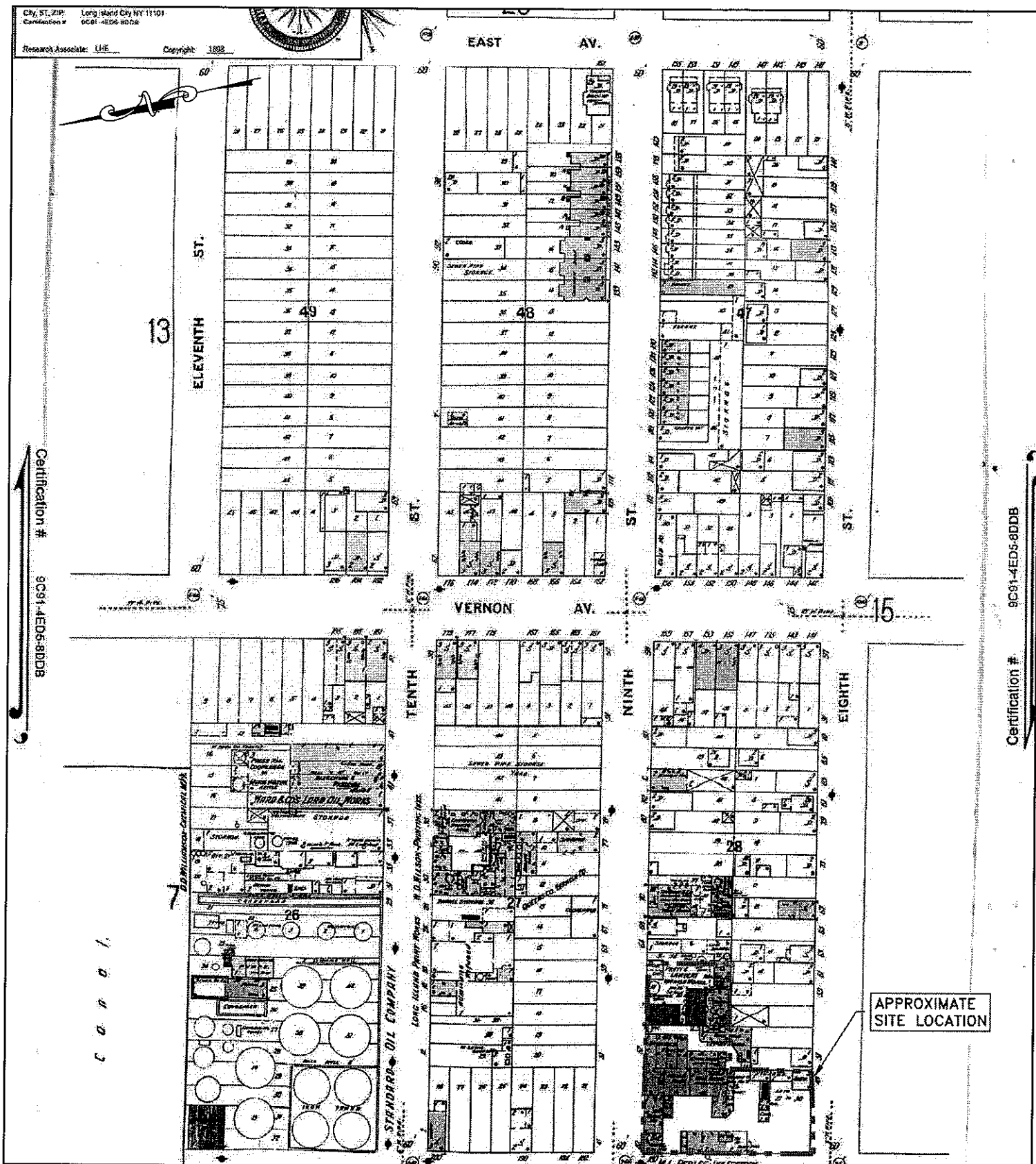


Appendix – 7

Certification # 9C01-4EDS-8DDB

Certification # 9C01-4EDS-8DDB



Environmental Waste Management Associates, LLC

P.O. Box 5430
 Parsippany, NJ 07054
 Tel: (973) 560-1400



SCALE: N.T.S.

DATE: 12/31/08

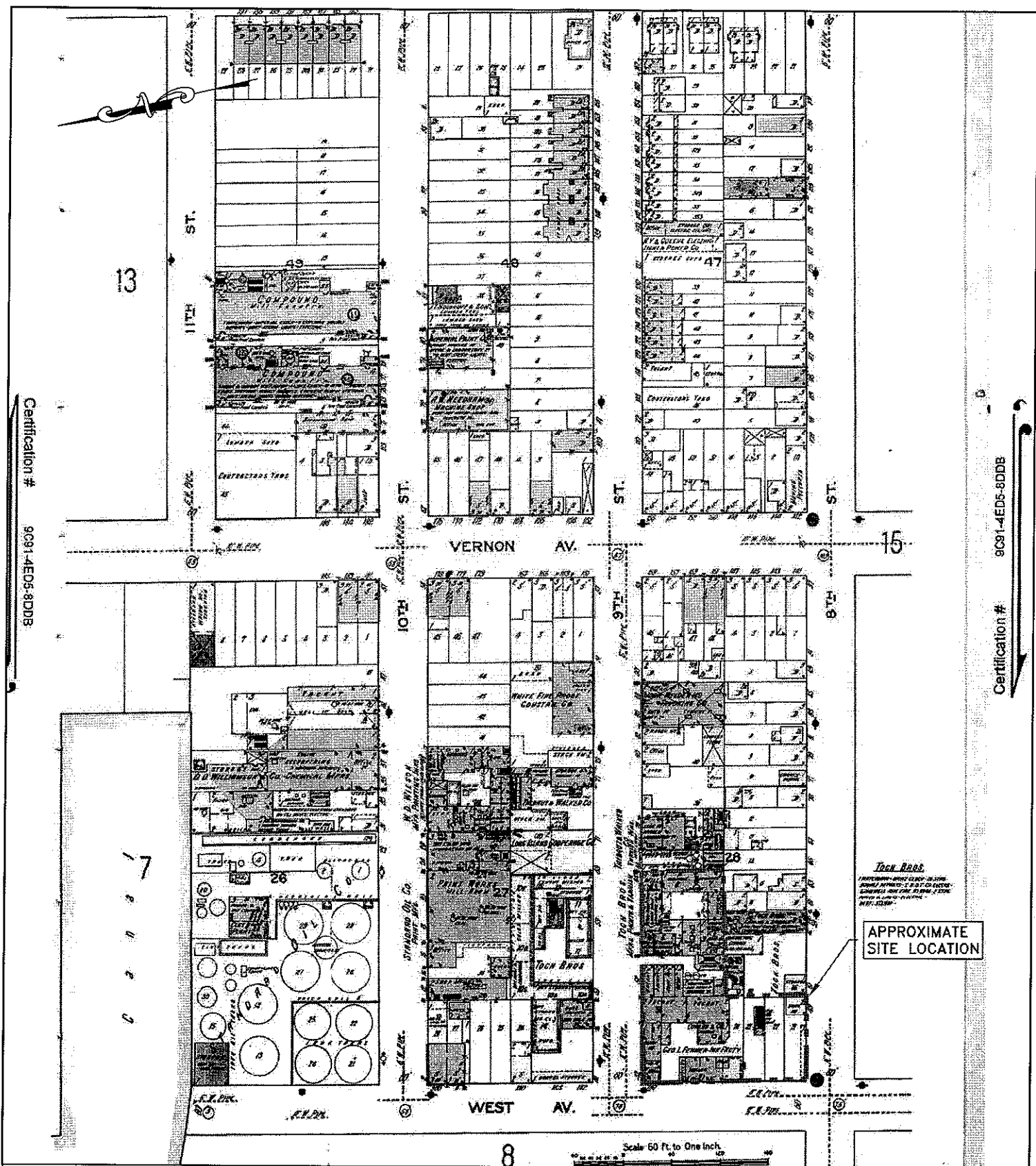
DRAWN BY: RR
 CHECKED BY: CV

PROJECT # 205490

1898 SANBORN FIRE INSURANCE MAP
 OCA LIC FIFTH STREET MIXED-USE HOUSING
 5-20 46TH ROAD
 LONG ISLAND CITY, NEW YORK

APPENDIX:

7-1



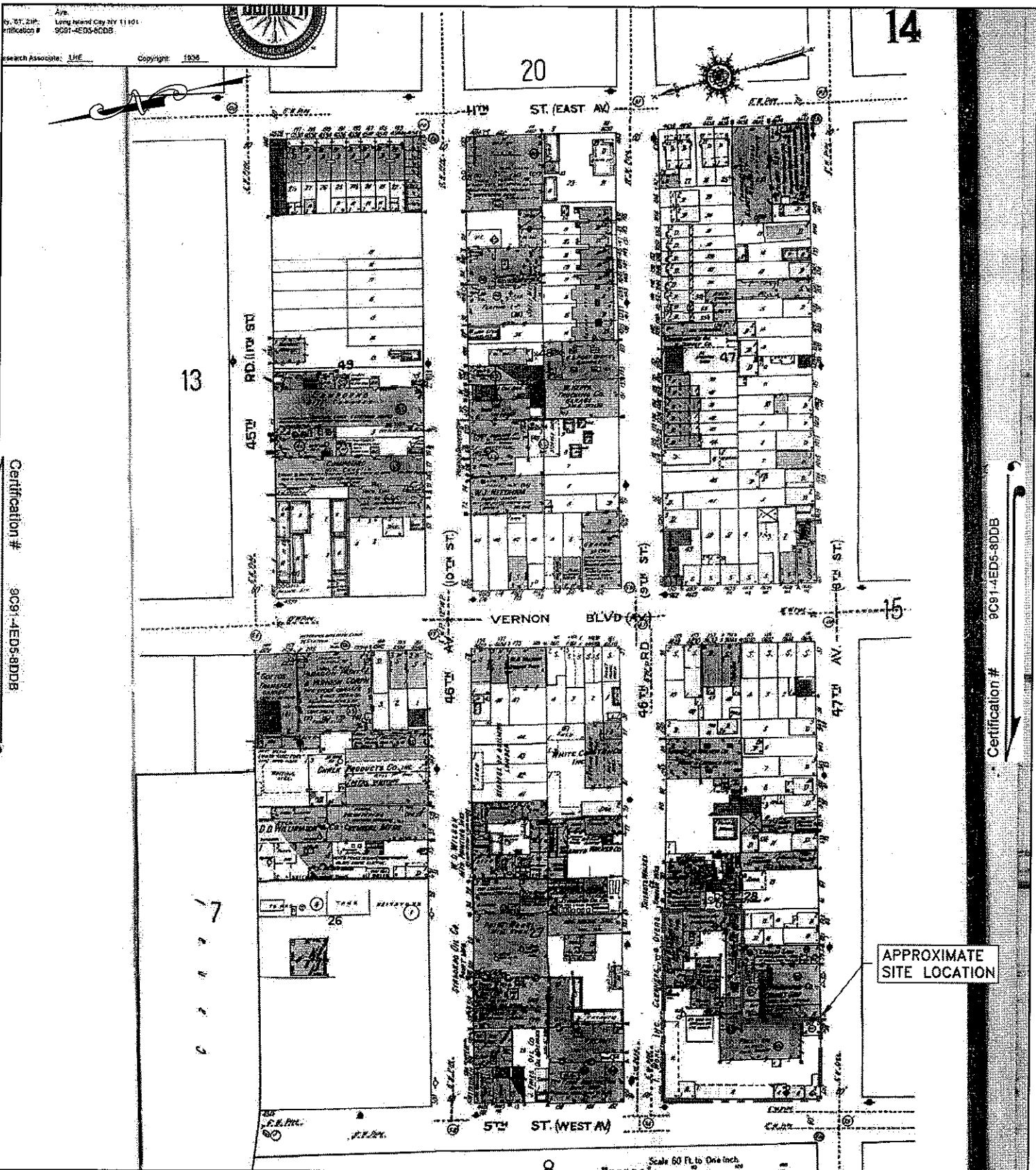
Certification # 9091-4ED5-8DD8

Certification # 9091-4ED5-8DD8

TOCH BRGS.
INTERIOR - 100% CLAY - 10%
 SAND - 10% - 10% TO 10%
 LIME - 10% TO 10% - 10%
 10% TO 10% - 10%
 10% TO 10% - 10%

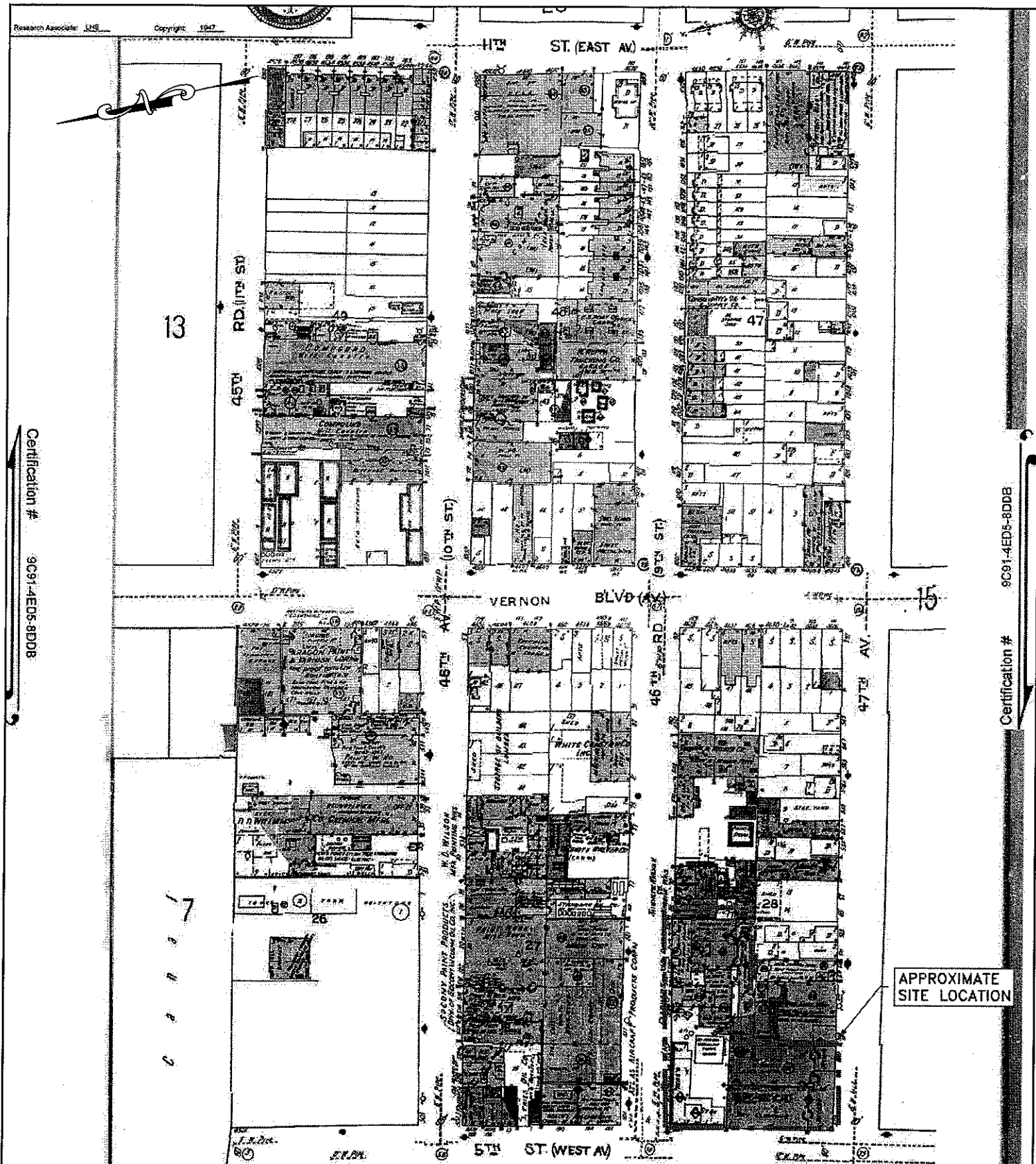
APPROXIMATE SITE LOCATION

SOURCE: EDR SANBORN, INC.	Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400		SCALE: N.T.S. DATE: 12/31/08	PROJECT# 205490
	1915 SANBORN FIRE INSURANCE MAP OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK		DRAWN BY: RR CHECKED BY: CV <small>FILE: h:\drawing\205000\205490.dwg DEC 2008</small>	APPENDIX: 7-2
	Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400			
	1915 SANBORN FIRE INSURANCE MAP OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK			



APPROXIMATE SITE LOCATION

Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400	SCALE: N.T.S.	PROJECT# 205490
	DATE: 12/31/08	
EWMA 1936 SANBORN FIRE INSURANCE MAP OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK	DRAWN BY: RR	APPENDIX: 7-3
	CHECKED BY: CV	



Certification # 9C91-4ED5-8DD8

Certification # 9C91-4ED5-8DD8

Environmental Waste Management Associates, LLC

P.O. Box 5430
Parsippany, NJ 07054
Tel: (973) 560-1400



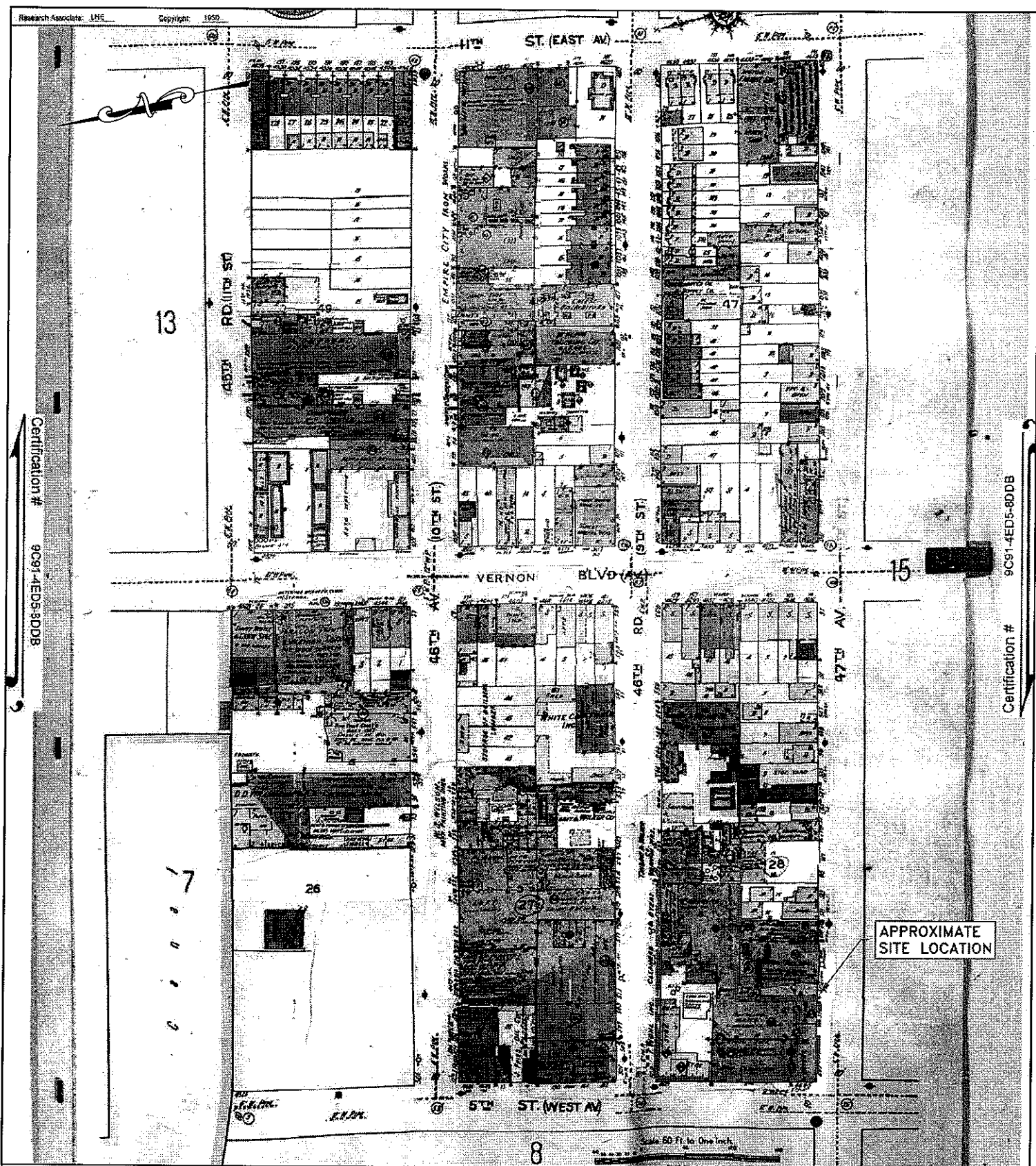
SCALE: N.T.S.
DATE: 12/31/08

PROJECT# 205490

DRAWN BY: RR
CHECKED BY: CV


1947 SANBORN FIRE INSURANCE MAP
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

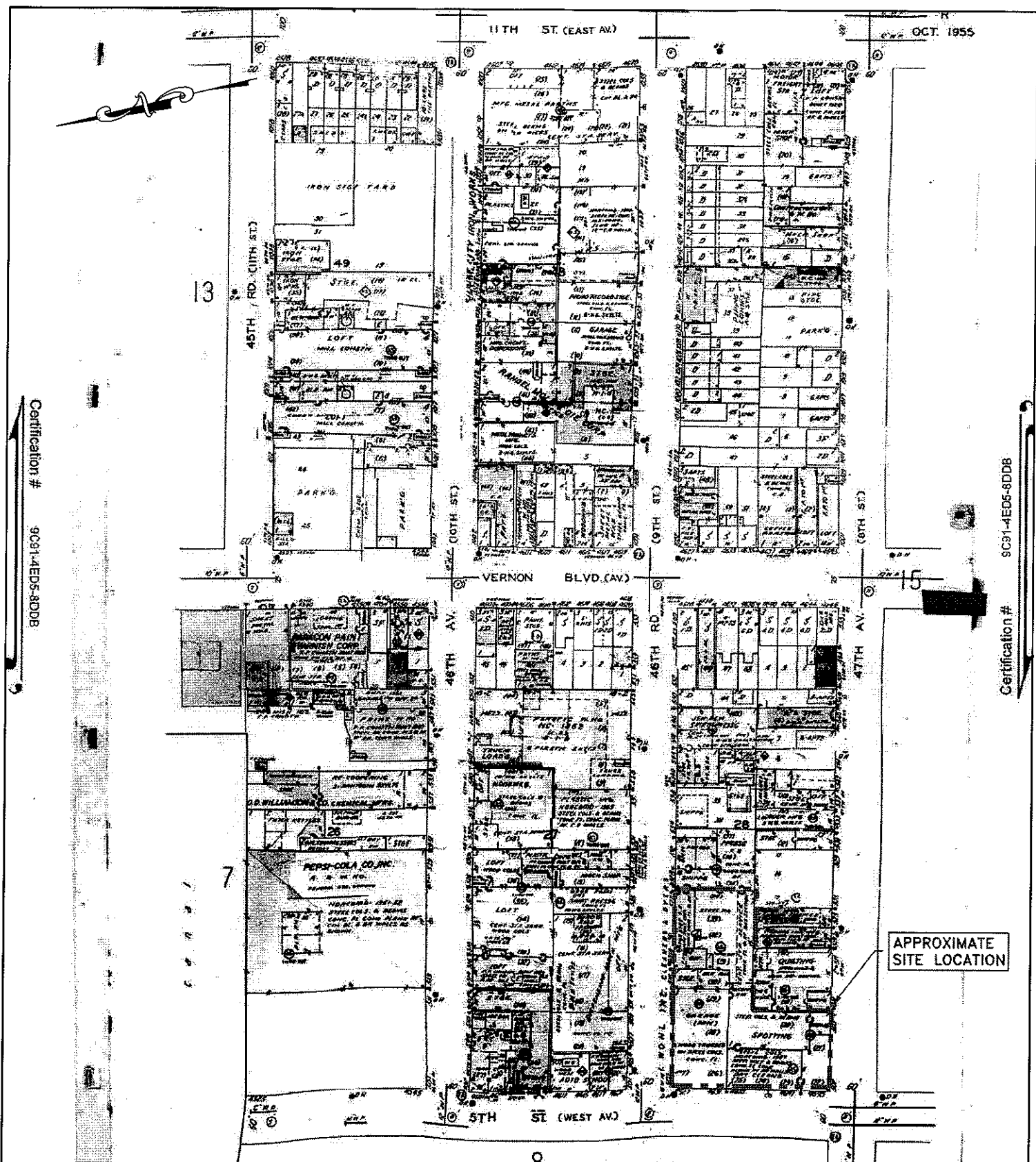
APPENDIX: 7-4



Certification # 9C91-4ED5-80DB

Certification # 9C91-4ED5-80DB

Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400 	SCALE: N.T.S.	PROJECT#
	DATE: 12/31/08	205490
	DRAWN BY: RR	
	CHECKED BY: CV	
1950 SANBORN FIRE INSURANCE MAP OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK		APPENDIX:
		7-5



Certification # 9C91-4ED5-8DD8

Certification # 9C91-4ED5-8DD8

Environmental Waste Management Associates, LLC

P.O. Box 5430
Parsippany, NJ 07054
Tel: (973) 560-1400



SCALE: N.T.S.

DATE: 12/31/08

DRAWN BY: RR
CHECKED BY: CV

PROJECT# 205490

1970 SANBORN FIRE INSURANCE MAP
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

APPENDIX:

7-6

SOURCE: EDR SANBORN, INC.

OCT 11

13

V19

東

10



4

1

9C91-4ED5-8DDB

9C91-4ED5-8DDB

Certification #

APPROXIMATE
SITE LOCATION



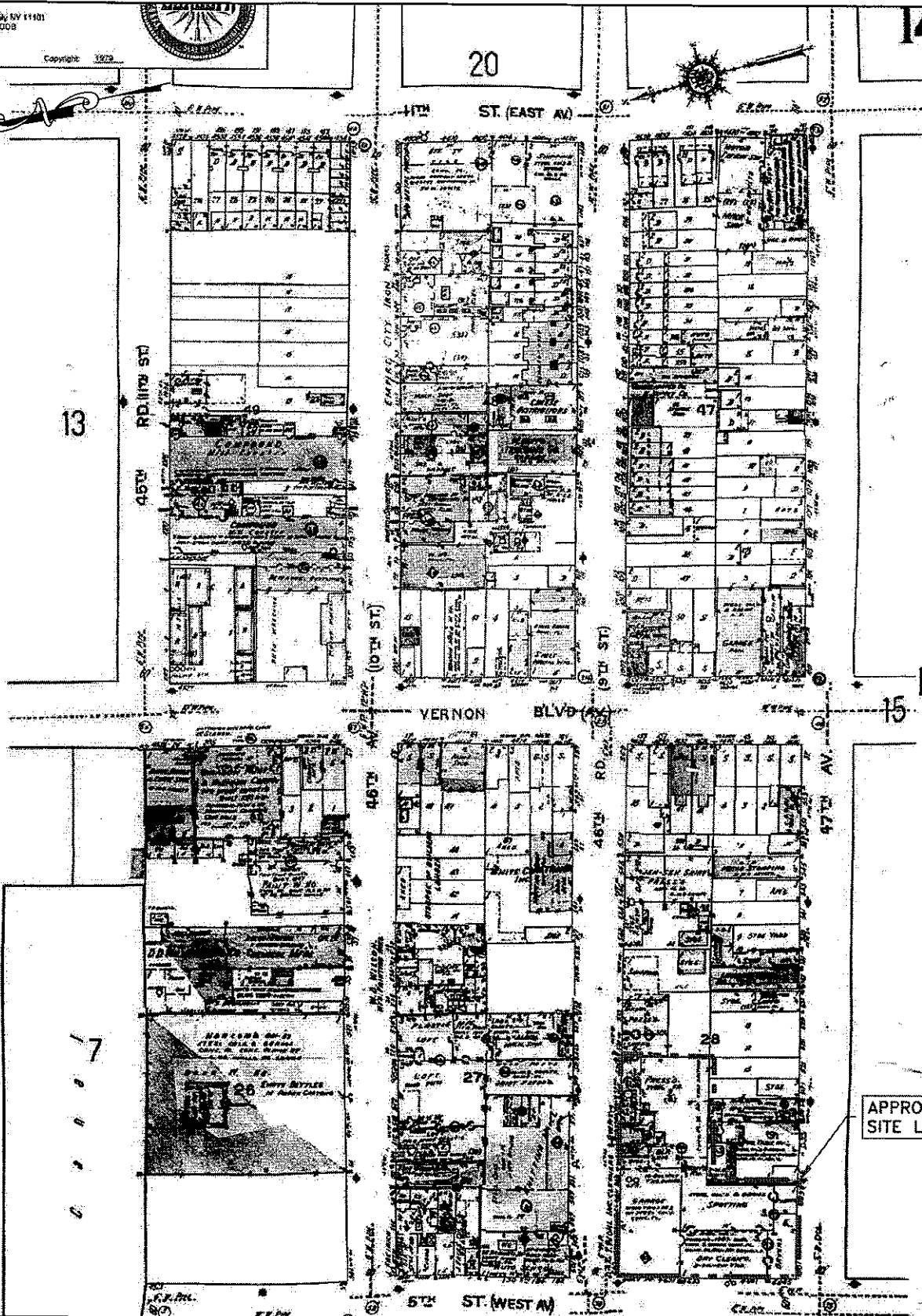
FILE: I:\drawings\205000\205400\08 DEC EAWP\205400A7.dwg

APPENDIX:

7-7

Certification # 9C91-4ED5-8DDB

SOURCE: EDR SANBORN, INC.



14

15

9C91-4ED5-8DDB

Certification #

Environmental Waste Management Associates, LLC
 P.O. Box 5430
 Parsippany, NJ 07054
 Tel: (973) 560-1400

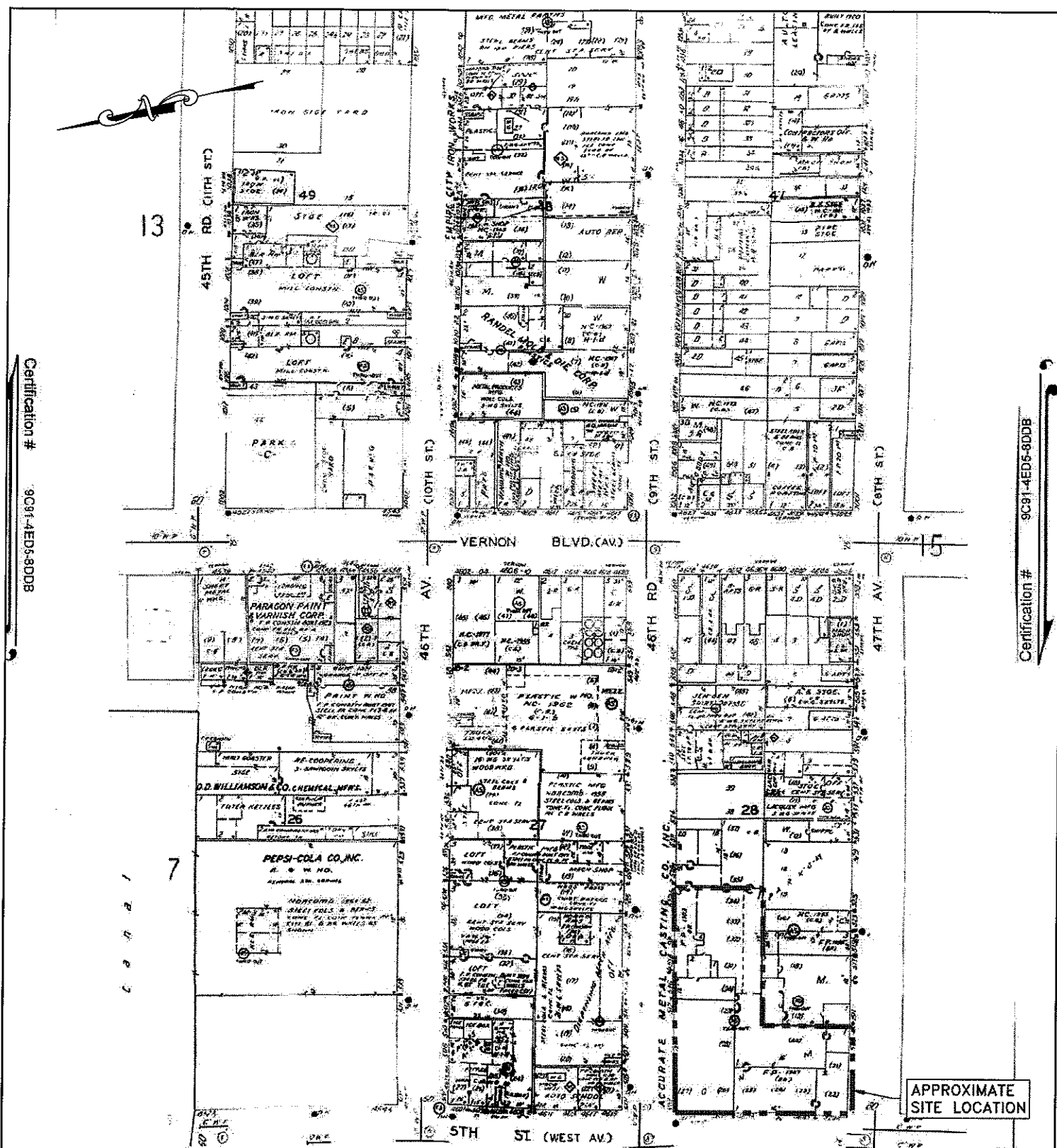


SCALE: N.T.S.
 DATE: 12/31/08
 DRAWN BY: RR
 CHECKED BY: CV
 FILE: H:\drawing\205490\205490.dwg

PROJECT# 205490

1979 SANBORN FIRE INSURANCE MAP
 OCA LIC FIFTH STREET MIXED-USE HOUSING
 5-20 46TH ROAD
 LONG ISLAND CITY, NEW YORK

APPENDIX: 7-8



The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.

**Environmental Waste
Management
Associates, LLC**

P.O. Box 5430
Parsippany, NJ 07054
Tel: (973) 560-1400

SCALE: N.T.S.

DATE: 12/31/08

DRAWN BY: RR
CHECKED BY: CV

PROJECT#

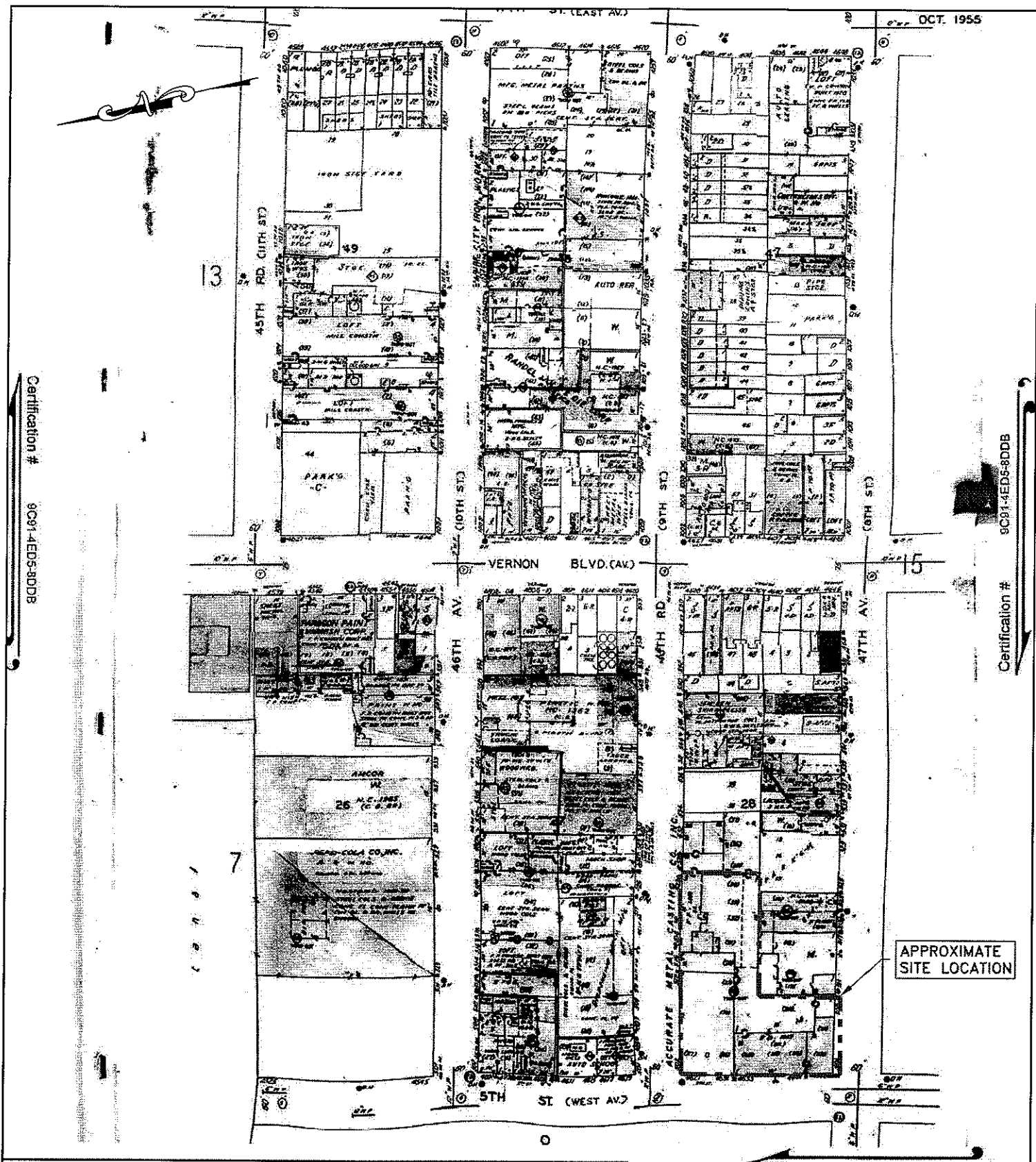
205490

1980 SANBORN FIRE INSURANCE MAP
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

APPENDIX:

7-9

SOURCE: EDR SANBORN, INC.



Certification # 9C91-4ED5-80DB

Certification # 9C91-4ED5-80DB

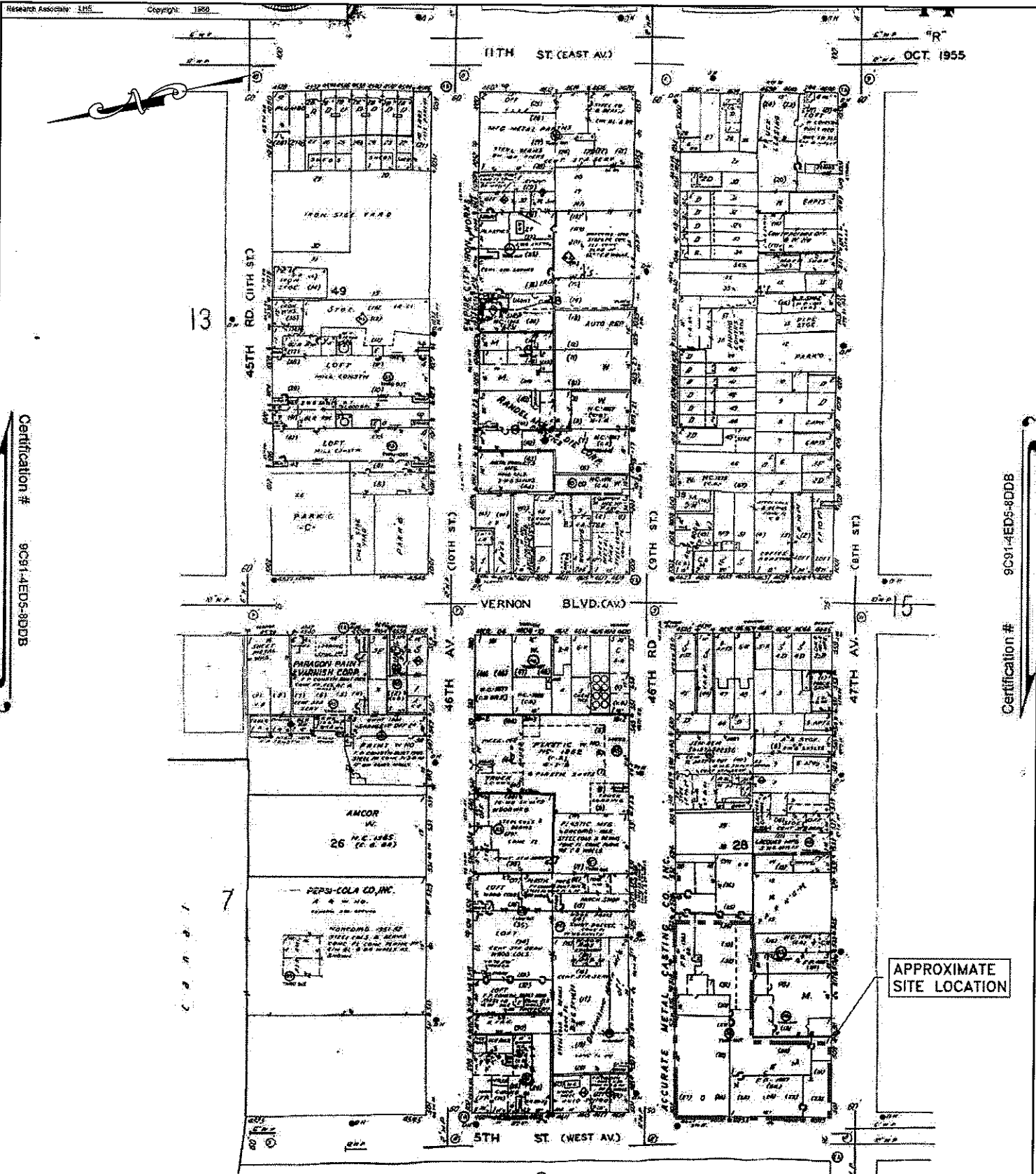
Environmental Waste Management Associates, LLC
P.O. Box 5430
Parsippany, NJ 07054
Tel: (973) 560-1400



SCALE: N.T.S.	PROJECT# 205490
DATE: 12/31/08	
DRAWN BY: RR	
CHECKED BY: CV	

1985 SANBORN FIRE INSURANCE MAP
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

APPENDIX:
7-10



Certification # 9C914EDS-8DD8

Certification # 9C914EDS-8DD8

Environmental Waste Management Associates, LLC

P.O. Box 5430
Parsippany, NJ 07054
Tel: (973) 560-1400



SCALE: N.T.S.
DATE: 12/31/08

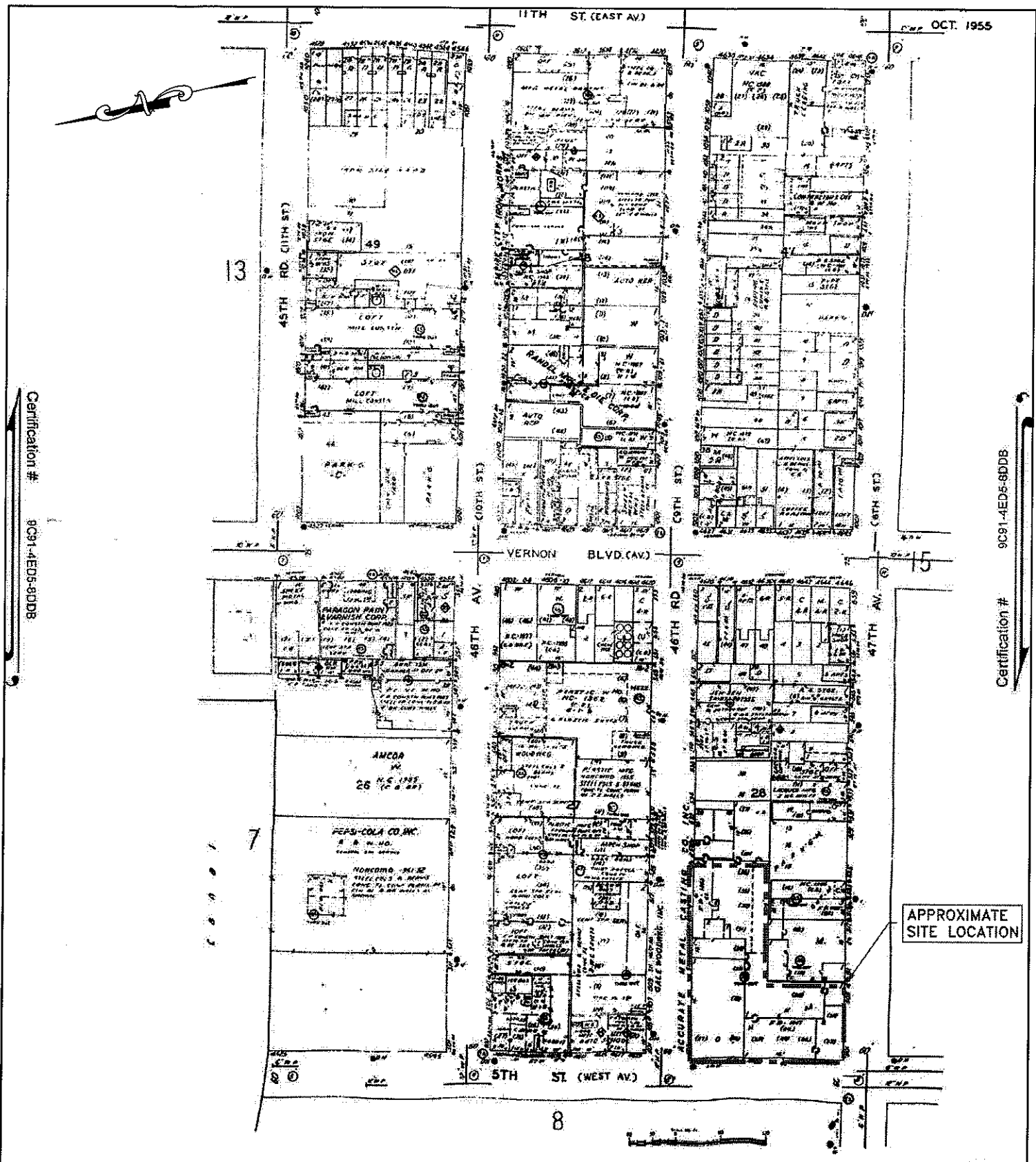
PROJECT # 205490

DRAWN BY: RR
CHECKED BY: CV

FILE: 12/31/08/205490/205490/08 DEC: 12/31/08/205490/08

1986 SANBORN FIRE INSURANCE MAP
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK


APPENDIX:
7-11



Certification # 9C91-4ED5-8DB8

Certification # 9C91-4ED6-8DB8

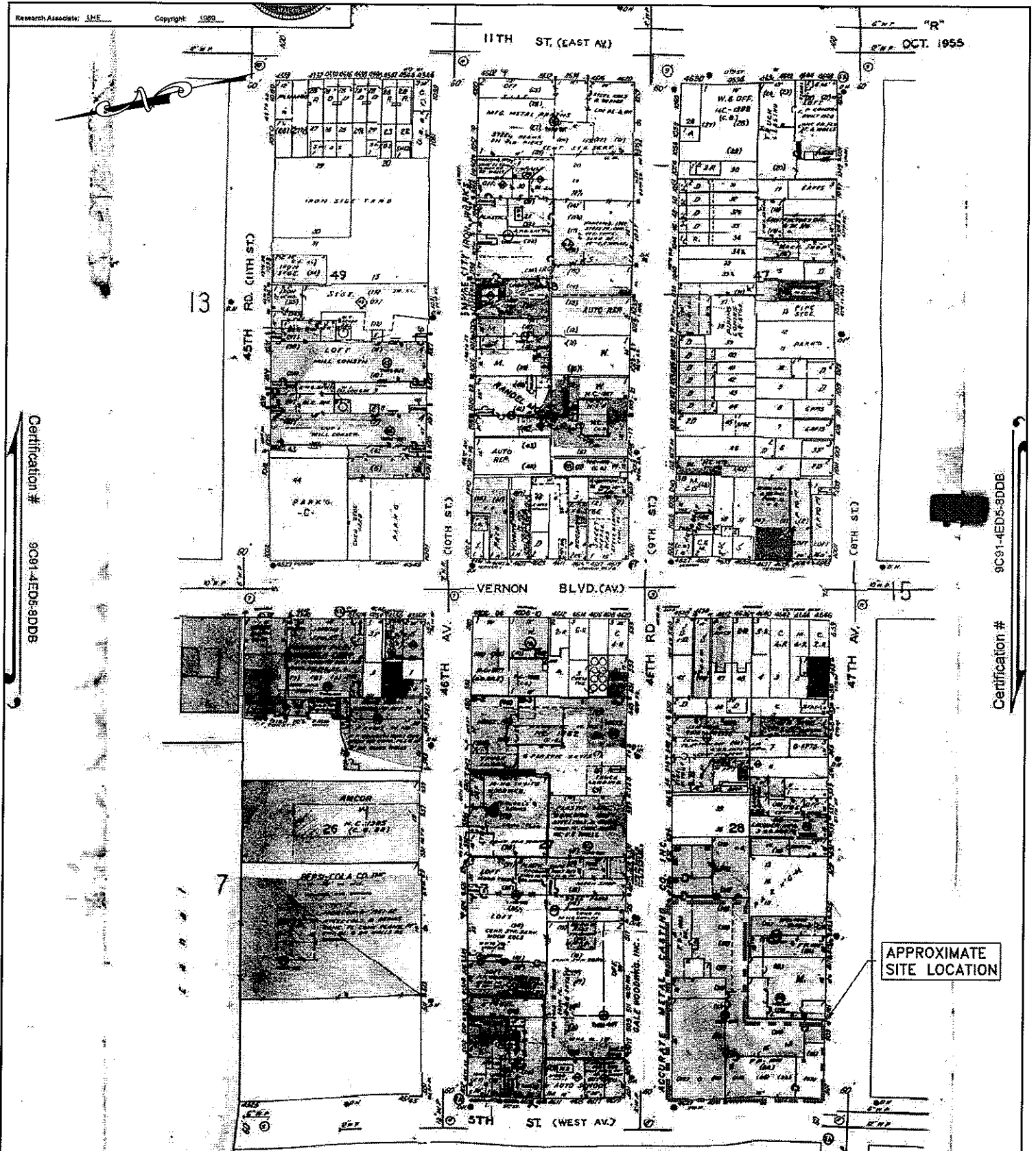
APPROXIMATE SITE LOCATION

Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400 	SCALE:	N.T.S.	PROJECT# 205490
	DATE:	12/31/08	
	DRAWN BY:	RR	APPENDIX: 7-12
	CHECKED BY:	CV	
1988 SANBORN FIRE INSURANCE MAP OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK			

SOURCE: EDR SANBORN, INC.

Certification # 9C91-4ED5-80DB

Certification # 9C91-4ED5-80DB



Environmental Waste Management Associates, LLC

P.O. Box 5430
Parsippany, NJ 07054
Tel: (973) 560-1400



SCALE: N.T.S.

DATE: 12/31/08

DRAWN BY: RR
CHECKED BY: CV

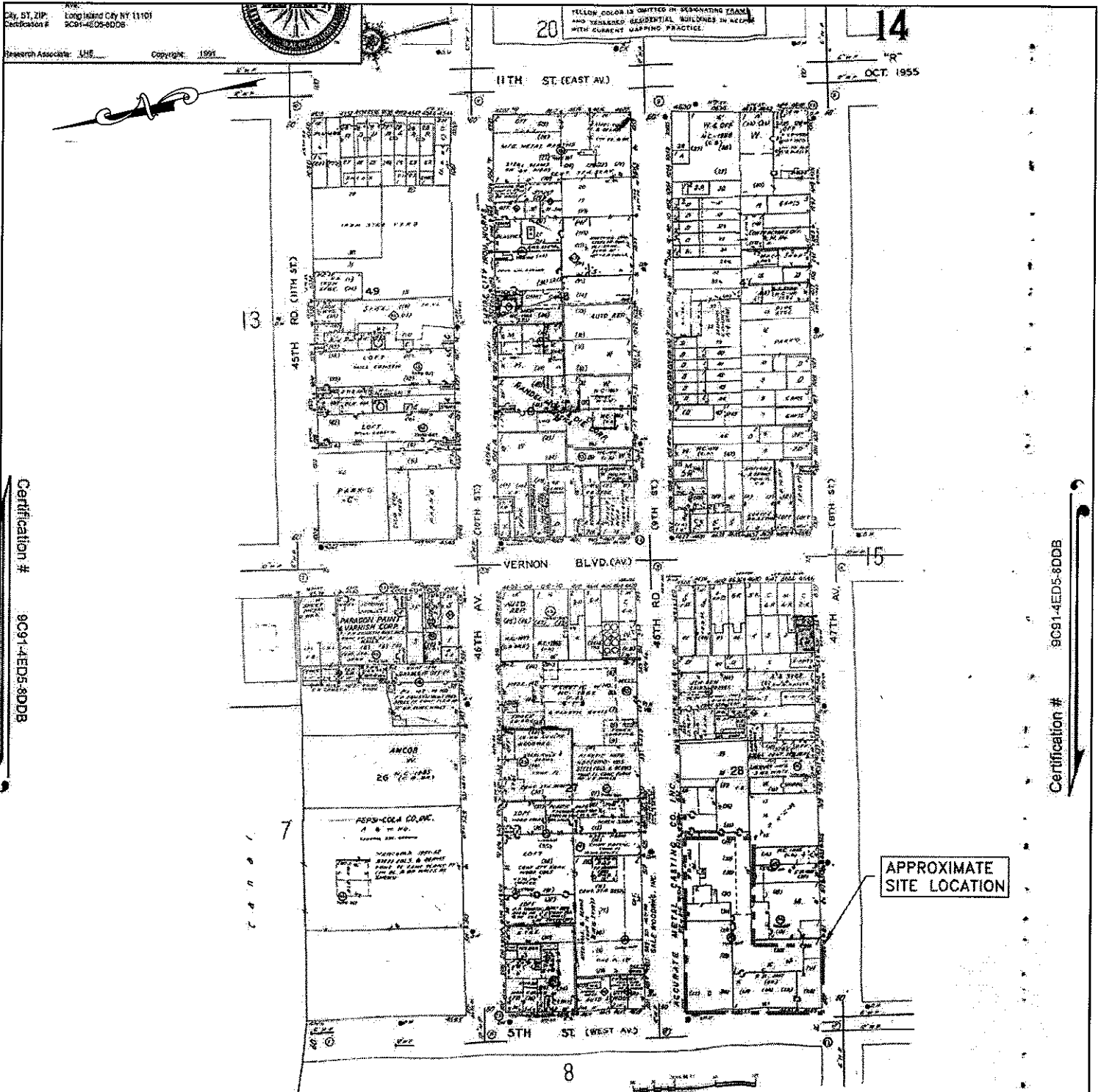
FILE: I:\drawing\205490\205490.DWG DEC 14/08 10:54:07 AM

PROJECT #
205490

1989 SANBORN FIRE INSURANCE MAP
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

APPENDIX:
7-13

Certification # 9C91-4ED5-8DD8



Certification # 9C91-4ED5-8DD8

©1991 Sanborn Co., EDR Sanborn, Inc.

Environmental Waste Management Associates, LLC

P.O. Box 5430
 Parsippany, NJ 07054
 Tel: (973) 560-1400



SCALE: N.T.S.

DATE: 12/31/08

DRAWN BY: RR
 CHECKED BY: CV

FILE: h:\drawing\205490\205490.dwg DEC: RANP\205490.dwg

PROJECT# 205490

1991 SANBORN FIRE INSURANCE MAP
 OCA LIC FIFTH STREET MIXED-USE HOUSING
 5-20 46TH ROAD
 LONG ISLAND CITY, NEW YORK

APPENDIX: 7-15

Appendix – 8



New York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan for Former Accurate Associates Site

5-20 46th Road
Long Island City
Queens, New York 11101

December 2008
Updated June 2009

Contents

<u>Section</u>	<u>Page Number</u>
1. What is New York’s Brownfield Cleanup Program?	3
2. Citizen Participation Plan Overview.....	3
3. Site Information	5
4. Remedial Process	7
5. Citizen Participation Activities.....	10
6. Major Issues of Public Concern.....	10
Appendix A – Site Location Map	11
Appendix B – Project Contacts and Document Repositories.....	12
Appendix C – Brownfield Site Contact List	13
Appendix D – Identification of Citizen Participation Activities.....	17
Appendix E – Brownfield Cleanup Program Process	18

* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the brownfield site’s remedial process.

Applicant: **OCA Long Island City, LLC (“Applicant”)**
Site Name: **Former Accurate Associates Site (“site”)**
Site Address: **5-20 46th Road, Long Island City, New York 11101**
Site County: **Queens County**
Site Number: **C241098**

1. What is New York’s Brownfield Cleanup Program?

New York’s Brownfield Cleanup Program (BCP) is designed to encourage the private sector to investigate, remediate (clean up) and redevelop brownfields. A brownfield is any real property where redevelopment or reuse may be complicated by the presence or potential presence of a contaminant. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal and financial burdens on a community. If the brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site remedial activities.¹ An Applicant is a person whose request to participate in the BCP has been accepted by NYSDEC. The BCP contains investigation and remediation (cleanup) requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: www.dec.state.ny.us/website/der/bcp .

2. Citizen Participation Plan Overview

This Citizen Participation (CP) Plan provides members of the affected and interested public with information about how NYSDEC will inform and involve them during the investigation and remediation of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Appendix A contains a map identifying the location of the site.

Project Contacts

Appendix B identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site’s remedial program. The public’s suggestions about this CP

¹ “Remedial activities”, “remedial action”, and “remediation” are defined as all activities or actions undertaken to eliminate, remove, treat, abate, control, manage, or monitor contaminants at or coming from a brownfield site.

Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Document Repositories

The locations of the site's document repositories also are identified in Appendix B. The document repositories provide convenient access to important project documents for public review and comment.

Site Contact List

Appendix C contains the brownfield site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and remediation process. The brownfield site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming remedial activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The brownfield site contact list includes, at a minimum:

- X chief executive officer and official(s) principally involved with relevant zoning and planning matters of each county, city, town and village in which the site is located;
- X residents, owners, and occupants of the site and properties adjacent to the site;
- X the public water supplier which services the area in which the site is located;
- X any person who has requested to be placed on the site contact list;
- X the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- X document repositories.

Where the site or adjacent real property contains multiple dwelling units, the Applicant will work with NYSDEC to develop an alternative method for providing such notice in lieu of mailing to each individual. For example, the owner of such a property that contains multiple dwellings may be requested to prominently display fact sheets and notices required to be developed during the site's remedial process. This procedure would substitute for the mailing of such notices and fact sheets, especially at locations where renters, tenants and other residents may number in the hundreds or thousands, making the mailing of such notices impractical.

The brownfield site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix B. Other additions to the brownfield site contact list may be made on a site-specific basis at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

Appendix D identifies the CP activities, at a minimum, that have been and will be conducted during the site's remedial program. The flowchart in Appendix E shows how these CP activities integrate with the site remedial process. The public is informed about these CP activities through fact sheets and notices developed at significant points in the site's remedial process.

- X **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a brownfield site, and the nature and progress of efforts to investigate and remediate a brownfield site.

- X **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a brownfield site's investigation and remediation.

The public is encouraged to contact project staff at any time during the site's remedial process with questions, comments, or requests for information about the remedial program.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 6. or in the nature and scope of remedial activities. Modifications may include additions to the brownfield site contact list and changes in planned citizen participation activities.

3. Site Information

Site Description

The subject Site covers approximately 42,575 square feet of area. The tax map identification for the subject Site is Block 28, Lots 21 and 38. The commonly used street address for the subject Site is 5-20 46th Road. However, the following additional street addresses are documented under the referenced Block/ Lot within the New York City Department of Buildings databases: 46-27 through 46-45 5th Street, 5-02 through 5-38 46th Road, and 5-01 through 5-09 47th Avenue.

The subject Site is of an L-shape with approximately 300 feet of frontage along the southern side of 46th Road, 200 feet of frontage along the eastern side of the 5th Street, and 100 feet of frontage along the northern side of 47th Avenue

The site is located within an old industrial portion of Long Island City, Queens County, New York. The East River is the closest water body located approximately ¼-mile west of the subject Site.

Site History

The entire Site is primarily covered with buildings, except for an eastern portion of the Site, which is being used as a fenced parking lot. A number of lessees have most recently occupied

the site, with operations including electrical contractor, art studio, office space, custom design furniture, marble and granite works, sheet metal duct work, motorcycle repair shop, etc. The majority of the lessees spaces have now been vacated and/or are in the process of being vacated.

Historically, the subject Site had initially been developed prior to 1898 for use as an ink factory (i.e., M.L. Perlee) and a varnish works (i.e., Pratt & Lambert). Other previous occupants and uses identified at the subject Site included George L. Fenner (ink factory), Toch Bros. (manufacturer of paints & varnishes), Thibault & Walker Co. (varnish works), I. Wohl Inc. (cleaners & dyers), a dry cleaning and spotting facility, and Accurate Metal Casting Co., Inc. These identified occupants and uses likely used industrial solvents, lubricating and cutting oils, metal polishing materials, plating bath solutions, paint and painting products, and dye products as part of their operations.

Several areas of concern (AOCs) related to the past operations and more recent operations discussed above, including former and existing suspected underground storage tanks (USTs), impacted ground water, and historic fill material.

Based on the results of several past investigations, site soils and ground water have been deemed to be impacted with volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals above the applicable state regulatory clean up criteria. The site ground water has also been deemed to be impacted with light non-aqueous phase liquids (LNAPLs) historically observed in one monitoring well.

Environmental History

A portion of the subject Site identified as 5-20 46th Road, Long Island City, New York (Block 28, Lot 21) was the subject of an Administrative Order (Docket No. II RCRA-7003-91-0201) issued by the United States Environmental Protection Agency (USEPA) pursuant to Resource Conservation and Recovery Act (RCRA), Section 7003. Pursuant to this Order, Accurate Associates (former owner and operator at the site) undertook certain removal, investigative and remedial activities at the premises under USEPA's oversight. As part of the remedial activities, portions of the concrete floor and walls within this portion of the Site were encapsulated for the purpose of residual lead, arsenic, and selenium contamination. Pursuant to EPA's RCRA Administrative Order for the property, effective May 29, 1991, the Order's Respondents filed a Notice in Deed in the Queens County City Register on July 14, 1993, No. 47605. The Deed Notice was the final action required by Respondents pursuant to the RCRA Order, as all other removal and remediation actions were satisfactorily performed.

In March 2007, USEPA consented to the suspension of the Notice in Deed, and termination of that Notice, upon completion of the remedial program carried out by OCA Long Island City, LLC (OCA), the proposed developer of the site, under a Brownfield Cleanup Agreement (BCA) with the NYSDEC.

Several environmental investigation activities have been completed at the subject Site since the USEPA's Administrative Order on behalf of the former as well as the current owners of the Site.

Investigation and cleanup activities were conducted during 1991-1992 at the subject Site as part of the USEPA enforcement actions under the RCRA Administrative Order at the 5-20 46th Road portion of the Site. The following reports summarize the results of these activities, which have been provided to NYSDEC as part of the BCP application submitted by OCA, the proposed developer of the site:

1. "Report of Investigation and Clean-Up Activities, Accurate Famous Castings, Inc. Site, Long Island City, New York", prepared by CA Rich Consultants, Inc. (CA Rich), March 24, 1992;
2. "Report of Soil Sample Investigation for: Accurate Famous Castings, Inc. Site, Long Island City, New York", prepared by CA Rich, July 10, 1992;
3. "Corrective Measures Plan for the Accurate Famous Casting Site, Long Island City, New York", prepared by CA Rich, July 10, 1992.

The following provides a list of additional reports that summarize the prior environmental investigation activities conducted on a site-wide basis, which have been previously provided to NYSDEC as part of the BCP application submitted by OC, the proposed developer of the Site:

1. "Phase I Environmental Site Assessment, 46-31, 46-33, 46-35 5th Street, Long Island City, New York", prepared by J.C. Broderick & Associates, Inc. (JCB), June 2005;
2. Letter report titled "Environmental Sampling Services Utilizing Geoprobe® Methodology at 5-36 46th Road, Long Island City, New York, Sampling Date: May 18, 2005", prepared by JCB, June 09, 2005;
3. Letter report titled "Environmental Sampling Services Utilizing Geoprobe® Methodology at 5-36 46th Road, Long Island City, New York, Sampling Date: August 08 and 09, 2005", prepared by JCB, September 19, 2005;
4. "Phase I Environmental Site Assessment, 5-20 46th Road, Long Island City, New York", prepared by EEA, Inc. (EEA), May 4, 2006;
5. "Phase II Subsurface Investigation Report, 5-20 46th Road, Long Island City, New York", prepared by EEA, May 19, 2006

4. Remedial Process

Note: See Appendix E for a flowchart of the brownfield site remedial process.

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for unrestricted purposes.

To achieve this goal, the Applicant will conduct remedial activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting a remedial program at the site.

Investigation

If the Applicant conducts a remedial investigation (RI) of the site, it will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment as noted in Appendix D. The goals of the investigation are as follows:

- 1) Define the nature and extent of contamination in soil, surface water, groundwater and any other impacted media;
- 2) Identify the source(s) of the contamination;
- 3) Assess the impact of the contamination on public health and/or the environment; and
- 4) Provide information to support the development of a Remedial Work Plan to address the contamination, or to support a conclusion that the contamination does not need to be addressed.

The Applicant will prepare an RI Report after it completes the RI. This report will summarize the results of the RI and will include the Applicant's recommendation of whether remediation is needed to address site-related contamination. The RI Report is subject to review and approval by NYSDEC. Before the RI Report is approved, a fact sheet that describes the RI Report will be sent to the site's contact list.

NYSDEC will determine if the site poses a significant threat to public health and/or the environment. If NYSDEC determines that the site is a "significant threat," a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying community group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the eligible site.

For more information about the TAG Program and the availability of TAGs, go online at: www.dec.state.ny.us/website/der/guidance/tag/.

Remedy Selection

After NYSDEC approves the RI Report, the Applicant will be able to develop a Remedial Work Plan if remediation is required. The Remedial Work Plan describes how the Applicant would address the contamination related to the site.

The public will have the opportunity to review and comment on the draft Remedial Work Plan. The site contact list will be sent a fact sheet that describes the draft Remedial Work Plan and announces a 45-day public comment period. NYSDEC will factor this input into its decision to approve, reject or modify the draft Remedial Work Plan.

A public meeting may be held by NYSDEC about the proposed Remedial Work Plan if requested by the affected community and if significant substantive issues are raised about the draft Remedial Work Plan. Please note that, in order to request a public meeting, the health, economic well-being or enjoyment of the environment of those requesting the public meeting must be threatened or potentially threatened by the site. In addition, the request for the public meeting should be made within the first 30 days of the 45-day public comment period for the draft Remedial Work Plan. A public meeting also may be held at the discretion of the NYSDEC project manager in consultation with other NYSDEC staff as appropriate.

Construction

Approval of the Remedial Work Plan by NYSDEC will allow the Applicant to design and construct the alternative selected to remediate the site. The site contact list will receive notification before the start of site remediation. When the Applicant completes remedial activities, it will prepare a final engineering report that certifies that remediation requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the remediation is protective of public health and the environment for the intended use of the site. The site contact list will receive a fact sheet that announces the completion of remedial activities and the review of the final engineering report.

Certificate of Completion and Site Management

Once NYSDEC approves the final engineering report, it will issue the Applicant a Certificate of Completion. This Certificate states that remediation goals have been achieved, and relieves the Applicant from future remedial liability, subject to statutory conditions. The Certificate also includes a description of any institutional and engineering controls or monitoring required by the approved remedial work plan. If the Applicant uses institutional controls or engineering controls to achieve remedial objectives, the site contact list will receive a fact sheet that discusses such controls.

An institutional control is a non-physical restriction on use of the brownfield site, such as a deed restriction that would prevent or restrict certain uses of the remediated property. An institutional control may be used when the remedial action leaves some contamination that makes the site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination, such as a cap or vapor barrier.

Site management will be conducted by the Applicant as required. NYSDEC will provide appropriate oversight. Site management involves the institutional and engineering controls required for the brownfield site. Examples include: operation of a water treatment plant, maintenance of a cap or cover, and monitoring of groundwater quality.

5. Citizen Participation Activities

CP activities that have already occurred and are planned during the investigation and remediation of the site under the BCP are identified in Appendix D: Identification of Citizen Participation Activities. These activities also are identified in the flowchart of the BCP process in Appendix E. NYSDEC will ensure that these CP activities are conducted, with appropriate assistance from the Applicant.

All CP activities are conducted to provide the public with significant information about site findings and planned remedial activities, and some activities announce comment periods and request public input about important draft documents such as the Remedial Work Plan.

All written materials developed for the public will be reviewed and approved by NYSDEC for clarity and accuracy before they are distributed. Notices and fact sheets can be combined at the discretion, and with the approval of, NYSDEC.

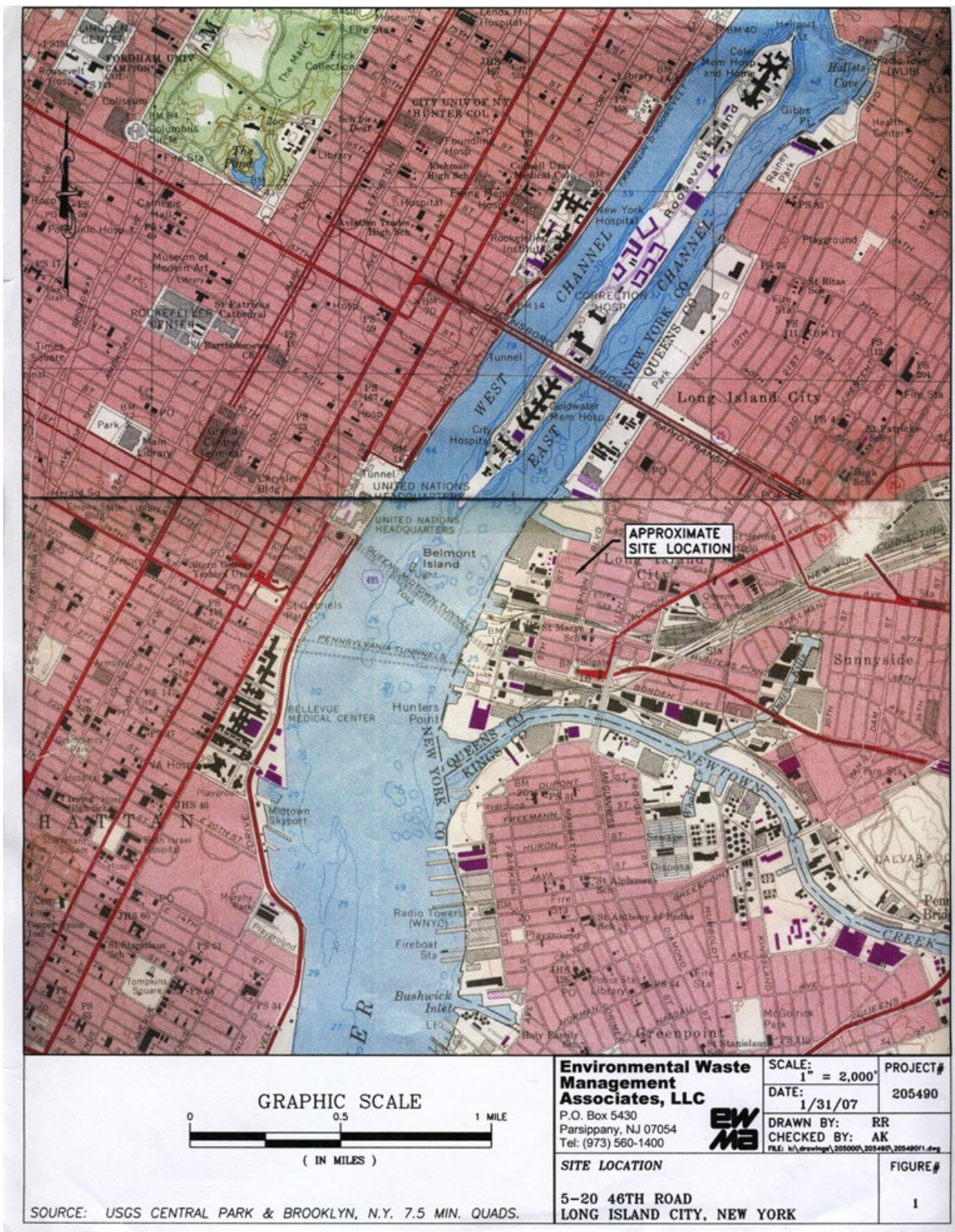
6. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern, if any, that relate to the site. Additional major issues of public concern may be identified during the site's remedial process.

Based on the results of several previous environmental investigations and remedial activities, there are no major issues of public concern at the site. The site is not near any public water supply or private water wells and future development and remediation will not create any restrictions on community activities or health concerns.

However, it should be noted that during the proposed redevelopment activities, contaminants known to be present in the soils, especially VOCs, SVOCs and metals may become airborne and pose potential health risks to on-site workers and occupants on adjacent properties. However, a NYSDEC Community Air Monitoring Program (CAMP) is in place for the proposed investigation and development activities and will be followed for safeguarding the workers and other occupants against any potential exposures.

Appendix A – Site Location Map



Appendix B – Project Contacts and Document Repositories

Project Contacts

For information about the site’s remedial program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Bryan Wong

Project Manager
NYSDEC Region 2
Division of Environmental Remediation
47-40 21st Street
Long Island City, New York 11101
(718) 482-6446

Arturo Garcia-Costas

Citizen Participation Specialist
NYSDEC Region 2
47-40 21st Street
Long Island City, New York 11101
718-482-7287

New York State Department of Health (NYSDOH):

Bridget Callaghan

Project Manager
NYSDOH
New York State Department of Health
Center for Environmental Health
Bureau of Environmental Exposure Investigation
547 River Street, Rm. 300
Troy, NY 12180-2216
518 402-7850

Document Repositories

The document repositories identified below have been established to provide the public with convenient access to important project documents:

Court Square Library (CitiCorp Building)

25-01 Jackson Avenue
Long Island City, NY 11101
Attn: **Quege Doumouza**
Phone: **(718) 937-2790**
Hours: Mon: 12:00 Noon to 7:00 PM
Tue: 1:00 PM to 6:00 PM
Wed: 10:00 AM to 6:00 PM
Thu: 12:00 Noon to 6:00 PM
Sat/ Sun: Closed

Queens Community Board 243-22 50th Street, 2nd Floor

Woodside, NY 11377
Attn: **Joe Conley**
Phone: (718) 533-8773
Hours: Mon – Fri: 9:00 AM to 5:00 PM
Sat/ Sun: Closed

Appendix C – Brownfield Site Contact List

1. The Chief Executive officer and zoning board chairperson of each county, city, town and village in which the site is located:

The subject property is located in the jurisdiction of Community Board No.2, 43-22 50th Street, Woodside, Queens, New York.

Chief Executive Officer

Mayor Michael R. Bloomberg
City Hall
New York, NY 10007

Zoning Board Chairperson

Joseph Conley
Community Board No. 2
43-22 50th Street
Woodside, Queens, New York 11377

District Manager

Dolores Rizzatto
Community Board No. 2
43-22 50th Street
Woodside, Queens, New York 11377

Borough President of Queens

Helen Marshall
12-55 Queens Boulevard
Kew Gardens, New York 11424

Director of Planning and Zoning

Irving Poy
Queens Borough President's Office
12-55 Queens Boulevard
Kew Gardens, New York 11424

2. Adjacent property owners, residents and occupants:

46th Road

ACE Dot Hangers 5-17
Kaikai Kiki, New York 5-17
Konduit Commercial 5-21
Plaxall Inc. 5-25
ABCC 5-48
Residents at three apartments 5-50

Vernon Boulevard

Junior's Café 46-18
Certified Elevator 46-28
Residents at two apartments 46-28
Glory Deli and Grocery 46-30
Residents at eight apartments 46-32
Residents at five apartments 46-36
Residents at five apartments 46-40
Residents at five apartments 46-42
McReilly's Pub 46-42
RIF Landscape & Architecture 46-44
Residents at four apartments 46-44
Art-O-Mat 36-36
Residents at two apartments 46-46

47th Avenue

Wesco Technologies 5-11
Baking Sensible 5-15
Galmer LTD 5-19
Wolf Installations Exterior Installations 5-25
Index Demo 5-35 – Vacant
Residents at six apartments 5-43
Classic Medallics 5-45 – Vacant
Residents at five apartments 5-49
Krypton Neon 5-51

3. Local news media from which the community typically obtains information:

Newsday, Queens Edition
80-02 Kew Gardens Road
Kew Gardens, New York 11415

4. The public water supplier, which services the area in which the property is located:

The New York City Department of Environmental Protection via the Croton/Catskill – Delaware reservoir water supply system supplies water to the property.

5. Any person who has requested to be placed on the contact list:

Nicole Vecchione
Strategic Researcher
Laborers International Union of North America
104 Interchange Plaza, Suite 304
Monroe TWP. , NJ 08831

Brenard Callegari
Market Development Department
Laborers' International Union of North America
Local 79 constructions and general building laborers
520 8th Avenue, 6th Floor
New York, NY 10018

6. The administrator of any school or day care facility located on or near the property:

PS 78
48-09 Center Boulevard
Long Island City, New York 11101

The Little Ones Nursery School
4-74 48th Avenue
Long Island City, New York 11101

Construction of a school is planned on the Queens West Property, which is located west of the Site.

7. The location of a document repository for the project (e.g., local library):

Court Square Library (CitiCorp Building)
25-01 Jackson Avenue
Long Island City, New York 11101
Contact: Qulege Doumouza
(718) 937 2790

Queens Community Board No. 2
43-22 50th Street, 2nd Floor
Woodside, New York 11377

8. New York State Department of Environmental Conservation Contacts:

Robert Cozzy
NYSDEC
625 Broadway 12th Floor
Albany, NY 12233

Jane O'Connell
NYSDEC Region 2
Division of Environmental Remediation
47-40 21st street
Long Island City, New York 11101

Gary Litwin
Bureau of Environmental Exposure Investigation New York State Department of Health
Flanigan Square
547 River Rd
Troy, NY 12180-2216

9. Current Site Owner / Operator Information Summary Sheet

The current owner of the subject Site is as follows:

Attn: Brent Carrier
OCA Long Island City, LLC
c/o O'Connor Capital Partners
535 Madison Avenue, 23rd Floor
New York, NY 10022
(212) 546-0832 (Ph)
(212) 546-0831 (Fax)

10. The Most Recent Site Operators/Tenants

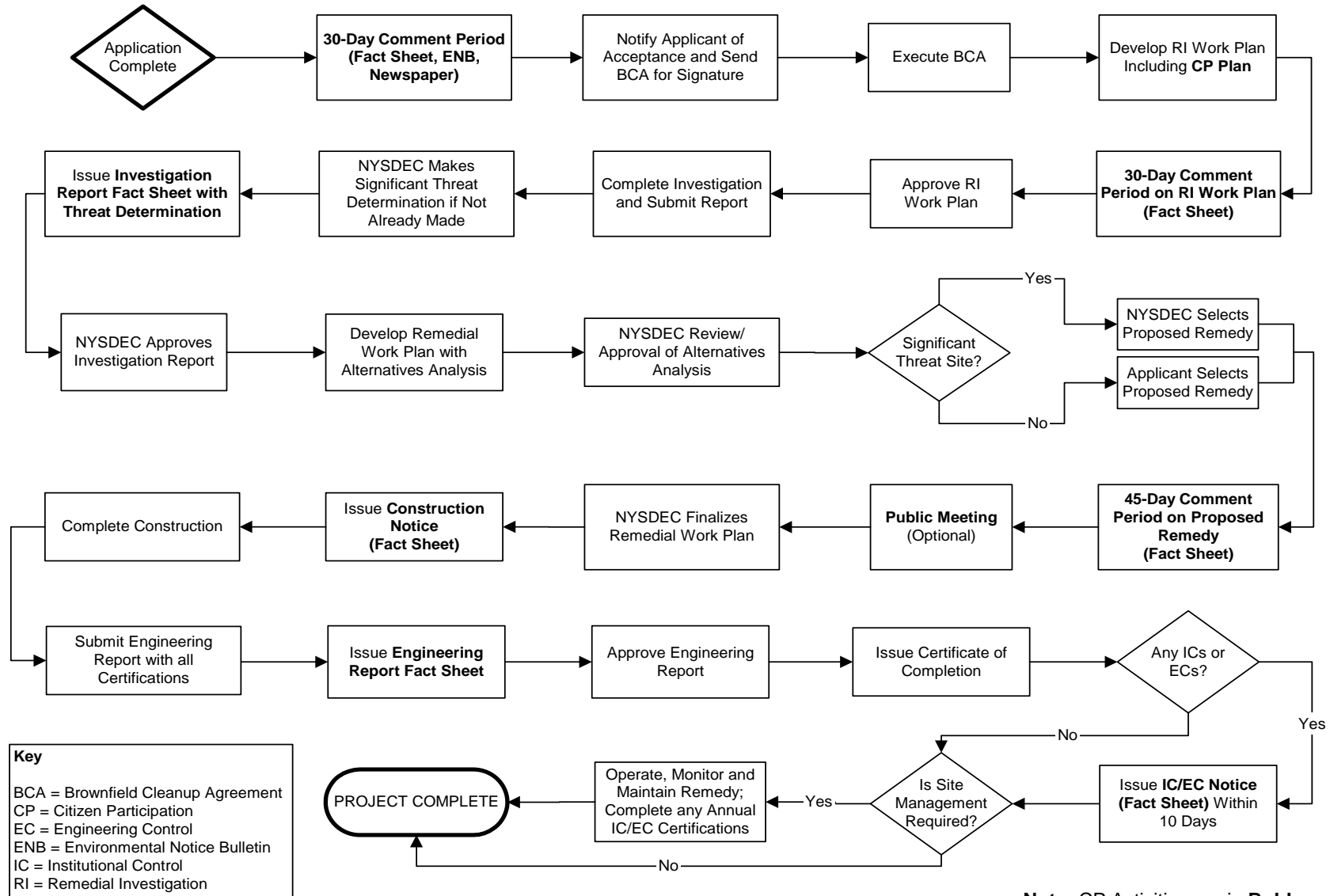
The following provides a list of most recent operators that are either currently present at the site, or have most recently occupied the site:

Current Operator	Address	Phone Number/ Fax / E-mail	Nature of Operations	Currently present On-Site (Yes/ No)
Demand Electric	5-36 46 th Road (Rear Access), Long Island City, New York 11101	718-606-9893	Electrical Contractor	No
Modern Art Services (Park)	5-36 46 th Road (1 st Floor), Long Island City, New York 11101	718-472-4425	Art Studios	No
Accurate Associates/ Accurate Pension/ Milton Brock Realty	5-36 46 th Road (2 nd Floor), Long Island City, New York 11101	NA	Office Space	No
Knosos Custom Design Furniture	5-20 46 th Road (1 st Floor), Long Island City, New York 11101	NA	Furniture Construction and Design	No
Artist Studios	5-20 46 th Road (2 nd and 3 rd Floor), Long Island City, New York 11101	NA	Creating various forms of Art Work	No
AMN Renovation	46-31 5 th Street (1 st Floor), Long Island City, New York 11101	718-433-4300	Marble and Granite Works	No
JMJ Electrical Contractors	46-33 5 th Street (1 st Floor), Long Island City, New York 11101	718-472-4330	Electric Contractors	No
Direct Air Corp.	46-31 5 th Street (1 st Floor), Long Island City, New York 11101	NA	Sheet Metal Duct Work	No
Liberty Contracting	46-35 5 th Street (1 st Floor), Long Island City, New York 11101	NA	General Interior Contractor	No
Small Motorcycle Repair Shop	5-36 46 th Road (Rear Access), Long Island City, New York 11101	NA	Motorcycle Repair	No
John Long		718-472-0914		No
Seth Kelly & Jason Murison	5-20 46 th Road, Long Island City, New York 11101	718-937-0899	Lumber	No
SDS Group				No

Appendix D – Identification of Citizen Participation Activities

Required Citizen Participation (CP) Activities	CP Activities) Occur at this Point
Application Process:	
<ul style="list-style-type: none"> • Prepare brownfield site contact list (BSCL) 	At time of preparation of application to participate in BCP.
<ul style="list-style-type: none"> • Establish document repositories • Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day comment period 	When NYSDEC determines that BCP application is complete. The 30-day comment period begins on date of publication of notice in ENB. End date of comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice and notice to the BSCL should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement:	
<ul style="list-style-type: none"> • Prepare citizen participation (CP) plan 	Draft CP Plan must be submitted within 20 days of entering Brownfield Site Cleanup Agreement. CP Plan must be approved by NYSDEC before distribution.
After Remedial Investigation (RI) Work Plan Received:	
<ul style="list-style-type: none"> • Mail fact sheet to BSCL about proposed RI activities and announcing 30-day public comment period on draft RI Work Plan 	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, comment periods will be combined and public notice will include fact sheet. 30-day comment period begins/ends as per dates identified in fact sheet.
After RI Completion:	
<ul style="list-style-type: none"> • Mail fact sheet to BSCL describing results of RI 	Before NYSDEC approves RI Report.
After Remedial Work Plan (RWP) Received:	
<ul style="list-style-type: none"> • Mail fact sheet to BSCL about proposed RWP and announcing 45-day comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager in consultation with other NYSDEC staff as appropriate) 	Before NYSDEC approves RWP. 45-day comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day comment period.
After Approval of RWP:	
<ul style="list-style-type: none"> • Mail fact sheet to BSCL summarizing upcoming remedial construction 	Before the start of remedial construction.
After Remedial Action Completed:	
<ul style="list-style-type: none"> • Mail fact sheet to BSCL announcing that remedial construction has been completed • Mail fact sheet to BSCL announcing issuance of Certificate of Completion (COC) 	At the time NYSDEC approves Final Engineering Report. These two fact sheets should be combined when possible if there is not a delay in issuance of the COC.

Appendix E – Brownfield Cleanup Program Process



Appendix – 9

HEALTH & SAFETY PLAN

for

**FORMER ACCURATE ASSOCIATES RCRA SITE
5-20 46th Road
Long Island City, New York 11101**

designed for

**OCA LONG ISLAND CITY, LLC
535 Madison Avenue
23rd Floor
New York, NY 10022**

March 19, 2007

Revised: March 31, 2009

prepared by

**Environmental Waste Management Associates, LLC.
100 Misty Lane
Post Office Box 5430
Parsippany, New Jersey 07054**

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 PROJECT IDENTIFICATION	1-1
2.0 INTRODUCTION	2-1
2.1 Site Description and History	2-1
2.2 Key Personnel	2-2
2.2.1 EWMA Project Manager	2-2
2.2.2 EWMA Health and Safety Officer	2-2
2.2.3 EWMA Site Safety Officer	2-2
3.0 GENERAL HEALTH AND SAFETY REQUIREMENTS	3-1
3.1 Personnel Clearance	3-1
3.2 Hazard Training	3-1
3.3 Incident Reporting	3-2
3.4 Illumination, Sanitation and Confined Space Entry	3-2
3.4.1 Illumination	3-2
3.4.2 Sanitation	3-2
3.4.3 Confined Space Entry	3-2
3.5 Respirator Maintenance, Fitting and Decontamination	3-2
3.6 EWMA Project Manager Notification	3-3
3.7 OSHA Information Poster	3-3
3.8 Prohibitions	3-4
3.9 Initial Site Safety Meeting and Signing of Health and Safety Plan Compliance Agreement	3-4
3.10 Daily Site Safety Briefings	3-4
3.11 Underground Structures	3-5
4.0 HAZARD ASSESSMENT	4-1
4.1 Approved Work Activities	4-1

<u>SECTION</u>	<u>PAGE</u>
4.2 Hazards	4-1
4.2.1 Chemical Agents	4-1
4.2.1.1 Chemical Exposure Controls	4-1
4.2.2 Physical Agents	4-2
Noise Exposure	4-2
Thermal Stress	4-2
4.2.2.1 Controls for Physical Agents	4-3
4.2.3 Biological Agents	4-3
4.2.3.1 Biological Agent Controls	4-3
4.2.4 Safety Hazards	4-3
4.2.4.1 Drilling, Pile Driving and Excavation	4-3
4.2.4.2 Excavated Drums	4-4
4.2.4.3 Odors	4-4
4.2.5 Contaminated Dust	4-4
5.0 AIR QUALITY MONITORING AND MITIGATIVE MEASURES FOR CONTROL OF EMISSIONS	5-1
5.1 Air Quality Monitoring Instrumentation	5-1
5.2 Air Quality Response Levels	5-1
5.3 Monitoring Guidelines	5-1
5.3.1 Background Organic Vapor Monitoring	5-1
5.3.2 Air Monitoring Protocol	5-2
5.3.3 Documenting Monitoring Results	5-2
5.4 Emission Control Measures	5-2
Table 5-1 EWMA Response Actions	5-3
6.0 PERSONAL PROTECTIVE EQUIPMENT	6-1
6.1 Description of Levels of Protection	6-1
6.2 Initial PPE Levels for Specific Work Tasks	6-2
7.0 DESIGNATION OF WORK ZONES	7-1
8.0 DECONTAMINATION PROCEDURES	8-1

<u>SECTION</u>	<u>PAGE</u>
9.0 EMERGENCY RESPONSE PLAN	9-1
9.1 Emergency Recognition and Prevention	9-1
9.1.1 Fires	9-1
9.1.2 Chemical Exposures	9-1
9.1.3 Physical Injuries	9-2
9.2 Emergency Alerting Procedures	9-2
9.3 Evacuation Procedures and Routes	9-2
9.4 Telephone Numbers for Emergency Services	9-3
9.5 Emergency Response Personnel	9-3
9.6 Decontamination Procedures During an Emergency	9-3
9.7 Emergency Medical Treatment and First Aid Procedures	9-4
9.8 Directions to The Urgent Care Clinic/Hospital From Site	9-4
10.0 PERSONNEL ASSIGNMENTS	10-1
10.1 Project Personnel	10-1
10.2 Project Safety Responsibilities	10-1
11.0 HEALTH AND SAFETY PLAN APPROVALS	11-1
12.0 HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT	12-1

TABLE OF CONTENTS, Continued

ATTACHMENTS

APPENDIX I	Determining Exposure to Airborne Dust Contaminants from Soil Data
ATTACHMENT A	Site Location Map
ATTACHMENT B	Emergency Route Map
ATTACHMENT C	EWMA Health & Safety Incident Report
ATTACHMENT D	EWMA Safety Log
ATTACHMENT E	OSHA Poster
ATTACHMENT F	Thermal Stress Guidelines
ATTACHMENT G	Emergency Procedures
ATTACHMENT H	Drilling Procedures
ATTACHMENT I	Excavation Procedures
ATTACHMENT J	Ticks and Tick-Borne Diseases

SECTION 1.0
PROJECT IDENTIFICATION

CLIENT NAME:	OCA Long Island City, LLC
CLIENT ADDRESS:	535 Madison Avenue, 23 rd Floor New York, NY 10022
CLIENT CODE:	20OC010
EWMA PROJECT No.:	205490
PROJECT NAME:	Former Accurate Associates RCRA Site
LOCATION/ADDRESS:	5-20 46 th Road Long Island City, NY 11101
EWMA PROJECT MANAGER:	Sharon McSwieney
EWMA SITE MANAGER:	Sharon McSwieney
EWMA SITE SAFETY OFFICER:	Daniel DiRocco
PLAN VALID FROM:	March 19, 2007
REVISED:	May 20, 2008 January 14, 2009 March 31, 2009
PLAN EXPIRES:	Plan shall be revised periodically upon discovery of new contaminants of concern or significant increases in health or safety hazards

- End of Section -

SECTION 2.0

INTRODUCTION

The purpose of this Health and Safety Plan (HASP) is to identify, evaluate and control health and safety hazards, and to provide for emergency response during field activities. All employees of Environmental Waste Management Associates, LLC (EWMA), as well as its contractors and subcontractors who have agreed to abide by this HASP and who are involved in field activities on this project will be bound by these provisions. Contractors and subcontractors who abide by this HASP, but whose work activities are not covered by this HASP must develop and follow their own site specific HASP. As an example, tank removal and cleaning as well as confined space entry work will be performed by subcontractors. As such, these tasks are not specifically covered by this HASP, and the subcontractors performing these tasks must develop and follow their own site specific HASP

This site-specific HASP is based on a review and evaluation of the potential hazards and risks associated with this project. It outlines the health and safety procedures, and the equipment required, needed to minimize the potential for harm to field personnel and site visitors. Since work activities, site conditions and exposures to various combinations of contaminants which may be present are variable, the potential for adverse health effects associated with field activities on this site cannot be predicted with confidence.

2.1 SITE DESCRIPTION & HISTORY

The property was initially developed prior to 1898 for use as an ink factory and a varnish works. Other previous building occupants and uses identified at the subject property included: George L. Fenner (ink factory), Toch Bros. (Manufacturer of paints & varnishes), Thibaut & Walker Co. (varnish works), I. Wohl Inc. (cleaners and dryers), a dry cleaning and spotting facility and Accurate Metal Casting Co. Inc. These identified building occupants and uses are types of businesses that would be expected to involve the storage and use of significant quantities of toxic or hazardous materials, and generate significant quantities of toxic or hazardous wastes in conjunction with daily operations, including, but not limited to, industrial solvents, lubricating and cutting oils, metal polishing materials, plating bath solutions, paint and painting products, and dye products. Pursuant to the Order, the owner undertook certain removal, investigative and remedial activities at the premises. The remedial activities took the form of encapsulation of the contaminated soil beneath portions of the building floor and encapsulation of contaminants located in portions of the concrete floor and walls. Lead, arsenic and selenium are encapsulated beneath portions of the floor and within portions of the walls of the premises.

See the List of Attachments for a site location map, and a street map identifying the location and possible routes to the nearest hospital.

2.2 KEY PERSONNEL

2.2.1 EWMA Project Manager: Sharon McSwieny

The EWMA Project Manager has the following responsibilities:

- To provide the EWMA Health and Safety Officer with project-related health and safety information.
- To have a site-specific Health & Safety Plan (HASP) prepared.
- To implement the HASP.
- To see that the project is performed in a manner consistent with applicable local, state and federal regulations..
- To monitor compliance with the HASP.

The EWMA Project Manager has the authority to take the following actions:

- To suspend field activities, if the health and safety of field personnel are endangered, pending further consideration by the EWMA Health and Safety Officer.
- To suspend an individual from field activities for infractions of the HASP, pending further consideration by the EWMA Health and Safety Officer.

2.2.2 EWMA Health and Safety Officer: Gary Schwartz, CIH, CSP

The EWMA Health and Safety Officer has the following responsibilities:

- To consult with the EWMA Project Manager in project-related matters of health and safety.
- To monitor compliance with the HASP.
- To assist the EWMA Project Manager in complying with the terms of this HASP, and applicable regulations.
- To verify that on-site personnel are properly trained and medically qualified to carry out their duties.

The EWMA Health and Safety Officer has the authority to take the following actions:

- To suspend work or otherwise limit personnel exposure if a HASP appears to be unsuitable or inadequate.
- To direct personnel to modify any work practices that are deemed to be hazardous to health and safety.
- To remove field personnel from the project if their physical actions or mental condition endangers their own health and safety, or that of their coworkers.

2.2.3 EWMA Site Safety Officer: Daniel DiRocco

The EWMA Site Safety Officer (EWMA SSO) and EWMA Alternate Site Safety Officer(s) (Alternate EWMA SSO) have the following responsibilities:

- To direct on-site health and safety activities.
- To report safety-related incidents to the EWMA Project Manager and EWMA Health and Safety Officer.
- To assist the EWMA Project Manager in all aspects of implementing the HASP.

- To maintain an adequate supply of health and safety equipment on-site, as specified in the HASP.
- To observe on-site health and safety activities, as specified in the HASP, and report results to the EWMA Project Manager and the EWMA Health and Safety Officer.

The EWMA SSO has the authority to take the following actions:

- To suspend field activities, if the health and safety of field personnel are endangered, pending further consideration by the EWMA Health and Safety Officer.
- To suspend an individual from field activities for infractions of the HASP, pending further consideration by the EWMA Health and Safety Officer.

- End of Section -

SECTION 3.0

GENERAL HEALTH AND SAFETY REQUIREMENTS

3.1 PERSONNEL MEDICAL CLEARANCE

Prior to working at this site, EWMA assigned employees must: 1) have been certified by a licensed, EWMA-approved physician as being physically able to perform their assigned field work, and to use the Personal Protective Equipment (PPE) which will be required for this project, in accordance with the provisions of OSHA Regulation 29 CFR 1910.120(f)(2) have successfully completed an EWMA 40-hour basic health and safety training course (Level C) for field personnel or its equivalent, and 3) passed a Qualitative Respirator Fit Test. Site managers and supervisors must have successfully completed an 8-hour managers' health and safety course, in addition to the other clearance requirements.

EWMA subcontractor employees must also have similar medical, training, and respirator fit clearances and they will be required to provide proof of clearance before beginning work.

3.2 HAZARD TRAINING

All personnel working on-site who have potential exposures to health or safety hazards shall be thoroughly trained as specified in OSHA Regulations 29 CFR 1910.120(e). This training will include: (1) Attendance at an initial 40-hour basic health and safety training course off the Site; (2) At least three days of actual field experience under the direct supervision of a trained, experienced supervisor; (3) On-site, site-specific training; and (4) an 8-hour annual update in the basic health and safety training course. EWMA personnel may also receive specific topic training throughout the year. This training may include blood-borne pathogen training, low-level radioactivity safety, ergonomics updates, and newsletters/bulletins with pertinent or applicable information.

In addition to the above, on-site Managers and supervisors who are directly responsible for, or who supervise employees engaged in hazardous waste operations must also receive: (1) 8-hours of site supervisor training; and (2) additional training at the time of job assignment on such topics as, but not limited to, the company's safety and health program and the associated employee training program; personal protective equipment program; spill containment program; air quality monitoring; emergency response; monitoring equipment usage and calibration; and, health hazard monitoring procedures and techniques, as per 1910.120(e)(4).

At the time of job assignment, special training will be provided to on-site personnel who may be exposed to unique or special hazards not covered by the initial 40-hour basic health and safety course. If unique or special hazards are unexpectedly encountered, specialized training will be provided before work proceeds.

3.3 INCIDENT REPORTING

An EWMA Health & Safety Incident Report will be filed for any incident involving personnel working at this Site. Situations covered by this policy include, but are not limited to, fires, explosions, illnesses, injuries and motor vehicle collisions. These reports must be sent to the EWMA Health and Safety Officer within 24 hours of the incident. Worker's Compensation Insurance reports for EWMA employees must be filed within 48 hours of each incident or illness which results from work-related activities and requires medical attention. See the Attachment List for a copy of the EWMA Health & Safety Incident Report. The EWMA SSO or Project Manager will complete this form if needed.

3.4 ILLUMINATION, SANITATION AND CONFINED SPACE ENTRY

3.4.1 Illumination

All major work tasks are expected to occur during daylight hours. The illumination requirements set forth by OSHA Regulations 29 CFR 1910.120 (m) will be met.

3.4.2 Sanitation

The sanitation requirements regarding potable and non-potable waters, toilet facilities and washing facilities will be followed as set forth in OSHA Regulations 29 CFR 1910.120(n).

3.4.3 Confined Space Entry

Confined Space Entries are not anticipated.

3.5 RESPIRATOR MAINTENANCE, FITTING AND DECONTAMINATION

Respirators, if used, will be cleaned daily according to procedures described below. Cartridges will be replaced either daily or if breakthrough is detected at any time while in use. The following checks will be performed daily, in addition to the above:

- Exhalation valve - pull off plastic cover and check valve for debris or for tears in the neoprene valve, which could cause leakage.
- Inhalation valves - screw off both cartridges and visually inspect neoprene valves for tears. Make sure that the inhalation valves and cartridge receptacle gaskets are in place.
- Make sure a protective lens cover is in place.
- Make sure you have the correct cartridges.
- Make sure that the facepiece harness is not damaged. The serrated portion of the harness can fragment which will prevent proper face seal adjustment.
- Make sure the speaking diaphragm retainer ring is hand tight.

NOTE: The respirator MUST be Leak-Tested before each use.

Test the respirator for leakage by using both the positive- and the negative-pressure method. Lightly place your palm over the exhalation valve cover. Exhale gently. The body of the respirator should bulge slightly outward from your face. If any leakage is detected around the face seal, readjust the head harness straps and repeat the test until there is no leakage. If leakage is detected other than in the face seal, the condition must be investigated and corrected before another test is made. The negative pressure test must also be made. Lightly place your palms or some impervious material, like Saran Wrap® over the cartridges or filter holders. Inhale gently. The face-piece should collapse against the face. The respirator must pass these two tightness tests before the respirator is used. The respirator will not furnish protection unless all inhaled air is drawn through suitable cartridges or filters. **NOTE: Respirators provide no protection in oxygen-deficient atmospheres! But only air purifying features.**

After use, follow these steps to clean your respirator:

- Wash with Alconox® solution and brush gently. (This step will remove any soil/solid particulate matter that may have been collected on the respirator during field activities.)
- Rinse with distilled/de-ionized water, making sure that the inhalation and exhalation valves are clean and unobstructed.
- Rinse with distilled/de-ionized water.
- Wipe with sanitizing solution. (This step will assure the sterility of the respirator.)
- Allow your respirator to air dry.
- Place the respirator inside a sealed bag or a clean area away from extreme heat or extreme cold.

3.6 EWMA PROJECT MANAGER NOTIFICATION

All field personnel must inform the EWMA SSO or the Alternate EWMA SSO before entering the Site.

IF ANY PREVIOUSLY UNIDENTIFIED POTENTIAL HAZARDS ARE DISCOVERED DURING ANY FIELD WORK, LEAVE THAT AREA OF THE SITE IMMEDIATELY AND CONTACT THE EWMA SSO FOR FURTHER INSTRUCTIONS.

3.7 OSHA INFORMATION AND STATE WAGE AND INFORMATION POSTERS

In accordance with the Occupational Safety and Health Act of 1970, a copy of the OSHA information poster must be present at the Site. It will be posted at full size (11" x 17") in a permanent structure or temporary field office, or be distributed to on-site personnel by way of this HASP. Appropriate state of New Jersey wage and employment posters will also be posted in accordance with state laws.

3.8 PROHIBITIONS

Smoking, eating, drinking, chewing tobacco or toothpicks, applying cosmetics, storing food or food containers, and having open fires will be permitted only in designated areas that will be established by the EWMA SSO. Under no circumstances will any of the above activities be permitted within the Exclusion or Contamination Reduction Zones. Good personal hygiene should be practiced by field personnel to avoid ingesting contaminants.

3.9 INITIAL SITE SAFETY MEETING AND SIGNING THE HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

The EWMA SSO will hold an initial site safety meeting with EWMA, subcontractor and contractor field personnel before work activities begin at the Site. At this meeting, it will be verified that all personnel have been provided with or have reviewed a HASP for the work activities to be performed at this Site. For EWMA personnel, its subcontractor's personnel, and contractor personnel whose employer(s) have adopted this HASP, the HASP shall be reviewed, discussed and questions will be answered. Signed Health and Safety Plan Compliance Agreement Forms of personnel who will be following this HASP will be collected by the EWMA SSO and filed. Individuals refusing to sign the Form will not be allowed to work on the Site.

3.10 DAILY SITE SAFETY BRIEFINGS

During field operations, site safety briefings will be held at the start of each day by the EWMA SSO to review and plan specific health and safety aspects of scheduled work. All field personnel who are following this HASP are required to attend these briefings. These meetings and their content shall be documented by the EWMA SSO or Project Manager. Potential subjects that may be discussed are presented below:

1. Preliminary
 - Medical clearances.
 - Training requirements.
 - Written HASP availability.
 - Designation of responsibilities for on-site personnel.
 - Identification of on-site personnel trained and certified to administer First Aid.
2. Training topics
 - Review of HASP including: types of hazards; pathways of exposure; levels of protection; contamination avoidance; prohibitions; work procedures; confined space entry; work zones; emergency response procedures; and, specific on-site area/work tasks of concern.
 - Decontamination.
 - Personnel Protective Equipment.
 - Air Quality Monitoring Program
 - Air sampling with hands on use and calibration of direct reading instruments such as a PID, and pDR-

1000 dust monitors, and LEL,H2S,O2/CO-4-as monitors. Questions and Answers

3.11 UNDERGROUND STRUCTURES

Caution will be exercised whenever the possibility of encountering subsurface obstructions exists. Before beginning intrusive activities, all available sources of information (such as site utility drawings, public utility drawings, construction drawings, and discussions with former employees) will be reviewed. If underground obstructions are unexpectedly encountered, the area will be excavated using manual equipment until the nature of the obstruction is discerned.

- End of Section -

SECTION 4.0 HAZARD ASSESSMENT

An assessment of the known or suspected chemical, physical and biological hazards have been made for each of the activities specified below.

4.1 APPROVED WORK ACTIVITIES

Work activities which may be performed under this HASP are limited to the following:

1. Concrete removal
2. Soil and Underground Storage Tank Excavation (Test Pits, Trenching)
3. Soil boring installations and sampling
4. Temporary groundwater location installation and sampling
5. Permanent well installation and sampling
6. LNAPL Product Recovery
7. Sheet Pile Installation

This HASP does not cover any site activities beyond those specifically listed above. Work activities not described above may be conducted only after an appropriate Addendum to this HASP has been issued by the EWMA Health and Safety Officer.

4.2 HAZARDS

4.2.1 Chemical Agents

The following chemical hazards have been identified, based on documented prior site uses and/or initial site investigations.

Soil results indicate the following:

VOCs, BNAs, Metals, Pesticides, PCBs

Ground water results indicate the following:

VOCs, BNAs, Metals

4.2.1.1 Chemical Exposure Controls

Contaminants usually enter the body through the mouth (ingestion), the lung (inhalation) or by absorption through the skin and mucous membranes. Chemical exposure through these routes will be controlled by limiting eating, drinking, and smoking to uncontaminated areas; through the use of hygiene practices and decontamination procedures; and by the use of appropriate engineering controls and personal protective equipment (PPE). There are four levels of personal protection (Levels A, B, C, and D), according to the degree of protection they afford, with

Level A providing the greatest degree of protection. The initial level of personal protective equipment to be used while performing activities at the Site will be based on the hazard assessment performed for this project.

Initially, Level D will be used while sampling the environment to determine what hazards are present, and in what quantities, EWMA employees will need to upgrade to Level C if the results of initial sampling (first few minutes of direct read measurements) suggests it is appropriate to do so.

4.2.2 Physical Agents

Physical agents include noise, electro-magnetic fields, ionizing and non-ionizing radiation, and thermal stress. There is also a risk of physical injury when working in the field with sampling tools, and when near heavy equipment, operating machinery and vehicular traffic. Field personnel should be able to recognize these hazards and take steps to avoid injurious contact with them.

Noise Exposure

Work at the site may be conducted with high noise levels from equipment such as excavators, pumps and drill rigs. EWMA standards require that hearing protection be used when noise levels exceed 85 dBA, averaged over an 8-hour day. Hearing protection will be required at this site for noise exposures greater than 85 dBA for any length of time. In the absence of a noise meter, an appropriate rule of thumb is that when normal conversation is difficult to hear or understand at a distance of three feet, hearing protection is required. EWMA and subcontractor personnel shall have hearing protection on-site and available for use at all times.

Thermal Stress

Depending on the altitude, geographic location and the season, the use of required PPE may cause heat or cold related stress on the wearer. The Heat Stress Casualty Prevention Plan as specified in Attachment-F will be referred to for dealing with this health hazard during warm weather. The Plan outlines heat stress identification, treatment, prevention and monitoring. Fluids will be provided at all times during work periods, in order to maintain adequate body fluid levels for field personnel. Attachment-F also contains the Cold Exposure Casualty Prevention Plan for this project.

4.2.2.1 Controls for Physical Agents

No physical hazards known or believed to be present. Buried and over-head power lines. Be sure minimum clearance of 10-feet is maintained for drill rig to over-head power lines.

4.2.3 Biological Agents

Biological agents may be viral, fungal, bacterial, or of higher orders: insects (including ticks and stinging insects), wild animals (especially snakes) and domesticated animals. Any mammal encountered on-site should be considered potentially rabid. In many parts of the northeast United States, tick-borne diseases pose a significant health risk during warm months. (see Attachment-J, Ticks and Tick-Borne Diseases). Field personnel are encouraged to use insect repellents before donning PPE. To avoid snake bites, check for snakes before walking through grassy or debris strewn areas. The presence of medical waste suggests the possibility that pathogenic micro-organisms may be present. A fully-stocked first aid kit, insect and tick repellent must be available for use in the field.

4.2.3.1 Biological Agent Controls

No Biological Agent controls to be used.

4.2.4 Safety Hazards

The hazards and appropriate safety procedures associated with drilling and excavation activities are discussed in Attachment-I, Safety Guidelines for Excavations. The physical hazards associated with performing field sampling are described in the safety procedures listed in Attachment-H.

Use of safety-toed work boots, safety glasses or goggles, and hard hats will be required when in an Exclusion Zone. Personnel should be aware that when PPE such as respirators, gloves, and protective clothing are worn, visibility, hearing, and manual dexterity are impaired.

4.2.4.1 Drilling, Pile Driving and Excavation

The hazards involved with the use of drill rigs and excavation equipment are significant and include pinch points, entrapment in machinery, impact from moving parts, electrocution from contact with overhead wires or buried utilities, and improper operations. Use of hand tools, moving the rigs/equipment, and conducting required repairs can increase physical risks. Working with and around a drill rig can involve a high risk of serious injury or death. In order to reduce the risk, proper safety precautions must be observed at all times. Safety procedures are included in Attachment-H.

4.2.4.2 Excavated Drums

- a. During the course of excavation activities, a potential exists for buried drums or other types of containers to be uncovered. If, because of labels, the appearance of chemical materials, the size and shape of the container, or for any other reason, there is a likelihood that a hazardous material container has been uncovered, immediately cease operations in the area and inform the Site Safety Officer.
- b. Activities may not resume until the container's contents have been sufficiently identified to determine the hazard it poses and to provide the controls necessary to remove or significantly reduce the identified risks.

4.2.4.3 Odors

During the course of excavation, odorous gases may escape from the ground. Most hazardous and/or foul-smelling gases can be controlled or eliminated with an enzyme product available from Nature Plus, 555 Lordship Blvd., Stratford, CT 06497 (203/380-0316); Don Mitchell. The Site Safety Officer will determine the most effective means of applying this material, when needed. An initial supply shall be on hand whenever a project may entail the probable release of noxious gases.

4.2.5 Contaminated Dust

Contaminated surface soils may become a source of dust. Inhaling contaminated dust may result in adverse health effects from exposure to the contaminant(s) on the dust particles.

The M.I.E. company's miniRAM dust monitor may be used to estimate the contaminant concentration in air, by measuring the total dust level.

Soil samples are reported as mg contaminant per kilogram of soil. The miniRAM reads mg of dust per cubic meter of air. To convert from kilograms of soil (dust) to milligrams of dust (from soil), divide kilograms by 1 million (1,000,000 or 10^6). In order to maintain proportions, milligrams of contaminant must also be divided by 1 million (resulting in milligrams of contaminant times 10^{-6} per mg soil (dust)).

As an example, assume that soil sampling shows 750 mg aluminum per kilogram of soil. Dust, generated from this soil, was measured to be 3 mg dust (total) per cubic meter of air. Dividing by 1 million, we have 0.00075 mg aluminum for each milligram of dust. Since we have 3 mg dust in each cubic meter of air, we have 3×0.00075 mg or 0.00225 mg aluminum per cubic meter of air. The OSHA Time-Weighted Average, Permissible Exposure Limit

is 10 mg/m³ micrograms of Aluminum dust per cubic meter of air. Therefore, a sustained, full-shift exposure to this aluminum -contaminated soil will not produce an unacceptable exposure to Aluminum dust.

Appendix I (attached) provides relevant information concerning dust contaminants.

- End of Section -

SECTION 5.0
AIR QUALITY MONITORING AND MEASURES
FOR THE CONTROL OF EMISSIONS

5.1 AIR QUALITY MONITORING INSTRUMENTATION

Air quality will be measured to determine exposure potentials prior to the start of work, and at various times during the course of the project. Instruments which may be used to monitor air quality are discussed below:

- **Photoionization Detector**

The HNu Systems Model PI-101 Photoionization Detector (PID) or equivalent will be used to detect trace concentrations of certain organic gases and a few inorganic gases in the air. Methane, ethane, and the major components of air are not detected by the HNu PID. PID readings reflect total (readable) vapors in the air. PID readings must be given as “PID units”, rather than “ppm”. The PID detects mixtures of compounds simultaneously. PID readings do not measure concentrations of any individual compound when a mixture of compounds is present.

The PID will be calibrated twice each day (before start of work and after the conclusion of work) using an isobutylene standard (molecular weight = 56.2) for calibration. Calibrations will be logged. PID readings should be measured in the breathing zone of the most highly exposed worker (i.e., the person who is closest to the source of known or suspected contamination) at least hourly.

- **Combustible Gas Indicator/Oxygen/Hydrogen Sulfide Meter**

An approved Combustible Gas Indicator/Oxygen Meter, which may have a separate hydrogen sulfide detector, may be used, at the discretion of the EWMA SSO, to measure the concentration of flammable vapors and gases, oxygen, and hydrogen sulfide in the air during field activities. Flammable gas concentrations are measured as percentages of the Lower Explosive Limit (LEL). Oxygen content is measured as a percentage of air. Hydrogen sulfide concentration (which includes sulfur dioxide) is measured in parts per million.

5.2 AIR QUALITY RESPONSE LEVELS

The Site Safety Officer will decide when to change protection levels in response to air monitoring results. The EWMA Health and Safety Officer will be notified of any upgrades from initial protection levels, as soon as is practical. EWMA Action Levels for this project are described in detail in Table 5-1, at the end of this Section. These Action (Response) Levels apply to the work activities covered by this HASP.

5.3 MONITORING GUIDELINES

5.3.1 Background Organic Vapor Monitoring

Background organic vapor and combustible gas readings (when applicable) will be taken at least twice daily: before the start, and after the conclusion of, work activities. Background levels will be taken at a location which is unaffected by on-site work. Once work at the Site begins, reselection of the original background location may be required.

5.3.2 Air Monitoring Protocol

During intrusive work activities (i.e. drilling, excavation) at least one series (series=Organic Vapor, Toxic gas, Combustible gas, and Oxygen) of readings will be taken every 30 minutes. During non-intrusive work activities, one series will be performed at the start of work, one series at some point during the work, and one near the conclusion of the work. This will be in addition to the background monitoring described in the previous section.

5.3.3 Documenting Monitoring Results

A calibration log will be kept for each of the monitoring instruments used, which describes the calibration method(s) used, and the readouts obtained. Should work at the Site require respiratory protection, the need for a personal exposure monitoring program will be evaluated by the EWMA Health and Safety Officer. Details of this program and any monitoring equipment required for its implementation will be specified in an Addendum to this HASP prepared by the EWMA Health and Safety Officer. Records of exposure measurements will be maintained in the Health and Safety file for this project.

5.4 EMISSION CONTROL MEASURES

Vapor or dust emissions resulting from field operations do not usually exceed either regulatory or EWMA action levels. If the action levels are significantly exceeded, measures to suppress the responsible emissions should be investigated. Appropriate measures would include cessation of operations until the exact cause of the emission is identified and corrected. Vapor control may include the use of vapor suppression foams, covering exposed soil piles with plastic sheeting and/or spraying exposed soil piles and drilling sites with water or enzyme solutions. Fugitive dust emission control may require water spraying. In addition, calcium chloride may be needed.

TABLE 5-1
EWMA RESPONSE ACTIONS

EWMA Air Quality Measurements and Response Actions

<p><u>Air Quality Measurement</u>^(1,2,3,4)</p> <p>The contaminants of concern are SVOCs, BNAs, Metals, Pesticides, PCBs in the soil. VOCs, BNAs, Metals in the ground water. They can possibly be released during anyone of the following work tasks: Concrete removal, soil and underground storage tank excavation (Test Pits, Trenching), Soil boring installations and sampling, temporary groundwater location installation and sampling , permanent well installation/ sampling & LNAPL product recovery & sheet pile installation. Soil and ground water contaminants are present & many exceed current NYSDEC applicable standards. Therefore, be conservative and treat airborne dust as less than 3 mg/m³ per ACGIH dust level. Use benzene as reference as less than 0.87 ppm representing the varied SVOCs and VOCs.</p>	<ol style="list-style-type: none"> 1. Level D Protection ensemble or Modified above background (averaged over 15 minutes and/or 8 Hr. TWA) 2. No respirator needed
<p>PID reading greater than background (averaged over one minute) but greater than 0.87 ppm as PID equivalents</p> <p>CGI reading greater than 10% LEL</p> <p>Oxygen meter reading less than 19.5%</p> <p>Greater than 3 mg/m³ of dust over background</p>	<p>Level C Protection level ensemble, ½ face-piece up to 8.7 ppm and 30 mg/m³ , then full face-piece with a combination OVA/P100 up to 43.50 ppm PID equivalents and 150 mg/m³. One-half respirator has a OSHA assigned protection factor of 10 and full face piece is 50</p>
<p>PID reading is greater than 43.5 ppm PID equivalents</p> <p>CGI reading greater than 10% LEL</p> <p>Oxygen meter reading less than 19.5%</p> <p>Dust greater than 150 mg/m³ when using full face respirator</p>	<p>Suspend all work activities in immediate work zone and notify EWMA Director of Health and Safety and EWMA Project Manager. Continue air monitoring until readings are below noted air quality threshold levels.</p>

⁽¹⁾ All Air Quality Measurements, with the exception of CGI measurements for flammable vapors and gases, should be made in the breathing zone of personnel who, in the opinion of the EWMA SSO, are most exposed to airborne contaminants. Measurements of flammable vapor and gas levels should be made in the vicinity of the nearest ignition source. ⁽²⁾ The ACGIH denotes American Conference of Governmental Industrial Hygienists (ACGIH) which serves to characterize 8 hour time weighted averages as a threshold level value, short term exposure limits and ceiling limits. The values are based on the most current edition of the ACGIH TLV booklet and OSHA PELs. ⁽³⁾ Be aware that these airborne concentration guidelines are based on assuming with uncertainty that the soil or ground water contaminants are at high concentrations. This is the case unless it is known about the soil or ground water concentration profile in advance. ⁽⁴⁾ Multiply the reading of the PID by 0.57 to convert the reading to PPM when the PID was calibrated with 100 PPM isobutylene. Record the readings as “PPM

equivalents. **PLEASE HEED GOOD HYGIENE PRACTICES AS THE IDENTIFIED COMPOUNDS ARE HIGHLY TOXIC AT HIGH INHALATION EXPOSURE CONCENTRATIONS OR IF ACCIDENTALLY INGESTED.**

SECTION 6.0
PERSONAL PROTECTIVE EQUIPMENT

6.1 DESCRIPTION OF LEVELS OF PROTECTION

The personal protection equipment specified in this HASP will be available to all field personnel. EWMA contractors and sub-contractors are required to provide the specified equipment (or its equivalent) to all of their exposed employees. The following requirements will also be met, in accordance with OSHA regulations:

1. Facial hair may not interfere with the proper fit of respirators;
2. Contact lenses will not be worn on-site; without exception.
3. Eyeglasses that interfere with the proper fit of full-face respirators will not be worn; and,
4. No eating, drinking or smoking will be allowed in any area where respiratory protection is required.

Level D Personal Protective Equipment

- Hard hat
- Safety glasses or goggles
- Safety-toed leather or rubber work boots

Modified Level D Personal Protective Equipment

- Hard hat
 - Safety glasses or goggles
 - Safety-toed leather work boots
 - Rubber overboots, safety-toed rubber boots, or disposable "booties"
 - Butly rubber outer gloves for protection against MEK in soil dermal exposure
 - Nitrile surgical gloves (to be work underneath outer gloves)
 - Polyethylene coated or Saranex impregnated Tyvek coveralls⁽¹⁾ (taped at cuffs)
- (1) Optional, at the discretion of EWMA SSO.

Level C Personal Protective Equipment

- Hard hat
- Half-face Air-Purifying Respirator with applicable chemical cartridge combined with a P-100 filter
- Safety-toed leather work boots
- Rubber overboots, safety-toed rubber boots, or disposable "booties"
- Nitrile-butadiene rubber outer gloves
- Nitrile surgical gloves (to be worn underneath outer gloves)
- Polyethylene coated or Saranex impregnated Tyvek coveralls (taped at cuffs)

Level B Personal Protective Equipment

- Hard hat
- Full-face respirator mask with either a Self Contained Breathing Apparatus (SCBA) or Supplied Air
- Safety-toed leather work boots
- Rubber overboots, safety-toed rubber boots, or disposable "booties"
- Nitrile-butadiene rubber outer gloves
- Nitrile surgical gloves (to be worn underneath outer gloves)
- Appropriate protective clothing such as coated or impregnated Tyvek coveralls, PVC coveralls, or Level-B Suit.

A first aid kit, multi-purpose dry chemical UL Class 10A-10B-C fire extinguisher, eye wash station, appropriate barricades and alarm horns will be present and maintained at the Site.

Selection of the PPE specified for this project is based on a review of known or suspected hazards, routes of potential exposure (inhalation, skin absorption, ingestion, and skin or eye contact) and the effectiveness of personal protective equipment in providing a barrier to these hazards. In addition, PPE has been selected to match the work requirements and task-specific conditions of the job, and to provide adequate protection without causing unnecessary discomfort or physical impairment to the worker.

6.2 INITIAL PPE LEVELS FOR SPECIFIC WORK TASKS

The selection of Initial Levels-of-Protection takes into consideration the physical, biological and chemical hazards posed by the site as well as those posed by the various pieces of personnel protective clothing. Initial Levels-of-Protection are established so as to obtain acceptable levels of protection while not imposing an unacceptable level of physical stress on the wearer.

The following initial PPE levels have been established for the tasks described in Section 4.1, Approved Work Activities:

Work Activity	Level of Protection
1. <u>Concrete removal</u>	<u>Level-C*</u>
2. <u>Soil and Underground Storage Tank Excavation inc. Test Pits & Trenching</u>	
3. <u>Soil boring installations and sampling</u>	
4. <u>Temporary groundwater location installation and sampling</u>	
5. <u>Permanent well installation and sampling</u>	
6. <u>LNAPL Product Recovery</u>	
7. <u>Sheet Pile Installation</u>	

Once initial air-monitoring has been performed and the readings indicate airborne levels of flammables, toxins and oxygen to be within acceptable limits as described in Table 5-1, personnel may downgrade from a higher initial Level-of-Protection to Level-D, at the discretion of the EWMA-SSO.

- **End of Section** -

SECTION 7.0

DESIGNATION OF WORK ZONES

This section of the Health & Safety Plan applies to excavation projects where contaminated soils are exposed and may release their contaminants to the air, or come in contact with field personnel. To minimize the migration of contaminant from the Site to uncontaminated areas, three work zones will be set up:

Zone 1: Exclusion Zone

Zone 2: Contamination Reduction Zone

Zone 3: Support Zone

The Exclusion Zone is the area where contamination occurs or could occur. Initially, the Exclusion Zone should extend a distance of 25 ft from the edge of intrusive activity unless conditions at the Site warrant either a larger or smaller distance as determined by the EWMA SSO. All persons entering the Exclusion Zone must wear the applicable level of protection as set forth in Section 6.1, Personal Protective Equipment and Section 6.2, Initial PPE Levels for Specific Work Tasks. It is anticipated that work zones will be established at each individual area of intrusive work rather than encompass the entire Site.

The Support Zone is the area of the Site where significant exposure to contamination is not expected to occur during non-intrusive activities. The Support Zone is considered to be the "clean area" of the Site.

Between the Exclusion Zone and Support Zone is the Contamination Reduction Zone, which provides a transition zone between the contaminated and clean areas of the Site. The Contamination Reduction Zone will be located directly outside of the Exclusion Zone. All personnel must decontaminate when leaving the Exclusion Zone. A Contamination Reduction Zone (decontamination area) will be established adjacent to each individual area of intrusive work.

For a detailed map identifying the various work zones, see Attachment A.

- End of Section -

SECTION 8.0

DECONTAMINATION PROCEDURES

Personnel who have been in contact with contaminated materials will decontaminate themselves in the following manner:

- Deposit contaminated equipment on plastic drop cloths.
- Stand in wash tub containing Alconox® and water, wash boots and outer gloves with long handled brush.
- Rinse boots and outer gloves with long handled brush in a wash tub containing clear water or use a sprayer to rinse off boots and gloves.
- Remove ankle and wrist tapes; place in disposal drum.
- Remove outer gloves and place in disposal drum.
- Remove Tyvek® suit and place in disposal drum.
- Remove respirator and place on table to be decontaminated.
- Remove inner gloves and place in disposal drum.
- Wash hands and face.

All tools or equipment which have been in contact with contaminated materials, must be decontaminated after leaving the Exclusion Zone. This decontamination is to be performed using a high pressure/hot water "steam type" cleaner or a spray/rinse decontamination sequence as described in Section 3.6, Respirator Maintenance, Fitting and Decontamination, as appropriate.

Contaminated liquids from the decontamination area and contaminated clothing should be disposed of in accordance with site protocols.

- End of Section -

9.0 EMERGENCY RESPONSE

Emergencies addressed by this plan include:

- Fire;
- Chemical over-exposures; and,
- Physical injuries to site personnel.

The EWMA Health & Safety Officer and Project Manager must be notified as soon as possible of any on-site emergency or potential emergency including fire, explosive conditions or OSHA-recordable physical injury.

9.1 EMERGENCY RECOGNITION AND PREVENTION

9.1.1 Fires

Fires are possible whenever oxygen and flammable gases or vapors are mixed together in proper proportions and an ignition source is present. Construction equipment provides an ignition source. To prevent fires and explosions, a CGI as specified in Section 5.0 will be used to detect flammable or explosive atmospheres. Ignition and other sources which produce electrical sparks will be turned off and the area evacuated if vapors or gases reach 10% of the Lower Explosion Limit (LEL) as measured by the CGI. Work will not resume until the EWMA SSO observes CGI readings below 10% of the LEL for at least 5 consecutive minutes.

9.1.2 Chemical Exposures

Work should always be performed in a manner that minimizes exposure to contaminants through skin or eye contact, inhalation or ingestion. Work practices to reduce the risk of chemical exposure include:

- PPE, as specified in Section 6.0, will be used by all field personnel covered by this HASP. A formal revision to the HASP must be made by the EWMA Health and Safety Officer to modify the PPE specifications.
- Keep hands away from the face during work activities to avoid ingestion.
- Minimize all skin and eye contact with contaminants.

Early recognition of the signs and symptoms of chemical exposure is essential for the prevention of serious chemical exposure incidents. Symptoms of exposure to the compounds present at the Site include the following: fatigue, weakness; eye, nose, and/or throat irritation; dizziness; nausea; vomiting; malaise; tremors; aggressive confusion; cyanosis (blue color to skin); anemia; and muscle spasms. If a person experiences any of these symptoms, or recognizes any of them in a fellow worker, the person experiencing the symptoms will stop work immediately and report to the EWMA SSO. If the symptoms persist or affect performance in any way, the EWMA SSO will arrange for medical treatment. If the symptoms are serious, or affect several people, work activities in the exposure area will

be discontinued until more is known about the cause(s). Incident reporting procedures as specified in Section 3.3 will be initiated.

9.1.3 Physical Injuries

Site personnel should be on the lookout for potential safety hazards such as holes or ditches; improperly positioned objects, such as drums or equipment that may fall; sharp objects, such as nails, metal shards, and broken glass; protruding objects at eye or head level; slippery surfaces; steep grades; unshored steep entrenchments, uneven terrain or unstable surfaces, such as walls that may cave in or flooring that may give way. Site personnel should inform the EWMA SSO of any potential hazards observed so that corrective action can be taken.

9.2 EMERGENCY ALERTING PROCEDURES

The EWMA SSO will alert the appropriate work groups when an emergency occurs. The communication method(s) will be established by the SSO with the approval of the Project Manager. The EWMA SSO and any isolated work group will carry radios if direct contact cannot be maintained. If direct contact cannot be maintained, an air horn will be used to signal workers to stop work and assemble in the Contamination Reduction Zone. If evacuation of the Site is necessary, a pre-arranged signal from the air horn will be sounded.

9.3 EVACUATION PROCEDURES AND ROUTES

Normally, personnel should evacuate through the Contamination Reduction Zone, and from there, to the Support Zone. Evacuation from the Contamination Reduction Zone will proceed in an upwind direction from the emergency. If evacuation to the Support Zone does not provide sufficient protection from the emergency, personnel will be advised to evacuate the Site proper.

9.4 TELEPHONE NUMBERS FOR EMERGENCY SERVICES

The telephone numbers of local emergency services are given below:

<u>Emergency Service</u>	<u>Telephone Number</u>
Ambulance	<u>911</u>
Fire Department 10-40 47 th Avenue, Long Island City, NY	<u>911 or (718) 847-6600</u>
Long Island Police Department 547 50 th Avenue, Long Island City, NY	<u>911 or (718) 784-5411</u>
New York University Medical Center 560 1 st Avenue, NY, NY 10016	<u>911 or (212) 263-7300</u>
Poison Control Center	<u>(800) 962-1253</u>
USEPA National Response Center	<u>(800) 438-2427</u>
EWMA Project Manager/Sharon McSwieney	<u>862-881-6286</u>

These telephone numbers must be verified by the EWMA SSO before the start of field work.

9.5 EMERGENCY RESPONSE PERSONNEL

The EWMA SSO will have the primary role in responding to all emergencies at the Site. The EWMA SSO, or the Alternate EWMA SSO, will be present at the Site during all work activities. If any emergency such as a fire, chemical exposure, or physical injury occurs, the EWMA SSO shall be notified immediately. The EWMA SSO will direct all site personnel in cases of emergency.

After an emergency has occurred at the Site, the causes and responses to that emergency shall be thoroughly investigated, reviewed and documented by the EWMA Project Manager and EWMA SSO; this documentation is to be submitted to the EWMA Health and Safety Officer within 48 hours of the incident.

9.6 DECONTAMINATION PROCEDURES DURING AN EMERGENCY

Decontamination of an injured or exposed worker or during a site emergency shall be performed only if decontamination does not interfere with essential treatment or evacuation.

If a worker has been injured or exposed and decontamination can be done: Wash, rinse, and/or cut off protective clothing and equipment.

If a worker has been injured or exposed and cannot be decontaminated:

- Wrap the victim in blankets, plastic or rubber to reduce contamination of other personnel;
- Alert emergency and off-site medical personnel to potential contamination; and,
- Have the EWMA SSO or other personnel familiar with the incident and contaminants at the Site accompany the victim to the hospital. If possible, send a copy of the appropriate MSDS(s) with the victim.

9.7 EMERGENCY MEDICAL TREATMENT AND FIRST AID PROCEDURES

Emergency medical treatment or First Aid may be administered at the Site by the EWMA SSO or other personnel who have been certified in First Aid.

General emergency medical and First Aid procedures are as follows:

- Remove the injured or exposed person(s) from immediate danger.
- Render First Aid as needed; decontaminate affected personnel, if necessary.
- Call an ambulance for transport to local hospital immediately. This procedure shall be followed even if there is no apparent serious injury.
- Evacuate other personnel at the Site to safe places until the EWMA SSO determines that it is safe for work to resume.
- Report the accident to the EWMA Health and Safety Officer immediately.

Emergency Medical Treatment and First Aid Procedures are presented in Attachment-G.

9.8 DIRECTIONS TO THE HOSPITAL FROM SITE

The route and/or directions to the hospital from the Site are in Attachment-B.

The directions to the hospital from the Site must be verified by the EWMA SSO prior to the start of field work.

- End of Section -

SECTION 10.0
PERSONNEL ASSIGNMENTS

10.1 PROJECT PERSONNEL

EWMA personnel authorized to enter the Site and work on this project, subject to compliance with provisions of the HASP, are:

EWMA Project Manager	<u>Sharon McSwieney</u>
EWMA Site Manager	<u>Sharon McSwieney</u>
EWMA Site Safety Officer	<u>Daniel DiRocco</u>
EWMA Health and Safety Officer	<u>Gary Schwartz, CIH, CSP</u>

Other personnel who meet HASP requirements, including training and participation in a medical surveillance program, may enter and work on the Site subject to compliance with provisions of the HASP.

10.2 PROJECT SAFETY RESPONSIBILITIES

Personnel responsible for implementing this Health and Safety Plan are the EWMA Project Manager and the EWMA Site Safety Officer. Their specific responsibilities and authority are described in the EWMA Health and Safety Manual.

- End of Section -

SECTION 11.0
HEALTH AND SAFETY PLAN APPROVALS

The authorized signatures below verify that this Health and Safety Plan has been read and approved for the work to be performed at the subject site:

EWMA Case Name: Former Accurate Associates/5-20 46th Road, Long Island City, NY

EWMA Case Number: 205490

Sharon McSwieney
EWMA Project Manager

Gary Schwartz
Gary Schwartz, CIH, CSP
EWMA Health and Safety Officer

March 31, 2009
Date

SECTION 12.0

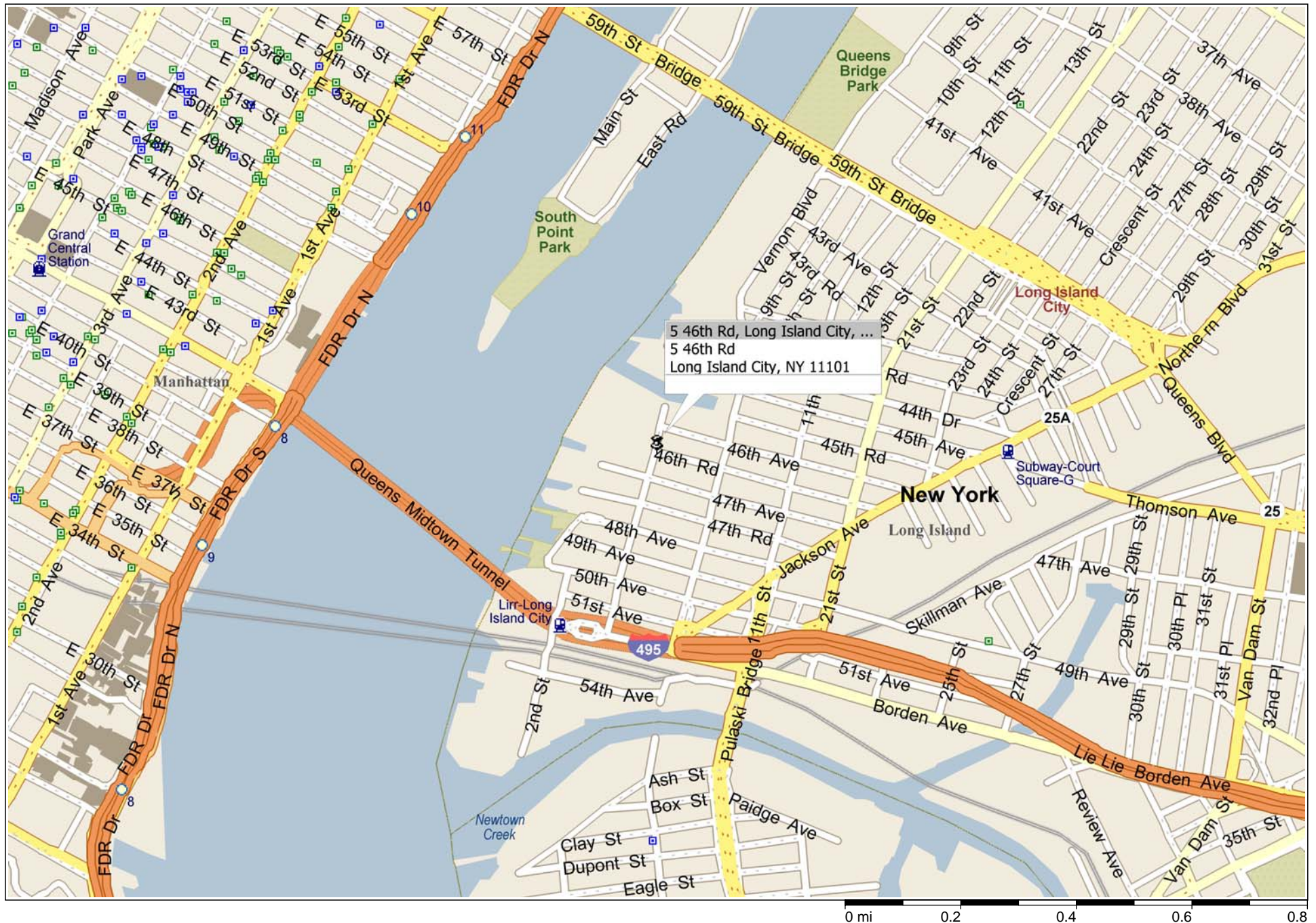
HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

I have reviewed a copy of the Health and Safety Plan for Former Accurate Associates/5-20 46th Road, Long Island City, NY dated March 31, 2009. I have read the HASP, understand it, and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the safety requirements specified in the Health and Safety Plan.

<hr/> Name	<hr/> Company
<hr/> Signature	<hr/> Date
<hr/> Name	<hr/> Company
<hr/> Signature	<hr/> Date
<hr/> Name	<hr/> Company
<hr/> Signature	<hr/> Date
<hr/> Name	<hr/> Company
<hr/> Signature	<hr/> Date
<hr/> Name	<hr/> Company
<hr/> Signature	<hr/> Date

SITE LOCATION MAP

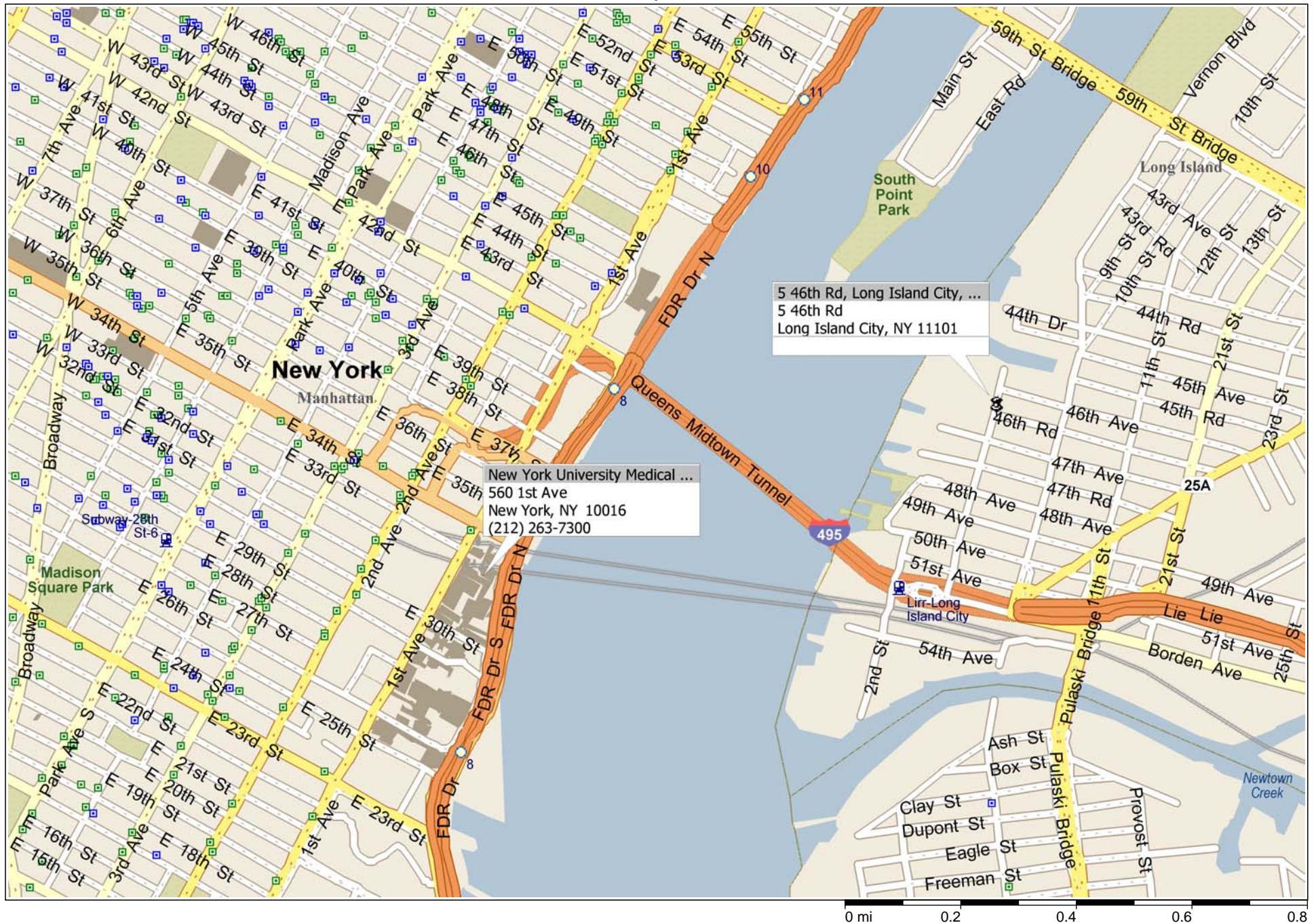
site



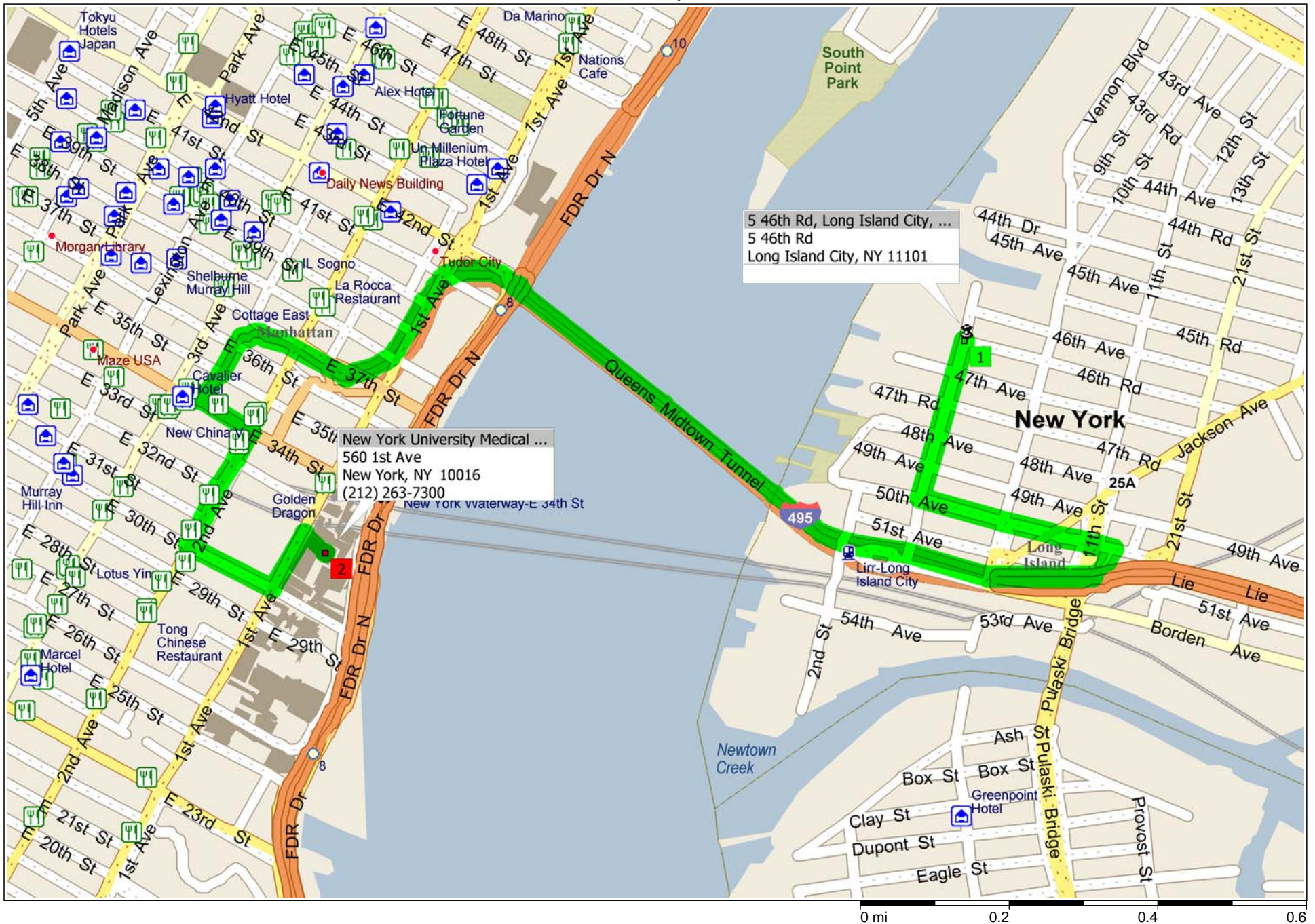
ATTACHMENT B

ROUTE MAP TO NEAREST HOSPITAL

hospital



site-hospital



EWMA HEALTH & SAFETY INCIDENT REPORT

EWMA
HEALTH AND SAFETY INCIDENT REPORT FORM

HEALTH AND SAFETY INCIDENT REPORT

DESCRIPTION OF INCIDENT (continued):

Anyone Injured? If yes, give names, address and social security #'s of all individuals below:

Full Name	Address	Phone	SS#

Of the above, anyone taken to hospital, If yes, where? Who? Diagnosis?

Actions Taken:

What Follow-Up Actions are recommended?

What will be done to prevent this type of incident from happening again (if possible)?

Witness to Preparer:_____ Date:_____

Signature:_____

Notary: Signed and sealed this_____ day of _____,

SS:

COPY TO PROJECT FILE, MAIN OFFICE, EMPLOYER OF AFFECTED EMPLOYEES

ATTACH MORE PAGES AS NEEDED. ATTACH LAB REPORTS, DOCTORS REPORTS,
EMERGENCY ROOM REPORTS AS APPROPRIATE

EWMA PROJECT SAFETY LOG

ENVIRONMENTAL WASTE MANAGEMENT ASSOCIATES, LLC

PROJECT SAFETY LOG

Form HS-106

EWMA SSO: _____ Date: _____

Weather: _____

Personnel:

Personnel Present

Affiliation:

_____	_____
_____	_____
_____	_____
_____	_____

Work Activities

Level of Protection

_____	_____
_____	_____
_____	_____

PID (ppm)

reading	time	reading	time	reading	time	reading	time
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

CGI/O₂ (%LEL)

reading	time	reading	time	reading	time	reading	time
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

CGI/O₂ (O₂%)

reading	time	reading	time	reading	time	reading	time
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Colormetric Tubes (ppm)

reading	time	reading	time	reading	time	reading	time
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

MiniRam (mg/m³)

reading	time	reading	time	reading	time	reading	time
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Notes and Comments:

ATTACHMENT E

OSHA POSTER

JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Provisions of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job. The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer, and a representative authorized by the employees be given an opportunity to accompany the OSHA Inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

Citation

If, upon inspection OSHA believes an employer has violated the Act, a citation, alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta, GA	(404) 347-3573
Boston, MA	(617) 565-7164
Chicago, IL	(312) 353-2220
Dallas, TX	(214) 767-4731
Denver, CO	(303) 391-5858
Kansas City, MO	(816) 426-5861
New York, NY	(212) 337-2378
Philadelphia, PA	(215) 596-1201
San Francisco, CA	(415) 744-6670
Seattle, WA	(206) 553-5930

To report suspected fire hazards, imminent danger safety and health hazards in the workplace, or other job safety and health emergencies, such as toxic waste in the workplace, call OSHA's 24-hour hotline: 1-800-321-OSHA.

Proposed Penalty

The Act provides for mandatory civil penalties against employers of up to \$7,000 for each serious violation and for optional penalties of up to \$7,000 for each nonserious violation. Penalties of up to \$7,000 per day may be proposed for failure to correct violations within the proposed time period and for each day the violation continues beyond the prescribed abatement date. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$70,000 for each such violation. A minimum penalty of \$5,000 may be imposed for each willful violation. A violation of posting requirements can bring a penalty of up to \$7,000.

There are also provisions for criminal penalties. Any willful violation resulting in the death of any employee, upon conviction, is punishable by a fine of up to \$250,000 (or \$500,000 if the employer is a corporation), or by imprisonment for up to six months, or both. A second conviction of an employer doubles the possible term of imprisonment. Falsifying records, reports, or applications is punishable by a fine of \$10,000 or up to six months in jail or both.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation


Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State Labor or Health department or a State university.

Posting Instructions

Employers in States operating OSHA approved State Plans should obtain and post the State's equivalent poster.

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

Washington, DC
1995 (Reprinted)
OSHA 2203


Robert B. Reich, Secretary of Labor

U.S. Department of Labor

Occupational Safety and Health Administration



This information will be made available to sensory impaired individuals upon request.
Voice phone: (202) 219-8615; TDD message referral phone: 1-800-326-2577

THERMAL STRESS GUIDELINES

COLD EXPOSURE CASUALTY PREVENTION PLAN

Persons working outdoors in temperatures at or below freezing may be frostbitten. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death. Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ear, are the most susceptible.

EFFECTS OF COLD EXPOSURE

Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10 degrees Fahrenheit with a wind of 15 mile per hour (mph) is equivalent in chilling effect to still air at -18 degrees Fahrenheit.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

Local injury resulting from cold is included in the generic term frostbite. There are severe degrees of damage. Frostbite of the extremities can be categorized into:

- **Frost nip or incipient frostbite:** characterized by suddenly blanching or whitening of skin.
- **Superficial frostbite:** skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- **Deep Frostbite:** tissues are cold, pale, and solid; extremely serious injury.

To administer first aid for frostbite, bring the victim indoors and rewarm the areas quickly in water between 102 degrees Fahrenheit and 105 degrees Fahrenheit. Give a warm drink not coffee, tea or alcohol. The victim should not smoke. Keep the frozen parts in warm water or covered with warm clothes for 30 minutes, even though the tissue will be very painful as it thaws. Then elevate the injured area and protect it from injury. Do not allow blisters to be broken. Use sterile, soft, dry material to cover the injured areas. Keep victim warm and get immediate medical care.

After thawing, the victim should try to move the injured areas a little, but no more than can be done alone, without help.

- Do not rub the frostbitten part (this may cause gangrene).
- Do not use ice, snow, gasoline or anything cold on frostbite.

- Do not use heat lamps or hot water bottles to rewarm the part.
- Do not place the part near a hot stove.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature, its symptoms are usually exhibited in five stages; 1) shivering; 2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95 degrees Fahrenheit; 3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate; 4) freezing of the extremities; and, finally, 5) death.

As a general rule, field activities should be curtailed if equivalent chill temperature (degrees Fahrenheit) is below zero unless the activity is of an emergency nature. The ultimate responsibility for proposing or delaying work at a site due to inclement weather rests with the EWMA Site Safety Officer.

HEAT STRESS CASUALTY PREVENTION PLAN

Due to the increase in ambient air temperatures and the effects of protective outer wear decreasing body ventilation, there exists an increase in the potential for injury, specifically, heat casualties. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and the prevention of heat stress casualties.

IDENTIFICATION AND TREATMENT

- **Heat Exhaustion**

Symptoms: Usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Vomiting is frequent. The bowels may move involuntarily. The victim is very pale, skin is clammy, and may perspire profusely. The pulse is weak and fast, breathing is shallow. The victim may faint unless victim lies down. This may pass, but sometimes it remains and death could occur.

First Aid: Immediately remove the victim to the Contamination Reduction Zone in a shady or cool area with good air circulation. Remove all protective outer wear. Call a physician. Treat the victim for shock. (Make victim lie down, raise feet 6 to 12 inches and keep victim warm but loosen all clothing). If the victim is conscious, it may be helpful to ingest sips of a salt water solution (1 teaspoon of salt to 1 glass of water). Transport victim to a medical facility as soon as possible.

- **Heat Stroke**

Symptoms: This is the most serious of heat casualties due to the fact that the body excessively overheats. Body temperatures often are between 107 degrees Fahrenheit to 110 degrees Fahrenheit. First there is often pain in the head, dizziness, nausea, oppression, and the skin is dry, red and hot. Unconsciousness follows quickly and death is imminent if exposure continues. The attack will usually occur suddenly.

First Aid: Immediately evacuate the victim to a cool and shady area in the Contamination Reduction Zone. Remove all protective outer wear and all personal clothing. Lay victim on back with the head and shoulders slightly elevated. It is imperative that the body temperature be lowered immediately. This can be accomplished by applying cold wet towels, ice bags, etc., to the head. Sponge off the bare skin with cool water or rubbing alcohol, if available, or even place victim in a tub of cool water. The main objective is to cool victim without chilling. Give no stimulants. Transport the victim to a medical facility as soon as possible.

PREVENTION OF HEAT STRESS

- One of the major causes of heat casualties is the depletion of body fluids. On the site there will be plenty of fluids available. Personnel should replace water and salts loss from sweating. Salts can be replaced by either a 0.1% salt solution, more heavily salted foods, or commercial mixes such as Gatorade. The commercial mixes are advised for personnel on low sodium diets.
- A work schedule should be established so that the majority of the work day will be during the morning hours of the day before ambient air temperature levels reach their highs.
- A work/rest guideline will be implemented for personnel required to wear Level B protection. This guideline is as follows:

<u>Ambient Temperatures</u>	<u>Maximum Wearing Time</u>
Above 90°F	1/2 hour
80° to 90°F	1 hour
70° to 80°F	2 hours
60° to 70°F	3 hours
<60°F	4 hours

A sufficient period will be allowed for personnel to "cool down." This may require shifts of workers during operations.

HEAT STRESS MONITORING

For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism. Monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. Frequency of monitoring should increase as the ambient temperature increases or if slow recovery rates are indicated. When temperatures exceed 80 degrees Fahrenheit, workers must be monitored for heat stress after every work period.

- Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by 33%.
- Body temperature should be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. However, if the OT exceeds 99.7 degrees Fahrenheit at the beginning of the next period, the following work cycle should be further shortened by 33%. OT should be measured again at the end of the rest period to make sure that it has dropped below 99 degrees Fahrenheit.
- Body water loss (BWL) due to sweating should be measured by weighing the worker in the morning and in the evening. The clothing worn should be similar at both weighings; preferably the worker should be nude. The scale should be accurate to plus or minus 1/4 pound. BWL should not exceed 1.5% of the total body weight. If it does, workers should be instructed to increase their daily intake of fluids by the weight lost.

Ideally, body fluids should be maintained at a constant level during the work day. This requires replacement of salt lost in sweat as well.

Good hygienic standards must be maintained by frequent change of clothing and daily showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

TABLE 202-1
WINDCHILL INDEX¹

Wind Speed in MPH	ACTUAL THERMOMETER READING (degrees F)									
	50	40	30	20	10	0	-10	-20	-30	-40
	EQUIVALENT TEMPERATURE (degrees F)									
calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-21	-33	-46	-58	-70
15	36	22	9	-5	-18	-36	-45	-58	-72	-85
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-74	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116
over 40	Little Danger				Increasing Danger			Great Danger		
(little added effect)	(for properly clothed person)				(Danger from freezing of exposed flesh)					

¹ Source: Fundamentals of Industrial Hygiene, Third Edition, National Safety Council

EMERGENCY PROCEDURES

EMERGENCY MEDICAL TREATMENT AND FIRST AID PROCEDURES

If an employee working at the Site is physically injured, emergency medical treatment and/or First Aid procedures will be followed. Depending on the severity of the injury, emergency medical response may be sought. If the employee can be moved, they will be taken to the edge of the work area (on a stretcher, if needed) where contaminated clothing will be removed (if possible), emergency first aid administered, and transportation to local emergency medical facility awaited.

If the injury to the worker is chemical in nature (e.g., overexposure), the following procedures are to be instituted as soon as possible:

- Eye Exposure - If contaminated solid or liquid gets into the eyes, wash eyes immediately at the emergency eyewash stations using large amounts of water and lifting the lower and upper lids occasionally. Obtain medical attention immediately. (Contact lenses are not permitted in the Exclusion Areas.)
- Skin Exposure - If contaminated solid or liquid gets on the skin, promptly wash contaminated skin using soap or mild detergent and water. If solids or liquid penetrate through the clothing, remove the clothing immediately and wash the skin using soap or mild detergent and water. Obtain medical attention immediately if symptoms warrant.
- Breathing - If a person breathes in large amounts of organic vapor, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Obtain medical attention as soon as possible.
- Swallowing - If contaminated solid or liquid has been swallowed and the person is conscious, feed the person large quantities of salt water immediately and induce vomiting (unless the person is unconscious). Obtain medical attention immediately.

First Aid Procedures

- Remove the injured or exposed person(s) from immediate danger.
- Render first aid if necessary, decontaminate affected personnel, if necessary.
- Call an ambulance for transport to local hospital immediately. This procedure should be followed even if there is no apparent serious injury.
- Evacuate other personnel on-site to a safe place until the EWMA Site Safety Officer determines that it is safe for work to resume.
- Report the accident to the EWMA Director of Health and Safety immediately.

SAFETY GUIDELINES FOR DRILLING

ATTACHMENT H

SAFETY GUIDELINES FOR DRILLING

Drill rig maintenance and safety is the responsibility of the drill rig operator. The following is provided as a general guideline for safe drilling practices on-site.

OFF-ROAD MOVEMENT OF DRILL RIGS

The following safety guidelines related to off-road movement:

- Before moving a drill rig, first walk the route of travel, inspecting for depressions, slumps, gullies, ruts and similar obstacles.
- Always check the brakes of a drill rig carrier before traveling, particularly on rough, uneven or hilly ground.
- Discharge all passengers before moving a drill rig on rough or hilly terrain.
- Engage the front axle (for 4x4, 6x6, etc., vehicles or carriers) when traveling off highway on hilly terrain.
- Use caution when traveling side-hill. Conservatively evaluate side-hill capability of drill rigs, because the arbitrary addition of drilling tools may raise the center of mass. When possible, travel directly uphill or downhill.
- Attempt to cross obstacles such as small logs and small erosion channel or ditches squarely, not at an angle.
- Use the assistance of someone on the ground as a guide when lateral or overhead clearance is close.
- After the drill rig has been moved to a new drilling site, set all brakes and/or locks. When grades are steep, block the wheels.
- Never travel off-road with the mast (derrick) of the drill rig in the raised or partially raised position.
- Tie down loads on the drill rig and support trucks during transport.

OVERHEAD AND BURIED UTILITIES

The use of a drill rig near electrical power lines and other utilities requires that special precautions be taken by both supervisors and members of the exploration crew. electricity can shock, it can burn, and it can cause death.

Overhead and buried utilities should be located, noted and emphasized on all boring location plans and boring assignment sheets.

Before raising the drill rig mast (derrick) on a site in the vicinity of power lines, walk completely around the drill rig. Determine what the minimum distance from any point on the drill rig to the nearest power line will be when the mast is raised and/or being raised. In general, the distance between the overhead power line and the boom should be no less than the height of the boom.

Keep in mind that both hoist and overhead power lines can be moved toward each other by the wind.
Keep in mind that electricity from high-voltage lines can “arc” to the rig, completing a circuit.
Keep in mind that rubber tires may not fully insulate the rig.
Keep in mind that the drill itself, and the metal outriggers used to balance the truck, may complete a circuit.

Drilling personnel should double-check any side underground electrical and piping drawings prior to initiating drilling. If an obstruction is encountered during drilling, proceed with extreme caution until the possibility of an exposed electrical line or combustible product pipeline is excluded.

CLEARING THE WORK AREA

Prior to drilling, adequate site cleaning and leveling should be performed to accommodate the drill rig and supplies and provide a safe working area. Drilling should not be commenced when tree limbs, protruding objects, unstable ground or site obstructions or debris cause unsafe tool handling conditions and/or limited, awkward work spaces. An area clear of obstructions or debris should be maintained 180 degrees around the drilling or sampling activities, where practical.

NOTE: In coordination with the drilling crew, the Site Safety Officer will review the precautions taken to insure that the drill rig is leveled and stabilized.

HOUSEKEEPING ON AND AROUND THE DRILL RIG

The first requirement for safe field operations is that the drilling crew safety supervisor understands and fulfills the responsibility for maintenance and "housekeeping" on and the drill rig.

Suitable storage locations should be provided for all tools, materials and supplies so that they can be conveniently and safely handled without hitting or falling on a member of the drill crew or a visitor, without creating tripping hazards, and without protruding at eye or head level.

Avoid storing or transporting tools, materials or supplies within or on the mast (derrick) of the drill rig.

Pipe, drill rods, bit casings, augers and similar drilling tools should be orderly stacked on racks or sills to prevent spreading, rolling or sliding.

Penetration of other driving hammers should be placed at a safe location on the ground or be secured to prevent movement when not in use.

Work areas, platforms, walkways, scaffolding and other access ways should be kept free of materials, obstructions and substances such as ice, excess grease or oil that could cause a surface to become slick or otherwise hazardous.

Keep all controls, control linkages, warning and operation lights and lenses free of oil, grease and/or ice.
Do not store gasoline in any portable container other than a non-sparking, red container with a flame arrester in the fill spout and having the word "gasoline" easily visible.

Welding gas cylinders should be stored in an upright position to avoid gas leaks.

SAFE USE OF HAND TOOLS

There are almost an infinite number of hand tools that can be used on or around a drill rig. "Use the tool for its intended purpose" is the most important rule. The following are a few specific and some general suggestions which apply to safe use of several hand tools that are often used on and around drill rigs.

- When a tool becomes damaged, either repair it before using it again or get rid of it.

- When using a hammer, any kind of hammer, for any purpose, wear safety glasses and require all others near you to wear safety glasses.
- When using a chisel, any kind of chisel, for any purpose, wear safety glasses and require all others around you to wear safety glasses.
- Keep all tools cleaned and orderly stored when not in use.
- Replace hook and heel jaws when they become visibly worn.
- When breaking tool joints on the ground or on a drilling platform, position your hands so that your fingers will not be smashed between the wrench handle and the ground or the platform, should the wrench slip or the joint suddenly let go.

SAFE USE OF WIRE LINE HOISTS, WIRE ROPE AND HOISTING HARDWARE

The use of wire line hoists, wire rope and hoisting hardware should be as stipulated by the American Iron and Steel Institute's Wire Rope User's Manual.

All wire ropes and fittings should be visually inspected during use and thoroughly inspected at least once a week for: abrasion, broken wires, wear, reduction in rope diameter, reduction in wire diameter, fatigue, corrosion, damage from heat, improper weaving, jamming, crushing, bird caging, kinking, core protrusion and damage to lifting hardware and any other feature that would lead to failure. Wire ropes should be replaced when inspection indicates excessive damage according to the wire rope users manual.

If a ball-bearing type hoisting swivel is used to hoist drill rods, swivel bearings should be inspected and lubricated daily to assure that the swivel freely rotates under load.

If a rod slipping device is used to hoist drill rods, do not drill through or rotate drill rods through the slipping device, do not hoist more than 1 ft of the drill rod column above the top of the mast (derrick), do not hoist a rod column with loose tool joints and do not make up, tighten or loosen tool joints while the rod column is being supported by a slipping device. If drill rods should slip back into the borehole, do not attempt to brake the fall of the rods with your hands.

Most sheaves on drill rigs are stationary with a single part line. The number of parts of line should not ever be increased without first consulting with the manufacturer of the drill rig. Wire ropes must be properly matched with each sheave.

The following procedures and precautions must be understood and implemented for safe use of wire ropes and rigging hardware.

Use tool handling hoists only for vertical lifting of tools (except when angle hole drilling). Do not use tool handling hoists to pull on objects away from the drill rig; however, drills may be moved using the main hoist as the wire rope is pulled through proper sheaves according to the manufacturer's recommendations.

When stuck tools or similar loads cannot be raised with a hoist, disconnect the hoist line and connect the stuck tools directly to the feed mechanisms of the drill. Do not use hydraulic leveling jacks for added pull to the hoist line or the feed mechanisms of the drill.

When attempting to pull out a mired down vehicle or drill rig carrier, only use a winch or the front or rear of the vehicle or drill rig carrier and stay as far as possible away from the wire rope. Do not attempt to use tool hoists to pull out a mired down vehicle or drill rig carrier.

Minimize shock loading of a wire rope - apply loads smoothly and steadily.

- Protect wire rope from sharp corners or edges.

- Replace faulty guides and rollers.
- Replace worn sheaves or worn sheave bearings.
- Replace damaged safety latches on safety hooks before using.
- Know the safe working load of the equipment and tackle being used. Never exceed this limit.
- Clutches and brakes of hoists should be periodically inspected and tested.
- Know and do not exceed the rated capacity of hooks, rings, links, swivels, shackles and other lifting aids.
- Always wear gloves when handling wire ropes.
- Do not guide wire ropes or hoist drums with your hands.
- Follow the installation of a new wire rope, first lift a light load to allow the wire rope to adjust.
- Never carry out any hoisting operations when the weather conditions are such that hazards to personnel, the public, or property are created.
- Never leave a load suspended in the air when the hoist is unattended.
- Keep your hands away from hoists, wire rope, hoisting hooks, sheaves and pinch points as slack is being taken up and when the load is being hoisted.
- Safety rules described in OSHA Regulations 29 CFR 1926.552 and guidelines contained in the Wire Rope User's Manual published by the American Iron and Steel Institute shall be used whenever wire line hoists, wire rope, or hoisting hardware are used.
- Never hoist loads over anyone's head.
- The operator and tool handler should establish a system of responsibility for the series of various activities required for auger drilling, such as connecting and disconnecting auger sections, and inserting and removing the auger fork. The operator must insure that the tool handler is well away from the auger column and that the auger fork is removed before starting rotation.
- Only use the manufacturer's recommended method of securing the auger to the power coupling. Do not touch the coupling or the auger with your hands, a wrench or any other tool during rotation.
- Whenever possible, use tool hoists to handle auger sections.
- Never place hands or fingers under the bottom of an auger section when hoisting the auger over the top of the auger section in the ground or other hard surfaces such as the drill rig platform.
- Never allow feet to get under the auger section that is being hoisted.
- When rotating augers, stay clear of the rotating auger and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason whatsoever.
- Never place your hands between the drill rig and an auger, even when attempting to free a damaged or bound Shelby tube from the auger.

- Never use your hands or feet to move cuttings away from the auger.
- Augers should be cleaned only when the drill rig is in neutral and the augers are stopped from rotating.

SAFETY DURING ROTARY AND CORE DRILLING

Rotary drilling tools should be safety checked prior to drilling:

- Water swivels and hoisting plugs should be lubricated and checked for "frozen" bearings before use.
- Drill rod chuck jaws should be checked periodically and replaced when necessary.
- The capacities of hoists and sheaves should be checked against the anticipated weight of the drill rod string plus other expected hoisting loads. All cables should be inspected daily.

Special precautions that should be taken for safety rotary or core drilling involve chucking, joint break, hoisting and lowering of drill rods:

- Drill rods should not be braked during lowering into the hole with drill rod chuck jaws.
- Drill rods should not be held or lowered into the hole with pipe wrenches.
- If a string of drill rods are accidentally or inadvertently released into the hole, do not attempt to grab the falling rods with your hands or a wrench.
- In the event of a plugged bit or other circulations blockage, the high pressure in the piping and hose between the pump and the obstruction should be relieved or bled down before breaking the first tool joint.
- When drill rods are hoisted from the hole, they should be cleaned for safe handling with a rubber or other suitable rod wiper. Do not use your hands to clean drilling fluids from drill rods.
- If work must progress over a portable drilling fluid (mud) pit, do not attempt to stand on narrow sides or cross members. The mud pit should be equipped with a rough surface, fitted cover panels of adequate strength to hold drill rig personnel.
- Drill rods should not be lifted and leaned unsecured against the mast. Either provide some method of securing the upper ends of the drill rod sections for safe vertical storage or lay the rods down.
- All hydraulic lines should be periodically inspected for integrity and replaced as needed.

START UP

All drill rig personnel and visitors should be instructed to "stand clear" of the drill rig immediately prior to and during starting of an engine.

Make sure all gear boxes are in neutral, all hoist levers are disengaged, all hydraulic levers are in the correct non-actuating positions and the cathead rope is not on the cathead before starting a drill rig engine.

GENERAL SAFETY DURING DRILLING OPERATIONS

Safety requires the attention and cooperation of every worker and site visitor.

Do not drive the drill rig from hole to hole with the mast (derrick) in the raised position.

Before raising the mast (derrick) look up to check for overhead obstructions. (Refer to previous Section on overhead and buried utilities).

Before raising the mast (derrick), all drill rig personnel and visitors (with exception of the operator) should be cleared from the areas immediately to the rear and the sides of the mast. All drill rig personnel and visitors should be informed that the mast is being raised prior to raising it.

Before the mast (derrick) of a drill rig is raised and drilling is commenced, the drill rig must be first leveled and stabilized with leveling jacks and/or solid cribbing. The drill rig should be re-leveled if it settles after initial set up. Lower the mast (derrick) only when leveling jacks are down and do not raise the leveling jack pads until the mast (derrick) is lowered completely.

Before starting drilling operations, secure and/or lock the mast (derrick) if required according to the drill manufacturer's recommendations.

The operator of a drill rig should only operate a drill rig from the position of the controls. The operator should shut down the drill engine before leaving the vicinity of the drill rig.

Do not consume alcoholic beverages or other depressants or chemical stimulants prior to starting work on a drill rig or while on the job.

Watch for slippery ground when mounting and dismounting from the platform.

All unattended boreholes must be adequately covered or otherwise protected to prevent drill rig personnel, site visitors or animals from stepping or falling into the hole. All open boreholes should be covered, protected or backfilled adequately and according to local or state regulations on completion of the drilling project.

"Horsing around" within the vicinity of the drill rig and tool and supply storage areas should never be allowed, even when the drill rig is shut down.

Be careful when lifting heavy objects. Before lifting a relatively heavy object, approach the object by bending at the knees, keeping your back vertical and unarched while obtaining a firm footing. Grasp the object firmly with both hands and stand slowly and squarely while keeping your back vertical and unarched. In other words, perform the lifting with the muscles in your legs, not the muscles in your lower back.

Drilling operations should be terminated during an electrical storm.

The minimum number of personnel necessary to achieve the objectives shall be within 25 ft of the drilling or sampling activity. Back-up personnel should remain at least 25 ft from the drilling or sampling activity, where practical.

Hardhats and steel boots are to be worn by all personnel in the vicinity of the drilling activities. Drilling personnel should not wear loose-fitting or baggy clothing which may be awkward or get caught on equipment. Jewelry, including rings and necklaces, should not be worn around electrical wires or rotating equipment.

SAFETY GUIDELINES FOR EXCAVATIONS

SAFETY GUIDELINES FOR EXCAVATIONS

This procedure contains general safety requirements for excavating and trenching operations and work performed therein. The requirements are consistent with standards established by the Occupational Safety and Health Administration (OSHA) and described in OSHA Regulations 29 CFR 1926, Subpart P. The latter should be consulted for additional information.

RESPONSIBILITY AND APPLICABILITY

The EWMA Project Manager is responsible for ensuring that employees of EWMA and of firms contracted by EWMA comply with these requirements.

These procedures are applicable to all EWMA projects in which trenching or other excavating operations, exclusive of borings, are performed by firms under contract to EWMA. It is also applicable to EWMA projects requiring EWMA personnel or firms under contract to EWMA to enter trenches and other types of excavations.

REQUIREMENTS

When planning any excavating operation, obtain a permit, if required, from the proper authority.

Before digging, determine if underground installations, such as sewer, water, fuel, or electrical lines may be encountered and, if so, determine the exact locations of the lines. Information can be obtained by contacting Underground Service Alert (consult local telephone directory for toll-free number), local utility companies and the owner of the property on which the excavating operations are planned.

Trees, boulders, and other surface encumbrances, located so as to pose a potential hazard to employees must be removed or made safe before the operation begins.

Excavated materials must be placed at least 2 ft from the edge of the excavation and precautions must be taken to prevent the materials from falling into the excavation.

SHORING AND SLOPING

Excavations in which personnel are required to work must be shored or sloped to an angle of repose if the depth of the excavation is 5 ft or more. When a shoring system is used, it shall consist of hydraulic shores or the equivalent, with sheathing or sheet piling as needed. The shoring system must be properly designed and installed to sustain all existing and expected loads. For details on shoring and sloping, consult OSHA Regulations 29 CFR, Subpart P, Section 1926.650 to 1926.653.

ACCESS

When work is to be performed in an excavation, safe access to the excavation must be provided by means of ladders, stairs, or ramps. Trenches greater than 4 ft in depth must have ladders spaced no less than 25 ft apart, and the ladders must extend at least 3 ft above the ground surface.

HAZARDOUS ATMOSPHERES

At sites where oxygen deficiency or hazardous concentrations of flammable or toxic vapors or gases may be encountered in excavations, the atmosphere in the excavations must be tested by the EWMA Site Safety Officer or other qualified person before work in the excavation begins and at appropriate intervals afterward.

INSPECTION OF EXCAVATIONS

Excavations must be inspected daily by the EWMA Site Manager or EWMA Site Safety Officer. If evidence of potential caveins or slides is observed, all work in the excavation must be suspended until necessary steps have been taken to safeguard employees.

OPERATION OF VEHICLES NEAR EXCAVATIONS

When vehicles or heavy equipment must operate near an excavation, the sides of the excavation must be shored or braced as necessary to withstand forces exerted by the superimposed load. Stop logs or other types of secure barriers must be installed at the edges of the excavations.

BARRICADES AND FENCES

Excavated areas must be completely guarded on all sides with barricades or fences, as appropriate. If barricades are used, they must be spaced no more than 20 ft apart and shall not be less than 3 ft high when erected. A yellow or yellow and black tape, at least 1 inch wide, shall be stretched between the barricades.

BACKFILLING

Excavated areas must be backfilled and all associated equipment must be removed from the area as soon as practical after work is completed.

TICKS AND TICK-BORNE DISEASES

TICKS AND TICK-BORNE DISEASES

Field personnel should be aware of an increased occurrence of tick-borne disease in the United States. In the northeast, the most likely carriers are the whitefooted mouse and the white-tailed deer. These animals are most prevalent in areas where suburban environments about open fields or woodlands. Although exposure is increased in these areas, other carriers, such as dogs and horses, can be found in a variety of environments.

All field personnel should take proper precautions to limit exposure to ticks and tick-borne diseases. These include:

- Cinching and taping clothing at the ankles and wrists, especially the ankles. Ticks lie low on grass blades and shrubs. They encounter your feet, ankles or lower legs and then crawl upward.
- Wear light-colored clothing to facilitate spotting the ticks, and check your clothing periodically. Be especially careful in terrain with tall grass, bushes or woods.
- Use a tick repellant on skin or clothing. Always read the labels before using. Clothing repellents should never be used on the skin.
- Recognize the signs of a bite or an infection. It takes several hours for a tick to attach and feed; removing it promptly lessens the chance of being infected.

Pregnant women should be particularly careful since the effects of the most common tick-borne disease in the northeast, Lyme disease, upon the fetus is unknown.

If a tick is discovered on the skin, it is important to remove the entire insect as soon as possible. The most effective method is to grasp the tick as close as possible to the mouth with tweezers or thin, curved forceps. Then, without jerking, pull it upward steadily (a small amount of skin may be removed in the process).

After removing the tick, disinfect the bite with rubbing alcohol or povidone iodine (Betadine). Don't handle the tick; spirochetes could enter the body through breaks in the skin. Dispose of it in alcohol or flush it down the drain. And check the bite occasionally for at least two weeks to see if a rash forms. If it does, you've been infected and should seek treatment promptly.

The rash appears at the bite location from two days to a few weeks after the bite. It usually starts as a small red spot that expands as the spirochetes spread beyond the bite. Most commonly, the rash develops into a reddish circle or oval about two to three inches in diameter. It fades with or without treatment after a few weeks.

Much larger rashes - anywhere from 6 to 20 inches in diameter - may also occur, especially on the back. Despite their size, large rashes may be easy to miss because they're often very faint.

Other variants include a rash with a red perimeter and a clear center and the so-called bull's-eye rash, which consists of several concentric red rings. Rashes may vary in shape, depending on where they occur on the body. Frequent sites are the thigh, groin, and armpits. People often develop a rash in more than one place.

Early symptoms may include profound fatigue, a stiff neck, and flu-like symptoms such as headache, chills, fever, and muscle aches. Since tick bites don't always produce a rash, those symptoms alone may warrant a medical check for possible Lyme infection - especially if they occur in summer and you live in an area that is endemic for Lyme disease.

Without treatment, the spirochetes usually multiply and the disease progressively worsens. The second stage, occurring within weeks to months of the bite, may affect the heart and nervous system. Third is the chronic arthritic stage, which begins up to a year or more after the bite.

Appendix – 10

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Property Known As:

**OCA LIC Fifth Street Mixed-Use Housing
5-20 46th Road
City of New York, Queens County, New York 11101
BCP Site No C241098**

Prepared for:

**OCA Long Island City, LLC
c/o O'Connor Capital Partners
535 Madison Avenue, 23rd Floor
New York, NY 10022**

December 2008

Updated June 2009

Submitted by:

**Environmental Waste Management Associates, LLC
P. O. Box 5430
Parsippany, New Jersey 07054
EWMA Case No. 205490**

TABLE OF CONTENTS

1.0	PROJECT SCOPE	1
2.0	DATA QUALITY OBJECTIVES	1
3.0	ANALYTICAL LABORATORY	2
4.0	PROJECT COORDINATION	2
5.0	ANALYTICAL METHODS / QUALITY ASSURANCE SUMMARY	3
6.0	FIELD INSTRUMENTATION	4
7.0	CHAIN OF CUSTODY	6
8.0	LABORATORY STORAGE	6
9.0	LABORATORY DELIVERABLE FORMAT	6

ATTACHMENTS

LABORATORY CERTIFICATIONS	1
ANALYTICAL METHODS/ QUALITY ASSURANCE SUMMARY TABLE	2
CHAIN OF CUSTODY (BLANK FORM)	3
DATA VALIDATOR QUALIFICATIONS	4
FIELD SAMPLING PROCEDURES PLAN	5

1.0 PROJECT SCOPE

This Quality Assurance Project Plan (QAPP) document was prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) December 2002 *Draft DER-10 Technical Guidance for Site Investigation and Remediation* and applies to the investigation of soils, and ground water. The following activities are proposed as part of this investigation:

Soils Investigation

- (1) Soil samples will be collected to document the soil quality at the vertical and horizontal extent of the excavation.

Ground Water Investigation

- (1) EWMA will gauge sample permanent monitoring wells to further investigate ground water and light non-aqueous phase liquid (LNAPL) at the property.

Vapor Intrusion Investigation

- (1) EWMA will collect soil-gas and sub-slab vapor samples to investigate the potential for vapor intrusion at the site and assess the possible remedial programs and/or engineering designs appropriate to address vapor intrusion hazards. An ambient air sample will also be collected as a comparative background sample during each sampling event.

This QAPP provides directions in implementing the activities that would generate data of known and defensible quality. It complies with the September 1992 NYSDEC Division of Water Sampling Guidelines and Protocols ("NYSDEC DWSGP") and the October 2006 New York State Department of Health (NYSDOH) *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (GESVI).

2.0 DATA QUALITY OBJECTIVES

Collection of samples will be performed as described within this document and the NYSDEC DWSGP and NYSDOH GESVI. Soil and ground water samples collected for volatile organic compounds and a forward library search (VO+10) will be analyzed via EPA Method 8260+10. Soil samples collected for semi-volatile organic compounds and a forward library search (BN+20) will be analyzed via EPA Method 8270+20. Soil samples collected for priority pollutant metals (PPM) will be analyzed via EPA Method series SW-846 for the full Inorganic Target Analyte List (23 metals plus total cyanide). Ground water samples collected for BN+20 will be analyzed via EPA Method 625+20. Ground water samples obtained for PPM analysis will be analyzed via EPA 610A Series for the full Inorganic Target Analyte List (23 metals plus total cyanide). Semi-volatiles soil and water analyses by 8270 will include 20 tentatively

identified compounds. Soil-gas and sub-slab vapor sample obtained for VO+10 will be analyzed via EPA TO-15.

Data quality objectives include but are not limited to:

- Defining physical and chemical characteristics of contaminant sources
- Volume and extent of contamination, potential receptors and associated exposure pathways
- Fate and transport of contaminants
- Development and evaluation of remedial alternatives
- Identifying Standards, Criteria and Guidance (SCGs)
- Identifying the need for treatability studies
- Supporting future enforcement or cost recovery activities.

3.0 ANALYTICAL LABORATORY

All soil and ground water samples will be analyzed by the following NYSDOH CLP-Tier ELAP certified laboratory:

Integrated Analytical Laboratories (IAL)
273 Franklin Road
Randolph, NJ 07869
New York Lab ID No. 11402
NUSDOH Certification Serial No. 32868

All air samples will be analyzed by the following NYSDOH ELAP certified laboratory for the air samples TO-15 analysis:

Integrated Analytical Laboratories (IAL)
273 Franklin Road
Randolph, NJ 07869
New York Lab ID No. 11402
NUSDOH Certification Serial No. 32868

Laboratory certifications are provided as **Attachment 1** of this QAPP.

4.0 PROJECT COORDINATION

Overall Project

Management: Sharon McSwieney, Project Manager, EWMA, (609) 799-7300

Sampling Activities

Manager: Daniel DiRocco, Environmental Scientist, EWMA

Quality Assurance

Officer: Margaret Halasnik, Compliance Services Director, EWMA

Data Validator Margaret Halasnik, Compliance Services Director, EWMA

Laboratory Activities: The personnel will be identified in the laboratory analytical report.

The personnel listed above are subject to change. The Health and Safety Plan will document the actual field personnel that complete the activities at the site.

5.0 ANALYTICAL METHODS / QUALITY ASSURANCE SUMMARY

The Analytical Methods / Quality Assurance Summary table is included as **Attachment 2** of this document.

Collection of samples from the site will be performed following the NYSDEC DWSGP and NYSDOH GESVI. In general, the samples will be collected as described in the January 2008 Field Sampling Procedures Plan (FSPP) included as **Attachment 5**.

Trip blanks and field blanks will be collected for all ground water sampling locations requiring VO+10 analysis as per EPA Method 8260+10. Duplicate samples will be collected during each daily sampling event at a rate of one duplicate sample for each media sampled on that day.

All QA/QC will be consistent with NYSDEC ASP July 2005. Holding times are calculated from the verified time of sample of receipt at the laboratory (except for ambient air sample for which sample Holding Time is calculated from the time of sampling). The sample holding times given in the table included as **Attachment 2** are consistent with the holding times given in NYSDEC ASP Exhibit I.

All air samples will be collected as per Section 2 of the NYSDOH GESVI. In addition to the proposed sub-slab and soil-gas samples, at least one (1) outdoor air sample will be collected during each air sampling event in order to provide ambient or background data.

All activities related to the soil vapor intrusion investigation, including the laboratory analysis and reporting of the data will be conducted in accordance with the referenced NYSDOH GESVI document.

In general, appropriate QAPP will be followed during all aspects of sample collection and analysis to ensure that sampling error is minimized and high quality data are obtained. Sampling team members will avoid actions (e.g., fueling vehicles, using permanent marking pens, wearing freshly dry-cleaned clothing or personal fragrances, etc.) which can cause sample interference in the field. Portable air monitoring equipment or field instrumentation will be properly maintained, calibrated and tested to ensure validity of measurements. Air sampling equipment will be stored,

transported and between samples decontaminated in a manner consistent with the best environmental consulting practices to minimize problems such as field contamination and cross-contamination. Samples will be collected using certified clean sample devices. Steps will be taken to ensure that the gas used by the laboratory to clean the sample device is different from the gas used as a tracer during sampling (e.g., helium). Samples will meet sample holding times and temperatures, and will be delivered to the analytical laboratory as soon as possible after collection. In addition, laboratory accession procedures will be followed, including field documentation (sample collection information and locations), chain of custody, field blanks, field sample duplicates and laboratory duplicates, as appropriate. A Data Usability Summary Report (DUSR) will be required to determine whether or not the data, as presented, meets the site or project specific criteria for data quality and data use. All samples that will be used to make decisions on appropriate actions to address exposures and environmental contamination will be analyzed by IAL, an ELAP-certified laboratory.

6.0 FIELD INSTRUMENTATION

Photo-Ionization Detector Standard Operating Procedure:

The Photovac MicroTIP photoionization detector (PID) must be calibrated in order to display concentration in units equivalent to ppm. First a supply of Zero Gas, which contains no ionizable gases or vapors, is used to set MicroTIP's zero point. Then, Span Gas, containing a known concentration of an ionizable gas or vapor, is used to set the sensitivity. Usually clean outdoor air will be suitable as Zero Gas. If there is any doubt, use a commercial source of Zero Grade Gas and a second sampling bag. A supply of Span Gas of the desired compound and concentration must be obtained for calibration. Observe proper handling techniques for all gases.

Isobutylene at 100 ppm in air is recommended as Span Gas. To calibrate the instrument use the Calibration Kit as follows:

- 1) Connect the supplied regulator to the Span Gas cylinder. Hand tighten the fittings.
- 2) Open the valve on the gas bag by turning the valve stem fully counterclockwise.
- 3) Attach gas bag adapter nut to the regulator. Hand tighten the fittings.
- 4) Turn the regulator knob counterclockwise about half a turn to start the flow of gas.
- 5) Fill the gas bag about half full and then close the regulator fully clockwise to turn off the flow of gas.
- 6) Disconnect the bag from the adapter and empty it. Flush the bag a few times with the Span Gas and then fill it.
- 7) Close the bag by turn the valve clockwise.
- 8) Press SETUP and select the desired Cal Memory with the arrow keys and press ENTER. Press EXIT to leave setup.

- 9) Press CAL and expose MicroTIP to Zero Gas. Press ENTER and MicroTIP sets its zero point.
- 10) MicroTIP then asks for the Span Gas concentration. Enter the known Span Gas concentration and then connect the Span Gas adapter to the inlet.
- 11) Press ENTER and MicroTIP sets its sensitivity.
- 12) When MicroTIP's display reverts to normal, MicroTIP is calibrated and ready for use. Remove the Span Gas bag from the inlet.

The AIM 600 Detector/Combustible Gas Indicator must be calibrated to ensure the safe operation of your detector. Calibration involves showing your detector a clean air atmosphere as a zero reference, and then showing your detector a known gas concentration. For maximum safety, it is recommended that calibration verification be performed each time you use your detector, particularly when an application is critical.

There are, however, a number of very specific conditions that cause at least the need for calibration verification, and a likely re-calibration. They are:

1. Sensor age. Sensors will expire over time. This means that as the sensor ages, it will not put out as much signal in proportion to a given amount of gas. Also, the sensor's output will decrease more rapidly if it is exposed to extremely high levels of gases.

The act of calibration adjusts the decreasing output of sensors over time. At some point, the sensor output will not be adequate to give a reliable reading. Each sensor has an expected life span to which its reaction or response to known gases is predictable within specified tolerances.

2. Sensor operating conditions. Recalibration, or at least calibration verification, is recommended should your detector display and sense any error conditions for any of the sensors in your detector. They are:

*ZERO, where a sensor has indicated a zero value during calibration that is out of the desired range for that sensor.

*SPAN, where a sensor has indicated a span value during calibration that is out of the desired range for that sensor.

*RNG, where a specific sensor's response range has been exceeded or has been saturated with a gas concentration.

*CAL, where a sensor's drift or response is showing a concentration lower than the zero value recorded for that sensor. This indicates the need for a calibration adjustment, specifically re-zeroing the sensor.

*TEMP, where the sensor's operating temperature or acceptable range has been exceeded, which may affect or has already affected the response.

*FAULT, where a sensor's electrical connections have been compromised and the detector is showing no signal.

7.0 CHAIN OF CUSTODY

Generally, a Chain of Custody (COC) is generated to track the samples from the time of collection and delivery to the laboratory.

Refer to **Attachment 3** for a copy of the field Chain of Custody forms that will be used for the samples. The COC utilized by the analytical laboratory analyzing the samples will be included with the analytical data report.

8.0 LABORATORY STORAGE

Laboratory storage of collected samples will be in accordance with approved procedures as required for certified laboratories as described in the NYSDEC ASP.

9.0 LABORATORY DELIVERABLE FORMAT

Laboratory deliverables will be completed in the format recommended in Appendix A of the NYSDEC DWSGP and Section 2.8 of the NYSDOH GESVI.

A NYSDEC ASP Category B Data Deliverable will be submitted for the sample data. A Data Usability Summary Report (DUSR) as described in DER-10 Appendix 2B will be prepared from the ASP Category B Data Deliverable. The Data Validator Qualifications are attached as **Attachment 4**.

Attachment 1

Laboratory Certifications



STATE OF NEW YORK DEPARTMENT OF HEALTH

Wadsworth Center The Governor Nelson A. Rockefeller Empire State Plaza P.O. BOX 509 Albany, New York 12201-0509

RICHARD F. DAINES, M.D.
Commissioner

WENDY E. SAUNDERS
Executive Deputy Commissioner

LAB ID: 11402

April 01, 2009

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

Dear Dr. Leftin,

A new certificate has been generated because of the following change(s):

AppCat	Analyte Name Method Name	Comments	Date
NW - NELAC	Phenols EPA 420.2	Dropped from Approved	03/27/2009
PW - NELAC	Hydrogen Ion (pH) EPA 150.1	Dropped from Approved	03/27/2009

NYS DOH - Wadsworth Center - ELAP - PO BOX 509 - Albany NY 12201-0509

Phone: (518) 485-5570

www.wadsworth.org/labcert

Fax: (518) 485-5568

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

*is hereby APPROVED as an Environmental Laboratory in conformance with the
National Environmental Laboratory Accreditation Conference Standards for the category
ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:*

Drinking Water Trihalomethanes

Dibromochloromethane EPA 524.2

Volatile Aromatics

1,2,3-Trichlorobenzene EPA 524.2

1,2,4-Trichlorobenzene EPA 524.2

1,2,4-Trimethylbenzene EPA 524.2

1,2-Dichlorobenzene EPA 524.2

1,3,5-Trimethylbenzene EPA 524.2

1,3-Dichlorobenzene EPA 524.2

1,4-Dichlorobenzene EPA 524.2

2-Chlorotoluene EPA 524.2

4-Chlorotoluene EPA 524.2

Benzene EPA 524.2

Bromobenzene EPA 524.2

Chlorobenzene EPA 524.2

Ethyl benzene EPA 524.2

Hexachlorobutadiene EPA 524.2

Isopropylbenzene EPA 524.2

n-Butylbenzene EPA 524.2

n-Propylbenzene EPA 524.2

p-Isopropyltoluene (P-Cymene) EPA 524.2

sec-Butylbenzene EPA 524.2

Styrene EPA 524.2

tert-Butylbenzene EPA 524.2

Toluene EPA 524.2

Total Xylenes EPA 524.2

Volatile Halocarbons

1,1,1,2-Tetrachloroethane EPA 524.2

Volatile Halocarbons

1,1,1-Trichloroethane EPA 524.2

1,1,2,2-Tetrachloroethane EPA 524.2

1,1,2-Trichloroethane EPA 524.2

1,1-Dichloroethane EPA 524.2

1,1-Dichloroethene EPA 524.2

1,1-Dichloropropene EPA 524.2

1,2,3-Trichloropropane EPA 524.2

1,2-Dichloroethane EPA 524.2

1,2-Dichloropropane EPA 524.2

1,3-Dichloropropane EPA 524.2

2,2-Dichloropropane EPA 524.2

Bromochloromethane EPA 524.2

Bromomethane EPA 524.2

Carbon tetrachloride EPA 524.2

Chloroethane EPA 524.2

Chloromethane EPA 524.2

cis-1,2-Dichloroethene EPA 524.2

cis-1,3-Dichloropropene EPA 524.2

Dibromomethane EPA 524.2

Dichlorodifluoromethane EPA 524.2

Methylene chloride EPA 524.2

Tetrachloroethene EPA 524.2

trans-1,2-Dichloroethene EPA 524.2

trans-1,3-Dichloropropene EPA 524.2

Trichloroethene EPA 524.2

Trichlorofluoromethane EPA 524.2

Vinyl chloride EPA 524.2

Serial No.: 39349

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-6570 to verify laboratory's accreditation status.



NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE
Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

is hereby APPROVED as an Environmental Laboratory in conformance with the
National Environmental Laboratory Accreditation Conference Standards for the category
ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Demand		Nitroaromatics and Isophorone	
Carbonaceous BOD	SM 18-20 5210B (01)	Isophorone	EPA 625
Chemical Oxygen Demand	HACH 8000	Nitrobenzene	EPA 625
Haloethers		Nitrosoamines	
4-Bromophenylphenyl ether	EPA 625	N-Nitrosodimethylamine	EPA 625
4-Chlorophenylphenyl ether	EPA 625	N-Nitrosodiphenylamine	EPA 625
Bis(2-chloroisopropyl) ether	EPA 625		
Bis(2-chloroethoxy)methane	EPA 625	Nutrient	
Bis(2-chloroethyl)ether	EPA 625	Ammonia (as N)	SM 18 4500-NH3 C SM 19-20 4500 NH3-C (97) SM 19-20 4500-NH3 G (97) EPA 351.2 Rev. 2.0 SM 18-21 4500-NO3 F (00) SM 18-21 4500-NO2 B (00) USGS I-4540-85 SM 18-21 4500-P E
Low Level Polynuclear Aromatics		Kjeldahl Nitrogen, Total	
Benzo(a)anthracene	EPA 8270C	Nitrate (as N)	
Benzo(a)pyrene	EPA 8270C	Nitrite (as N)	
Benzo(b)fluoranthene	EPA 8270C	Orthophosphate (as P)	
Benzo(k)fluoroanthene	EPA 8270C		
Indeno(1,2,3-cd)pyrene	EPA 8270C	Phthalate Esters	
Mineral		Benzyl butyl phthalate	EPA 625
Acidity	SM 18-20 2310B.4a (97)	Bis(2-ethylhexyl) phthalate	EPA 625
Alkalinity	SM 18-21 2320B (97)	Diethyl phthalate	EPA 625
Chloride	SM 18-20 4500-Cl- C SM 18-20 4500-Cl- E (97)	Dimethyl phthalate	EPA 625
Fluoride, Total	SM 18-21 4500-F C (97)	Di-n-butyl phthalate	EPA 625
Hardness, Total	SM 18-20 2340B (97) SM 18-20 2340C (97)	Di-n-octyl phthalate	EPA 625
Sulfate (as SO4)	SM 15 426 C	Polychlorinated Biphenyls	
Nitroaromatics and Isophorone		PCB-1016	EPA 608
2,4-Dinitrotoluene	EPA 625	PCB-1221	EPA 608
2,6-Dinitrotoluene	EPA 625	PCB-1232	EPA 608
		PCB-1242	EPA 608

Serial No.: 39350

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.



NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

*is hereby APPROVED as an Environmental Laboratory in conformance with the
National Environmental Laboratory Accreditation Conference Standards for the category
ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:*

Purgeable Halocarbons

1,1,2,2-Tetrachloroethane	EPA 624
1,1,2-Trichloroethane	EPA 624
1,1-Dichloroethane	EPA 624
1,1-Dichloroethene	EPA 624
1,2-Dichloroethane	EPA 624
1,2-Dichloropropane	EPA 624
2-Chloroethylvinyl ether	EPA 624
Bromodichloromethane	EPA 624
Bromoform	EPA 624
Bromomethane	EPA 624
Carbon tetrachloride	EPA 624
Chloroethane	EPA 624
Chloroform	EPA 624
Chloromethane	EPA 624
cis-1,3-Dichloropropene	EPA 624
Dibromochloromethane	EPA 624
Dichlorodifluoromethane	EPA 624
Methylene chloride	EPA 624
Tetrachloroethene	EPA 624
trans-1,3-Dichloropropene	EPA 624
Trichloroethene	EPA 624
Trichlorofluoromethane	EPA 624
Vinyl chloride	EPA 624

Residue

Settleable Solids	SM 18-20 2540 F
Solids, Total	SM 18-20 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-20 2540D (97)

Wastewater Metals I

Barium, Total	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.8 Rev. 5.4
Calcium, Total	EPA 200.7 Rev. 4.4
Chromium, Total	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Manganese, Total	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.8 Rev. 5.4
Potassium, Total	EPA 200.7 Rev. 4.4
Silver, Total	EPA 200.8 Rev. 5.4
Sodium, Total	EPA 200.7 Rev. 4.4

Wastewater Metals II

Aluminum, Total	EPA 200.8 Rev. 5.4
Antimony, Total	EPA 200.8 Rev. 5.4
Arsenic, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.8 Rev. 5.4
Chromium VI	SM 18-19 3500-Cr D
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.8 Rev. 5.4

Wastewater Metals III

Cobalt, Total	EPA 200.8 Rev. 5.4
Molybdenum, Total	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4

Serial No.: 39350

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.



NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE
Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

*is hereby APPROVED as an Environmental Laboratory in conformance with the
National Environmental Laboratory Accreditation Conference Standards for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:*

Acrylates

Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B

Amines

2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
Carbazole	EPA 8270C
Diphenylamine	EPA 8270C

Benzidines

3,3'-Dichlorobenzidine	EPA 8270C
------------------------	-----------

Characteristic Testing

Corrosivity	EPA 9040B
Ignitability	EPA 1010
	EPA 1030

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081A
4,4'-DDE	EPA 8081A
4,4'-DDT	EPA 8081A
Aldrin	EPA 8081A
alpha-BHC	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 8081A
Chlordane Total	EPA 8081A
delta-BHC	EPA 8081A
Dieldrin	EPA 8081A

Chlorinated Hydrocarbon Pesticides

Endosulfan I	EPA 8081A
Endosulfan II	EPA 8081A
Endosulfan sulfate	EPA 8081A
Endrin	EPA 8081A
Endrin aldehyde	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 8081A
Heptachlor epoxide	EPA 8081A
Lindane	EPA 8081A
Methoxychlor	EPA 8081A
Toxaphene	EPA 8081A

Chlorinated Hydrocarbons

1,2,4-Trichlorobenzene	EPA 8260B
	EPA 8270C
2-Chloronaphthalene	EPA 8270C
Hexachlorobenzene	EPA 8270C
Hexachlorobutadiene	EPA 8260B
	EPA 8270C
Hexachlorocyclopentadiene	EPA 8270C
Hexachloroethane	EPA 8270C

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A

Serial No.: 39351

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.



NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE
Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

*is hereby APPROVED as an Environmental Laboratory in conformance with the
National Environmental Laboratory Accreditation Conference Standards for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:*

Petroleum Hydrocarbons

Diesel Range Organics	EPA 8015 B
Gasoline Range Organics	EPA 8015 B

Phthalate Esters

Benzyl butyl phthalate	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 8270C
Diethyl phthalate	EPA 8270C
Dimethyl phthalate	EPA 8270C
Di-n-butyl phthalate	EPA 8270C
Di-n-octyl phthalate	EPA 8270C

Polychlorinated Biphenyls

PCB-1016	EPA 8082
PCB-1221	EPA 8082
PCB-1232	EPA 8082
PCB-1242	EPA 8082
PCB-1248	EPA 8082
PCB-1254	EPA 8082
PCB-1260	EPA 8082

Polynuclear Aromatic Hydrocarbons

Acenaphthene	EPA 8100
	EPA 8270C
Acenaphthylene	EPA 8100
	EPA 8270C
Anthracene	EPA 8100
	EPA 8270C
Benzo(a)anthracene	EPA 8100
	EPA 8270C

Polynuclear Aromatic Hydrocarbons

Benzo(a)pyrene	EPA 8100
	EPA 8270C
Benzo(b)fluoranthene	EPA 8100
	EPA 8270C
Benzo(ghi)perylene	EPA 8100
	EPA 8270C
Benzo(k)fluoranthene	EPA 8100
	EPA 8270C
Chrysene	EPA 8100
Dibenzo(a,h)anthracene	EPA 8100
	EPA 8270C
Fluoranthene	EPA 8100
	EPA 8270C
Fluorene	EPA 8100
	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 8100
	EPA 8270C
Naphthalene	EPA 8100
	EPA 8260B
	EPA 8270C
Phenanthrene	EPA 8100
	EPA 8270C
Pyrene	EPA 8270C

Priority Pollutant Phenols

2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 8270C
2,4-Dichlorophenol	EPA 8270C
2,4-Dimethylphenol	EPA 8270C

Serial No.: 39351

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.



NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

*is hereby APPROVED as an Environmental Laboratory in conformance with the
National Environmental Laboratory Accreditation Conference Standards for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:*

Purgeable Organics

Carbon Disulfide	EPA 8260B
Isobutyl alcohol	EPA 8015 B
Methyl tert-butyl ether	EPA 8260B

Semi-Volatile Organics

Dibenzofuran	EPA 8270C
--------------	-----------

Sample Preparation Methods

EPA 1310
EPA 1311
EPA 3050B
EPA 3060A
EPA 3540C
EPA 3545
EPA 3550B
EPA 3580
EPA 5035
EPA 9010B

Serial No.: 39351

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.



NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE
Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

*is hereby APPROVED as an Environmental Laboratory in conformance with the
National Environmental Laboratory Accreditation Conference Standards for the category
ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:*

Chlorinated Hydrocarbons

1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15

Miscellaneous Air

Formaldehyde	EPA TO-11A
--------------	------------

Purgeable Aromatics

1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15

Purgeable Halocarbons

1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15
1,1,2-Trifluoro-1,2,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromoethane	EPA TO-15

Purgeable Halocarbons

1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Trichlorofluoromethane	EPA TO-15
Vinyl bromide	EPA TO-15
Vinyl chloride	EPA TO-15

Volatile Chlorinated Organics

Benzyl chloride	EPA TO-15
-----------------	-----------

Volatile Organics

1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15

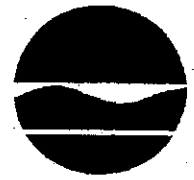
Serial No.: 39353

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.



NELAP Recognized

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Technical Support, 11th Floor
625 Broadway, Albany, New York 12233-7020
Phone: (518) 402-9543 • **FAX:** (518) 402-9547
Website: www.dec.ny.gov



Alexander B. Grannis
Commissioner

March 3, 2009

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

To Whom It May Concern:

As you may be aware, the New York State Department of Health (DOH) Environmental Laboratory Approval Program (ELAP) is discontinuing approval for the Contract Laboratory Protocol (CLP) tier category effective April 1, 2009. DOH ELAP is currently notifying CLP approved labs, as well as labs seeking CLP approval of this change. The Division of Environmental Remediation has received a number of inquiries relative to how this change affects DER's requirements. The purpose of this correspondence is to make our responses known to all ELAP laboratories.

ELAP CLP tier approval is no longer required by the Division of Environmental Remediation (DER). DER guidance documents will be revised to reflect this change. Future analytical contracts will not contain the CLP accreditation requirement. However, the Public Health Law still requires that all laboratories that provide environmental data to DER be ELAP accredited in the appropriate category (i.e., Air and Emissions, Non Potable Water, Potable Water, Solid and Hazardous Waste, (TCLP). Further, all data deliverables must be submitted in conformance with the July 2005 Analytical Services Protocol (i.e., Category A, Category Spills, Category B) as required by the DER Project Manager. When a Data Usability Summary Report (DUSR) is required, a full analytical data deliverable (e.g. ASP Category B) is needed.

If you have any questions on the discontinuation of CLP tier approval relevant to work performed for the DER, please contact Tim LeBarron at 518-402-9761 or t1lebarr@gw.dec.state.ny.us.

Sincerely,

Timothy L. LeBarron

Timothy L. LeBarron
Quality Assurance Officer
Bureau of Technical Support

Attachment 2

Analytical Methods / Quality Assurance Summary Table

Analytical Methods/Quality Assurance Summary Table

Parameter	Matrix	Sample Container & Volume	Sample Preservation	Maximum Allowable Holding Time from VTSR	Field Duplicate	Analytical Method
Volatiles	Soils	2 oz. glass container with Teflon lined caps	cool, 4°C, dark	14 days	One per matrix	SW846 Test Method 8260B
SemiVolatile	Soils	8oz. glass container with Teflon lined caps	cool, 4°C, dark	14 days extraction, 40 days analysis	One per matrix	SW846 Test Method 8270C
Metals	Soils	2 oz glass containers with Teflon lined caps	cool, 4°C, dark	180 days/Mercury 28 days/Cr ⁺⁶ 1 day	One per matrix	EPA Method 6010B
PCBs	Soils	8oz. glass container with Teflon lined caps	cool, 4°C, dark	5 days extraction, 40 days analysis	One per matrix	EPA Method 8280
Volatiles	Ground Water	2x40ml glass container	cool, 4°C, dark	14 days	One per matrix	SW846 Test Method 8260B
SemiVolatile	Ground Water	2x950ml Amber glass container	cool, 4°C, dark	7 days extraction, 40 days analysis	One per matrix	SW846 Test Method 8270C
Metals	Ground Water	250ml plastic jar	cool, 4°C, dark	180 days/Mercury 26 days/Cr ⁺⁶ 1 day	One per matrix	EPA Method 200.8/245.1
PCBs	Ground Water	2x950ml Amber glass container Teflon lined caps	cool, 4°C, dark	5 days extraction, 40 days analysis	One per matrix	EPA Method 8082
Volatiles	Soil Vapor	6 L Summa Canisters	none	30 days*	One per matrix	EPA Method TO 15

Notes:

VTSR - Verified Time of Sample Receipt

* Ambient air samples holding time is calculated from the time of sampling

New York State Department of Conservation 2005 Analytical Services Protocol (ASP), July 2005 Revisions, Albany, NY.

MS/MSD indicates matrix spike/matrix spike duplicate sample.

PCBs indicate polychlorinated biphenyls that are listed with pesticides in Table 8-4B.

Attachment 3

Chain of Custody (Blank)

273 Franklin Rd
Randolph, NJ 07869

[illegible]

Signature/Company	Date	Time	Signature/Company
Relinquished by:			Received by:
Relinquished by:			Received by:
Relinquished by:			Received by:
Relinquished by:			Received by:
Relinquished by:			Received by:

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Comments:

DRO (8015B) - Used for: Fuel Oil #2/Home Heating Oil #1/#2
QAM-025 (QQA-QAM025) - used for: all other fuel oil and unknown contaminants

Lab Case #

PAGE: 0

Attachment 4

Data Validator Qualifications



**Environmental Waste
Management Associates**

PROFESSIONAL PROFILE

MARGARET HALASNIK DIRECTOR-COMPLIANCE SERVICES

QUALIFICATIONS

Ms. Halasnik has extensive experience as a Project Manager for Phase I Environmental Site Assessments and Environmental, Health and Safety (EHS) Regulatory Compliance Assessments for law firms, commercial and industrial clients and financial institutions throughout the United States for both single sites and multi-site portfolios. Ms. Halasnik is a certified USEPA AHERA Asbestos Building Inspector and Management Planner and is a licensed Asbestos Building Inspector and Management Planner in the State of New York.

EDUCATION

- Bachelor of Science, Biology, St. Michael's College, Colchester, VT

CAREER POSITIONS

- Environmental Waste Management Associates, LLC, Director-Compliance Services
- URS Corporation, Senior Environmental Scientist/Project Manager
- PMK Group, Laboratory Manager
- Dames & Moore, Project Manager/Laboratory Manager
- US Testing Company, Assistant Laboratory Manager

RELATED QUALIFICATIONS AND SPECIAL ACHIEVEMENTS

- USEPA – AHERA Accredited Asbestos Inspector
- USEPA – AHERA Accredited Management Planner
- NYS Certified Asbestos Inspector
- NYS Certified Asbestos Management Planner
- 40-Hour Health and Safety Training for Hazardous Waste Operations and Emergency Response
- 8-Hour Supervisor for Hazardous Waste Operations and Emergency Response

PROFESSIONAL AFFILIATIONS AND INTERESTS

- American Society of Safety Engineers. 2004 - present.

KEY PROJECTS

USACE, Kansas City District – Chemical Data Quality Evaluator

Chemical Data Quality Evaluator for a 5-year USEPA superfund project assignment for the Kansas City District US Army Corps of Engineers (USACE) in Central New Jersey. Data quality was evaluated following the project Quality Assurance Project Plan (QAPP), USACE Kansas City District data evaluation guidance, and USEPA Region II Data Validation Guidelines. Developed project QAPP in accordance with USACE Engineer Manual EM-200-1-3, *Requirements for the Preparation of Sampling and Analysis Plans* (USACE 1994), USACE Engineer Manual EM-200-1-2, *Technical Project Planning* (USACE 1998), *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations* (1999a), and *EPA Guidance for Quality Assurance Project Plans* (1998b). Performed data validation/quality assurance reviews to determine data usability of organic and inorganic laboratory analyses of field-collected soil and groundwater samples. Responsibilities included data evaluation, report preparation, ensuring laboratory compliance with project QAPP, client and laboratory contact and comment resolution.

American Airlines, JFK Airport, Jamaica, New York

Senior Chemical Data Evaluator for a 10+ years remediation/design/build project at JFK Airport, Jamaica, New York. Directed data validation and quality assurance reviews of soil and groundwater analytical data to assess data usability and compliance with the modified NYSDEC Category A Data Deliverable format requirements. Provided peer review of data evaluation reports by staff chemists. Guidance for the evaluation of laboratory data was obtained from the standard operating procedures for the validation of volatile organic and semi-volatile organic data using USEPA Region II SW-846 Method 8260B, SOP HW-24, Rev. 1 and Method 8270C, SOP HW-22, Rev. 2, respectively. Responsibilities included data evaluation, report preparation, peer review of client and laboratory contact, and comment resolution.

Active Asphalt Refinery/Tank Terminal Facility

Project health and safety officer and data validation project manager for an active asphalt refinery. Developed and reviewed site-specific project health & safety programs to support RCRA remedial investigation and construction activities. Chemical hazards included volatile and semi-volatile organic compounds, tetraethyl lead, hydrogen sulfide, ammonia, and metals. Served as Senior Chemical Data Evaluator for ongoing soil and groundwater sampling activities to evaluate data usability of organic and inorganic laboratory analyses.

Phase II Environmental Site Investigation Program

Project Manager and Quality Assurance Coordinator for a \$1M Phase II Environmental Site Investigation project involving eight sites in the United States (Florida, Illinois [2], Rhode Island [2], Texas) and Europe (United Kingdom and Czech Republic) for an electronics equipment manufacturer. Developed Phase II work plans, ensured that project activities were conducted consistent with project-specific Standard Operating Procedures (SOPs) and QAPP, performed QA audit during on-site activities, monitored laboratory QA activities, prepared and reviewed results reports, performed QA reviews of soil and groundwater analytical data using USEPA National Functional Guidelines for Organic and Inorganic Data, primary client contact, and tracked project and approved budgets. Supplemental Phase II Investigation work awarded at three sites with reporting to regulatory agencies, development of remedial action work plans and implementation of remedial response measures ongoing.

3- Year Chemical Data Validation Program

Project Manager for a three-year contract performing organic and inorganic data validation/quality assurance reviews to evaluate data usability with respect to client-provided data validation specification and USEPA Region 3 modifications to the National Functional Guidelines for organic and inorganic analyses of soil and groundwater samples. Responsibilities included data evaluation, report preparation, primary client contact, and comment resolution.

Organics & Inorganic Data Review (Various Public/Private Sector Clients)

Chemical data evaluator. Performed data validation/quality assurance reviews to determine data usability with respect to USEPA National Functional Guidelines for Organic and Inorganic Data review. Obtained guidance using USEPA Regions I, II and III, (modifications), New Jersey Department of Environmental Protection (NJDEP), New York State Department of Environmental Conservation (NYSDEC) and Pennsylvania Department of Environmental Protection (PADEP) regulations for organic and inorganic laboratory analyses of environmental soil and groundwater samples. Responsibilities included data evaluation, report preparation and review, client contact and laboratory analytical contact and coordinator.

Attachment 5

Field Sampling Procedures Plan

FIELD SAMPLING PROCEDURES PLAN (FSPP)

Property Known As:

**OCA LIC Fifth Street Mixed-Use Housing
5-20 46th Road
City of New York, Queens County, New York 11101
BCP Site No C241098**

Prepared for:

**OCA Long Island City, LLC
c/o O'Connor Capital Partners
535 Madison Avenue, 23rd Floor
New York, NY 10022**

January 2008

Submitted by:

**Environmental Waste Management Associates, LLC
P. O. Box 5430
Parsippany, New Jersey 07054
EWMA Case No. 205490**

TABLE OF CONTENTS

1.0	PROJECT SCOPE.....	1
2.0	SUBSURFACE UTILITY CLEARING.....	2
2.1	UTILI-VAC/HAND CLEARING	2
2.2	GROUND PENETRATING RADAR AND MAGNETOMETER CLEARING	2
3.0	SUBSURFACE SOIL SAMPLING	3
3.1	SOIL BORING INSTALLATION AND SAMPLING.....	3
3.2	TEST PIT INSTALLATION AND SAMPLING.....	5
4.0	GROUND WATER SAMPLING	6
4.1	TEMPORARY MONITORING WELL INSTALLATION USING AN SP-16 SAMPLER.....	6
4.2	GROUND WATER SAMPLING FROM TEMPORARY WELLS WITH A MECHANICAL BLADDER PUMP	8
4.3	PERMANENT GROUND WATER MONITORING WELL INSTALLATION	10
4.4	PERMANENT MONITORING WELL GROUND WATER SAMPLING WITH A BLADDER PUMP	10
4.5	DECONTAMINATION PROCEDURES FOR NON-DEDICATED EQUIPMENT.....	12
5.0	VAPOR SAMPLING	13
5.1	SUB-SLAB VAPOR SAMPLING	13
5.2	SOIL GAS SAMPLING	14
5.3	OUTDOOR AIR SAMPLING.....	16

ATTACHMENTS

SAMPLE SOIL BORING LOG FORM.....	1
SAMPLE WELL LOG.....	2
EPA LOW-FLOW PURGING AND SAMPLING (LFPS) PROCEDURE.....	3
MONITORING WELL LFPS INFORMATION (BLANK FORM).....	4
NYSDEC GUIDANCE “POLICY REGARDING ALTERATION OF GROUND WATER SAMPLE COLLECTED FOR METALS ANALYSIS (TAGM-4015)”	5

1.0 PROJECT SCOPE

This Field Sampling Procedures Plan (FSPP) document was prepared by Environmental Waste Management Associates, LLC (EWMA) for use in the remedial investigation of OCA LIC Fifth Street Mixed-Use Housing located at 5-20 46th Road, City of New York, Queens County, New York (subject Property and Site).

The standard operating procedures for the following investigation activities are described:

SUBSURFACE UTILITY CLEARING

All sampling locations within the exterior sidewalk at the site will be hand-cleared down to a depth of five (5) feet utilizing a Utilivac tool. All sampling locations within the interior portions of the site will be cleared using a ground penetrating radar (GPR) and magnetometer subsequent to the demolition and removal of the concrete slab. This procedure will avoid complications from subsurface utilities and ensure the safety of all onsite personal before any subsurface investigation takes place.

SUBSURFACE SOIL INVESTIGATION

Soil borings will be installed to delineate impacted soils and to confirm through field observations and/or the analytical results of soil samples the findings collected during past investigation activities. Test Pits will be installed to investigate through field observations the suspected location of Underground Storage Tanks (USTs).

GROUND WATER INVESTIGATION

EWMA will install and sample temporary and permanent monitoring wells, and sample existing permanent monitoring wells to further investigate ground water at the property.

VAPOR INTRUSION INVESTIGATION

EWMA will collect sub-slab vapor and soil-gas samples to investigate the potential for vapor intrusion at the site and assess the possible remedial programs and/or engineering designs appropriate to address potential vapor intrusion hazards. An ambient air sample will also be collected as a comparative background sample during each sampling event.

This FSPP complies with the September 1992 NYSDEC Division of Water Sampling Guidelines and Protocols ("NYSDEC DWSGP") and the October 2006 New York State Department of Health (NYSDOH) *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (GESVI).

2.0 SUBSURFACE UTILITY CLEARING

2.1 Utili-Vac/Hand Clearing

1. All personnel will wear the proper personal protective equipment (goggles, gloves and helmets);
2. Sample locations will be located using appropriate measurements assuring so that if re-sampling for further investigation is necessary, the sample locations can be identified at a later date;
3. Using a wet-coring machine for concrete slab or a jack-hammer for sidewalk, the overlaying slab will be removed;
4. A 5' long pipe connected via flexible rubber hose to a vac-truck will be inserted into the exposed soil;
5. As the soil is removed care will be taken to observe any signs of subsurface utilities;
6. If the soils are too compact to effectively utilize the vacuum or small boulders are present, the vacuum pipe and/or a shovel may be carefully used to dislodge recalcitrant materials;
7. If further progress is found to be impossible, the hole will be filled and a new spot in close proximity to the original location will be chosen and the hand clearing will be re-attempted until the nature of the blockage (possible UST or subsurface utility) is revealed or hand clearing is achieved;
8. If hand clearing is not possible due to the presence of a subsurface obstruction, a soil boring in a different location that still fulfills the requirements for the specific AOC may be chosen;
9. Once an area has been hand cleared to five feet a location directly adjacent to the cleared area will be used for the soil boring or monitoring well installation. This ensures safety while allowing proper soil screening and boring/well logging techniques.

2.2 Ground Penetrating Radar (GPR) and Magnetometer Clearing

1. All personal will wear the proper personnel protective equipment (goggles, gloves and hard-hats);
2. Sample locations will be located using appropriate measurements assuring so that if re-sampling for further investigation is necessary, the sample locations can be identified at a later date;

3. The sample locations will be inspected to ensure that the overlying slab has been removed by the demolition contractor prior to investigation (except in areas as noted in the work plan);
4. All inconsequential surface debris (e.g., vegetation, rocks, etc.) will be cleared;
5. A GSSI SIR 2000 GPR unit with 200 megaHertz (mHz) and 400 mHz antennae or other appropriate GPR/Magnetometer will be used by a properly trained technician;
6. Any subsurface anomalies identified will be traced to confirm if they are currently in-use subsurface utilities, out-of-service subsurface utilities, feed-lines, vent-lines, or USTs;
7. Intrusive subsurface investigation in all areas with potential subsurface utilities will be avoided;
8. Larger subsurface anomalies will be further investigated with a test pit or exploratory boring to identify the nature of the anomaly (UST, scrap metal, underground vault, etc);
9. Where necessary the overlaying slab will be replaced and repaired after clearing and subsurface investigation.

3.0 SUBSURFACE SOIL INVESTIGATION

3.1 Soil Boring Installation and Sampling

1. Soil boring installation will take place only after a location has been hand-cleared (required for exterior sidewalk locations) or GPR/Magnetometer cleared;
2. All personnel will wear the proper personal protective equipment (goggles, gloves and hard-hats);
3. Soil borings will be installed either by hand, truck/track mounted Geoprobe Direct-Push), jack-hammer auger, or hand auger;
4. Sample locations will be located using appropriate measurements assuring so that if re-sampling for further investigation is necessary, the sample locations can be identified at a later date;
5. All inconsequential surface debris (e.g., vegetation, rocks, etc.) will be cleared;
6. All down-hole devices will be thoroughly decontaminated;

7. All soil borings located within the exterior side-walk will be hand cleared down to five feet. Soil borings located within the interior of the property will be cleared using Ground Penetrating Radar (GPR) and/or a magnetometer. If a clear geophysical signal is not available the location will be hand cleared down to five feet;
8. Once the desired depth is reached (the lower of 10' below the water table or 10' below the proposed development), a decontaminated sampling device (e.g., split spoon or Shelby tube) will be advanced by the drill rig in accordance with ASTM #D1586-84 for disturbed (split spoon) samples, or, ASTM #D1586-83 for undisturbed (Shelby tube) samples;
9. Upon retrieval the split spoon will be opened, its contents logged, and then, proceeding in the appropriate manner, the sample will be transferred into a sample bottle using a dedicated, disposable, polyethylene scoop;
10. When using a split spoon sampling device, the retaining basket will be in place, preventing the representative interval contained within the spoon from falling back into the bore hole while mechanically raising the spoon to the surface;
11. Once retrieved, the drive shoe and drive head will be removed and the spoon will be struck to open (being cautious to retain all soil in only one split barrel). The volatile fraction will be immediately collected from a discrete six-inch interval;
12. A PID will be used to record the presence of any volatiles. To obtain the most representative monitor reading, a dedicated, disposable, polyethylene scoop will be used to make a cross sectional slice(s) of the soil core to expose a porous surface. Simultaneously the PID probe will be placed into the opened area (being careful not to touch the sample);
13. In addition to soil classification logs, accurate field logs will be prepared for each sampling point. Field logs will include the following: date/time/weather; sampler/geologist/soil scientist name(s); sample point identification (same number used in sampling plan summary table); sketch showing the sampling point location (including reference distances); depth to water and/or bedrock (refusal) when encountered; soil profile with Unified Soil Classification System (USCS), Burmeister or USDA classification system textual classification and blow counts; sample recovery (and portion submitted for analysis); sampling equipment used; field measurements of any monitoring devices, their calibration, and settings; and general comments (e.g., odor, staining, etc.). A sample soil boring log form is provided as **Attachment 1**;
14. When sampling is completed, the tailings from the unused portion of the sample will be placed back down the borehole. Bore holes which extend at or near the water table will be sealed with non-shrinking impermeable material. All bore holes installed through

concrete or asphalt will be sealed and capped with either concrete or asphalt, where appropriate;

15. In all cases, samples will be initially collected in discrete six-inch increments. If more or less than a six-inch increment is collected because of poor sample recovery or other field logistical problems, an explanation will be provided in the soil log;
16. Care will be taken in collecting and handling the sample for volatile analysis. The sample will be transferred into the sample bottle as quickly as possible, without mixing and only with the aid of dedicated, disposable polyethylene scoops. This will assure that the volatile fraction is not lost or compromised. Soil samples collected for volatile organics analysis will be placed within wide mouth bottles (4 ounce). The sample will be packed tightly, but not at the risk of creating more volatile loss than necessary. Small rocks or vegetation will be avoided to the extent most practical.

3.2 Test Pit Installation and Sampling

1. Test pit installation will take place at appropriate locations based on the results of the GPR/Magnetometer survey to further investigate suspect USTs;
2. All personnel will wear the proper personal protective equipment (goggles, gloves and hard-hats);
3. A rubber tire back hoe or track excavator will be used to install the test pits;
4. Test pit locations will be located using appropriate measurements assuring so that if for further investigation is necessary, the test pit locations can be identified at a later date;
5. Next, at the desired location, all inconsequential surface debris (e.g., vegetation, rocks, etc.) will be cleared;
6. The back hoe bucket will be thoroughly decontaminated;
7. Field notes and photographs will be taken during excavation activities;
8. Soils will be continuously screened as they are removed from the test pit. A dedicated, disposable, polyethylene scoop will be used to expose the inner soils in the bucket, and simultaneously the PID probe will be placed into the opened area (being careful not to touch the sample);
9. In addition to soil classification logs, accurate field logs will be prepared for each sampling point. Field logs will include the following: date/time/weather; sampler/geologist/soil scientist name(s); sample point identification (same number used

- in sampling plan summary table); sketch showing the sampling point location (including reference distances); depth to water and/or bedrock (refusal) when encountered; soil profile with Unified Soil Classification System (USCS), Burmeister or USDA classification system textual classification; field measurements of any monitoring devices, their calibration, and settings; and general comments (e.g., odor, staining, etc.);
10. In suspected UST areas extreme care will be taken so as to prevent accidental damage to the UST. If any resistance or suspected USTs are encountered then the excavation will be hand cleared using shovels or appropriate equipment;
 11. The UST will be uncovered while ensuring that the UST is not damaged during excavation activities;
 12. Photos of the UST condition and measurements of the UST size will be recorded;
 13. Any accessible fill or vent port will be used to record product/liquid depth in the tank;
 14. A product sample will be collected using a bailer for fingerprint identification;
 15. Any impacts to surrounding soil will be noted and if possible excavated and staged on thick plastic for future classification and disposal. If a spill is detected, the spill notification to NYSDEC will be made and appropriate measures will be taken;
 16. When test pit excavations are completed, the excavated soils will be returned to the excavation and compacted in place, unless a leaking UST or other conditions make refilling the excavation impossible. If such an event occurs, appropriate barriers and signs will be installed around the excavation area to clearly notify any personnel in the area of the excavation and prevent accidents.

4.0 GROUND WATER INVESTIGATION

4.1 Temporary Monitoring Well Installation Using an SP-16 Sampler

1. Temporary monitoring well installation will take place only after a location has been hand-cleared (required for sidewalk locations) or GPR/Magnetometer cleared;
2. All personnel will wear the proper personal protective equipment (goggles, gloves and hard-hats);
3. SP-16 samplers will be installed either by truck/track mounted Geoprobe, or manually using a slide hammer and retrieval jack;

4. The SP-16 sampler utilizes a stainless-steel screen which is encased in an alloy steel sampler sheath. An expendable drive point is placed in the lower end of the sheath while a drive head is attached to the top. O-rings on the drive head and expendable point provide a watertight sheath which keeps contaminants out of the system as the sampler is driven to depth;
5. All sampler parts will be thoroughly cleaned before and after each use. All metal parts will be scrubbed using a stiff brush and a non-phosphate soap solution and then rinsed with distilled water and allowed to air-dry before assembly;
6. An O-ring will be placed on a steel expendable drive point. The expendable point will be firmly placed in the necked end of a sampler sheath;
7. A PE Grout Plug will be installed in the bottom end of a Wire-wound Stainless Steel Screen and an O-ring will be placed in the groove on the top end of the screen;
8. The screen will be placed inside of the sampler sheath with the grout plug toward the bottom of the sampler;
9. A bottom O-ring will be installed on a Drive Head. The drive head will be threaded into the sampler sheath using an adjustable wrench if necessary to ensure complete engagement of the threads. A Drive Cap will be attached to the top of the drive head;
10. The probe derrick will be extended a little over halfway out of the carrier vehicle when positioning for operation in order to provide adequate room for screen deployment with the Rod Grip Pull System;
11. The assembled sampler will be placed in the driving position beneath the hydraulic hammer of the direct push machine;
12. The sampler will be advanced with the throttle control at slow speed for the first few feet to ensure that the sampler is aligned properly. The sampler will be switched to fast speed for the remainder of the probe stroke;
13. The hammer assembly will be completely raised and the drive cap will be removed. An O-ring will be placed in the top groove of the drive head. Distilled water will be used to lubricate the O-ring if needed. A probe rod (length to be determined by operator) will be added and the drive cap will be reattached to the rod string. The sampler will be driven the entire length of the new rod with the throttle control at fast speed;
14. Step 13 will be repeated until the desired sampling interval is reached;

15. Approximately 12 inches (305 mm) of the last probe rod will extend above the ground surface to allow attachment of the puller assembly. A 12-inch (305 mm) rod may be added if the tool string is over-driven;
16. The drive cap will be removed and the probe derrick will be retracted away from the tool string;
17. A screen push adapter will be threaded on an extension rod of suitable length;
18. A threaded coupler will be attached to the other end of the extension rod. The extension rod will be lowered inside of the probe rod. An extension rod jig may be used to hold the rods;
19. Extension rods will be added until the adapter contacts the bottom of the screen;
20. At least 48 inches (1219 mm) of extension rod will protrude from the probe rod. An extension rod handle will be threaded on the top extension rod;
21. The probe assembly will be maneuvered into position for pulling;
22. The tool string will be raised (pulled) while the screen will be physically held in place with the extension rods. A slight knock with the extension rod string will help to dislodge the expendable point and start the screen moving inside the sheath;
23. The hammer and tool string will be raised about 44 inches (1118 cm). At this point the screen head will contact the necked portion of the sampler sheath and the extension rods will rise with the probe rods;
24. The rod grip handle will be removed, the hammer assembly will be lowered, and the probe derrick retracted. The top extension rod (with handle) and top probe rod will be removed and all extension rods will be extracted;
25. Ground water samples can now be collected with a bladder pump following the ground water sampling from temporary wells with a mechanical bladder pump procedure.

4.2 Ground Water Sampling from Temporary Wells with a Mechanical Bladder Pump

The USEPA Low Flow Purging and Sampling (LFPS) Ground Water Sampling Procedure (**Attachment 3**) will be used as a guide for ground water sampling from temporary monitoring wells. A mechanical bladder pump will be used with PE tubing. The pump will be lowered to the mid-point of the screened interval in each well.

1. Monitoring well sampling will begin at the least contaminated well based on available information. This strategy will minimize cross-contamination;
2. The well headspace will be screened using a PID;
3. Ground water field data will be collected before sampling the well. Any equipment making contact with the ground water and used to obtain data will be decontaminated prior to and after each use. A copy of a blank Monitoring Well LFPS Information is included as **Attachment 4**. It lists the parameters that will be collected in the field;
4. If any product is detected the depth of product will be recorded and a product sample will be collected for fingerprint analysis;
5. Data collected in the field will be recorded in a Field Log Book. Deviation from the sampling protocol and observed events that could affect the samples will be noted in the log book;
6. A mechanical bladder pump will be used at low pressure and flow rates (500 ml/min or less);
7. Parameters (pH, conductivity, redox potential, dissolved oxygen, turbidity, temperature) will be recorded every five minutes by a properly calibrated Horiba water lab;
8. After all parameters have stabilized (± 0.1 for pH, $\pm 3\%$ for conductivity, ± 10 mv for redox potential, $\pm 10\%$ for dissolved oxygen and turbidity, a minimum of 15 minutes and three parameter observation events) a sample will be collected at a flow rate between 100 and 250 ml/min;
9. Following the NYSDEC guidance "Policy Regarding Alteration of Ground Water Sample Collected for Metals Analysis (TAGM-4015)" included as **Attachment 5** and as per NYSDEC concurrence, if turbidity is repeatedly (three attempts) detected above 50 NTU an additional field filtered sample will be collected and field preserved from each permanent monitoring well for dissolved metals analysis and semivolatile analysis;
10. The water level will be checked before and after sampling to ensure that drawdown is less than 0.3 feet;
11. The pump will be properly decontaminated in between each monitoring well sampled;
12. The sample jar will be labeled: job/site name, sample ID, sample date, sample time, preservation used, and sampler name/affiliation. It will be stored in a cooler with ice;

13. A Chain of Custody (COC) will be completed for the collected samples. Refer to Attachment 3 of the Quality Assurance Project Plan (QAPP, Appendix 7 of the revised Remedial Investigation Work Plan) for a copy of the COC;
14. The samples will be delivered to the designated laboratory within 48 hours and analyzed within the appropriate holding time (detailed in Attachment 2 of the QAPP).

4.3 Permanent Ground Water Monitoring Well Installation

1. Permanent monitoring well installation will take place only after a location has been hand-cleared (required for sidewalk locations) or GPR/Magnetometer cleared;
2. All personnel will wear the proper personnel protective equipment (goggles, gloves and helmets);
3. Monitoring wells will be advanced through the use of hollow-stem auger drill rig using 4.25-inch hollow stem augers;
4. Once the desired well depth has been achieved, 5 feet of 2-inch diameter machine slotted PVC well screen (0.020 inch slot size) will be installed in each borehole;
5. Solid PVC riser will complete the upper portion of each well. The connections between the screen and the riser will be flush-joint screw type with no adhesive required;
6. The wells will be filter packed with clean sand pack from the bottom of each borehole to approximately 2 feet above the top of the screen level;
7. The remainder of the annular space around the upper portion of each well will be grouted using Benseal and cement;
8. Monitoring wells will be completed to grade with locking caps and flushmount manholes.

4.4 Permanent Monitoring Well Ground Water Sampling with a Bladder Pump

The USEPA Low Flow Purging and Sampling (LFPS) Ground Water Sampling Procedure (**Attachment 2**) will be used as a guide for ground water sampling from permanent monitoring wells. A bladder pump will be used with dedicated Teflon tubing. The pump will be lowered to the mid-point of the screened interval in each well.

1. Permanent wells will be sampled no less than one (1) week after installation, to allow the monitoring well to develop naturally;
2. Monitoring well sampling will begin at the least contaminated well based on available information. This strategy will minimize cross-contamination;
3. For the permanent monitoring wells, before removal of the cap, the area directly outside of the well cap will be screened using a PID;

4. Upon removal of the cap, the well headspace will be screened using a PID;
5. Ground water field data will be collected before sampling the well. Any equipment making contact with the ground water and used to obtain data will be decontaminated prior to and after each use. A copy of a blank Monitoring Well LFPS Information is included as **Attachment 3**. It lists the parameters that will be collected in the field;
6. If any product is detected the depth of product will be recorded and a product sample will be collected for fingerprint analysis;
7. Data collected in the field will be recorded in a Field Log Book. Deviation from the sampling protocol and observed events that could affect the samples will be noted in the log book;
8. Low-flow Purging and Sampling (LFPS) procedures will be used in order to minimize inaccuracies in ground water sampling results from sediment perturbations. The EPA March 16, 1998 GW Sampling Standard Operating Procedure (SOP) will be used as a guideline for the LFPS procedure;
9. A bladder pump will be used at low pressure and flow rates to ensure that drawdown is less than 0.3 feet;
10. Dedicated Teflon tubing will be used at each monitoring well;
11. Parameters (pH, conductivity, redox potential, dissolved oxygen, turbidity, temperature) will be recorded every five minutes by a properly calibrated Horiba water lab;
12. After all parameters have stabilized (± 0.1 for pH, $\pm 3\%$ for conductivity, ± 10 mv for redox potential, $\pm 10\%$ for dissolved oxygen and turbidity, a minimum of 15 minutes and three parameter observation events) a sample will be collected at a flow rate between 100 and 250 ml/min;
13. Following the NYSDEC guidance "Policy Regarding Alteration of Ground Water Sample Collected for Metals Analysis (TAGM-4015)" included as **Attachment 5** and as per NYSDEC concurrence, if turbidity is repeatedly (three attempts) detected above 50 NTU an additional field filtered sample will be collected and field preserved from each permanent monitoring well for dissolved metals analysis and semivolatile analysis. Prior to the filtered sample collection, the monitoring well will be inspected for proper installation and any damage since the installation;
14. The water level will be checked before and after sampling to ensure that drawdown is less than 0.3 feet;

15. The pump will be properly decontaminated in between each monitoring well sampled;
16. The sample jar will be labeled: job/site name, sample ID, sample date, sample time, preservation used, and sampler name/affiliation. It will be stored in a cooler with ice;
15. A Chain of Custody (COC) will be completed for the collected samples. Refer to Attachment 3 of the Quality Assurance Project Plan (QAPP, Appendix 7 of the revised Remedial Investigation Work Plan) for a copy of the COC;
16. The samples will be delivered to the designated laboratory within 48 hours and analyzed within the appropriate holding time (detailed in Attachment 2 of the QAPP).

4.5 Decontamination Procedures for Non-Dedicated Equipment

Non-disposable sampling equipment, including the pump and support cable and electrical wires which contact the sample, will be decontaminated thoroughly each day before use (“daily decon”) and after each well is sampled (“between-well decon”). Dedicated, in-place pumps and tubing will be thoroughly decontaminated using “daily decon” procedures prior to their initial use. All non-dedicated sampling equipment (pumps, tubing, etc.) will be decontaminated after each well is sampled. Soil sampling equipment will be decontaminated using the “Between-Well Decon Procedure”.

Daily Decon Procedure:

1. Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
2. Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly;
3. Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
4. Disassemble pump;
5. Wash pump parts: Place the disassembled parts of the pump into a deep basin containing 8 to 10 gallons of non-phosphate detergent solution;
6. Scrub all pump parts with a test tube brush;
7. Rinse pump parts with potable water;
8. Rinse the following pump parts with distilled/ deionized water: inlet screen, the shaft, the suction interconnector, the motor lead assembly, and the stator housing;
9. Place impeller assembly in a large glass beaker and rinse with 1% nitric acid (HNO₃);

10. Rinse impeller assembly with potable water;
11. Place impeller assembly in a large glass bleaker and rinse with isopropanol;
12. Rinse impeller assembly with distilled/deionized water.

Between-Well Decon Procedure:

1. Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
2. Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly;
3. Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
4. Final Rinse: Operate pump in a deep basin of distilled/deionized water to pump out 1 to 2 gallons of this final rinse water.

5.0 VAPOR SAMPLING

5.1 Sub-Slab Vapor Sampling

1. Prior to installation of the sub-slab vapor probe, the building floor will be inspected and any penetrations (cracks, floor drains, utility perforations, sumps, etc.) will be noted and recorded;
2. Probes will be installed at locations where the potential for ambient air infiltration via floor penetrations is minimal;
3. Sub-slab implants or probes will be constructed in the same manner at all sampling locations to minimize possible discrepancies;
4. If necessary, a hole in the concrete or asphalt will be drilled;
5. Temporary probes will be constructed with polyethylene tubing (1/4inch diameter). Tubing will not extend further than 2 inches into the sub-slab material;
6. The implant will be sealed to the surface with non-VOC-containing grout;
7. After installation of the probes, one to three volumes (i.e., the volume of the sample probe and tube) will be purged prior to collecting the samples to ensure samples collected are representative;
8. Samples will be collected in 6-Liter steel Summa® canisters (for analysis by using EPA Method TO-15);

9. Flow rates for both purging and collecting will not exceed 0.2 liters per minute to minimize ambient air infiltration during sampling;
10. Samples will be collected over the same period of time as concurrent outdoor air sample (approximately 60 minutes for 6-Liter Summa® canister samples);
11. Detailed field notes will be recorded during the sampling. Historic and current storage and uses of volatile chemicals will be identified. The existence and use of heating or air conditioning systems during sampling will be noted. Floor plan sketches will be drawn that include the floor layout with sampling locations, chemical storage areas, garages, doorways, stairways, location of basement sumps or subsurface drains and utility perforations through building foundations, HVAC system air supply and return registers, compass orientation (north), footings that create separate foundation sections, and any other pertinent information will be completed. Outdoor plot sketches will be drawn that include the building site, area streets, outdoor air sampling locations (if applicable), compass orientation (north), and paved areas. Weather conditions (e.g., precipitation and indoor and outdoor temperature) and ventilation conditions (e.g., heating system active and windows closed) will be reported. Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppb RAE), will be recorded;
12. The field sampling team will maintain a sample log sheet summarizing the following:
 - a. sample identification,
 - b. date and time of sample collection,
 - c. sampling depth,
 - d. identity of samplers,
 - e. sampling methods and devices,
 - f. soil vapor purge volumes,
 - g. volume of soil vapor extracted,
 - h. vacuum of canisters before and after samples collected,
 - i. apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
 - j. chain of custody protocols and records used to track samples from sampling point to analysis.

5.2 Soil-gas Sampling

A soil vapor intrusion assessment at the subject Site as per the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006 (NYSDOH Guidance) is proposed. All air samples will be collected as per Section 2 of the NYSDOH Guidance.

All activities related to the soil vapor intrusion investigation, including the laboratory analysis and reporting of the data will be conducted in accordance with the referenced NYSDOH Guidance document.

1. Measures will be taken to ensure that an adequate surface seal is created to prevent outdoor air infiltration and a tracer gas will be used at every sampling location;
2. Soil vapor implants or probes will be constructed in the same manner at all sampling locations to minimize possible discrepancies;
3. An appropriate method based on site conditions will be used. An AMS Manual Soil-gas Vapor Probe (SGVP), which is a hollow, all-stainless steel probe with a penetrable tip, will be hammered into the ground to the desired depth (3 to 4 feet below the bottom of the impermeable surface);
4. The probe base is attached to a 3 feet probe extension, a second 3 feet probe extension will be necessary to achieve the desired depth;
5. A barbed adapter will be attached to a Teflon sampling tube (1/4 inch) through its threaded end;
6. The other end of the barbed adapter, attached to the Teflon tubing will be inserted to the bottom of the AMS SGVP, and rotated in order to thread the barbed adapter into the bottom of the AMS SGVP;
7. An extra 2 feet of extension Teflon tubing will be cut above the probe in order to connect to an evacuated 6-Liter Summa[®] Canister used for air sampling;
8. The AMS SGVP probe will be pulled upward, thereby exposing a screen within the probe tip from which the soil-gas sample will pass through;
9. One to three implant volumes (the volume of the sample probe and tube) will be purged prior to collecting the samples;
10. The flow rates for both purging and collecting will not exceed 0.2 liters per minute;
11. The valve on the Summa[®] Canister will be opened in order to collect the soil-gas sample. The Summa[®] Canister will be equipped with an appropriate flow controller and vacuum gauge and will be filled until the vacuum drops from -30 inches of mercury to about -5 inches of mercury. This may take approximately 60 minutes for the soil-gas sample collection;
12. The air samples collected in the Summa[®] Canisters will be analyzed using the USEPA Method TO-15;
13. A tracer gas (helium) will be used when collecting soil vapor samples to verify that adequate sampling techniques are being implemented (i.e., to verify infiltration of outdoor air is not occurring);
14. The immediate vicinity of the area where the probe intersects the ground surface will be enriched with the tracer gas, and a vapor sample from the probe will be measured for the presence of high concentrations (>10%) of the tracer;

15. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to and after sampling for the compounds of concern. (the tracer gas samples can be collected via syringe);
16. Care will be taken to avoid excessive purging prior to sample collection. Care will also be taken to prevent pressure build-up in the enclosure during introduction of the tracer gas;
17. If high concentrations ($> 10\%$) of tracer gas are observed in a sample, the probe seal will be enhanced to reduce the infiltration of outdoor air;
18. Tracer gas will be used at every sampling location, every time;
19. Detailed field notes will be recorded during the sampling. Uses of volatile chemicals during normal operations of the facility will be identified, outdoor plot sketches will be drawn that include the site, area streets, neighboring commercial or industrial facilities (with estimated distance to the site), outdoor air sampling locations (if applicable), and compass orientation (north), weather conditions (e.g., precipitation and outdoor temperature) will be noted for the past 24 to 48 hours, and any pertinent observations will be recorded, such as odors and readings from field instrumentation;
20. The field sampling team will maintain a sample log sheet summarizing the following:
 - a. sample identification,
 - b. date and time of sample collection,
 - c. sampling depth,
 - d. identity of samplers,
 - e. sampling methods and devices,
 - f. purge volumes,
 - g. volume of soil vapor extracted,
 - h. if canisters are used, the vacuum before and after samples were collected,
 - i. apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
 - j. chain of custody protocols and records used to track samples from sampling point to analysis.

5.3 Outdoor Air Sampling

In addition to the proposed sub-slab and soil-gas samples, at least one (1) outdoor air sample will be collected during each air sampling event in order to provide ambient or background data.

1. To ensure that air is representative of the locations sampled and to avoid undue influence from sampling personnel, samples will be collected for at least 1 hour;
2. Sample will be collected along the upwind perimeter of the property based on the field determined wind direction on the day of the sampling;
3. Personnel will avoid lingering in the immediate area of the sampling device while samples are being collected;

4. Sample flow rates will conform to the specifications in the sample collection method will be consistent with the flow rates for concurrent outdoor air and sub-slab samples;
5. Samples will be collected, using conventional sampling methods, in a Summa® canisters to be analyzed by using EPA Method TO-15);
6. Outdoor plot sketches will be drawn that include the building site, area streets, outdoor air sampling locations, the location of potential interferences (e.g., gasoline stations, factories, lawn movers, etc.), compass orientation (north), and paved areas. Weather conditions (e.g., precipitation and outdoor temperature) will be reported and any pertinent observations, such as odors, readings from field instrumentation, and significant activities in the vicinity (e.g., operation of heavy equipment or dry cleaners) will be recorded. Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppbRAE, Jerome Mercury Vapor Analyzer, etc.), will be recorded;
7. The field sampling team will maintain a sample log sheet summarizing the following:
 - a. sample identification,
 - b. date and time of sample collection,
 - c. sampling height,
 - d. identity of samplers,
 - e. sampling methods and devices,
 - f. depending upon the method, volume of air sampled,
 - g. vacuum of canisters before and after samples collected, and
 - h. chain of custody protocols and records used to track samples from sampling point to analysis.

Attachment 1

Sample Soil Boring Log Form



**Environmental Waste
Management Associates, LLC**

PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax: (973) 560-0400

EWMA Job #:

Boring #:

Install Date:

Site Name:

Site Location:

Completion Date:

Geologist:

Drilling Co.:

Driller:

Drill Rig:

Bit:

Hammer Wt:

Drop:

Total Depth:

Sampler Type:

G.W. Encountered:

G.W. Stabilized:

BORING LOCATION SKETCH (N.T.S)

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/ID/QUA (METER UNITS)	BLOWS/6.0"	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

Attachment 2

Sample Well Log

Attachment 3

EPA Low-Flow Purging and Sampling (LFPS) Procedure

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION II

GROUND WATER SAMPLING PROCEDURE
LOW STRESS (Low Flow) PURGING AND SAMPLING

I. SCOPE & APPLICATION

This Low Stress (or Low-Flow) Purging and Sampling Procedure is the EPA Region II standard method for collecting low stress (low flow) ground water samples from monitoring wells. Low stress Purging and Sampling results in collection of ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by minimizing stress on the geological formation and minimizing disturbance of sediment that has collected in the well. The procedure applies to monitoring wells that have an inner casing with a diameter of 2.0 inches or greater, and maximum screened intervals of ten feet unless multiple intervals are sampled. The procedure is appropriate for collection of ground water samples that will be analyzed for volatile and semi-volatile organic compounds (VOCs and SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, and microbiological and other contaminants in association with all EPA programs.

This procedure does not address the collection of light or dense non-aqueous phase liquids (LNAPL or DNAPL) samples, and should be used for aqueous samples only. For sampling NAPLs, the reader is referred to the following EPA publications: DNAPL Site Evaluation (Cohen & Mercer, 1993) and the RCRA Ground-Water Monitoring: Draft Technical Guidance (EPA/530-R-93-001), and references therein.

II. METHOD SUMMARY

The purpose of the low stress purging and sampling procedure is to collect ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by setting the intake velocity of the sampling pump to a flow rate that limits drawdown inside the well casing.

Sampling at the prescribed (low) flow rate has three primary benefits. First, it minimizes disturbance of sediment in the bottom of the well, thereby producing a sample with low turbidity (i.e., low concentration

of suspended particles). Typically, this saves time and analytical costs by eliminating the need for collecting and analyzing an additional filtered sample from the same well. Second, this procedure minimizes aeration of the ground water during sample collection, which improves the sample quality for VOC analysis. Third, in most cases the procedure significantly reduces the volume of ground water purged from a well and the costs associated with its proper treatment and disposal.

III. ADDRESSING POTENTIAL PROBLEMS

Problems that may be encountered using this technique include a) difficulty in sampling wells with insufficient yield; b) failure of one or more key indicator parameters to stabilize; c) cascading of water and/or formation of air bubbles in the tubing; and d) cross-contamination between wells.

Insufficient Yield

Wells with insufficient yield (i.e., low recharge rate of the well) may dewater during purging. Care should be taken to avoid loss of pressure in the tubing line due to dewatering of the well below the level of the pump's intake. Purging should be interrupted before the water level in the well drops below the top of the pump, as this may induce cascading of the sand pack. Pumping the well dry should therefore be avoided to the extent possible in all cases. Sampling should commence as soon as the volume in the well has recovered sufficiently to allow collection of samples. Alternatively, ground water samples may be obtained with techniques designed for the unsaturated zone, such as lysimeters.

Failure to Stabilize Key Indicator Parameters

If one or more key indicator parameters fails to stabilize after 4 hours, one of four options should be considered: a) continue purging in an attempt to achieve stabilization; b) discontinue purging, do not collect samples, and document attempts to reach stabilization in the log book; c) discontinue purging, collect samples, and document attempts to reach stabilization in the log book; or d) Secure the well, purge and collect samples the next day (preferred). The key indicator parameter for samples to be analyzed for VOCs is dissolved oxygen. The key indicator parameter for all other samples is turbidity.

Cascading

To prevent cascading and/or air bubble formation in the tubing, care should be taken to ensure that the flow rate is sufficient to maintain pump suction. Minimize the length and diameter of tubing (i.e., 1/4 or 3/8 inch ID) to ensure that the tubing remains filled with ground water during sampling.

Cross-Contamination

To prevent cross-contamination between wells, it is strongly recommended that dedicated, in-place pumps be used. As an alternative, the potential for cross-contamination can be reduced by performing the more thorough "daily" decontamination procedures between sampling of each well in addition to the start of each sampling day (see Section VII, below).

Equipment Failure

Adequate equipment should be on-hand so that equipment failures do not adversely impact sampling activities.

IV. PLANNING DOCUMENTATION AND EQUIPMENT

- Approved site-specific Field Sampling Plan/Quality Assurance Project Plan (QAPP). This plan must specify the type of pump and other equipment to be used. The QAPP must also specify the depth to which the pump intake should be lowered in each well. Generally, the target depth will correspond to the mid-point of the most permeable zone in the screened interval. Borehole geologic and geophysical logs can be used to help select the most permeable zone. However, in some cases, other criteria may be used to select the target depth for the pump intake. In all cases, the target depth must be approved by the EPA hydrogeologist or EPA project scientist.
- Well construction data, location map, field data from last sampling event.
- Polyethylene sheeting.
- Flame Ionization Detector (FID) and Photo Ionization Detector (PID).

- .. Adjustable rate, positive displacement ground water sampling pump (e.g., centrifugal or bladder pumps constructed of stainless steel or Teflon). A peristaltic pump may only be used for inorganic sample collection.
- .. Interface probe or equivalent device for determining the presence or absence of NAPL.
- .. Teflon or Teflon-lined polyethylene tubing to collect samples for organic analysis. Teflon or Teflon-lined polyethylene, PVC, Tygon or polyethylene tubing to collect samples for inorganic analysis. Sufficient tubing of the appropriate material must be available so that each well has dedicated tubing.
- .. Water level measuring device, minimum 0.01 foot accuracy, (electronic preferred for tracking water level drawdown during all pumping operations).
- .. Flow measurement supplies (e.g., graduated cylinder and stop watch or in-line flow meter).
- .. Power source (generator, nitrogen tank, etc.).
- .. Monitoring instruments for indicator parameters. Eh and dissolved oxygen must be monitored in-line using an instrument with a continuous readout display. Specific conductance, pH, and temperature may be monitored either in-line or using separate probes. A nephelometer is used to measure turbidity.
- .. Decontamination supplies (see Section VII, below).
- .. Logbook (see Section VIII, below).
- .. Sample bottles.
- .. Sample preservation supplies (as required by the analytical methods).
- .. Sample tags or labels, chain of custody.

V. SAMPLING PROCEDURES

Pre-Sampling Activities

1. Start at the well known or believed to have the least contaminated ground water and proceed systematically to the well with the most contaminated ground water. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations.
2. Lay out sheet of polyethylene for placement of monitoring and sampling equipment.
3. Measure VOCs at the rim of the unopened well with a PID and FID instrument and record the reading in the field log book.
4. Remove well cap.
5. Measure VOCs at the rim of the opened well with a PID and an FID instrument and record the reading in the field log book.
6. If the well casing does not have a reference point (usually a V-cut or indelible mark in the well casing), make one. Note that the reference point should be surveyed for correction of ground water elevations to the mean geodesic datum (MSL).
7. Measure and record the depth to water (to 0.01 ft) in all wells to be sampled prior to purging. Care should be taken to minimize disturbance in the water column and dislodging of any particulate matter attached to the sides or settled at the bottom of the well.
8. If desired, measure and record the depth of any NAPLs using an interface probe. Care should be taken to minimize disturbance of any sediment that has accumulated at the bottom of the well. Record the observations in the log book. If LNAPLs and/or DNAPLs are detected, install the pump at this time, as described in step 9, below. Allow the well to sit for several days between the measurement or sampling of any DNAPLs and the low-stress purging and sampling of the ground water.

Sampling Procedures

9. Install Pump: Slowly lower the pump, safety cable, tubing and electrical lines into the well to the depth specified for that well in the EPA-approved QAPP or a depth otherwise approved by the EPA hydrogeologist or EPA project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well

to prevent disturbance and resuspension of any sediment or NAPL present in the bottom of the well. Record the depth to which the pump is lowered.

10. Measure Water Level: Before starting the pump, measure the water level again with the pump in the well. Leave the water level measuring device in the well.
11. Purge Well: Start pumping the well at 200 to 500 milliliters per minute (ml/min). The water level should be monitored approximately every five minutes. Ideally, a steady flow rate should be maintained that results in a stabilized water level (drawdown of 0.3 ft or less). Pumping rates should, if needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. As noted above, care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.
12. Monitor Indicator Parameters: During purging of the well, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and DO) approximately every five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows (Puls and Barcelona, 1996):
 - ±0.1 for pH
 - ±3% for specific conductance (conductivity)
 - ±10 mv for redox potential
 - ±10% for DO and turbidity

Dissolved oxygen and turbidity usually require the longest time to achieve stabilization. The pump must not be removed from the well between purging and sampling.

13. Collect Samples: Collect samples at a flow rate between 100 and 250 ml/min and such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 ft. VOC samples must be collected first and directly into sample containers. All sample containers should be filled with minimal turbulence by allowing the ground water to flow from the tubing gently down the inside of the container.

Ground water samples to be analyzed for volatile organic compounds (VOCs) require pH adjustment. The appropriate EPA Program Guidance should be consulted to determine whether pH adjustment is necessary. If pH adjustment is necessary for VOC sample preservation, the amount of acid to be added to each sample vial prior to sampling should be determined, drop by drop, on a separate and equal volume of water (e.g., 40 ml). Ground water purged from the well prior to sampling can be used for this purpose.

14. Remove Pump and Tubing: After collection of the samples, the tubing, unless permanently installed, must be properly discarded or dedicated to the well for resampling by hanging the tubing inside the well.
15. Measure and record well depth.
16. Close and lock the well.

VI. FIELD QUALITY CONTROL SAMPLES

Quality control samples must be collected to determine if sample collection and handling procedures have adversely affected the quality of the ground water samples. The appropriate EPA Program Guidance should be consulted in preparing the field QC sample requirements of the site-specific QAPP.

All field quality control samples must be prepared exactly as regular investigation samples with regard to sample volume, containers, and preservation. The following quality control samples should be collected during the sampling event:

- Field duplicates
- Trip blanks for VOCs only
- Equipment blank (not necessary if equipment is dedicated to the well)

As noted above, ground water samples should be collected systematically from wells with the lowest level of contamination through to wells with highest level of contamination. The equipment blank should be collected after sampling from the most contaminated well.

VII. DECONTAMINATION

Non-disposable sampling equipment, including the pump and support cable and electrical wires which contact the sample, must be decontaminated thoroughly each day before use ("daily decon") and after each well is sampled ("between-well decon"). Dedicated, in-place pumps and tubing must be thoroughly decontaminated using "daily decon" procedures (see #17, below) prior to their initial use. For centrifugal pumps, it is strongly recommended that non-disposable sampling equipment, including the pump and support cable and electrical wires in contact with the sample, be decontaminated thoroughly each day before use ("daily decon").

EPA's field experience indicates that the life of centrifugal pumps may be extended by removing entrained grit. This also permits inspection and replacement of the cooling water in centrifugal pumps. All non-dedicated sampling equipment (pumps, tubing, etc.) must be decontaminated after each well is sampled ("between-well decon," see #18 below).

17. Daily Decon

A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.

C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

D) Disassemble pump.

E) Wash pump parts: Place the disassembled parts of the pump into a deep basin containing 8 to 10 gallons of non-phosphate detergent solution. Scrub all pump parts with a test tube brush.

F) Rinse pump parts with potable water.

G) Rinse the following pump parts with distilled/ deionized water: inlet screen, the shaft, the suction interconnector, the motor lead assembly, and the stator housing.

H) Place impeller assembly in a large glass beaker and rinse with 1% nitric acid (HNO_3).

I) Rinse impeller assembly with potable water.

J) Place impeller assembly in a large glass beaker and rinse with isopropanol.

K) Rinse impeller assembly with distilled/deionized water.

18. Between-Well Decon

A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.

C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

D) Final Rinse: Operate pump in a deep basin of distilled/deionized water to pump out 1 to 2 gallons of this final rinse water.

VIII. **FIELD LOG BOOK**

A field log book must be kept each time ground water monitoring activities are conducted in the field. The field log book should document the following:

- Well identification number and physical condition.
- Well depth, and measurement technique.
- Static water level depth, date, time, and measurement technique.
- Presence and thickness of immiscible liquid layers and detection method.

- .. Collection method for immiscible liquid layers.
- .. Pumping rate, drawdown, indicator parameters values, and clock time, at three to five minute intervals; calculate or measure total volume pumped.
- .. Well sampling sequence and time of sample collection.
- .. Types of sample bottles used and sample identification numbers.
- .. Preservatives used.
- .. Parameters requested for analysis.
- .. Field observations of sampling event.
- .. Name of sample collector(s).
- .. Weather conditions.
- .. QA/QC data for field instruments.

IX. REFERENCES

- Cohen, R.M. and J.W. Mercer, 1993, DNAPL Site Evaluation, C.K. Smoley Press, Boca Raton, Florida.
- Puls, R.W. and M.J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Ground-water Sampling Procedures, EPA/540/S-95/504.
- U.S. EPA, 1993, RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001.
- U.S. EPA Region II, 1989, CERCLA Quality Assurance Manual.

Attachment 4

Monitoring Well LFPS Information (Blank Form)



Project Name:
 Project Location:
 Project Number:
 EWMA Personnel:
 Weather:
 Date:

Water Quality Parameters

		Time 24 Hour	PH	Cond. us / cm	Turbidity NTU	Diss. Ox mg / L	Temp. oC	ORP mv
Depth to Water (initial)								
Depth to Water (final)								
Depth of Well (ft)								
Well Diameter (in)								
Screen Length (ft)								
Casing Type								
PID (initial)								
PID (final)								
Pump Type								
Tubing Type								
Max. Drawdown (ft)								
Purge Start Time								
Purge End / Sample Time								
Purge Rate (LPM)								
Purge Volume (L)								
Depth To Product								
Odor								
Comments:								

Water Quality Parameters

		Time 24 Hour	PH	Cond. us / cm	Turbidity NTU	Diss. Ox mg / L	Temp. oC	ORP mv
Depth to Water (initial)								
Depth to Water (final)								
Depth of Well (ft)								
Well Diameter (in)								
Screen Length (ft)								
Casing Type								
PID (initial)								
PID (final)								
Pump Type								
Tubing Type								
Max. Drawdown (ft)								
Purge Start Time								
Purge End / Sample Time								
Purge Rate (LPM)								
Purge Volume (L)								
Depth To Product								
Odor	None							
Comments:								

Attachment 5

NYSDEC Guidance “Policy Regarding Alteration of Ground Water Sample Collected for Metals Analysis (TAGM-4014)”



Policy Regarding Alteration Of Groundwater Samples Collected For Metals Analysis (TAGM - 4015)

Issuing Authority: Michael J. O'Toole, Jr.

Title: Director, Division of Environmental Remediation

Date Issued: September 30, 1988

A. Objective

The purpose of this Technical and Administrative Guidance Memorandum (TAGM) is to clarify the New York State Department of Environmental Conservation's (NYSDEC) Division of Hazardous Waste Remediation's policy of non-alteration of groundwater samples collected for metals analysis, as well as provide guidance for situations where the policy may be amended. This TAGM has been developed for the most commonly encountered form of a alteration (as defined in Section B), which is filtration (as defined in Section B), but the policy applies to all forms of groundwater sample alteration which may be encountered.

(*Note: This guidance is for situations involving groundwater samples collected for metals analysis only. It does not apply to surface water, waste or samples at active sites or State Pollution Discharge Elimination System discharges where the proper handling of samples may be dictated by other guidance or protocols.

Department policy regarding water samples collected for the analysis of organic compounds is expressly stated, in an Executive Memorandum dated May 3, 1985, from Commissioner Williams to Executive Staff, Division Directors, and Regional Directors, as follows: "Water samples utilized in the assessment, investigation, remedy, study, construction, monitoring or any other activity shall not be altered prior to analysis."

B. Definitions

"Alteration" - changing the sample in any way other than adding a preservative, such as nitric acid, to lower pH. Examples of alternation include, but are not limited to: filtering, settling and decanting, centrifuging and decanting, and acid extracting.

"Filtration" - the filtering of a groundwater sample collected for metals analysis, through any membrane, fabric, paper or other filter medium irrespective of pore size, in order to remove

particulates from suspension; it is to be done in the field, at time of collection, prior to preservation.

"Preservation" - the preserving or "fixing" of metal ion constituents in a groundwater sample, so as to avoid precipitation, biodegradation, or loss of the ions from the sample. Methods utilized are as listed in the New York State Contract Laboratory Protocol (NYSCLP). Generally they involve the reduction of sample pH to <2 with HNO_3 (nitric acid).

"Well Development" - the application of energy to a newly installed groundwater monitoring well in order to allow the natural hydraulic properties of the screened formation to return, thus allowing water to flow more freely to the well. It may also allow the removal of any formation material that may have infiltrated the sandpack and/or well during installation.

"NTU" - nephelometric turbidity unit; this is the unit by which turbidity is measured and discussed.

"50 NTU maximum" - target turbidity level for development and sampling of groundwater monitoring wells; any higher and the sample may be considered unacceptable. This is the level above which laboratory analysis problems may occur.

"Split Sample" - a single sample divided into aliquots.

"ARAR's" - Applicable or Relevant and Appropriate Requirements, as defined by the Superfund Amendments and Re-authorization Act of 1986 (Section 121).

"RCRA" - Resource Conservation and Recovery Act.

C. Existing Guidance

In accordance with 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Final Rule and Interim Final Rule and Proposed Rule, Section 40 CFR Part 136.3, Table IB, Note 3, states a sample collected "for the determination of total metals... is not filtered before processing," whereas Section 40 CFR Part 136.3, Table II, Note 7, states for samples collected for dissolved metals analysis "should be filtered immediately on-site before adding preservative...".

Information provided in the RCRA Groundwater Monitoring Technical Enforcement Guidance Document, 1986, USEPA-OWPE, OSWER-9950.1, P. 114, is as follows:

"Metallic ions that migrate through the unsaturated (vadose) and saturated zones and arrive at a groundwater monitoring well may be in the well. Particles (e.g., silt, clay), which may be present in the well even after well evacuation procedures, may absorb or adsorb various ionic

species to effectively lower the dissolved metal content in the well water. Groundwater samples on which metals analysis will be conducted should be split into two portions. One portion should be filtered through a 0.45-micron membrane filter, transferred to a bottle, preserved with nitric acid to a pH less than two, and analyzed for dissolved metals. The remaining portion should be transferred to a bottle, preserved with nitric acid, and analyzed for total metals. Any difference in concentrations between the total and dissolved fraction may be attributed to the original metallic ion content of the particles and any sorption of ions to the particles."

Information provided in the RCRA Comprehensive Groundwater Monitoring Evaluation Document, March 1988, USEPA-OWPE, Directive 9950.2, p.22, is as follows:

"Metals

1. Samples collected for metals analysis should be split into two samples. One portion filtered through a 0.45 micron filter for dissolved metals and the second portion remaining unfiltered for total metals analysis. Samples should be filtered as soon as possible to minimize the impacts of pH and Eh changes."

Present Division guidance on filtering of groundwater samples collected for metals analysis consists of memorandum from N. Nosenchuck, Director, Division of Solid and Hazardous Waste, to P. Buechi, Region 9 Solid Waste Engineer, dated January 21, 1987, in response to a memorandum from P. Buechi to N. Nosenchuck dated December 4, 1986, in which Mr. Buechi inquired about the policy of the Division regarding the filtration of samples collected for metals analysis. The response memorandum stated the Division policy as follows:

"The Division of Solid and Hazardous Waste guidance is that samples submitted for metals analysis not be filtered prior to analysis. This general guidance, however, can be amended on a case-by-case basis, when it can be shown that a compelling reason exists for sample filtration. Such reasons could include the modeling of water treatment processes or the determination and/or elucidation of adsorptive distribution phenomena. Ground and surface water samples collected for the purpose of generating monitoring data or for site investigation must be analyzed whole."

D. Discussion

1) Goals of Site Investigations (Remedial Investigation/Phase II)

Generally, for the State Superfund program, the reasons for taking a groundwater sample at an inactive hazardous waste disposal site are:

1. to determine whether or not a significant threat to health or the environment exists;
to characterize the site from the point of view of past history, present situation and any future
1. actions that may be necessary;
1. to determine the nature and extent of contamination; and
1. to obtain sufficient data to support the choice of a remedy in the feasibility study.

2) Obtaining These Goals

First, to accomplish the above goals, the results of the sample analysis are compared with standards, guidelines and other ARAR's, as one element of determining whether or not a significant threat to human health or the environment exists. Because Part 703 groundwater standards and the State Health Department's drinking water standards are all based on samples that are not altered, samples from sites must be analyzed in their unaltered state so that a valid comparison can be made.

Second, characterization of the site, determination of the extent of contamination, and preparation of feasibility studies involve broadening the scope of work to include past and future conditions. Groundwater may be used in the future for drinking or irrigation purposes, or it may travel through the ground and intercept a well being used for potable water.

Consequently, samples must be analyzed with these possibilities in mind. In order to investigate the significance of future use of groundwater at a site, groundwater monitoring wells must mimic such future use. Since groundwater is almost never filtered before being consumed or otherwise utilized, samples for site characterization must not be filtered as a standard procedure. In other words, analytical results obtained from filtered samples may not be representative of future use of the groundwater resource, and thus would not be particularly useful for evaluating the potential future toxicological impact of site contamination.

A counter-argument that has been raised is that the particulate matter in groundwater travels little distance, if at all, and therefore should not be evaluated as part of the groundwater resource that could be pumped out of the ground. The following is a rebuttal to such a counter-argument:

- desorption caused by a change in water chemistry, and sometimes caused merely by change in the concentrations of constituents, can allow metals on particles to move through
1. groundwater even though particles themselves are remaining stationary; and
there is recent circumstantial evidence that fine (colloid-size) particles are moving through pores of coarse-grained (sand and gravel) deposits allowing the movement of sorbed
 1. contaminants (EPA document number CERI-87-45, "Seminar on Transport and Fate of

1. Contaminants in the Subsurface").

In addition, wells which produce water via secondary permeability (i.e. fractures in bedrock) might produce water which may have substantial suspended sediment within it. This material is not to be filtered out.

E. General Guidance for Alteration of Samples

Non-alteration of groundwater samples collected for metals analysis shall be the standard operating procedure for the Division. It is never to be assumed or written into Phase II or

1. Remedial Investigation workplans that alteration of samples is or will be allowed or expected

In cases where turbidity of water samples collected for metals analysis exceeds the maximum allowable level for analysis, as allowed by the Division (50 NTU), NYSDEC will review the circumstances to determine the course of action. Samples having a turbidity greater than 5 NTU's are not to be filtered as a standard procedure. Samples below 50 NTU's are never filtered. The rationale for any proposed filtration must be reviewed and approved by a

1. NYSDEC QA/QC officer prior to it being effected.

When unacceptably turbid groundwater samples are produced from a well, filtration is not considered unless Division technical staff are certain the well was properly designed, installed, constructed, developed, maintained, and samples. Filtration is never to be the "cure" for improperly built/developed wells which produce turbid samples. Attempts should be made to repurge and/or redevelop, or replace, the well as necessary (see: Decision Flow Chart, Figure 1), and to confirm, with documentation, proper well construction and installation. The Division technical staff who are involved must utilize best professional judgement in such cases to determine if the monitoring well has proper integrity.

(See RCRA TEGD, pp. 93-4, for discussion.) If, after a best effort at continuous development (as agreed to by NYSDEC), it is apparent the 50 NTU's is unattainable in particular well, a decision shall be made on a case-by-case basis to:

install a new well at the same location (this would be based on the conclusion that the well assembly, filter pack, seals, and/or grout could be reinstalled so as to significantly

1. turbidity);

1. install a new well in a different (either vertically or horizontally) location; or

1. 1. accept the present well as the best well attainable by reasonable means.

F. Requirements For Allowing Filtration

FIGURE 1 - Decision Flow Chart for Filtration of Groundwater Samples Collected for Metals Analysis

Filtration of properly produced groundwater samples on which analysis for metals is to be performed will be allowed only if samples of unacceptably high turbidity are unavoidable. In this case, the following protocol must be followed:

Filtration as discussed in this context involves filtering as defined in Section B of this TAC should be performed consistent with the methods in the November, 1986, Environmental Protection Agency document entitled "Test Methods for Evaluating Solid Waste " (EPA-

1. SW846).

At no time are filtered samples to be collected without an accompanying unfiltered sample. Groundwater samples are to be collected using a minimally disturbing method (i.e. low rate bladder or peristaltic pumping, bailing, etc.). Two samples will be collected, the first of which will be preserved immediately in an unaltered state, the second being filtered and preserved immediately. The turbidity of the samples should be recorded at the time of collection. If:

1. samples are required, then both the filtered and unfiltered samples should be split.

Due to the relatively long holding time allowed for most metals, the following is recommended:

1. Analyze the unfiltered sample first.

1. If the unfiltered sample exceeds ARAR's, analyze the filtered sample.

1. 1. If the unfiltered sample meets ARAR's, there is no need to analyze the filtered sample.

Filtration methodology must be such that changes in water chemistry of the sample are minimized. Any precipitates which may form upon removal of the sample from the well (e.g. iron floc) must not be filtered out, but redissolved by acidification/preservation. The methodology to be used must be reviewed and approved by a NYSDEC QA/QC officer prior to

1. implementation.

Thorough documentation of the procedure(s) used is required, so that analytical results can

1. be properly interpreted.

It may be necessary to design the analytical program to be able to answer the question whether metal contaminants are naturally occurring, or whether they were introduced through man-made activities, by analyzing upgradient and background wells by this same methodology. The best possible effort should be made for obtaining a "clean" or uncontaminated sample of the horizon which is being screened, so as to allow a comparison of contaminant data to naturally occurring metal ion concentrations in the aquifer matrix. This may be of critical importance considering the potentially wide concentration ranges of various elements in native soils

1. (Dragun, 1988).

G. Related Issues

1. Goals Determination

The goals for, and the type of information desired from, the groundwater sampling program must be determined prior to the commencement of any field work. If well integrity is found to exist, and turbidity is less than 50 NTU, then filtration is not considered. When considering filtration, adsorptive phenomena must also be taken into account for a proper perspective when making this decision. It must not be assumed that the groundwater and aquifer materials are in equilibrium. The reactions between solid, liquid, and solution phases are complex, defined by reduction-oxidation reactions and pH as they affect solubility and exchange reactions (Trela, 1985, Lindsay, 1979). These relationships may be altered by removal of a sample from the well, and subsequent exposure to the atmosphere (Stolzenburg and Nic

1. 1985).

Well Development

After allowing sufficient time for well seals and grouts to set (usually 24 hours), wells should be developed as soon as possible because:

if there is a problem with the well warranting replacement, every effort should be made to:

1. identify this need before the drill rig leaves the site; and

it is faster and easier to develop a well before silts and clays have begun to harden.

1. 1. bottom of the screen.

Laboratory Handling

If turbid samples are to be analyzed, the issue of how the laboratory is to prepare the samples must be resolved beforehand. Laboratory procedures should be outlined, with review and

1. approval by a NYSDEC QA/QC officer.

FIGURE 1 - Decision Flow Chart for Filtration of Groundwater Samples Collected for Metals Analysis

References and Additional Reading

Armstrong, R. and Carlton, G.M., 1984. The suction side sample catcher in groundwater quality sampling: Ground Water Monitoring Review, v. 4, no. 4, p. 48-53.

ASTM, Methods for Investigation of Water and Wastewater.

ASTM, 1981, Draft Standard Guide for Sampling Ground Water Monitoring Wells, p. 14.

Barcelona, M.J., et al, 1984, A laboratory evaluation of ground water sampling mechanisms: Ground Water Monitoring Review, v.4, no. 2, p. 32-41.

Claasen, H.C., 1982, Guidelines and Techniques for Obtaining Water Samples that Accurately Represent the Water Chemistry of an Aquifer: U.S. Geological Survey, Open-File Report 82-

1024, p. 41-48.

Dragun, J., 1988, The Soil Chemistry of Hazardous Wastes; Hazardous Materials Control Research Institute, Silver Spring, Md., 458 p.

Emenhiser, T.C., and U.P. Singh, 1984, Innovative sampling techniques for ground water monitoring at hazardous waste sites: Ground Water Monitoring Review, v. 4, no. 4, p.35-37.

Gibb, J., Schuller, R., Griffen, R., 1981, Collection of Representative Water Quality Data from Monitoring Wells: Proceedings of the 7th Annual Research Symposium, Land Disposal: Municipal Solid Waste, p. 134-135.

Gibb, J.P., et al, 1981, Procedures for the Collection of Representative Water Quality Data from Monitoring Wells: Illinois Water Survey Cooperative Report No. 7, 61 pp.

Gibb, J.P., Schuller, R.M., Griffin, R.A., Monitoring Well Sampling and Preservation Techniques, EPA-600/ 9-80-101.

Handbook for Sampling and Sample Preservation of Water and Wastewater, Sept. 1976: U.S. Department of Commerce, NTIS PB-259 946.

Ho, J. S-y, 1983, Effect of sampling variables on recovery of volatile organics in water: J. Amer. Water Works Assoc., p. 583-586.

Humenick, M., Turk, L., and Colchin, M., 1980, Methodology for monitoring groundwater at uranium solution mines: Ground Water, v. 18, p. 262-273.

Kennedy, V., Zellweger, G., and Jones, B., 1974, Filter pore size effects of the analysis of Al, Fe, Mn, and Ti in water: Water Resources Research, v. 10, p. 785-790.

Lindsay, W.L., 1979, Chemical Equilibria in Soils, John Wiley and Sons.

Methods for Chemical Analysis of Water and Wastewater, March 1979: EPA-600/4-79-020, USEPA EMSL Laboratory, Cincinnati, Ohio, 45268.

Nacht, S.J., 1983, Monitoring sampling protocol considerations: Ground Water Monitoring Review, v. 3, No. 3, p. 23-29.

New York State Department of Environmental Conservation, New York State Contract Laboratory Protocol; November, 1987, Albany, New York.

Nightingale, H., and Bianchi, W., 1979, Influence of well...and monitoring: Water Resources Bulletin, v. 15, p. 1394-1407.

Pettyjohn, W.A., et al, 1981, Sampling Ground Water for Organic Contaminants: Ground Water, v. 19, no. 2, p. 180-189.

RCRA Comprehensive Groundwater Monitoring Evaluation Document, March, 1988, USEPA-OWPE, Directive 9950.2, p. 22.

RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, 1986, USEPA-OWPE, OSWER-9950.1, p. 114.

Scalf, M.R., et al, 1981, Manual of Ground Water Quality Sampling Procedures: EPA-600/2-81-160.

Schmidt, K.D., 1982, How representative are water samples collected from monitoring wells?: Proceedings of the Second Annual Symposium on Aquifer Restoration and Ground Water Monitoring.

Schuller, R.M., et al, 1981, Recommended sampling procedures for monitoring wells: Ground Water Monitoring Review, v. 1, no. 1, p. 42-46.

Stolzenburg, T.R., and Nichols, D.G., 1985, Preliminary Results on Chemical Changes in Groundwater Samples Due to Sampling Devices, Interim Report; Electric Power Research Institute, EA-4118 Research Project 2485-7.

Strawsberg, S., March/April 1983, Turbidity interferes with accuracy in heavy metals concentrations: Industrial Wastes, p. 20-21.

Test Methods for Evaluating Solid Waste, November 1986, EPA-SW-846, Third Edition, Washington, D.C.

Trela, J.J., 1985, Should water samples from monitoring wells be filtered? Yes and No. From symposia titled: Should Ground Water Samples from Monitoring Wells be Filtered Before Laboratory Analysis? National Water Well Association.

Unwin, J., 1982, A Guide to Groundwater Sampling: NCASI Technical Bulletin No. 362., p. 46-48.

Williams, E.B., 1981, Fundamental concepts of well design: Ground Water, V. 19, no. 5, p. 527-542.

Appendix – 11

COMMUNITY AIR MONITORING PLAN

Property Known As:

**OCA LIC Fifth Street Mixed-Use Housing
5-20 46th Road
Long Island City, Queens County, New York 11101
BCP Site #C241098**

Prepared for:

**OCA Long Island City, LLC
c/o O'Connor Capital Partners
535 Madison Avenue, 23rd Floor
New York, NY 10022**

**January 2008
Revised: June 2009**

Submitted by:

**Environmental Waste Management Associates, LLC
P. O. Box 5430
Parsippany, New Jersey 07054
EWMA Case No. 205490**

TABLE OF CONTENTS

1.0	INTRODUCTION AND PURPOSE.....	1
2.0	SITE ENCAPSULATION STRUCTURE.....	2
3.0	WORK AREA AIR MONITORING PLAN.....	2
3.1	VOLATILE ORGANIC COMPOUND MONITORING	2
3.2	PARTICULATE MONITORING.....	3
4.0	VAPOR EMISSION RESPONSE PLAN.....	3
5.0	MAJOR VAPOR EMISSION MONITORING.....	3
6.0	MAJOR VAPOR EMISSION RESPONSE PLAN	4

APPENDICES

TECHNICAL SPECIFICATIONS TENT STRUCTURE & VAPOR MGT.....	1
AIR MONITORING STATION LOCATION PLAN.....	2

1.0 INTRODUCTION AND PURPOSE

Environmental Waste Management Associates, LLC (EWMA) has prepared this Community Air Monitoring Plan (CAMP) for implementation during the activities proposed in EWMA's December 2008 Remedial Action Workplan (RAWP) for the property known as Former Accurate Associates Site, which is located at 5-20 46th Road, Long Island City, New York (subject property and site). EWMA was retained by OCA Long Island City, LLC (OCA) to prepare and implement the RAWP.

The RAWP has been prepared on behalf of the Volunteer (i.e. OCA) to fulfill the Brownfield Cleanup Program (BCP) requirements to address the nature and extent of the contamination at the site and any potential off-site impacts.

The purpose of this CAMP is to provide a measure of protection to the surrounding community including residences, businesses, and on site employees from potential airborne releases as a direct result of the investigative or remedial work on the site. This plan is not intended for use in establishing action levels for worker exposure protection, as this is addressed in the site-specific Health and Safety Plan (HASP).

The investigation activities proposed in the RAWP include the excavation of underground soils and any underground storage tanks (UST) and the subsequent sampling of soils and ground water.

The release of dust and odors during the excavation activities including dust from onsite vehicular traffic may be likely and dust suppression measures (i.e. water hose or water truck) will be in place to minimize dust released from the site. Air monitoring stations will be setup during the excavation event to provide continuous monitoring of dust and organic vapors within the immediate work area and at designated stations at the down wind side of the property. One upwind station will be setup to monitor any dust and organic vapors coming from offsite sources upwind. A tent enclosure will be constructed around the site to protect the community from potential vapors and dust that may be released during site activities. The tent enclosure will include measures to protect both the personnel on the site and the neighbors in the surrounding community.

The ground water sampling activities are not anticipated to cause significant disturbance of the underlying ground surface in such a manner that would release dust and odors. Therefore, except as noted in EWMA's Health and Safety Plan (Appendix 9 of the accompanying RAWP), no air monitoring is proposed during the monitoring well sampling activities.

Elevated concentrations of airborne contaminants are not expected to result from the activities that are currently contemplated under the RAWP. Nevertheless, the air monitoring activities to be employed as a precautionary measure during the excavation activities as discussed in the following sections of this report.

2.0 SITE ENCAPSULATION STRUCTURE

As required by NYSDEC as part of the vapor and dust mitigation measures for this site, OCA will construct a tent structure around the entire property. The tent will provide a dust and vapor barrier between the activities on site and the surrounding community.

Based on the potential for vapor and dust accumulation within the tent enclosure, proper site monitoring will be conducted to ensure the air quality within the tent meets the criteria established in the site Health and Safety Plan (HASP). Purging of the tent enclosure will be conducted through carbon vessels to eliminate any release of vapors and dust to the surrounding area and perimeter monitoring will be conducted through out the work day to ensure that purged air does not impact the surrounding community. The treated air from the tent enclosure during work activities will be monitored to ensure that air vented to the atmosphere meets air emission requirements. Site and perimeter air monitoring are detailed in the following sections of this report. The technical specifications for the tent structure and vapor management system have been included as **Appendix 1**.

3.0 WORK AREA AIR MONITORING PLAN

The work area (i.e. exclusion zone) will be monitored for volatile compounds as outlined in the site specific Health and Safety Plan (HASP) in order to ensure work safety.

Real-time air monitoring for volatile compounds and particulate levels at the perimeter of the exclusion zone (i.e. immediate work area) will be performed during site excavation activities to protect the surrounding community including residences, businesses, and on site employees from potential airborne releases as a direct result of the investigative or remedial work on the site. Volatile compounds will be monitored utilizing properly calibrated photoionization detectors (PIDs). The particulate levels will be monitored using direct read dust monitors. The volatile organic compound and particulate monitoring programs are discussed in detail below in Sections 3.1 and 3.2. A figure depicting the CAMP locations has been enclosed as **Appendix 2**.

3.1 Volatile Organic Compound Monitoring

Volatile organic compounds will be monitored at the downwind perimeter of the work area on a continuous basis. If total organic vapor levels exceed 5 parts per million (ppm) above background, work activities will be halted and monitoring continued under the

provisions of the Vapor Emission Response Plan (see Section 4.0). All readings will be recorded and be available for state (NYSDEC and NYSDOH) personnel to review.

3.2 Particulate Monitoring

Visual observations will be made during all work activities to monitor for dispersion outside the immediate work area. Dust suppression techniques may include applying water or water with hygroscopic salts to the disturbed soil, reducing the volume and speed of on-site vehicles, and wet sweeping paved areas. All readings will be recorded and be available for state (NYSDEC and NYSDOH) personnel to review.

4.0 VAPOR EMISSION RESPONSE PLAN

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities will resume. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities will resume provided:

- The organic vapor level 200 feet downwind of the perimeter of the work area, or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to ensure that vapor emissions do not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

5.0 MAJOR VAPOR EMISSION MONITORING

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the perimeter of the work area, or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality will be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If efforts to abate the emission source are unsuccessful and if organic vapor levels are approaching 5 ppm above background for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background, 200 feet downwind or half the distance to the nearest residential/commercial property.

6.0 MAJOR VAPOR EMISSION RESPONSE PLAN

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts, as listed in the Health and Safety Plan (Appendix 9 of the RAWP), will go into effect.
2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation.
3. Frequent air monitoring will be conducted at 30 minutes intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.
4. In addition, an attempt to identify the point source of the elevated vapor emission will be made. If identified, suppression activities, i.e. containing or covering the source with a vapor impermeable material, will be carried out to minimize the on-going vapor emission event prior to restarting the work activities.

7.0 AIRBORNE PARTICULATE RESPONSE PLAN

If excessive visible dust is observed leaving the work area, then dust suppression methods will be employed. The methods that may be utilized are listed in Section 3.2 above. Work may continue with dust suppression methods as long as no visible dust leaves the work area.

8.0 MAJOR AIRBORNE PARTICULATE RESPONSE PLAN

If the downwind airborne particulate concentration is greater than 150 micrograms/cubic meter (mg/m^3) than the background concentration, work will cease and both the work activity and dust suppression techniques re-evaluated to reduce further particulate dispersion. Work will only resume after the downwind airborne particulate concentration is reduced to below $150 \text{ mg}/\text{m}^3$ against the background level and no visible dust is observed leaving the work area.

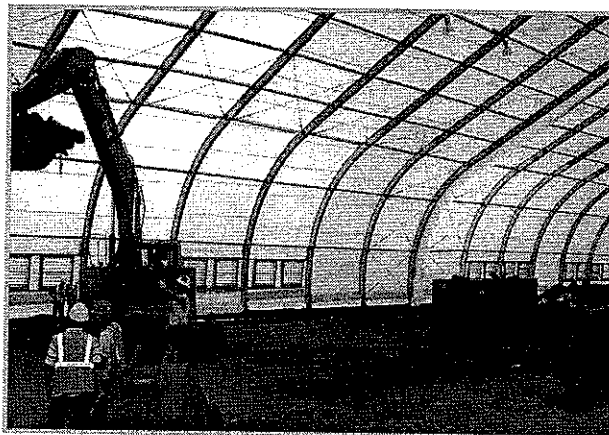
2

3/6/2009



A Universal Rentals Company

Remediation Solutions



BUDGETARY PROPOSAL FOR:

CitiStructure

Prepared for: Mr. Wayne Warner

Three Month Base Rental Price:

TFS/R 100' wide by 197' long with 4 meter bays enclosing approximately 19,700 sq. ft.

Premium PVC coated, opaque (blackout) membrane cladding

One set of NY approved engineering calculations for 110 MPH wind load

All freight costs to and from the clients site

4 Single steel doors with locksets

2 Fabric freight doors with freezer strip option

Crane lifting kit with additional cable bracing, compression bars, lifting brackets and stiffeneing

Infill panels for crane-lift

26 400 watt lights

12 Framed openings to support Filter System intake and exhaust ducts

Technical Supervision for the Installation & Removal:

AllSite will provide a technical consultant to oversee the installation and removal of the structure by client-supplied labor and equipment. The Monday through Friday per diem rate is \$963 and includes air travel, hotel, car rental and meals. The site should be clear and flat with no obstructions (overhead, surface or sub-grade) and allow sufficient access for cranes and man-lifts both inside and around the perimeter. The estimated days for installation, removal and crane lifts is 22 days.

Total three (3) month rental for above services:

Additional per month rental rate:

De-contamination:

3/6/2009

The client is responsible to return all rental products to AllSite in the same condition as when delivered to site with normal wear and tear excepted. The product must be returned clean and free of any harsh or hazardous contaminants, excessive dirt, staining or diesel/exhaust residue. If the product needs to be cleaned or serviced by AllSite, the client will be charged for all costs associated with returning the product to a condition suitable for rental inventory. If the product is to be used near or in contact with harsh and/or potentially hazardous materials, an independent company hired by the client must clean and certify that the product is safe and can be handled by AllSite personnel without the need for additional service, special training or safety equipment. Cleaning costs can range from a minimum of \$.65 per square foot for basic cleaning to \$3.50 per square foot for complete membrane replacement and aluminum cleaning.

Terms:

To be agreed upon.

Permits Licenses and Taxes:

The client is responsible for obtaining all licenses, permits, and payment of any fees or taxes.

Utilities:

The supply, connect/disconnect and operating costs for any utilities is not provided in this proposal.

Anchorage:

AllSite will be installing anchor stakes at each beam column to secure the structure. These anchor stakes are driven into the soil with pneumatic hammers and measure approximately 5' in length (depth). All underground utilities should be clearly identified by the client. Should a supplemental anchorage system be required (earth/screw and/or cable anchors) due to the on-site soil conditions or building codes, the cost for this system will be in addition and has not been factored into this proposal.

Delivery Date:

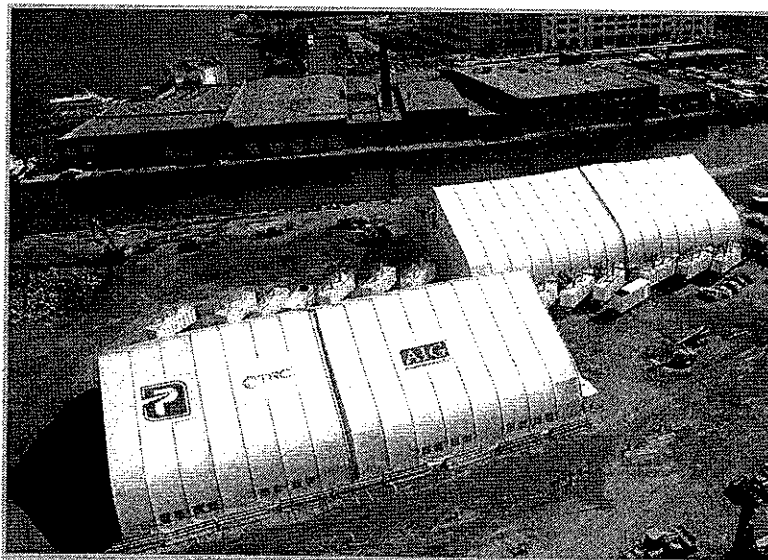
To be determined.

The prices referred to in this proposal are guaranteed for 30 days.

Thank you for your consideration and we look forward to providing a solution.

Sincerely,

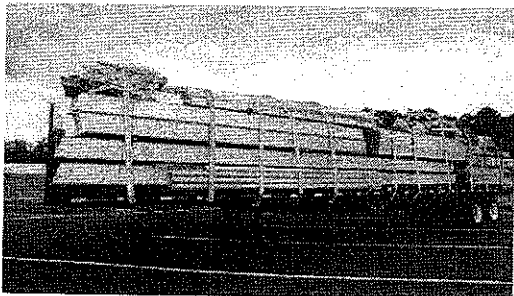
410.605.9216



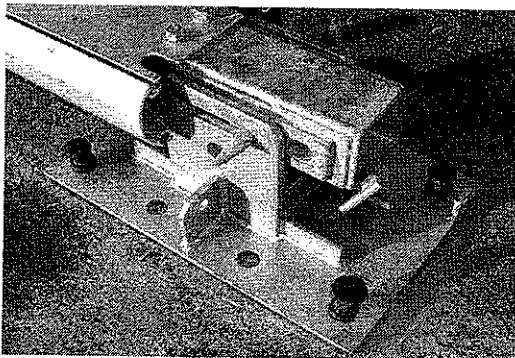


Installation Sequence for the Universal TFS/R All-Site Structure

- 1) Unload flatbed tractor trailers using a forklift or crane

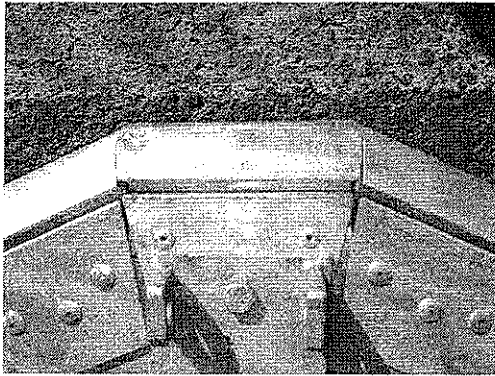


- 2) Inventory materials
- 3) Layout perimeter of structure with 3/4/5 square method
- 4) Layout base plates for structural arches

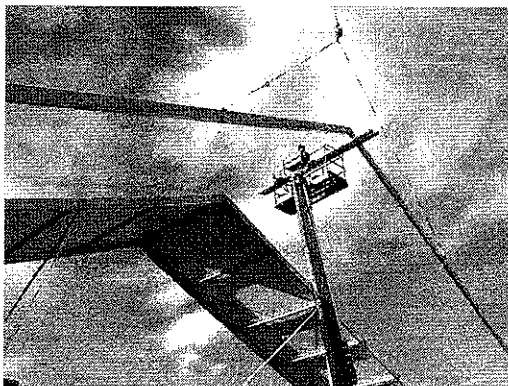


- 5) Anchor base plates using 5' long anchor stakes. Each base plate will require a minimum of 4 stakes. The stakes are driven with a compressed air jack hammer.
- 6) Layout curved arches along on side of the structure and connect to first base plate.
- 7) Install the roof extension beams to the curves.

- 8) Install the peak splice

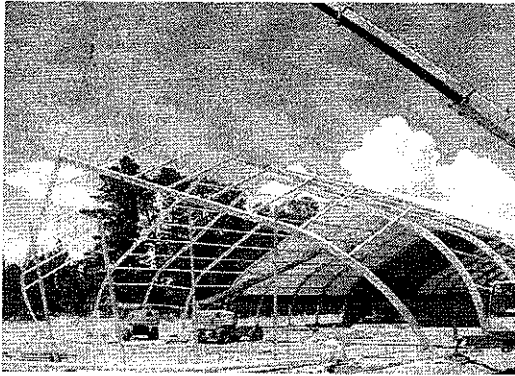


- 9) Install the second half of the extension beams
- 10) Add the final curve beam on the opposite side to complete the arch and tie into the base plate.
- 11) Continue sequence until all main arches have been spliced and bolted together.
- 12) Install the horizontal purlins and add cable bracing to appropriate arches
- 13) Install guy ropes for the first arch to be raised into the air.
- 14) Install the anchor stakes that will be used for the first arch guy ropes once the arch is raised.
- 15) Raise the first arch using the crane and plumb vertical with guy ropes
- 16) Raise second arch and tie into the first arch using the horizontal purlins
- 17) Connect cable bracing
- 18) Install first membrane panel



- 19) Tension panel using hydraulic jacks
- 20) Tension the cable bracing to allow the arch to be freestanding and plumb arches

21) Raise the remaining arches

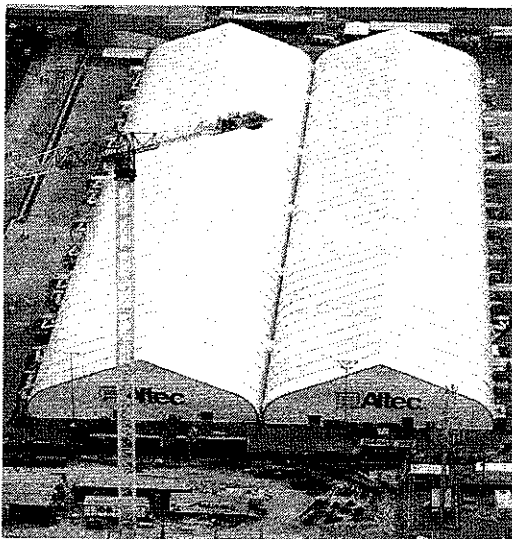
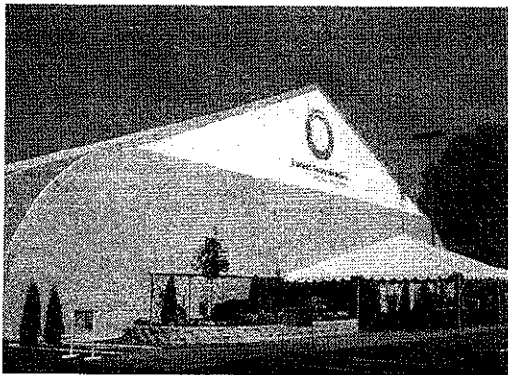


22) Install remaining membrane panels

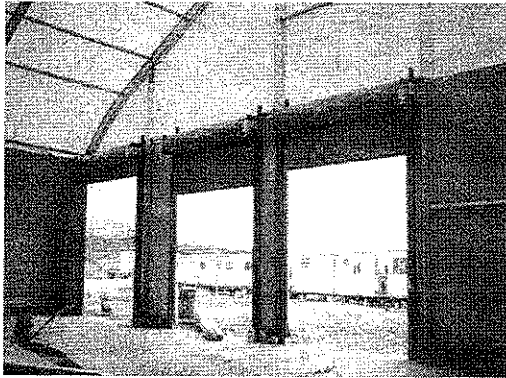
23) Tension all membrane panels and add cable bracing as needed

24) Install gable upright beams and horizontal purlins

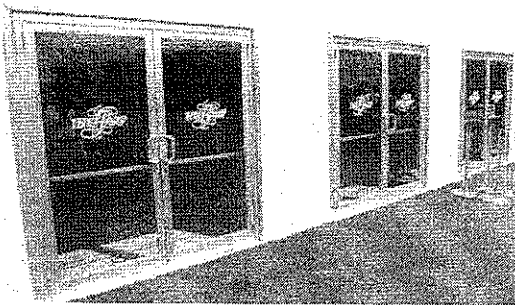
25) Install gable membrane panels and secure by tensioning.



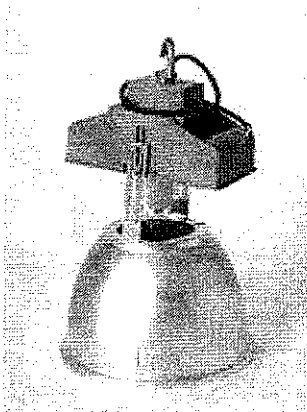
26) Install cargo doors



27) Install personnel doors



28) Install lighting and other accessories as needed.

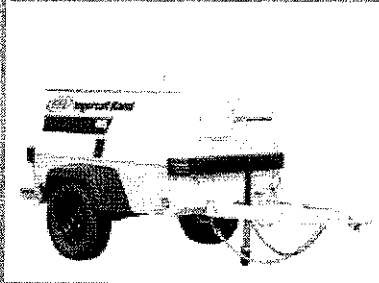


29) Final inspection and acceptance by client.

Phone - 203 285 1565



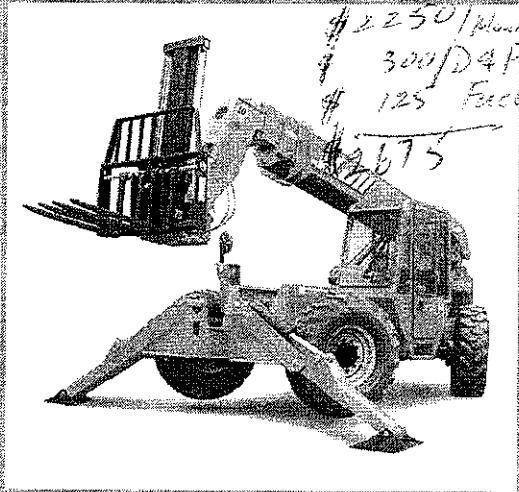
Engineered Shelter Systems... Worldwide



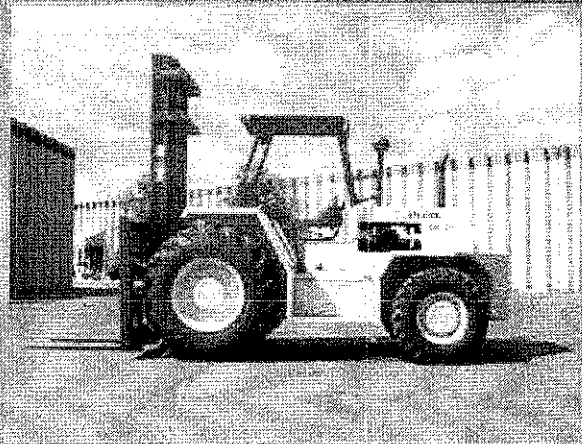
Air Compressor with 100 B
jackhammer and 200' of hose



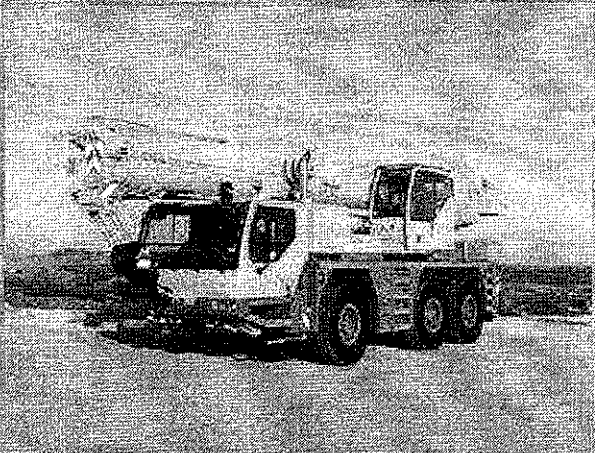
"JLG" type telescopic man lift with
a minimum of 60' to 80' of reach



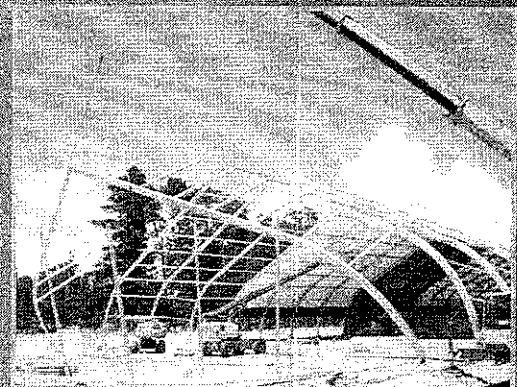
3,000 lb "Eulii" AWD telescopic
material handler with 40' of reach



5,000 lb All terrain, AWD
straight mast forklift



Mobile crane with 60 to 80 ton capacity



Raising structural arches with
crane and man lifts

For exact equipment requirements for your project please call 410.605.9216

REV.	DATE	DESCRIPTION	NAME
0	23 JUL 2007	ORIGINAL RELEASE FOR REF	KZ

Baseplate Skid

Gable Baseplates Should
be Removed or
Retracted Before Move

Arch Support Cable
'Width'

Arch Support Cable
'Bay'

C1 - QTY (14) - L= 13'-3 1/4"
C2 - QTY (8) - L= 114'-11 3/4"

- * - LENGTHS OF SUPPORT CABLES ARE
DETERMINED FROM CENTER OF HOLE ON
CORRESPONDING LUGS OF SKIDS
- ** - UFS IS NOT RESPONSIBLE FOR THE
DESIGN OR USE OF SUPPORT CABLES

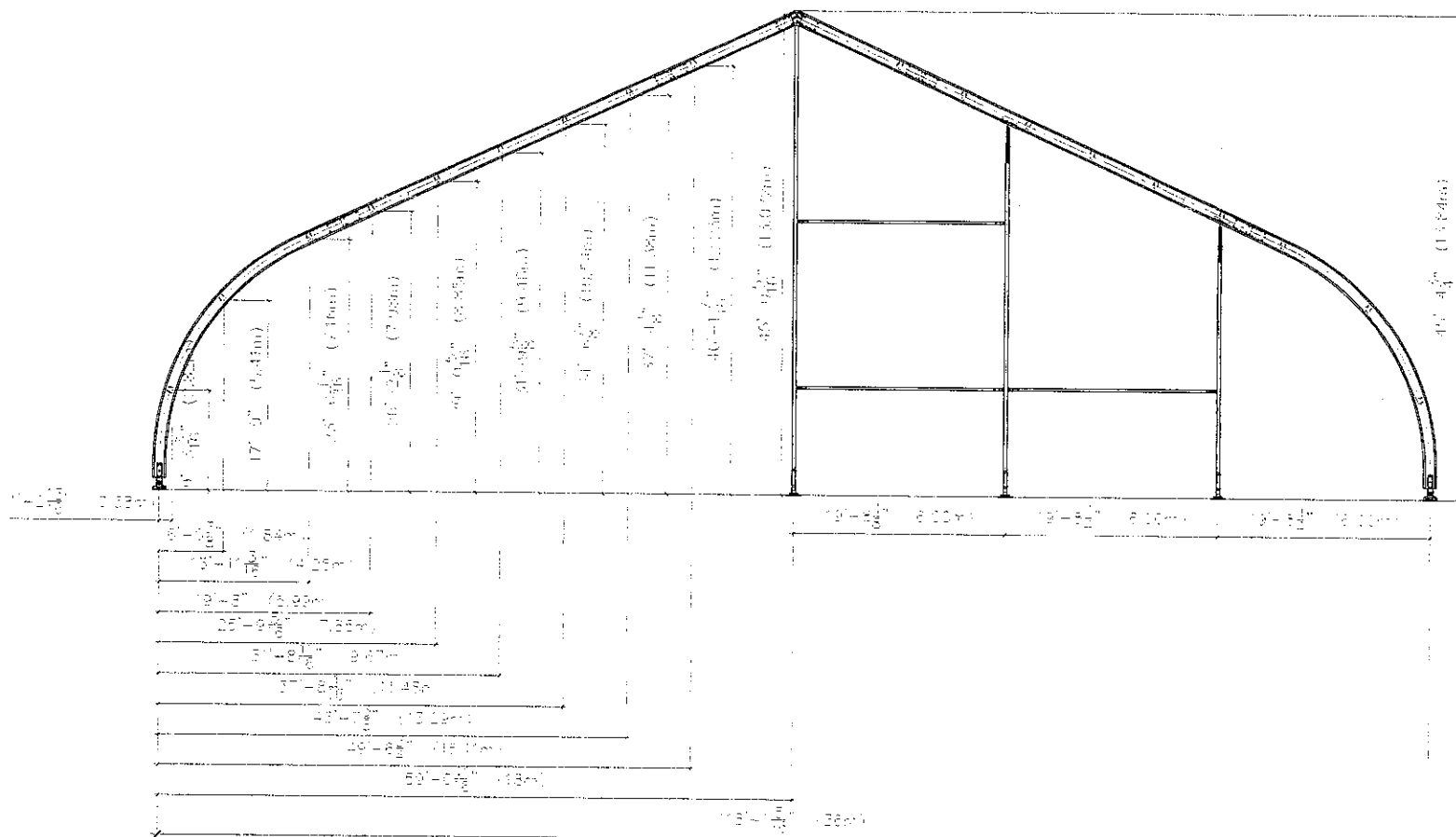
The information and illustrations contained
within this document remain the sole
property of Universal Fabric Structures Inc.
and is to be treated as confidential. All calculations,
designs, technical representations, engineering
calculations and illustrations whether written or
implied may not be reproduced in whole or in part
without the express written consent of Universal
Fabric Structures, Inc. Reproduction of this document
shall constitute acceptance of these terms and conditions.
Universal Fabric Structures, Inc. reserves the right to
change specifications without notice.

UNIVERSAL FABRIC STRUCTURES
2200 KUMRY ROAD
QUAKERTOWN, PA 18951



TITLE:
TFS/R 36M ISOMETRIC VIEW
WITH SKIDS & SUPPORT CABLES

DRAWN: KZ	CHECKED: SH	DATE: 23 JUL 2007	REV.: 0
SIZE: C	SCALE: NTS	JOB No.: N/A	DWG. NO.: ER435-102
PROJECT NAME: N/A	SHEET: 1 OF 1		



NOTE: 16' 10" x 10' 10" = Structure
 Dimensions between, and locations of support points for lights, sound systems, etc.

The information and illustrations
 contained herein are for general
 information only. They are not
 intended to be used as a basis for
 design, construction, or any other
 purpose. The user assumes all
 responsibility for the use of this
 information and illustrations.

UNIVERSAL RENTALS

DATE: 01/27/2008
 TIME: 10:00 AM
 BY: J. L. L.

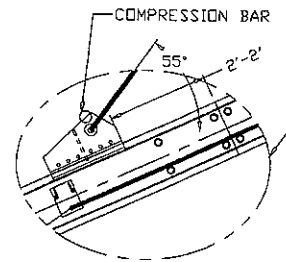
REV.	DATE	DESCRIPTION	NAME
0	23.JUL.2007	ORIGINAL RELEASE FOR REF.	KZ

SLING LENGTHS (PROVIDED BY OTHERS)

- C ① - QTY (4) - L = 88'-7¹/₁₆"
- C ② - QTY (4) - L = 82'-1¹/₁₆"
- C ③ - QTY (4) - L = 78'-7³/₁₆"
- C ④ - QTY (4) - L = 78'-4¹/₁₆"

TOTAL LIFT WEIGHT = 41000lbs
INCLUDING BASEPLATES & SKID PLATES, NOT
LIFTING BEAM OR SLING

NOTE:
UFS IS NOT LIABLE FOR ANY BELOW THE
HOOK LIFTING EXERCISES DETAILED
WITHIN. ALL PROCESSES SHALL BE
FIELD VERIFIED BY LOCAL & FEDERAL
CODE & SAFETY REGULATIONS

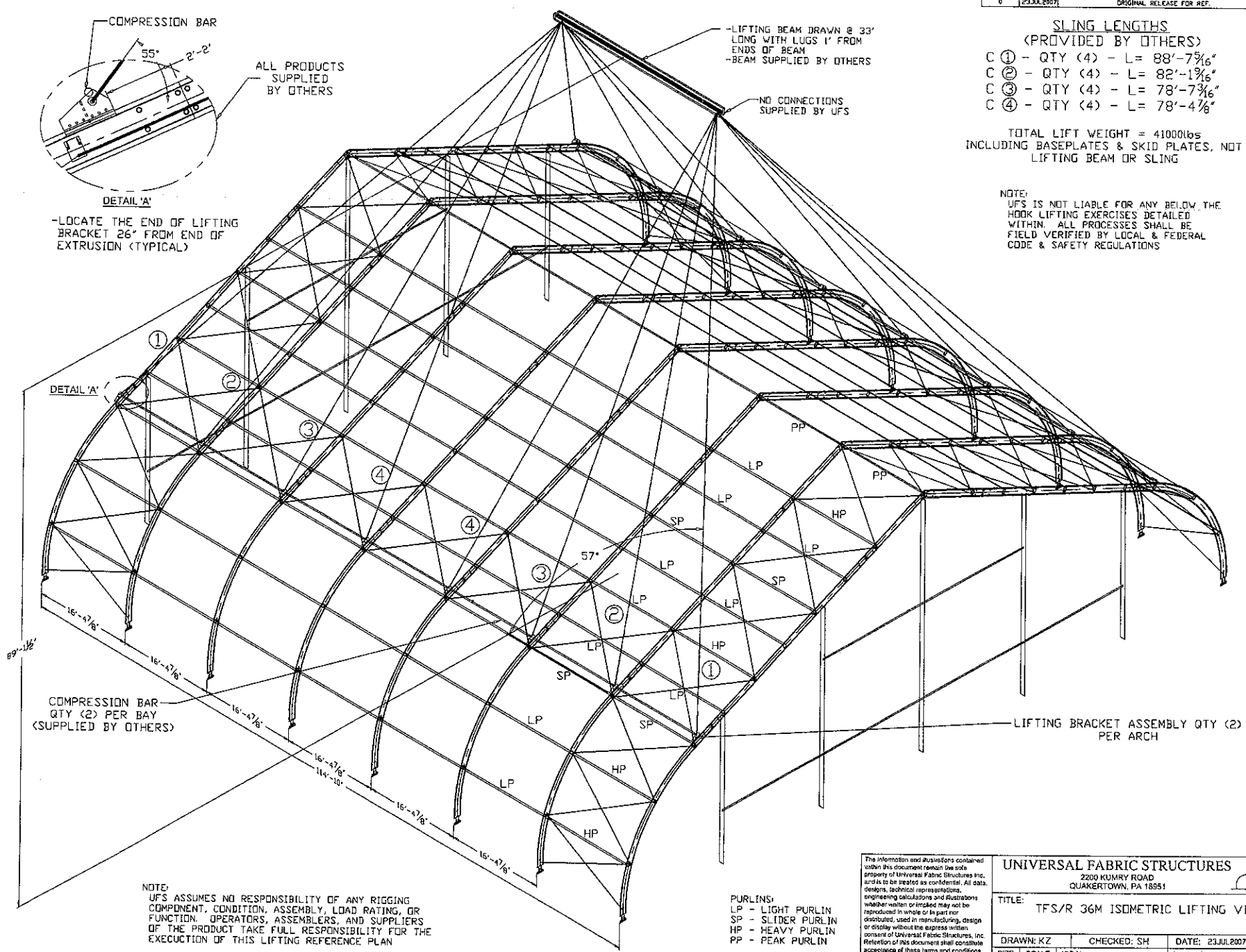


DETAIL 'A'

-LOCATE THE END OF LIFTING
BRACKET 26" FROM END OF
EXTRUSION (TYPICAL)

-LIFTING BEAM DRAWN @ 33'
LONG WITH LUGS 1' FROM
ENDS OF BEAM
-BEAM SUPPLIED BY OTHERS

NO CONNECTIONS
SUPPLIED BY UFS



COMPRESSION BAR
QTY (2) PER BAY
(SUPPLIED BY OTHERS)

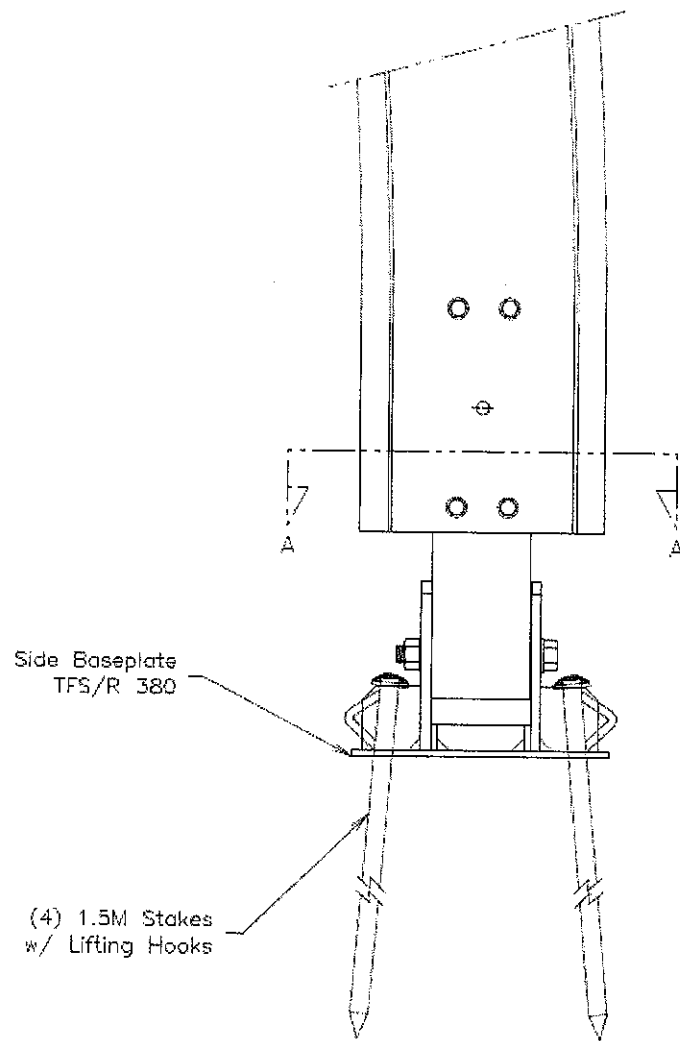
LIFTING BRACKET ASSEMBLY QTY (2)
PER ARCH

NOTE:
UFS ASSUMES NO RESPONSIBILITY OF ANY RIGGING
COMPONENT, CONDITION, ASSEMBLY, LOAD RATING, OR
FUNCTION. OPERATORS, ASSEMBLERS, AND SUPPLIERS
OF THE PRODUCT TAKE FULL RESPONSIBILITY FOR THE
EXECUTION OF THIS LIFTING REFERENCE PLAN

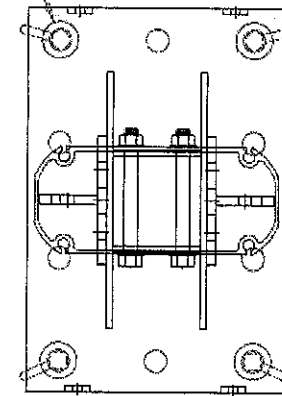
PURLINS:
LP - LIGHT PURLIN
SP - SLIDER PURLIN
HP - HEAVY PURLIN
PP - PEAK PURLIN

The information and illustrations contained
within this document remain the sole
property of Universal Fabric Structures Inc.
and is to be treated as confidential. All data,
designs, technical representations,
engineering calculations and illustrations
whether written or depicted may not be
reproduced in whole or in part nor
distributed, used in manufacturing, design
or display without the express written
consent of Universal Fabric Structures, Inc.
Retention of this document shall constitute
acceptance of these terms and conditions.
Universal Fabric Structures, Inc. reserves
the right to change specifications without
notice.

UNIVERSAL FABRIC STRUCTURES 2200 KUMRY ROAD QUAKERTOWN, PA 18951			
TITLE: TFS/R 36M ISOMETRIC LIFTING VIEW			
DRAWN: KZ	CHECKED: SH	DATE: 23.JUL.2007	REV.: 0
SIZE C	SCALE NTS	JOB NO.: N/A	DWG. NO.: ER435-103
PROJECT NAME: N/A			SHEET: 1 OF 1



Use the (4) Outermost Holes
When Installing the 1.5M Stakes



SECTION A - A



Typical anchor stake system detail with four (4) 1.5 meter long (5' +/-) anchor stakes at each base column. Soil conditions must be suitable to resist the designed and required uplift and reaction loads.



GENERAL GUIDELINES FOR CRANE LIFTING

NOTE: SAFE RELOCATION AND CRANE LIFT OF THE STRUCTURE ARE SUBJECT TO GUIDELINES FOR WEATHER, STRUCTURAL CALCULATIONS AND THE APPLICABLE DESIGN LOADS FOR THE EQUIPMENT TO BE USED.

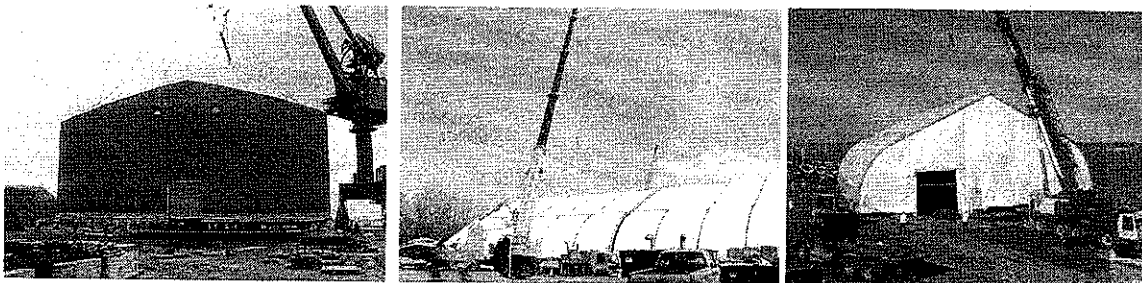
The structure is set on either 16' 4" or 13' 2" centers and can be moved in modules. The given length of any pick and efficient move will be determined by the site conditions, actual structure size and the capacity of the crane to be used.

The crane lifting brackets and compression bars will be installed on the structural frame work during the construction process. The compression bars will also be installed during construction. The rigging cables and spreader bar will have to be designed, engineered and fabricated based on the total weight of the structure, lifting brackets, accessories and crane rigging to be lifted, the location of the structure and by the actual conditions present at site.

All crane lifts are subject to a safe weather window of at least 10-12 hours. Wind speeds must be less than 9 mph for a safe and effective relocation.

The structure must be divided into modules designed and engineered to be lifted safely. This process usually requires 6 – 8 workers, two 60' boom lifts, crane and an 8,000lb Lull-type all-terrain material handler/forklift.

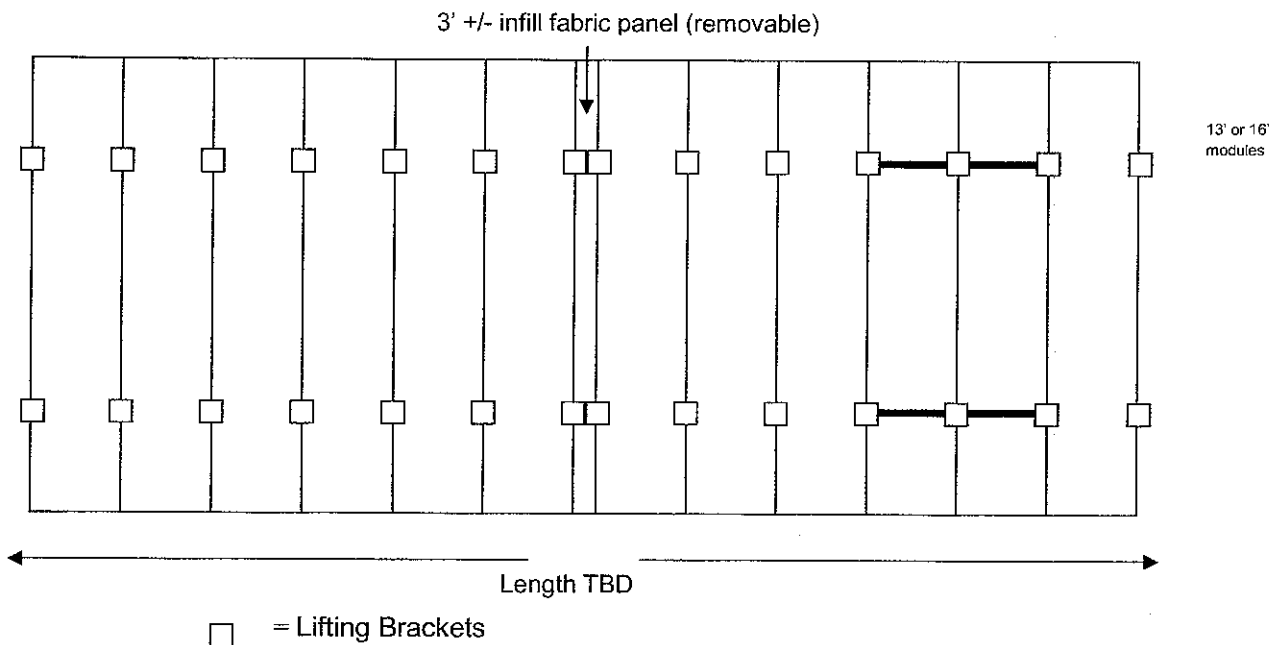
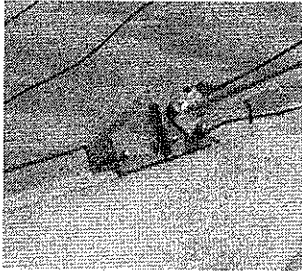
- Remove infill fabric panel that connects the two "halves"
- Connect all crane rigging and cables to the appropriate locations on the structural framework
- Attach all "base cables" that span the width of the structure and are supplied for each main arch
- Attach a 50' tag line to each corner of the structure to help guide it to new location
- Ensure new location of structure is ready to accept the move
- Remove all anchorage systems used to secure the module being prepared for lifting
- Pick structure and move to the new location using guide ropes and crane
- Once structure is in new location, use the Lull to help 'square' the structure by pushing out any variances between the beam/ base plate locations to help ensure they are set in the designed locations



continued...



- Re-anchor structure immediately with systems designed to resist the reaction loads supplied for all anchor points and then remove base cables.



*This diagram is for illustration purposes only. Actual structure size, lifting points, loads etc. are to be designed and engineered for each application.

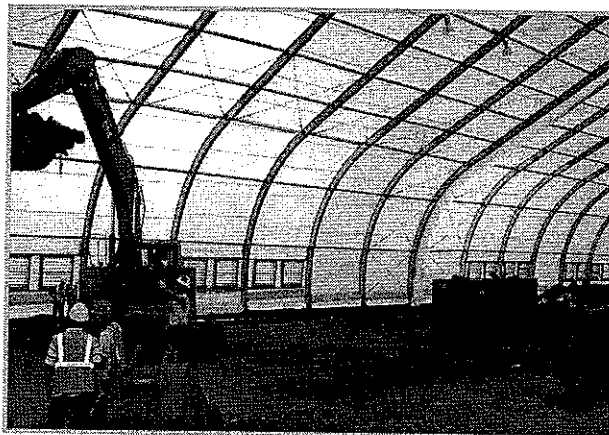
2

3/6/2009



A Universal Rentals Company

Remediation Solutions



BUDGETARY PROPOSAL FOR:

CitiStructure

Prepared for: Mr. Wayne Warner

Three Month Base Rental Price:

TFS/R 100' wide by 197' long with 4 meter bays enclosing approximately 19,700 sq. ft.

Premium PVC coated, opaque (blackout) membrane cladding

One set of NY approved engineering calculations for 110 MPH wind load

All freight costs to and from the clients site

4 Single steel doors with locksets

2 Fabric freight doors with freezer strip option

Crane lifting kit with additional cable bracing, compression bars, lifting brackets and stiffeneing

Infill panels for crane-lift

26 400 watt lights

12 Framed openings to support Filter System intake and exhaust ducts

Technical Supervision for the Installation & Removal:

AllSite will provide a technical consultant to oversee the installation and removal of the structure by client-supplied labor and equipment. The Monday through Friday per diem rate is \$963 and includes air travel, hotel, car rental and meals. The site should be clear and flat with no obstructions (overhead, surface or sub-grade) and allow sufficient access for cranes and man-lifts both inside and around the perimeter. The estimated days for installation, removal and crane lifts is 22 days.

Total three (3) month rental for above services:

Additional per month rental rate:

De-contamination:

3/6/2009

The client is responsible to return all rental products to AllSite in the same condition as when delivered to site with normal wear and tear excepted. The product must be returned clean and free of any harsh or hazardous contaminants, excessive dirt, staining or diesel/exhaust residue. If the product needs to be cleaned or serviced by AllSite, the client will be charged for all costs associated with returning the product to a condition suitable for rental inventory. If the product is to be used near or in contact with harsh and/or potentially hazardous materials, an independent company hired by the client must clean and certify that the product is safe and can be handled by AllSite personnel without the need for additional service, special training or safety equipment. Cleaning costs can range from a minimum of \$.65 per square foot for basic cleaning to \$3.50 per square foot for complete membrane replacement and aluminum cleaning.

Terms:

To be agreed upon.

Permits Licenses and Taxes:

The client is responsible for obtaining all licenses, permits, and payment of any fees or taxes.

Utilities:

The supply, connect/disconnect and operating costs for any utilities is not provided in this proposal.

Anchorage:

AllSite will be installing anchor stakes at each beam column to secure the structure. These anchor stakes are driven into the soil with pneumatic hammers and measure approximately 5' in length (depth). All underground utilities should be clearly identified by the client. Should a supplemental anchorage system be required (earth/screw and/or cable anchors) due to the on-site soil conditions or building codes, the cost for this system will be in addition and has not been factored into this proposal.

Delivery Date:

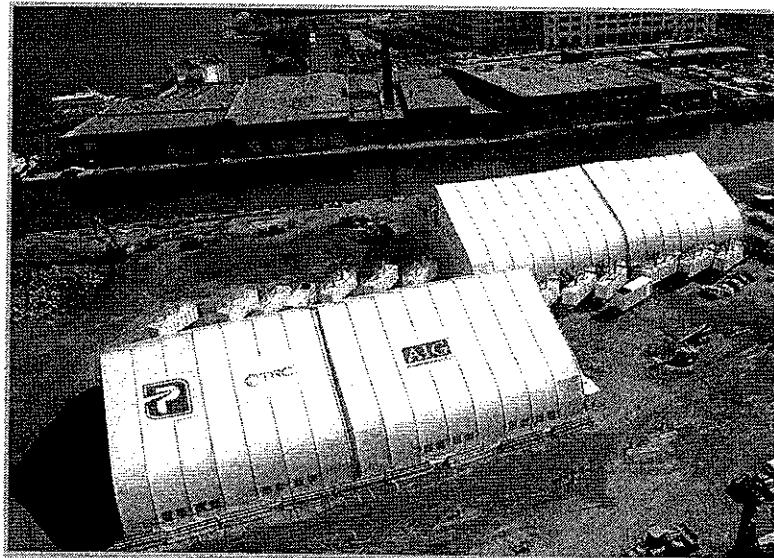
To be determined.

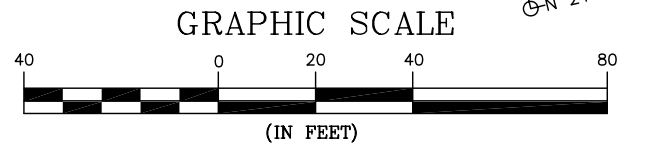
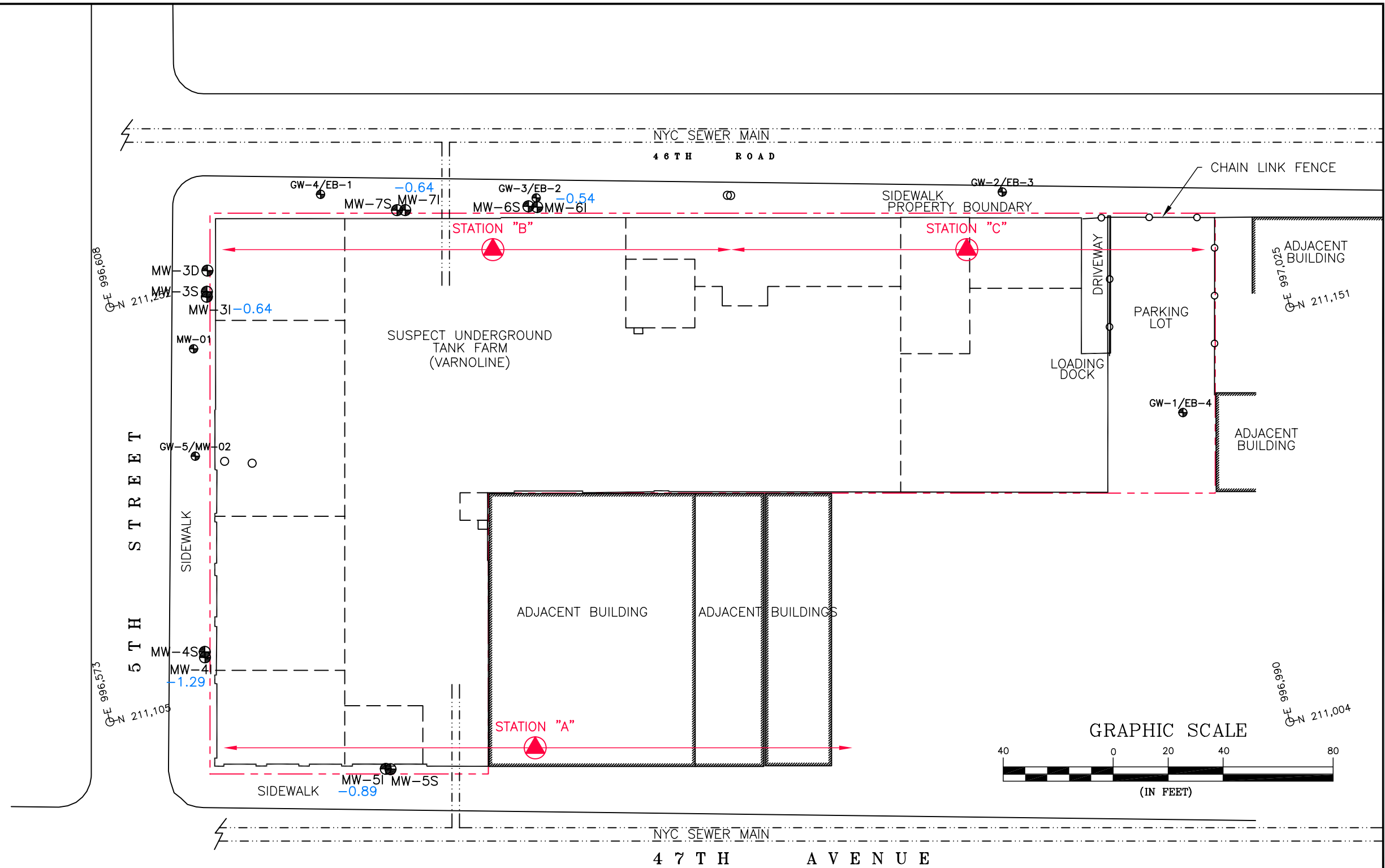
The prices referred to in this proposal are guaranteed for 30 days.

Thank you for your consideration and we look forward to providing a solution.

Sincerely,

410.605.9216






LEGEND

- STATION "A" AIR MONITORING STATION
- PROPERTY BOUNDARY
- BUILDING OUTER WALL
- BUILDING INTERIOR WALL/MULTIPLE STORY WALL

SOURCE: "MONITORING WELL LOCATION PLAN", DPK CONSULTING, LLC, MIDDLESEX, NJ - 4/28/08

Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400 	SCALE: AS SHOWN	PROJECT#
	DATE: 6/25/08	205490
	DRAWN BY: JM/JS CHECKED BY: DD	
COMMUNITY AIR MONITORING STATION LOCATION PLAN OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK		APPENDIX# 2

Appendix – 12

Name	SHARON McSWIENEY
Project Role	Project Manager
Education	<ul style="list-style-type: none"> • M.E., Environmental Engineering, Steven Institute of Technology, Hoboken, NJ • B.A., Chemistry, Rutgers College, New Brunswick, New Jersey
Registrations	<ul style="list-style-type: none"> • NJDEP Underground Storage Tank Subsurface Evaluation (#12009) • NJDEP Cleanup Star
Experience	<p><u>General Qualifications</u></p> <p>Ms. McSwieney has 21 years of experience in the public and private sectors of the environmental investigation and remediation field. She has almost five years of regulatory experience as a Principal Environmental Specialist with NJDEP. Ms. McSwieney has managed over 100 soil and ground water investigation projects including UST removal, soil and ground water remediation of BTEX compounds, and Brownfields redevelopment involving remedial design and long-term O&M activities.</p> <p><u>Relevant Projects</u></p> <ul style="list-style-type: none"> • Project Manager for closure, replacement and/or upgrade of 24 underground petroleum storage tanks at multiple operating County facilities. Conducted tank inventory, prioritized tank closures replacements and/or upgrades in accordance with NJDEP UST Regulations, bid specifications, coordinated investigation/remediation of tanks with minimal disruption to facility operations. • Project Manager for remediation/redevelopment of an 11-acre former industrial manufacturing facility. Responsible for the development and implementation of RI/RAW as well as directing the design and installation of soil and ground water remedial systems. Supervised the long-term monitoring and O&M program for the site and worked closely with the client and NJDEP to achieve closure through the use of institutional and engineering controls. • Project Manager for an industrial property impacted by volatile organic compounds. Ms. McSwieney developed and implemented soil and ground water remediation plans following RIW and RAWs she prepared and had approved by NJDEP. Following vertical and horizontal delineation of site media in accordance with the Technical Regulations, Ms. McSwieney directed the design of a ground water recovery and treatment system as well as the excavation and off-site disposal of impacted soil. Long term monitoring will demonstrate the effectiveness of these remedial actions and the site is anticipated to receive a No Further Action Letter, in association with engineering and institutional controls. • Project Manager for closure and mixed-use redevelopment approval of a 30-acre site containing a variety of organic and inorganic constituents, including BTEX and other petroleum related compounds at a former waste processing and disposal site. Working closely with the redevelopment company and NJDEP. Ms. McSwieney supervised the implementation of a RIW and RAW to delineate contaminant zones and conceptualize remedial alternatives. With the concurrence of the involved parties, an enhanced ground water collection system was installed and a long-term monitoring program implemented. These activities also included vapor intrusion control measures.

Name	RICHARD ARNOLD, P.E.
Project Role	Remedial Engineering and Design
Education	<ul style="list-style-type: none"> • B.S., Geology, Lafayette College, Easton, PA
Registrations	<ul style="list-style-type: none"> • Licensed Professional Engineer, New Jersey, No. 029436 • Licensed Professional Engineer, New York, No. 007602 • Certified Professional Geologist, Virginia, No. 00359 • Certified Professional Geologist, Pennsylvania, No. 002817 • OSHA Certified HAZWOPER Supervisor
Experience	<p><u>General Qualifications</u></p> <p>Mr. Arnold is a multi-disciplined, geo-environmental engineer with thirty years of engineering, and remediation experience. He has practiced extensively in the design and implementation of contaminant extraction systems, <i>in-situ</i> treatment and migration technologies, and systems for off-gas control, explosive gas, and particulate control. Mr. Arnold regularly manages and directs the preparation of engineering bid documents including detailed engineering drawings and specifications for remediation systems.</p> <p><u>Remedial Engineering and Design Projects:</u></p> <ul style="list-style-type: none"> • Lead Engineer responsible for remedial engineering at 80 active gasoline stations in New Jersey and New York. Evaluated remedial conditions at the facilities and designed new remedial systems or optimized existing remedial systems. The designs utilized enhanced pumping, high and low vacuum extraction, air and oxygen injection, and multi-phase extraction methods. The designs were for groundwater extraction and treatment, liquid phase product removal, soil vapor extraction, air sparging, air curtains, sub-slab ventilation systems, and vacuum-enhanced fluid extraction. The equipment included regenerative blowers, rotary vane compressors, liquid ring vacuum pumps, internal combustion engines, carbon systems, catalytic oxidizers, and thermal oxidizers. The injection/extraction utilities included horizontal venting and intake screens, vertical venting and sparging wells, manifolds with horizontal diffuser tubes and check valves, and sub-slab push-pull systems. The design documents included plans and specifications and were constructible, reliable and easy to operate. • Lead Engineer for remediation of a former gasoline station site in Allendale, New Jersey, where dissolved gasoline constituents and gasoline product had impacted an aquifer recharge area at depths ranging to one hundred feet below ground surface. A hybrid remediation system was evaluated, pilot tested, and consisted of sparge and vent, groundwater extraction and treatment, and dual phase extraction systems with innovative air lift devices all working in tandem. The system was successfully installed and proved to be effective in mitigating severe multi-phase BTEX contamination in a very cost effective and timely manner. • Lead Engineer responsible for the design of a cleanup approach for chlorinated solvent impacted soil and groundwater at a former machining facility in Fairfield, New Jersey. Evaluated the substructure and extent of contamination, implemented an investigation and testing program that included instrumented pumping tests with well couplets and triplets, downhole photography in an inactive deep well, and mapping of the surface of an undulating confining layer that had been impacted. Obtained soil samples for geotechnical testing, determined the controlling aquifer properties, evaluated a shallow flow regime complicated by stormwater impacts and the operation of seepage pits, and performed analyses with two-dimensional and cross-sectional models. Demonstrated hydraulic isolation from an underlying aquifer, performed extensive source and pathway analyses, designed extraction and pumping conveyances, and implemented a groundwater extraction program that was effectiveness in addressing regulatory closure.

Name	MARGARET HALASNIK
Project Role	Analytical Data Review & Assessment
Education	<ul style="list-style-type: none"> • B.S., Biology, St. Michael's College, Colchester, Vermont
Registrations	<ul style="list-style-type: none"> • USEPA – AHERA Accredited Asbestos Inspector • USEPA – AHERA Accredited Management Planner • OSHA Hazardous Waste Operations and Emergency Response • OSHA Certified HAZWOPER Supervisor
Experience	<p><u>General Qualifications</u></p> <p>Ms. Halasnik has over 22 years in the environmental field. Ms. Halasnik has extensive experience as a Project Manager for Phase I Environmental Site Assessments and Environmental, Health, and Safety (EHS) Regulatory Compliance Assessments for law firms, commercial, educational, industrial, and financial institutions throughout the United States. Ms. Halasnik's experience is diverse and includes the disciplines of data validation, environmental due diligence, environmental regulatory compliance, health & safety compliance, and quality assurance.</p> <p><u>Relevant Projects</u></p> <ul style="list-style-type: none"> • Chemical Data Quality Evaluator for a 5-year USEPA superfund project assignment for the Kansas City District US Army Corps of Engineers (USACE) in Central New Jersey. Data quality was evaluated following the project Quality Assurance Project Plan (QAPP), USACE Kansas City District data evaluation guidance, and USEPA Region II Data Validation Guidelines. Developed project QAPP in accordance with USACE Engineer Manual EM-200-1-3, <i>Requirements for the Preparation of Sampling and Analysis Plans</i> (USACE 1994), USACE Engineer Manual EM-200-1-2, <i>Technical Project Planning</i> (USACE 1998), <i>EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations</i> (1999a), and <i>EPA Guidance for Quality Assurance Project Plans</i> (1998b). Performed data validation/quality assurance reviews to determine data usability of organic and inorganic laboratory analyses of field-collected soil and groundwater samples. Responsibilities included data evaluation, report preparation, ensuring laboratory compliance with project QAPP, client and laboratory contact and comment resolution. • Project Health and Safety Officer and Data Validation Project Manager for an active New Jersey asphalt refinery. Developed and reviewed site-specific project health & safety programs to support RCRA remedial investigation and construction activities. Chemical hazards included volatile and semi-volatile organic compounds, tetraethyl lead, hydrogen sulfide, ammonia, and metals. Served as Senior Chemical Data Evaluator for ongoing soil and groundwater sampling activities to evaluate data usability of organic and inorganic laboratory analyses utilizing NJDEP Standard Operating Procedures (SOPs) for Quality Assurance Data Validation of Analytical Deliverables for Organics and Inorganics. • Senior Chemical Data Evaluator for a 10+ year remediation/design/build

Name	MARGARET HALASNIK
	<p>project at JFK Airport, Jamaica, New York. Directed data validation and quality assurance reviews of soil and groundwater analytical data to assess data usability and compliance with the modified NYSDEC Category A Data Deliverable format requirements. Provided peer review of staff chemists data evaluation reports. Data was evaluated using USEPA Region II SW-846 Method SOPs for the validation of volatile organic and semi-volatile organic data. Responsibilities included data evaluation, report preparation, peer review of client and laboratory contact, and comment resolution.</p> <ul style="list-style-type: none"> • Chemical data evaluator who performed data validation/quality assurance reviews to determine data usability with respect to USEPA National Functional Guidelines for Organic and Inorganic Data review. Guidance documents included USEPA Regions I, II and III (modifications), New Jersey Department of Environmental Protection, New York State Department of Environmental Conservation and Pennsylvania Department of Environmental Protection regulations for organic and inorganic laboratory analyses of environmental soil, groundwater, and ambient air samples. Responsibilities included data evaluation, report preparation and review, client contact and laboratory analytical contact and coordinator. • Project Manager for a three-year contract performing organic and inorganic data validation/quality assurance reviews to evaluate data usability with respect to client-provided data validation specification and USEPA Region 3 modifications to the National Functional Guidelines for organic and inorganic analyses of soil and groundwater samples. Responsibilities included data evaluation, report preparation, primary client contact, and comment resolution.

Name	CRAIG GORCZYCA, C.H.M.M.
Project Role	Hazardous Waste Management, Pollution Prevention & Waste Minimization
Education	<ul style="list-style-type: none"> • B.A., Geography, Colgate University, Hamilton, NY
Registrations	<ul style="list-style-type: none"> • Certified Hazardous Materials Manager (C.H.M.M.) Master Level • Certified Hazardous Materials Training & Testing, HM181-HM126F • USEPA – AHERA Accredited Asbestos Inspector and Management Planner • OSHA Certified HAZWOPER Supervisor • NJDEP Certification for Underground Storage Tank, Subsurface Evaluation and Closures
Experience	<p><u>General Qualifications</u></p> <p>Mr. Gorczyca has more than 15 years of experience with the development, implementation, and evaluation of HS&E services. He has conducted numerous training classes related to hazardous communication and management and is intimately familiar with the requirements of N.J.A.C. 12:100-13.1. Mr. Gorczyca services are widely sought by public and private sector clients on projects involving Community Right to Know as related to the proper identification, labeling, and disposal of hazardous substances in both educational and industrial settings. Additionally, Mr. Gorczyca has worked extensively with such regulatory programs as RCRA, TSCA, DOT, and RTK and has long-established relationships with active State agency personnel within both NJDEP and NJDHSS. He directs and arranges for the cost-effective disposal of hazardous and non-hazardous chemical and regularly works with clients to implement asbestos abatement and management projects, CRTK/TRI deliverables and NJDEP Release Pollution Prevention Reports (RPPR).</p> <p><u>Relevant Projects</u></p> <ul style="list-style-type: none"> • Project Manager for a RCRA-related hazardous materials management at a major, private university in New Jersey. Working at each of the University's three campuses, Mr. Gorczyca planned and led the effort to completely inventory all hazardous materials, including the chemistry and science departments. He developed a plan that included recommendations to bring the University into compliance with CRTK and HazCom requirements. As part of this effort, Mr. Gorczyca worked closely with University facility staff, researchers, and academic heads to implement the program in a manner that did not disrupt either University business or research activities. • Project Manager for CRTK compliance for the 22 building Trenton School District. Directed and implemented chemical and hazardous products inventories, MSDS compilation and evaluation, and product labeling programs for the District. Also responsible for the preparation and development of each school building's Central File and training of custodial and other staff in ongoing CRTK maintenance and compliance activities. This work was performed in close coordination with the District and under very aggressive project timeframes. • Project Manager for HazCom and CRTK compliance for a major, central New Jersey school district. Responding to a series of actual and threatened NJDHSS regulatory enforcement actions, Mr. Gorczyca worked with the district to develop and implement, on a rapid response basis, the basic elements of HazCom and CRTK compliant programs. This work, done under supervision of NJDHSS included site inspections, labeling services, MSDS tracking, lab packing and disposal of unusable and out-of-date chemicals, and training of the custodial staff concerning future regulatory compliance. Performed within a short time-frame, no Notices of Violations or monetary penalties were issued to the client by NJDHSS.

Name	DANIEL P. DiROCCO
Project Role	Field Operations Supervisor
Education	<ul style="list-style-type: none"> B.A. Environmental Sciences (Geology and Economics) Hobart College, Geneva, NY
Registrations	<ul style="list-style-type: none"> OSHA HAZWOPER Site Supervisor OSHA Hazardous Waste Operations and Emergency Response USEPA – AHERA Accredited Asbestos Inspector NJDEP BUST Certifications: Closure and Subsurface Evaluation
Experience	<p><u>General Qualifications</u></p> <p>Mr. DiRocco has over eight years of experience with a wide range of environmental remediation projects, due diligence, and ecological evaluation. His responsibilities have included coordination and supervision of field personnel, contractors, and health and safety monitoring for implementation of field investigations and remediation, conducting ecological evaluation of sensitive environments, and preparations of remedial and compliance reports.</p> <p><u>Relevant Projects</u></p> <ul style="list-style-type: none"> Field manager/site safety officer for the remediation of pesticide impacted soils at a former Insecticide Research/Manufacturing Facility in New Jersey. Mr. DiRocco's responsibilities included remedial direction, air monitoring, worker safety, and soils management. Team member in the investigation and soil remediation of a former industrial dry cleaning facility in Brooklyn, NY. Site soil and ground water were impacted with chlorinated solvents. Mr. DiRocco was responsible for the oversight of the installation of an Air Sparge and Soil Vapor Extraction System within the building. Mr. DiRocco also conducted the operation and maintenance of the system and compliance reporting. Key team member/site safety officer in the site investigation and remedial activities at a former textile mill in Bogota, New Jersey. Identified several trichloroethylene discharge areas on the property as well as several underground petroleum storage tanks ranging in size from 10,000 to 30,000 gallons. Responsibilities included management of field investigations and remedial activities involving the removal of impacted soils, water, and storage tanks. Served as the site safety officer Field manager for the expedited site investigation and remediation of a former automobile/truck service station. Responsibilities included site safety, subsurface investigations to identify underground tanks and delineation of impacted soils and direction of the removal of the tanks and impacted soils. Mr. DiRocco has assisted with metropolitan, municipal and commercial facility storm water system assessments and design. Responsibilities included field assessment of site topography, evaluation of offsite hydrologic inputs and outputs, performance of storm water calculations, and field sampling for storm water quality analysis. Ecological evaluation of properties containing soil and ground water contamination with potential to impact surrounding sensitive environments (i.e. Federal/State designated wetlands, streams, rivers, etc). Responsibilities included characterization of site contaminants in soil and ground water, surface and subsurface migratory potential assessment, and sampling of sediment and surface waters.

Appendix – 13



Brownfield Cleanup Program

OCA LIC Fifth Street Mixed-Use Housing
C241098
OCA LIC, LLC

David A. Paterson, Governor
Pete Grannis, Commissioner
Helen M. Marshall, Queens Borough President

Transform the Past.... Build for the Future

Appendix – 14

Appendix 14: Remediation Cost Estimate
Remedial Action Work Plan (RAWP)
OCA LIC Fifth Street Mixed-Use Housing
5-20 46th Road
City of New York, Queens County, New York 11101
EWMA# 205490
BCP Site #C241098

<u>Task Description</u>	<u>Project Budget</u>
Capture Wall Installation	\$232,000
Negative Pressure Containment Structure Installation	\$850,000
Dewatering of Excavation	\$126,900
Excavation and Removal of Material within Perimeter of Site	\$109,500
Soil Management with off-site transport & Disposal	\$1,450,500
Backfill of Excavations with Certified Clean Material	\$93,000
LNAPL Collection & Removal from Up-Gradient Side of the Capture Wall	\$410,000
LNAPL Monitoring/Remediation Well Installation	\$225,000
Vapor Intrusion Control	NAD
Capping of the Soils Across the Site	NAD
Environmental Compliance Support, Permitting, Measurement, & Project Control Activities	\$1,026,400
Total	\$4,523,300

Notes:

NAD - No Additional Cost

Appendix – 15

There are two entrances to the project site from 47th Ave and one exit on 46th road at the NE corner of the site as indicated by arrows on the survey plan. Citistrucre proposed four possible transportation routes from this project site to anywhere in New Jersey.

Proposed Route #1.

- Exit site east bound on 46th Road
- Left on Jackson Ave (25A) to
- Left on Queens Blvd to Queensboro Bridge
- Left on 2nd Ave in Manhattan
- Right on 57th Street
- Left on 9th Ave
- Right on 41th Street
- To Lincoln Tunnel ----- New Jersey

Proposed Route #2

- Exit site east bound on 46th Road
- Right on 11th Street to Pulaski Bridge
- Continue on McGuinness Blvd to BQE Express (278) West
- To Williamsburg Bridge outer road way to Manhattan
- Continue on Delancey Street
- Left on Lafayette Street
- Right on Broome Street
- To Holland Tunnel ----- New Jersey

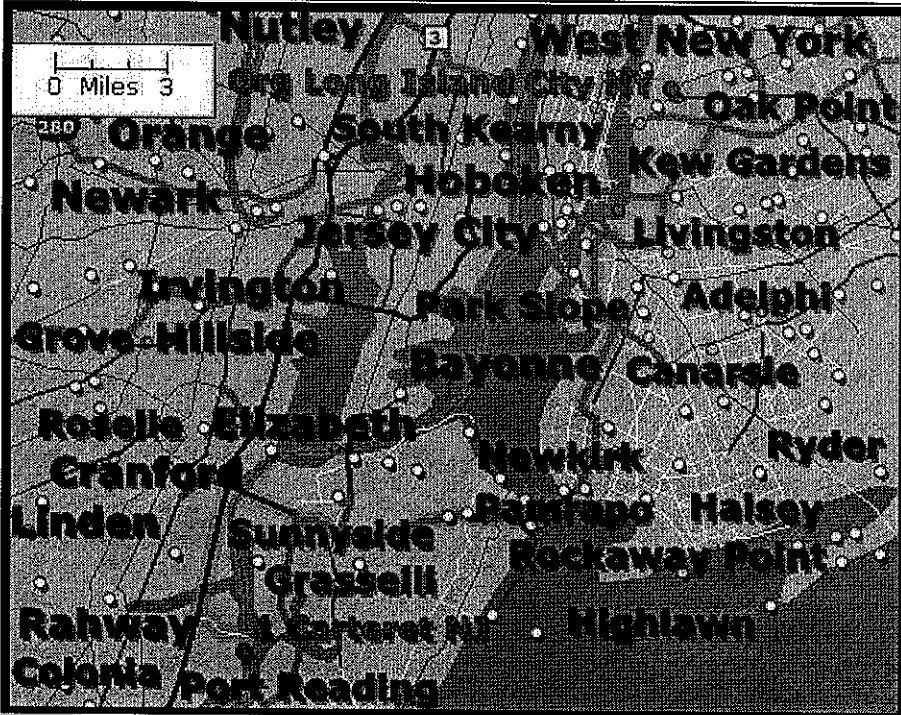
Proposed Route #3

- Exit site east bound on 46th Road
- Left on 21th Street
- Right on Astoria Blvd
- Left on 33rd Street
- Left on Hoyt Ave North
- To TRI BORO Bridge to the Bronx
- Major Deegan Express North (87)
- Exit 7 George Washington Bridge (GWB) ----- New Jersey

Proposed Route #4

- Exit site east bound on 46th Road
- Right on 11th Street to Jackson Ave (25A) West
- To Midtown Tunnel (495) West to Manhattan
- West on 37th Street
- Right on 10th Ave
- Left on 41th Street
- To Lincoln Tunnel ----- New Jersey.

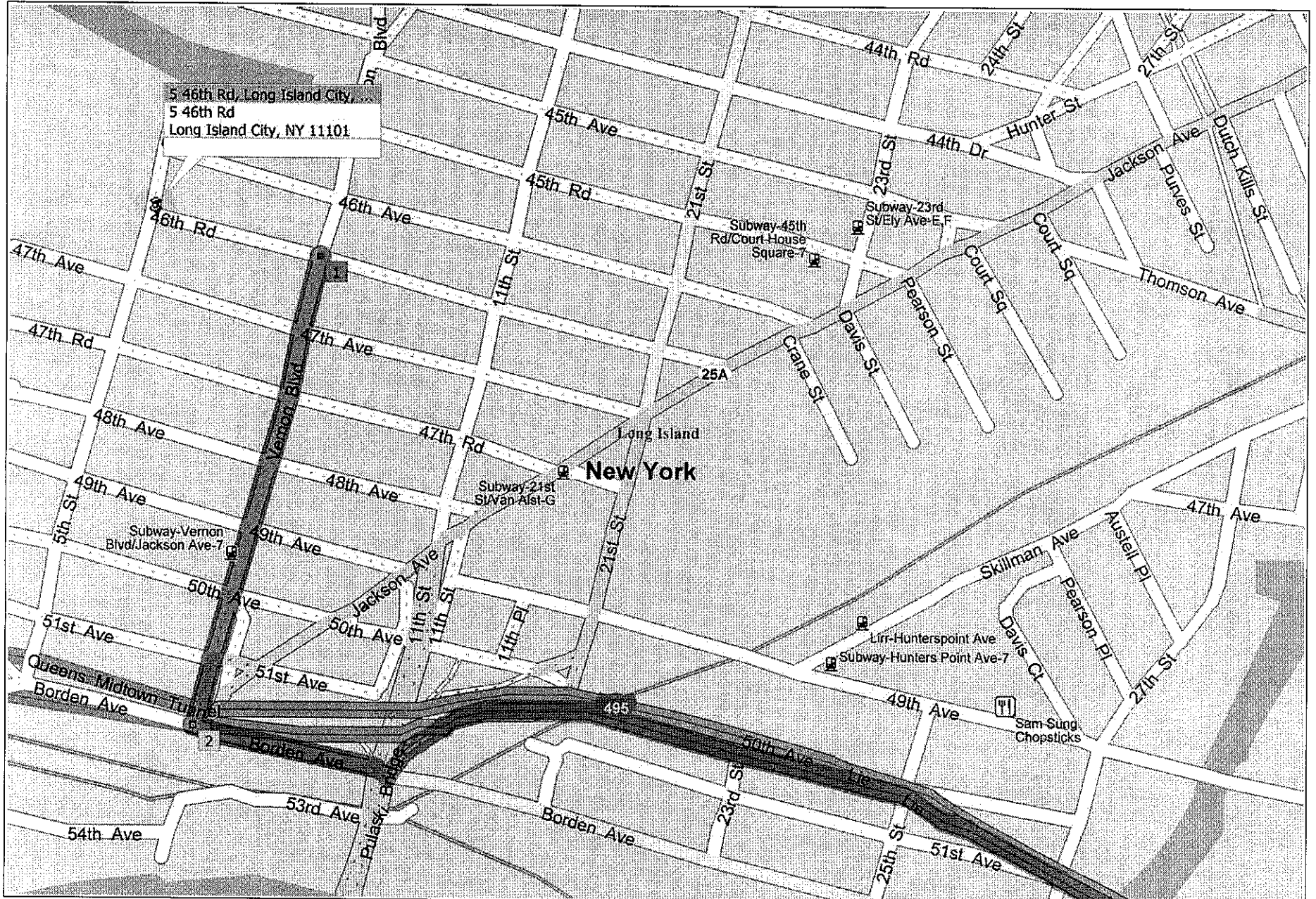
To print this page, please choose "File" & "Print" in your browser toolbar
Click the back button on you browser to return to full page

Trip Results: From LONG ISLAND CITY, NY 11101 to CARTERET, NJ 07008		
Miles: 30.8	Time: 0:31	Trip Charge: \$0.00
Map: Destination Map		
		
Practical Route		
Directions	Time	
Go East 0.2 miles on NY-25***Truck Restricted in NY to Jct NY-25 & NY-25 by WEEHAWKEN NJ	0:01	
Go East 0.3 miles on NY-25 in NY to Jct NY-25 & VAN DAM by WEEHAWKEN NJ	0:01	
Go South 0.6 miles on VAN DAM in NY to Jct VAN DAM & I-495 in NEW YORK NY	0:02	
Go East 0.7 miles on I-495 in NY to Jct I-495 & I-278, Exit 17, in NEW YORK NY	0:03	
Go South 12.9 miles on I-278 in NY to Jct I-278 & VERRAZANO-NARRO in NEW YORK NY	0:14	

Go West 1.7 miles on VERRAZANO-NARRO \$16.00 in NY to Jct VERRAZANO-NARRO & I-278	0:15
Go West 6.9 miles on I-278 in NY to Jct I-278 & GOETHALS BR in ELIZABETH NJ	0:21
Go West 1.4 miles on GOETHALS BR \$-0.01 in NY to I-278 NJ-NY BORDER	0:22
Go West 0.4 miles on I-278 in NJ to Jct I-278 & NJ TPK, Exit 3, in ELIZABETH NJ	0:23
Go South 3.7 miles on NJ TPK in NJ to Jct NJ TPK & ROOSEVELT AVE at CARTERET NJ	0:27
Go West 1.6 miles on ROOSEVELT AVE in NJ to Jct ROOSEVELT AVE & Local	0:30
Go 0.4 miles on Local in NJ to	0:31

All information copyright ProMiles Software Development Corp: 1-800-324-8588.

Truck Route



Trip Results: From LONG ISLAND CITY, NY 11101 to PHILADELPHIA, PA 19153

Trip Charge: \$0.00

A black and white map of the New York City area and surrounding regions. The map shows major highways, including I-95, I-287, I-206, I-202, I-76, I-30, I-322, I-100, I-476, I-78, I-278, I-295, I-195, I-539, I-24, I-31, I-611, I-523, I-1, and I-9. Major cities and towns labeled include New York, Easton, Trenton, Philadelphia, and Philadelphia PA. The Delaware River is shown on the right side of the map. A scale bar in the top left corner indicates 0 to 15 miles.

Directions	Time
Go East 0.2 miles on NY-25***Truck Restricted in NY to Jct NY-25 & NY-25 by WEEHAWKEN NJ	0:01
Go East 0.3 miles on NY-25 in NY to Jct NY-25 & VAN DAM by WEEHAWKEN NJ	0:01
Go South 0.6 miles on VAN DAM in NY to Jct VAN DAM & I-495 in NEW YORK NY	0:02
Go East 0.7 miles on I-495 in NY to Jct I-495 & I-278, Exit 17, in NEW YORK NY	0:03
Go South 12.9 miles on I-278 in NY to Jct I-278 & VERRAZANO-NARRO in NEW YORK NY	0:14

Go West 1.7 miles on VERRAZANO-NARRO \$16.00 in NY to Jct VERRAZANO-NARRO & I-278	0:15
Go West 6.9 miles on I-278 in NY to Jct I-278 & GOETHALS BR in ELIZABETH NJ	0:21
Go West 1.4 miles on GOETHALS BR \$-0.01 in NY to I-278 NJ-NY BORDER	0:22
Go West 0.4 miles on I-278 in NJ to Jct I-278 & NJ TPK, Exit 3, in ELIZABETH NJ	0:23
Go South 66.5 miles on NJ TPK \$6.00 in NJ to Jct NJ TPK & NJ-73 at RAMBLEWOOD NJ	1:35
Go North 1.6 miles on NJ-73 in NJ to Jct NJ-73 & NJ-38 at MAPLE SHADE NJ	1:37
Go South 5.6 miles on NJ-38 in NJ to Jct NJ-38 & US-130 at COLLINGSWOOD NJ	1:44
Go West 2.6 miles on US-130 in NJ to Jct US-130 & I-76 at AUDUBON PARK NJ	1:47
Go West 1.9 miles on I-76 \$9.00 in NJ to I-76 NJ-PA BORDER	1:49
Go West 0.9 miles on I-76 in PA to Jct I-76 & I-95 by GLOUCESTER CITY NJ	1:50
Go South 4.9 miles on I-95 in PA to Jct I-95 & PA-291, Exit 14, by COLWYN PA	1:55
Go South 0.3 miles on PA-291 in PA to Jct PA-291 & Local	1:56

All information copyright ProMiles Software Development Corp: 1-800-324-8588.

To print this page, please choose "File" & "Print" in your browser toolbar
Click the back button on you browser to return to full page

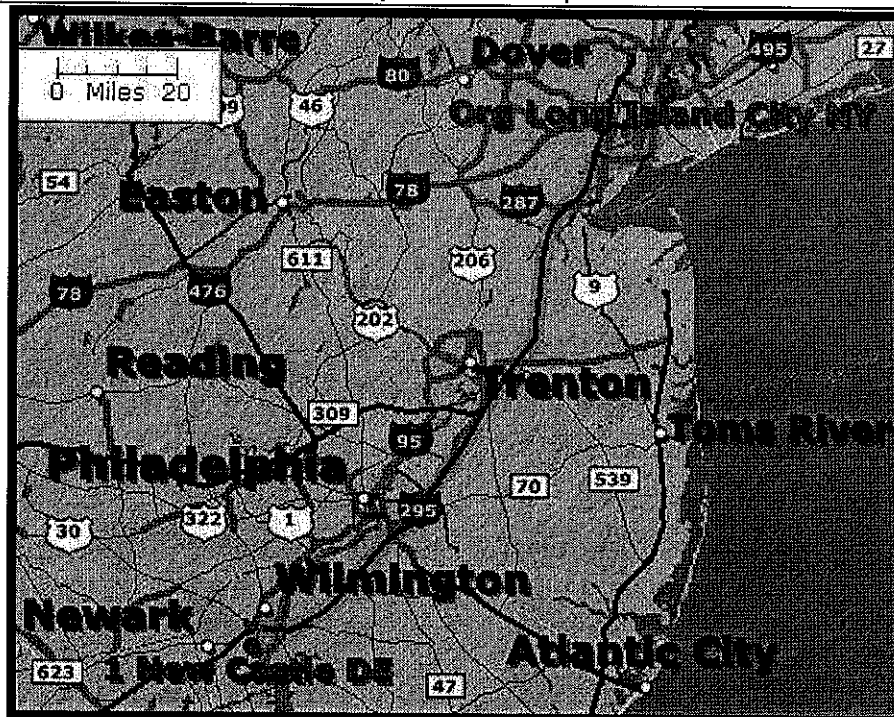
Trip Results: From LONG ISLAND CITY, NY 11101 to NEW CASTLE, DE 19720

Miles: 134.0

Time: 2:23

Trip Charge: \$0.00

Map: Destination Map



Practical Route

Directions	Time
Go East 0.2 miles on NY-25***Truck Restricted in NY to Jct NY-25 & NY-25 by WEEHAWKEN NJ	0:01
Go East 0.3 miles on NY-25 in NY to Jct NY-25 & VAN DAM by WEEHAWKEN NJ	0:01
Go South 0.6 miles on VAN DAM in NY to Jct VAN DAM & I-495 in NEW YORK NY	0:02
Go East 0.7 miles on I-495 in NY to Jct I-495 & I-278, Exit 17, in NEW YORK NY	0:03
Go South 12.9 miles on I-278 in NY to Jct I-278 & VERRAZANO-NARRO in NEW YORK NY	0:14

Go West 1.7 miles on VERRAZANO-NARRO \$16.00 in NY to Jct VERRAZANO-NARRO & I-278	0:15
Go West 6.9 miles on I-278 in NY to Jct I-278 & GOETHALS BR in ELIZABETH NJ	0:21
Go West 1.4 miles on GOETHALS BR \$-0.01 in NY to I-278 NJ-NY BORDER	0:22
Go West 0.4 miles on I-278 in NJ to Jct I-278 & NJ TPK, Exit 3, in ELIZABETH NJ	0:23
Go South 100.9 miles on NJ TPK \$8.70 in NJ to Jct NJ TPK & I-295 by PENNSVILLE NJ	2:13
Go East 1.1 miles on I-295 \$-0.01 in NJ to I-295 DE-NJ BORDER	2:14
Go West 2.6 miles on I-295 in DE to Jct I-295 & I-295 by WILMINGTON MANOR DE	2:17
Go West 1.2 miles on I-295 in DE to Jct I-295 & US-13 at WILMINGTON MANOR DE	2:18
Go South 3.1 miles on US-13 in DE to Jct US-13 & Local	2:23

All information copyright ProMiles Software Development Corp: 1-800-324-8588.

To print this page, please choose "File" & "Print" in your browser toolbar
Click the back button on you browser to return to full page

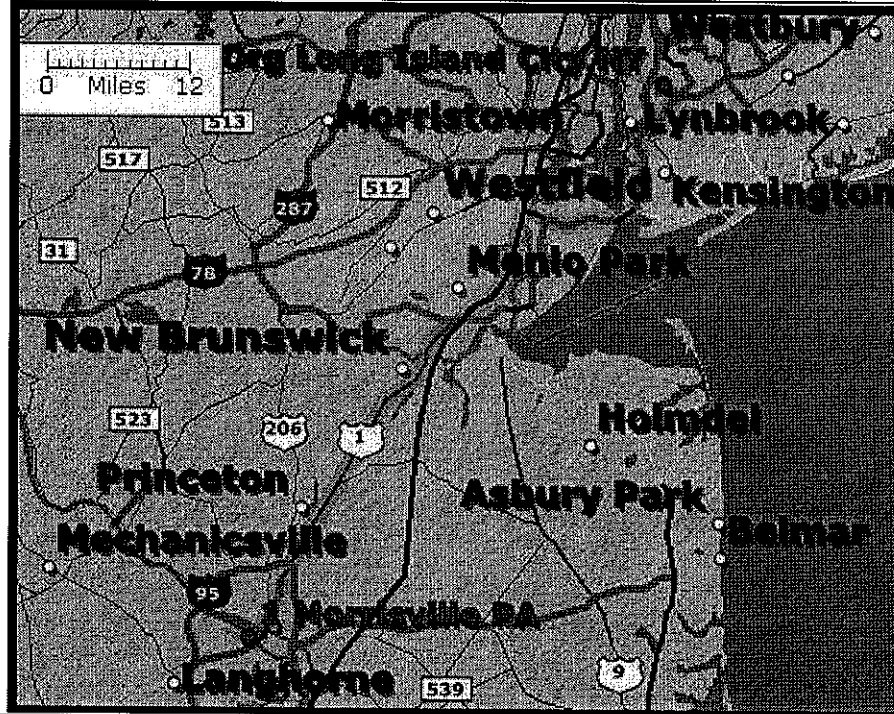
Trip Results: From LONG ISLAND CITY, NY 11101 to MORRISVILLE, PA 19067

Miles: 71.3

Time: 1:14

Trip Charge: \$0.00

Map: Destination Map



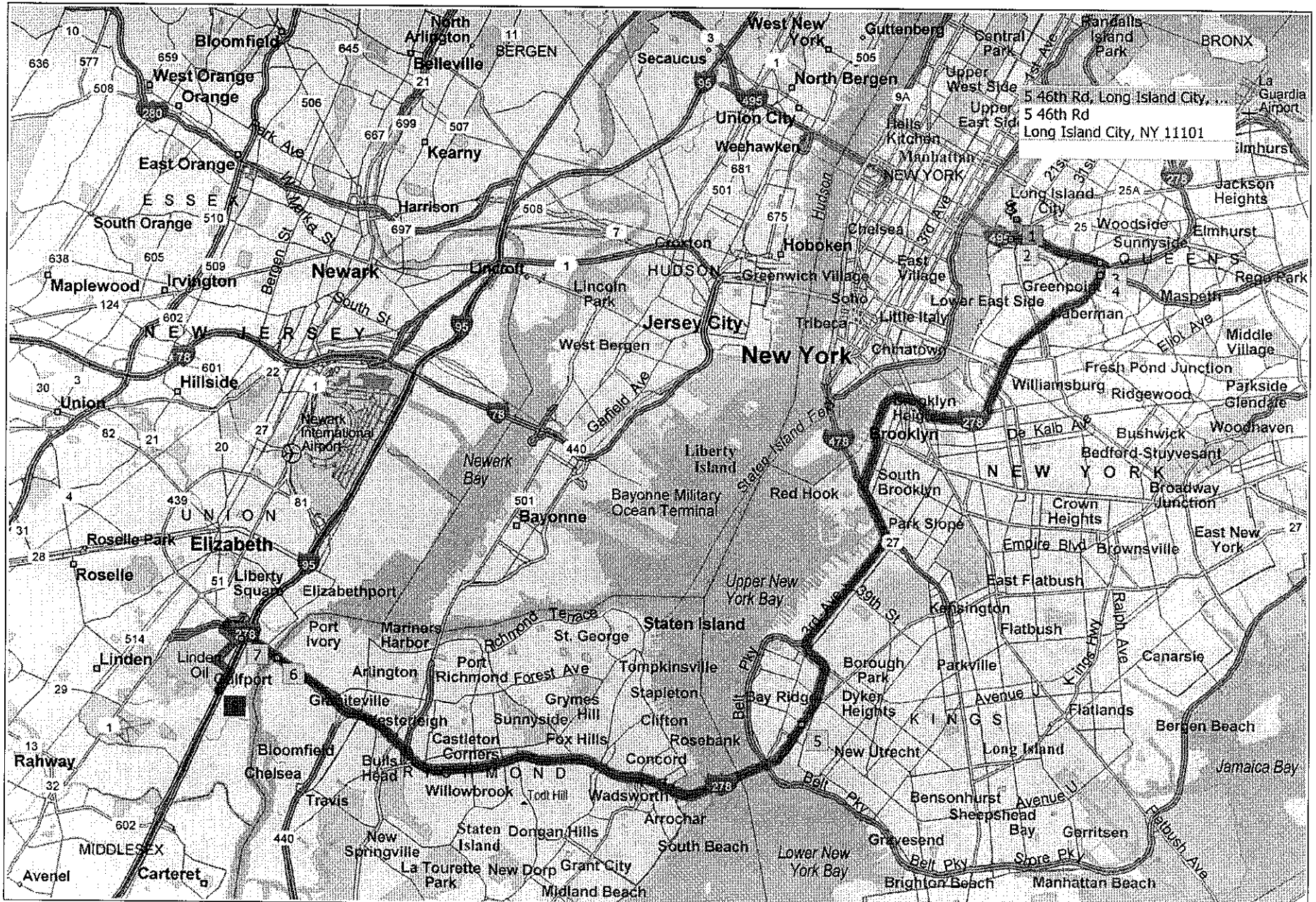
Practical Route

Directions	Time
Go East 0.2 miles on NY-25***Truck Restricted in NY to Jct NY-25 & NY-25 by WEEHAWKEN NJ	0:01
Go East 0.3 miles on NY-25 in NY to Jct NY-25 & VAN DAM by WEEHAWKEN NJ	0:01
Go South 0.6 miles on VAN DAM in NY to Jct VAN DAM & I-495 in NEW YORK NY	0:02
Go East 0.7 miles on I-495 in NY to Jct I-495 & I-278, Exit 17, in NEW YORK NY	0:03
Go South 12.9 miles on I-278 in NY to Jct I-278 & VERRAZANO-NARRO in NEW YORK NY	0:14

Go West 1.7 miles on VERRAZANO-NARRO \$16.00 in NY to Jct VERRAZANO-NARRO & I-278	0:15
Go West 6.9 miles on I-278 in NY to Jct I-278 & GOETHALS BR in ELIZABETH NJ	0:21
Go West 1.4 miles on GOETHALS BR \$-0.01 in NY to I-278 NJ-NY BORDER	0:22
Go West 0.4 miles on I-278 in NJ to Jct I-278 & NJ TPK, Exit 3, in ELIZABETH NJ	0:23
Go South 11.2 miles on NJ TPK \$2.30 in NJ to Jct NJ TPK & I-287, Exit 11, by METUCHEN NJ	0:35
Go North 0.9 miles on I-287 in NJ to Jct I-287 & US-1, Exit 1, in EDISON NJ	0:36
Go South 31.5 miles on US-1 in NJ to Jct US-1 & US-1 in TRENTON NJ	1:10
Go South 1.6 miles on US-1 \$7.84 in NJ to US-1 NJ-PA BORDER	1:12
Go South 0.2 miles on US-1 in PA to Jct US-1 & PENNSYLVANIA AV at MORRISVILLE PA	1:12
Go North 0.8 miles on PENNSYLVANIA AV in PA to Jct PENNSYLVANIA AV & Local	1:14

All information copyright ProMiles Software Development Corp: 1-800-324-8588.

Truck Route





574-254-2347
 58-2-20000
 59-2-20000
 60-2-20000
 61-2-20000
 62-2-20000
 63-2-20000
 64-2-20000
 65-2-20000
 66-2-20000
 67-2-20000
 68-2-20000
 69-2-20000
 70-2-20000
 71-2-20000
 72-2-20000
 73-2-20000
 74-2-20000
 75-2-20000
 76-2-20000
 77-2-20000
 78-2-20000
 79-2-20000
 80-2-20000
 81-2-20000
 82-2-20000
 83-2-20000
 84-2-20000
 85-2-20000
 86-2-20000
 87-2-20000
 88-2-20000
 89-2-20000
 90-2-20000
 91-2-20000
 92-2-20000
 93-2-20000
 94-2-20000
 95-2-20000
 96-2-20000
 97-2-20000
 98-2-20000
 99-2-20000
 100-2-20000

[illegible]

FLOOD HAZARD NOTE
THE PRICEZ SURVEYED 5 DISTRICTS OF ARIZONA (UNSHATTED) AS
ZONE A2 (EL. 10' & 10' X 10' DISTRICTS) & A-2 (EL. 10' & 10' DISTRICTS)
FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE MAPS
COMMUNITY PLAN: 1977
EFFECTIVE DATE: SEPTEMBER 8, 1977

74 DEVDOS FILED MAP
JOTS ON
"MAP OF HUNTER-VAN ALST FARMS"
BLOCK NO. 17

CRANK: 0.4/02

[illegible]

MONTROSE
SURVEYING CO., LLP.
MICHIGAN LAND SURVEYORS

FOR MORE INFORMATION, CONTACT: • 800/840-8811 • FAX 1/415-2600 • 714/343-0000

CITY OF NEW YORK
COUNTY: QUEENS
TAX BLOCK 28
TAX LOTS AS SHOWN

SCALE: 1" = 20'

Appendix – 16

5-20 46th ROAD
SOIL REMEDIATION
LONG ISLAND CITY, QUEENS COUNTY, NY 11101
BLOCK 28, LOTS 12,15,17,18,21&28
STORM WATER POLLUTION PREVENTION PLAN
6/12/09

PREPARED BY:
DEWBERRY-GOODKIND, INC.
15 EAST 26TH STREET, 7TH FLOOR
NY, NY 10010

NARRATIVE

The OCA LIC Fifth Street Mixed-Use Housing Soil Remediation Project is located within an old industrial portion of Long Island City, Queens County, New York. Historically, the entire Property (except for a small parking area at the east end) was covered with buildings. As of June 2008, all the buildings on the property have been demolished to street grade. The site is bordered by Fifth Street to the West, 46th Road to the North, 47th Ave to the South and properties owned by others to the East. The total area of the remediation site is 66,838 sf (1.534 acres). The East River is the closest water body located approximately ¼-mile west of the subject Property. The soils on site are designation number 101 (Pavement and Buildings- wet substratum-Laguardia-Ebbets complex 0%-8% slope), of the New York City Soil and Water Conservation District Soil Survey Map. The complex is nearly level to gently sloping urbanized areas filled with a mixture of natural soil materials and construction debris over swamp, tidal marsh, or water; a mixture of anthropogenic soils which vary in coarse fragment content, with up to 80 percent impervious pavement and buildings covering the surface. The Soil is designated Hydrologic Soil Group "B". (New York City Reconnaissance Soil Survey) Surface drainage from the site will enter a combined sewer system owned by the City Of New York. For a description of the soil remediation site work see the Remedial Action Work Plan prepared by, Environmental Waste Management Associates, LLC of West Windsor, NJ.

An erosion and sediment control plan will be implemented during the soil remediation/construction phase. The plan entails enclosing the entire site limits with silt fence, stabilized construction entrances at the exit/entrance to the site and inlet protection on existing catch basins. Silt fence, stabilized construction entrances and inlet protection shall be installed in accordance with the Erosion and Sediment Control Plan and the New York Standards and Specifications for Erosion and Sediment Controls (August, 2005). Post construction storm water management controls are not required for this project.

LOCATION MAP



LOCATION MAP
1"=500'



Dewberry

DATE
6/12/09

TITLE
SITE LOCATION MAP

SHEET NO.

PROJ. NO.
50022213

PROJECT
OCA LIC FITH STREET
MIXED USE HOUSING

NOTICE OF INTENT

NOTICE OF INTENT

New York State Department of Environmental Conservation



Division of Water

625 Broadway, 4th Floor

Albany, New York 12233-3505

NYR

--	--	--	--	--	--

(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-08-001
 All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-**RETURN THIS FORM TO THE ADDRESS ABOVE**OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

O C A Long Island City, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Reddy

Owner/Operator Contact Person First Name

Ravi

Owner/Operator Mailing Address

535 Madison Ave 23rd Floor

City

New York

State

NY

Zip

10022 -

Phone (Owner/Operator)

212 - 546 - 0832

Fax (Owner/Operator)

- - -

Email (Owner/Operator)

rreddy@citistructure.com

FED TAX ID

20 - 5904763

(not required for individuals)

Project Site Information

Project/Site Name

O C A L I C F i t h S t r e e t M i x e d U s e H o u s i n g

Street Address (NOT P.O. BOX)

5 - 2 0 4 6 t h R o a d

Side of Street

☐ North ☒ South ☐ East ☐ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)

N e w Y o r k

State Zip

N Y

1 1 1 0 1 -

County

Q u e e n s

DEC Region

2

Name of Nearest Cross Street

5 t h

Distance to Nearest Cross Street (Feet)

0

Project In Relation to Cross Street

☐ North ☐ South ☒ East ☐ West

Tax Map Numbers

Section-Block-Parcel

2 8 1 2

Tax Map Numbers

1 5 1 7 1 8 2 1 3 8

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you must go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site go to the dropdown menu on the left and choose "Get Coordinates". Click on the center of your site and a small window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

5 8 8 2 4 8

Y Coordinates (Northing)

4 5 1 1 1 1 2

2. What is the nature of this construction project?

☐ New Construction☐ Redevelopment with increase in imperviousness☒ Redevelopment with no increase in imperviousness

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

**Pre-Development
Existing Land Use**

☐ FOREST
☐ PASTURE/OPEN LAND
☐ CULTIVATED LAND
☐ SINGLE FAMILY HOME
☐ SINGLE FAMILY SUBDIVISION
☐ TOWN HOME RESIDENTIAL
☐ MULTIFAMILY RESIDENTIAL
☐ INSTITUTIONAL/SCHOOL
☐ INDUSTRIAL
☐ COMMERCIAL
☐ ROAD/HIGHWAY
☐ RECREATIONAL/SPORTS FIELD
☐ BIKE PATH/TRAIL
☐ LINEAR UTILITY
☐ PARKING LOT
☐ OTHER

M i x e d U s e

**Post-Development
Future Land Use**

☐ SINGLE FAMILY HOME Number of Lots
☐ SINGLE FAMILY SUBDIVISION
☐ TOWN HOME RESIDENTIAL
☐ MULTIFAMILY RESIDENTIAL
☐ INSTITUTIONAL/SCHOOL
☐ INDUSTRIAL
☐ COMMERCIAL
☐ MUNICIPAL
☐ ROAD/HIGHWAY
☐ RECREATIONAL/SPORTS FIELD
☐ BIKE PATH/TRAIL
☐ LINEAR UTILITY (water, sewer, gas, etc.)
☐ PARKING LOT
☐ CLEARING/GRADING ONLY
☐ DEMOLITION, NO REDEVELOPMENT
☐ OTHER

M i x e d U s e

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ☐ Yes ☒ No

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? ☒ Yes ☐ No

6. Is this property owned by a state authority, state agency or local government? ☐ Yes ☒ No

7. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage) within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	Acreage To Be Disturbed	Existing Impervious Area Within Disturbed	Future Impervious Area Within Disturbed
<input type="text"/> <input type="text"/> <input type="text"/> 1 . 5	<input type="text"/> <input type="text"/> <input type="text"/> 1 . 5	<input type="text"/> <input type="text"/> <input type="text"/> 1 . 5	<input type="text"/> <input type="text"/> <input type="text"/> 1 . 5

8. Do you plan to disturb more than 5 acres of soil at any one time? ☐ Yes ☐ No

9. Indicate the percentage of each Hydrologic Soil Group (HSG) at the site.

A	B	C	D
<input type="text"/> <input type="text"/> <input type="text"/> %	1 0 0 %	<input type="text"/> <input type="text"/> <input type="text"/> %	<input type="text"/> <input type="text"/> <input type="text"/> %

10. Is this a phased project?

☐ Yes ☒ No

11. Enter the planned start and end dates of the disturbance activities.

Start Date

07 / 15 / 2009

End Date

10 / 15 / 2009

12. Identify the nearest, natural, surface waterbody(ies) to which construction site runoff will discharge.

Name

Site will discharge to a city owned
combined sewer system

12a. Type of waterbody identified in Question 12?

- ☐ Wetland / State Jurisdiction On Site (Answer 12b)
- ☐ Wetland / State Jurisdiction Off Site
- ☐ Wetland / Federal Jurisdiction On Site (Answer 12b)
- ☐ Wetland / Federal Jurisdiction Off Site
- ☐ Stream / Creek On Site
- ☐ Stream / Creek Off Site
- ☐ River On Site
- ☐ River Off Site
- ☐ Lake On Site
- ☐ Lake Off Site
- ☐ Other Type On Site
- ☒ Other Type Off Site

Sewer system

12b. How was the wetland identified?

- ☐ Regulatory Map
- ☐ Delineated by Consultant
- ☐ Delineated by Army Corps of Engineers
- ☐ Other (identify)

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment in Appendix E of GP-0-08-001?

☐ Yes ☒ No

14. Is this project located in one of the Watersheds identified in Appendix C of GP-0-08-001?

☐ Yes ☒ No

15. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? If no, skip question 16.

☐ Yes ☒ No

☐ Yes ☒ No

--	--	--	--	--	--

☐ Yes ☒ No

☒ Yes ☐ No ☐ Unknown

[illegible]

☒ Yes ☐ No ☐ Unknown

☒ Yes ☐ No

☐ Yes ☒ No

☐ Yes ☐ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ☒ Professional Engineer (P.E.)
- ☐ Soil and Water Conservation District (SWCD)
- ☐ Registered Landscape Architect (R.L.A.)
- ☐ Certified Professional in Erosion and Sediment Control (CPESC)
- ☐ Owner/Operator
- ☐ Other

SWPPP Preparer

[illegible]

Contact Name (Last, Space, First)

[illegible]

Mailing Address

1	5	E	a	s	t	2	6	s	t	r	e	e	t	7	t	h	F	l	o	o	r
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

City

[illegible]

State

Zip

NY 10010

Phone

Fax

2 1 2 - 6 8 5 - 0 9 0 0

2 1 2 6 8 5 2 3 4 0

Email

j m i l l e r @ d e w b e r r y . c o m

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-08-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name

[illegible]

MI

7

Last Name[illegible]

Signature

[Signature]

Date _____

0	6	/	1	1	/	2	0	0	9
---	---	---	---	---	---	---	---	---	---

☒ Yes ☐ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Vegetative Measures

- ☐ Brush Matting
- ☐ Dune Stabilization
- ☐ Grassed Waterway
- ☐ Mulching
- ☐ Protecting Vegetation
- ☐ Recreation Area Improvement
- ☐ Seeding
- ☐ Sodding
- ☐ Straw/Hay Bale Dike
- ☐ Streambank Protection
- ☐ Temporary Swale
- ☐ Topsoiling
- ☐ Vegetating Waterways

- ☐ Debris Basin
- ☐ Diversion
- ☐ Grade Stabilization Structure
- ☐ Land Grading
- ☐ Lined Waterway (Rock)
- ☐ Paved Channel (Concrete)
- ☐ Paved Flume
- ☐ Retaining Wall
- ☐ Riprap Slope Protection
- ☐ Rock Outlet Protection
- ☐ Streambank Protection

- ☐ Brush Matting
- ☐ Wattling

[illegible]

Water Quality and Quantity Control

Important: Completion of Questions 27-35 is not required if response to Question 22 is No.

Post-Construction Stormwater Management Practices

27. Indicate **all** Stormwater Management Practice(s) that will be installed/constructed on this site:

Ponds

- Micropool Extended Detention (P-1)
- Wet Pond (P-2)
- Wet Extended Detention (P-3)
- Multiple Pond System (P-4)
- Pocket Pond (P-5)

Filtering

- ☐ Surface Sand Filter (F-1)
- ☐ Underground Sand Filter (F-2)
- ☐ Perimeter Sand Filter (F-3)
- ☐ Organic Filter (F-4)
- ☐ Bioretention (F-5)
- ☐ Other

Alternative Practice

- ☐ Rain Garden
- ☐ Cistern
- ☐ Green Roof
- ☐ Stormwater Planters
- ☐ Permeable Paving (Modular Block)

Wetlands

- ☐ Shallow Wetland (W-1)
- ☐ Extended Detention Wetland (W-2)
- ☐ Pond/Wetland System (W-3)
- ☐ Pocket Wetland (W-4)

Infiltration

- Infiltration Trench (I-1)
- Infiltration Basin (I-2)
- Dry Well (I-3)
- Underground Infiltration System

Open Channels

- ☐ Dry Swale (0-1)
- ☐ Wet Swale (0-2)

Verified Proprietary Practice

- ☐ Hydrodynamic
- ☐ Wet Vault
- ☐ Media Filter

28. Describe other stormwater management practices not listed above or explain any deviations from the technical standards.

29. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ☐ **Yes** ☐ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

[illegible]

30. Provide the total water quality volume required and the total provided for the site.

WQv Required
 [][][] . [][][] acre-feet

WQv Provided
 [][][] . [][][] acre-feet

31. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required
 [][][] . [][][] acre-feet

CPv Provided
 [][][] . [][][] acre-feet

31a. The need to provide for channel protection has been waived because:

☐ Site discharges directly to fourth order stream or larger

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development
 [][][] . [][][] CFS

Post-development
 [][][] . [][][] CFS

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development
 [][][] . [][][] CFS

Post-development
 [][][] . [][][] CFS

31b. The need to provide for flood control has been waived because:

☐ Site discharges directly to fourth order stream or larger

☐ Downstream analysis reveals that flood control is not required

IMPORTANT: For questions 31 and 32, impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s). (Total Drainage Area = Project Site + Offsite areas)

32. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins.

[][][] %

33. Post-Construction Impervious Area - As a percent of the Total Drainage Area, enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction.

[][][] %

34. Indicate the total number of post-construction stormwater management practices to be installed/constructed.

[][]

35. Provide the total number of stormwater discharge points from the site. (include discharges to either surface waters or to separate storm sewer systems)

[][]

36. Identify other DEC permits that are required for this project.

DEC Permits

- | | |
|--|--|
| <input type="radio"/> Air Pollution Control | <input type="radio"/> Navigable Waters Protection / Article 15 |
| <input type="radio"/> Coastal Erosion | <input type="radio"/> Water Quality Certificate |
| <input type="radio"/> Hazardous Waste | <input type="radio"/> Dam Safety |
| <input type="radio"/> Long Island Wells | <input type="radio"/> Water Supply |
| <input type="radio"/> Mined Land Reclamation | <input type="radio"/> Freshwater Wetlands/Article 24 |
| <input type="radio"/> Other SPDES | <input type="radio"/> Tidal Wetlands |
| <input type="radio"/> Solid Waste | <input type="radio"/> Wild, Scenic and Recreational Rivers |
| <input checked="" type="radio"/> None | <input type="radio"/> Stream Bed or Bank Protection / Article 15 |
| <input type="radio"/> Other | |

[illegible]

37. Does this project require a US Army Corps of Engineers Wetland Permit?

☐ Yes ☒ No

If Yes, Indicate Size of Impact.

--	--	--	--	--	--

38. Is this project subject to the requirements of a regulated, traditional land use control MS4?

☐ Yes ☒ No

(If No, skip question 39)

39. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?

☐ Yes ☒ No

[illegible]

N	Y	R					
---	---	---	--	--	--	--	--

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

W	I	L	L	A	M
---	---	---	---	---	---

MI

Q

Print Last Name

[illegible]

Owner/Operator Signature _____

WATZ

Date _____

06/25/2009

OWNER / CLIENT

OCA LIC II-V
535 Madison Ave, 23rd Fl
New York, NY 10022
T: 212.546.0832
F: 212.546.0831

ARCHITECT

Studio V Architecture
44 E 32nd St New York, NY 10016
T: 212.779.2288
F: 212.689.1325

ENGINEER

DEWBERRY
15 E 26th St New York, NY 10010
T: 212.685.0900
F: 212.685.2340

ISSUE	DATE

SEAL

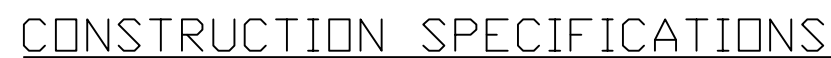
DATE	DRAWN	CHECKED
6/12/09	MMS	JM

SHEET TITLE

EROSION AND SEDIMENT CONTROL PLAN

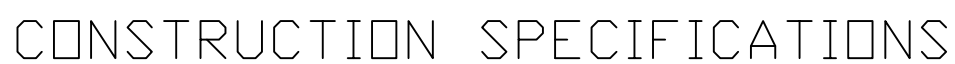
DRAWING NO.

ESC-001



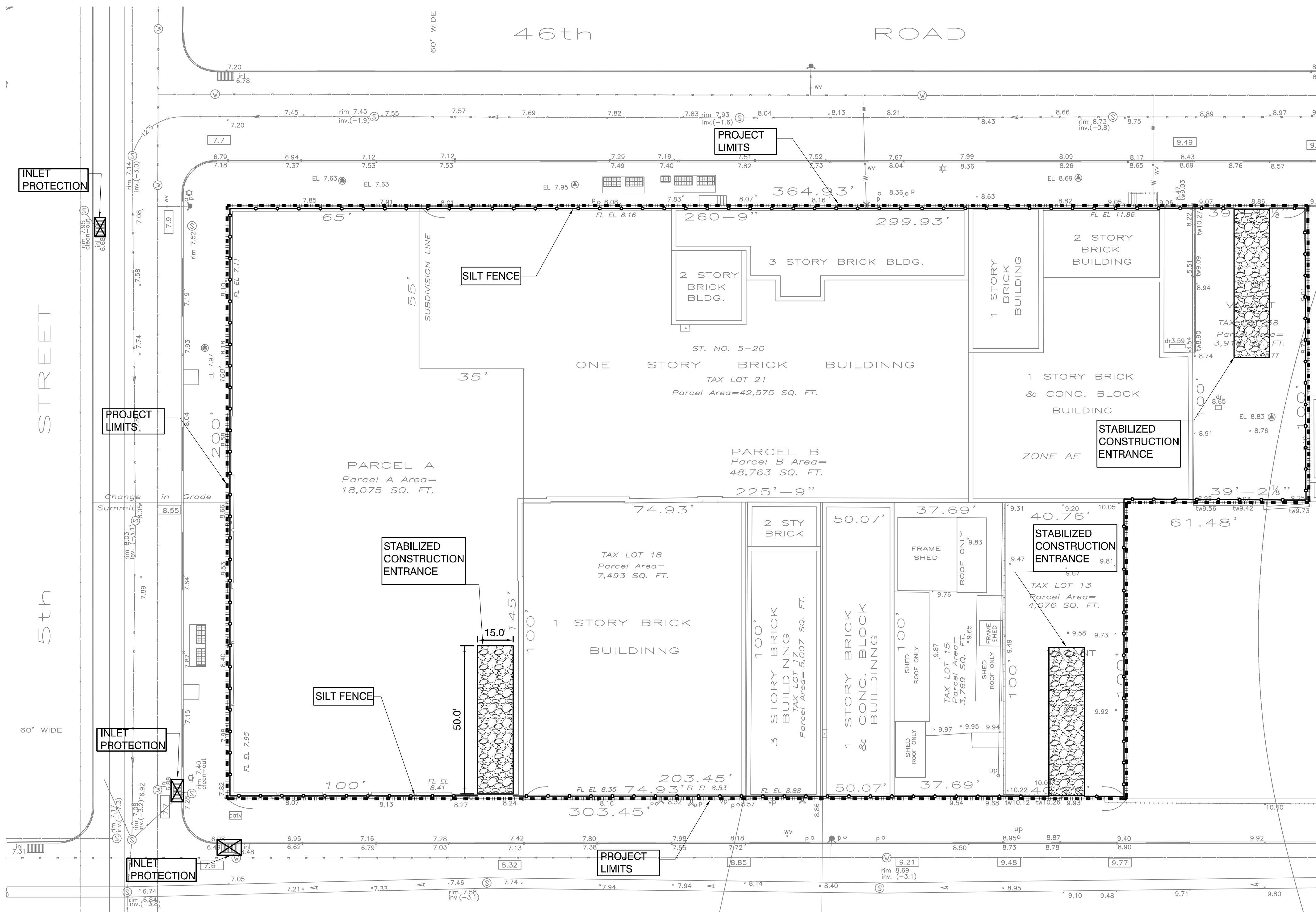
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFIX 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOPAF, ENVIRFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

2 SILT FENCE



1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - FIFTEEN (15) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

3 STABILIZED CONSTRUCTION ENTRANCE



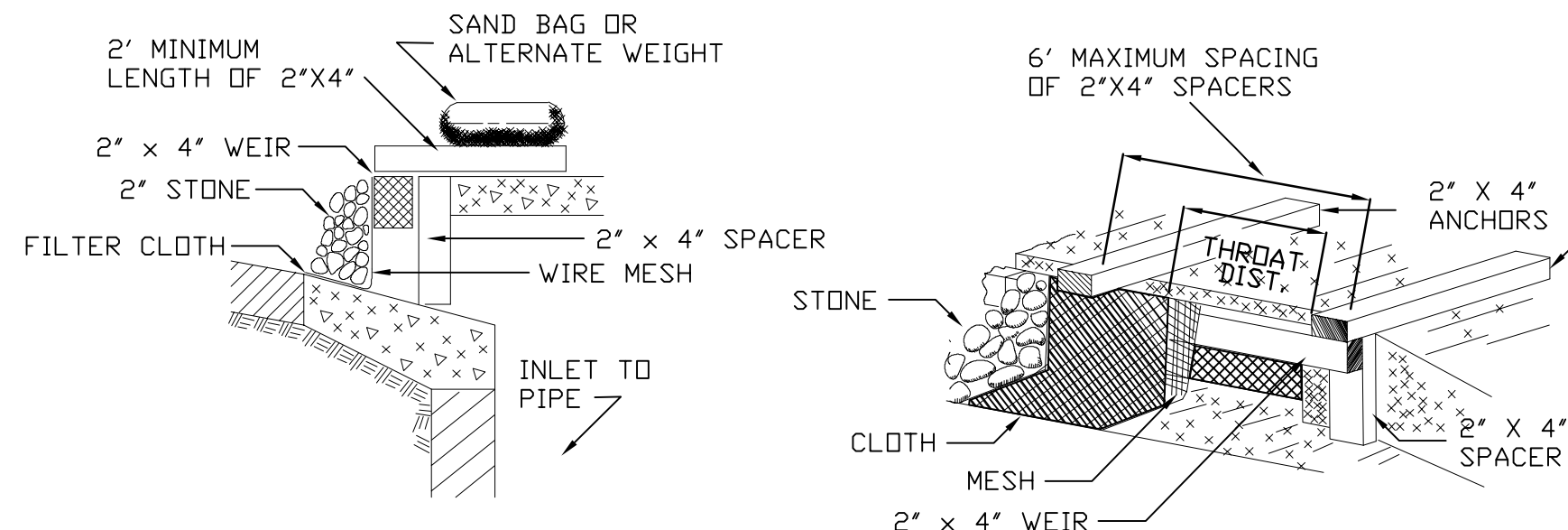
1 EROSION AND SEDIMENT CONTROL

SCALE: 1" = 20'-0"

SCALE: 1" = 20'-0"

NOTES:

1. BARRIERS AND HAY BALE CHECKS WILL BE INSTALLED AND INSPECTED ONCE A WEEK AND AFTER EVERY STORM EVENT. RESULTS OF INSPECTIONS WILL BE RECORDED IN A LOGBOOK AND MAINTAINED AT THE SITE AND AVAILABLE FOR INSPECTION BY NYSDEC. ALL NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY.
2. ACCUMULATED SEDIMENTS WILL BE REMOVED AS REQUIRED TO KEEP THE BARRIER AND HAY BALE CHECK FUNCTIONAL. ALL UNDERCUTTING OR EROSION OF THE SILT FENCE TO ANCHOR SHALL BE REPAIRED IMMEDIATELY WITH APPROPRIATE BACKFILL MATERIALS.
3. MANUFACTURER'S RECOMMENDATIONS WILL BE FOLLOWED FOR REPLACING SILT FENCING DAMAGED DUE TO WEATHERING.
4. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED ON THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING STORM SEWER SYSTEM
5. SILT FENCING WILL BE INSTALLED AROUND THE ENTIRE PERIMETER OF THE REMEDIAL CONSTRUCTION AREA.



4 INLET PROTECTION

- ## CONSTRUCTION SPECIFICATIONS
1. FILTER FABRIC SHALL HAVE AN EDS OF 40-85.
 2. WOODEN FRAME SHALL BE CONSTRUCTED OF 2" x 4" CONSTRUCTION GRADE LUMBER.
 3. WIRE MESH ACROSS THROAT SHALL BE A CONTINUOUS PIECE 30 INCH MINIMUM WIDTH WITH A LENGTH 4 FEET LONGER THAN THE THROAT. IT SHALL BE SHAPED AND SECURELY NAILED TO A 2" x 4" WEIR.
 4. THE WEIR SHALL BE SECURELY NAILED TO 2" x 4" SPACERS 9 INCHES LONG SPACED NO MORE THAN 6 FEET APART.
 5. THE ASSEMBLY SHALL BE PLACED AGAINST THE INLET AND SECURED BY 2" x 4" ANCHORS 2 FEET LONG EXTENDING ACROSS THE TOP OF THE INLET AND HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHTS.
- MAXIMUM DRAINAGE AREA 1 ACRE

CONSTRUCTION SPECIFICATIONS

MAXIMUM DRAINAGE AREA 1 ACRE

Appendix – 17

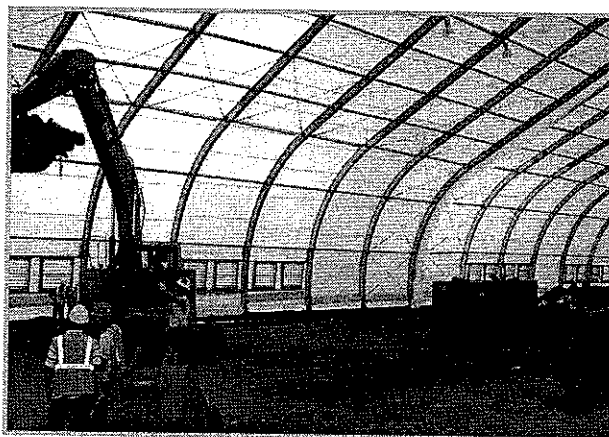
2

3/6/2009



A Universal Rentals Company

Remediation Solutions



BUDGETARY PROPOSAL FOR:

CitiStructure

Prepared for: Mr. Wayne Warner

Three Month Base Rental Price:

TFS/R 100' wide by 197' long with 4 meter bays enclosing approximately 19,700 sq. ft.

Premium PVC coated, opaque (blackout) membrane cladding

One set of NY approved engineering calculations for 110 MPH wind load

All freight costs to and from the clients site

4 Single steel doors with locksets

2 Fabric freight doors with freezer strip option

Crane lifting kit with additional cable bracing, compression bars, lifting brackets and stiffeneing

Infill panels for crane-lift

26 400 watt lights

12 Framed openings to support Filter System intake and exhaust ducts

Technical Supervision for the Installation & Removal:

AllSite will provide a technical consultant to oversee the installation and removal of the structure by client-supplied labor and equipment. The Monday through Friday per diem rate is \$963 and includes air travel, hotel, car rental and meals. The site should be clear and flat with no obstructions (overhead, surface or sub-grade) and allow sufficient access for cranes and man-lifts both inside and around the perimeter. The estimated days for installation, removal and crane lifts is 22 days.

Total three (3) month rental for above services:

Additional per month rental rate:

De-contamination:

3/6/2009

The client is responsible to return all rental products to AllSite in the same condition as when delivered to site with normal wear and tear excepted. The product must be returned clean and free of any harsh or hazardous contaminants, excessive dirt, staining or diesel/exhaust residue. If the product needs to be cleaned or serviced by AllSite, the client will be charged for all costs associated with returning the product to a condition suitable for rental inventory. If the product is to be used near or in contact with harsh and/or potentially hazardous materials, an independent company hired by the client must clean and certify that the product is safe and can be handled by AllSite personnel without the need for additional service, special training or safety equipment. Cleaning costs can range from a minimum of \$.65 per square foot for basic cleaning to \$3.50 per square foot for complete membrane replacement and aluminum cleaning.

Terms:

To be agreed upon.

Permits Licenses and Taxes:

The client is responsible for obtaining all licenses, permits, and payment of any fees or taxes.

Utilities:

The supply, connect/disconnect and operating costs for any utilities is not provided in this proposal.

Anchorage:

AllSite will be installing anchor stakes at each beam column to secure the structure. These anchor stakes are driven into the soil with pneumatic hammers and measure approximately 5' in length (depth). All underground utilities should be clearly identified by the client. Should a supplemental anchorage system be required (earth/screw and/or cable anchors) due to the on-site soil conditions or building codes, the cost for this system will be in addition and has not been factored into this proposal.

Delivery Date:

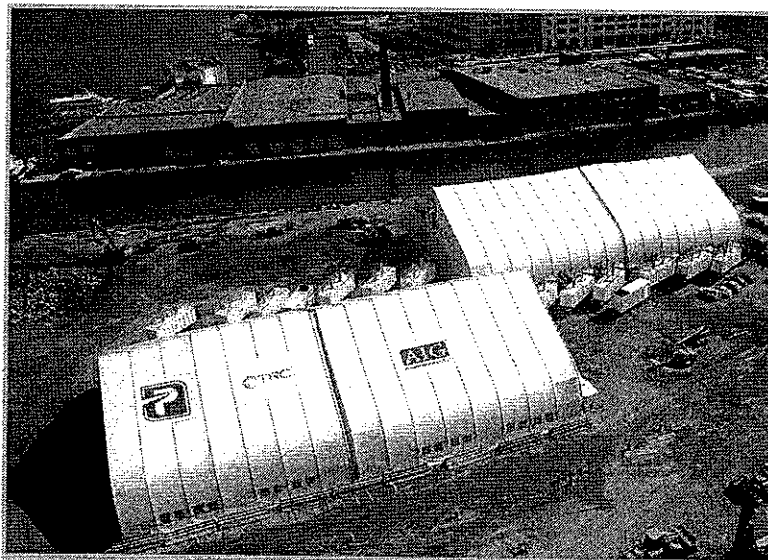
To be determined.

The prices referred to in this proposal are guaranteed for 30 days.

Thank you for your consideration and we look forward to providing a solution.

Sincerely,

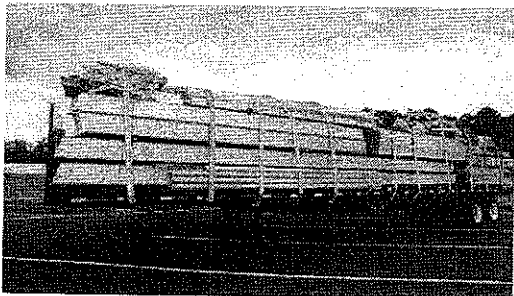
410.605.9216



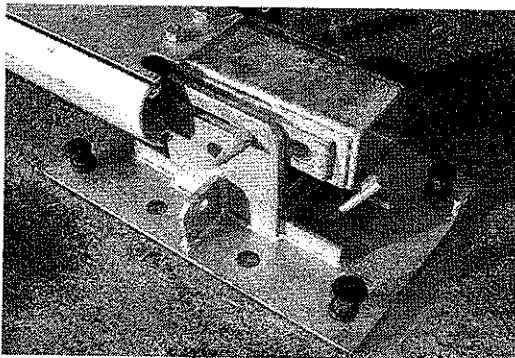


Installation Sequence for the Universal TFS/R All-Site Structure

- 1) Unload flatbed tractor trailers using a forklift or crane

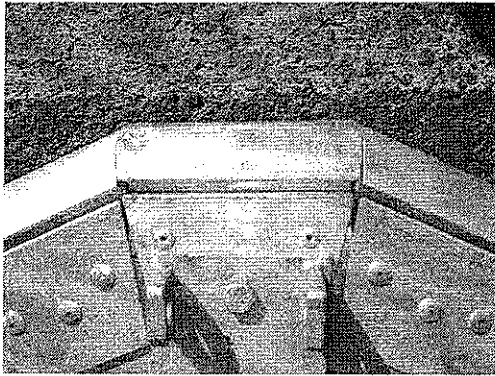


- 2) Inventory materials
- 3) Layout perimeter of structure with 3/4/5 square method
- 4) Layout base plates for structural arches

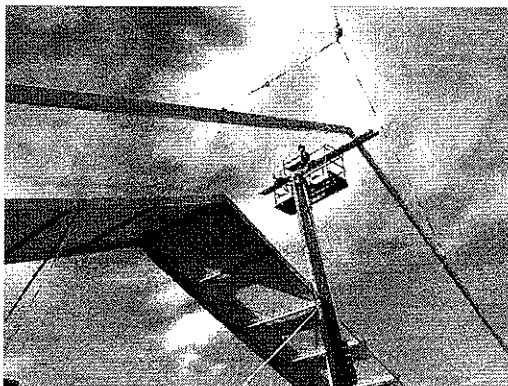


- 5) Anchor base plates using 5' long anchor stakes. Each base plate will require a minimum of 4 stakes. The stakes are driven with a compressed air jack hammer.
- 6) Layout curved arches along on side of the structure and connect to first base plate.
- 7) Install the roof extension beams to the curves.

- 8) Install the peak splice

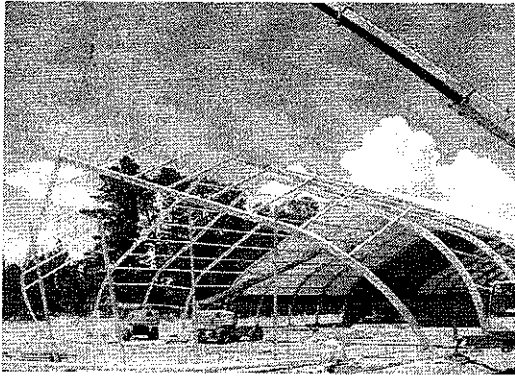


- 9) Install the second half of the extension beams
- 10) Add the final curve beam on the opposite side to complete the arch and tie into the base plate.
- 11) Continue sequence until all main arches have been spliced and bolted together.
- 12) Install the horizontal purlins and add cable bracing to appropriate arches
- 13) Install guy ropes for the first arch to be raised into the air.
- 14) Install the anchor stakes that will be used for the first arch guy ropes once the arch is raised.
- 15) Raise the first arch using the crane and plumb vertical with guy ropes
- 16) Raise second arch and tie into the first arch using the horizontal purlins
- 17) Connect cable bracing
- 18) Install first membrane panel



- 19) Tension panel using hydraulic jacks
- 20) Tension the cable bracing to allow the arch to be freestanding and plumb arches

21) Raise the remaining arches

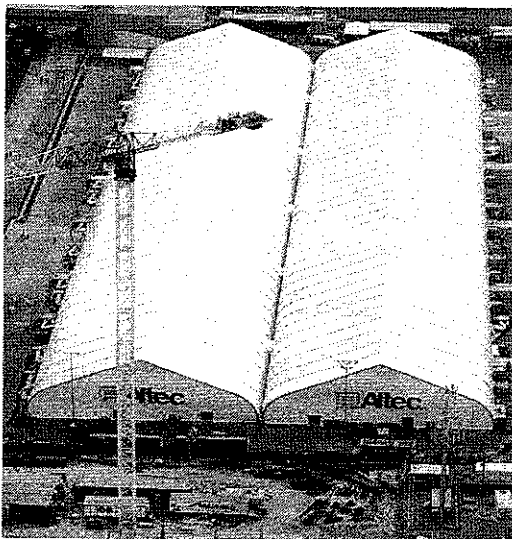
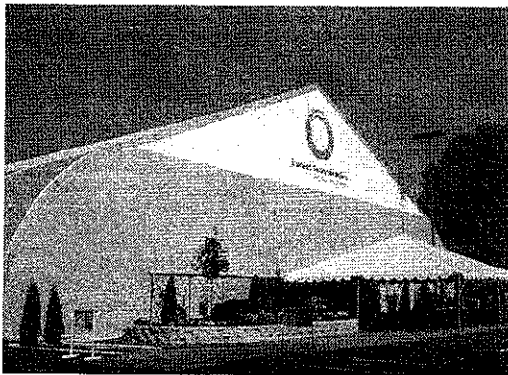


22) Install remaining membrane panels

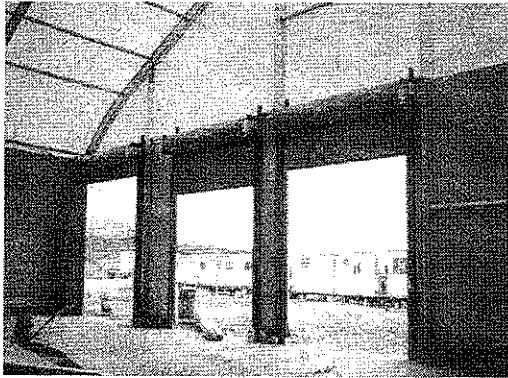
23) Tension all membrane panels and add cable bracing as needed

24) Install gable upright beams and horizontal purlins

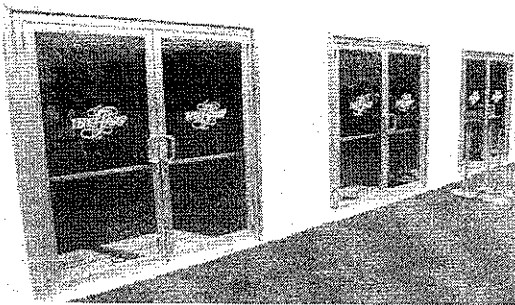
25) Install gable membrane panels and secure by tensioning.



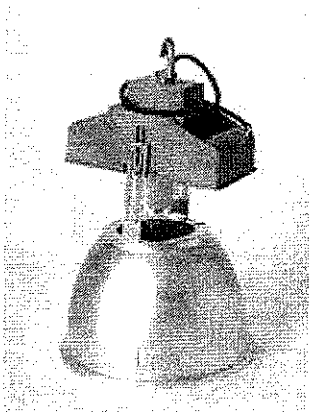
26) Install cargo doors



27) Install personnel doors



28) Install lighting and other accessories as needed.

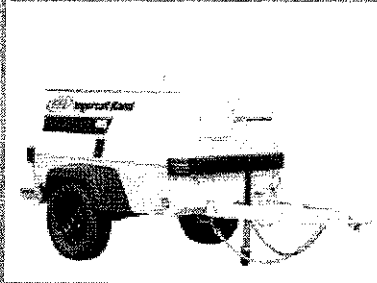


29) Final inspection and acceptance by client.

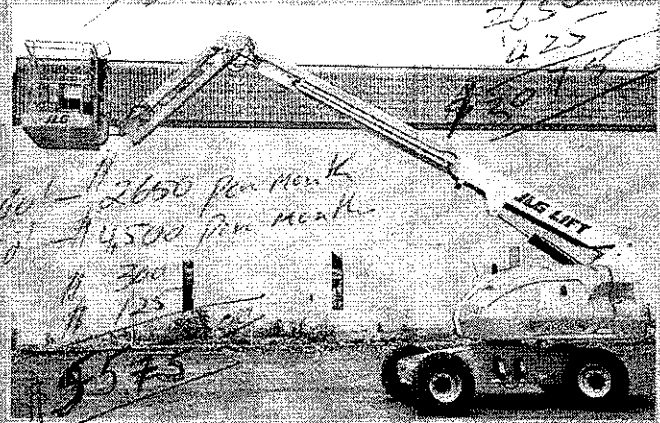
Phone - 203 285 1565



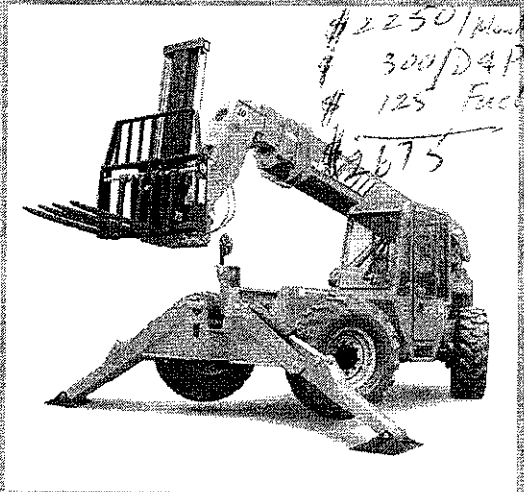
Engineered Shelter Systems... Worldwide



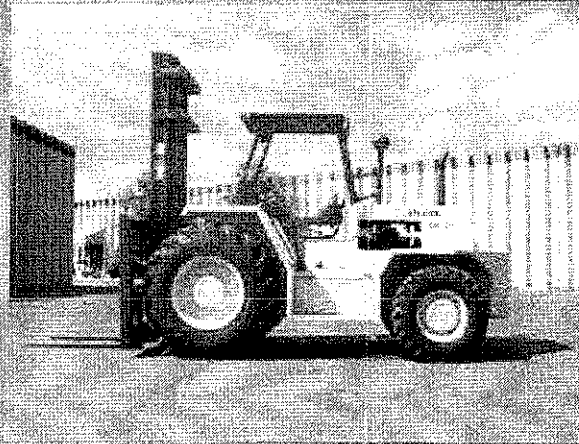
Air Compressor with 100 B
jackhammer and 200' of hose



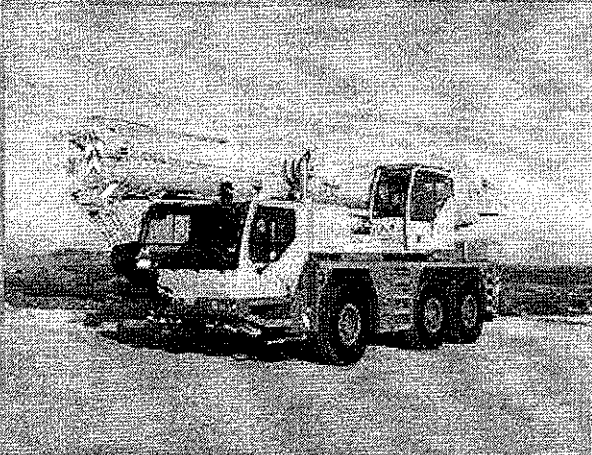
"JLG" type telescopic man lift with
a minimum of 60' to 80' of reach



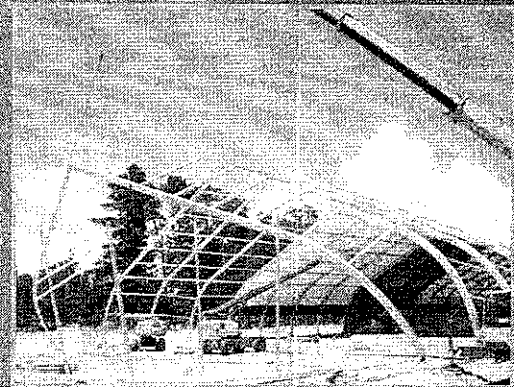
3,000 lb "Eulii" AWD telescopic
material handler with 40' of reach



5,000 lb All terrain, AWD
straight mast forklift



Mobile crane with 60 to 80 ton capacity



Raising structural arches with
crane and man lifts

For exact equipment requirements for your project please call 410.605.9216

REV.	DATE	DESCRIPTION	NAME
0	23 JUL 2007	ORIGINAL RELEASE FOR REF	KZ

Baseplate Skid

Gable Baseplates Should
be Removed or
Retracted Before Move

Arch Support Cable
'Width'

Arch Support Cable
'Bay'

C1 - QTY (14) - L= 13'-3 1/4"
C2 - QTY (8) - L= 114'-11 3/4"

- * - LENGTHS OF SUPPORT CABLES ARE
DETERMINED FROM CENTER OF HOLE ON
CORRESPONDING LUGS OF SKIDS
- ** - UFS IS NOT RESPONSIBLE FOR THE
DESIGN OR USE OF SUPPORT CABLES

The information and illustrations contained
within this document remain the sole
property of Universal Fabric Structures Inc.
and is to be treated as confidential. All calc.
designs, technical representations,
engineering calculations and illustrations
whether written or implied may not be
reproduced in whole or in part nor
distributed, used in manufacturing, design
or display without the express written
consent of Universal Fabric Structures, Inc.
Reproduction of this document shall constitute
acceptance of these terms and conditions.
Universal Fabric Structures, Inc. reserves
the right to change specifications without
notice.

UNIVERSAL FABRIC STRUCTURES

2200 KUMRY ROAD
QUAKERTOWN, PA 18951



TITLE:
TFS/R 36M ISOMETRIC VIEW
WITH SKIDS & SUPPORT CABLES

DRAWN: KZ	CHECKED: SH	DATE: 23 JUL 2007	REV.: 0
SIZE: C	SCALE: NTS	JOB No.: N/A	DWG. NO.: ER435-102
PROJECT NAME: N/A	SHEET: 1 OF 1		

REV.	DATE	DESCRIPTION	NAME
0	23.JUL.2007	ORIGINAL RELEASE FOR REF.	KZ

SLING LENGTHS

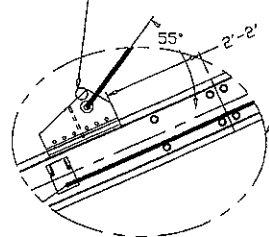
(PROVIDED BY OTHERS)

- C ① - QTY (4) - L = 88'-7¹/₁₆"
C ② - QTY (4) - L = 82'-1¹/₁₆"
C ③ - QTY (4) - L = 78'-7¹/₁₆"
C ④ - QTY (4) - L = 78'-4¹/₁₆"

TOTAL LIFT WEIGHT = 41000lbs
INCLUDING BASEPLATES & SKID PLATES, NOT
LIFTING BEAM OR SLING

NOTE:
UFS IS NOT LIABLE FOR ANY BELOW THE
HOOK LIFTING EXERCISES DETAILED
WITHIN. ALL PROCESSES SHALL BE
FIELD VERIFIED BY LOCAL & FEDERAL
CODE & SAFETY REGULATIONS

COMPRESSION BAR



DETAIL 'A'

-LOCATE THE END OF LIFTING
BRACKET 26" FROM END OF
EXTRUSION (TYPICAL)

ALL PRODUCTS
SUPPLIED
BY OTHERS

-LIFTING BEAM DRAWN @ 33'
LONG WITH LUGS 1' FROM
ENDS OF BEAM
-BEAM SUPPLIED BY OTHERS

NO CONNECTIONS
SUPPLIED BY UFS

DETAIL 'A'

COMPRESSION BAR
QTY (2) PER BAY
(SUPPLIED BY OTHERS)

LIFTING BRACKET ASSEMBLY QTY (2)
PER ARCH

NOTE:
UFS ASSUMES NO RESPONSIBILITY OF ANY RIGGING
COMPONENT, CONDITION, ASSEMBLY, LOAD RATING, OR
FUNCTION. OPERATORS, ASSEMBLERS, AND SUPPLIERS
OF THE PRODUCT TAKE FULL RESPONSIBILITY FOR THE
EXECUTION OF THIS LIFTING REFERENCE PLAN

PURLINS:
LP - LIGHT PURLIN
SP - SLIDER PURLIN
HP - HEAVY PURLIN
PP - PEAK PURLIN

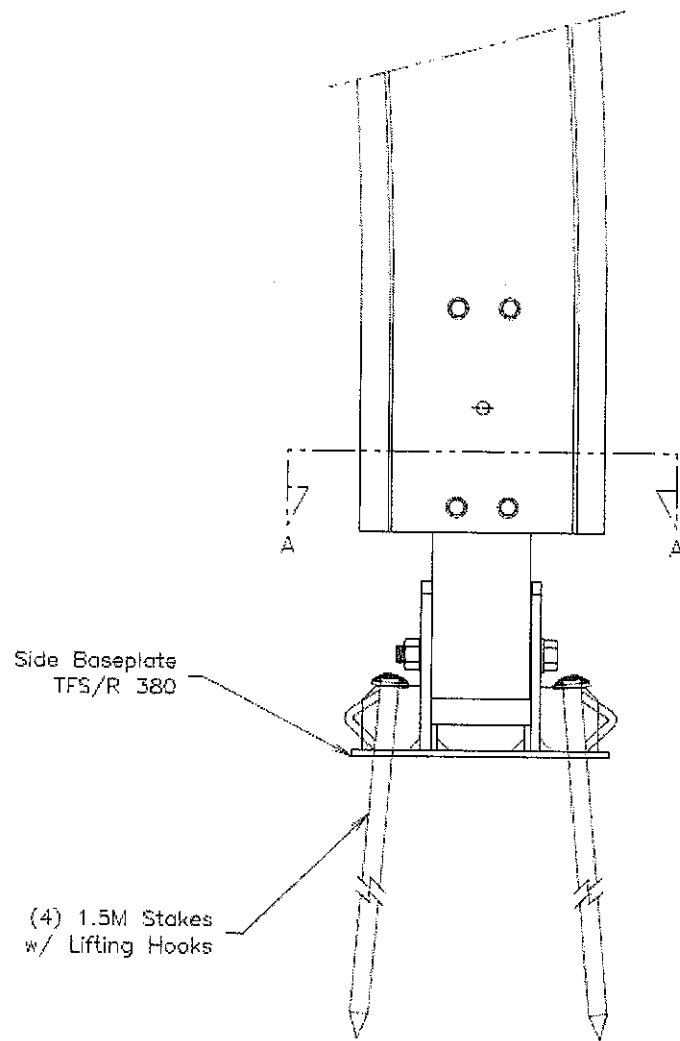
The information and illustrations contained
within this document remain the sole
property of Universal Fabric Structures Inc.
and is to be treated as confidential. All data,
designs, technical representations,
engineering calculations and illustrations
whether written or depicted may not be
reproduced in whole or in part nor
distributed, used in manufacturing, design
or display without the express written
consent of Universal Fabric Structures, Inc.
Retention of this document shall constitute
acceptance of these terms and conditions.
Universal Fabric Structures, Inc. reserves
the right to change specifications without
notice.

UNIVERSAL FABRIC STRUCTURES

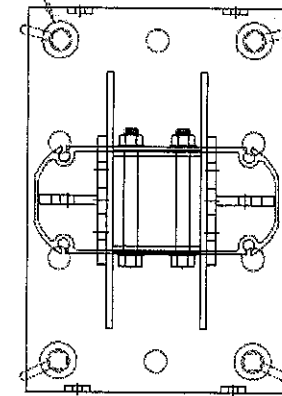
2200 KUMRY ROAD
QUAKERTOWN, PA 18951

TITLE:
TFS/R 36M ISOMETRIC LIFTING VIEW

DRAWN: KZ	CHECKED: SH	DATE: 23.JUL.2007	REV.: 0
SIZE C	SCALE NTS	JOB NO.: N/A	DWG. NO.: ER435-103
PROJECT NAME: N/A		SHEET: 1 OF 1	



Use the (4) Outermost Holes
When Installing the 1.5M Stakes



SECTION A - A



Typical anchor stake system detail with four (4) 1.5 meter long (5' +/-) anchor stakes at each base column. Soil conditions must be suitable to resist the designed and required uplift and reaction loads.



GENERAL GUIDELINES FOR CRANE LIFTING

NOTE: SAFE RELOCATION AND CRANE LIFT OF THE STRUCTURE ARE SUBJECT TO GUIDELINES FOR WEATHER, STRUCTURAL CALCULATIONS AND THE APPLICABLE DESIGN LOADS FOR THE EQUIPMENT TO BE USED.

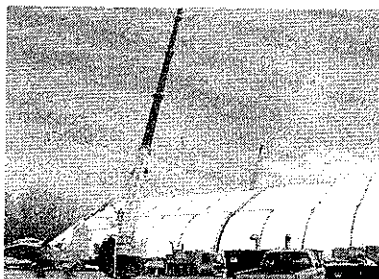
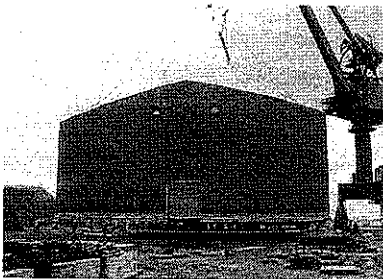
The structure is set on either 16' 4" or 13' 2" centers and can be moved in modules. The given length of any pick and efficient move will be determined by the site conditions, actual structure size and the capacity of the crane to be used.

The crane lifting brackets and compression bars will be installed on the structural frame work during the construction process. The compression bars will also be installed during construction. The rigging cables and spreader bar will have to be designed, engineered and fabricated based on the total weight of the structure, lifting brackets, accessories and crane rigging to be lifted, the location of the structure and by the actual conditions present at site.

All crane lifts are subject to a safe weather window of at least 10-12 hours. Wind speeds must be less than 9 mph for a safe and effective relocation.

The structure must be divided into modules designed and engineered to be lifted safely. This process usually requires 6 – 8 workers, two 60' boom lifts, crane and an 8,000lb Lull-type all-terrain material handler/forklift.

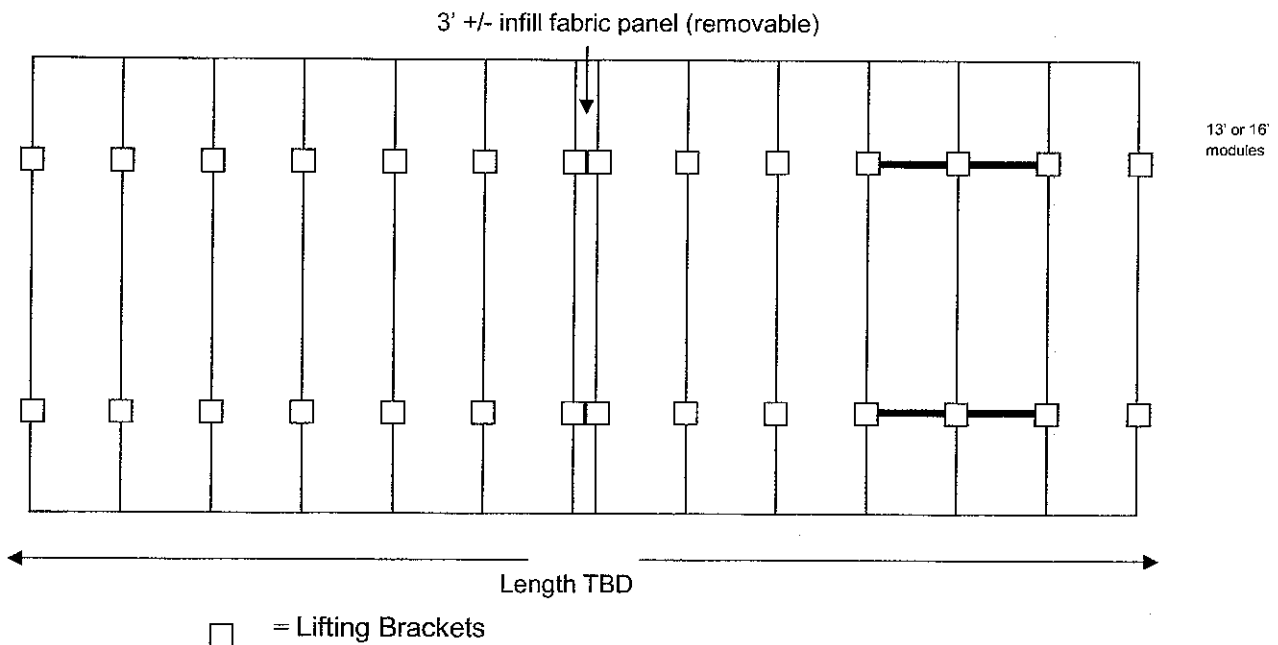
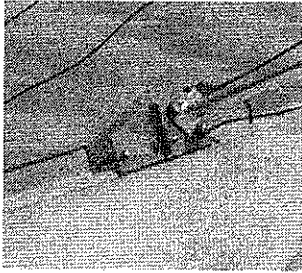
- Remove infill fabric panel that connects the two "halves"
- Connect all crane rigging and cables to the appropriate locations on the structural framework
- Attach all "base cables" that span the width of the structure and are supplied for each main arch
- Attach a 50' tag line to each corner of the structure to help guide it to new location
- Ensure new location of structure is ready to accept the move
- Remove all anchorage systems used to secure the module being prepared for lifting
- Pick structure and move to the new location using guide ropes and crane
- Once structure is in new location, use the Lull to help 'square' the structure by pushing out any variances between the beam/ base plate locations to help ensure they are set in the designed locations



continued...



- Re-anchor structure immediately with systems designed to resist the reaction loads supplied for all anchor points and then remove base cables.



*This diagram is for illustration purposes only. Actual structure size, lifting points, loads etc. are to be designed and engineered for each application.

2/08

NIXTOX[®] BOX NB15 and NB20

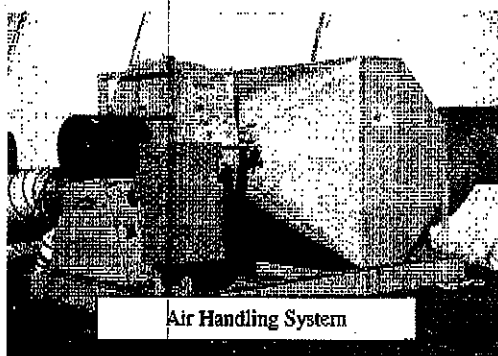
Air Purification System

Model	Nominal Flow (CFM)	Max Press (psig)	Max Temp (deg F)	INLET/ OUTLET (IN)	DIMENSIONS L X W X H (FT)	Standard Adsorbent Fill (LBS)	MAX ADSORBENT FILL (LBS)	VESSEL WEIGHT (EMPTY) (LBS)
NB-15	15000	1	140	16/16	22 X 8 X 9.3	12000	15000	9000
NB-20	20000	1	140	20/20	30 X 8 X 9.3	16000	20000	15000

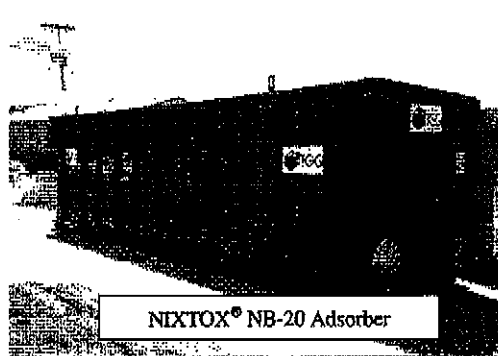
Notes:

1. Nominal flow may be conservative. Desired contact time may allow higher or lower flow rates.
2. Dry virgin activated or reactivated carbon provided as standard adsorbent.
3. Maximum carbon fill is based on bed density of 27 pounds per cubic foot.
4. Maximum carbon fill can differ based on variation in carbon density.

The NIXTOX[®] Air Purification Systems are designed for applications with high flow rates or where more on-line carbon is required. The vessel and air handling system are fabricated of carbon steel and the adsorber is lined with high solids epoxy. Lifting lugs are included on the adsorber for easy placement. The skid-mounted air handling system has a particulate filter (2 stage capability), inlet vane damper, fan, motor, and combination motor starter. Specifications and properties are subject to change without notice.



Air Handling System

NIXTOX[®] NB-20 Adsorber

1 Willow Avenue
Oakdale, PA 15071
(724) 703-3020 Phone
(724) 703-3026 Facsimile
www.tigg.com
info@tigg.com

3/09

NIXTOX[®] BOX

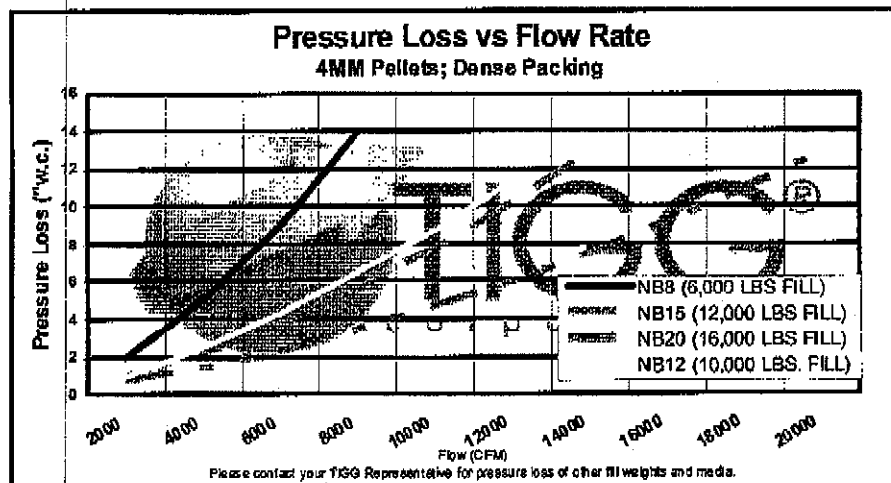
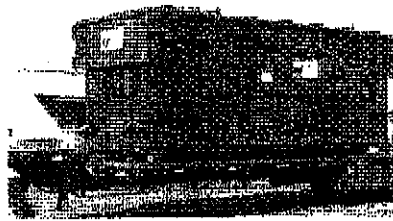
MODEL	MAXIMUM FLOW (CFM)	MAX PRESS (PSIG)	MAX TEMP (deg F)	INLET / OUTLET (IN)	DIMENSIONS L X W X H (FT)	STANDARD ADSORBENT FILL (LBS)	MAXIMUM ADSORBENT FILL (LBS)	VESSEL WEIGHT (EMPTY) (LBS)
NB-8	8000	1	180	12x24/18	12 x 8 x 8.5	6000	7000	7000
NB-12	12000	1	180	16/16	21 x 8 x 8.5	10000	12500	10000
NB-15	15000	1	180	16/16	22 X 8 X 9.3	12000	15000	9000
NB-20	20000	1	180	20 /20	30 X 8 X 9.3	16000	20000	15000

NOTES:

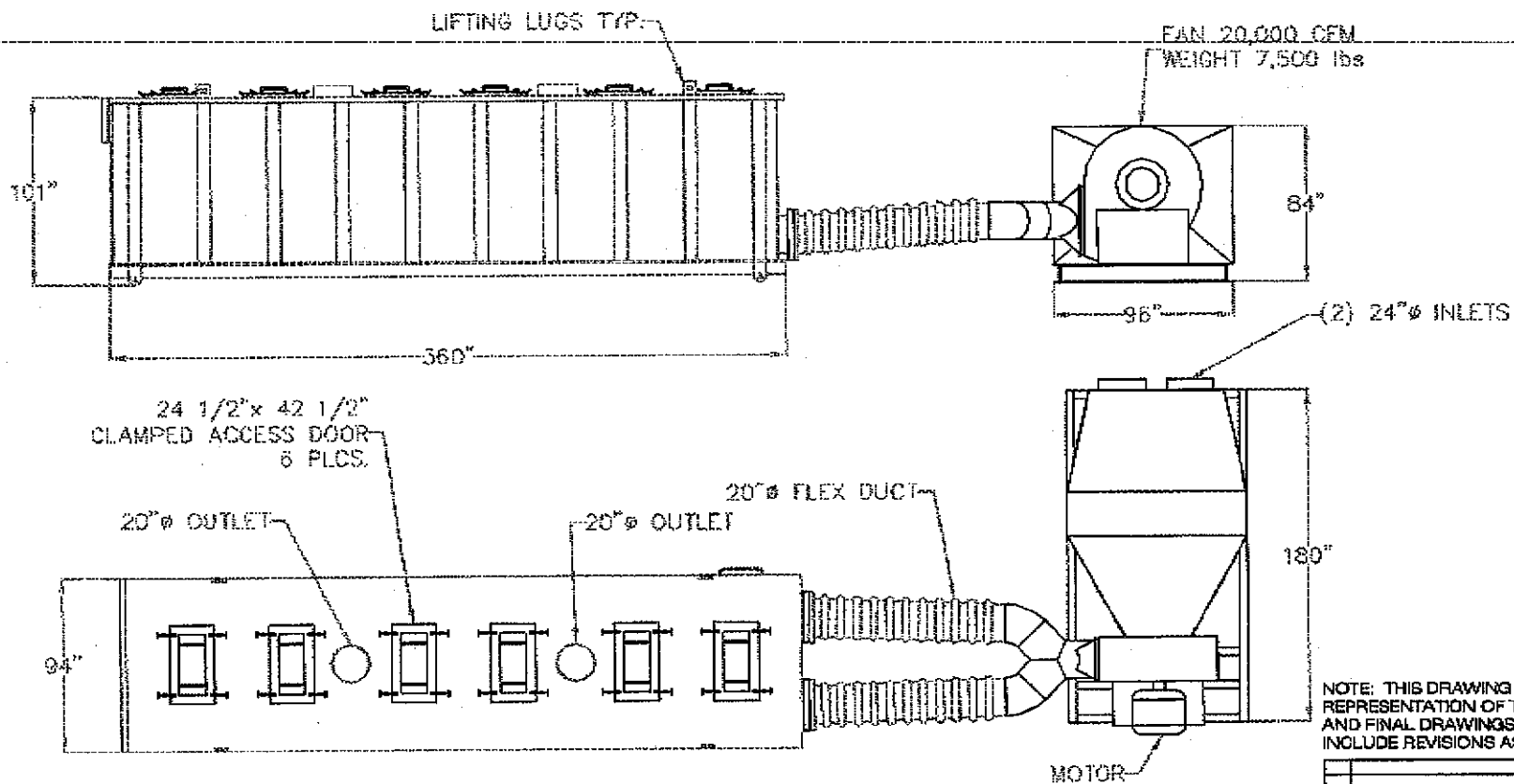
- 1) Desired contact time may require lower flow rates.
- 2) Dry virgin activated or reactivated carbon provided as standard adsorbent.
- 3) Adsorbent fill is based on a poured density of 27 lb/ft³.
- 4) Adsorbent fill can differ based on variable bed density and alternate adsorbents.
- 5) Maximum temperature is 180 deg. F for stainless steel bed retention plate, 140 deg. F for PE plate

The NIXTOX Box Series Modular Adsorbers are designed for applications with high flow rates or where more on-line adsorbent is required. Model numbers reflect maximum design flow for air and other vapors. The vessels are fabricated of carbon steel and provided with a high solids epoxy lining. The vessels are provided with lifting lugs. *Specifications and properties are subject to change without notice.*

NB15 Pictured on flatbed ready for shipment.



1 Willow Avenue
Oakdale, PA 15071
(724) 703-3020 Phone
(724) 703-3026 Facsimile
www.tigg.com
info@tigg.com



NOTE: THIS DRAWING IS A REPRESENTATION OF THE DESIGN AND FINAL DRAWINGS WILL INCLUDE REVISIONS AS REQUIRED.

1	CHANGE BLOWER	JB	10/04/09
2	REVISION	BY	DATE

NOTE: TIGG CORPORATION RESERVES THE RIGHT TO CHANGE ANY AND ALL DIMENSION-DESIGNS OVERALL OUT TO OUT DIMENSIONS AND INLET/OUTLET LOCATIONS ARE FIXED.

NOTE: CONTAMINATED AIR SHALL ENTER UNIT THROUGH BOTH INLETS AND MUST EXIT USING BOTH OUTLETS.

PROJECT GENERAL LAYOUT

PROJ. NO.	
P.O. NO.	
DESIGN BY	JS
CHECK BY	JB
DATE	10/03/09
SCALE	N/A

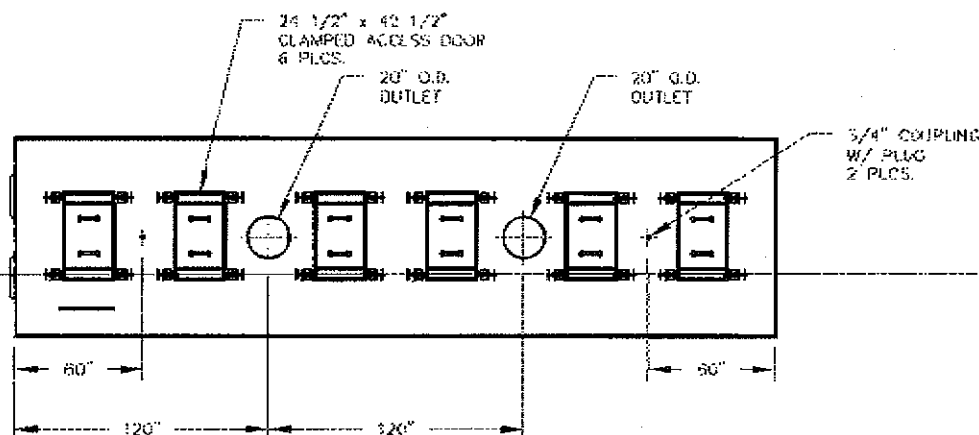


CARBON ADSORBER,
AIR HANDLING SYSTEM

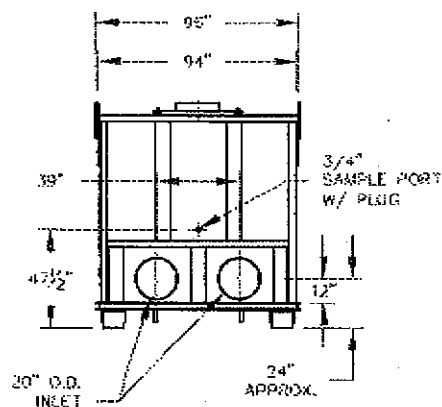
DES. NO. NB-20-1002

REV. 1

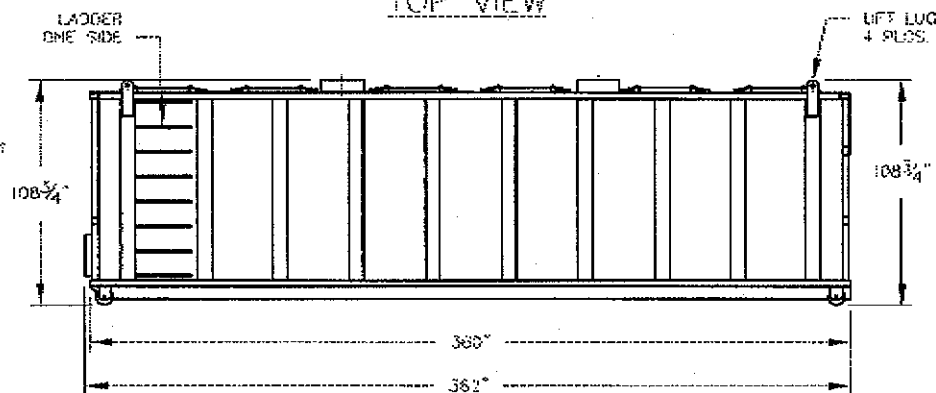
CONTAMINATED AIR SHALL ENTER UNIT
THROUGH BOTH INLETS AND MUST EXIT
USING BOTH OULETS.



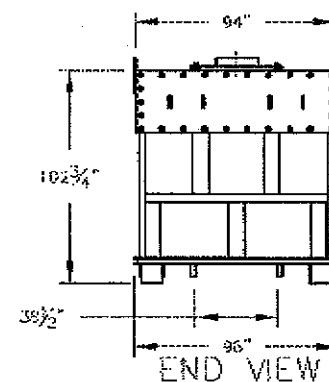
TOP VIEW



FRONT VIEW



SIDE VIEW




END VIEW

VESSEL STANDARDS

VESSEL MATERIALS : CARBON STEEL	BED VOLUME STD/MAX : 640 FT ³ / 780 FT ³
LINING : HIGH SOLIDS EPOXY	STD / MAX CARBON FILL : 16,000 LBS/20,000 LBS
EXTERIOR PAINT : HIGH SOLIDS EPOXY W/ URETHANE TOP COAT	SHIP WT. EMPTY/MAX.FILL : 15,000 LBS/35,000 LBS
WALL THICKNESS : 12 GAUGE STD.	CARBON TYPE : FCCG 5CP-4MM VAPOR PHASE
FLOOR THICKNESS : 3/16" STD.	MAX. OPERATING PRESSURE : 1 PSI
INTERNAL : PLUNUM	MAX. OPERATING TEMP. : * 180F *
ADSORBENT OUTLET ASSEMBLY : 24" X 42" CLAMPED ACCESS DODGES AND 86" X 22" HOLED DOOR	

7	REVISE STANDARDS	JB	6/23/07
8	CHANGE PRESSURE RATING TO 1 PSI	JB	3/8/07
9	REVISE BOLTED ACCESS DOCK	JB	7/14/04
4	REVISE STANDARD FILL	JB	5/27/04
3	REVISE TO FABRICATORS SPECS.	JB	5/13/04
2	REVISE STANDARDS	JB	2/5/04
1	REVISE STANDARDS	JB	6/10/03
NO.	REVISION	BY	DATE

PROJECT		 TIGG corporation	NB--20--1001 NB--20--1001
PROJ. NO. SALES			
P.O. NO.			
THIS DRAWING AND DESIGN ARE THE PROPERTY OF TIGG CORPORATION. IT IS TO BE USED ONLY FOR THE PROJECT SPECIFICALLY IDENTIFIED HEREON. NO REUSE OR REPRODUCTION OF THIS DRAWING OR DESIGN IS TO BE MADE WITHOUT THE WRITTEN PERMISSION OF TIGG CORPORATION.			
DRAWN BY JB DESIGN BY BL CHKD. BY BL			
DATE: 2/6/04 SCALE NTS	DWG NO.		

Appendix – 18



THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Compliance
59-17 Junction Boulevard, 8th Floor, Flushing, New York 11373-5108

Emily Lloyd,
Commissioner

ALTERNATIVE/NOISE MITIGATION PLAN CONTACT SHEET

Robert C. Avaltroni,
Deputy Commissioner

LOCATION: 5-11 47th Avenue, LIC, NY

CONTACT PERSON: Ravi Reddy @ (201) 798-4470

PROJECT:

CHECK APPLICABLE BOX:

☒ NOISE MITIGATION PLAN

OR

☐ ALTERNATIVE NOISE MITIGATION PLAN

FROM 7AM TO 6PM THE PLAN IS AVAILABLE AT:

Construction Site Trailer

IF AN AFTER HOURS VARIANCE WAS APPROVED, THE PLAN IS AVAILABLE

AT Same as above

OR BY CONTACTING

AT PHONE NUMBER



Construction Noise Mitigation Plan
FORM

REVISED July 22, 2008*

It is not necessary to file this document with DEP
however, it must be accessible to inspectors.

The responsible party shall be liable for the accuracy of the document and
compliance with all applicable rules in 15 RCNY Chapter 28.

I Contact Information

Name of Responsible Party as defined in 15 RCNY §28-
109 Ravi Reddy / Citistrustructure LLC

Work Site Location with Borough
BLOCK/LOT/Address 28 / 12 thru 28 / 5-11 47th Avenue

Contact Phone Number of Responsible Party 201-798-4470

Approximate Distance To Closest Receptor (defined in §28-109 of Title 15 of the
Rules of the City of New York(RCNY)) 50 **feet.**

Demolition Construction Work is Taking Place from: Month Sept
Year 2008 **to Month** March **Year** 2009.

Excavation Construction Work is Taking Place from: Month July
Year 2009 **to Month** Sept **Year** 2009.

Foundation Construction Work is Taking Place from: Month Oct
Year 2009 **to Month** March **Year** 2010.

Superstructure Construction Work is Taking Place from: Month March
Year 2010 **to Month** Oct **Year** 2010.

Finishing Construction Work is Taking Place from: Month Aug **Year** 2010
to Month June **Year** 2011.

Other Construction Work is Taking Place from: Month May **Year** 2010 **to**
Month July **Year** 2011.

Normal Work Hours (as defined in §24-222 of the Ad. Code) 7AM to 6PM

Dept. of Transportation Permit number(s) see attached permits

Dept. of Buildings Permit number(s) see attached permits

II Construction Devices

Check applicable boxes below:

List of §102 construction devices to be used at the site.

When the additional devices listed below each category are utilized, the use of barriers as set forth in section IV herein is not required unless the Dept. of Environmental Protection receives complaints as set forth in §28-102(C) of Title 15 of the RCNY for each device. If however, the specific devices listed below each main category of devices are not checked, and you are using any of the main devices listed below, then the use of barriers set forth in Section IV herein shall be utilized. However, if you specified “other” in a category, you shall be required to utilize barriers as set forth in Section IV herein.

☒ **PILE DRIVERS** Granda 20M Impact Hammer

☒ Vibratory Pile Driver or Hydraulic Impact Pile Driver as defined in 102(a)(1)(B)(ii)

☐ Noise Bellows as defined in 102(a)(1)(B)(viii)

☐ No;

☒ **JACKHAMMERS** See Sunbelt Rental Spec

☒ Quieter makes and models as defined in 102(a)(2)(B)(i)

☐ No;

☐ **HOE RAMS**

☐ Quieter makes and models as defined in 102(a)(3)(B)(i)

☐ Noise Shroud as defined in 102(a)(3)(B)(iii)

☒ No;

☐ **BLASTING**

☐ **VACUUM EXCAVATORS**

☐ Smaller Capacity vac-truck as defined in 102(b)(1)(B)(i)

☐ Silencer as defined in 102(b)(1)(B)(iii)

☒ No;

☒ **DUMP TRUCKS**

☒ US Made European Environmental Label equipment or equivalent as defined in 102(c)(1)(B)(iii)

☐ No;

☒ **CRANES**

☒ Modern Hydraulic Crane as defined in 102(d)(1)(B)(ii)

☐ US Made European Environmental Label equipment or equivalent as defined in 102(d)(B)(1)(iii)

☐ No;

☒ **CONCRETE SAWS**

☐ **SANDBLASTING**

☐ AUGER DRILL RIGS.

☒ OTHER

Excavator CAT325D & CAT319D

III Additional Construction Devices

List of additional applicable construction devices to be used at the site:

☒ GENERATORS, ☒ COMPRESSORS, ☒ STREET PLATES, ☒ BACKUP ALARMS

☒ PUMPS

Note: DEP will utilize the Federal Highway Administration Roadway Construction Model as a means of identifying equipment either in Section II or III, that may be the cause of a noise complaint, see §28-101(a) of Title 15 of the RCNY for compliance options.

IV Mitigation Barriers

Noise Mitigation Barriers Utilized: If required as set forth in §28-101(g) of Title 15 of the RCNY.

Required to use Perimeter barrier /DOB construction fence or temporary/moveable barrier ☐ yes ☐ no?

PILE DRIVERS

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

JACKHAMMERS

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

HOE RAMS

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

BLASTING

☐ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

VACUUM EXCAVATORS

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

DUMP TRUCKS

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

CRANES

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

AUGER DRILL RIGS

☐ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

STREET PLATES

☐ Perimeter barrier/DOB Construction Fence or ☒ Temporary barrier ☒ Moveable barrier

BACKUP ALARMS

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

CONCRETE SAWS

☒ Perimeter barrier/DOB Construction Fence or ☐ Temporary barrier ☐ Moveable barrier

*Use latest version of the plan which can be found on the DEP Website at
www.nyc.gov/dep/html/airnoise.html.

I Name of Responsible Party of the Company hereby certify the information contained in this form is true and accurate.

Signature

Date

NOTARY PUBLIC