- An evaluation of the Engineering and Institutional Control Plan and the Monitoring Plan for adequacy in meeting remedial goals;
- Assessment of the continued effectiveness of all Institutional and Engineering Controls for the Site;
- Certification of the EC/ICs;
- Results of the required periodic Site Inspections; and
- All deliverables generated during the reporting period, as specified in Section 2 EC/IC Plan, Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan.

The Site Management Reporting Plan is subject to NYSDEC revision.

5.2 Certification of Engineering and Institutional Controls

Information of EC/ICs can be found in the Engineering and Institutional Control Plan portion of the SMP. Inspection of the EC/ICs will occur at a frequency described in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan. After the last inspection of the reporting period, a qualified environmental professional or Professional

Engineer licensed to practice in New York State will sign and certify the document. The document will certify that:

- On-Site ECs/ICs are unchanged from the previous certification;
- They remain in-place and effective;
- The systems are performing as designed;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for such controls;
- Access is available to the Site by NYSDEC and NYSDOH to evaluate continued maintenance of such controls; and
- Site usage is compliant with the Deed Restriction.

The signed certification will be included in the Site Management Report (see Section 5.3).

5.3 Site Inspections

5.3.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a Site-wide inspection will be conducted:

- Annually, or as otherwise approved by the NYSDEC;
- When a breakdown of the treatment systems has occurred; and
- Whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.3.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system (refer to Appendices F, K and L. Additionally, a general Site-

wide inspection form will be completed during the Site-wide inspection (see Appendix H). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records (including all sampling data of any media at the Site and system maintenance reports) generated for the Site will be included in the Site Management Report.

5.3.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The Site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and RAR - Volume 3.

5.4 Site Management Report

The Site Management Report will initially be submitted annually and will be submitted by September 15^{th,} .or as otherwise approved by the NYSDEC. Other activities such as indoor air monitoring reports will be submitted subsequent to each sampling event, or as determined by NYSDEC. with those results also incorporated into the Site Management Report. The report will include:

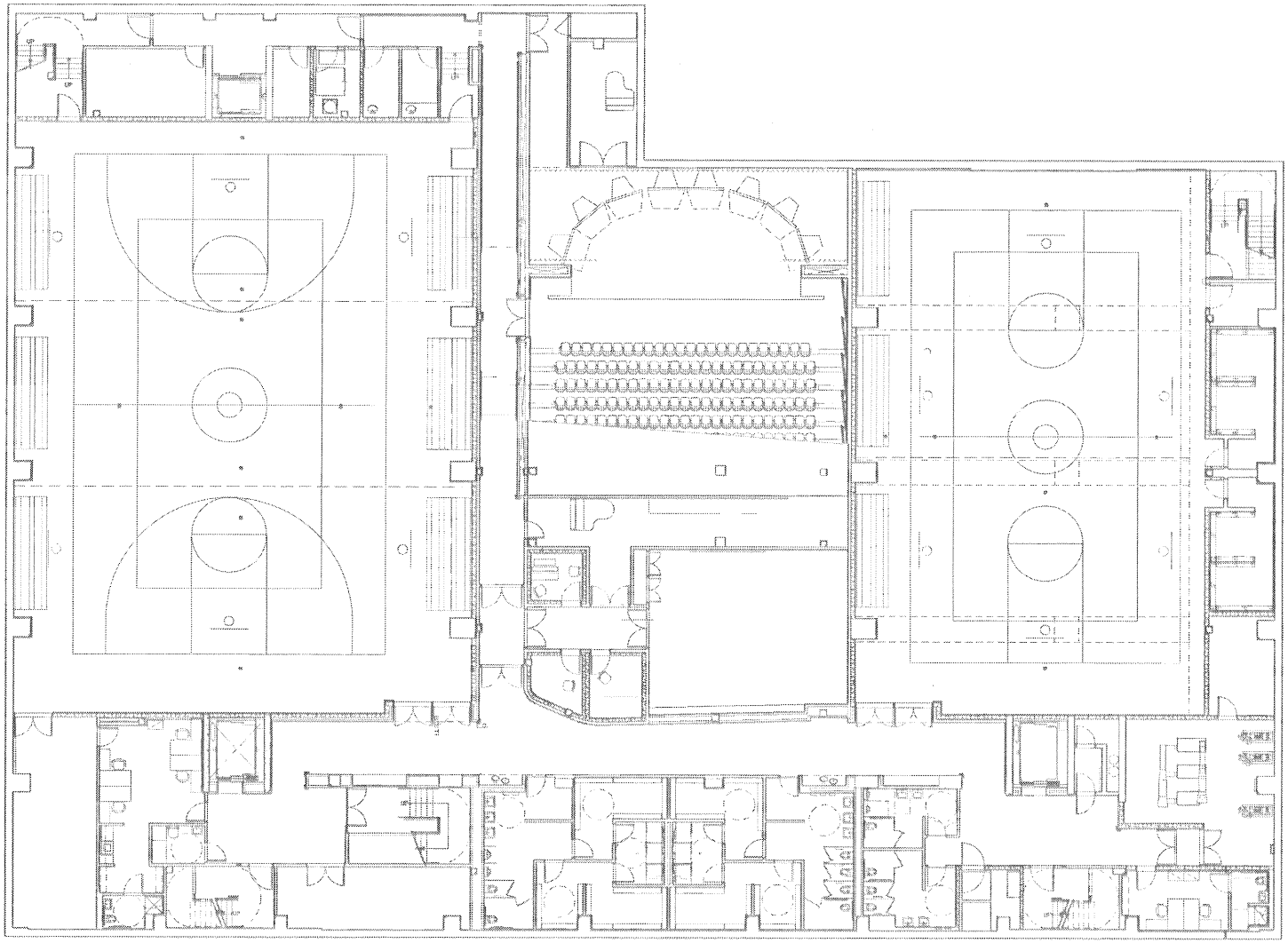
- EC/IC certification;
- All applicable inspection forms and other records generated for the Site during the reporting period;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;

- Cumulative data summary tables and/or graphical representations of contaminants of concern by media , which include a listing of all compounds analyzed along with the applicable standards, with all exceedances highlighted;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables required for all points sampled during the reporting period (also to be submitted electronically in the NYSDEC-specified format);
- A performance summary for all treatment systems at the Site during the reporting period, including information such as:
    - The number of days the system was run for the reporting period;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A summary of the performance and/or effectiveness monitoring;
    - Comments, conclusions, and recommendations based on data evaluation; and
    - Description of the resolution of performance problems.
- A Site evaluation, which will address the following:
    - The compliance of the remedy with the requirements of the Site-specific RAWP and RAR - Volume 3;
    - The performance and effectiveness of the remedy;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored; and
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan.
- A figure showing sampling locations, and significant analytical values at sampling locations; and
- Comments, conclusions, and recommendations, based on an evaluation of the information included in the report, regarding EC/ICs at the Site.

The Site Management Report will be submitted, in hard-copy format, to the Region 2 NYSDEC offices, located at 41-40 21st Street, Long Island City, New York, and in electronic format to NYSDEC and NYSDOH.

Figure 1

Site Diagram



NO SCALE

Source: Langan Engineering and Environmental Services, 2005.

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Pearl River, NY 10965

Lower Level 2 Floor Plan

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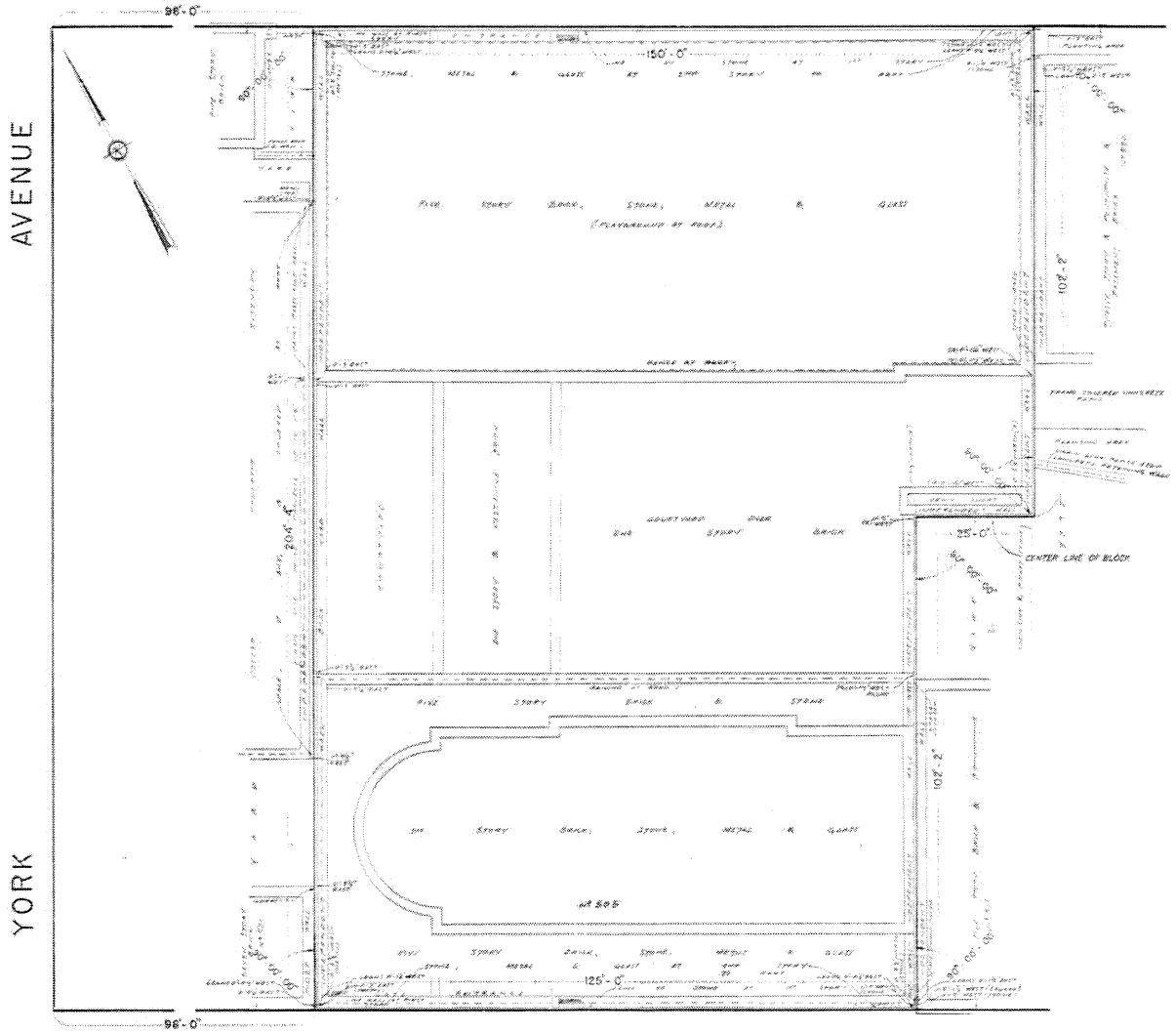
Figure 1

Figure 2

Site Boundary

EAST 76TH. STREET



EAST 75TH. STREET

NO SCALE

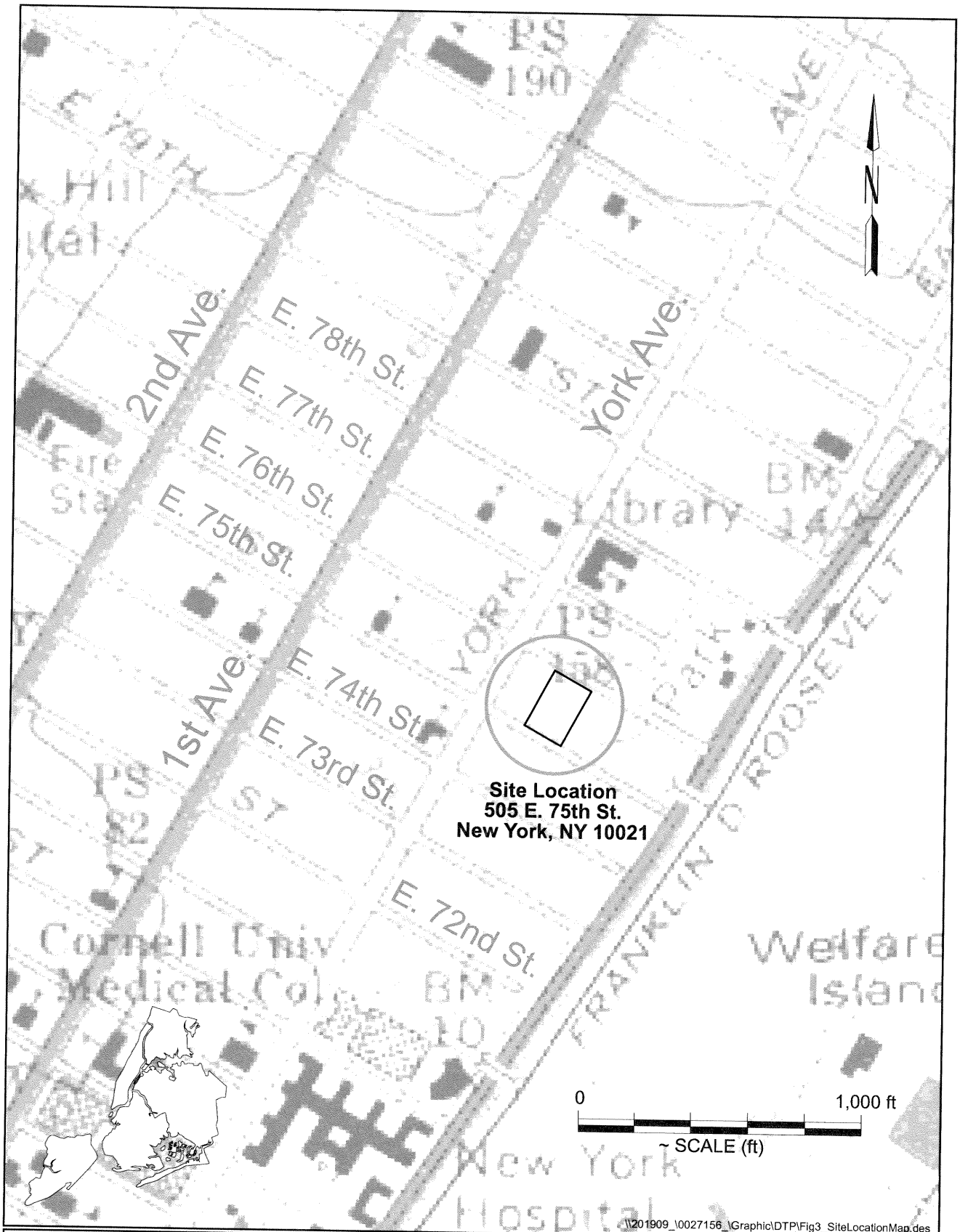
Map source: Harwood Surveying P.C., Dec. 12, 2007

\\201909_\0027156_\Graphic\DTP\Fig2_SiteBoundary.des

HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C. in association with HDR Engineering, Inc. One Blue Hill Plaza Pearl River, NY 10965	**Site Boundary** LYCÉE FRANÇAIS • NEW YORK	Figure 2

Figure 3

Site Location Map

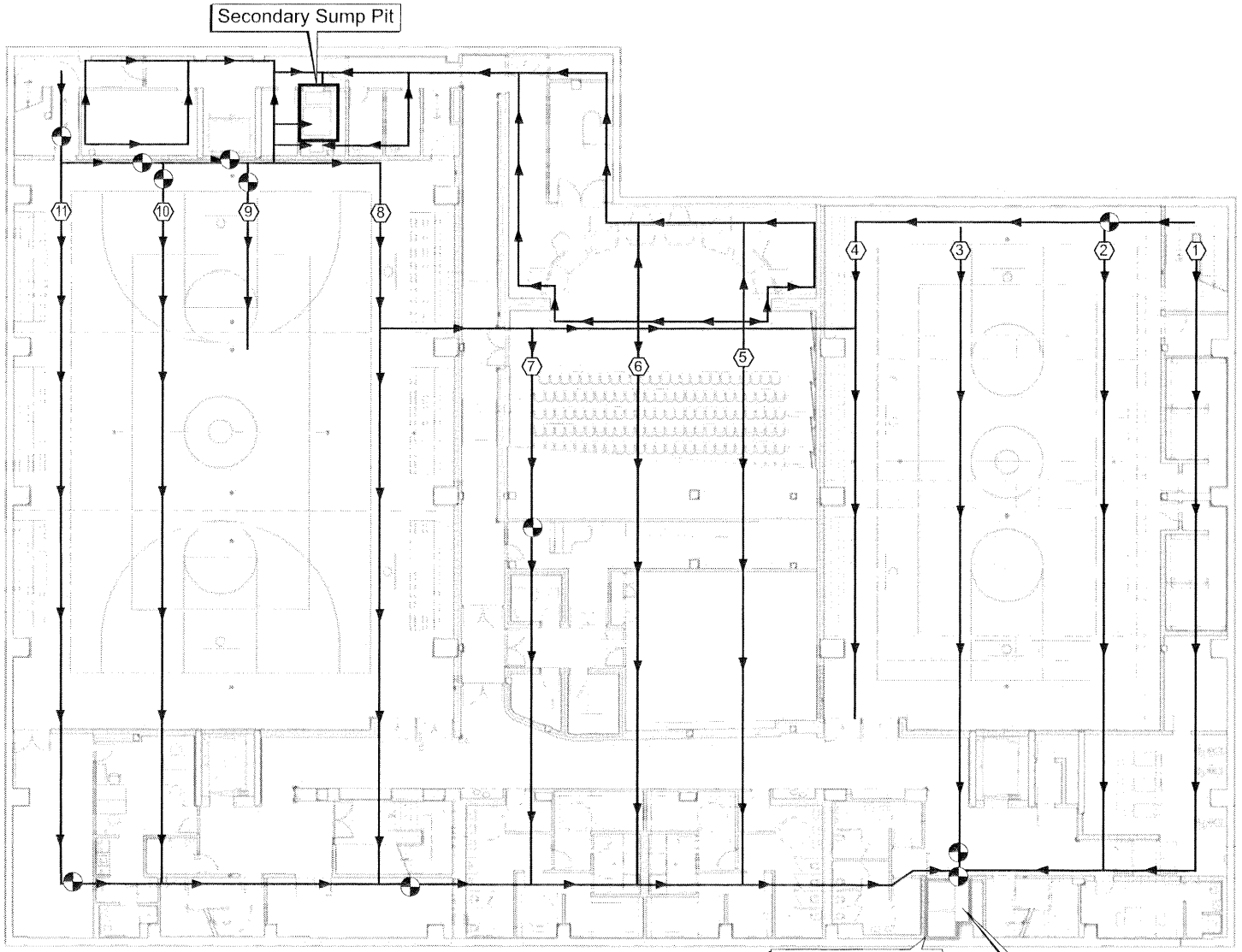


\\201909_\0027156_\Graphic\DTP\Fig3_SiteLocationMap.des

HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C. in association with HDR Engineering, Inc. One Blue Hill Plaza Pearl River, NY 10965	**Site Location Map** LYCÉE FRANÇAIS • NEW YORK	**Figure 3**

Figure 4

Cleanout Locations Diagram



NO SCALE

Legend As built cleanout location

Source: Langan Engineering and Environmental Services, 2005.

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As Built Cleanout Locations

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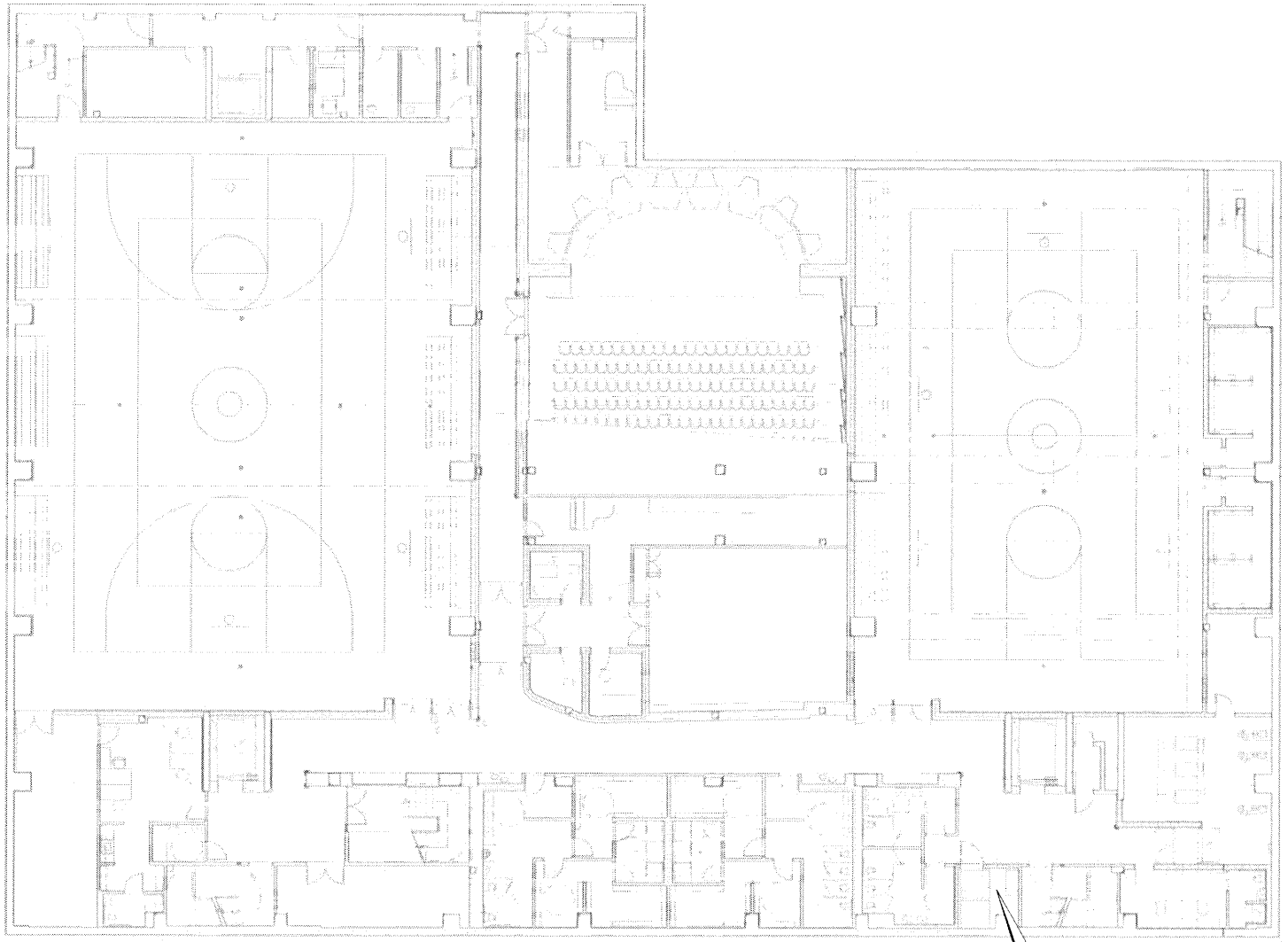
Figure 4

Figure 5

Groundwater Treatment System



NO SCALE

Source: Langan Engineering and Environmental Services, 2005.

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One Blue Hill Plaza
Pearl River, NY 10965

Groundwater Treatment System Location

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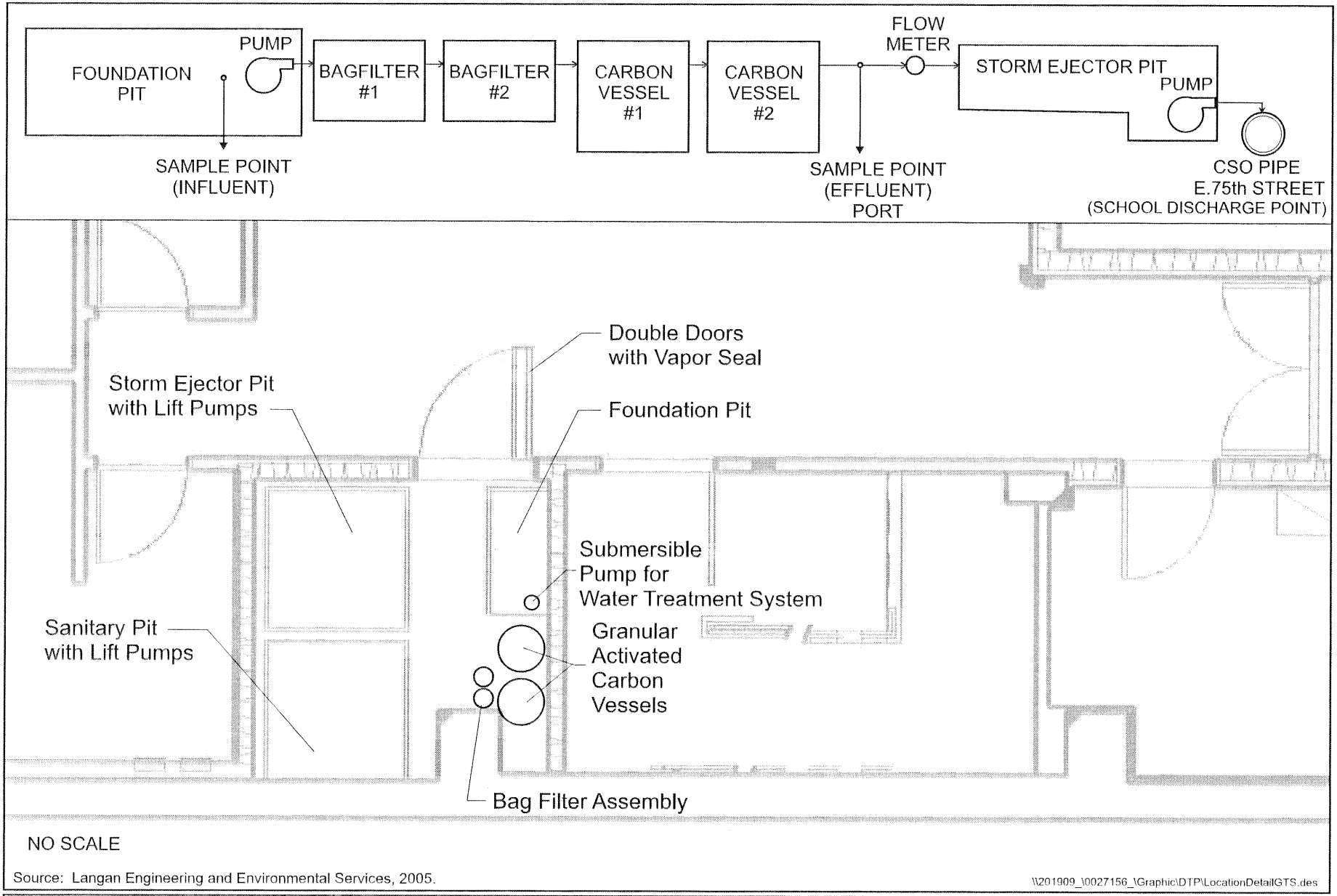
Figure 5-a



NO SCALE

Source: Langan Engineering and Environmental Services, 2005.

\\201909_\0027156_\Graphic\DTP\LocationDetailGTS.des

HDR

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Components of the Groundwater Treatment System

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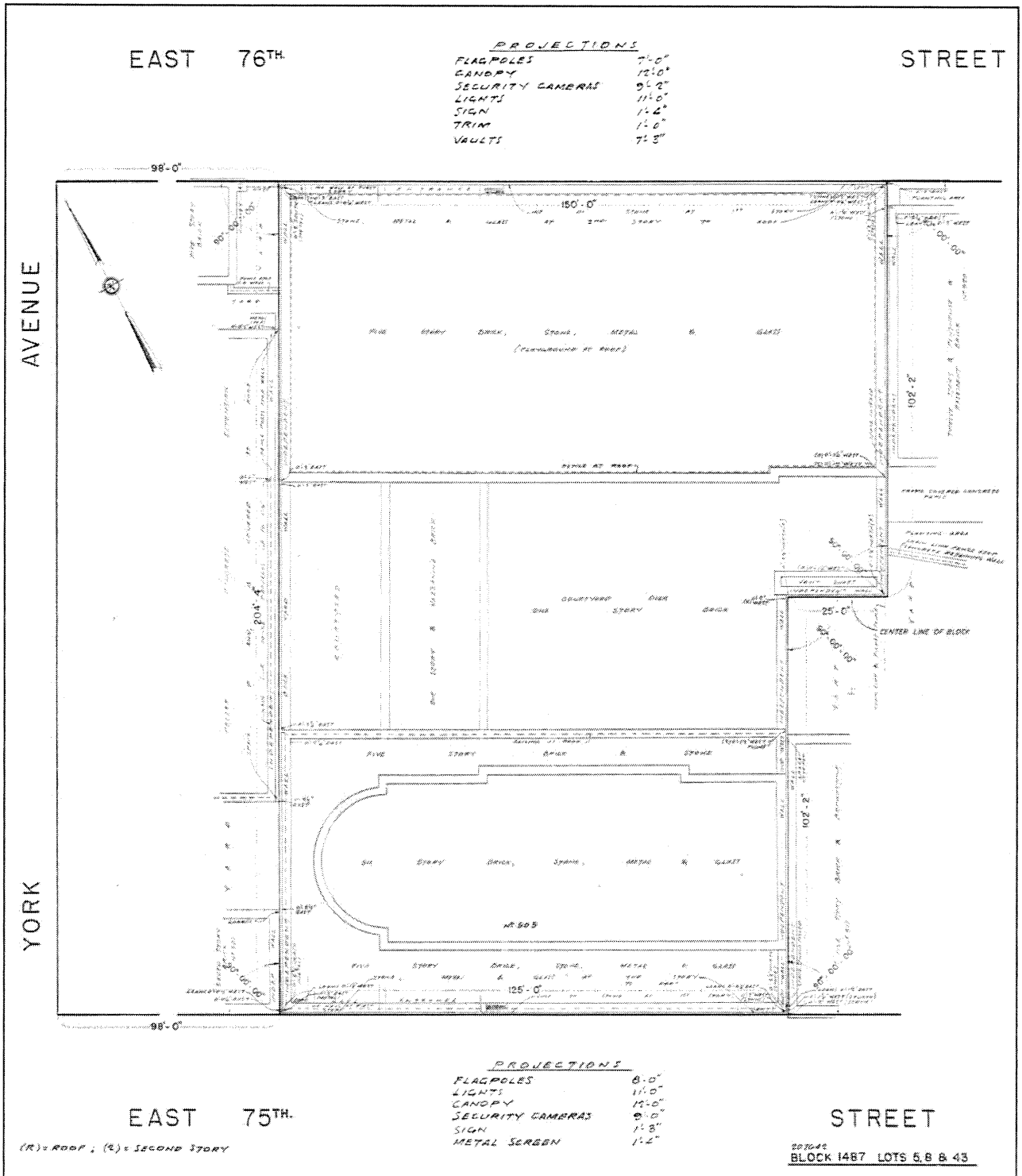
Figure 5-b

Appendix A

Metes and Bounds



NO SCALE

Map source: Harwood Surveying P.C., Dec. 12, 2007

\\201909_\0027156_\Graphic\DTP\Fig2_SiteBoundary.des

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Metes and Bounds

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Appendix B

Remedial Action Information

The following information was obtained from AKRF's *Voluntary Cleanup Assessment* dated December 1, 2000; *Remedial Action Report – Volume I*, dated July 29, 2003, and *Draft Remedial Action Report – Volume* 3, dated March 2008.

Geo-technical Borings (1986)

The Haller Drilling Company, Inc. performed a geophysical survey of the East 75th Street / East 76th Street property in October of 1986, which included eleven borings. The borings generally found the site to contain a layer of miscellaneous fill material to be located directly beneath the building foundations, followed by a layer of sand with some silt and gravel. The boring log for Boring B8, located midway along the east wall of the 507 to 509 East 75th Street building, stated that two attempts were made, and an oil tank was hit at approximately 1.5' below grade in the first location

Site Geology and Subsurface Characteristics

The surface topography slopes down to the east, towards the nearby East River. Based on reports compiled by the U.S. Geological Survey, the property lies at an elevation of approximately 20 feet above mean sea level, with respect to the National Geodetic Vertical Datum of 1929. Geotechnical borings of the project site by the Haller Drilling Company Inc. (October 1988) show the following depths to bedrock:

- 7.5 to 12.5 feet below grade at 502-504 East 76th Street,
- 1.5 to 9.5 feet below grade at 506-512 East 76th Street,
- 3.5 feet below grade at 503-505 East 75th Street, and
- 1.5 to 5 feet below grade at 507-509 East 75th Street.

No distinct water-bearing zone was identified by the geotechnical borings; rather water trapped by the bedrock (i.e. perched water) was encountered at some boring locations above bedrock at four - eight feet below grade. Groundwater, if present, will most likely flow in an easterly direction toward the East River. However, actual groundwater flow at the site can be affected by many factors including past filling activities, underground utilities and other subsurface openings or obstructions, basements, bedrock geology, tidal fluctuations, and other factors. Groundwater in Manhattan is not used as a source of potable water.

AKRF, Inc. performed a Phase II investigation on the site in 1996, which found bedrock to be located directly beneath the concrete building slabs underneath the two-story structure at 503-505 East 75th Street and the four-story structure at 506-512 East 76th Street. At locations beneath the four-story structure at 507-509 East 75th Street and the paved area between the East 75th and East 76th Street buildings, bedrock was encountered at depths between four and nine feet below existing grade.

Remedial Action Information

Phase 1 Remediation occurred prior to the preparation of the VCP Work Plan, while the former on-site structures were standing. Phase 2 Remediation occurred after the VCP Work Plan had

been submitted to NYS DEC and after the on-site structures had been demolished. Phase 3 Remediation occurred during general excavation for the current structure. All material above bedrock (foundation concrete, tanks and soil) and at least ten feet of bedrock were removed from the site during Phase 3 Remediation and general excavation activities. Because all of the materials left on-site after Phase 1 and Phase 2 remediation were removed during Phase 3, the Phase 3 data describe the final condition of the site.

A Data Usability Summary Report (DUSR) was prepared for all analytical data collected during remedial activities on the East 75th/East 76th Street site, including characterization samples, endpoint samples and weep samples. The DUSR is provided as Appendix B of RAR-Volume I. The DUSR determined that the data is usable for the purpose of this investigation.

American Analytical Laboratories of Farmingdale, NY performed laboratory analysis during Phase 1 and Phase 2 Remediation. American Analytical Laboratories is a New York State Department of Health (NYSDOH) ELAP-certified laboratory (Certification No. 11418). Category A deliverables were received for analyses performed by American Analytical Laboratories. During a meeting with NYS DEC on June 16, 2001, NYS DEC requested that an NYSDOH CLP ELAP-certified laboratory perform any further laboratory analysis. In accordance with DER-10 2.1(b) and 2.1(f), Category B deliverables were received for Phase 3 endpoint samples from an ELAP CLP-certified laboratory, Severn Trent Laboratories of Shelton, CT (ELAP CLP Certification No. 10602). Complete laboratory deliverables are available upon request.

PHASE 1 REMEDIATION

An attempt to locate and remove suspected underground storage tanks (four 1,080-gallon former dry cleaning solvent tanks, two 550-gallon gasoline tanks and one 5,000-gallon oil tank) from the 507-509 East 75th Street building and aboveground storage tanks and drums from the four on-site buildings occurred from January 9-18 and January 29, 2001. All aboveground and four 1,080-gallon underground storage tanks were located and removed from the site during Phase 1 Remediation. The remaining 5,000-gallon underground oil tank was located and removed during Phase 2 Remediation and the two 550-gallon gasoline tanks were removed during Phase 3 Remediation.

Phase 1 Remediation was performed to gain a better understanding of the scope of contamination that would need to be addressed by the VCP Remedial Work Plan (February 2001). The VCP Remedial Work Plan summarized the Phase 1 Remediation and was prepared after the completion of this phase of remediation.

During Phase 1 Remediation, AKRF personnel directed and oversaw remedial activities and Brookside Environmental Services, Inc. coordinated the removal of storage tanks and their contents. Evidence of petroleum contamination was discovered on-site during these activities, therefore, a spill report was filed with the NYS DEC on January 11, 2001 (Spill No. 0011107).

Table 2 describes the source areas that were removed during Phase 1 Remediation.

These Source Areas are shown on Figure 3 in RAR-Volume I. Tanks and their contents were sampled, manifested, removed and disposed of off-site in accordance with federal, state and local regulations during Phase 1 Remediation (as shown on Table 3). No soil was removed from the site at this time. The wastes described above were manifested, as applicable, under EPA Identification Number NYR000092221.

Table 2
Phase 1 Remediation—Source Areas of Contamination

Number of Tanks	Capacity (gallons)	Source Type	Contents Disposed of Off-Site (as manifested)	Location
1	275	AST	4 x 55-gallon drums of petroleum solids	507-509 East 75th Street
4	1,080	UST	3,185-gallons of tetrachloroethene-contaminated water; 6 drums of tetrachloroethene - contaminated tank sludge; 2 drums of tetrachloroethene - contaminated solid tank bottoms; 2,340 gallons of solvent-contaminated petroleum waste; and 1,600-gallons of petroleum liquid waste contaminated with solvents	507-509 East 75th Street
10	35	AST	9 x 55-gallon drums of hydraulic oil	506-512 East 76th Street
15	55	drums	13 x 55-gallon drums (empty) and 2 x 55-gallon drums hydraulic oil	13 drums at 503-505 East 75th Street, 2 drums at 506-512 East 76th Street

Notes: AST=Aboveground Storage Tank
UST=Underground Storage Tank

Table 3
Phase 1 Remediation—Liquids Manifested for Off-Site Disposal

Date of Generation	Manifest Number(s)	Quantity	Hazardous Waste	Material (as manifested)	Disposal Facility
1/10/01	NJA 3192661 BR008049	3,185 gallons	X	Liquid NOS (F002)	E.I. duPont deNemours & Co., Inc., NJ
1/12/01	SC0080*	2,340 gallons	X	Liquid NOS (F002, F005)	Southeastern Chemical & Solvent, Sumter, NJ
1/18/01	003	1 drum		Petroleum Mixture Liquid (N003) (hydraulic oil was water)	Clean Water of NY, Staten Island, NY
		1 drum		Petroleum Mixture Solid (N011) (PPE with oil)	
1/18/01	8561	8 drums		Hydraulic Oil	Clean Water of NY, Staten Island, NY
		2 drums		Petroleum Mixture Solid (PPE)	
		1 drum		Petroleum Mixture (grease)	
1/18/01	SC008085	5 drums	X	Liquid NOS (F002, F005)	Southeastern Chemical & Solvent, Sumter, NJ
		2 drums	X	Solid NOS (F002, F005)	

Table 3 Phase 1 Remediation—Liquids Manifested for Off-Site Disposal					
Date of Generation	**Manifest Number(s)**	**Quantity**	**Hazardous Waste**	**Material (as manifested)**	**Disposal Facility**
1/29/01	(Brookside) 006	2 drums		Petroleum Mixture, Liquid (N003) (hydraulic oil and water)	Clean Water of NY, Staten Island, NY

Notes: AST=Above Ground Storage Tank
UST=Underground Storage Tank
* Numbers not legible

The removal of contaminated soil associated with the four 1,080-gallon USTs was deferred to Phase 2 Remediation. Two soil samples were collected for characterization from soil located above and beneath the four former tanks. Laboratory analytical results indicated that this soil contained volatile organic compounds likely associated with petroleum products. No chlorinated VOCs were detected in either sample.

PHASE 2 REMEDIATION OVERVIEW

The VCP Remedial Work Plan was submitted to NYS DEC in February 2001. All four on-site structures were demolished during March and April 2001. Phase 2 Remediation occurred from April 10 to May 2, 2001. The purpose of Phase 2 Remediation was to locate and remove remaining USTs and associated contaminated soil in accordance with federal, state and local regulations.

During Phase 2 Remediation, AKRF personnel directed and oversaw remedial activities and Brookside Environmental Services, Inc. performed the removal and coordinated the disposal of USTs, their contents and contaminated soil.

Source Area Removal

Table 4 describes the source areas of contamination that were removed during Phase 2 Remediation.

These Source Area Locations are shown on RAR-Volume I Figure 3. Tanks and their contents were sampled, manifested, removed and disposed of off-site in accordance with federal, state and local regulations during Phase 2 Remediation, as summarized in Table 5.

Table 4
Phase 2 Remediation
Source Areas of Contamination

Number of Tanks	Capacity (gallons)	Source Type	Contents Disposed of Off-Site (as manifested)	Location
1	5,000	UST	5,505-gallons of petroleum waste contaminated with solvents	507-509 East 75th Street
1	550	UST	515 gallons of gasoline/water mix	503-505 East 75th Street
1	550	UST	1,285-gallons of gasoline/water mix; and	506-512 East 76th Street
1	1,000	UST	8 x 55-gallon drums of petroleum tank bottoms	506-512 East 76th Street
2	n/a	elevator pistons	1,275-gallons of non-hazardous hydraulic oil/water mix; and 4 drums of hydraulic oil/sand/PPE mix	506-512 East 76th Street

Notes: UST = Underground Storage Tank
n/a = Not Applicable

Table 5
Phase 2 Remediation
Liquids Manifested for Off-Site Disposal

Date of Generation	Manifest Number(s)	Quantity	Hazardous Waste	Material (as manifested)	Disposal Facility
4/13/01	none visible	515 gallons		Gasoline mixture - flammable	Tyree, Farmingdale, NY
4/16/01	SC008085	5,305 gallons	X	Liquid NOS (D012, D039, F002, F003, F005)	Southeastern Chemical & Solvent, Sumter, NJ
4/18/01	45206	1,285 gallons		Water contaminated with gasoline (N018)	AB Oil Service Ltd., Bohemia, NY
4/29/01	42701 BR008421	1,600 gallons	X	Liquid NOS (D018, D039, F002, F003, F005)	Southeastern Chemical & Solvent, Sumter, NJ
4/30/01	8757	8 drums		Waste oil sludge	MXI Environmental, Abingdon, VA
4/30/01	04301 BR0085001	4 drums	X	Liquid NOS (F002, F005)	Southeastern Chemical & Solvent, Sumter, NJ

Soil Removal

During and after tank removal, any associated contaminated soil (determined through visual and olfactory observations and/or PID readings) was stockpiled on plastic sheeting and sampled for volatile organic compounds (EPA Method 8260) and semi-volatile organic compounds (EPA Method 8270 toxic characteristic leaching procedure [TCLP]). For each excavation area, one sample was additionally analyzed for pesticides (EPA Method 8081), polychlorinated biphenyls (EPA Method 8082) and target analyte list metals.

Based on manifests and weigh tickets, a total of 343.44 tons of solvent-contaminated soil and 765.14 tons of non-hazardous contaminated soil were removed, as detailed in Table 6. At the start of Phase 2 Remediation, soil with chlorinated solvents was manifested as a hazardous waste. On May 2, 2001, NYS DEC issued a 'Contained-in Determination,' allowing solvent-contaminated soil to be managed as non-hazardous waste, provided certain conditions were met. Starting on May 7, 2001, soil was disposed of as non-hazardous waste in accordance with the criteria set forth in the Contained-in Determination.

Table 6
Phase 2 Remediation
Disposal Facilities for Contaminated Soil and Bedrock

Disposal Facility	Amount of Material Disposed (tons)	Type of Material
Wayne Disposal, Inc. 49250 N. I-94 Service Drive Belleville, Michigan 48111	343.44	Hazardous material
Waste Management - High Acres Landfill 425 Perrinton Parkway Fairport, NY 14450	765.14	Non-hazardous contaminated material

Phase 2 Endpoint Samples

Phase 2 Endpoint samples were collected at each excavation area when no soil staining, odor, or elevated PID readings were observed in the excavation, or when further excavation threatened to undermine the structural integrity of adjacent buildings and/or sidewalks. Phase 2 Remediation Endpoint Sample Locations are shown on RAR-Volume I Figure 4. All endpoint samples were analyzed for VOCs (EPA Method 8260) and SVOCs (EPA Method 8270 STARS) in accordance with the Work Plan, except for endpoint samples around the 550-gallon tank removed from 503-505 East 75th Street. Endpoint samples around this tank were analyzed for VOCs (EPA Method 8021 STARS) and SVOCs (EPA Method 8270 STARS), due to an error by the personnel conducting the sampling. Three endpoint samples (2C2, 2C3 and 2-507-10) were additionally analyzed for SVOCs (EPA Method 8270) and one endpoint sample (the Bottom sample from the tanks removed from 506-512 East 76th Street) was additionally analyzed for polychlorinated biphenyls (PCBs) (EPA Method 8081), pesticides (EPA Method 8082) and target analyte list (TAL) metals.

At four sampling locations (C-2, C-3, 507-10 and Bottom 503-505 75th), contaminated soil or bedrock was detected. At these locations, an additional approximately 10 feet of soil or bedrock were removed laterally and vertically and were disposed of at an appropriate facility. A second

round of endpoint samples was collected at these locations (2-C-2, 2-C-3, 2-507-10 and 2-Bottom 503-505 75th). No contaminated soil or bedrock was detected at these locations.

At the completion of Phase 2 Remediation at the East 75th/East 76th Street site, it was expected that only a limited area of petroleum-contaminated soil remained in the southwestern corner of the former 503-505 East 75th Street building. A 550-gallon gasoline tank was removed from this area. Excavation activities threatened to undermine the west-adjacent building and the south-adjacent sidewalk. The removal of this soil, therefore, was deferred to Phase 3 Remediation, which occurred during general excavation activities, when shoring was constructed to support the adjacent building and sidewalk.

Contained In Determination

At the start of Phase 2 Remediation, soil was being disposed of as a hazardous waste based on characterization sample analysis that showed the soil to contain solvent levels up to 180 parts per billion (ppb). On May 1, 2001, AKRF petitioned the NYS DEC to allow non-liquid on the Project Site contaminated with solvents at levels below 12 ppm (the lower of the EPA Generic Soil Screening Level for Ingestion or 10 times the Non-Waste Water Universal Treatment Standard) to be managed as a non-hazardous waste. On May 2, 2001, NYS DEC issued a "Contained In Determination," allowing this to occur as long as the material was disposed of in a solid waste landfill with a Part 360 permit, liner and leachate collection system, or in a thermal treatment unit with a Part 360 permit that allowed for the treatment of soil that met the 'Contained In' criteria. Starting on May 7, 2001 and continuing through the end of Phase 3 Remediation, soil not considered regulated waste was disposed of as a non-hazardous contaminated material at facilities with documentation showing they met the criteria set forth by NYS DEC. These facilities are listed in Tables 6 and 9.

PHASE 3 REMEDIATION OVERVIEW

Phase 3 Remediation occurred between January 28 and August 14, 2002, which coincided with general excavation for the proposed school. During the Phase 3 Remediation, four additional USTs were removed from the Project Site. Hydraulic oil was removed from two elevator pistons in the 506-512 East 76th Street portion of the site. The pistons were then power grouted and sealed in place. During this phase of remediation, it was discovered that the soil/bedrock interface consisted of weathered bedrock contaminated with organic contamination (and possibly degraded solvents, based on field observations). The contamination affected a layer of soil above the weathered bedrock, the weathered layer of bedrock, and fractured portions of competent bedrock. The bedrock on the East 75th Street portion of the site was located near to grade (approximately one to five feet below grade). Bedrock sloped down to the north to approximately fifteen to twenty feet below grade on the East 76th Street portion of the site. The layer of contamination within the soil/weathered bedrock zone varied in thickness from approximately four to ten feet below grade and was located throughout the project site footprint. These impacted materials along with impacted fractured zones of bedrock were removed from the site and disposed of as a non-hazardous waste.

During Phase 3 Remediation, AKRF personnel directed and oversaw the activities, Mayrich Construction Corp. performed the excavation of USTs and soil and Mayrich Construction Corp. and Brookside Environmental Services, Inc. arranged for disposal of wastes.

Tank Removal

Table 7 describes the tanks that were removed during Phase 3 Remediation.

Table 7 Phase 3 Remediation Source Areas of Contamination				
Number of Tanks	**Capacity (gallons)**	**Source Type**	**Contents Disposed of Off-Site (as manifested)**	**Location**
2	550	UST	885 gallons of petroleum/water mix	502-504 East 76th Street
2	550	UST	940 gallons of petroleum/water mix	507-509 East 75th Street

Note: UST = Underground Storage Tank

Tanks and their contents were manifested as non-hazardous waste and disposed of off-site in accordance with federal, state and local regulations, as detailed in Table 8. Contaminated soil associated with the two 550-gallon tanks at 502-504 East 76th Street was disposed of as petroleum-contaminated. This petroleum-contaminated soil extended vertically to the layer of weathered bedrock. Once bedrock was encountered in this area, this material was isolated and disposed of as non-hazardous waste, in accordance with the Contained In Determination. The two 550-gallon USTs at 507-509 East 75th Street were located within the solvent-contaminated weathered bedrock layer (i.e., at a depth of one to five feet below grade). This material was disposed of as non-hazardous waste. No other USTs were encountered during excavation activities to approximately 30 feet below grade across the site.

Table 8 Phase 3 Remediation - Liquids Manifested for Off-Site Disposal				
Date of Generation	**Manifest Number(s)**	**Quantity**	**Material (as manifested)**	**Disposal Facility**
1/29/02	051 54392	885 gallons	Water contaminated with gasoline (N018)*	AB Oil Service Ltd., Bohemia, NY
2/1/02	54392	945 gallons	Water contaminated with gasoline or oil (N018)*	AB Oil Service Ltd., Bohemia, NY

Note: * Liquid waste was disposed of as non-hazardous.

Contaminated Soil and Bedrock Removal

The solvent-contaminated weathered bedrock layer present across much of the Site was manifested and disposed of off-site as non-hazardous waste. Due to the large volume of contaminated material that required off-site disposal and the timing of the remediation (coinciding with general excavation), amendments to the protocol for screening, stockpiling and sampling contaminated material were made in the field.

Based on manifests and weigh tickets, a total of 284.59 tons of petroleum-contaminated soil and 28,734.41 tons of solvent-contaminated soil and bedrock were disposed of at the disposal facilities listed in Table 9 during Phase 3 Remediation.

Table 9
Phase 3 Remediation
Disposal Facilities for Contaminated Soil and Bedrock

Disposal Facility	Amount of Material Disposed (tons)	Type of Material
Mt. Hope Recycling 625 Mt. Hope Road Wharton, NJ 07885	284.59	Petroleum-contaminated
Waste Management High Acres Landfill 425 Perrinton Parkway Fairport, NY 14450	2177.59	Non-hazardous contaminated
Rapp Road Landfill Rapp Road Albany, NY	5,249.64	Non-hazardous contaminated
Town of Colonie Landfill NYS Route 9 and Crescent Road Colonie, NY	1,786.48	Non-hazardous contaminated
Town of North Hempstead Port Washington Landfill 802 West Shore Road Port Washington, NY 11050	19,520.70	Non-hazardous contaminated

Piston Remediation

After demolition of the 506-512 East 76th Street building, two elevator piston shafts remained in the northeastern and northwestern corners of the former building footprint. The remediation of the pistons was discussed with NYS DEC in meetings on March 7 and March 11, 2002 and a scope of work for vacuuming pistons of remaining fluid and grouting them in place was agreed to by NYS DEC and AKRF. A memorandum regarding this Scope of Work for piston remediation was prepared by AKRF on March 6, 2002. The hydraulic fluid in the pistons was sampled for PCB content (EPA Method 8081) on March 7, 2002. No PCBs were detected. Hydraulic fluid was vacuumed from the piston shafts on March 12, 2002 and March 14, 2002. On March 14, 2002, the pistons were power grouted with concrete. Once the general excavation reached final grade in the location of the pistons, the pistons were cut flush with grade, vacuumed of contents and grouted in place with concrete. This occurred on April 12, 2002 for the piston in the northeastern corner of the former 506-512 East 76th Street building footprint and on June 11, 2002 for the piston in the northwestern corner. Table 10 lists the materials generated during piston removal.

Table 10 Phase 3 Remediation – Piston Removal Liquids Manifested for Off-Site Disposal				
Date of Generation	**Manifest(s)**	**Quantity**	**Material (as manifested)**	**Disposal Facility**
2/30/02	(AB) 055	35 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY
3/7/02	(AB)	40 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY
3/11/02	(AB)	300 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY
3/12/02	APV 06403	2 drums	Oily sand and PPE	Penn Ohio, Ashtagola, LA
3/14/02	(AB) 055775	500 gallons	Oily water	AB Oil Service Ltd., Bohemia, NY

Note: PPE= Personal Protective Equipment

Phase 3 Endpoint Sampling

Thirty endpoint samples of soil and bedrock were collected by AKRF personnel from the sidewalls and base of the final excavation during Phase 3 Remediation: six from each sidewall and six from the base of the excavation. Sampling locations were selected to characterize the sidewalls of the final excavation, but were biased towards areas of potential contamination. Phase 3 Endpoint Sample Locations are shown on RAR-Volume I Figure 5. Samples were screened with a PID and then placed in sample jars using dedicated, disposable sampling spoons. Each sample was analyzed for volatile organic compounds (EPA Method 8260). One of every five samples collected was additionally analyzed for semi-volatile organic compounds (EPA Method 8270), polychlorinated biphenyls (EPA Method 8081), pesticides (EPA Method 8082) and TAL Metals.

Endpoint samples were collected between February 21 and June 27, 2002 as targeted portions of the sidewalls were uncovered during general excavation. Between two and seven samples were collected in each sampling event. In accordance with two e-mails dated February 26, 2002 from Sondra Martinkat at NYS DEC to Marcus Simons at AKRF, one trip blank and one field blank were collected over the duration of endpoint sampling and one duplicate sample, one matrix spike sample and one matrix spike duplicate sample were collected for each seven day period when endpoint sampling occurred. The trip blank and field blank were collected on February 21, 2002. This sampling protocol remained the same for the duration of the endpoint sampling period.

Additionally, LMS obtained confirmatory data for final soil and rock endpoint samples collected at the site. LMS collected endpoint samples at three locations (with all samples analyzed for VOCs, and one of the samples also analyzed for metals and PCBs). LMS sample results were found to be generally consistent with data obtained by AKRF from samples collected at corresponding locations.

Volatile Organic Compounds

Tetrachloroethene was detected in only one sample location, W1 (-13'), at a concentration of 13 ppb. Low levels of carbon disulfide, 2-butanone, methylene chloride and acetone were detected in various endpoint samples, all at levels below NYS DEC's Technical and Administrative Guidance Memorandum (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCOs).

Methylene chloride and acetone were determined to be laboratory artifacts, as both parameters were detected in laboratory blanks.

Two of the samples analyzed for VOCs, N1 (-10') and W4 (-18'), were analyzed at high dilutions. According to Paul Hobart of STL Laboratories in Shelton, Connecticut, as evidenced by the chromatograms for these samples, a high concentration of late eluting non-target compounds, characteristic of petroleum hydrocarbons, was present in both samples. The samples were analyzed by the medium level preparation, resulting in sample dilution of 1:125.

Semivolatile Organic Compounds

Bis(2-ethylhexyl)phthalate was detected in five of the six endpoint samples analyzed for semi-volatile organic compounds (N1[-10'], N3[-3'], S1[-2'], S3[-3'], and W5[-17']). This compound was detected in both the equipment blank and in laboratory blanks. Its presence in the five samples is likely either a laboratory or field artifact. No semi-volatile organic compounds were detected in the sixth endpoint sample, Base 3(-30').

Three other phthalates (di-n-butylphthalate, butylbenzylphthalate and di-n-octylphthalate) were detected in N1(-10'), all at levels below their respective reporting limits and well below TAGM RSCOs. Phthalates are often used in plastics. The dedicated, disposable plastic spoons used to collect all endpoint samples may have contaminated the samples.

The only other SVOC detected in N1(-10') was phenanthrene, a polycyclic aromatic hydrocarbon, detected below the reporting limit of 45 ppb, which is well below the TAGM RSCO of 50,000 ppb.

No other semi-volatile organic compounds were detected in any of the endpoint samples.

Metals

Nine metals (barium, beryllium, cadmium, chromium, copper, iron, magnesium, nickel and zinc) were detected above TAGM 4046 RSCOs in soil samples. The RSCOs also allow for the use of site background as alternative criteria. Although no site background concentrations were established for the site, the similarity of metals concentrations among the soil samples suggests that the soils may represent site background and do not suggest any contaminated area of the site. Six of the metals that exceeded RSCOs (cadmium, chromium, copper, magnesium, nickel and zinc) exceeded the upper limit of their respective Eastern U.S. Background ranges. Neither the TAGM RSCOs nor the Eastern U.S. Background ranges are risk-based cleanup levels. When compared with US EPA Generic Soil Screening Levels (SSLs, health-based levels), the detected levels of metals in soil, with the exception of arsenic, are below levels that would be expected to pose a hazard to human health even if routine exposure were to occur. Arsenic was detected in two endpoint samples at levels below 2 ppm. Per TAGM 4046, the Eastern US Background range is 3 to 12 ppm for arsenic. However, EPA risk-based levels of 0.4 ppm are exceeded in almost all native soil in the US. Exposure will not occur because the foundation for the school occupies the entire site boundary and all soil within the building site has been removed and disposed of off-site. The concentrations of metals detected at the site were consistent with those of typical urban fill.

Polychlorinated Biphenyls

No PCBs were detected in any of the six endpoint samples analyzed.

Pesticides

Dieldrin, alpha-chlordane and gamma-chlordane were detected in soil sample N1 (-10') at levels below TAGM 4046 RSCOs. No other pesticides were detected in any of the samples.

Endpoint Sampling Summary

Low levels of volatile organic compounds, semi-volatile organic compounds, metals and pesticides were detected in various endpoint soil samples. Nine metals were detected above TAGM RSCOs, seven of which were detected above the upper limit of the Eastern U.S. Background levels. No other parameters were detected above TAGM RSCOs. The excavation sidewalls have been capped completely with a concrete foundation for the school and a water/vapor barrier, eliminating potential exposure pathways.

Weep Sampling

During Phase 3 Remediation, groundwater weeps were observed in bedrock sidewalls at four locations, as shown in Figure 6. Groundwater weeps were discussed with NYSDEC in a meeting on March 7, 2002 and NYS DEC recommended sampling the weep water. Weep samples were collected for sample analysis by either holding sample jars beneath the weep and catching the liquid, or by placing a dedicated, disposable metal coring tube into the bedrock sidewall to channel water into sample jars. All weep samples were analyzed for volatile organic compounds (EPA Method 8260). Selected weep samples were additionally analyzed for semi-volatile organic compounds (EPA Method 8270), fluoride, total petroleum hydrocarbons, pH, MTBE, total suspended solids, target analyte list metals, polychlorinated biphenyls, pesticides, fingerprint, and additional, non-redundant, parameters set forth under "Routine Parameters" in the Water Quality Analysis Tables of 6 NYCRR Part 360-2.11.

A total of four weep samples (Weep 1 through Weep 4) were collected by AKRF from sidewalls on the project site on April 1, 15 and 19, 2003 and on June 9, 2003, respectively. Weep samples were collected as targeted portions of the sidewalls were uncovered during general excavation. Weeps were collected from reasonably accessible locations. Weeps were monitored for flow duration. Some weeps appeared to flow steadily and others ceased to flow after a couple of days. Because of the sporadic nature of the flows of the weeps, it was difficult to resample them.

One weep sample was collected in each sampling event. Quality Assurance/Quality Control Category B analysis was conducted in accordance with two e-mails dated February 26, 2002 from Sondra Martinkat at NYS DEC to Marcus Simons at AKRF. One field blank was collected during the duration of weep sampling. One trip blank was to accompany each weep sample to the laboratory; however, only three trip blanks were analyzed (with Weeps 1, 2 and 3). Due to a field error, a trip blank did not accompany Weep 4 to the laboratory. Duplicate samples, matrix spike samples and matrix spike duplicate samples were not collected during the sampling period because not enough water could be collected from the weep locations.

Additionally, LMS obtained data from water samples from excavation sidewalls (i.e., "seep" samples) for confirmatory and supplementary purposes. In total, LMS collected four seep samples. All samples were analyzed for VOCs. A subset of these samples was also analyzed for metals and miscellaneous sewer effluent/geochemical parameters.

Volatile Organic Compounds

All four weep samples (Weep 1 through Weep 4) were analyzed for volatile organic compounds by EPA Method 8260. Benzene, toluene, ethylbenzene and xylene, compounds typically

associated with gasoline and commonly known as BTEX, were detected in Weeps 3 and 4 at levels above Class GA Standards. Tetrachloroethene and its breakdown products (trichloroethene and cis-1,2-dichloroethene) were detected in Weeps 1 and 2. Weep 1 contained 33 ppb of tetrachloroethene and Weep 2 contained 65 ppb of tetrachloroethene, which are above the Class GA Standards of 5 ppb and the New York City Department of Environmental Protection (NYC DEP) Sewer Discharge Limit of 20 ppb. Because tetrachloroethene was exceeded both the Class GA Standard and the Sewer Discharge Criteria, a water treatment system was designed for construction dewatering activities. Weeps 1 and 2 were analyzed for methyl-tert-butyl-ether (MTBE), a gasoline additive commonly used since the late 1980s. MTBE was detected at a concentration of 40 ppb in Weep 2. No formally promulgated Class GA Standard or Guidance Value exists for MTBE, but the NYS DEC Sewer Discharge Limit is 10 ppb.

A total of five underground gasoline storage tanks were shown to be located on the project site in historical maps as late as 1951. These tanks were not shown in later maps and there is no documentation showing that any of the gasoline tanks were active after 1980, when MTBE began being added to gasoline. Although a total of five underground gasoline tanks were removed from the project site, because no documentation indicates that these tanks were active during the 1980s, it cannot be determined if the MTBE detected in Weep 2 originated from on- or off-site.

Semivolatile Organic Compounds

Weep 1 and Weep 2 were analyzed for semi-volatile organic compounds by EPA Method 8270. Bis(2-ethylhexyl)phthalate was detected in Weep 1 at a concentration of 98 ppb, above the Class GA Standard of 5 ppb. Phthalates are often used in plastics and are likely present in the samples due to sampling technique or laboratory cross-contamination, however, no phthalates were detected in laboratory or field blanks. There is no known source of bis(2-ethylhexyl)phthalate from historical or tank records. No other SVOCs were detected in either weep sample.

TAL Metals

Weep 1 and Weep 4 were analyzed for total TAL metals. Weep 4 was additionally analyzed for dissolved metals. Several metals were detected at levels exceeding Class GA Standards in the total and dissolved analysis. Weep water (groundwater) is not a potable source in Manhattan. In accordance with the foundation design for the school, weep water is collected by a leachate collection system and will be discharged into the NYC sewer system following pretreatment. Detected levels of metals in total and dissolved weep samples are below NYC DEP Sewer Discharge Criteria.

Polychlorinated Biphenyls

Weep 1 and Weep 3 were analyzed for polychlorinated biphenyls by EPA Method 8081. No PCBs were detected in either sample.

Pesticides

Weep 1 was analyzed for pesticides by EPA Method 8082. No pesticides were detected.

Non-Redundant Part 360 Parameters

Weeps 1 and 2 were analyzed for total petroleum hydrocarbons, pH, and total suspended solids. Weep 4 was analyzed for alkalinity (total as $CaCO_3$), biological oxygen demand (BOD), chemical oxygen demand (COD), hardness (total as $CaCO_3$), bromide, chloride, nitrate, ammonia, total Kjeldahl nitrogen, total organic carbon, total recoverable phenolics and total dissolved solids.

Weeps 1, 2, 3 and 4 were analyzed for fluoride. Fluoride was detected in all four weep samples at concentrations of 0.27 ppm, 0.094 ppm, 0.22 ppm and 0.22 in Weep 1, Weep 2, Weep 3 and Weep 4, respectively. Fluoride is not generally present at detectable levels in groundwater, but is likely present as an additive in city drinking water (up to 1 ppb). This suggests the presence of water from a leaking water main or sewer into the groundwater.

Weep Sampling Summary

Low levels of volatile organic compounds, semi-volatile organic compounds and metals were detected in weep samples, in some instances, at levels above Class GA Groundwater Standards. Weep water (groundwater) is not used as a potable drinking water source in Manhattan. Two volatile organic compounds, tetrachoroethene and MTBE were detected in weep samples at levels above NYC DEP Sewer Discharge Limits. A waterproofing/leachate collection system has been incorporated into the school's foundation that will protect the building foundation from VOCs, collect and treat the water, and discharge it into the NYC sewer system. A water treatment system was designed and implemented to remove volatile organic compounds in groundwater prior to discharge into the city sewer in accordance with NYC DEP discharge regulations.

Appendix C

Deed Restriction

Appendix D

Health and Safety Plan

HEALTH AND SAFETY PLAN

For

LYCEE FRANCAIS de NEW YORK
505 EAST 75TH STREET
NEW YORK, NEW YORK 10021

March 2008

HDR
One Blue Hill Plaza, 12th Floor
Pearl River, New York 10965

Project Number

147-27156

Table of Contents

List of Appendices

SITE SPECIFIC HEALTH & SAFETY PLAN:
TITLE PAGE
HDR Engineering, Inc.

PROJECT NAME: **Lycee Francais de New York**	PROJECT COMPANY: **Lycee Francais de New York**
JOB SITE ADDRESS: 505 East 75th Street, NY NY 10021	JOB NUMBER: 147-27156
PROJECT MANAGER: Michael Musso	PHONE NO.: Work (845) 735-8300; Cell (845) 304-9639
SITE CONTACT: Terrence Kennedy	PHONE NO.: Work (212) 439-3870; Cell (917) 710-7907

( ) AMENDMENT NO. _____ TO EXISTING APPROVED HASP - DATE EXISTING APPROVED HASP _____

OBJECTIVES OF FIELD WORK:

Perform/monitor intrusive construction work.

Field Activities Include:
Collect water, air and / or soil samples.

SITE TYPE: *Check as many as applicable*

(X) Active	( ) Landfill	( ) Natural
( ) Inactive	( ) Uncontrolled	( ) Military
(X) Secure	( ) Industrial	( ) Other specify:
( ) Unsecured	( ) Residential	
( ) Enclosed space	( ) Well Field	

DESCRIPTION AND FEATURES: *Summarize below. Include principal operations and unusual features (containers, buildings, dikes, power lines, hills, slopes, rivers)*

Residual TCE / PCE groundwater contamination from a remedial action that included removal of soil and bedrock contaminated with petroleum products and dry cleaning solvents. The existing building was constructed after the remedial action and a vapor barrier and groundwater treatment system are in place.

SURROUNDING POPULATION: ( ) Residential ( ) Industrial ( ) Rural (X) Urban ( ) Commercial: ( ) Other:

SITE SPECIFIC HEALTH & SAFETY PLAN
EMERGENCY CONTACTS & APPROVAL PAGE
HDR Engineering, Inc.

EMERGENCY CONTACTS			EMERGENCY CONTACTS	NAME	PHONE
EPA Region II		212- 637-3660	Project Manger	Michael Musso	845-735-8300
Site Telephone		(212) 439-3870	Health and Safety Officer	Michael Musso	845-304-9639
Poison Control Center		(800) 522-6337	National Response Center		1-800-424-8802
Fire Department		911	State Spill		800-457-7362
Police Department		911			
Number of 24-Hour Ambulance:		911			

1. Evacuation Routes will be specified by the HSO and communicated to all personnel on site.
2. Personnel will evacuate as directed by the HSO.
3. An INCIDENT REPORT form will be completed for all accidents (see Appendix A).

QA REVIEW: _____ Date:
HDR Office Safety Coordinator

Nearest Hospital Emergency Room Number:	New York Presbyterian Hospital	212-746-5454

HEALTH AND SAFETY PLAN APPROVALS

Project Manager: _____ Date

Site Health and Safety Officer _____ Date:

Route to Hospital is described on the following page with a map to the hospital on the next page.

SITE SPECIFIC HEALTH & SAFETY PLAN
HOSPITAL MAP ROUTE
HDR Engineering, Inc.

THIS PAGE RESERVED FOR HOSPITAL ROUTE MAP

Directions to New York Presbyterian Hospital from the site:

1. Head northwest on East 75th Street toward York Avenue (36 feet).

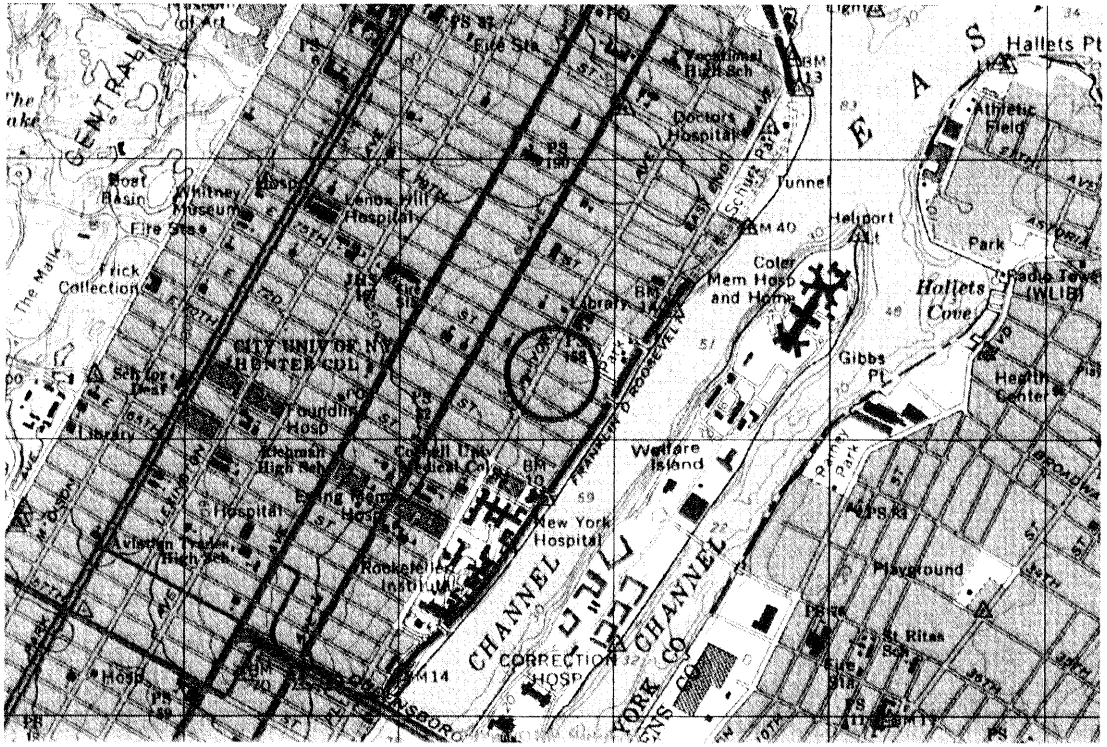
2. Turn left at York Avenue (0.4 miles).

3. Turn left at East 68th Street (89 feet)

Total Distance: 0.4 miles

Total Estimated Time: 4 minutes

SITE SPECIFIC HEALTH & SAFETY PLAN
HOSPITAL MAP ROUTE
HDR Engineering, Inc.



SITE SPECIFIC HEALTH & SAFETY PLAN
HISTORY AND WASTE CHARACTERIZATION PAGE
HDR Engineering, Inc.

HISTORY: Summarize site specific information below or attach information behind this page.

WASTE TYPES: ( ) Liquid ( ) Solid ( ) Sludge ( ) Gas ( ) Unknown (X) Other **specify**: dependent upon work to be performed.

WASTE CHARACTERISTICS: Check as many as applicable. N/A

( ) Corrosive ( ) Flammable ( ) Radioactive

( ) Toxic ( ) Volatile ( ) Reactive

( ) Inert Gas ( ) Unknown ( ) Other **specify**:

HAZARDS OF CONCERN: Check as many as applicable.

( ) Heat Stress attach guidelines See HDR H&S Pro #28

( ) Noise See HDR H&S Pro #26

( ) Cold Stress attach guidelines See HDR H&S Pro #29

( ) Inorganic Chemicals

( ) Explosive/Flammable

(X) Organic Chemicals

( ) Oxygen Deficient

( ) Motorized Traffic

( ) Radiological

( ) Heavy Machinery

( ) Biological See HDR H&S Pro #34

(X) Slips, Trips & Falls See HDR H&S Pro #3

( ) Other **specify**: CONFINED SPACES WILL NOT BE ENTERED.
(If confined spaces are to be entered a specific confined space entry plan will be developed)

PRINCIPAL DISPOSAL METHODS AND PRACTICES: Summarize Site Specific Conditions Procedures Below:

All disposal to be handled by Lycee Francais de New York subcontractors.

SITE SPECIFIC HEALTH & SAFETY PLAN
HAZARDOUS MATERIAL SUMMARY PAGE
HDR Engineering, Inc.

HAZARDOUS MATERIAL SUMMARY: **Underline and bold waste type** and estimate amounts by category (if possible)

CHEMICALS Amounts/Units:	SOLIDS Amounts/Units:	SLUDGES Amounts/Units: N/A	SOLVENTS Amounts/Units: N/A	OILS Amounts/Units: N/A	OTHER Amounts/Units: N/A
Acids	Flyash	Paint	Halogenated (chloro, bromo) Solvents	Oily Wastes	Laboratory
Pickling Liquors	Asbestos	Pigments	Hydrocarbons	Gasoline	Pharmaceutical
Caustics	Milling/Mine Tailings	Metal Sludges	Alcohols	Diesel Oil	Hospital
Pesticides	Ferrous Smelter	POTW Sludge	Ketones	Lubricants	Radiological
Dyes/Inks	Non-ferrous Smelter	Aluminum	Esters	PCBs	Municipal
Cyanides	Metals	Distillation Bottoms	Ethers	Polynuclear Aromatics	Construction
Phenols	Other	Other	Other	Other	Munitions
Halogens	Specify: spent carbon from groundwater treatment system.	Specify:	Specify:	Specify:	Other
Dioxins					Specify:
Other					
Specify: PCE/TCE-contaminated groundwater					

OVERALL HAZARD EVALUATION: ( ) High ( ) Medium (X) Low ( ) Unknown (Where tasks have different hazards, evaluate each. Attach additional sheets if necessary)
JUSTIFICATION: Based on prior groundwater and air sampling results.

SITE SPECIFIC HEALTH & SAFETY PLAN
HAZARDOUS MATERIAL SUMMARY PAGE
HDR Engineering, Inc.

FIRE/EXPLOSION POTENTIAL: ( ) High ( ) Medium (X) Low ( ) Unknown

BACKGROUND REVIEW: (X) COMPLETE ( ) INCOMPLETE

SITE SPECIFIC HEALTH & SAFETY PLAN
CHEMICAL HAZARD TABLE PAGE
HDR Engineering, Inc.

KNOWN CONTAMINANTS	PEL/TLV ppm	IDLH ppm	SYMPTOMS/EFFECTS OF ACUTE EXPOSURE	PHOTOIONIZATION POTENTIAL
PCE	100 / 25	150	Eye, nose, throat, respiratory system; coughing, shortness of breath, pulmonary edema; irritation; nausea; flushed face, neck; dizziness, incoordination; headache; drowsiness, unconsciousness; skin erythema, drying, cracking, mild to moderate burning sensation, dermatitis; liver damage; impaired color vision [potential occupational carcinogen] INGES ACUTE: Vomiting, diarrhea, bloody stool, loss of muscle control. **Health Effects:** Cumulative liver and CNS damage (HE3); Narcosis (HE8); Mutagen (HE2) **Affected organs:** Liver, kidneys, eyes, skin, respiratory system, CNS	NA
TCE	100 / 50	1,000	Irritation of eyes, skin; headache; visual disturbance; lassitude (weakness, exhaustion), dizziness; tremor; drowsiness, nausea; vomiting; dermatitis; cardiac arrhythmias; paresthesia; liver injury; potential male reproductive toxin; [potential occupational carcinogen] **Health Effects:** Narcosis (HE8); Cumulative systemic toxicity (HE3) Mutagen/Suspect carcinogen (HE2); Suspect teratogen (HE5) **Affected organs:** Kidneys, liver, eyes, skin, CNS, cardiovascular system kin irritant, CNS depressant, liver, kidney, lung damage	NA

NA = Not Available NE = None Established U = Unknown
S = Soil SW = Surface Water T = Tailings W = Waste
A = Air GW = Groundwater SL = Sludge D = Drums

SITE SPECIFIC HEALTH & SAFETY PLAN
TASK DESCRIPTION PAGE
HDR Engineering, Inc.

FIELD ACTIVITIES COVERED UNDER THIS PLAN - **ATTACH ACTIVITY HAZARD ANALYSIS FOR EACH TASK**				HAZARD SCHEDULE		
TASK DESCRIPTION/SPECIFIC TECHNIQUE-STANDARD OPERATING PROCEDURES/SITE LOCATION(Attach additional sheets as necessary)	Type	Primary	Contingency			
1 Mobilization/ Site Preparation	Intrusive	D	D	Hi	Med	Low
	X Non-intrusive		Exit Area			X
2. Sample Collection	Intrusive	D	D	Hi	Med	Low
	X Non-intrusive		Exit Area			X

PERSONNEL AND RESPONSIBILITIES (Include subcontractors) Responsibilities and the reporting organizational structure are described on the following page.

NAME	PHONE	DATE OF LAST TRAINING	DATE OF HEALTH CLEARANCE	RESPONSIBILITIES	ON-SITE?
Michael Musso	845-304-9639	N/A	N/A	PROJECT MANAGER	Yes
Michael Musso	845-304-9639	N/A	N/A	HEALTH AND SAFETY OFFICER	Yes

SITE SPECIFIC HEALTH & SAFETY PLAN
DESCRIPTION OF RESPONSIBILITIES AND ORGANIZATIONAL STRUCTURE PAGE
HDR Engineering, Inc.

1. Site Safety and Health Personnel.

The Site Health and Safety Officer (HSO) ensures that the provisions of this HASP are adequate and implemented in the field. The Project Manager is to take all necessary actions to guarantee site safety. Changing field conditions may require decisions to be made concerning adequate protection programs and may require deviations or additions to this HASP. All deviations and/or additions must be documented and approved by the HSO on the DEVIATIONS AND ADDITIONS form, located in Appendix B. Personnel assigned as HSO must be experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120 and this HASP. The HSO is also responsible for conducting site inspections on a regular basis in order to ensure the effectiveness of this plan.

2. Organizational Structure and Responsibilities

Briefly describe the responsibilities of all team members and denote the reporting structure.

1. Project Manager

- **a.** Overall responsibility for project schedule;
- **b.** Develop cost estimates for work identified.
- **c.** Identify scope of work and estimate schedule for work;
- **d.** Determine the technical/field team;

2. Site Health and Safety Officer (HSO)

- **a.** Maintain daily field log book and a health and safety file for the project;
- **b.** Conduct safety meetings.
- **c.** Monitor on-site hazards and conditions;
- **d.** Enforce safety procedures;
- **e.** Designate facilities, and equipment for health and safety;
- **f.** Select, dispense, and ensure availability of Personal Protective Equipment (PPE);
- **g.** Maintain copies of instrument operation manuals and maintain records of usage and calibration;
- **h.** Periodically inspect PPE and ensure proper storage and maintenance;
- **i.** Monitor for heat and cold stress;
- **j.** Set up decontamination lines, control decontamination, prepare decontamination solutions, and monitor;
- **k.** Train employees on emergency procedures and evacuation routes;
- **l.** Control entry and exit at the Access Control Points;
- **m.** Confirm an employee's suitability for work based on the physician's recommendation.

3. Other On-Site Personnel (report to "2")

SITE SPECIFIC HEALTH & SAFETY PLAN
PPE BY TASK PAGE
HDR Engineering, Inc.

PROTECTIVE EQUIPMENT: Specify by task. Indicate type and/or material as necessary. Use copies of this sheet if needed.

TASKS: 1 (X) Primary
LEVEL: D ( ) Contingency

Respiratory: (X) Not Needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: (X) Not Needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not Needed
(X) Boots: Leather steel-toed work boots
( ) Over boots:
( ) Rubber:

Protective Clothing: (x) Not Needed
( ) Encapsulated Suit:
( ) Splash Suit:
( ) Apron
( ) Tyvek Coverall:
( ) Saranex Coverall:
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Under gloves:
(X) Gloves:
( ) Over gloves:

( ) Other - specify below:

TASKS: 2 (X) Primary
LEVEL: D ( ) Contingency

Respiratory: (X) Not Needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: (X) Not Needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not Needed
(X) Boots: Leather steel-toed work boots
( ) Over boots:
( ) Rubber:

Protective Clothing: (X) Not Needed
( ) Encapsulated Suit:
( ) Splash Suit:
( ) Apron
( ) Tyvek Coverall: OPTIONAL
( ) Saranex Coverall:
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Under gloves: Latex
(X) Gloves:
( ) Over gloves: Chemical Resistant (Nitrile)

( ) Other - specify below:

TASKS: 1 - 2 - 3 - 4 - 5 - ___ ( ) Primary
LEVEL: A - B - C - D - Modified ( ) Contingency

Respiratory: ( ) Not Needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not Needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not Needed
( ) Boots: Leather steel-toed work boots
( ) Over boots:
( ) Rubber:

Protective Clothing: ( ) Not Needed
( ) Encapsulated Suit:
( ) Splash Suit:
( ) Apron
( ) Tyvek Coverall:
( ) Saranex Coverall:
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Under gloves:
( ) Gloves:
( ) Over gloves:

( ) Other - specify below:

TASKS: 1 - 2 - 3 - 4 - 5 - ___ ( ) Primary
LEVEL: A - B - C - D - Modified ( ) Contingency

Respiratory: ( ) Not Needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not Needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not Needed
( ) Boots: Leather steel-toed work boots
( ) Over boots:
( ) Rubber:

Protective Clothing: ( ) Not Needed
( ) Encapsulated Suit:
( ) Splash Suit:
( ) Apron
( ) Tyvek Coverall:
( ) Saranex Coverall:
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Under gloves:
( ) Gloves:
( ) Over gloves:

( ) Other - specify below:

SITE SPECIFIC HEALTH & SAFETY PLAN
SIGNATURE PAGE
HDR Engineering, Inc.

The following personnel have read and fully understand the contents of this Site Health and Safety Plan and referenced HDR H&S procedures and further agree to all requirements contained herein. Furthermore, the individuals are fully trained and have required clearances in accordance with HDR H&S Procedure #20. Attach copies of current HTRW and first aid training, medical clearance, and respiratory fit test records.

Name	Affiliation	Date	Signature

Appendix A
Accident Reporting

All accidents, injuries and illnesses which occur from performing project activities in this HASP require that the injured person and the Site Health and Safety Officer complete an INCIDENT REPORT and forward it to the Corporate Director of Safety, Mr. Jim Woolcott, in Omaha, Nebraska.

Incident Report

HDR Engineering, Inc.
8404 Indian Hills Drive
Omaha, NE 68114-4049
(402) 399-1000

Project Name:	Incident Location:
Project No.:	Date/Time of incident:
Project Manager/ employee supervisor:	Reported to Omaha, Date/Time/to Whom:

Person(s) affected:

Name:	Phone:

Witnesses:

Name:	Phone:

Health Care Treatment Facility Used:

Name:	Address:	Phone:

Treating Physician/Health Care Provider:

Name:	Phone:

Person(s) Treated:

Name:	Extent of Injuries:

Describe the Incident, the project activity being performed, and just how the incident occured (please be descriptive, use proper names, etc.):

Continued on Reverse

Specific recommendations, to prevent this incident from reoccuring:

Comments:

Reported by | Date of Report | Phone

For Use by Health and Safety Manager:

Number of Sheets Attached:

Forwarded:

Appendix B
Deviations and Additions Form

Deviations from and additions to this HASP are permitted and sometimes required based on additional information obtained since the preparation date of the HASP. The DEVIATIONS AND ADDITIONS form will be used to authorize and record all deviations and additions that occur after any one individual has signed this document. Changes in this HASP are only permitted with the following:

1. Written documentation of what the deviation or addition is and reference to the appropriate section from this HASP;
2. Written justification for the change;
3. Verbal communication of the change to all personnel who are directly affected and answering all questions regarding the change to the satisfaction of those same individuals; and
4. Signatures from all personnel who are affected by the change prior to commencing project activities on site with an approval signature from the Site HSO

Health and Safety Plan
Deviations and Additions

HDR Engineering, Inc.
8404 Indian Hills Drive
Omaha, NE 68114-4049
(402) 399-1000

Change 1: Section:

Description of Change:

Justification:

Safety Impact:

Signatures of Acknowledgement:

Resident Field Representative Date Date

Date Date

Date Date

Change 2: Section:

Description of Change:

Justification:

Safety Impact:

Signatures of Acknowledgement:

Resident Field Representative Date Date

Date Date

Date Date

Appendix E

NYSDEC Notification

SITE SUMMARY

The Denihan Company entered into a VCA (#V00425-2) with the NYSDEC. Aboveground and underground storage tanks were removed from the property, existing buildings were demolished, and contaminated soil to the property boundaries and at least 10 feet of bedrock was removed from the property.

After completion of the remedial work, some contamination was left in the subsurface at this Site. The residual groundwater contamination is managed in accordance with the SMP.

NAME OF CURRENT SITE OWNER

Lycee Francais de New York / Mr. Yves Theze

LOCATION OF THE SITE

505 East 75th Street, New York, New York 10021

CURRENT STATUS OF SITE REMEDIAL ACTIVITY

Operation, maintenance and monitoring of the institutional and environmental controls is on-going (refer to SMP).

COPY OF THE DEED RESTRICTION

A copy of the deed restriction is provided in Appendix C of the SMP.

CONTACT NAME AND PHONE NUMBER OF A PERSON KNOWLDEGABLE ABOUT THE DEED RESTRICTION'S REQUIREMENTS.

Mr. Paul Casowitz
Sive Paget & Riesel
460 Park Avenue #10
New York, NY 10022
212-421-2150

This information will be:

1. modified as conditions change;
2. revised in Appendix E of this document; and
3. submitted to NYSDEC in the Site Monitoring Report should the Deed Restriction be modified or terminated. The copy of the revised Deed Restriction will also be updated in this manner.

Appendix F

NYCDEP Discharge Permit and Authorization

The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION
59-17 Junction Boulevard
Flushing, New York 11373

Emily Lloyd
Commissioner

Douglas S. Greeley, P.E.
Deputy Commissioner

Bureau of Wastewater Treatment

Tel. (718) 595-6389
Fax (718) 595-6950
dgreeley@dep.nyc.gov

August 28, 2007

HDR/LMS
One Blue Hill Plaza, 12th FL
Pearl River, NY 10965
Attn: Michael P. Musso, P. E.

Re: Groundwater Discharge
Lycee Francais de New York
File Case # C-3274

Dear Mr. Musso:

This Letter of Approval is an extension of the Letter of Approval issued on August 29, 2006.

This is in response to your August 21st and August 28, 2007 submissions requesting for the permission to discharge up to **6,000 gallons per day (gpd)** of groundwater treated through a system containing bag-filters and granular activated carbon units, per provided schematic, continuously **for a period of one year**, to the on-site combined sewer of the property at 505 East 75th Street leading to the Combined sewer located at 75th Street between York Avenue and the FDR Drive in Manhattan, NY.

Based upon the information, schematic and analytical data submitted, you are hereby conditionally authorized to discharge up to 6,000 gpd of groundwater, treated through the above system, per provided schematic and information, as specified in your submission, for a period of one year to the on-site combined sewer at the above mentioned location. This Letter of Approval shall expire at midnight on August 27, 2008.

This conditional approval, however, is subject to your obtaining a groundwater discharge Approval, specifying allowable flow rates, from the Division of Connections and Permitting, Bureau of Water and Sewer Operations, if discharges exceed 10,000 gpd. **This Letter of Approval is contingent upon permitte's compliance with any other Federal, State or Local laws applicable to the permitted activity**

You must properly maintain the selected equipments. In addition, you are required to hold the groundwater to the maximum extent practicable during heavy wet weather events. **Any further changes in the above pretreatment system without written approval from this office are prohibited.**

Payment shall be made to the Bureau of Customer Service for groundwater discharge into the New York City Wastewater System in accordance with the Water and Wastewater Rate Schedule established by the New York City Water Board.

This Letter of Approval is an order of the Commissioner of the Department of Environmental Protection. Please be advised that failure to comply with this Letter of Approval may result in the issuance of Notices of Violation (returnable to the New York City Environmental Control Board). Notices of Violation carry penalties of up to $10,000 a day, per violation and/or revocation of the Letter of Approval.

If you have any questions concerning this matter, please telephone Mr. Alex Castro, Assistant Chemical Engineer, at (718) 595-4715. Refer to the File Case C-3274 in any correspondence to this office.

Sincerely,

Dwight For
Frances Leung, P.E., Chief,
IPP Inspection & Permit Section

HDR ONE COMPANY | *Many Solutions.*SM

HDR | LMS

27 August 2007
File: 147 53810

Mr. Saied Islam
New York City Department of Environmental Protection
Bureau of Wastewater Pollution Control
Division of Pollution Prevention & Monitoring
Industrial Pretreatment Program Inspection & Permit Section
96-05 Horace Harding Expressway, 1st Floor
Corona, New York 11368

Re: NYCDEP Discharge Permit Renewal – Water Treatment System
Lycee Francais de New York, DEP File Case # C-3274

Dear Mr. Islam:

This letter was prepared by HDR/LMS on behalf of Lycee Francais de New York to request a one year renewal of the existing NYCDEP Discharge Permit for the above-referenced project. The existing discharge permit expires on August 28, 2007, so your attention to this request is appreciated.

Enclosed please find a data table with the laboratory results from recent groundwater treatment system effluent sampling (August 2, 2007) and a Site Plan. As illustrated on the table, all analytical results are non-detect and/or within NYCDEP effluent limitations for discharges to Sanitary or Combined Sewers. A copy of the laboratory report is also enclosed.

On behalf of Lycee Francais de New York, HDR/LMS continues to coordinate the operation, maintenance, and monitoring (OM&M) of the water treatments system (i.e., tracking flow, carbon usage). One carbon change-out has occurred in the past 12 months, based on carbon use calculations and observed flows throughout the year. New granular activated carbon was most recently installed in August 2007. None of the conditions listed for the letter of approval issued on August 29, 2006 have changed. Note that the treated groundwater will continue to discharge to the combined sewer located at 75th Street, between York Avenue and the FDR Drive, in Manhattan.

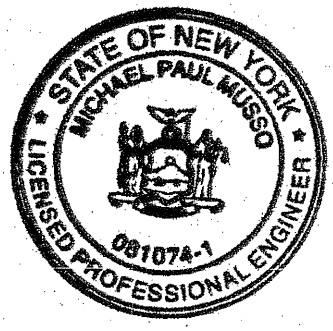
Depending on actual flow conditions, it is anticipated that one or two carbon change-outs will occur in the next twelve months. Please call if you have any questions or require any additional information.

Sincerely,

Michael P. Musso

Michael P. Musso, P.E.

cc: Terrence Kennedy (Lycee Francais)



HDR | LMS
Henningson, Durham & Richardson Architecture and Engineering, P.C.
in association with HDR Engineering, Inc.

One Blue Hill Plaza
Floor 12
Pearl River, NY 10965-3104

Phone: (845) 735-8300
Fax: (845) 735-7466
www.hdrinc.com

East 75th/East 76th Street Site
New York, New York

HDR|LMS Sample ID Sampling Date Matrix	South West Pit Effluent 39296 Water	Units	NYCDEP Limitations for Effluent to Sanitary or Combined Sewers
pH	8.8	pH units	5 - 11
Temperature (field reading 8/2/2007)	21.9 C	temp	< 150 F
Flash Point	> 140 F	Deg F	> 140 F
Methyl tert-butyl ether	not detected	ppb	50
Benzene	not detected	ppb	134
Toluene	not detected	ppb	74
Tetrachloroethene	not detected	ppb	20
Ethylbenzene	not detected	ppb	380
Xylene (Total)	not detected	ppb	74
Naphthalene	not detected	ppb	47
Total Suspended Solids	not detected	mg/l	350
Chromium VI	not detected	mg/l	5
Cadmium	not detected	mg/l	2
Copper	not detected	mg/l	5
Lead	not detected	mg/l	2
Mercury	not detected	mg/l	0.05
Nickel	0.0100	mg/l	3
Zinc	0.0100	mg/l	5
Oil and Grease, HEM (Non-Polar material)	not detected	mg/l	50
PCBs *	not detected	ppb	1
CBOD *	6.42	mg/l	none
Chloride *	355	mg/l	none
Total Solids *	960	mg/l	none
Total Nitrogen *	0.581	ppm	none

* Observed flow << 10,000 gpd, therefore, sampling of this parameter was not required.

AMERICAN ANALYTICAL LABORATORIES

NYSDOH 11418
NJDEP NY050
CTDOH PH-0205
PADEP 68-00573

Friday, August 10, 2007

Michael Musso
HDR / LMS
One Blue Hill Plaza
Pearl River, NY 10965

TEL: (845) 735-8300
FAX (845) 735-7466

RE: E. 75th Street 147-53810

Order No.: 0708040

Dear Michael Musso:

American Analytical Laboratories, LLC. received 2 sample(s) on 8/3/2007 for the analyses presented in the following report.

Samples were analyzed in accordance with the test procedures documented on the chain of custody and detailed throughout the text of this report.

The limits provided in the data package are analytical reporting limits and not Federal or Local mandated values to which the sample results should be compared.

There were no problems with the analyses and all data for associated QC met laboratory specifications. If there are any exceptions a Case Narrative is provided in the report.

If you have any questions regarding these tests results, please do not hesitate to call (631) 454-6100 or email me directly at lbeyer@american-analytical.com.

Sincerely,

Lori Beyer
Lab Director

American Analytical Laboratories, LLC.

Date: *10-Aug-07*

CLIENT: HDR / LMS
Project: E. 75th Street 147-53810
Lab Order: 0708040

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Date Collected	Date Received
0708040-01A	Southwest Pit Influent 8-2-0		8/2/2007 4:40:00 PM	8/3/2007
0708040-02A	Southwest Pit Effluent 8-2-0		8/2/2007 5:35:00 PM	8/3/2007

AMERICAN ANALYTICAL LABORATORIES
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027

TAG # / COC _____

NYSDOH 11418
CTDOH PH-0205
NJDEP NY050
PADEP 68-573

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS
HDR/LMS
ONE BLUE HILL PLAZA, 13th FL
PEARL RIVER, NY 10965-8509

CONTACT:
MIKE MUSSO
845-735-8300
x231

SAMPLER (SIGNATURE)

SAMPLE(S) SEALED YES / NO

SAMPLER NAME (PRINT)
CAROL ZURLO

CORRECT CONTAINER(S) YES / NO

PROJECT LOCATION:
E. 75th Street 147-53810

LABORATORY ID #	MATRIX	# CONTAINERS	SAMPLING DATE/ TIME	SAMPLE # - LOCATION	ANALYSIS REQUIRED: see below *	NYC DEP sewer discharge parameters	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
070840-01	L	2	8/2/07 1640	Southwest pit influent 8-2-07	X		
02	L	7	8/2/07 1735	Southwest pit effluent 8-2-07		X	

*PCE; TCE; cis-1,2 DCE; vinyl chloride; via method 8260 only
influent temp = 21.9°C effluent temp = 21.3°C

COOLER TEMPERATURE:

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL
TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED:
NORMAL ☐ STAT ☒ BY 8/10/07

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE 8/2/07 TIME 6:15 PM	PRINTED NAME CAROL ZURLO	RECEIVED BY LAB (SIGNATURE)	DATE 8/3/07 TIME	PRINTED NAME Lori Beyer
RELINQUISHED BY (SIGNATURE)	DATE TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE TIME	PRINTED NAME

WHITE-OFFICE / CANARY-LAB / PINK-SAMPLE CUSTODIAN / GOLDENROD-CLIENT

American Analytical Laboratories, LLC.
56 Toledo Street
Farmingdale, NY 11735-
TEL: *6314546100* FAX: *6314548027*

0708041
0708041

Rec'vd Date: 08/03/07 11:25

Y RECORD

Subcontractor:

Environmental Testing Laboratories
208 Route 109
Farmingdale, New York 11735

TEL: (631) 249-1456
FAX: (631) 249-8344
Acct #:

03-Aug-07

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests						
				E405.1						
0708040-02A	Liquid	8/2/2007 5:35:00 PM	MISC	1						

General Comments: Please analyze for CBOD; Due 8/10

		Date/Time		Date/Time
Relinquished by:	Chj Dunn	8-3-07 1125	Received by:	8/3 11:25
Relinquished by:			Received by:	

AMERICAN ANALYTICAL LABORATORIES, LLC
56 TOLEDO STREET
FARMINGDALE, NEW YORK 11735
TELEPHONE: (631) 454-6100 FAX: (631) 454-8027

DATA REPORTING QUALIFIERS

For reporting results, the following "Results Qualifiers" are used:

Value	If the result is greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
J	Indicates an estimated value. The flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3ug/L was calculated report as 3J. This flag is used when similar situations arise on any organic parameter i.e. Pesticide, PCBs and others.
B	Indicates the analyte was found in the blank as well as the sample report "10B".
E	Indicates the analytes concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide / PCB target analyte when there is >25% difference for detected concentrations between the two GC Columns. The higher of the two values is reported on Form I and flagged with a "P".
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
H	Indicates sample was received and/or analyzed outside of The method allowable holding time

American Analytical Laboratories, LLC.

Date: *10-Aug-07*

CLIENT:	HDR / LMS	**Client Sample ID:**	Southwest Pit Influent 8-2-07
Lab Order:	0708040	**Tag Number:**	
Project:	E. 75th Street 147-53810	**Collection Date:**	8/2/2007 4:40:00 PM
Lab ID:	0708040-01A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE BY METHOD SW-846 8260		**SW8260B**				Analyst: LDS
1,2-Dichloroethane	U	1.0		µg/L	1	8/3/2007 3:19:00 PM
cis-1,2-Dichloroethene	99	1.0		µg/L	1	8/3/2007 3:19:00 PM
Tetrachloroethene	280	1.0		µg/L	1	8/3/2007 3:19:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1	8/3/2007 3:19:00 PM
Trichloroethene	73	1.0		µg/L	1	8/3/2007 3:19:00 PM
Vinyl chloride	1.1	1.0		µg/L	1	8/3/2007 3:19:00 PM
Surr: 4-Bromofluorobenzene	97.2	54-134		%REC	1	8/3/2007 3:19:00 PM
Surr: Dibromofluoromethane	92.9	52-132		%REC	1	8/3/2007 3:19:00 PM
Surr: Toluene-d8	97.4	51-127		%REC	1	8/3/2007 3:19:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits
U	Indicates the compound was analyzed for but not detecte	X	Value exceeds Maximum Contaminant Level

American Analytical Laboratories, LLC.

Date: *10-Aug-07*

CLIENT:	HDR / LMS	**Client Sample ID:**	Southwest Pit Effluent 8-2-07
Lab Order:	0708040	**Tag Number:**	
Project:	E. 75th Street 147-53810	**Collection Date:**	8/2/2007 5:35:00 PM
Lab ID:	0708040-02A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
MERCURY		**SW7470A**				Analyst: JP
Mercury	U	0.000200		mg/L	1	8/3/2007 1:38:02 PM
PCB'S AS AROCLORS BY EPA 608		**E608**		**SW3510B**		Analyst: KF
Aroclor 1016	U	0.052		µg/L	1	8/7/2007 2:38:00 AM
Aroclor 1221	U	0.052		µg/L	1	8/7/2007 2:38:00 AM
Aroclor 1232	U	0.052		µg/L	1	8/7/2007 2:38:00 AM
Aroclor 1242	U	0.052		µg/L	1	8/7/2007 2:38:00 AM
Aroclor 1248	U	0.052		µg/L	1	8/7/2007 2:38:00 AM
Aroclor 1254	U	0.052		µg/L	1	8/7/2007 2:38:00 AM
Aroclor 1260	U	0.052		µg/L	1	8/7/2007 2:38:00 AM
Surr: DCB	45.3	11-125		%REC	1	8/7/2007 2:38:00 AM
Surr: TCX	63.6	16-126		%REC	1	8/7/2007 2:38:00 AM
VOLATILE EPA METHOD 601M		**E601**				Analyst: MB
1,1,1-Trichloroethane	U	0.50		µg/L	1	8/4/2007 6:29:00 AM
Carbon tetrachloride	U	0.50		µg/L	1	8/4/2007 6:29:00 AM
Chloroform	U	0.50		µg/L	1	8/4/2007 6:29:00 AM
Tetrachloroethene	U	0.50		µg/L	1	8/4/2007 6:29:00 AM
Surr: 4-Bromofluorobenzene	99.4	70-134		%REC	1	8/4/2007 6:29:00 AM
Surr: Dibromofluoromethane	102	70-135		%REC	1	8/4/2007 6:29:00 AM
Surr: Toluene-d8	96.6	64-128		%REC	1	8/4/2007 6:29:00 AM
VOLATILE NYCDEP EPA 602M		**E602**				Analyst: MB
1,2,4-Trichlorobenzene	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
1,4-Dichlorobenzene	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
Benzene	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
Ethylbenzene	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
m,p-Xylene	U	2.0		µg/L	1	8/4/2007 6:29:00 AM
Methyl tert-butyl ether	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
Naphthalene	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
o-Xylene	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
Toluene	U	1.0		µg/L	1	8/4/2007 6:29:00 AM
Surr: 4-Bromofluorobenzene	99.4	70-134		%REC	1	8/4/2007 6:29:00 AM
Surr: Toluene-d8	96.6	64-128		%REC	1	8/4/2007 6:29:00 AM
TEMPERATURE		**E170.1**				Analyst: KK
Temperature	70	0		°F	1	8/3/2007
NYCDEP METALS		**SW6010B**		**SW3010A**		Analyst: JP
Cadmium	U	0.0100		mg/L	1	8/10/2007 11:37:51 AM
Chromium	U	0.0200		mg/L	1	8/10/2007 11:37:51 AM
Copper	U	0.0200		mg/L	1	8/10/2007 11:37:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits
U	Indicates the compound was analyzed for but not detecte	X	Value exceeds Maximum Contaminant Level

American Analytical Laboratories, LLC.

Date: *10-Aug-07*

CLIENT:	HDR / LMS	**Client Sample ID:**	Southwest Pit Effluent 8-2-07
Lab Order:	0708040	**Tag Number:**	
Project:	E. 75th Street 147-53810	**Collection Date:**	8/2/2007 5:35:00 PM
Lab ID:	0708040-02A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
NYCDEP METALS		SW6010B		SW3010A		Analyst: JP
Lead	U	0.0150		mg/L	1	8/10/2007 11:37:51 AM
Nickel	0.0100	0.0200	J	mg/L	1	8/10/2007 11:37:51 AM
Zinc	0.0100	0.0200	J	mg/L	1	8/10/2007 11:37:51 AM
NITRITE AS N		E353.2				Analyst: JP
Nitrogen, Nitrite	U	0.0500		mg/L	1	8/10/2007
NITRATE AS N		E353.2				Analyst: JP
Nitrate	U	0.100		mg/L	1	8/10/2007
PHENOL		SW9066				Analyst: STP
Phenolics, Total Recoverable	0.0290	0.0100		mg/L	1	8/8/2007
TOTAL KJELDAHL NITROGEN		E351.2				Analyst: STP
Nitrogen, Kjeldahl, Total	0.581	0.500		mg/L	1	8/9/2007
TOTAL NITROGEN		TNITRO				Analyst: STP
Total Nitrogen	0.581	0.100		ppm	1	8/9/2007
CHLORIDE		M4500-C1 B				Analyst: JB
Chloride	355	1.00		mg/L	1	8/6/2007
HEXAVALENT CHROMIUM		SW7196A				Analyst: JB
Chromium, Hexavalent	U	10.0		µg/L	1	8/3/2007
IGNITABILITY/FLASHPOINT SW-846 1010		SW1010				Analyst: JB
Ignitability	>	140		°F	1	8/6/2007
EPA METHOD1664		E1664				Analyst: JB
SGT-HEM (Non-Polar Material)	U	1.40		mg/L	1	8/7/2007
CORROSIVITY		E150.1				Analyst: AH
pH	8.80	0		pH Units	1	8/3/2007
TOTAL SOLIDS		E160.3				Analyst: AH
Residue, Total	960	10.0		mg/L	1	8/6/2007
TOTAL SUSPENDED SOLIDS		E160.2				Analyst: AH
Suspended Solids (Residue, Non-Filterable)	U	1.00		mg/L	1	8/3/2007

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits
	U	Indicates the compound was analyzed for but not detecte	X	Value exceeds Maximum Contaminant Level

Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

08/08/2007

Laboratory Identifier: 0708041
Received: 08/03/2007 11:25

Client: American Analytical (03470)
56 Toledo Street
Farmingdale,
NY 11735

Project: American Analytical
NY
Area: 0708040

Manager: Lori Beyer

Respectfully submitted,

Technical Director

NYS Lab ID # 10969
NJ Cert. # 73812
CT Cert. # PH0645
MA Cert. # NY061
PA Cert. # 68-535
NH Cert. # 252592-BA
RI Cert. # 161

Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

08/08/2007

Carbonaceous Biochemical Oxygen Demand EPA 405.1

Sample: 0708041-1
Client Sample ID: 0708040-02A
Matrix: Liquid Type: Grab
Remarks:
Analyzed Date: 08/03/2007 11:40:50 AM

Collected: 08/02/2007 17:35

Analytical Results

Cas No	Analyte	MDL	Result	Units	Q
	C - BOD	1.50	6.42	mg/L	

Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

08/08/2007

ORGANIC METHOD QUALIFIERS

Q - Qualifier - specified entries and their meanings are as follows:

U - The analytical result is not detected above the Method Detection Limit (MDL). All MDL's are lower than the lowest calibration standard concentration.

J - Indicates an estimated value. The concentration reported was between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).

B - The analyte was found in the associated method blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

E - The concentration of the analyte exceeded the calibration range of the instrument.

D - This flag indicates a system monitoring compound diluted out.

INORGANIC METHOD QUALIFIERS

C - (Concentration) qualifiers are as follows:

B - Entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

U - Entered when the analyte was analyzed for, but not detected above the Method Detection Limit (MDL) which is less than the lowest calibration standard concentration.

Q - Qualifier specific entries and their meanings are as follows:

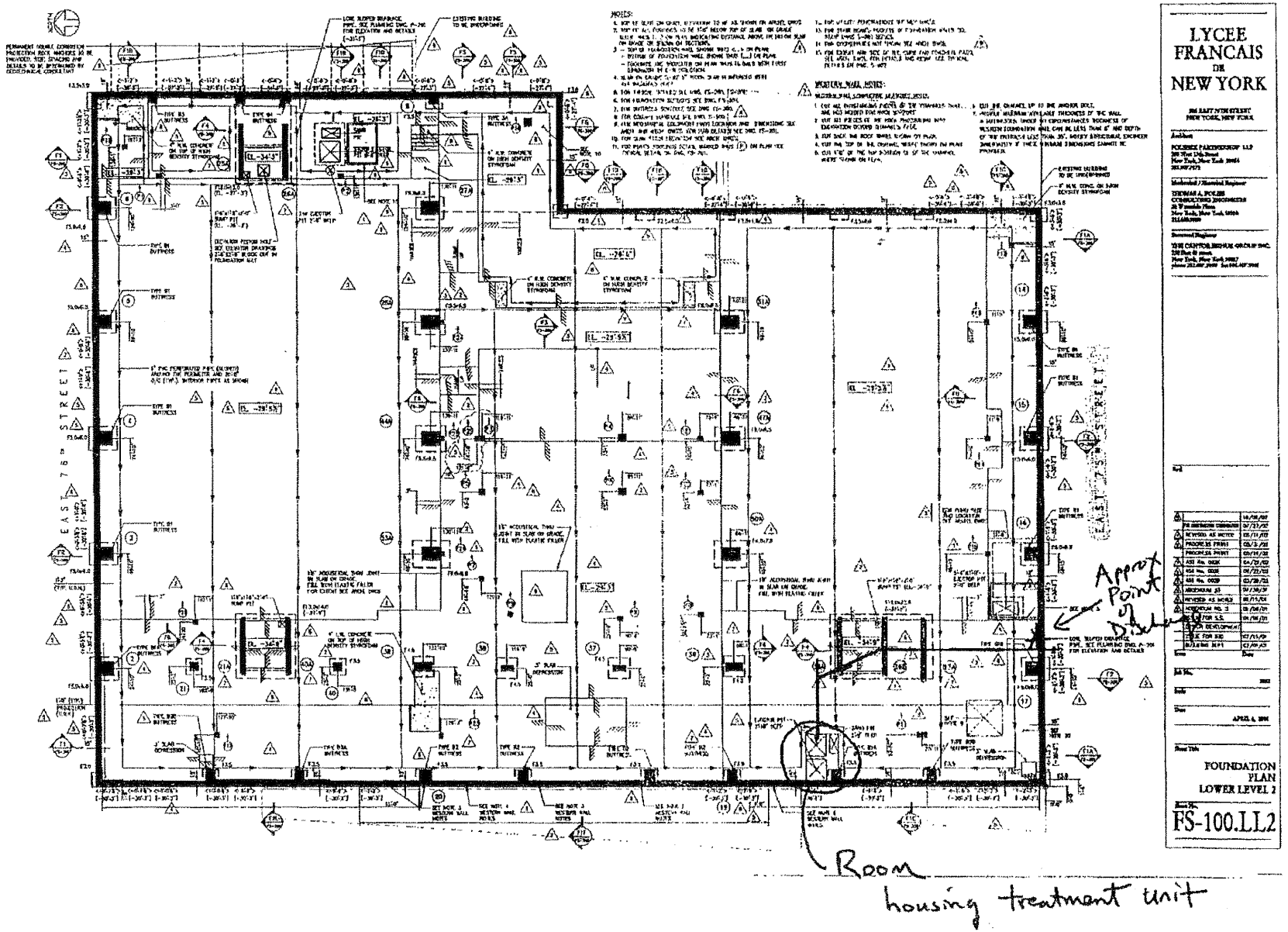
E - Reported value is estimated because of the presence of interferences.

M - (Method) qualifiers are as follows:

A - Flame AA
AS - Semi-automated Spectrophotometric
AV - Automated Cold Vapor AA
C - Manual Spectrophotometric
F - Furnace AA
P - ICP
T - Titrimetric

OTHER QUALIFIERS

ND - Not Detected



LYCEE FRANCAIS DE NEW YORK

FOUNDATION PLAN LOWER LEVEL 2

FS-100.LL2

FAX

To : Mr. Michael P. Musso, P.E.

From : Simon Gelin

Date : 8/28/06

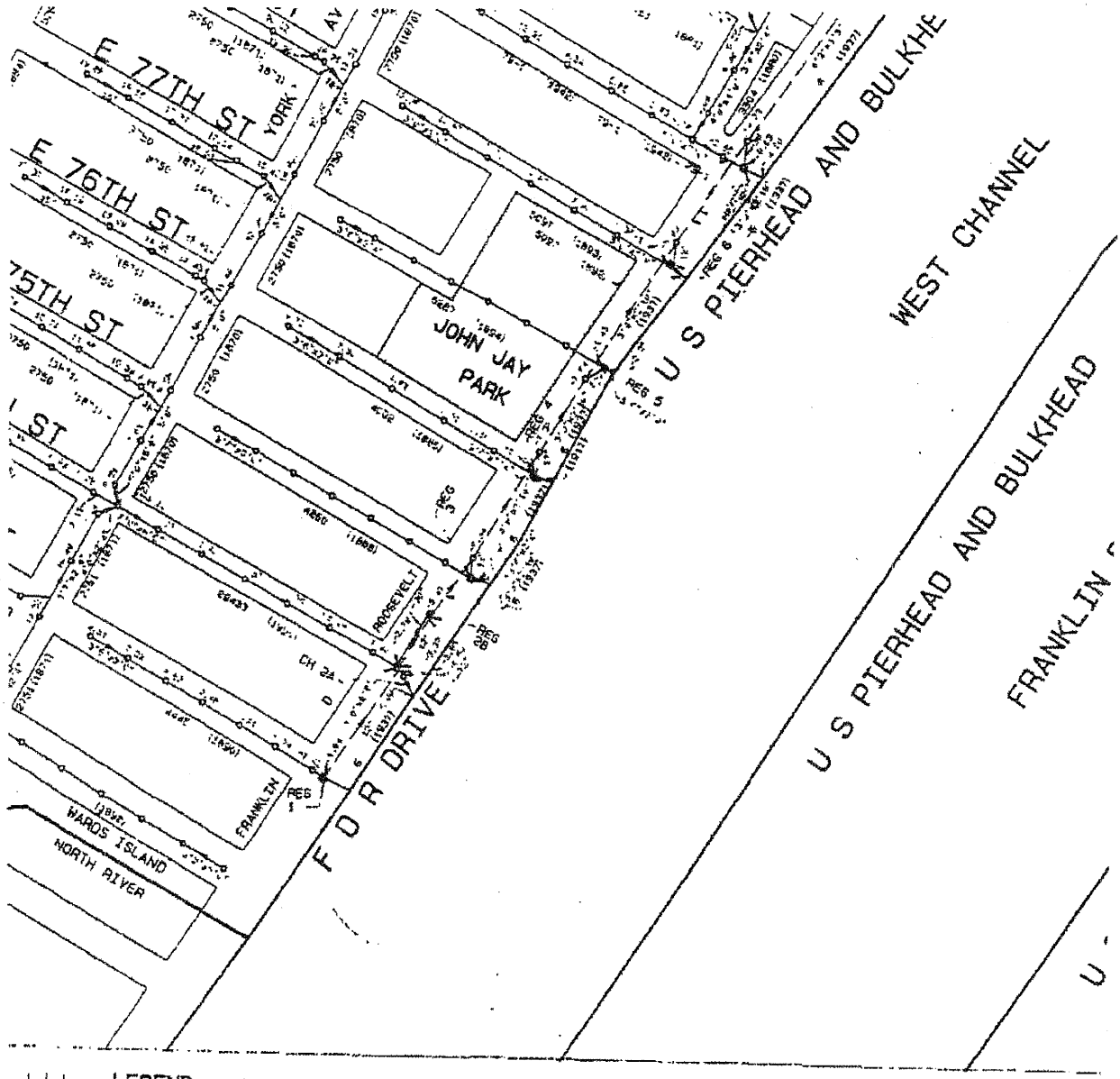
Fax # : (212) 545-5462

Re : Sewer information
E 75th E/o York Ave

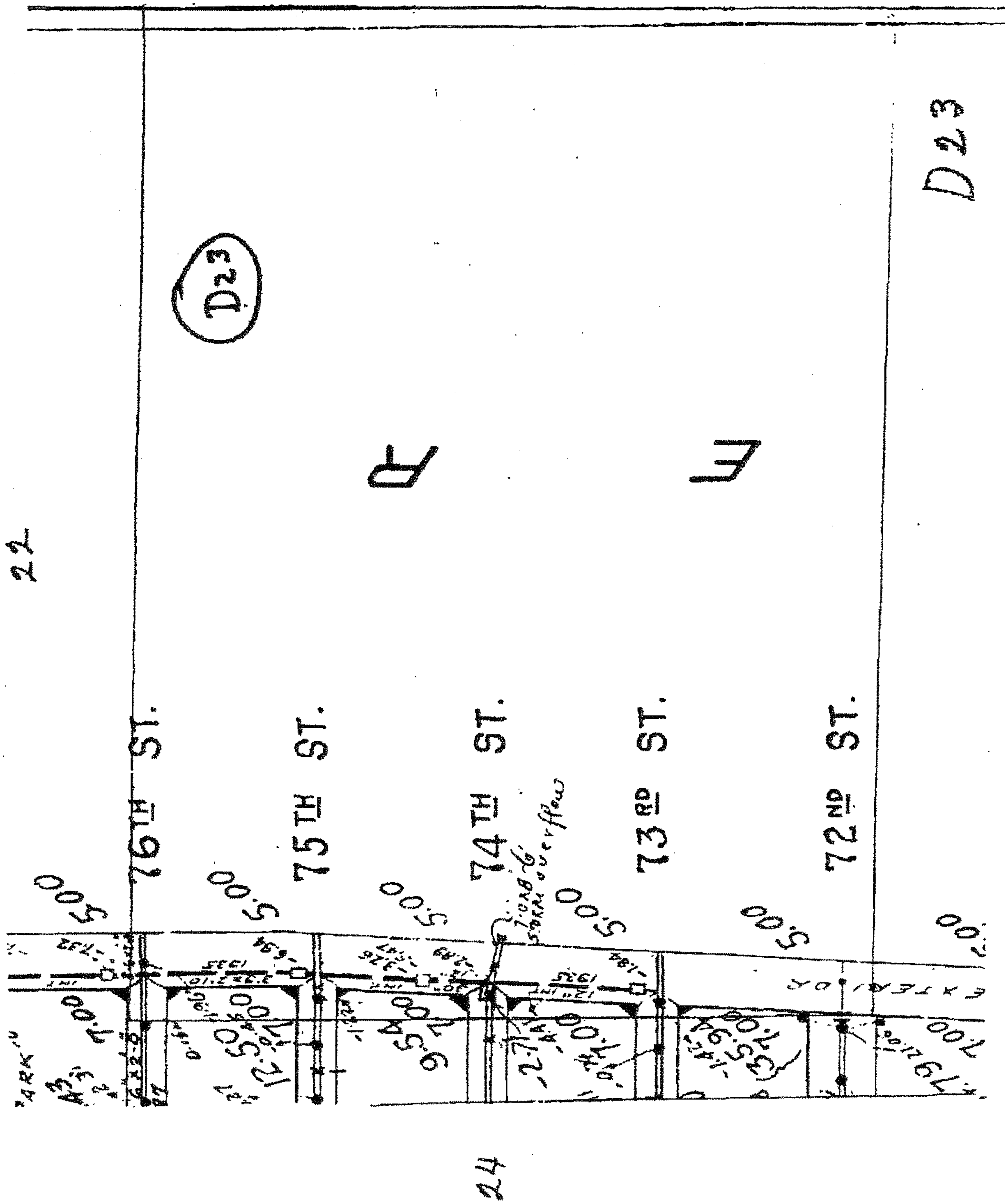
Contact :

Total pages including cover : 34

Comments:



IYER, P.C. IWAY 10003	THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WATER POLLUTION CONTROL	SCALE IN FEET 150 0 150 300	CAP' B


D23
D23
22
24
76TH ST.
75TH ST.
74TH ST.
73RD ST.
72ND ST.

FOR OFFICIAL USE ONLY
C -

BUREAU OF WASTEWATER TREATMENT

DIVISION OF POLLUTION CONTROL AND MONITORING
96-05 HORACE HARDING EXPRESSWAY
CORONA, NEW YORK 11368

WASTEWATER QUALITY CONTROL APPLICATION

APPLICANT MUST FILL OUT BOTH SIDES OF THIS FORM. INCORRECT OR INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED AND WILL BE RETURNED. IF NOT APPLICABLE WRITE N/A. APPLICATION MUST BE TYPEWRITTEN.

NOTE:

1. LOCATION	TAX BLOCK #: 1487	LOT #: 4,5,8
PROJECT NAME: Lycee Francais de New York		BOROUGH: Manhattan
HOUSE #:505	STREET NAME: East 75th Street	ZIP: 10021
IS THIS *DEP* JOB? YES [ ] NO [x]	*IS THIS JOB DEP* FUNDED YES [ ] NO [x]	

2. *APPLICANT* HDR/LMS			
LAST NAME: Musso	*FIRST NAME:* Michael		*M.I.* P
BUSINESS NAME: HDR/LMS		*TELEPHONE:* (845) – 735-8300	
ADDRESS One Blue Hill Plaza 12th Floor	*CITY:* Pearl River	*STATE:* NY	*ZIP:* 10965
CONTACT PERSON: Michael Musso		*TELEPHONE:* (845) – 735-8300	

3. *OWNER* Lycee Francais de New York			
TYPE OF OWNERSHIP: [ ] INDIVIDUAL [X] CORPORATION [ ] PARTNERSHIP [ ] GOVERNMENT			
LAST NAME: Theze	*FIRST NAME:* Yves	*M.I.:*	
BUSINESS NAME/AGENCY: Lycee Francais de New York		*TELEPHONE :(* 212) - 439-3831	
ADDRESS: 505 East 75th Street	*CITY:* New York	*STATE:* NY	*ZIP:* 10021

4. *PROJECT USE*			
[ ] RESIDENTIAL	*NUMBER OF DWELLING UNITS:*		
COMMERCIAL TYPE:		*GROSS FLOOR AREA:*	*SQ. FT..*
[ ] INDUSTRIAL TYPE:		*GROSS FLOOR AREA:*	*SQ. FT.*
[X] OTHER, EXPLAIN	Pretreatment of foundation water at school.		

5. *LOCATION*				
PLOT MUST SHOW THE CORRECT STREET LINES FROM THE CITY PLAN; THE PLOT TO BE BUILT UPON IN RELATION TO THE STREET LINES AND THE PORTION OF THE LOT TO BE OCCUPIED BY THE BUILDING; THE HOUSE NUMBERS AND THE BLOCK AND LOT NUMBERS. OBTAIN THESE DATA IN EACH BOROUGH OFFICE.				
BLOCK	*LOT(S)*	*HOUSE NO(S)*	*VERIFIED*	*DATE*
DIAGRAM (SHOW ARROW INDICATING NORTH)				
See Attached Site Plan				

6. WASTEWATER & SEWAGE Not Applicable	
EXISTING AVERAGE:	GALLONS/DAY
PROPOSED AVERAGE:	GALLONS/DAY
PROPOSED HOURLY PEAK:	GALLONS/HR
IF NO SEWERS AVAILABLE INDICATE DISPOSAL OF WASTEWATER:	

7. INDUSTRIAL/COMMERCIAL/MANUFACTURING ONLY			
TYPE OF ESTABLISHMENT:		FLOOR AREA:	SQ. FT.
WORK AREA:	SQ. FT.	STORAGE AREA:	SQ. FT.
[ ] NEW SEWER CONNECTION AT:			
[ ] EXISTING SEWER CONNECTION AT:			
CONNECTION TO: SANITARY [ ] COMBINED [ ] STORM [ ] OTHER [ ]			
JOB DESCRIPTION/PROJECT HISTORY:			
Pretreatment at foundation sump in basement of private school.			
LIST ALL CHEMICALS OR HAZARDOUS WASTES, IF ANY, MSDS ATTACHED [ ]			
Tetrachloroethene and breakdown products			

8. PRETREATMENT EQUIPMENT			
[ ] INTERCEPTORS	[ ] SEPARATORS	[ ] pH NEUTRALIZER	
MANUFACTURER: Carbon Service & Equipment Co.		FLOW: 1 - 4 GPM / VOLUME: 110 GAL.	
MODEL NUMBER: Aqua 175 / HP - 200		SERIAL NUMBER:	
MEA/BSA NUMBER:		REAGENTS: Activated Carbon	
OTHER PRETREATMENT [X] GAC, bag filters		EXPLAIN:	

9. DEWATERING/SPECIAL DISCHARGES			
QUANTITY OF WASTEWATER/GROUNDWATER			
DISCHARGE FLOW RATE: < 6000 GPD		DURATION: 1 Year D/M/Y	
[ ] GRAVITY	[X] PUMP	PUMP CAPACITY: 10 GPM	
DRAINAGE AREA:			
DISCHARGE TO SEWER: SIZE 36 IN	[ ] SANITARY	[X] COMBINED	[ ] STORM
QUALITY OF WASTEWATER/GROUNDWATER -	MSDS ATTACHED YES [ ] NO [X]		
NYS LABORATORY ANALYSES:	ATTACHED [X]	NOT AVAILABLE [ ]	
NYSDEC PERMIT:	ATTACHED [ ]	NOT AVAILABLE [X]	
JOB DESCRIPTION / PROJECT HISTORY:			
Application is for the continuance of pretreatment. Existing NYCDEP Case Number is C-3274.			

10. STATEMENTS AND SIGNATURES:
OWNER NAME: SIGNATURE:

APPLICANT'S NAME: HDR/LMS Henningson, Durham & Richardson Architecture and Engineering; P.C. SIGNATURE: _____	
SEAL (P.E. OR R.A.) DATE: _____	I HAVE PREPARED OR SUPERVISED THE PREPARATION OF THE PLANS, SPECIFICATIONS AND OTHER DOCUMENTS HEREWITH SUBMITTED AND, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE PLANS AND WORK SHOWN THEREIN COMPLY WITH THE PROVISIONS OF ALL NEW YORK CITY AND STATE CODES AND OTHER APPLICABLE LAWS AND REGULATIONS. FALSIFICATION OF ANY STATEMENT IS A MISDEMEANOR UNDER SECTION 26-124 OF NEW YORK CITY ADMINISTRATION CODE AND IS PUNISHABLE BY A FINE OR IMPRISONMENT, OR BOTH.
Signature of P.E. or R.A: _____	

Appendix G

Inspection Checklist

APPENDIX G Inspection Checklist - Groundwater Management System

This form must be completed during each inspection performed by in-house staff and outside contractors.

Date: _____

Name: _____

Company: _____

Position/Title: _____

Location	Inspected		Findings
Carbon Treatment System [LFNY Staff: Weekly Outside Contractors: At Time of Work]	Yes	No	
Underdrain System Cleanouts [Bi-monthly minimum]	Yes	No	*Complete and attach the cleanout log form.*
Southwest Foundation Pit [Weekly, minimum]	Yes	No	Flow: Y / N Est. Flow (gpm)*:
Northeast Foundation Pit [Weekly, minimum]	Yes	No	Flow: Y / N
Flow meter readings [Periodic]	Yes	No	

*Estimated flow in southwest foundation pit to be performed routinely and recorded. Since the majority (estimate of 90% or greater) of the entire foundation flow drains to the southwest foundation pit. Estimates of flow quantity in the northeast pit are not required.

Describe any work / follow-up required based upon the inspection findings:

_____

_____

_____

Underdrain System Cleanout Monitoring

Date: _____

Name: _____

Cleanout No.	Location	Observation of water / moisture on floor / floor slab?	Depth to Water (inches below T.O.C.)	Observed flow in Piping?
2	Small gym			
3a	SW pit room			
3b	SW pit room			
7	Storage area off of music room			
8	Gym storage room			
9a	Large gym			
9b	Large gym			
10a	Large gym			
10b	Large gym			
11a	NE stairwell			
11b	NW gym storage			

T.O.C. – top of cleanout pipe

Appendix H

Site-wide Inspection Form

APPENDIX H Site-wide Inspection Form

This form must be completed on an annual basis and kept on file.

Date: _____

Name: _____

Company: _____

Position/Title: _____

Documentation that sufficient information has been compiled to assess the following must be attached to this Form:

1. Assessment of compliance with all ICs, including Site usage.
2. An evaluation of the condition and continued effectiveness of ECs.
3. Assessment of general Site conditions at the time of the inspection.
4. Assessment of the Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection.
5. Assessment of compliance with permits and schedules included in the Operation and Maintenance Plan.
6. Confirmation that Site records are up to date.

Appendix I

Quality Assurance Project Plan

APPENDIX I Quality Assurance Project Plan

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Site.

QA/QC Objectives for Data Measurement

Overall project goals are defined through the development of qualitative and quantitative statements that specify the quality of the data required to support decisions. These are based on the end uses of the data. "Quality Assurance" and "Quality Control" are defined as follows:

- Quality Assurance - The total integrated program for assuring reliability of monitoring and measurement data.
- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

Sampling Program

Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such. Sample holding times will be in accordance with the NYSDEC ASP requirements.

The handling of samples in the field and in the laboratory will conform to the sample custody procedures presented in this section. Field custody procedures involve proper sample identification, chain-of-custody forms, and packaging and shipping procedures. Laboratory custody begins with the receipt of samples at the laboratory and continues through sample storage, analysis, data reporting, and data archiving.

The following elements are important for maintaining the field custody of samples:

- Sample identification
- Sample labels
- Custody records
- Shipping records
- Packaging procedures

Sample labels will be attached to all sampling containers before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken.

A chain-of-custody form, initiated at the analytical laboratory, will accompany the sample containers from the laboratory into the field. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures
- Names and signatures of persons involved in chain of possession
- Sample number
- Number of containers
- Sampling station identification
- Date and time of collection
- Type of sample and the analyses requested
- Preservatives used (if any)
- Pertinent field data (e.g., temperature)

Sample Tracking and Custody

The samples should be packaged / sealed onsite for shipping. The laboratory chain of custody must be completed and submitted with the samples. Each sample should be shipped to the laboratory immediately upon completion of sample collection and packaging. Samples will be transferred to the Laboratory under proper chain of custody by courier or overnight shipping. A copy of the shipping receipt must be retained.

Upon receipt by the analytical laboratory, samples will proceed through an orderly processing sequence specifically designed to ensure continuous integrity of both the sample and its documentation.

All samples will be received by the laboratory's sample control group and will be carefully checked for label identification and completed accurate chain-of-custody records. The sample will be tracked from storage through the laboratory system until the analytical process is completed and the sample is returned to the custody of the sample control group

for disposal. Generally, access to NYSDOH-certified laboratories is restricted to prevent any unauthorized contact with samples, extracts, or documentation.

Calibration Procedures

The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

Analytical Procedures

Analytical procedures to be performed on samples collected at the site are as follows:

MATRIX	ANALYSES	METHOD
air	VOCs	TO-15 – TCE and PCE only
water	VOCs	EPA Method 8260 (TCE, PCE only)
water	NYCDEP sewer discharge parameters:	
	Mercury	SW7470A
	PCBs	EPA Method 608
	Metals	SW6010B
	Nitrate	E353.2
	Phenol	SW9066
	Total Kjeldahl Nitrogen	E 351.2
	Total Nitrogen	TNITRO
	Chloride	M4500-C1 B
	Hexavalent Chromium	SW7196A
	Ignitability	SW1010
	SGT-HEM (non-polar material)	EPA Method 1664
	pH	E150.1
	Total solids	E160.3
	Total suspended solids	E160.2

Data Reduction and Validation

Data validation will be performed in accordance with the USEPA validation guidelines for organic and inorganic data review. Validation will include the following:

- Verification of 100% of all QC sample results (both qualitative and quantitative);
- Verification of the identification of 100% of all sample results (both positive hits and non-detects);
- Recalculation of 10% of all investigative sample results; and

- A Data Usability Summary Report (DUSR) which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

Internal QC and Checks

QC checks will be performed to ensure the collection of representative and valid data. Internal QC refers to all data compilation and contaminant measurements. QC checks will be used to monitor project activities to determine whether QA objectives are being met. All specific internal QC checks to be used are identified herein.

The analytical laboratory is required to exercise internal control in a manner consistent with the requirements of this plan. Control checks and internal QC audits are required by the NYSDEC ASP methods. These include reference material analysis, blank analysis, MS/MSD analysis, cleanups, instrument adjustments and calibrations, standards, and internal audits.

QA Performance and System Audits

All sampling and analyses work will be reviewed routinely by the Project Manager. All data sheets obtained in the field will be reviewed by the Project Manager.

Preventative Maintenance Procedures and Schedules

Preventative maintenance procedures have not been established as no field equipment is required. All samples are collected utilizing either disposable and/or laboratory provided containers.

Corrective Action Measures

Corrective actions will be implemented if unsatisfactory performance and/or system audit results indicate that problems exist with the laboratory. In the event a field audit is conducted, instances of nonconformance will be identified and reported to the Project Manager, who will initiate corrective actions, if necessary. These actions can include changing the sampling strategy to obtain representative samples.

Appendix J

Groundwater Treatment System Design Information

APPENDIX J System Design Information – Groundwater Treatment System

- Submersible pump for the water treatment system. Gould, ½ horsepower, 110 v, bronze-fitted. A spare pump is maintained on the Site.

- Liquid Phase Activated Carbon Adsorbers (two, in series). AQUA 200 HP, manufactured by Carbon Service & Equipment Company). Max flow rate is 10 gpm. Max pressure rating is 150 psig. Activated carbon capacity is 200 pounds. Empty shipping weight is 60 pounds. Heavy duty, corrosion resistant polyethylene lined fiberglass reinforced composite vessel. 1" FNPT inlet and outlet connections. "Quick" fit connections, pressure meters, associated piping.

- Model 88, 100 PSI Liquid Bag Housing – Krystil Klear's 100 PSI Liquid Bag Housing (flat base) (two, in series). Carbon or 304 stainless steel construction; 100 PSI pressure rating; up to 300 degrees Fahrenheit, flow rates to 220 gpm; low pressure drop; 304 stainless steel 15" strainer basket with 9/64" perforations to act as a strainer or to accept a #1 or #2 size liquid bag; basket seals onto a Buna o-ring in the basket support; 2 inch female NPT connection; adjustable tripod leg assembly. Bag filters; range from 50 – 150 microns in size depending on lfow and turbidity. Pressure meters.

- TEEL Heavy Duty float switches; mechanically activated, wide-angle pump float switches; Stock # 4RK15; corrosion resistant; 20 feet; 115 volts; wire gauge is 16; max amps running is 13; standard amps is 85; pumping range is 7-36 in.; tether length is 3.5 -24; maximum temperature is 140 degrees Fahrenheit.

- Cold-Water Totalizers; dial is non-resettable; impact-resistant glass lens; registers up to 9,999,900 gallons; flow range is 1-50 gpm; one inch meter inlet ID; 1" Male pipe size, NPT; O'all Lg. is 16 ¼ "; item # 4041K23 from McMaster-Carr.

Carbon Service & Equipment Company

A Division of Encotech, Inc.
www.encotech.net

Encotech and Carbon Service & Equipment Company's capabilities:

- Activated carbon treatment systems, activated carbon products and on-site spent carbon change out services.
- Soil vapor extraction systems
- Short stack air strippers
- Oil/water separators
- pH adjustment systems
- Filtration systems
- Air sparging systems
- Thermal oxidizers
- Bioremediation
- Mobile treatment systems
- Automated and manual systems
- Lease and purchase systems
- Operation and maintenance service

P.O. Box 305, Eighty Four, PA 15330 • 724-222-3334 • Fax 724-222-4095
P.O. Box 618102, Orlando, FL 32861 • 407-313-9113 • Fax 407-313-9114

- SPECIFICATIONS & PROPERTIES

CSEC's Standard Product Line
(Custom equipment available per customer request)

Liquid Phase Activated Carbon Adsorbers

ADSORBER	MAX. FLOW RATE (GPM)	MAX. PRESSURE RATING (PSIG)	ACTIVATED CARBON CAPACITY (POUNDS)	SHIPPING WEIGHT EMPTY (POUNDS)
AQUA 175	10	10	175	60
AQUA 275	15	7	275	95
AQUA 375	20	7	375	110
AQUA 1000	50	14	1000	1065
AQUA 2000	60	14	2000	1470
AQUA PURGE HP	2	150	50	25
AQUA 150 HP	7	150	150	40
AQUA 200HP	10	150	200	60
AQUA 300HP	15	150	300	75
AQUA 400HP	30	150	400	160
AQUA 500HP	25	150	500	235
AQUA 800HP	40	150	800	320
AQUA 1000 HP	50	150	1000	695
AQUA 1500 HP	75	150	1500	750
AQUA 2000HP	100	150	2000	1355
AQUA 2500HP	125	150	2500	1525
AQUA 5000HP	200	150	5000	2265
AQUA 10000HP	250	150	10000	2800
AQUA CUSTOM	PLEASE CALL FOR INFORMATION ON ADDITIONAL CUSTOM DESIGNED LIQUID PHASE ACTIVATED CARBON ADSORBERS			

Vapor Phase Activated Carbon Adsorbers

ADSORBER	MAX. FLOW RATE (CFM)	MAX. PRESSURE RATING (PSIG)	ACTIVATED CARBON CAPACITY (POUNDS)	SHIPPING WEIGHT EMPTY (POUNDS)
AIR 175	100	7	175	60
AIR 275	150	7	275	100
AIR 375	250	7	375	120
AIR 600	600	5	600	150
AIR 1000	1250	7	1000	1110
AIR 1800	1000	7	1800	1510
AIR 2500	2500	7	2500	2155
AIR 175POLY	100	1.5	175	35
AIR 1000 POLY	900	1.5	1000	185
AIR 2000POLY	1450	1.5	2000	395
AIR CUSTOM	PLEASE CALL FOR INFORMATION ON ADDITIONAL CUSTOM DESIGNED VAPOR PHASE ACTIVATED CARBON ADSORBERS.			

Activated Carbon

Carbon Service & Equipment Company's liquid and vapor phase activated carbon adsorbers are available with either virgin or reactivated carbon.

ACTIVATED CARBON	TYPE	U.S. SIEVE SIZE	IODINE #	MOLASSES #	CARBON TETRACHLORIDE #
Liquid Phase	Virgin	8x30	950	200	-
Liquid Phase	Reactivated	8x30	750	230	-
Vapor Phase	Virgin	4x10	-	-	65
Vapor Phase	Reactivated	4x10	-	-	60

A complete line of activated carbon products are available. Please call for additional information.

Carbon Service & Equipment Company

1037 ROUTE 519
P.O. BOX 305
EIGHTY FOUR, PA 15330
(724)222-3334

P.O. Box 618102
Orlando, FL 32861
Phone: 407-313-9113
Fax: 407-313-9114
carbonservice@stargate.net

JENNIFER M. LALLI

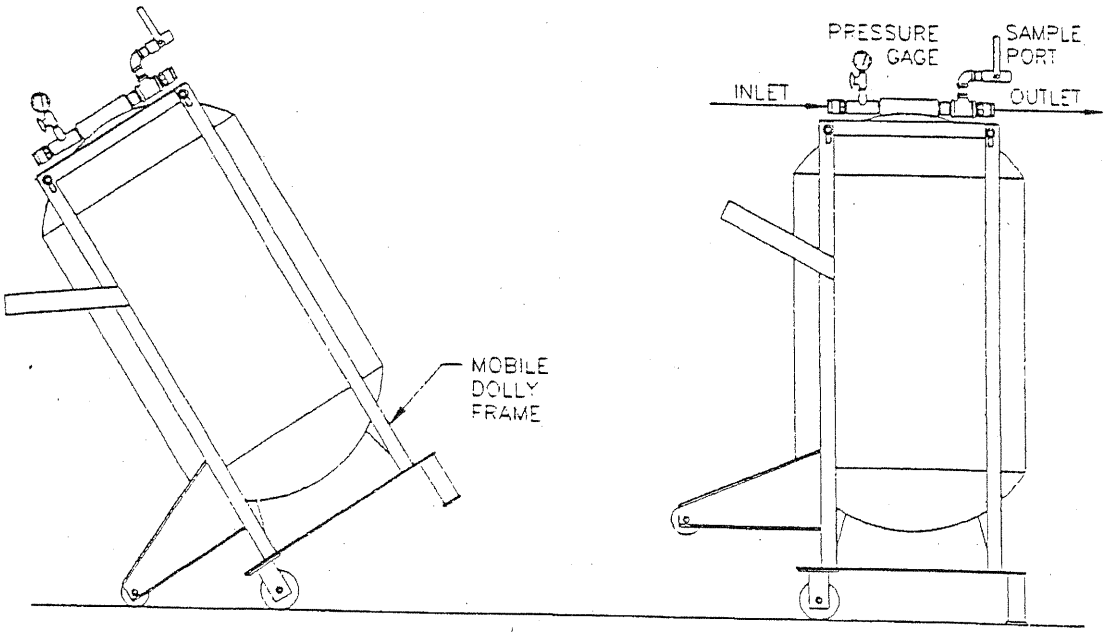
Carbon Service & Equipment Company
A Division of Encotech, Inc.

Carbon Service & Equipment Company
A Division of Encotech, Inc.

HIGH PRESSURE AQUA SERIES

Options for the Purge HP, 150, 200 and 300 HP models

Options can be added using any combination of the shown features.
Please refer to the individual adsorber specification sheets for additonal details.



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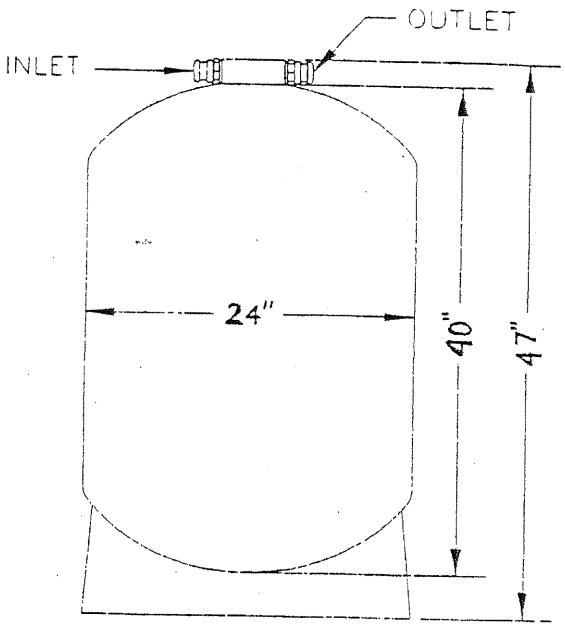
Carbon Service & Equipment Company
A Division of Encotech, Inc.

AQUA 200 HP

TYPICAL FLOWS	2-8 gpm
MAXIMUM SUGGESTED FLOW	10 gpm
MAXIMUM OPERATING PRESSURE	150 psig
MAXIMUM TEMPERATURE	140°F



STANDARD FEATURES

- 200 lbs. coal base, virgin or reactivated carbon.
- Heavy duty, corrosion resistant polyethylene lined fiberglass reinforced composite vessel.
- Advanced internal distribution and collection systems designed to optimize carbon usage rates, minimizing operating expenses.
- 1" FNPT inlet and outlet connections.

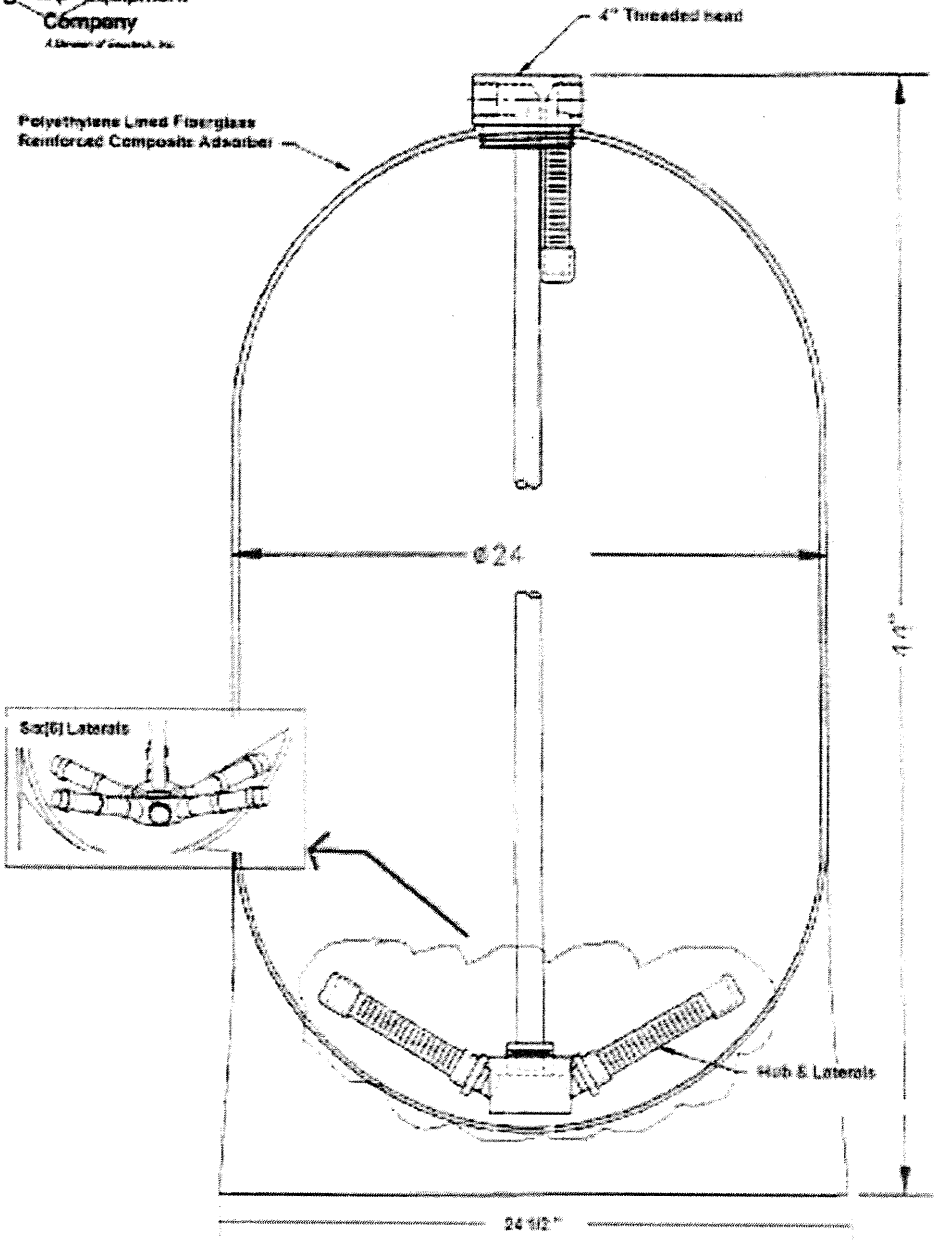
OPTIONAL FEATURES

- Cam-Lok fittings w/caps
- Pressure gauge assembly
- Sample port assembly
- Flexible hose assemblies
- Solids prefilter systems
- Pressure relief valve

P.O. Box 305, Eighty Four, PA 15330 · 724-222-3334 · Fax 724-222-4095
P.O. Box 618102, Orlando, FL 32861 · 407-313-9113 · Fax 407-313-9114

Carbon Service & Equipment Company

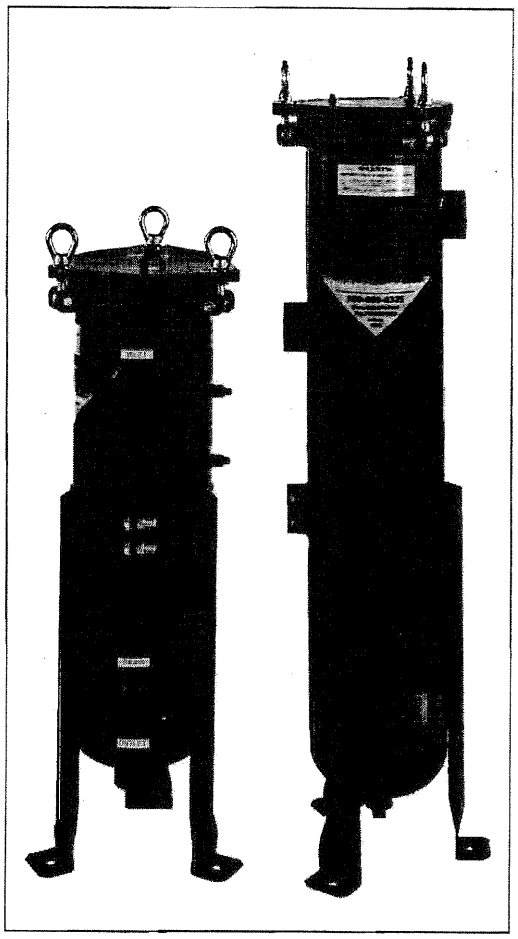
CSEC - AQ 200 HP Adsorber



Model 88 Single Liquid Bag Housing

flow rates to 220 g.p.m.

Krystil Klear's model 88 Single Series of Liquid Bag Housings offer two depths, a 15" and a 30" housing depending upon the needed surface area and volume of fluid to be filtered.



FEATURES

- **Carbon, 304, or 316 stainless steel material**
- **150 PSI pressure rating**
- **Low pressure drop**
- **Quick swing closure with eye nuts**
- **Viton seals - lid & basket**
- **Differential, drain, and vent ports**
- **Adjustable support legs**
- **316 stainless steel strainer basket**
- **2-part epoxy paint finish on carbon vessels**

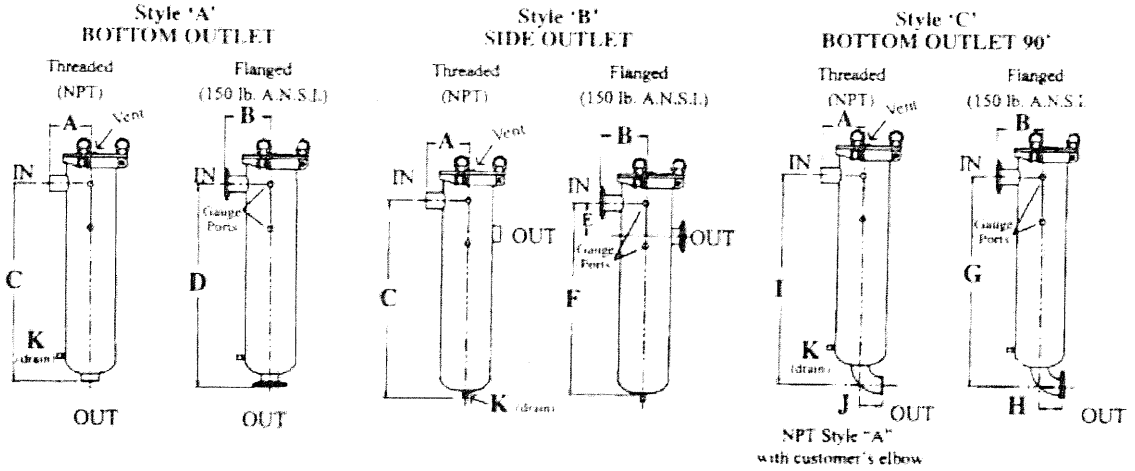
Our 88 series effectively removes dirt, pipe scale, and other contaminants from process liquids such as water, chemical and petroleum products. Quality construction and design assure protection for all down-stream equipment.

VESSEL CONSTRUCTION: Our model 88 single vessels are designed for operating up to 150 PSI at 300°F. The housing design provides a large sump area at the bottom of the basket for particulate accumulation. This design utilizes the filter more efficiently and prolongs the element life.

The **316 S.S. basket** seals onto a viton o-ring to eliminate particulate bypass between the basket and seat. Optional **mesh-lined strainer baskets** and **o-rings** are available. Please refer to their individual brochures in our liquid catalog.

A **vent** in the housing lid and a **drain port** in the housing speed evacuation and filling. **Gauge ports** are located on the body of the housing to install gauges for monitoring the differential pressure across the bag. Permanently piped housings are opened with simple tools without disturbing the piping. **Swing bolts** with eye-nuts allow easy opening and closing of the swing-lid. No need to remove any hardware.

As a standard finish, all vessels are blast cleaned and painted inside and out with a **2-part epoxy**. Stainless steel vessels are supplied with a satin finish.



All dimensions are approximate

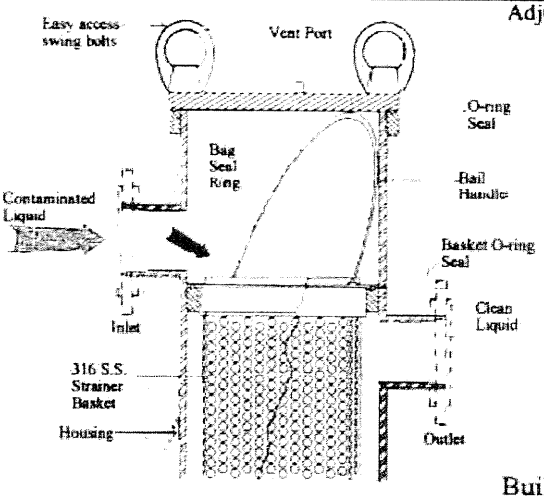
88-15

Pipe Size	A	B	C	D	E	F	G	H	I	J	K	wt.
2	5.4	6.7	24.7	25.9	7.0	24.7	26.2	3.4	25.7	2.3	1	105-125# skid wt
3	5.4	7.1	24.7	26.5	7.0	24.7	26.5	5.0	26.3	3.1		
4	5.4	7.1	24.7	26.6	7.0	24.7	29.1	6.3	26.9	3.8		

88-30

Pipe Size	A	B	C	D	E	F	G	H	I	J	K	wt.
2	5.3	6.7	36.2	37.4	7.0	36.2	37.7	3.4	37.2	2.3	1	125-145# skid wt
3	5.4	7.1	36.2	38.0	7.0	36.2	39.2	5.0	38.7	3.1		
4	5.4	7.1	36.2	38.1	7.0	36.2	40.6	6.3	38.9	3.8		

Adjustable support legs have 12" bolt circle and a 16" height adjustment.



Housing Operation:

Unfiltered liquid enters the housing above the filter bag or strainer basket; flows down into the housing; and continues through the element. Solids are trapped inside the filter bag or strainer and easily removed when the housing is serviced. Our standard o-ring seal between the basket and the housing ensures a positive seal to prevent bypass.

Basket data for Model 88 with flow rates to 220 gpm

Depth Nominal (inches)	Diameter (inches)	Surface Area (sq. ft.)	Volume (cu. in.)
15	6.7	2.3	500
30	6.7	4.4	1000

Building a Part Number:

L88	15	2	N	A	C	15

Housing Model #	Basket Size (in)	Conn Size (in)	Conn Type	Outlet Location	Material	PSI
L88	15 30	2 3 4	NPT=N FLANGE=F	Style A B C	Carbon=C 304SS=4 316SS=6	150=15

SPECIFICATIONS

Housing lid has a 3-bolt swing closure with a vent port. Connections are (__) inch (NPT)(FLG) with a (side inlet and bottom outlet)(side inlet and side outlet)(side inlet and 90° bottom outlet). Housing is supplied with two differential pressure ports to measure the differential pressure across the filter bag. A two-part epoxy finish is applied on the carbon steel vessels to maximize the life of the housing; stainless steel vessels are supplied with a satin finish. Basket material is constructed of 316 stainless steel with 9/64" perforations to act as a strainer or to accept a #1 or #2 size liquid bag. Basket seals onto a Viton o-ring in the basket support. Adjustable tripod leg assembly is supplied with housing. Vessels are rated at a 150 pounds per square inch design.

Krystil Klear Filtration
Div. Of Geyer's Mfg. & Design, Inc.
9449 S. 550 W. Phone: 800-869-0325 219-278-7161
Winamac, IN 46996 Fax: 219-278-7115
kkfilter@pwrtc.com web site: KrystilKlear.com

Distributed by:

Pyramid Technologies
467 Forrest Park Cir
Franklin, TN 37064
615-599-4190

ITT

Wastewater

Goulds Pumps

ST51/ST71

Submersible Sump/Effluent Pump

FEATURES

- Corrosion resistant construction.
- Cast iron body.
- Thermoplastic impeller and cover.
- Upper sleeve and lower heavy duty ball bearing construction.
- Motor is permanently lubricated for extended service life.
- Powered for continuous operation.
- All ratings are within the working limits of the motor.
- Power cord, 10' standard length, heavy duty 16/3 SJTW with 115 volt grounding plug and vertical switch.
- Complete unit is heavy duty, portable and compact.
- Mechanical seal is carbon, ceramic, BUNA and stainless steel.
- Stainless steel fasteners.

GOULDS PUMPS

Goulds Pumps is a brand of ITT Water Technology, Inc.
- a subsidiary of ITT Industries, Inc.

www.goulds.com

Engineered for life

ITT

GOULDS PUMPS
Wastewater

APPLICATIONS

Specially designed for the following uses:
- Basement Draining
- Dewatering
- Water Transfer
- Effluent Transfer

SPECIFICATIONS

Pump – General:
- Discharge: 1½" NPT
- Temperature: 104°F (40°C) maximum, continuous when fully submerged.
- Solids handling: ½" maximum sphere.
- Automatic models include a float switch.
- Pumping range: see performance chart or curve.

ST51 Pump:
- Maximum capacity: 61 GPM
- Maximum head: 29' TDH

ST71 Pump:
- Maximum capacity: 70 GPM
- Maximum head: 37' TDH

MOTOR

General:
- Single phase
- 60 Hertz
- 115 volts
- Built-in thermal overload protection with automatic reset.
- Class B insulation.
- Oil-filled design.
- High strength carbon steel shaft.

ST51 Motor:
- .50 HP, 3400 RPM
- 115 volts
- PSC design

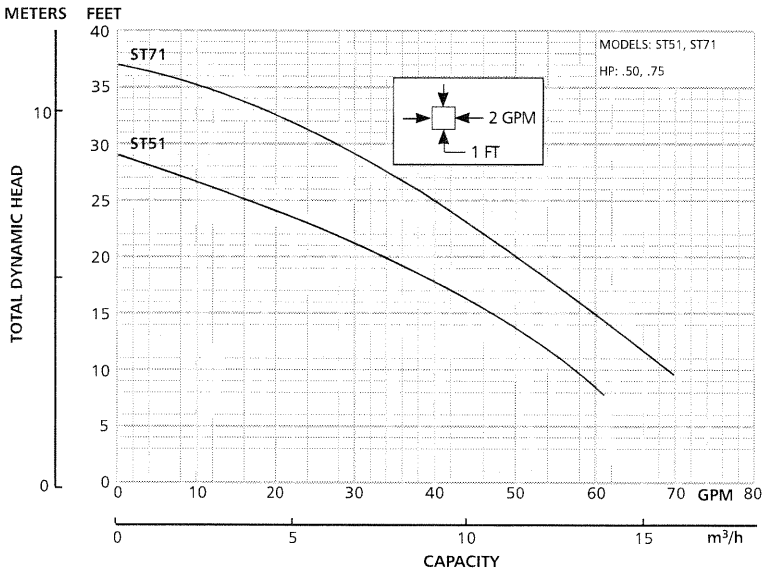
ST71 Motor:
- .75 HP, 3400 RPM
- 115 volts
- PSC design

AGENCY LISTINGS

C SA US

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

Goulds Pumps is ISO 9001 Registered.



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GOULDS PUMPS
Wastewater

PERFORMANCE RATINGS

ST51

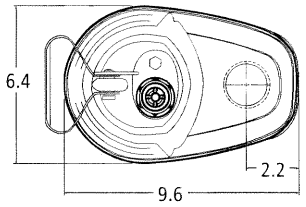
Total Head (feet of water)	GPM
10	60
15	47
20	33
25	16

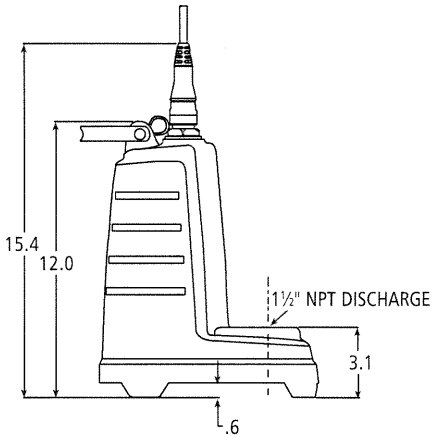
ST71

Total Head (feet of water)	GPM
10	69
15	60
20	50
25	39
30	27
35	12

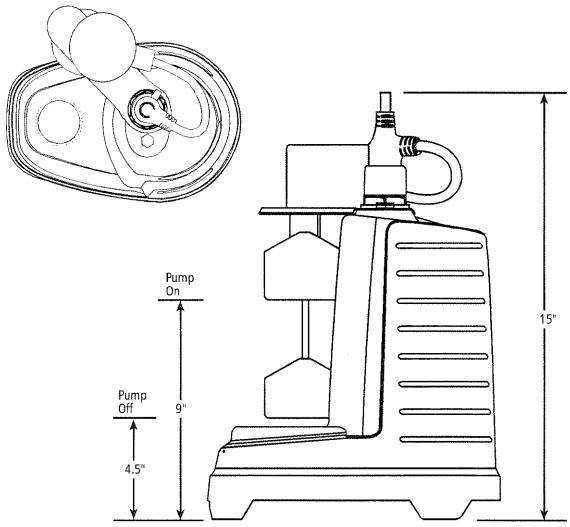
DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



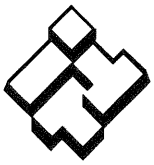


Vertical Float Switch



PUMP INFORMATION

Order No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg
ST51AV	.5	115	7.5	15	1	Piggyback Vertical	10'	1.5"	18"	.5"	31 / 14.1
ST71AV	.75		9.5	20							



ITT

Wastewater

BST51/71 February, 2006

Engineered for life

Appendix K

Routine Maintenance Activities and Schedule

APPENDIX K Routine Maintenance Activities and Schedule for the Groundwater Treatment System

Maintenance Activity	Schedule*
Change-out of bag filters and containerize spent bag filters	Annual
Backwash of the two carbon vessels	Semi-annual
Replacement of granular activated carbon within the two carbon vessels	Annual
Replacement or reconditioning of the submersible pump	Bi-annual

* Frequency may differ based on flow conditions.

Other components of the groundwater treatment system (e.g., valves, piping, meters) are reconditioned or replaced as needed.

A list of vendors, their contact information, and the services utilized is provided below.

Supplies virgin carbon and replacement equipment (e.g., piping, meters, carbon vessels):
Carbon Service & Equipment Company
PO Box 618102
Orlando, Florida 32861
407-313-9113
(fax) 407-313-9114
Current contact - Ms. Jennifer Lalli

Supplies fresh bag filters and bag filter cartridges:
Product Recovery Management
1748 Kennedy Road
Webster, NY 14580
585-217-9134
(fax) 775-628-1937
Current contact – Mr. Dana Browne

Carbon change-out, waste handling and disposal services:
Brookside Environmental
757 Foxhurst Road
Baldwin, NY 11510
516-377-6300
(fax) 516-377-6846
Current contact – Mr. Brian Gaudreault

Appendix L

Routine Maintenance Form

APPENDIX L Routine Maintenance Form for Components of the Building's Groundwater Management System

This form must be completed during each routine maintenance event performed by in-house staff and outside contractors.

Date: _____

Name: _____

Company: _____

Position/Title: _____

Description of work performed: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Are color photographs or sketches showing the approximate location of any problems or incidents attached? Yes No

Are other documents such as receipts and/or copies of invoices attached? Yes No

Appendix M

Non-routine Maintenance Form

APPENDIX M Non-routine Maintenance Form for Components of the Building's Groundwater Management System

This form must be completed during each non-routine maintenance event performed by in-house staff and outside contractors.

Date: _____

Name: _____

Company: _____

Position/Title: _____

Description of work performed (include presence of leaks, date of leak repair and/or other repairs or adjustments made, if applicable):

_____

_____

_____

_____

_____

_____

_____

_____

_____

Are color photographs or sketches showing the approximate location of any problems or incidents attached? Yes No

Are other documents such as receipts and/or copies of invoices attached? Yes No

APPENDIX O
WATER SYSTEM AND INDOOR AIR SAMPLING TABLES

APPENDIX O
East 75th/76th Street
Remedial Action Report Addendum - Volume 3
LMS Phase 3 Remediation Endpoint, Weep and Water Treatment System Laboratory Data
Volatile Organic Compounds

Sample ID	**SW PIT**	**NE-1**	**NW-1**	**NW-2**	**NC-1**	**NE-2**	**NW-3**	**NC-2**	**NWFTG-1**
Lab Sample Number	**A1647**	**A0728-01A**	**A0728-02A**	**AO757-01A**	**A0854-01A**	**A0854-02A**	**A0854-03A**	**A0877-02A**	**A0972-01A**
Sampling Date	**1/12/2002**	**5/10/2002**	**5/10/2002**	**5/15/2002**	**5/30/2002**	**5/30/2002**	**5/30/2002**	**6/6/2002**	**6/21/2002**
Matrix	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Units	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
Dilution Factor	**0:00**	**2**	**8**	**3**	**1**	**1**	**1**	**2**	**1**
1,3,5-Trimethylbenzene	ND	50	1J	ND	7	2J	ND	7	1J
1,2,4-Trimethylbenzene	ND	140	2J	ND	21	5	ND	21	6
1,1-Dichloroethene	ND	ND	5	ND	2J	2J	10	ND	ND
Chloroethane	ND	ND	ND	ND	1J	4J	ND	ND	ND
2-Butanone	ND	ND	ND	3 J	8	13	ND	ND	ND
Acetone	22	87	4J	15	60	150	ND	ND	24
Benzene	1 J	8	5	ND	4J	2J	4J	3J	2J
cis-1,2-Dichloroethene	290 E	240E	870E	390	1J	ND	880d (10x)	310	72
Ethylbenzene	ND	30	ND	ND	6	2J	ND	3J	4J
Isopropylbenzene	ND	2 J	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	100	31	3J	28	43	41	4J	120	74
Naphthalene	ND	3J	ND	ND	6	10	ND	8J	3J
n-Propylbenzene	ND	20	ND	ND	2J	ND	ND	ND	ND
sec-Butylbenzene	ND	1J	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	250 E	77	990E	340	160d (2x)	54	690d (10x)	40	49
Toluene	4 J	77	ND	3 J	40	16	1J	42	26
trans-1,2-Dichloethene	ND	1J	5	5 J	1J	ND	6	ND	ND
4-isopropyltoluene	ND	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	57	36	360E	100	72	26	190d (10x)	13	16
Xylene (Total)	ND	160	ND	3 J	35	13	ND	23	32
Vinyl Chloride	28	14	35	8 J	23	29	66	29	3J
Total VOCs	207	833	2280	895	492	369	1851	619	309

Notes:

ug/l micrograms per liter
J estimated value because the compound was detected below the reporting limit or the compound is a tentatively identified compound

d compound concentration was obtained from a diluted sample

E compound concentration exceeded the Calibration Range

DL dilution

ND not detected

NA not applicable

APPENDIX O
East 75th/76th Street
Remedial Action Report Addendum - Volume 3
LMS Phase 3 Remediation Endpoint, Weep and Water Treatment System Laboratory Data
Volatile Organic Compounds

Sample ID	**SP/NE**	**SP/SW**	**SP/ NE**	**SP/SW**	**NE PIT**	**SW PIT**	**SW PIT**	**SW PIT**
Lab Sample Number	**A1329-01A**	**A1329-04A**	**A1647-01A**	**A1647-02A**	**A1758-01A**	**A1913-01A**	**A1913-01A**	**B0005-01A**
Sampling Date	**9/5/2002**	**9/5/2002**	**11/12/2002**	**11/12/2002**	**11/26/2002**	**12/27/2002**	**12/27/2002**	**1/3/2003**
Matrix	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Units	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
Dilution Factor	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**
1,3,5-Trimethylbenzene	1J	2J	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	39	38	18	22	7	9	9	5
Benzene	21	ND	ND	1J	ND	ND	ND	ND
cis-1,2-Dichloroethene	160	180d (2x)	95	330d(2x)	130	180	180	210d(3x)
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	41	46	33	100	38	16	16	9
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	40	74	18	250d(2x)	17	250 E	240d(2x)	350d(3x)
Toluene	10	15	ND	4J	ND	ND	2J	2J
trans-1,2-Dichloethene	ND	ND	ND	1J	ND	ND	ND	1J
4-isopropyltoluene	NA	NA	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	34	7	57	6	52	52	77
Xylene (Total)	4J	6	1J	ND	ND	ND	ND	ND
Vinyl Chloride	4J	8	9	28	9	16	16	26
Total VOCs	320	443	181	753	207	273	515	677

Notes:

ug/l micrograms per liter
J estimated value because the compound was detected below the reporting limit or the compound is a tentatively identified compound

d compound concentration was obtained from a diluted sample

E compound concentration exceeded the Calibration Range

DL dilution

ND not detected

NA not applicable

APPENDIX O
East 75th/76th Street
Remedial Action Report Addendum - Volume 3
LMS Phase 3 Remediation Endpoint, Weep and Water Treatment System Laboratory Data
Volatile Organic Compounds

Sample ID	**SW PIT**	**SW PIT**	**SW PIT**	**SW PIT**	**SW PIT**	**SW PIT**	**SW PIT**
Lab Sample Number	**B0005-01A**	**B0029-01A**	**B0029-01**	**B0119-01A**	**B0324-01A**	**B0510-01A**	**B0845-01A**
Sampling Date	**1/3/2003**	**1/7/2003**	**1/7/2003**	**1/22/2003**	**2/26/2003**	**3/28/2003**	**5/15/2003**
Matrix	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Units	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
Dilution Factor	**1**	**1**	**1**	**3 : 1**	**3 : 1**	**2 : 1**	**2 : 1**
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND
Acetone	5	ND	ND	ND	12 J	ND	77
Benzene	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	240 E	230d(3x)	250 E	220	230	140	210
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	9	12	12	7 J	7 J	2 J	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	410 E	380d(3x)	400 E	380	400	200	120
Toluene	2 J	1J	1 J	ND	ND	ND	ND
trans-1,2-Dichloethene	1 J	ND	ND	ND	ND	ND	ND
4-isopropyltoluene	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	77	76	76	68	72	50	20
Xylene (Total)	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	26	24	24	20	15	6 J	140
Total VOCs	117	723	112	695	736	398	567

Notes:

ug/l micrograms per liter
J estimated value because the compound was detected below the reporting limit or the compound is a tentatively identified compound

d compound concentration was obtained from a diluted sample

E compound concentration exceeded the Calibration Range

DL dilution

ND not detected

NA not applicable

APPENDIX O
East 75th/76th Street
Remedial Action Report Addendum - Volume 3
LMS Phase 3 Remediation Endpoint, Weep and Water Treatment System Laboratory Data
Volatile Organic Compounds

Sample ID	**SW PIT**	**SW PIT**	**SW PIT**	**SW PIT**	**SW PIT**	**SWPITINF**	**SWPITINF**
Lab Sample Number	**B0845**	**B0900**	**B0900**	**B1177-01A**	**B1380-01**	**C0093-01A**	**C0175-01A**
Sampling Date	**5/15/2003**	**5/20/2003**	**5/20/2003**	**7/15/2003**	**8/27/2003**	**1/27/2004**	**2/27/2004**
Matrix	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Units	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
Dilution Factor	**1**	**3 : 1**	**1**	**4**	**2**	**4**	**4**
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND
Acetone	77	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	210	230	230	170	170	160	130
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	ND	ND	ND	1 J	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	2 J	ND
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	120	350	350	380 E	270	640 E	640 E
Toluene	ND	ND	ND	1 J	4 J	ND	ND
trans-1,2-Dichloethene	ND	ND	ND	ND	ND	1 J	ND
4-isopropyltoluene	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	20	81	81	80	69	120	120
Xylene (Total)	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	140	19	19	24	17	9	6
Total VOCs	567	680	680	ND	526	ND	256

Notes:

ug/l micrograms per liter
J estimated value because the compound was detected below the reporting limit or the compound is a tentatively identified compound

d compound concentration was obtained from a diluted sample

E compound concentration exceeded the Calibration Range

DL dilution

ND not detected

NA not applicable

APPENDIX O
East 75th/76th Street
Remedial Action Report Addendum - Volume 3
LMS Phase 3 Remediation Endpoint, Weep and Water Treatment System Laboratory Data
Volatile Organic Compounds

Sample ID	**SWPITINF**	**SWPITINF**	**SWPITINF**	**DEM-1**	**DEM-2**	**SWPITINF**	**SW PT**
Lab Sample Number	**C0262-01A**	**C0369-01A**	**C0831-01A**	**C1049-01A**	**C1049-02A**	**C1590-01A**	**D0378-01A**
Sampling Date	**3/29/2004**	**4/28/2004**	**7/28/2004**	**8/27/2004**	**8/27/2004**	**12/22/2004**	**4/1/2005**
Matrix	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Units	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
Dilution Factor	**4**	**4**	**10**	**2**	**1**	**10**	**5**
1,3,5-Trimethylbenzene	ND	ND	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	ND	ND	NA	NA	NA	NA	NA
1,1-Dichloroethene	ND	ND	NA	NA	NA	NA	NA
Chloroethane	ND	ND	NA	NA	NA	NA	NA
2-Butanone	ND	ND	NA	NA	NA	NA	NA
Acetone	ND	ND	NA	NA	NA	NA	NA
Benzene	ND	ND	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	130	140	NA	NA	NA	NA	NA
Ethylbenzene	ND	ND	NA	NA	NA	NA	NA
Isopropylbenzene	ND	ND	NA	NA	NA	NA	NA
Methyl tert-butyl ether	ND	ND	NA	NA	NA	NA	NA
Naphthalene	ND	ND	NA	NA	NA	NA	NA
n-Propylbenzene	ND	ND	NA	NA	NA	NA	NA
sec-Butylbenzene	ND	ND	NA	NA	NA	NA	NA
Tetrachloroethene	560 E	580 E	940 E	140	6	1400 E	550 E
Toluene	ND	ND	NA	NA	NA	NA	NA
trans-1,2-Dichloethene	ND	ND	NA	NA	NA	NA	NA
4-isopropyltoluene	ND	ND	NA	NA	NA	NA	NA
Trichloroethene	120	130	NA	NA	NA	NA	NA
Xylene (Total)	ND	ND	NA	NA	NA	NA	NA
Vinyl Chloride	4 J	ND	NA	NA	NA	NA	NA
Total VOCs	ND	270	0	140	6	1400	550

Notes:

ug/l micrograms per liter
J estimated value because the compound was detected below the reporting limit or the compound is a tentatively identified compound

d compound concentration was obtained from a diluted sample

E compound concentration exceeded the Calibration Range

DL dilution

ND not detected

NA not applicable

APPENDIX O
East 75th/76th Street
Remedial Action Report Addendum - Volume 3
LMS Phase 3 Remediation Endpoint, Weep and Water Treatment System Laboratory Data
Volatile Organic Compounds

Sample ID	**SWPITINF**	**SWPITINF**	**SWPITINF**	**SWPITINF**	**SWPITINF**
Lab Sample Number	**D1220-01A**	**D0679-01A**	**0608010-01A**	**0701044-01A**	**0708040-01A**
Sampling Date	**10/14/2005**	**6/10/2005**	**7/31/2006**	**1/5/2007**	**8/2/2007**
Matrix	**Water**	**Water**	**Water**	**Water**	**Water**
Units	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
Dilution Factor	**4**	**5**	**1**	**1**	**1**
1,3,5-Trimethylbenzene	NA	NA	ND	NA	NA
1,2,4-Trimethylbenzene	NA	NA	ND	NA	NA
1,1-Dichloroethene	NA	NA	ND	NA	NA
Chloroethane	NA	NA	ND	NA	NA
2-Butanone	NA	NA	ND	NA	NA
Acetone	NA	NA	ND	NA	NA
Benzene	NA	NA	ND	NA	NA
cis-1,2-Dichloroethene	180	NA	260	150	99
Ethylbenzene	NA	NA	ND	NA	NA
Isopropylbenzene	NA	NA	ND	NA	NA
Methyl tert-butyl ether	NA	NA	ND	NA	NA
Naphthalene	NA	NA	ND	NA	NA
n-Propylbenzene	NA	NA	ND	NA	NA
sec-Butylbenzene	NA	NA	ND	NA	NA
Tetrachloroethene	460 E	480	570	330	280
Toluene	NA	NA	ND	NA	NA
trans-1,2-Dichloethene	NA	NA	ND	NA	ND
4-isopropyltoluene	NA	NA	ND	NA	NA
Trichloroethene	110	NA	130	85	73
Xylene (Total)	NA	NA	ND	NA	NA
Vinyl Chloride	6	NA	ND	ND	1.1
Total VOCs	296	480	ND	565	453.1

Notes:

ug/l micrograms per liter
J estimated value because the compound was detected below the reporting limit or the compound is a tentatively identified compound

d compound concentration was obtained from a diluted sample

E compound concentration exceeded the Calibration Range

DL dilution

ND not detected

NA not applicable

Appendix O
East 75th/76th Street Site
Remedial Action Report Addendum - Volume 3
Water Treatment System Laboratory Data
Volatile Organic Compounds

Sample ID	SWPITEFFLUENT	SWPITEFFLUENT	S.W. PIT-INF	SWPITEFFLUENT	SWPITEFFLUENT	SWPITEFFLUENT	SWPITEFFLUENT
Lab Sample Number	C0093-02A	C0175-01A	C0262-01A	C0369-03A	C0884-01A	0608010-02A	0708040-02A
Sampling Date	1/27/2004	2/27/2004	3/29/2004	4/28/2004	8/6/2005	7/31/2006	8/2/2007
Matrix	Water	Water	Water	Water	Water	Water	Water
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1,3,5-Trimethylbenzene	ND	ND	ND	ND	NA	NA	NA
1,2,4-Trimethylbenzene	ND	ND	ND	ND	NA	NA	NA
1,1-Dichloroethene	ND	ND	ND	ND	NA	NA	NA
Chloroethane	ND	ND	ND	ND	NA	NA	NA
2-Butanone	ND	ND	ND	ND	NA	NA	NA
Acetone	ND	ND	ND	ND	NA	NA	NA
Benzene	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	78	ND	ND	ND	NA	NA	NA
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ND	ND	ND	ND	NA	NA	NA
Methyl tert-butyl ether	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ND	ND	ND	ND	NA	NA	NA
sec-Butylbenzene	ND	ND	ND	ND	NA	NA	NA
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloethene	ND	ND	ND	ND	NA	NA	NA
4-isopropyltoluene	ND	ND	ND	ND	NA	NA	NA
Trichloroethene	ND	ND	ND	ND	NA	NA	NA
Xylene (Total)	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	1 J	ND	ND	ND	NA	NA	NA
Total VOCs	78	0	0	0	0	0	0

Notes:

ug/l micrograms per liter

J estimated value because the compound was detected below the reporting limit or the compound is a tentatively identified compound

Appendix O
East 75th/76th Street Site
Remedial Action Report Addendum - Volume 3
Water Treatment System Laboratory Data
Metal Detected in Effluent Samples

Sample ID Lab Sample Number Sampling Date Matrix Units	LMS SWPITEFFLUENT MC0884 8/6/2005 Water ug/l	LMS SWPITEFFLUENT 0608010-02A 7/31/2006 Water ug/l	LMS SWPITEFFLUENT 0708040-02A 8/2/2007 Water ug/l	NYCDEP Limitations for Effluent to Sanitary or Combined Sewers
Aluminum	NA	NA	NA	NL
Antimony	NA	NA	NA	NL
Arsenic	NA	NA	NA	NL
Barium	NA	NA	NA	NL
Beryllium	NA	NA	NA	NL
Cadmium	ND	ND	ND	2 mg/l
Calcium	NA	NA	NA	NL
Chromium	ND	0.0112	ND	5 mg/l
Cobalt	NA	NA	NA	NL
Copper	ND	ND	ND	5 mg/l
Iron	NA	NA	NA	NL
Lead	ND	ND	ND	2 mg/l
Magnesium	NA	NA	NA	NL
Manganese	NA	NA	NA	NL
Mercury	ND	ND	ND	0.05 mg/l
Nickel	ND	ND	0.0100	3 mg/l
Potassium	NA	NA	NA	NL
Selenium	NA	NA	NA	NL
Silver	NA	NA	NA	NL
Sodium	NA	NA	NA	NL
Thallium	NA	NA	NA	NL
Vanadium	NA	NA	NA	NL
Zinc	ND	0.0103	0.0100	5 mg/l

Notes:

ug/l micrograms per liter

b compound was also detected in the associated Method Blank.

ND not detected

NA not applicable

Appendix O
East 75th/76th Street Site
Remedial Action Report Addendum - Volume 3
Water Treatment System Laboratory Data
Miscellaneous Parameters

Sample ID **Lab Sample Number** **Sampling Date** **Matrix**	**LMS SWPITEFFLUENT C0884 8/6/2002 Water**	**LMS SWPITEFFLUENT 0608010-02A 7/31/2006 Water**	**LMS SWPITEFFLUENT 0708040-02A 8/2/2007 Water**	**NYCDEP Limitations for Effluent to Sanitary or Combined Sewers**
Total Petroleum Hydrocarbons	NA	NA	NA	<50 mg/l
Oil and Grease	ND	ND	ND	NL
Flashpoint	No flash	> 140	> 140	NL
pH	NA	NA	8.8	5-11 SU's
Pesticides	NA	NA	NA	NL
PCBs	NA	NA	ND	NS
TSS	ND	10	ND	NS

Notes:
ug/l micrograms per liter
ND not detected
NA not applicable
NS no standard

Appendix O
East 75th/76th Street Site
Remedial Action Report Addendum - Volume 3
Laboratory Data for Indoor Air Samples
Air Sampling

Compound	Sample # 2 South Gym 0713375-003A 11/26/07 ug/m^3	Sample # 3 Ambient Air 0713375-002A 11/26/07 ug/m^3	Sample # 4 Library 0713375-001A 11/26/07 ug/m^3	NYSDOH Soil Vapor Intrusion Guidance Value ug/m^3
Trichloroethene	1.24	0.81	1.24	5
Tetrachloroethene	7.8	4.14	7.8	100

APPENDIX P

DEED RESTRICTION AND FILING RECEIPT