OCA LIC Fifth Street Mixed-Use Housing

Block 28, Lot 21 and 38
LONG ISLAND CITY, NEW YORK

Site Management Plan

NYSDEC Site Number: BCP Number: C241098

Prepared for:
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DECEMBER 2010

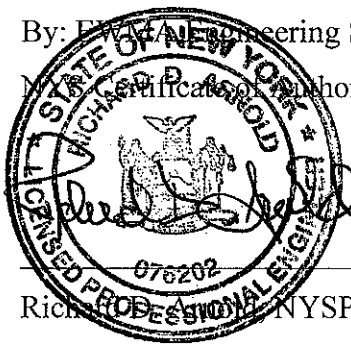
Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

CERTIFICATIONS

I, Richard D. Arnold, certify that I am currently a NYS registered professional engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

By: EWMA Engineering Services LLC
NYS Certificate of Authorization No. 0005216



12/24/2010

Richard D. Arnold, NYSPE No. 16076202
EWMA Project Number 207266

Note: It is a violation of Article 145 of New York State Education Law for any person, unless he is acting under the direction of a licensed professional engineer, to alter an item of this Site Management Plan in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at OCA LIC Fifth Street Mixed-Use Housing (hereinafter referred to as the "Site") under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index# A2-0584-0307, Site # C241098, which was executed on June 1, 2007.

1.1.1 General

OCA LIC, LLC entered into a BCA with the NYSDEC as a Volunteer to remediate an approximately one acre property located in Long Island City, Borough and County of Queens, New York. This BCA required the Remedial Party, OCA LIC, LLC to investigate and remediate contaminated media at the site. A figure showing the Site location and boundaries of this approximately one acre "site" or "area subject to this plan" is provided in **Figure 1**. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement.

After completion of the remedial work described in the Remedial Action Work Plan, some contamination was left in the subsurface at this site, which is hereafter referred to as 'remaining contamination." This Site Management Plan (SMP) was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by EWMA/EWMA Engineering Services LLC (EWMA), on behalf of OCA LIC, LLC (the Volunteer) in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by NYSDEC. This SMP

addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement for the site.

1.1.2 Purpose

The Site contains contamination left after completion of the remedial action. Engineering Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Queens County Clerk and/or the New York City Register, will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index # A2-0584-0307; Site #C241098) for the site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

The following is a description of the Site background as provided in the approved RAWP.

1.2.1 Site Location and Description

The site is located in the Long Island City County of Queens, New York and is identified as Block 28 and Lots 21 and 38 on the Borough of Queens Tax Map. The site is an approximately one-acre area bounded by 46th Road to the north, 47th Avenue to the south, commercial/industrial properties to the east, and 5th Street to the west (see **Figure 1**). The boundaries of the site are more fully described in **Appendix 2** – Metes and Bounds Description.

1.2.2 Site History

1.2.2.1 Past Uses and Ownership

According to the previous Phase I Environmental Site Assessments (ESAs) by others, 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 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.

Based on available information, a portion of the 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, refer to AOC-14 on **Figure 1**, hereafter "the Deed Notice Area". Pursuant to this Order, Accurate Associates 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 encapsulating residual lead, arsenic, and selenium contamination. Pursuant to EPA's RCRA Administrative Order for the Site, 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 Notice stated that lead, arsenic and selenium are encapsulated beneath portions of the floor and walls at the premises, and that the RCRA Order required that the encapsulation be maintained. 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.

By a letter transmitted to DEC on March 29, 2007, EPA consented to the suspension of the Notice in Deed, No. 47605, and termination of that Notice, upon completion of the remedial program carried out pursuant to the BCP, and provided that the Brownfield Cleanup Agreement be filed in the same place and manner as the Notice in Deed, No. 47605 together with a copy of the EPA consent letter. Refer to **Appendix 13** for copy of EPA consent letter.

On April 5, 2007, NYSDEC accepted OCA's request to participate in the Brownfield Cleanup Program, established under Article 27, Title 14 of the Environmental Conservation Law (ECL). The NYSDEC has accepted OCA to participate in the program as a Volunteer. NYSDEC transmitted the Brownfield Cleanup Agreement (BCA) along with this approval to OCA for signatures and return back to NYSDEC for final execution. Several environmental investigation activities have been completed at the subject Site on behalf of the former as well as the current owners of the Site. The following provides a list of reports that summarize the prior environmental investigation activities, and were previously submitted as part of the BCP application for 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; and
5. "Phase II Subsurface Investigation Report, 5-20 46th Road, Long Island City, New York", prepared by EEA, May 19, 2006.

In addition to the investigation activities summarized in the reports above, 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, and were available to EWMA as part of the preparation of this RIWP:

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; and
3. "Corrective Measures Plan for the Accurate Famous Casting Site, Long Island City, New York", prepared by CA Rich, July 10, 1992.

1.2.2.2 Sanborn Maps

Prior to the demolition activities which began in early 2008, the Site was primarily covered with buildings, which included 1-, 2-, and 3-story structures constructed in several stages. A small eastern portion of the Site served as a parking lot. The original portions of the subject buildings were constructed during the early 1900s. A majority of the buildings were constructed on concrete slabs with no basement levels, with the exception of the eastern section of the building along 46th Road (5-20 and 5-36 46th Road), which includes basements. The buildings on the Site were a mixture of brick and concrete block construction. All structures have now been demolished and removed, including the subsurface concrete structures in the Deed Notice Area, and with the exception of the concrete floor slab from the former varnoline UST vault which is situated within the underlying peat layer.

1.2.3 Geologic Conditions

1.2.3.1 Site Geology

The uppermost unit beneath the Site consists of 10 to 12 feet of historic fill material. The fill is very variable, but tends to be coarse grained (i.e., sand and/or gravel). Cinders, coal, and brick and wood fragments are common within the fill. Below the fill lies one to three feet of dark brown clayey peat. This clayey peat has been encountered in nearly all the soil borings, so it appears to be continuous beneath the Site. The clayey peat is interpreted as marsh/wetland deposits, and probably represents the natural ground surface before historic fill was emplaced at the Site.

Fine to coarse sand to silty sand underlies the clayey peat. The top of the sand is found at depths ranging from 11 to 15 feet bsg. Discontinuous lenses of silt and clay are present within the sand.

Bedrock was not encountered in any of the borings completed by EWMA, but geotechnical borings completed at the Site reportedly have encountered bedrock (gray schist) at depths ranging from 32 feet bsg to greater than 52 feet bsg.

1.2.3.2 Site-Specific Hydrogeology

Based on the soil boring and well installations performed by EWMA and others, there are two water-bearing zones immediately beneath the Site: an upper, perched-water zone ("perched unit"), and an underlying sand unit ("lower sand unit"). The perched unit occurs within the fill material on top of the clayey peat. Depths to water in monitoring wells completed within the perched unit are about seven to eight feet bsg. The saturated thickness of the perched unit is three to four feet. The lower sand unit underlies the clayey peat layer. Depths to water for monitoring wells completed in the lower sand unit are about 10 to 11 ft bsg.

The difference in water levels between the perched unit and the lower sand unit (two to three feet) shows that the clayey peat is acting as a confining layer, and is limiting the downward migration of perched water from the fill into the lower sand unit.

Based on RI water-level elevation contour maps (**Figures 2 and 3),** groundwater flow within the lower sand unit is to the southwest, toward the nearby East River (as expected). This contrasts sharply with flow within the perched unit, which is to the north and east. The reason for the eastward flow within the perched unit is not known, but it may reflect the surface water drainage patterns that existed in the area before the historic fill

was emplaced. Site specific geologic cross sections are shown in **Figure 4**.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the site. The results of the RI were described in detail in the following reports:

1.Remedial Investigation Workplan – January 25, 2008

2.Remedial Investigation Workplan Addendum #1 – February 1, 2008

3.Remedial Investigation Workplan Addendum #2 – February 20, 2008

4.Remedial Investigation Workplan Addendum #3 – June 25, 2008

5.Interim Remedial Measures Workplan – February 4, 2009, Revised April 8, 2009

6.Remedial Investigation Report – March 2009

7.Remedial Action Workplan – December 31, 2008, Revised March 5, 2009, Final Revision July 15, 2009 *8.Remedial Design for Lower Sand Unit Aquifer* – May 2010

9. Draft Site Management Plan – June 1, 2010

10. Remedial Action Workplan Addendum – July 16, 2010

11. Draft Final Engineering Report – September 30, 2010

Generally, the RI determined that soil and groundwater contamination including metals, SVOCs, and volatile organic compounds (VOCs) were detected above NYSDEC applicable standards. Light non-aqueous phase liquid (LNAPL) was detected in the perched unit. LNAPL was also detected in several groundwater monitoring wells screened beneath the peat in the lower sand unit and located at the most upgradient portion of the Site (based on the observed groundwater flow direction). The soil vapor investigation results indicated several VOCs were detected in both sub-slab and soil vapor samples at concentrations above background concentrations.

Below is a summary of site conditions when the RI was performed in 2008. The summary below is intended to describe the historic conditions at the Site that do not exist post-remediation. For a summary of remaining contamination, refer to Section 1.4.3:

1.3.1 Soil

The soil samples collected during the RI phase of the investigation was targeted toward specific contaminants of concern (i.e. contaminants associated with historic site operations) as well as a full suite of analysis for non-area specific sampling. The bulk of the contaminants detected in soil at the Site, including VOCs, metals and SVOCs, are derived from on-site AOCs. Several SVOCs and metals may be derived from on-site fill materials. The following is a summary of historic soil exceedances of the UUSCO by parameter type that existed at the site prior to remediation:

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SUMMARY OF HISTORIC VOC CONTAMINANTS IN SOIL				
Parameter	**UUSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**Maximum Concentration (ppm)**
Acetone	0.05	47	22	2.6
Methylene Chloride	0.05	47	1	0.05
2-Butanone	0.12	47	1	0.12
Cis-1,2-Dichloroethene	0.25	47	1	0.27
Benzene	0.06	47	2	0.4
Ethyl Benzene	1	47	3	6.9

UUSCO – Unrestricted Use Soil Cleanup Objectives. NYSDEC Subpart 375-6: Remedial Program Soil Cleanup Objectives, December 14, 2006
ppm – Parts per Million

SUMMARY OF HISTORIC SVOC CONTAMINANTS IN SOIL				
Parameter	**UUSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**Maximum Concentration (ppm)**
2-Methylphenol	0.33	47	1	0.76
3+4-Methylphenols	0.33	47	2	3.7
Naphthalene	12	47	4	230
Acenaphthene	20	47	2	67
Dibenzofuran	7	47	2	57
Fluorene	30	47	2	53

SUMMARY OF HISTORIC SVOC CONTAMINANTS IN SOIL				
Parameter	**UUSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**Maximum Concentration (ppm)**
Phenanthrene	100	47	1	130
Benzo(a)anthracene	1	47	20	31
Chrysene	1	47	19	31
Benzo(b)fluoranthene	1	47	21	57
Benzo(k)fluoranthene	0.8	47	16	22
Benzo(a)pyrene	1	47	22	59
Indeno(1,2,3-cd)pyrene	0.5	47	22	51
Dibenz(a,h)anthracene	0.33	47	16	12

UUSCO – Unrestricted Use Soil Cleanup Objectives. NYSDEC Subpart 375-6: Remedial Program Soil Cleanup Objectives, December 14, 2006. ppm – Parts per Million

SUMMARY OF HISTORIC METAL CONTAMINANTS IN SOIL				
PARAMETER	**UUSCO (ppm)**	**# SAMPLES**	**# SAMPLES > UUSCO**	**MAXIMUM CONCENTRATION (ppm)**
Arsenic	13	47	1	19
Copper	50	47	6	501
Lead	63	47	13	4,490
Mercury	0.18	47	19	11.3
Nickel	30	47	1	31.5
Zinc	109	47	6	401

- UUSCO – Unrestricted Use Soil Cleanup Objectives. NYSDEC Subpart 375-6: Remedial Program Soil Cleanup Objectives, December 14, 2006. ppm – Parts per Million

SUMMARY OF HISTORIC PESTICIDES CONTAMINANTS IN SOIL

Parameter	UUSCO (ppm)	Total # of Samples	# Samples > UUSCO	Maximum Concentration (ppm)
4,4-DDE	0.0033	47	1	0.0078
4,4-DDD	0.0033	47	5	3.3
4,4-DDT	0.0033	47	1	0.0076

UUSCO – Unrestricted Use Soil Cleanup Objectives. NYSDEC Subpart 375-6: Remedial Program Soil Cleanup Objectives, December 14, 2006. ppm – Parts per Million

SUMMARY OF HISTORIC PCB CONTAMINANTS IN SOIL				
Parameter	**UUSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**Maximum Concentration (ppm)**
PCB (Aroclor 1254)	0.1	47	1	1.1
PCB (Aroclor 1260)	0.1	47	2	0.2

UUSCO – Unrestricted Use Soil Cleanup Objectives. NYSDEC Subpart 375-6: Remedial Program Soil Cleanup Objectives, December 14, 2006. ppm – Parts per Million

1.3.2 On-Site Groundwater

VOCs, including acetone, ethylbenzene, isopropylbenzene, benzene, toluene, vinyl chloride, methylene chloride, tetrachloroethene, cis-1,2-dichloroethene, and t-1,3-dichloropropene, exceeded their GWQS in the RI groundwater samples. The most elevated VOC concentrations were detected within the perched unit in the western portion of the Site. Concentrations detected in the eastern portion of the Site and in the lower sand unit were significantly lower.

SUMMARY OF UNFILTERED VOC CONTAMINANTS IN GROUNDWATER[1](Perched Zone)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
Vinyl Chloride	2	45	2	5.4
Acetone	50	45	6	340
Methylene Chloride	5	45	1	13
Cis-1,2-Dichloroethene	5	45	1	58
Benzene	1	45	5	100
Toluene	5	45	3	22
Trans-1,2-Dichloropropene	0.4	45	1	21
Tetrachloroethene	5	45	1	13
Ethyl Benzene	5	45	5	150
Isopropylbenzene	5	45	24	150

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

SUMMARY OF UNFILTERED CONTAMINANTS IN GROUNDWATER (Sand Unit)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
Vinyl Chloride	2	21	1	12
Benzene	1	21	4	170
Toluene	5	21	2	140
Trans-1,2-Dichloropropene	0.4	21	1	11
Ethyl Benzene	5	21	6	530
Isopropyl Benzene	5	21	7	290

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

SUMMARY OF <u>UNFILTERED</u> SVOC CONTAMINANTS IN GROUNDWATER (Perched Zone)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
Naphthalene	5	39	7	3400
1,1-Biphenyl	5	39	1	66

[1] OCA recognized that NYSDEC does not accept the analytical results from filtered samples. However, the results of the filtered and unfiltered samples are included for discussion purposes.

Acenaphthene	20	39	1	420
Fluorene	50	39	5	250
Phenanthrene	50	39	6	540
Anthracene	50	39	1	110
Fluoranthene	50	39	3	280
Pyrene	50	39	2	160
Benzo(a)anthracene	0.002	39	12	24
Chrysene	0.002	39	13	20
bis(2-Ethylhexyl)phthalate	5	39	5	490
Benzo(b)fluoranthene	0.002	39	12	110
Benzo(k)fluoranthene	0.002	39	6	8
Indeno(1,2,3-cd)pyrene	0.002	39	7	12

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

SUMMARY OF <u>FILTERED</u> SVOC CONTAMINANTS IN GROUNDWATER (Perched Zone)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
Acenaphthene	20	21	2	290
Fluorene	50	21	1	150
Pentachlorophenol	1	21	1	7.3
Phenanthrene	50	21	1	100
Chrysene	50	21	1	1.2
Benzo(b)fluoranthene	0.002	21	1	1.5

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

SUMMARY OF <u>UNFILTERED</u> SVOC CONTAMINANTS IN GROUNDWATER (Sand Unit)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
2,4-Dimethylphenol	1	27	4	20
Naphthalene	10	27	5	1,400
1,1-Biphenyl	5	27	4	12
Acenaphthene	20	27	3	110
Fluorene	50	27	7	950
Pentachlorophenol	1	27	1	10
Phenanthrene	50	27	2	2,100
Anthracene	50	27	2	260
Fluoranthene	50	27	2	100

Pyrene	50	27	2	210
Benzo(a)anthracene	0.002	27	2	18
Chrysene	0.002	27	2	35

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

SUMMARY OF <u>FILTERED</u> SVOC CONTAMINANTS IN GROUNDWATER (Sand Unit)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
2,4-Dimethylphenol	1	6	1	22
1,1-Biphenyl	5	6	3	100
Acenaphthene	20	6	3	420
Fluorene	50	6	3	750
Phenanthrene	50	6	2	1,800
Anthracene	50	6	2	210
Fluoranthene	50	6	2	64
Pyrene	50	6	2	310
Benzo(a)anthracene	0.002	6	2	22
Chrysene	0.002	6	2	34
Benzo(b)fluoranthene	0.002	6	1	0.48
Benzo(k)fluoranthene	0.002	6	1	0.34
Indeno(1,2,3-cd)pyrene	0.002	6	1	0.74

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

SUMMARY OF <u>UNFILTERED</u> METAL CONTAMINANTS IN GROUNDWATER (Perched Zone)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
Antimony	3	43	5	314
Arsenic	25	43	4	129
Barium	1000	43	6	2,060
Beryllium	3	43	3	6.4
Cadmium	5	43	2	15.8
Chromium	50	43	8	155
Copper	200	43	5	457
Iron	300	43	43	195,000

Lead	25	43	25	4,820
Magnesium	35000	43	16	91,100
Manganese	300	43	43	5,850
Mercury	0.7	43	13	103
Nickel	100	43	4	677
Selenium	10	43	1	25.4
Sodium	20000	43	42	1,200,000
Thallium	0.5	43	7	49.2
Zinc	2000	43	1	3,150

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

SUMMARY OF <u>FILTERED</u> METAL CONTAMINANTS IN GROUNDWATER (Perched Zone)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
Antimony	3	34	19	54.3
Iron	300	34	30	3,210
Lead	25	34	1	40.6
Magnesium	35000	34	12	85,900
Manganese	300	34	32	2,070
Nickel	100	34	1	161
Sodium	20000	34	34	389,000
Thallium	0.5	34	6	13.4

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998.
ppb – Parts per Billion

SUMMARY OF PCB CONTAMINANTS IN GROUNDWATER (Sand Unit)				
PARAMETER	**TOGs 1.1.1 (ppb)**	**# SAMPLES**	**# SAMPLES > TOGs**	**MAXIMUM CONCENTRATION (ppb)**
PCB (Aroclor-1260)	0.09	12	2 [2]	1,500

TOGS – NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards, June 1998. ppb – Parts per Billion

1.3.3 On-site Light Non-Aqueous Phase Liquids

[2] Includes a field duplicate sample, FD-5, which had a concentration of 1,400 ppb.

LNAPL identified via GC fingerprinting as a variety of oils (motor oil, fuel oil, waste oil, gasoline and Stoddard solvents) was detected in the perched unit in wells MW-3S, MW-4S, MW-6S, MW-7S, GW-3, GW-4, and GW-5 during at least one measurement event. Within the perched unit, LNAPL was present only in the western half of the Site

Within the lower sand unit, four monitoring wells (MW-10I, MW-14I, MW-16I and MW-20I) had exhibited measurable thicknesses of LNAPL identified via GC fingerprinting as No. 2 fuel oil**.** All of these wells are located in the eastern portion of the Site and the most upgradient with regard to groundwater flow direction in the sand unit indicating an off-site source. Within the sand unit, LNAPL was found to be present only in the eastern half of the Site.

1.3.4 Off-Site Ground Water

Two off-site ground water monitoring wells completed in the perched unit (MW-12S and MW-8S) exhibited elevated levels of VOCs and/or SVOCs.

1.3.5 On-Site Related Soil Vapor Intrusion

The results of the January 2008 vapor sampling indicate the following VOCs above the background level: acetone, benzene, 1,3-butadiene, carbon disulfide, chloroform, cyclohexane, dichlorodifluoromethane, cis-1,2-dichloroethylene, ethylbenzene, heptane, hexane, isopropyl alcohol, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, methyl-t-butyl ether, styrene, tetrachloroethylene, toluene, 1,1,1-trichloroethane, trichloroethylene, trichlorofluoromethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, vinyl chloride, m or p-xylene, and o-xylene.

Several aromatic volatile compounds were detected in both the soil gas and ambient air and are likely due to either the vehicular traffic around the site or to former discharges of heating oil and other petroleum based oils at and around the site. In addition, the presence of mixed fill material containing ash and cinders may also contribute to the presence of aromatics in the soil gas and ambient air background sample.

1.3.6 Underground Storage Tanks

A total of 36 **u**nderground storage tanks were encountered and removed during remediation of the Site. Two tanks were utilized for storage and dispensement of gasoline, 22 tanks were utilized for varnoline storage for

historic on-site dry cleaning operations, while the remainder of the tanks are suspected to have stored fuel oil for on-site heating purposes. The former tank locations are depicted on **Figure 5.**

1.4 SUMMARY OF REMEDIAL ACTIONS

The site was remediated in accordance with the NYSDEC-approved Remedial Action Work Plan dated July 15, 2009 and the RAWP Addendum dated July 16, 2010. Refer to Section 1.4.3 and Table 1 for summary of remaining contaminants at the Site.

The remedial actions summarized herein were designed to follow a Track 4 cleanup under 6 NYCRR 375 to achieve, to the extent practicable, the Restricted Residential Soil Cleanup Objectives (RUSCO), as depicted on Table 375-6.8(b).

The following is a summary of the Remedial Actions performed at the Site in accordance with the RAWP requirements:

1. Excavation and truck loading activities were conducted under a negative pressure containment structure;
2. Removed on-site source(s) of soil contamination (i.e., LNAPL and grossly contaminated soil), to the extent practicable;
3. Remediated the soil contamination at the Site in order to achieve compliance with Restricted Use Soil Cleanup Objectives (RUSCOs) for residential use (Table 375-6.8(b)) with the exception of lead, which was remediated to the restricted commercial SCO, and the Protection of Groundwater Standards for soils in the saturated zone. These criteria shall hereafter be referred to as the Site-specific Soil Cleanup Objectives (SSCOs). The soil remedial mechanism was via excavation, characterization and proper off-site disposal of excavated soils;
4. Collected and analyzed end-point soil samples to evaluate the performance of the remedy with respect to attainment of SSCOs;
5. Construct and maintain an engineered composite cover system consisting of building structural foundation slab, asphalt paving and/or a minimum of two feet of virgin quarry process (QP) stone to prevent human exposure to residual contaminated soil/fill remaining under the Site;

6. Initiated the remediation of LNAPL contamination identified in the lower sand unit via installation of a capture wall, collection and recovery wells, and down-well skimming equipment to collect and remove the LNAPL. Also, installed thirty eight monitoring and remediation wells for future groundwater monitoring and LNAPL recovery;
7. Backfilled excavations with imported virgin quarry process stone materials in compliance with: (1) chemical criteria identified in 6 NYCRR Part 375-6.7(d), (2) all Federal, State and local rules and regulations for handling and transport of material;
8. Recorded an Environmental Easement, including Institutional Controls, to prevent future exposure to any residual contamination remaining at the Site;
9. Implemented engineering controls via an engineering design work plan to provide design and specifications for vapor intrusion control, composite cover system, LNAPL capture wall and removal utilities, and LNAPL monitoring and remediation wells;
10. Implemented a Site Management Plan for long term management of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting; and
11. Implemented groundwater monitoring program to evaluate the performance of the remedy with respect to attainment of groundwater standards.

The majority of the remedial activities (i.e., excavation) were completed at the Site between December 2009 and June 2010. Additional activities subsequent to that time included installation, testing and operation of the engineered LNAPL remediation system in the lower sand unit and perched unit LNAPL remediation activities.

1.4.1 Removal of Contaminated Materials from the Site

The SSCOs as defined in Section 1.4 were selected as the objective endpoint soil contaminant concentrations for the performed remedial action. Sidewall, base and targeted AOCs samples were collected to document the effectiveness of the remedial excavation action. A list of the SSCOs for this site is provided in **Table 1**.

A total of 16,384.53 tons of soil was excavated from the site and transported for disposal at Clean Earth of New Castle, Delaware and Clean Earth, Carteret, New Jersey. The soil was classified as Non-Hazardous Petroleum Contaminated Material.

A figure showing areas where excavation was performed is shown in **Figure 5**.

In addition, a total of 3,044.58 tons of soil was excavated from the RCRA area and disposed offsite at Clean Earth, New Castle, Delaware as non-hazardous petroleum contaminated.

Subsurface concrete structures from the RCRA portion of the Site were sampled for waste characterization parameters prior to off-site disposal, determined to be non-hazardous and disposed with other construction debris.

Figures showing areas where excavation was performed are included as **Figure 5**. A cut and fill cross-section is provided in **Figure 6.** Refer to Section 1.4.3 and Table 2 for summary of remaining contaminants at the Site post remediation.

1.4.2 Site-Related Treatment Systems

1.4.2.1 Vapor Intrusion Control

Future development plans include buildings with ground floor concrete slabs (building slabs on grade - SOG) constructed near or below the seasonal high water table, and buildings with ground floor slabs constructed above the seasonal high water table. In accordance with the requirements of this SMP, vapor intrusion control features will installed during the construction of all buildings and will be operated subsequently to the completion of construction. The vapor intrusion control features will be: 1) permitted, installed and inspected in compliance with governing state and city codes, rules and ordinances; 2) installed in compliance with the provisions of this SMP, manufacturer's installation recommendations, and good construction practices; and 3) installed in accordance with the design requirements of the Building Design Engineers and Architects (BDEA). Detailed conceptual vapor intrusion engineering control information intended to facilitate and support the required design and installation is provided in Section 2.0 and in **Appendix 14** of this SMP.

1.4.2.2 Lower Sand Unit LNAPL Remediation

In accordance with the NYSDEC-approved Remedial Design Report dated May 2010 (the RDR), and as depicted in **Figures LN-1** and **LN-2**, an LNAPL remediation system will operate in the lower sand unit to intercept and recover LNAPL on the eastern side of the site, and to address NYSDEC's concerns regarding possible re-contamination and need for future monitoring and/or mitigation of LNAPL migrating onto the site from an off-site source(s).

Pursuant to the approved RDR, EWMA oversaw the construction of a capture wall and a total of thirty eight wells that comprise the lower sand unit LNAPL Remediation System. Refer to well construction logs included in Appendix 17. Five wells were installed directly up-gradient of the capture wall to provide a means of collecting and recovering LNAPL from that location. Twenty wells were installed up-gradient of the capture wall in the future garage area and across the lower sand unit LNAPL plume area to provide for future ground water monitoring, injection of treatment agents, and/or LNAPL recovery. Four wells were installed down-gradient of the capture wall in the future garage area for monitoring and LNAPL recovery purposes. Nine wells have been installed around the perimeter of the Site in the sidewalk area for monitoring and LNAPL recovery purposes.

The Lower Sand Unit LNAPL remediation system has been tested and is operational and is performing as anticipated. It will be operated in accordance with the provisions of this SMP.

1.4.2.3 Perched Unit LNAPL Remediation

In accordance with NYSDEC request, a post-remedial investigation of the perched unit was performed and a brownish LNAPL was encountered in the northwest quadrant of the site. This LNAPL was fingerprinted by a New York State Certified Analytical Laboratory and it did not match the standard library suite of petroleum and other substances. NYSDEC expressed concern about possible impacts to groundwater, requested investigation and delineation, and the requested activities were performed.

The delineation and LNAPL measurement activities consisted of soil sampling and analysis, groundwater sampling and analysis, and physical delineation of the extent of the LNAPL plume. The plume area was found to be roughly 2,500 square feet in area, in an oblong shape in the northwest quadrant of the site. The average thickness of the LNAPL in the monitoring wells based on interface probe measurements was found to be about ¼-inch.

Based on interaction with the NYSDEC and as requested, a conceptual remedial plan for removal of the LNAPL was submitted to NYSDEC and approved. The layout is included in the FER. Appendix 16 of this SMP provides the basis for continued operation, maintenance and optimization of the perched zone LNAPL recovery system.

The system consists of 24 4-inch diameter monitoring/recovery wells and 14 1-inch diameter monitoring/contingent injection wells. Refer to Figure 7, Site Location Plan For Remediation of LNAPL in the Perched Unit, and Appendix 17 for well construction logs.. The 4-inch diameter wells are primarily for extraction, and the 1-inch diameter wells are primarily for injection.

The extraction is performed via vacuum enhanced fluid extraction methods using primarily the 4-inch wells. Initial extraction events were conducted on a daily basis for one week, and then on a weekly basis. Extraction frequency will be adjusted periodically to provide for more efficient recovery.

As determined during operation of the LNAPL recovery system, bio-degradable surfactants and/or desorbing agents with very limited residence times may be injected for the purpose of facilitating LNAPL extraction. The mix of agents will be adjusted based on bench scale tests with soil columns in EWMA's NJ Certified Laboratory, on field testing, and on performance measurement during the remediation. The injection parameters to be evaluated will include the mix design, concentration of injectant, volume of injectant, and event periodicity.

During all of the implementation of the LNAPL recovery activities, the standard protocols and rules for waste management and disposal will be followed, on-site storage of waste liquids will be within tank wagons or in drums provided with secondary containment. Quarterly reports will be submitted to the NYSDEC project manager during the operation of the NAPL recovery system which will include a summary of the field data collected (depth to water, NAPL thickness at the start and the end of the recovery event, etc.).

1.4.3 Remaining Contamination

During the primary excavation that was completed in the first half of 2010, soil excavation was conducted to an average depth of 7' below surface grade (bsg). Deeper excavations were conducted at source areas (i.e. tank areas) and areas where end point sampling results exceeded the SSCOs. As shown in **Figures 8-11**, urban fill remains in some areas, with concentrations of metals and SVOCs above the SSCOs. In addition, some VOCs exceed the SSCOs in area where LNAPL remains.

A Mirafi 140NW orange geotechnical fabric demarcation barrier was installed at an average 7-feet bsg. This demarcation barrier was placed above the unexcavated urban fill and below the 2-foot thick layer of imported, virgin quarry process (QP) fill. Where the remedial excavation was extended below 7-feet bsg, imported QP was utilized to raise the excavated area to 7-foot bsg, the warning barrier was installed, and an additional 2' of imported QP was placed over the demarcation barrier. In all cases, future excavation to or disturbance of materials below the demarcation barrier, regardless of the nature of materials underlying the barrier, is to comply with the Excavation Work Plan included herein as Appendix 1.

The following is a summary by contaminant type of soil contaminant concentrations remaining on site.

Volatile Organic Compounds (VOCs)

A review of the post-excavation soil data indicates isolated exceedances of the SSCOs . Specifically, only one sample location exceeded the total xylene SSCO of 100 ppm and one sample exceeded the SSCO of 2.3 ppm for isopropylbenzene. In addition, isolated soil sample results exceeded the UUSCO for toluene, ethylbenzene, total xylenes and isopropyl benzene. One sample at depth and within the saturated zone exceeded the SSCO for toluene, ethylbenzene and total xylenes. An overview of the remaining VOC soil data is provided below.

SUMMARY OF REMAINING VOC CONTAMINATION IN SOIL						
Parameter	**UUSCO (ppm)**	**SSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**# Samples > SSCO**	**Maximum Concentration (ppm)**
Targeted VOC (ppm)						
Ethyl Benzene	1	41	92	2	0	3.26
Total Xylenes	0.26	100	92	7	0	20.3

Isopropylbenzene	2.3	2.3	92	3	3	28.1

ppm – Parts per Million

Semi-Volatile Organic Compounds (SVOCs)

A review of the post-excavation soil data indicates that a number of SVOCs exceeded the UUSCOs and SSCO. SVOCs are generally associated with urban fill materials, which were documented during RI activities to extend to a depth on-site between10-12' bsg. SVOCs tend to adhere strongly to soil particles and have low volatility, therefore, these compounds generally do not pose a concern for vapor intrusion or impact to ground water. An overview of the remaining SVOC soil data is provided below.

SUMMARY OF REMAINING SVOC CONTAMINATION IN SOIL						
Parameter	**UUSCO (ppm)**	**SSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**# Samples >SSCO**	**Maximum Concentration (ppm)**
Targeted SVOCs (ppm)						
Naphthalene	12	100	80	2	0	58.1
Acenaphthene	20	100	80	3	0	78.1
Dibenzofuran	7	59	80	3	0	43.3
Fluorene	30	100	80	3	0	59
Phenanthrene	100	100	80	1	1	114
Benzo[a]anthracene	1	1	80	49	49	25
Chrysene	1	3.9	80	49	26	25.8
Benzo[b]fluoranthene	1	1	80	45	45	27.9
Benzo[k]fluoranthene	1	1	80	46	45	21.1
Benzo[a]pyrene	1	1	80	50	50	27.2
Indeno[1,2,3-cd]pyrene	0.5	0.5	80	48	48	17.5
Dibenz[a,h]anthracene	0.33	0.33	80	41	41	7.06

ppm – Parts per Million

Metals

A review of the post-excavation soil data indicates that several metals exceeded the UUSCO and SSCO. As with SVOCs, metals are generally associated with urban fill materials. Also similar to SVOCs, metals tend

to adhere strongly to soil particles, and with the exception of mercury, have no vapor potential. Therefore, these compounds generally do not pose a concern for vapor intrusion or impact to ground water. An overview of the remaining metals soil data is provided below.

SUMMARY OF REMAINING METAL CONTAMINATION IN SOIL						
Parameter	**UUSCO (ppm)**	**SSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**# Samples > SSCO**	**Maximum Concentration (ppm)**
Metals (ppm)						
Arsenic	13	16	80	13	7	104
Barium	350	400	80	16	12	804
Chromium, Trivalent	30	180	80	6	0	77.7
Copper	50	50	80	38	5	653
Lead	63	1000	80	67	4	1650
Mercury	0.18	0.81	80	51	38	10.6
Nickel	30	310	80	5	0	127
Selenium	3.9	180	80	2	0	4.04
Silver	2	180	80	3	0	8.46
Zinc	109	10000	80	45	0	1510
Cyanide, Total	27	27	80	1	1	217

Pesticides

A review of the post-excavation soil data indicates isolated detection of pesticides 4,4-DDD, 4,4-DDE and 4,4-DDT at concentrations above the UUSCO. No pesticides remain at concentrations exceeding the RUSCO. Low level detection of these historic pesticide compounds generally occurs at industrial and commercial sites that were historically treated for pesticides and were active prior to the discontinued use of these pesticides in the late 1970's. Similar to SVOCs and metals, pesticides 4,4-DDD, 4,4-DDE and 4,4-DDT tend to adhere strongly to soil particles and generally do not pose a concern for impact to ground water. An overview of the remaining pesticides soil data is provided below.

SUMMARY OF REMAINING PESTICIDE CONTAMINATION IN SOIL						
Parameter	**UUSCO (ppm)**	**RUSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**# Samples > RUSCO**	**Maximum Concentration (ppm)**
PESTICIDES (ppm)						
4,4'-DDE	0.0033	8.9	80	13	0	0.247
4,4'-DDD	0.0033	13	80	25	0	7.81

4,4'-DDT	0.0033	7.9	80	15	0	0.405

PCBs

A review of the post-excavation soil data indicates isolated detection of PCBs aroclor 1254 and 1260 above the UUSCOs and at or below the RUSCOs. Only one soil result marginally exceeded the RUSCO of 1 ppm (1.18 ppm). An overview of the soil data is provided below.

SUMMARY OF REMAINING PCB CONTAMINATION IN SOIL						
Parameter	**UUSCO (ppm)**	**RUSCO (ppm)**	**Total # of Samples**	**# Samples > UUSCO**	**# Samples > RUSCO**	**Maximum Concentration (ppm)**
PCBs (ppm)						
Aroclor-1254	0.1	1	80	1	0	0.675
Aroclor-1260	0.1	1	80	6	2	1.18

Table 1 and Figures 8 through 10 summarize the results of all soil samples remaining at the site after completion of Remedial Action that exceed the Track 1 (unrestricted SCO) and the Track 4 (SSCO).

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

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

2.1.2 Purpose

This plan provides:

1. A description of all EC/ICs on the site;
2. The basic implementation and intended role of each EC/IC;
3. A description of the key components of the ICs set forth in the Environmental Easement;
4. A description of the features to be evaluated during each required inspection and periodic review;
5. A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
6. Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Composite Cover System

Exposure to remaining contamination in soil/fill at the site prior to development is currently prevented by 2 feet of imported QP placed above an orange fabric demarcation barrier placed on unexcavated soils. Upon completion of site development and construction, exposure to remaining contamination in soil/fill will be prevented by a composite cover system that will consist of the following components:

- a minimum 24 inch total thickness of clean fill underlain by a demarcation barrier on all landscaped areas. The clean soil will meet the chemical requirements in 6NYCRR Part 375-6.7(d), and the top six inches of the soil cover will be of sufficient quality to support vegetation;
- a minimum 1 foot thick asphalt or concrete pavement on roads, sidewalks, parking lots; or
- a minimum 6-inch concrete building slab.

The Excavation Work Plan that appears in **Appendix 1** outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying residual contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.1.2 Vapor Intrusion Controls

Future development plans include buildings with ground floor concrete slabs constructed near or below the seasonal high water table, and buildings with ground floor slabs constructed above the seasonal high water table. In accordance with the requirements of this SMP, vapor intrusion control features will be installed during the construction of all buildings and will be certified operational prior to building occupancy. The vapor intrusion control features will be: 1) permitted, installed and inspected in compliance with governing state and city codes, rules and ordinances; 2) installed in compliance with the provisions of this SMP, manufacturer's installation recommendations, and good engineering practices; and 3) installed in accordance with the design requirements of the BDEA. Detailed conceptual vapor intrusion control information intended to facilitate and

support the required design and installation is provided in Section 2.0 and in **Appendix 14** of this SMP. A summary of the planned vapor intrusion controls is provided below.

Buildings will be provided with vapor intrusion control features as follows:

1. A layer of geotechnical fabric for prevention of sub-grade soil infiltration into the overlying clean crushed stone layer will be placed on level, compacted sub-grade at a depth of six inches below designed bottom of all slabs, with minimum two foot overlaps of individual fabric sheets. ¾-inch clean crushed stone will then be placed on the geotechnical fabric and leveled and compacted to a minimum layer thickness of six inches;
2. Porous or slotted pipe laterals will be installed within the vertical center of the ¾-inch clean crushed stone layer with the offset openings down if porous pipe is used to prevent stone infiltration into the pipe. These laterals will be installed from front to back of each building at spacings to be determined during final design, and will be supported by slabs using pipe hangars to prevent pipe damage in the event of post-construction soil settlement beneath the buildings. Each lateral will be capped at one end and connected to either a vent manifold or directly to vent riser piping at the other end. The sub-slab piping will then be connected to riser piping that will transition through the building slab or through the building frost wall to locations that are above top of slab in the building or above grade exterior to the building. These locations will be as determined in final design.
3. The riser piping above top of slab or above grade, depending on whether the riser piping is installed within or exterior to building, will be routed through an accessible control box where the piping will be fitted with a sampling and measurement port and with a balancing valve if that is called for in the final design. From the control box the piping will be routed to an electrically powered exhaust blower(s) and then on to riser piping that will terminate above the roof-line with tee fitting(s) at top. The exhaust system will be fitted with an alarm system that will provide alarm within the maintenance managers office in the event of deficient vacuum pressure. For system testing at start-up, interior building slabs will be fitted with four small monitoring points near the building corners. The monitoring points will be installed through and sealed in the building slab, will be screened in the crushed stone layer beneath the slab, and will be completed safe for personnel traffic flush with top of slab using a flush mount fitting with accessible plug for periodic measurement use during initial start-up during re-starts as may be needed subsequent to system repairs.

4. A waterproof vapor barrier will be placed over the ¾-inch stone layer and installed as a continuous liner that is sealed/bonded to the bottom surface of all slabs. Overlaps of liner material will be provided at all exterior edges of slabs, and the vapor barrier will be sealed/bonded to exterior wall liner material to provide a continuous liner that extends from bottom surface of slabs to exterior surface of exterior walls;
5. A similar vapor barrier will be installed as a continuous liner that is sealed/bonded to the exterior surface of all below grade exterior walls;
6. During periods of high water, the water table will be at or above the elevation of the vapor barrier. During those periods, SSDS laterals will not operate. The waterproof vapor barrier will then be the primary mechanism for vapor intrusion control.
7. During periods of low water, the SSDS laterals will then be operational, and the vapor barrier and SSDS will both provide primary mechanisms for vapor intrusion control;
8. During installation of the vapor barrier, the number of necessary liner penetrations will be minimized by the building design and by the foundation, utility and building construction methods that are utilized. Any necessary penetrations of the vapor barrier that occur during construction will be sealed and repaired in accordance with the manufactures recommendations to the acceptance of BDEA;
9. Procedures for monitoring the performance of the vapor intrusion control system are presented in the Monitoring Plan Section 3 of this SMP. The Monitoring Plan also presents the procedures for severe conditions inspections in the event that a severe condition such as a storm may affect the site controls. Procedures for operating and maintaining the vapor intrusion control system are presented in the Operations & Maintenance Plan Section 4 of this SMP.

2.2.1.3 Lower Sand Unit LNAPL Remediation System

In accordance with the NYSDEC-approved RDR dated May 2010, and as depicted in **Figures LN-1** and **LN-2**, an LNAPL remediation system is operating in the lower sand unit to intercept and recover LNAPL on the eastern side of the site, and to address NYSDEC's concerns regarding possible re-contamination and need for future monitoring and/or mitigation of LNAPL migrating onto the site from an off-site source(s).

Pursuant to the approved RDR, a capture wall and a total of thirty eight wells were installed which comprise the lower sand unit LNAPL Remediation System. Five wells were installed directly up-gradient of the capture wall to provide a means of collecting and recovering LNAPL from that location. Twenty wells were installed up-gradient of the capture wall in the future garage area and across the lower sand unit LNAPL plume

area to provide for future ground water monitoring, injection of treatment agents, and/or LNAPL recovery. Four wells were installed down-gradient of the capture wall in the future garage area for monitoring and LNAPL recovery purposes. Nine wells have been installed around the perimeter of the Site in the sidewalk area for monitoring and LNAPL recovery purposes.

The Lower Sand Unit LNAPL remediation system has been tested and is operational and is performing as anticipated. It will be operated in accordance with the provisions of Appendix 15 of this SMP.

Procedures for monitoring the performance of the lower sand unit LNAPL remediation system are presented in the Monitoring Plan Section 3 of this SMP. The Monitoring Plan also presents the procedures for severe conditions inspections in the event that a severe condition such as a storm may affect the site controls. Procedures for operating and maintaining the lower sand unit LNAPL remediation system vapor intrusion control system are presented in the Operations & Maintenance Plan Section 4 of this SMP.

2.2.1.4 Perched Unit NAPL Remediation System

In accordance with the requirements in the RAWP, post-excavation sampling of the perched unit was performed, and a brownish LNAPL was encountered in the northwest quadrant of the site. This LNAPL was fingerprinted by a New York State Certified Analytical Laboratory, and it did not match the standard library suite of petroleum and other substances.

The delineation and LNAPL measurement activities consisted of soil sampling and analysis, groundwater sampling and analysis, and physical delineation of the extent of the LNAPL plume. The plume area was found to be roughly 2,500 square feet in area, in an oblong shape in the northwest quadrant of the site. The average thickness of LNAPL in the monitoring wells (based on interface probe measurements) was about ¼-inch.

As required by NYSDEC, a remedial design for removal of the LNAPL was submitted to, and approved by, NYSDEC. The remedial design is included within **Appendix 16** of this SMP. The system consists of 24 4-inch diameter monitoring/recovery wells and 14 1-inch diameter monitoring/contingent injection wells. The 4-inch diameter wells are primarily for extraction, and the 1-inch diameter wells are primarily for injection.

The extraction is performed via vacuum enhanced fluid extraction methods using primarily the 4-inch wells. Initial extraction events were conducted on a daily basis for one week, and then on a weekly basis. Extraction frequency will be adjusted periodically to provide for more efficient recovery.

As determined during operation of the LNAPL recovery system, bio-degradable surfactants and/or desorbing agents with very limited residence times may be injected for the purpose of facilitating LNAPL extraction. The mix of agents will be adjusted based on bench scale tests with soil columns in EWMA's NJ Certified Laboratory, on field testing, and on performance measurement during the remediation. The injection parameters to be evaluated will include the mix design, concentration of injectant, volume of injectant, and event periodicity.

During all of the implementation of the LNAPL recovery activities, the standard protocols and rules for waste management and disposal will be followed, on-site storage of waste liquids will be within tank wagons or in drums provided with secondary containment. Quarterly reports will be submitted to the NYSDEC project manager during the operation of the LNAPL recovery system which will include a summary of the field data collected (depth to water, LNAPL thickness at the start and the end of the recovery event, etc.).

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

2.2.2.1 Composite Cover System

The composite cover system is a permanent control and the quality and integrity of this system will be inspected annually by a licensed professional engineer, who will visually examine the site for integrity of the composite cover system, will perform site walks, and will interview personnel familiar with the site operations. Their findings will then be included in annual certification that will be submitted to NYSDEC as a part of the annual Site Management Report, as provided for in Section 3 of this SMP.

2.2.2.2 Vapor Intrusion Controls

The vapor intrusion control system is a permanent control and the quality, operability and integrity of this system will be inspected annually by licensed professional engineer, who will visually examine the vapor

intrusion control system for integrity, operability and function. They will perform site walks and look at all of the exterior vapor intrusion control features, will obtain field measurements at representative inlet and outlet locations with a PID, will observe wind turbines for functionality, will interview personnel familiar with the site operations and will examine representative ground floor locations and obtain field measurements at those locations with a PID. Their findings will then be included in annual certification that will be submitted to NYSDEC as a part of the annual Site Management Report, as provided for in Section 3 of this SMP. The vapor intrusion control system operations will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the system is no longer required, a proposal to discontinue the system will be submitted by the property owner to the NYSDEC and NYSDOH.

2.2.2.3. Lower Sand Unit LNAPL Remediation System

The lower sand unit LNAPL remediation system is a permanent control until otherwise demonstrated and the quality, operability and integrity of this system will be inspected annually by independent engineering personnel. These personnel will visually examine the system for integrity, operability and function. They will perform site walks and examine the environmental wells associated with the system for integrity, will examine the field measurements and data collected by system operations personnel, will examine the liquid storage and disposal records, and will interview personnel familiar with the site operations. Their findings will then be included in annual inspection reports that will be submitted to NYSDEC as a part of the annual Site Management Report, as provided for Section 3 of this SMP.

The lower sand unit LNAPL remediation system operations will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the system is no longer required, a proposal to discontinue the system will be submitted by the property owner to the NYSDEC and NYSDOH.

2.2.2.4 – Perched Unit LNAPL Remediation System

The perched unit LNAPL remediation system is a permanent control until otherwise demonstrated and the quality, operability and integrity of this system will be inspected annually by independent engineering personnel. These personnel will visually examine the system for integrity, operability and function. They will perform site walks and examine the environmental wells associated with the system for integrity, will examine the field measurements and data collected by system operations personnel, will examine the liquid storage and

disposal records, and will interview personnel familiar with the site operations. Their findings will then be included in annual inspection reports that will be submitted to NYSDEC as a part of the annual Site Management Report, as provided for in Section 3 of this SMP.

The perched unit LNAPL remediation system operations will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the system is no longer required, a proposal to discontinue the system will be submitted by the property owner to the NYSDEC and NYSDOH.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the RAWP to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to restricted residential uses only. Adherence to these Institutional Controls on the site is required by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP;.
- Groundwater, Soil Vapor, LNAPL and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for restricted residential, commercial or industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed;
- The property may not be used for a higher level of use, such as unrestricted use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited;
- A composite cover system will be installed and maintained at the Site as described in this SMP;
- Vegetable gardens and farming on the property are prohibited;
- The site owner or remedial party will submit to NYSDEC an annual written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- On-site environmental monitoring devices, including but not limited to, groundwater monitor wells and soil vapor probes, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;

2.3.1 Excavation Work Plan

The Site has been remediated for restricted residential use. Any future intrusive work that will penetrate the composite cover system, or encounter or disturb the remaining contamination below the orange warning barrier, including any modifications or repairs to the existing cover system will be performed in compliance with the Excavation Work Plan (EWP) that is attached as **Appendix 1** to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A sample HASP is attached as **Appendix 4** to this SMP that is in current compliance with DER-10, 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. The CAMP is presented in **Appendix 5**. Additionally, a Storm Water Pollution Prevention Plan is required to be prepared and implemented prior to performance of intrusive activities. A copy of the current SWPPP is provided in **Appendix 6**. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The Site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

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

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

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.

- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, including summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the BCA, and all approved work plans and reports, including this SMP
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to Sharon McSwieney, Assistant Vice-President, EWMA, LLC. These emergency contact lists must be maintained in an easily accessible location at the site.

Table A: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table B: Site Contact Numbers	
Owner's Representative: Brent Carrier	212-546-0832
Owner's Project Manager: Sharon McSwieney, Asst. Vice-President, EWMA	609-799-7300 ext 196
Owner's PE: Richard Arnold, PE, Chief Engineer	973-560-1500 ext. 174
NYSDEC Project Manager: Bryan Wong	718-482-4905

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

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 5-20 46th Road, Long Island City, NY

Nearest Hospital Name: New York University Medical Center

Hospital Location: 560 1st Avenue, New York, NY 10016

Hospital Telephone: 911 or 212-263-7300

Directions to the Hospital:

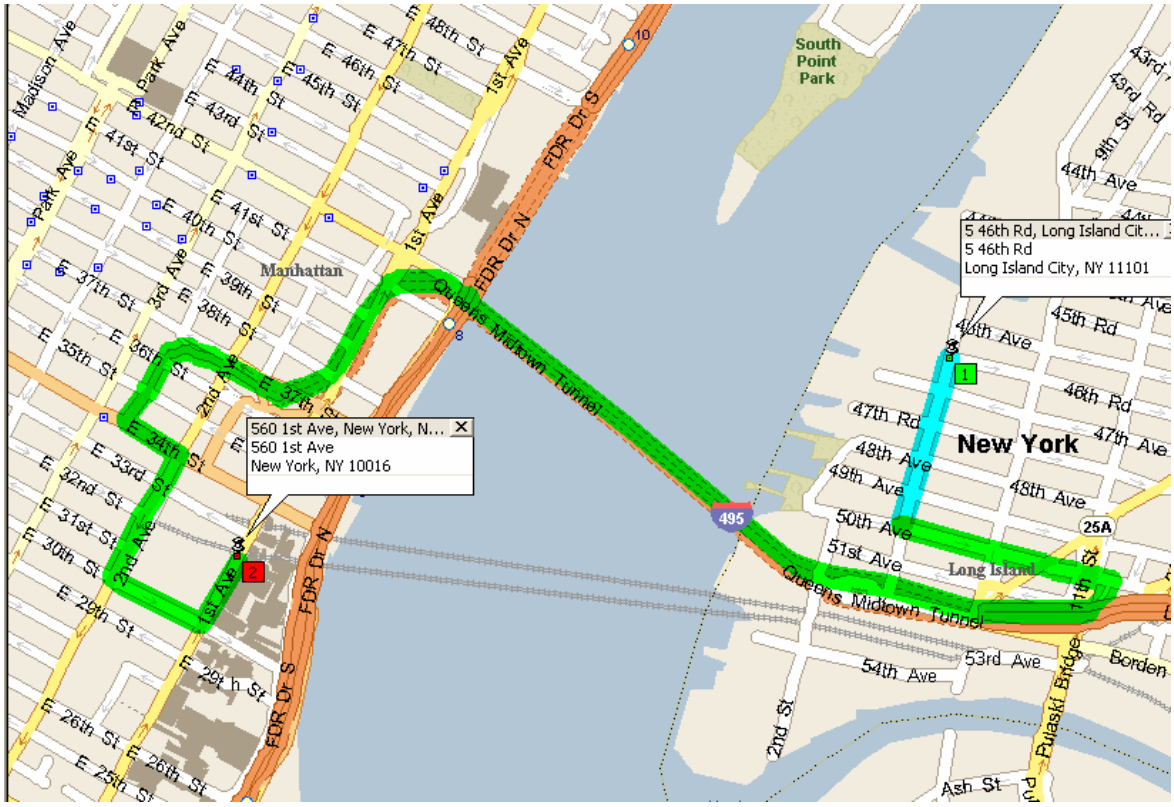
Time	Mile	Instruction	For	Toward
9:00	0.0	Depart 5 46th Rd, Long Island City, NY	0.2 mi	

AM		11101 [5 46th Rd, Long Island City, NY 11101] on 5th St (South)		
9:00 AM	0.2	Turn LEFT (East) onto 50th Ave	0.3 mi	
9:01 AM	0.5	Take Ramp (RIGHT) onto I-495 [Queens Midtown Tunnel Plaza]	1.4 mi	Queens Midtown Tunnel
9:03 AM	1.9	Turn off onto Ramp	0.1 mi	
9:03 AM	2.0	Keep LEFT to stay on Ramp	0.1 mi	35 St / 34 St / Downtown
9:03 AM	2.2	Bear RIGHT (South-West) onto Queens Midtown Tunnel Exit [Tunnel Exit St], then immediately turn LEFT (East) onto E 34th St	0.1 mi	
9:04 AM	2.3	Turn RIGHT (South) onto 2nd Ave	0.2 mi	
9:04 AM	2.5	Turn LEFT (East) onto E 30th St	0.1 mi	
9:05 AM	2.6	Turn LEFT (North) onto 1st Ave	0.1 mi	
9:05 AM	**2.7**	**Arrive 560 1st Ave, New York, NY 10016**		

Total Distance: 2.7 miles

Total Estimated Time: 5 minutes

Map Showing Route from the site to the Hospital:



2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table A). The list will also be posted prominently at the site and made readily available to all personnel at all times.

2.5.3.1 Spill Response Activities

In the event of a spill, on-site personnel will utilize supplies provided in a PIG spill response container to stabilize the spill and remove any spilled materials and containerize them. Amendments to the contingency plan and additional spill response details are provided in Section 9 of the Site Specific Health and Safety Plan (HASP) presented in **Appendix 4**.

2.5.3.2 Emergency Alerting Procedures

Prior to the commencement of redevelopment construction, a Site Safety Officer (SSO) will be established and the SMP amended to add this information. The 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 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.

2.5.3.3 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.

2.5.3.4 Emergency Response Personnel

The SSO will have the primary role in responding to all emergencies at the Site. The SSO, or the Alternate SSO, will be present at the Site during all work activities under this SMP. If any emergency such as a fire, chemical exposure, or physical injury occurs, the SSO shall be notified immediately. The 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 Project Manager and SSO; this documentation is to be submitted to the Health and Safety Officer within 48 hours of the incident.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. Monitoring of other Engineering Controls is described in Chapter 4, Operation, Monitoring and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.
- To adequately address these issues, this Monitoring Plan provides information on:
- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;

- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Annual monitoring of the performance of the remedy and overall reduction in contamination will be conducted for the first year. Within the first annual SMP Report/Certification, an updated monitoring program will be proposed to NYSDEC for review, comment and response, and approval. Trends in contaminant levels in groundwater in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals and will be reported in the annual Site Management Report Certification. Monitoring programs are summarized in Table C and outlined in detail in Sections 3.2 and 3.3 below.

Table C: Monitoring/Inspection Schedule				
Monitoring Program	**Sampling Location**	**Frequency***	**Matrix**	**Analysis**
Composite Cover System	Entire site	Annual after construction is complete	Composite cover system consisting of soil, concrete, asphalt	Visual cap integrity
Vapor Intrusion Control System (Vapor Barrier and SSDS)	All constructed buildings	Annual after system start-up	Piping, fans, control panels	Visual integrity and functionality
Lower Sand Unit LNAPL Remediation System	All lower sand unit LNAPL wells	Monthly for one year then reassess based on site conditions and results	Fluid levels	Measurement of water levels and LNAPL thicknesses with water level device and interface probe to verify LNAPL removal.
Perched Unit NAPL Remediation System	All perched unit LNAPL wells	Monthly for one year then reassess based on site conditions and results	Fluid levels	Measurement of water levels and LNAPL thicknesses with water level device and interface probe to verify LNAPL removal.
Existing Perched Unit Perimeter Wells	GW-2, GW-4, GW-5, MW-9S, MW13S	Quarterly for one year then reassess based on site conditions and results	Water	TCL VOCs and SVOCs and TAL Metals
Lower Sand Unit Wells	Perimeter lower sand unit LNAPL wells PW-1 through PW-9	Quarterly for one year then reassess based on site conditions and results	Water	TCL VOCs and SVOCs and TAL Metals

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

3.2 COMPOSITE COVER SYSTEM MONITORING

The quality and integrity of the composite cover system will be inspected (monitored) annually by independent engineering personnel. These personnel will visually examine the site for integrity of the composite cover system, will perform site walks, and will interview personnel familiar with the site operations.

In the event that the composite cover system is accidentally disturbed or must be disturbed, the site owner will notify the NYSDEC and the Engineer of the accidental or pending disturbance. It will be evaluated for magnitude and type, and supplemental inspection will be performed to provide technical support, to provide assurance that the provisions of the SMP are implemented effectively, and to provide assurance that repairs or restoration of the composite cover system will be in compliance with the provisions of this SMP. The components of the composite cover system are included in Figure 12.

3.3 MEDIA MONITORING PROGRAM

The proposed media monitoring program for the site is for presence of LNAPL in the lower sand unit, presence of LNAPL in the perched unit, and ground water quality.

Sampling methods, sample preservation requirements, sample handling times, decontamination procedure for field equipment, and frequency for field blanks, field duplicates and trip blanks will conform to applicable industry methods such as those specified in either USEPA or NYSDEC guidance documents in effect as of the date on which sampling is performed. The person responsible for conducting the remediation will document the rationale for any deviations from the generally accepted ground water sampling methodologies.

3.3.1 Lower Sand Unit LNAPL Monitoring

The lower sand unit LNAPL remediation system operations will be supported by the LNAPL monitoring program that will consist of: 1) Monthly measurement of all 38 LNAPL related monitoring wells for fluid levels using a standard Solinst interface probe. The measurements will be performed with a calibrated instrument utilized by trained personnel and will be recorded on field log sheets as set forth in **Appendix 9 and 15**. A list of the wells to be gauged is included in **Table C**.

3.3.2 Perched Unit LNAPL Monitoring

The perched unit LNAPL remediation system operations will be supported by the LNAPL monitoring program that will consist of: 1) Monthly measurement of all LNAPL related monitoring wells for fluid levels using a standard Solinst interface probe. The measurements will be performed with a calibrated instrument utilized by trained personnel and will be recorded on field log sheets as set forth in **Appendix 9 and 16.** A list of the wells to be gauged is included in **Table C**.

3.3.3 Groundwater Monitoring

The groundwater monitoring program will utilize a network of perimeter and interior monitoring wells that have been installed to support the lower sand unit LNAPL remediation program as described and set forth in **Appendix 15**. The perimeter monitoring wells and the deeper set of wells below the peat layer along the LNAPL plume axis that do not contain LNAPL will be sampled quarterly and the samples will be analyzed by a NYS Certified Analytical Laboratory for TCL VOCs and SVOCs and for TAL Metals. The sampling protocol will be in accordance with the project QAPP (**Appendix 7**). The number of wells to be sampled, the sampling frequency, and the analytical parameters will be reassessed after one year based on the site conditions and remediation results. The reassessment results and associated monitoring recommendations will be submitted to NYSDEC as part of the first annual Site Management Report for review, comment and response, and approval. A list of the wells to be sampled is included in **Table C**.

3.3.3.1 Sampling Protocol

All sampling will be conducted in accordance with the QAPP provided in **Appendix 7**, and all groundwater sampling will be performed in conformance with the USEPA low stress/flow purging and sampling procedure. All monitoring well sampling activities will be recorded in a field book and in a groundwater-sampling log that is presented in **Appendix 9.** Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Sample Storage in the Field

Care will be taken to prevent contamination of the sample bottles at the lab waiting to be packed for shipment, in the field waiting to be filled, and in the field waiting to be packed for shipment. To prevent contamination of the sample bottles, each bottle will be sealed until placed beneath the sampling tool for sample collection. Each sample container will have the following information recorded on it:

Project Name
Sample Number
Time & Date of Sampling
Analysis to be Performed
Number of Samples

Sample shuttles, and clean sampling equipment will not be stored near solvents, gasoline, or other

equipment that is a potential source of contamination. When under chain of custody, sample bottles will be secured in locked vehicles, custody sealed in shuttles or in the presence of authorized personnel.

Sampling Handling Time Requirements

Field and trip blanks must travel with sample containers and must arrive on-site within one day of their preparation in the lab. Blanks and their associated samples may be held on-site for no longer than two calendar days, and must arrive back in the lab within one day of shipment from the field. This constitutes a maximum of a four (4) day handling time. Blanks and all samples must be maintained at 4°C while stored on-site and during shipment. Sample bottles and blanks must be handled in the same manner prior to their return to the laboratory. Field and trip blanks will be collected for groundwater sampling events as indicated in the QAPP.

3.3.3.2 Monitoring Well Repairs, Replacement And Decommissioning

If bio-fouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in kind in the nearest available location, unless otherwise approved by the NYSDEC. See **Appendix 8** for well construction diagrams for all wells on the Site.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or

monitoring devices. During these inspections, an inspection form will be completed (**Appendix 12).** The form will compile sufficient information to assess the following:

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

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site (**Appendix 7).** Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
    - Sample holding times will be in accordance with the NYSDEC ASP requirements.
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
    - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.

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

- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

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

All monitoring results will be reported to NYSDEC on a periodic basis in the Site Management Report. A letter report will also be prepared, subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;

- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled to be submitted electronically in the NYSDEC-identified format;
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy and digital format. A summary of the monitoring program deliverables is provided in Table D below.

Table D: Schedule of Monitoring/Inspection Reports

Task	**Reporting Frequency***
Composite Cover System	Annual reporting to be included with annual SMP Reports.
Vapor Intrusion Control System	Annual reporting to be included with annual SMP Reports.
Lower Sand Unit LNAPL Remediation System	Monthly reporting for first year then reassess and propose reporting frequency going forward.
Perched Unit NAPL Remediation System	Monthly reporting for first year then reassess and propose reporting frequency going forward.
Groundwater Monitoring	Quarterly for first year then reassess and propose reporting frequency going forward.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

This Operation and Maintenance Plan describes the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the site. This Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the site to operate and maintain the vapor intrusion control system;
- Includes the steps necessary to allow individuals unfamiliar with the site to operate and maintain the lower sand unit LNAPL remediation system;
- Includes the steps necessary to allow individuals unfamiliar with the site to operate and maintain the perched unit LNAPL remediation system;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in site conditions or the manner in which the Vapor Intrusion Control System, Lower Sand Unit LNAPL Remediation System, or Perched Unit LNAPL Remediation System is operated and maintained.

Information on non-mechanical Engineering Controls (i.e., composite cover system) is provided in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 ENGINEERING CONTROL SYSTEM OPERATION AND MAINTENANCE

4.2.1 Vapor Intrusion Control System (VIC System)

The primary components of the VIC System are the synthetic liner beneath the building slab(s), the 6-inch layer of ¾-inch clean crushed stone, underlying geotechnical fabric, the slotted or porous pipe laterals within the stone layer, the vent manifold or vent riser piping connections to the slotted or porous pipe laterals, the vent riser piping transition from sub-slab areas through slab or frost wall to above slab or above grade areas, the accessible control box areas through which riser piping will pass, the electrically powered exhaust blowers

that will provide vacuum for the SSDS system, and the riser piping that will convey vapors from the blower exhausts to tee fittings above the roof-lines, and the four monitoring points within each building. These components are described in **Appendix 14** Vapor Intrusion Control.

The synthetic liner, crushed stone layer, geotechnical fabric, slotted or porous pipe laterals, piped connections, and sub-slab vent riser piping will likely be located within the building envelope primarily beneath the floor slabs and will likely not be visible during a typical site inspection.

The vent riser piping, control box areas and exhaust blowers above top of slab or above grade will be visible to the inspector and therefore can readily be inspected. These three system components are the most likely to sustain damage due to normal system usage or a severe storm.

4.2.1.1 VIC System O&M Scope

Annual inspections will be performed by trained staff under the supervision of the Remedial Engineer and will include visual examination of vent riser piping, control boxes, and exhaust fans. The results of the annual inspection will be documented the annual Site Management Report.

In the event that any deficiencies are noted, the deficiency will be reported to NYSDEC and the property owner, and corrective action shall be taken in the form of repair or rehabilitation as needed to restore system operation. The Remedial Engineer will be responsible to ensure that any corrective actions are completed in accordance with this SMP.

4.2.1.2 VIC System Start-Up and Testing

During installation, the system shall be inspected periodically by the Remedial Engineer for conformance with the provisions of the SMP. In accordance with the post mitigation/confirmation testing requirements of NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006, the goal for operation of the active component of the VIC will be to achieve, at a minimum, a sub-slab differential pressure (with respect to building interior ambient pressure) of –0.002 inches of water. To achieve this goal, the following actions will be performed during initial startup of the VIC.

1. Shortly after start up of the VIC, and prior to building occupancy, the sub-slab pressure at each monitoring point will be measured utilizing an appropriate hand-held instrument. If necessary, sub-slab vacuum will be adjusted to achieve –0.002 inches of water at each monitoring point. The control box controlling the vacuum to the sub-slab lateral piping will be utilized to balance the sub-slab pressure.

2. After achieving sub-slab pressure of –0.002 inches of water, smoke tests will be performed to identify any leaks through cracks in the concrete floor, floor joints, etc. Identified leaks will be sealed until smoke tests indicate that an appropriate seal of the floor slab has been achieved.
3. Appliances relying on natural draft for exhaust of carbon monoxide and other combustion gases will be tested for back draft caused by the operation of the SSDS. Testing for back draft will entail utilizing a carbon monoxide meter to detect the presence of this compound in the air near exhausts for appliances. If necessary, any back draft caused by the SSDS will be corrected by sealing any leaks in the floor slab, as described above.
4. The operation of the warning device for exhaust fan malfunction will be confirmed. If a concern is noted, it will be addressed until the appropriate level of vacuum is achieved before the building can be certified for occupancy.

The results of the start-up and testing will be reported to the NYSDEC in the annual Site Management Report.

4.2.1.3 VIC System Operation: Routine Operating Procedures and Maintenance

Routine maintenance and inspection will be conducted to ensure that the active components of the VIC are operating properly and will continue until NYSDEC and NYSDOH have determined there is no need for such a system. The operation of the SSDS will not be discontinued without written approval from the NYSDEC. On a monthly basis, qualified building personnel will confirm that the suction fan and warning device are working properly. Appendix 14 contains a routine maintenance SSDS checklist. Appendix 14 also contains an Operations, Maintenance, and Montoring (OM&M) manual for the SSDS exhaust fans.

On an annual basis, the following will performed:

- Conduct a visual inspection of the complete system;
- Inspect the exhaust fan(s) for bearing failures or signs of other abnormal operations, and repair or replace if required;
- Inspect the discharge location of the vent pipe to ensure that no air intake or operable window is located nearby;
- Determine, through discussions with building management, if any HVAC system modifications have occurred that might affect the performance of the SSDS; and
- Inspect the floor slab and foundation walls for evidence of cracks and/or holes, and repair of cracks and/or holes, if required.

4.2.1.4 VIC System Operation: Non-Routine Equipment Maintenance

Non-routine maintenance would typically occur when the warning device indicates the system is not working properly, or the system becomes damaged. The scope of non-routine maintenance will vary depending upon the situation. In general, the following actions will be taken as part of non-routine maintenance:

- Examine the building for structural or HVAC system changes, or other changes that may affect the performance of the SSDS (e.g., new combustion appliances or deterioration of the concrete slab);
- Examine and address the operation of the warning device and the suction fan, and measure the sub-slab pressure at monitoring points; and
- Repair or adjust the SSDS as appropriate. If necessary, the SSDS should be redesigned and restarted (see Section 4.2.1.2 for system startup).

4.2.2 Lower Sand Unit LNAPL Remediation System

The primary components of the LNAPL System are the capture wall, the perimeter monitoring wells, the interior monitoring/recovery wells, the on-site storage unit, and the portable Spill Buddy® typically used to remove LNAPL from the wells. The capture wall is constructed with pile hammer-driven AZ14-700 steel interlocking sheet piles, in a shallow V-shaped layout pointing downgradient. The AZ14-700 sheets were seal welded together in the factory, and interlock connections between pairs were sealed with factory installed Adeka P201 expansive grout sealant.

20 wells have been installed as couplets in the future garage area, with 5 wells up-gradient of the capture wall and 4 wells down-gradient of the capture wall. 9 wells have been installed around the site perimeter in the future sidewalk area. The recovery wells are constructed of 4-inch PVC with 10-slot screens and 0-Morie gravel packs, and have been sealed through the peat and clay layer with a minimum two feet of granulated bentonite overlain by a column of grout from top of bentonite to the bottom of the manhole. The recovery wells are currently completed as stick up wells and will eventually be completed within flush mount manholes in the garage floor. The wells are used for LNAPL recovery with a portable Spill Buddy®. The capture wall and recovery well locations and associated details are displayed on Figures LN-1 and LN-2. Recovery well construction diagrams are presented in **Appendix 8.**

At each couplet location, one well has been screened directly beneath the peat and clay layer, and one well has been screened at a location that is deeper within the sand unit. The well risers from the couplet

locations are sealed in the peat and clay layer as described above. The 9 wells in the perimeter sidewalk area are screened directly below the peat and clay layer. The risers from these wells are sealed in the peat and clay layer as described above and are flush mounted with the surface of the concrete sidewalk. The well locations and associated details are displayed on Figure LN-1. A lockable, secondary containment unit with four drum capacity is in secure use at the site. After the garage is constructed, the use of a storage unit will continue in a secure, locked area with secondary containment.

The equipment that will be used for LNAPL recovery at the Site will be a portable, down-well skimming system such as a Spill Buddy®. The Spill Buddy® is a compact, manual, free product skimming system, designed to be operated on site to skim quantities of product (LNAPL or DNAPL). The Spill Buddy's operation is based on the state-of-the-art ALPHA-ARRAY™ sensors in the probe that detect the interface between the product and the water. An audible feedback signals the user to keep the pump positioned in the product layer, and allows product skimming with virtually no water pumped. In addition, storage containers with secondary containment will be utilized. The catalog cut sheets and operating manual for this equipment will be maintained at the Site for reference during the recovery work.

These components are described, identified and located in **Appendix 15** Lower Sand Unit LNAPL Remediation System.

The capture wall is located below grade and it will not be visible during a site inspection.

The perimeter wells, interior wells, on-site storage unit, and Spill Buddy extractor will be visible to the inspector and therefore can readily be inspected. These four system components are the most likely to sustain damage in the event of some form of accident or to suffer loss of effectiveness with time and require repair or rehabilitation.

4.2.2.1 LNAPL System O&M Scope

The O&M scope for the LNAPL System will be performed by trained, competent, responsible individual under the supervision of the Remedial Engineer in order to:

- perform annual inspections;
- obtain periodic measurements of water level and LNAPL thickness in the LNAPL wells;
- visually examine the wells and storage unit;
- visually examine the water level device, interface probe, and Spill Buddy;

- extract LNAPL from the wells using the Spill Buddy and storage unit; and
- report system results to the Remedial Engineer to be documented in the quarterly monitoring report and the annual Site Management Report.

In the event that any deficiencies are noted, the deficiency shall be reported to NYSDEC and the property owner, and corrective action should be taken in the form of notification to the owner and in the form of repair or rehabilitation to restore system operation. The Remedial Engineer will be responsible to ensure that any corrective actions are completed in accordance with this SMP.

4.2.2.2 LNAPL System Start-Up and Testing

The LNAPL System has been started up and tested and is operational. Baseline measurements have been obtained, and it does not require further testing.

4.2.2.3 LNAPL System Operation: Routine Operating Procedures

During each OM&M visit, measurements of water levels and product thicknesses will be obtained in the LNAPL related wells using a Solinst interface probe. The estimated areal extent of the LNAPL plume is about 5,000 square feet, and the plume thickness as measured in wells ranges from barely detectable at 0.02 feet to as great as 8.0 feet in one well in the center of the plume area.

During each OM&M visit, if LNAPL is detected in a well at a recoverable thickness greater than 0.10 feet, then the LNAPL will be recovered using a Spill Buddy. As a contingent measure, as the recovery progresses down-well sorbent booms may be used for the recovery of LNAPL thicknesses of less than 0.10 feet. Also as a contingent measure, when a vacuum tanker is on-site the tanker may be used for recovery of LNAPL and oily water mixture from recovery wells that contain LNAPL at thicknesses less than 0.10 feet.

Recovered LNAPL and associated liquids are stored on-site in a secondary contained storage unit in a protected and secure location. The storage unit capacity is for four 55-gallon DOT rated, properly labeled drums. Stored liquids are regularly transported offsite for disposal to a permitted facility by a licensed waste hauler. Off-site waste disposal is completed in compliance with all federal, state, and local rules and regulations.

4.2.2.4 LNAPL System Operation: Routine Equipment Maintenance

Routine equipment maintenance for the system operation will consist of maintenance of the water level device and the Spill Buddy. Both will be cleaned regularly, checked for effective operation and accurate measurement, and kept in a protective case free from dust or other adverse impacts.

4.2.2.5 LNAPL System Operation: Non-Routine Equipment Maintenance

The only non routine equipment maintenance situations that are anticipated for the LNAPL System are possible damage to the wells, instruments, or storage unit. In the event of damage to any of these components they shall be repaired or replaced in kind, in conformance with the provisions of this SMP and certified by the Remedial Engineer. In the event that LNAPL yield decreases significantly, the Remedial Engineer shall notify NYSDEC and will take steps to address the concern including possible well redevelopment by a qualified driller.

4.2.3 Perched Unit LNAPL Remediation System

The primary components of the LNAPL System are the injection wells and the extraction wells: 24 four-inch diameter PVC monitoring/recovery wells and 14 one-inch diameter PVC monitoring/contingency injection wells were installed in the perched unit. The wells are constructed with 10-slot screens and 0-Morie gravel packs. The recovery wells are currently completed as stick up wells and will eventually be completed within flush mount manholes in the planned building slab, if needed. The wells will be used for LNAPL recovery with a vac truck or with a Spill Buddy. The recovery well locations and associated details are displayed on **Figure 7**. Recovery and injection well construction diagrams are presented in **Appendix 8.**

The wells are subject to damage in the event of an accident and all may suffer loss of effectiveness with time and require repair or rehabilitation. The components are identified, located and displayed in **Appendix 16** Perched Unit LNAPL Remediation System.

4.2.3.1 Perched Unit LNAPL System O&M Scope

The O&M scope for the Perched Unit LNAPL System will be performed by trained, competent, responsible individual under the supervision of the Remedial Engineer in order to:

- obtain as required periodic measurements of water level and NAPL thickness in the NAPL wells;
- visually examine the wells and storage unit;

- visually examine the water level device, interface probe, and vac truck;
- extract NAPL from the wells using the vac truck; and
- report system results to the Remedial Engineer to be documented the quarterly monitoring report and the annual Site Management Report.

In the event that any deficiencies are noted, the deficiency shall be reported to NYSDEC and the property owner, and corrective action should be taken in the form of repair or rehabilitation to restore system operation. The Remedial Engineer will be responsible to ensure that any corrective actions are completed in accordance with this SMP.

4.2.3.2 Perched Unit LNAPL System Start-Up and Testing

The LNAPL System has been started up and tested and is operational.

The system does not require warning devices or operating manual. Baseline measurements have already been obtained, and it does not require further testing.

4.2.3.3 Perched Unit LNAPL System Operation: Routine Operating Procedures

Routine equipment maintenance for the system operation will consist of maintenance of the water level device and the Spill Buddy. Both will be cleaned regularly, checked for effective operation and accurate measurement, and kept in a protective case free from dust or other adverse impacts.

At arrival, site personnel set up and establish perimeter air monitoring. Upon entry to the site, the vacuum truck is opened at top and examined carefully to ensure that no off-site liquids are present. The top hatch is then closed and the truck operator begins preparation for vacuum operations. During this time, site personnel perform measurements of water levels and product thicknesses in the 4-inch and 1-inch perched zone wells with a Solinst interface probe. The measured results are then used to guide the recovery effort. Vacuum extraction work is then begun at either one or two wells with down-well stingers and wellhead seals. Adjacent fluid levels are measured at one hour intervals and just before cessation of the vacuum extraction. Based on operating history, the entire vacuum effort at each well may be one or more hours. A total of six hours of vacuum extraction work is anticipated during each recovery day.

The preferred recovery method for LNAPL in the perched unit during the first three months of operation is vacuum enhanced fluid extraction. During each OM&M visit, if LNAPL is detected in a well at a recoverable thickness of greater than 0.10 feet then it can be recovered with either a vac truck or Spill Buddy, but the preferred method is still the vac truck. If detected at a thickness of less than 0.10 feet, then the LNAPL will be recovered using a vac truck because the spill buddy is not particularly effective for thicknesses of less than 0.10 feet, or if nearing the completion of the recovery work as a contingency the recovery may be performed with use of down-well sorbent booms.

Recovered LNAPL will be transported offsite for disposal to a permitted facility by a licensed waste hauler. Off-site waste disposal will be completed in compliance with all federal, state, and local rules and regulations.

4.2.3.4 Perched Unit LNAPL System Operation: Routine Equipment Maintenance

The only three components that are likely to need maintenance are the water level/interface probe, and vac truck. Any of these pieces of equipment could become clogged or otherwise dysfunctional. In the event the repair or maintenance is needed, the Remedial Engineer shall be notified and shall determine whether or not on-Site repair is possible or whether the instrument should be returned to the manufacturer or rental firm for repair or maintenance.

If contingency injection activities are initiated subject to NYSDEC approval, then a portable injection system will be used for this work. The system is suitable for temporary one-day use and manual batching with no more than 100 gallons of injectant per batch. It is carried on a utility truck and is operated with a portable generator and can be moved around the site area readily by simply relocating the utility truck. It is a very simple and controllable system and is reliable and easy to operate.

4.2.3.5 Perched Unit LNAPL System Operation: Non-Routine Equipment Maintenance

The non routine equipment maintenance situations that are anticipated for the LNAPL System are possible damage to the wells, equipment, instruments. In the event of damage to any of these components, they shall be repaired or replaced in kind in conformance with the provisions of this SMP and certified by the Remedial Engineer. In the event that LNAPL yield decreases significantly, the Remedial Engineer shall notify NYSDEC and will take steps to address the concern including possible well redevelopment by a qualified driller.

In the event that the portable water level device becomes dysfunctional due to damage or wearing of parts, the worn parts will be replaced and the instrument checked and returned to service, or the instrument will be replaced with a new piece of equipment.

4.3 ENGINEERING CONTROL SYSTEM PERFORMANCE MONITORING

4.3.1 Vapor Intrusion Control System (VIC System)

A VIC System will be installed for all of the buildings planned at the Site to mitigate possible soil vapor intrusion into occupied buildings. The system is an active, electrically powered SSDS and it has previously been described in detail in prior sections of the SMP.

4.3.1.1 VIC System Monitoring Schedule

Shortly after start up of the VIC, and prior to building occupancy, the sub-slab pressure at each monitoring point will be measured utilizing an appropriate hand-held instrument. If necessary, sub-slab vacuum will be adjusted to achieve –0.002 inches of water at each monitoring point. The control box controlling the vacuum to the sub-slab lateral piping will be utilized to balance the sub-slab pressure.

After achieving sub-slab pressure of –0.002 inches of water, smoke tests will be performed to identify any leaks through cracks in the concrete floor, floor joints, etc. Identified leaks will be sealed until smoke tests indicate that an appropriate seal of the floor slab has been achieved.

Appliances relying on natural draft for exhaust of carbon monoxide and other combustion gases will be tested for back draft caused by the operation of the SSDS. Testing for back draft will entail utilizing a carbon monoxide meter to detect the presence of this compound in the air near exhausts for appliances. If necessary, any back draft caused by the SSDS will be corrected by sealing any leaks in the floor slab, as described above.

The operation of the warning device for exhaust fan malfunction will be confirmed. If a concern is noted, it will be addressed until the appropriate level of vacuum is achieved before the building can be certified for occupancy.

If a re-start is necessary subsequent to repair of SSDS components, then the start-up monitoring protocol will be repeated and the SSDS will be adjusted until compliance with sub-slab vacuum level requirements is verified.

It should be noted that the inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the VIC System has been reported or when an emergency has occurred that is deemed likely to affect the system operation.

4.3.1.2 VIC System General Equipment Monitoring

A visual inspection of the visible portions of the complete system will be conducted during each inspection event, and the air inlets, riser pipes and wind turbines will be visually examined during those events. A complete list of components along with catalog cut sheets, descriptions and locations is provided in the Inspection Checklist presented in **Appendix 14** Vapor Intrusion Control.

4.3.1.3 VIC System Monitoring Devices and Alarms

The planned VIC System will be an active, electrically powered SSDS. The sub-slab vacuum levels will be monitored at start-up to verify compliance with the -0.002 inches of water minimum cross slab vacuum levels. An alarm system will be installed and will alarm in the maintenance managers office if one of the exhaust blowers is not exerting sufficient vacuum pressure to maintain the required sub-slab vacuum levels of if an exhaust blower shuts down. .

4.3.2 Lower Sand Unit LNAPL Remediation System (LNAPL System)

The LNAPL System was installed and has been tested and is fully operational. The purpose of the system is to mitigate LNAPL that is resident beneath a clayey peat layer at the site at an average depth of about 15-feet below surface grade. This system has previously been described in detail, does not require pneumatic monitoring, and requires no monitoring of mechanical function other than periodic annual inspection that is primarily intended to identify damage to wells, storage unit, or spill buddy extractor.

4.3.2.1 Lower Sand Unit LNAPL System Monitoring Schedule

The previously presented monitoring schedule provides for annual inspection of the wells, storage unit and spill buddy extractor.

This monitoring schedule is believed to be sufficient at this time because the system will be visited by operations personnel at minimum monthly intervals during the first year of operation under the SMP.

It should be noted that the inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the LNAPL System has been reported or when an emergency has occurred that is deemed likely to affect the system operation.

4.3.2.2 Lower Sand Unit LNAPL System General Equipment Monitoring

Other than the wells, storage unit and spill buddy extractor, there is no equipment to monitor and these components are subject to annual inspection. Therefore, no additional monitoring is planned.

A visual inspection of the visible portions of the complete system will be conducted during each inspection event, and the wells, storage unit, and spill buddy will be visually examined during those events. A complete list of components along with catalog cut sheets, descriptions and locations is provided in the Inspection Checklist presented in Appendix 15 Lower Sand Unit LNAPL Remediation System.

4.3.2.3 Lower Sand Unit LNAPL System Monitoring Devices and Alarms

There are no alarms on the lower sand unit LNAPL Recovery System.

4.3.2.4 Lower Sand Unit LNAPL System Sampling Event Protocol

The LNAPL System groundwater sampling will be performed in conformance with the USEPA low flow/stress purging and sampling method. The LNAPL system sampling protocol will also be in conformance with the **Appendix 7 (**QAPP) and will include laboratory cleaning and preparation of bottles, laboratory provision of labels and chain of custody sheets originating at the laboratory, groundwater sampling of perimeter wells and deeper wells along the axis of the LNAPL plume, labeling and transport of samples back to the laboratory under chain of custody documentation, analysis of the samples within holding times for TCL VOCs, SVOCs and TAL Metals by NYSDOH ELAP certified laboratory, and reporting of results in accordance with Category B regulatory deliverables.

4.3.3 Perched Unit LNAPL Remediation System

The LNAPL System has been installed and is fully operational. The purpose of the system is to remediate LNAPL that is present in the perched zone above a clayey peat layer in the northwest quadrant of the site at a typical depth range of about 7 to 12-feet below surface grade. This system has previously been described in detail.

4.3.3.1 Perched Unit LNAPL System Monitoring Schedule

The previously presented monitoring schedule provides for annual inspection of the wells, storage unit and spill buddy extractor because that unit may be used at times if the LNAPL thickness exceeds 0.10 in a given well.

This monitoring schedule is believed to be sufficient at this time because the system will be visited by operations personnel at minimum monthly intervals during the first year of operation under the SMP.

It should be noted that the inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the NAPL System has been reported or when an emergency has occurred that is deemed likely to affect the system operation.

4.3.3.2 Perched Unit LNAPL System General Equipment Monitoring

Other than the wells, injector system, storage unit and spill buddy extractor, there is no equipment to monitor and these components are subject to annual inspection. Therefore, no additional monitoring is planned.

A visual inspection of the visible portions of the complete system will be conducted during each inspection event, and the wells, storage unit, and spill buddy will be visually examined during those events. A complete list of components along with catalog cut sheets, descriptions and locations is provided in the Inspection Checklist presented in **Appendix 16** Perched Unit LNAPL Remediation System.

4.3.3.3 Perched Unit LNAPL System Monitoring Devices and Alarms

There are no alarms on the LNAPL Recovery Systems.

4.3.3.4 Perched LNAPL System Sampling Event Protocol

The Perched LNAPL System groundwater sampling will be performed in conformance with the USEPA low flow/stress purging and sampling method. The LNAPL system sampling protocol will also be in conformance with the **Appendix 7 (**QAPP**)** and will include laboratory cleaning and preparation of bottles, laboratory provision of labels and chain of custody sheets originating at the laboratory, groundwater sampling of perimeter wells and deeper wells along the axis of the LNAPL plume, labeling and transport of samples back to the laboratory under chain of custody documentation, analysis of the samples within holding times for TCL

VOCs, SVOCs and TAL Metals by NYSDOH ELAP certified laboratory, and reporting of results in accordance with Category B regulatory deliverables.

4.4 MAINTENANCE AND PERFORMANCE MONITORING REPORTING REQUIREMENTS

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

4.4.1 Routine Maintenance Reports

Checklists and forms (see **Appendices 14, 15 and 16**) will be completed during each routine maintenance event. Checklists and forms will include but not be limited to the following information:

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

4.4.2 Non-Routine Maintenance Reports

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

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

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

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in **Appendix 12.** Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see **Appendix 12).** These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the annual Site Management Report.

5.1.3 Evaluation of Records and Reporting

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

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

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare the following certification:

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] for the site.

  The signed certification will be included in the annual Site Management Report described below.

5.3 ANNUAL SITE MANAGEMENT REPORT

An annual Site Management Report will be submitted to the Department beginning eighteen months after the Certificate of Completion is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in **Appendix 2** (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

- A performance summary for all treatment systems at the site during the calendar year, including information such as:
    - The number of days the system was run for the reporting period;
    - The average, high, and low flows per day;
    - The contaminant mass removed;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A description of the resolution of performance problems;
    - A summary of the performance, effluent and/or effectiveness monitoring; and
    - Comments, conclusions, and recommendations based on data evaluation.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Regional Office in which the site is located, and in electronic format to NYSDEC Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

APPENDIX 1 – EXCAVATION WORK PLAN

A-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the Department. Currently, this notification will be made to:

Jane O'Connell
Regional Hazardous Waste Remediation Engineer
NYSDEC
47-40 21st Street
Long Island City, NY 11101

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP provided in **Appendix 4** of this document,
- Identification of disposal facilities for potential waste streams,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

A-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each 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.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

A-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Truck transport route is as follows: All trucks loaded with site materials will enter the site via 47th Avenue and exit the site onto 46th Road. The trucks shall make a left onto Vernon Boulevard, a right onto 44th Drive, a right onto 21st Street, a right onto Jackson Avenue, and a left onto 11th Street to the Pulaski Bridge and the BQE. The approved truck route provided as an attachment to this plan in **Appendix 10.** This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; (g) community input where necessary.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

A-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

A-7 MATERIALS REUSE ON-SITE

There is no planned on-site reuse of materials.

A-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

If water generated during large-scale construction activities is to be discharged to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit that will be provided to NYSDEC for their information.

A-9 COMPOSITE COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities, the cover system will be restored in a manner that complies with the RAWP and the provisions of this SMP. If disturbed, the demarcation barrier will be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt) as shown on **Figure 12** and discussed in Section 2.2.1.1, this will constitute a modification of the cover element of the remedy and the upper surface of the 'Remaining Contamination'. A figure showing the modified surface will be included in the subsequent annual Site Management Report and in any updates to the Site Management Plan. A certification will be provided by a Professional Engineer licensed in NYS that the modified surface provides the same level of public health protection as the original cover system component which it replaced.

A-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in **Table 1.** Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

The source of the backfill that will be imported onto this Site has not been determined at this time. In addition to meeting the site-specific requirements dictated by the proposed development activities, the imported fill will demonstrate compliance with Part 375 section 6.8. Unless an alternate sampling frequency has been previously approved by the NYSDEC, all imported fill from a virgin source will be sampled for full TCL/TAL with collection of one composite sample per source. Fill from non-virgin sources will be sampled for full TCL/TAL as per the following:

1. If less than 1,000 cy of non-virgin material, one composite sample per 500 cubic yards;
2. If more than 1,000 cy of non-virgin fill, two initial screening composite samples will be collected from the first 1,000 cy and analyzed. If these samples meet criteria, sampling will be reduced to one composite sample per 2,500 cy; or
3. If greater than 5,000 cy of non-virgin fill, sample frequency will be reduced to one per 5,000 cy.

All analysis will be performed by a NYSDOH ELAP certified laboratory.

Information documenting the source of the fill, past use of the Site where the backfill originated, the type of fill, the amount of fill and any pertinent laboratory analytical documentation will be provided to the NYSDEC prior to importation of the fill material onto the site, unless from a source previously approved by the NYSDEC.

A-11 STORMWATER POLLUTION PREVENTION

The site-specific Stormwater Pollution Prevention Plan (SWPPP) is included in **Appendix 6**. The SWPPP must be followed during all excavation work under this EWP. 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.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP 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 waters

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

A-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

A-13 COMMUNITY AIR MONITORING PLAN

A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown in **Appendix 5.** These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations, one of which will be a fixed monitoring station at the southwest corner of the site in the direction of a public school and a day care center (i.e., sensitive receptors). In the event of an exceedance of action levels, the site operations will be evaluated by the QEP, and, if necessary, will be ceased as a first contingent mitigation step. The cause of the exceedance will be evaluated and operations will be adjusted and then go forward with the necessary mitigation which may include but not be limited to the use of plastic cover sheeting, vapor suppressing sprays, or reduction of operating rates depending on the identified cause of exceedance. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

A-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site. Specific odor control methods to be used on a routine basis will include limiting the extent of excavation areas, limiting the extent of soil stockpiles, using soil cover, covering or shrouding with plastic sheeting, and foaming with Biosolve odor control foam. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remedial Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils; If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods .

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.

- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

A-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

TABLE 1
SOIL CLEANUP OBJECTIVES
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID: Sample Depth: Lab ID: Date Sampled: Matrix:	NYSDEC Part 375.6 UUSCO (Unrestricted)	Site Specific Soil Cleanup Objective (SSCO)
Volatiles (ppm)		
Acetone	0.05	100
Carbon disulfide	(NA)	(NA)
Methylene chloride	0.05	10
Chloroform	0.37	49
Benzene	0.06	4.8
Trichloroethene	0.47	21
Toluene	0.7	100
Tetrachloroethene	1.3	19
Ethylbenzene	1	41
Total Xylenes	0.26	100
Isopropylbenzene	2.3	2.3
Methyl acetate	(NA)	(NA)
1,2,4-Trichlorobenzene	3.6	NA
1,2,3-Trichlorobenzene	NA	NA
Cyclohexane	(NA)	(NA)
Methylcyclohexane	(NA)	(NA)
TOTAL VO's:	NA	NA
TOTAL TIC's:	NA	NA
TOTAL VO's & TIC's:	NA	NA
Semivolatiles - BNA (ppm)		
4-Methylphenol	NA	NA
Naphthalene	12	100
2-Methylnaphthalene	NA	NA
1,1'-Biphenyl	(NA)	(NA)
Acenaphthylene	100	100
Acenaphthene	20	100
Dibenzofuran	7	59
Fluorene	30	100
Phenanthrene	100	100
Anthracene	100	100
Carbazole	(NA)	(NA)
Di-n-butyl phthalate	NA	NA
Fluoranthene	100	100
Pyrene	100	100
Benzo[a]anthracene	1	1
Chrysene	1	3.9
Bis(2-ethylhexyl) phthalate	NA	NA
Benzo[b]fluoranthene	1	1
Benzo[k]fluoranthene	0.8	1
Benzo[a]pyrene	1	1
Indeno[1,2,3-cd]pyrene	0.5	0.5
Dibenz[a,h]anthracene	0.33	0.33
Benzo[g,h,i]perylene	100	100
TOTAL BNA'S:	NA	NA
TOTAL TIC's:	NA	NA
TOTAL BN's & TIC's:	NA	NA

TABLE 1
SOIL CLEANUP OBJECTIVES
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID: Sample Depth: Lab ID: Date Sampled: Matrix:	NYSDEC Part 375.6 UUSCO (Unrestricted)	Site Specific Soil Cleanup Objective (SSCO)
PCB's (ppm)		
Aroclor-1254	0.1	1
Aroclor-1260	0.1	1
Pesticides (ppm)		
4,4'-DDE	0.0033	8.9
4,4'-DDD	0.0033	13
4,4'-DDT	0.0033	7.9
alpha-Chlordane	0.094	4.2
gamma-Chlordane	NA	NA
Metals (ppm)		
Aluminum	(NA)	(NA)
Antimony	(NA)	(NA)
Arsenic	13	16
Barium	350	400
Beryllium	7.2	72
Cadmium	2.5	4.3
Calcium	(NA)	(NA)
Chromium, trivalent	30	180
Cobalt	(NA)	NA
Copper	50	270
Iron	(NA)	(NA)
Lead	63	1000
Magnesium	(NA)	(NA)
Manganese	1600	2000
Mercury	0.18	0.81
Nickel	30	310
Potassium	(NA)	(NA)
Selenium	3.9	180
Silver	2	180
Sodium	(NA)	(NA)
Thallium	(NA)	(NA)
Vanadium	(NA)	NA
Zinc	109	10000
General Analytical		
Cyanide, Total-ppm	27	27

TABLE 2
SUMMARY REPORT
END POINT SIDEWALL SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID: Sample Depth: Lab ID: Date Sampled: Matrix:	NYSDEC Part 375.6 UUSCO (Unrestricted)	Site Specific Soil Cleanup Objective (SSCO)	PES-2 6.5/7 00281-002 1/7/10 Soil	PES-3 6.5/7 04575-001 05/07/2010 Soil	PES-4 6.5/7 04575-002 05/07/2010 Soil	PES-5 6.5/7 00146-002 1/5/10 Soil	PES-6 6.5/7 00526-002 1/12/10 Soil	PES-7 6.5/7 01218-001 2/2/10 Soil	PES-8 6.5/7 01218-002 2/2/10 Soil	PES-9 6.5/7 01218-003 2/2/10 Soil	PES-10 6.5/7 01849-001 2/24/10 Soil	PES-11 6.5/7 01964-001 3/2/10 Soil	PES-12 6.5/7 01964-002 3/3/10 Soil	PES-13 6.5/7 01964-003 3/4/10 Soil
Volatiles (ppm)			Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
Acetone	0.05	100	ND	ND	ND	0.00388	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	0.05	10	ND	0.00396 C	0.00746 C	0.00303 C	0.00261 C	ND	ND	ND	0.00564 B	0.00495 B	0.00403 B	0.00542 B
Chloroform	0.37	49	ND	ND	ND	ND	ND	ND	ND	ND	0.00198	ND	ND	ND
Trichloroethene	0.47	21	ND	ND	0.00128	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VO's:		NA	ND	0.00396	0.00874	0.00691	0.00261 C	ND	ND	ND	0.00762	0.00495 B	0.00403 B	0.00542 B
TOTAL TIC's:		NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.317
TOTAL VO's & TIC's:		NA	ND	0.00396	0.00874	0.00691	0.00261 C	ND	ND	ND	0.00762	0.00495 B	0.00403 B	0.322 B
Semivolatiles - BNA (ppm)														
4-Methylphenol	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	100	0.195	0.903	0.428	ND	ND	1.70	0.072 J	ND	ND	ND	0.742	0.934
4-Chloroaniline	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	NA	NA	0.096	0.420	0.251	ND	ND	0.828	0.045 J	ND	ND	ND	0.245	0.233
1,1'-Biphenyl	(NA)	(NA)	ND	0.117 J	0.070 J	ND	ND	0.259 J	ND	ND	ND	ND	0.097 J	0.076 J
Acenaphthylene	100	100	0.078 J	0.176	0.216	ND	ND	0.911	0.030 J	ND	ND	ND	0.156	0.039 J
Acenaphthene	20	100	0.392	1.44	0.935	ND	ND	2.20	0.144	ND	ND	ND	0.828	0.273
Dibenzofuran	7	59	0.187	0.887	0.477	ND	ND	1.68	0.039 J	ND	ND	ND	0.523	0.252
Fluorene	30	100	0.224	1.30	0.701	ND	ND	2.12	0.054 J	ND	ND	ND	0.657	0.133
N-Nitrosodiphenylamine	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	100	100	3.02	12.3	7.50	0.121	ND	20.3	0.669	ND	ND	ND	8.77	1.02
Anthracene	100	100	0.864	2.75	1.48	0.048 J	ND	5.33	0.228	ND	ND	ND	2.06	0.318
Carbazole	(NA)	(NA)	0.389	1.27	0.553	ND	ND	1.62	0.097	ND	ND	ND	0.680	0.119
Di-n-butyl phthalate	NA	NA	0.105	ND	0.103 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	100	4.83	14.0	8.33	0.231	ND	22.6	1.27	ND	ND	ND	12.5	1.40
Pyrene	100	100	4.65	12.6	8.32	0.292	ND	20.6	1.46	ND	ND	ND	10.6	1.07
Benzo[a]anthracene	1	1	3.71	8.40	5.43	0.339	ND	11.0	1.35	ND	ND	ND	5.72	1.21
Chrysene	1	3.9	3.73	8.12	5.35	0.341	ND	10.5	1.28	ND	ND	ND	5.65	1.11
Bis(2-ethylhexyl) phthalate	NS	NA	0.768	ND	ND	ND	ND	ND	0.025 J	ND	ND	ND	ND	ND
Benzo[b]fluoranthene	1	1	4.21	8.05	3.69	0.469	ND	7.61	1.42	ND	ND	ND	4.75	1.40
Benzo[k]fluoranthene	0.8	1	3.68	4.70	4.77	0.534	ND	7.97	1.64	ND	ND	ND	4.86	1.31
Benzo[a]pyrene	1	1	6.11	8.76	5.98	0.757	ND	11.2	2.48	ND	ND	ND	5.84	2.43
Indeno[1,2,3-cd]pyrene	0.5	0.5	3.76	3.88	2.76	0.669	ND	6.44	2.14	ND	ND	ND	0.588	1.02
Dibenz[a,h]anthracene	0.33	0.33	1.46	2.08	1.34	0.271	ND	1.81	0.597	ND	ND	ND	ND	0.613
Benzo[g,h,i]perylene	100	100	3.94	4.27	2.98	0.774	ND	7.50	2.66	ND	ND	ND	ND	0.901
TOTAL BNA'S:	NA	NA	46.4	96.4	61.7	4.85	ND	144	17.7	ND	ND	ND	65.3	15.9
TOTAL TIC's:	NA	NA	11.0	19.6	2.66	0.403	ND	41.9	4.07	ND	ND	1.60	73.4	38.1
TOTAL BN's & TIC's:	NA	NA	57.4	116	64.4	5.25	ND	186	21.8	ND	ND	1.60	139	54.0
PCB's (ppm)														
Aroclor-1254	0.1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	0.1	1	ND	0.211	0.336	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticides (ppm)														
4,4'-DDE	0.0033	8.9	0.00619 J	ND	ND	ND	ND	ND	ND	ND	0.00505	ND	ND	ND
4,4'-DDD	0.0033	13	ND	ND	ND	ND	ND	ND	ND	ND	0.00447	0.00761 J	0.025	ND
4,4'-DDT	0.0033	7.9	0.028	ND	ND	ND	ND	ND	ND	ND	0.012	ND	ND	ND
alpha-Chlordane	0.094	4.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.046	ND	ND
gamma-Chlordane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.197	ND	ND

TABLE 2
SUMMARY REPORT
END POINT SIDEWALL SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID: Sample Depth: Lab ID: Date Sampled: Matrix:	NYSDEC Part 375.6 UUSCO (Unrestricted)	Site Specific Soil Cleanup Objective (SSCO)	PES-2 6.5/7 00281-002 1/7/10 Soil	PES-3 6.5/7 04575-001 05/07/2010 Soil	PES-4 6.5/7 04575-002 05/07/2010 Soil	PES-5 6.5/7 00146-002 1/5/10 Soil	PES-6 6.5/7 00526-002 1/12/10 Soil	PES-7 6.5/7 01218-001 2/2/10 Soil	PES-8 6.5/7 01218-002 2/2/10 Soil	PES-9 6.5/7 01218-003 2/2/10 Soil	PES-10 6.5/7 01849-001 2/24/10 Soil	PES-11 6.5/7 01964-001 3/2/10 Soil	PES-12 6.5/7 01964-002 3/3/10 Soil	PES-13 6.5/7 01964-003 3/4/10 Soil
Metals (ppm)														
Aluminum	(NA)	(NA)	5980	6920	4730	5950	7420	7340	7180	6230	7360	1320	7120	8100
Antimony	(NA)	(NA)	ND	ND	0.349 J	ND	ND	ND	ND	ND	ND	0.386 J	ND	ND
Arsenic	13	16	17.9	11.1	10.1	1.63	1.39	6.99	3.50	1.08	3.64	1.62	6.85	4.26
Barium	350	400	394	464	502	40.1	39.8	318	106	36.6	165	259	372	339
Beryllium	7.2	72	0.487	0.454	0.532	0.408	0.342	0.365	0.381	0.253 J	0.363	ND	0.389	0.464
Cadmium	2.5	4.3	1.18	1.33	2.03	ND	ND	0.457	0.185 J	ND	2.17	1.16	1.31	0.383
Calcium	(NA)	(NA)	13400	12700	13800	1380	1050	13900	3500	1160	3930	6640	4640	3940
Chromium (trivalent)	30	180	19.8	21.2	40.8	12.1	12.6	16.8	18.3	11.8	15.3	77.7	17.7	17.4
Cobalt	NA	NA	7.69	9.88	7.93	4.43	5.15	5.66	5.68	4.16	7.24	2.16 J	7.40	6.02
Copper	50	270	188	220	199	43.5	16.4	139	27.0	18.4	27.6	268	51.0	31.3
Iron	(NA)	(NA)	15800	19700	20900	10100	10400	13600	15800	8840	15100	4270	16100	13600
Lead	63	1000	602	1650	1620	24.8	10.5	692	70.1	7.79	349	559	465	153
Magnesium	(NA)	(NA)	2270	3000	3650	1620	1840	3190	1890	1620	2470	576	2020	2100
Manganese	1600	2000	348	564	391	273	302	1500	290	231	289	142	342	316
Mercury	0.18	0.81	0.777	2.68	2.04	0.095	0.043	5.01	0.211	0.029	0.270	0.109	0.812	0.865
Nickel	30	310	19.4	21.6	16.3	9.73	10.7	16.0	14.2	8.54	12.7	10.8	13.3	14.2
Potassium	(NA)	(NA)	793	901	566	888	935	1620	1060	921	1230	190	879	1150
Selenium	3.9	180	ND	1.20 J	ND	ND	2.60	1.98 J	1.67 J	1.38 J	2.31	ND	2.55	3.45
Silver	2	180	2.76	0.481 J	0.574 J	ND	ND	0.283 J	ND	ND	ND	0.986	0.323 J	ND
Sodium	(NA)	(NA)	232	188	133	125	122	223	192	93.6 J	208	49.0 J	241	226
Thallium	(NA)	(NA)	ND	0.362	0.446	ND	ND	0.162 J	ND	ND	ND	ND	ND	ND
Vanadium	NA	NA	30.4	36.2	32.6	15.8	16.1	19.8	19.5	14.7	23.5	4.52	21.9	19.7
Zinc	109	10000	578	847	678	44.5	22.6	563	107	18.8	436	301	366	107
General Analytical														
Cyanide, Total-ppm	27	27	1.27	ND	ND	ND	ND	ND	2.68	ND	ND	ND	1.75	3.82

ND = Analyzed for but Not Detected at the MDL

J = The concentration was detected at a value below the RL and above the MDL

C = Common Laboratory and/or Bottle Contaminant.

B = detected in laboratory blank

Green highlighted results exceed the UUSCO

Yellow highlighted results exceed the SSCO

TABLE 2
SUMMARY REPORT
END POINT SIDEWALL SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PES-14	PES-15	PES-16	PES-17	PES-18	PES-19	PES-20
Sample Depth:	Part 375.6	Soil	6.5/7	6.5/7	6.5/7	6.5/7	6.5/7	6.5/7	6.5/7
Lab ID:	UUSCO	Cleanup	01964-004	02181-002	02181-001	02961-001	02961-002	02961-003	04062-001
Date Sampled:	(Unrestricted)	Objective	3/4/10	3/5/10	3/8/10	3/31/10	3/25/10	3/25/10	4/29/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles (ppm)			Conc	Conc	Conc	Conc	Conc	Conc	Conc
Acetone	0.05	100	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	0.05	10	0.00512 B	ND	ND	ND	ND	ND	ND
Chloroform	0.37	49	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.47	21	ND	ND	ND	ND	ND	ND	ND
TOTAL VO's:		NA	0.00512 B	ND	ND	ND	ND	ND	ND
TOTAL TIC's:		NA	ND	ND	ND	ND	0.148	ND	ND
TOTAL VO's & TIC's:		NA	0.00512 B	ND	ND	ND	0.148	ND	ND
Semivolatiles - BNA (ppm)									
4-Methylphenol	NA	NA	ND	ND	ND	ND	ND	ND	0.071 J
Hexachloroethane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	0.066 J
Isophorone	NA	NA	ND	ND	ND	ND	ND	ND	0.290
Naphthalene	12	100	0.181	0.251	2.57	0.174	ND	ND	0.851
4-Chloroaniline	NA	NA	ND	ND	ND	ND	ND	ND	0.193
2-Methylnaphthalene	NA	NA	0.106	0.067 J	1.32	0.067 J	ND	ND	0.549
1,1'-Biphenyl	(NA)	(NA)	0.028 J	ND	ND	ND	ND	ND	0.170
Acenaphthylene	100	100	0.134	0.138	2.16	0.035 J	ND	0.038 J	0.412
Acenaphthene	20	100	0.239	0.099	2.52	0.182	0.046 J	ND	1.71
Dibenzofuran	7	59	0.157	0.080	1.33	0.084	ND	ND	1.05
Fluorene	30	100	0.169	0.102	2.31	0.117	0.027 J	ND	1.05
N-Nitrosodiphenylamine	(NA)	(NA)	ND	ND	ND	ND	ND	ND	0.160
Phenanthrene	100	100	2.46	1.34	26.4	2.03	0.396	0.225	13.8
Anthracene	100	100	0.595	0.498	7.81	0.395	0.099	0.044 J	13.3
Carbazole	(NA)	(NA)	0.232	0.061 J	4.66	0.114	ND	ND	1.26
Di-n-butyl phthalate	NA	NA	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	100	3.64	2.96	50.9	2.30	0.671	0.504	14.1
Pyrene	100	100	3.47	2.73	36.9	2.14	0.686	0.511	12.4
Benzo[a]anthracene	1	1	2.95	1.42	25.0	2.06	0.438	0.336	6.38
Chrysene	1	3.9	2.86	1.36	25.8	2.33	0.502	0.385	6.49
Bis(2-ethylhexyl) phthalate	NS	NA	ND	0.150	11.1	0.088	ND	ND	0.135 J
Benzo[b]fluoranthene	1	1	2.64	1.09	27.9	1.30	0.316	0.370	8.03
Benzo[k]fluoranthene	0.8	1	2.14	1.16	21.1	1.06	0.322	0.300	8.34
Benzo[a]pyrene	1	1	3.86	1.51	26.8	3.71	0.604	0.342	5.54
Indeno[1,2,3-cd]pyrene	0.5	0.5	1.31	0.758	5.75	0.738	0.166	0.229	2.79
Dibenz[a,h]anthracene	0.33	0.33	0.528	0.273	1.68	1.07	0.133	0.102	1.45
Benzo[g,h,i]perylene	100	100	1.36	0.898	2.68	0.641	0.203	0.207	3.21
TOTAL BNA'S:	NA	NA	29.1	16.9	287	20.6	4.61	3.59	104
TOTAL TIC's:	NA	NA	19.9	26.7	653	14.6	1.82	ND	19.1
TOTAL BN's & TIC's:	NA	NA	49.0	43.6	940	35.2	6.43	3.59	123
PCB's (ppm)									
Aroclor-1254	0.1	1	ND	ND	ND	0.675	ND	ND	ND
Aroclor-1260	0.1	1	ND	ND	ND	ND	ND	ND	ND
Pesticides (ppm)									
4,4'-DDE	0.0033	8.9	ND	0.052	ND	ND	0.00101	ND	ND
4,4'-DDD	0.0033	13	ND	1.11	0.416	ND	0.00999	ND	ND
4,4'-DDT	0.0033	7.9	ND	ND	ND	ND	0.00109	ND	0.019
alpha-Chlordane	0.094	4.2	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	NA	NA	ND	ND	ND	ND	ND	ND	ND

TABLE 2
SUMMARY REPORT
END POINT SIDEWALL SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PES-14	PES-15	PES-16	PES-17	PES-18	PES-19	PES-20
Sample Depth:	Part 375.6	Soil	6.5/7	6.5/7	6.5/7	6.5/7	6.5/7	6.5/7	6.5/7
Lab ID:	UUSCO	Cleanup	01964-004	02181-002	02181-001	02961-001	02961-002	02961-003	04062-001
Date Sampled:	(Unrestricted)	Objective	3/4/10	3/5/10	3/8/10	3/31/10	3/25/10	3/25/10	4/29/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals (ppm)									
Aluminum	(NA)	(NA)	7000	5840	7810	8060	7160	10600	4510
Antimony	(NA)	(NA)	ND	ND	ND	ND	ND	ND	0.399 J
Arsenic	13	16	8.58	3.23	8.41	27.4	5.92	4.98	6.79
Barium	350	400	750	144	247	60.9	100	97.6	297
Beryllium	7.2	72	0.466	0.293 J	0.462	0.445	0.330	0.420	0.332
Cadmium	2.5	4.3	0.834	0.338	0.338	1.13	0.227 J	0.273 J	1.29
Calcium	(NA)	(NA)	3800	4170	5980	1420	2300	4100	8010
Chromium (trivalent)	30	180	18.6	15.2	17.6	18.4	12.1	17.4	18.2
Cobalt	NA	NA	5.79	4.91	8.11	4.57	5.04	5.53	5.22
Copper	50	270	78.8	42.1	46.4	326	24.6	30.7	66.7
Iron	(NA)	(NA)	12400	10200	18400	14700	10500	17900	12700
Lead	63	1000	351	107	199	138	84.6	195	808
Magnesium	(NA)	(NA)	2560	2540	2610	1910	2060	2050	2370
Manganese	1600	2000	298	170	490	83.7	303	364	291
Mercury	0.18	0.81	1.18	ND	0.832	0.323	0.503	0.732	10.6
Nickel	30	310	14.8	12.2	18.6	44.6	11.3	13.1	10.7
Potassium	(NA)	(NA)	997	818	1310	927	1030	959	688
Selenium	3.9	180	1.29 J	1.27 J	2.21 J	2.01 J	ND	1.36 J	ND
Silver	2	180	ND	ND	ND	ND	ND	0.220 J	8.46
Sodium	(NA)	(NA)	305	250	264	271	262	250	169
Thallium	(NA)	(NA)	0.197 J	ND	0.192 J	ND	ND	ND	ND
Vanadium	NA	NA	21.1	16.2	20.2	14.6	21.6	22.1	15.8
Zinc	109	10000	424	157	160	515	108	134	460
General Analytical									
Cyanide, Total-ppm	27	27	ND	ND	ND	217	ND	ND	1.45

ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the RL and above the MDL
C = Common Laboratory and/or Bottle Contaminant.
B = detected in laboratory blank
Green highlighted results exceed the UUSCO
Yellow highlighted results exceed the SSCO

TABLE 2
SUMMARY REPORT
END POINT BASE SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PEB-1	PEB-2	PEB-3	PEB-4	PEB-5	PEB-6	PEB-7	PEB-8	PEB-9	PEB-10	PEB-11	PEB-12	PEB-14
Sample Depth:	Part 375.6	Soil	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5
Lab ID:	UUSCO	Cleanup	00281-001	00281-004	00281-005	00526-003	00526-004	00526-005	01265-001	01265-002	01265-003	01265-004	01265-005	01265-006	01656-002
Date Sampled:	(Unrestricted)	Objective	1/7/10	1/8/10	1/8/10	1/15/10	1/15/10	1/15/10	2/5/10	2/5/10	2/5/10	2/5/10	2/5/10	2/5/10	2/18/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles (ppm)			Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
Acetone	0.05	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	0.05	10	ND	ND	ND	0.00333 C	0.00375 C	0.0036 C	ND	ND	ND	ND	ND	ND	0.068 B
Chloroform	0.37	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.06	4.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.47	21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	0.7	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.3	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	0.26	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.015	ND
Isopropylbenzene	2.3	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl acetate	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	3.6	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylcyclohexane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VO's:	NA	NA	ND	ND	ND	0.00333 C	0.00375 C	0.0036 C	ND	ND	ND	ND	ND	0.015	0.068 B
TOTAL TIC's:	NA	NA	ND	ND	ND	ND	ND	0.220	ND	ND	ND	0.940	0.468	5.26	5.28
TOTAL VO's & TIC's:	NA	NA	ND	ND	ND	0.00333 C	0.00375 C	0.224 C	ND	ND	ND	0.940	0.468	5.28	5.35 B
Semivolatiles - BNA (ppm)															
4-Methylphenol	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	100	0.124 J	0.323	0.323	1.08	0.413	2.51	0.211	0.322	1.18	0.434	3.61	1.31	0.320
2-Methylnaphthalene	NA	NA	0.079 J	0.275	0.250	0.427	0.213	0.922	0.127	0.141	0.567	0.204	1.29	0.692	0.197
1,1'-Biphenyl	(NA)	(NA)	ND	ND	ND	0.107 J	ND	ND	ND	ND	0.092 J	0.046 J	0.211 J	0.071 J	ND
Acenaphthylene	100	100	0.044 J	0.153 J	0.099 J	0.145 J	0.120	ND	0.028 J	0.033 J	0.261	0.091	0.250 J	0.149	0.057 J
Acenaphthene	20	100	0.343	0.740	1.25	0.823	0.558	1.20	0.331	0.114	0.859	0.549	2.24	0.522	0.495
Dibenzofuran	7	59	0.123 J	0.299	0.644	0.513	0.333	0.628	0.163	0.064 J	0.501	0.265	1.57	0.383	0.238
Fluorene	30	100	0.171	0.388	0.885	0.548	0.432	0.902	0.220	0.058 J	0.570	0.280	1.74	0.491	0.259
Phenanthrene	100	100	1.85	4.27	9.21	7.07	4.43	8.11	2.83	0.810	6.81	2.98	18.4	4.55	1.88
Anthracene	100	100	0.824	1.49	2.52	1.88	1.13	3.48	0.821	0.228	1.76	0.931	3.96	1.11	0.684
Carbazole	(NA)	(NA)	0.552	0.482	0.774	0.688	0.492	1.35	0.272	0.087	0.792	0.382	2.22	0.484	0.178
Di-n-butyl phthalate	NA	NA	ND	ND	ND	0.106 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	100	4.72	6.30	9.95	10.1	5.76	13.9	3.52	1.31	9.25	4.32	19.3	5.28	1.91
Pyrene	100	100	4.24	6.21	8.87	10.6	4.46	12.3	3.16	1.48	8.64	4.20	17.8	5.00	1.57
Benzo[a]anthracene	1	1	7.27	6.87	5.88	6.70	3.78	15.8	2.76	1.34	6.45	3.99	13.7	3.33	1.06
Chrysene	1	3.9	6.30	6.52	5.86	6.84	3.81	15.2	2.75	1.44	6.14	3.93	14.0	3.60	1.05
Bis(2-ethylhexyl) phthalate	NA	NA	ND	ND	1.06	0.123 J	0.153	ND	ND	ND	0.169	ND	ND	0.467	ND
Benzo[b]fluoranthene	1	1	8.05	8.06	5.99	6.30	4.03	18.7	3.11	1.64	6.73	6.38	17.4	3.38	0.900
Benzo[k]fluoranthene	0.8	1	6.99	8.04	5.20	6.08	3.90	15.5	2.72	1.73	6.34	4.45	12.0	2.94	0.719
Benzo[a]pyrene	1	1	11.7	12.9	8.57	9.52	5.93	27.2	4.28	2.68	9.99	8.91	23.0	4.66	1.18
Indeno[1,2,3-cd]pyrene	0.5	0.5	6.34	7.93	4.73	6.04	4.15	15.4	3.34	2.18	7.70	7.49	17.5	3.24	0.602
Dibenz[a,h]anthracene	0.33	0.33	2.99	3.33	1.88	2.44	1.38	7.06	1.24	0.787	2.70	3.01	4.91	1.05	0.287
Benzo[g,h,i]perylene	100	100	5.75	7.64	4.69	6.82	4.46	14.5	4.13	2.69	9.43	8.87	20.1	3.87	0.656
TOTAL BNA'S:	NA	NA	68.5	82.2	78.6	85.0	49.9	175	36.0	19.1	86.9	61.7	195	46.6	14.2
TOTAL TIC's:	NA	NA	23.5	31.5	23.7	29.6	16.2	55.6	14.1	4.62	30.1	24.7	62.0	28.8	29.5
TOTAL BN's & TIC's:	NA	NA	92.0	114	102	115	66.1	231	50.1	23.7	117	86.4	257	75.4	43.7
PCB's (ppm)															
Aroclor-1254	0.1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	0.1	1	ND	ND	ND	ND	1.18	ND	ND	0.209	0.292	ND	0.758	ND	ND

TABLE 2
SUMMARY REPORT
END POINT BASE SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PEB-1	PEB-2	PEB-3	PEB-4	PEB-5	PEB-6	PEB-7	PEB-8	PEB-9	PEB-10	PEB-11	PEB-12	PEB-14
Sample Depth:	Part 375.6	Soil	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5
Lab ID:	UUSCO	Cleanup	00281-001	00281-004	00281-005	00526-003	00526-004	00526-005	01265-001	01265-002	01265-003	01265-004	01265-005	01265-006	01656-002
Date Sampled:	(Unrestricted)	Objective	1/7/10	1/8/10	1/8/10	1/15/10	1/15/10	1/15/10	2/5/10	2/5/10	2/5/10	2/5/10	2/5/10	2/5/10	2/18/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Pesticides (ppm)															
4,4'-DDE	0.0033	8.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.223	0.00301
4,4'-DDD	0.0033	13	ND	ND	ND	ND	ND	0.018	ND	ND	ND	ND	ND	0.530	0.00629
4,4'-DDT	0.0033	7.9	ND	ND	0.013	ND	ND	ND	ND	ND	ND	ND	ND	0.184	0.014
alpha-Chlordane	0.094	4.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (ppm)															
Aluminum	(NA)	(NA)	6910	7140	7570	6770	9090	9130	7870	7980	7200	7140	7870	6320	11000
Antimony	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	13	16	9.88	13.1	12.1	10.2	7.30	10.4	3.34	7.27	6.67	5.98	11.1	13.5	8.35
Barium	350	400	109	146	754	180	180	98.4	81.3	122	126	76.3	280	335	124
Beryllium	7.2	72	0.362	0.458	0.478	0.375	0.666	0.543	0.328	0.437	0.374	0.337	0.438	0.427	0.627
Cadmium	2.5	4.3	ND	ND	1.08	0.297 J	0.265 J	0.331 J	ND	0.157 J	0.214 J	ND	0.798	1.45	ND
Calcium	(NA)	(NA)	7130	10500	11500	10300	13300	11900	4300	3860	6340	5380	14100	11800	6760
Chromium, trivalent	30	180	11.6	14.0	19.6	12.9	22.9	17.1	16.1	15.4	13.7	13.5	19.6	18.3	23.4
Cobalt	(NA)	NA	7.46	15.4	10.2	6.38	12.2	8.32	5.83	8.48	7.22	5.89	7.73	14.8	9.40
Copper	50	270	37.5	79.6	186	32.6	128	49.9	17.9	45.2	39.1	31.5	76.6	91.7	61.9
Iron	(NA)	(NA)	24700	50900	22000	19800	19400	29000	12300	17500	19300	16100	17400	18600	23800
Lead	63	1000	432	541	933	147	417	270	48.6	212	173	122	570	833	290
Magnesium	(NA)	(NA)	1650	1450	3060	2380	3200	2050	2830	2990	2350	2060	3190	4310	4920
Manganese	1600	2000	417	733	389	358	420	373	304	323	372	339	444	338	490
Mercury	0.18	0.81	0.934	0.096	2.11	0.094	0.840	1.11	0.904	0.805	1.77	0.582	5.90	2.35	0.957
Nickel	30	310	16.8	25.4	21.3	15.2	23.0	32.4	12.9	17.7	16.8	13.6	18.0	18.3	24.2
Potassium	(NA)	(NA)	897	736	976	1010	1300	995	1260	1640	1360	1140	1320	1090	2650
Selenium	3.9	180	ND	ND	ND	2.13 J	2.82	4.04	1.61 J	2.28 J	1.78 J	1.37 J	1.83 J	2.89	1.83 J
Silver	2	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.665	6.90	0.199 J
Sodium	(NA)	(NA)	205	218	288	211	317	348	175	179	229	216	328	302	325
Thallium	(NA)	(NA)	ND	ND	ND	0.247 J	ND	ND	ND	ND	ND	ND	0.159 J	0.151 J	0.250 J
Vanadium	(NA)	NA	19.0	28.6	30.4	21.5	23.1	24.5	17.8	22.6	21.8	17.8	22.1	48.4	31.3
Zinc	109	10000	86.2	125	1540	204	640	200	71.7	234	163	99.2	544	537	92.2
General Analytical															
Cyanide, Total-ppm	27	27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the RL and above the MDL
C = Common Laboratory and/or Bottle Contaminant.
B = detected in laboratory blank
Green highlighted results exceed the UUSCO
Yellow highlighted results exceed the SSCO

TABLE 2
SUMMARY REPORT
END POINT BASE SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PEB-15B-SW	PEB-16A	PEB-17	PEB-20	PEB-21	PEB-22	PEB-23	PEB-24A	PEB-24A	PEB-25	PEB-26	PEB-27	PEB-28	PEB-29
Sample Depth:	Part 375.6	Soil	7.5/8	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5
Lab ID:	UUSCO	Cleanup	03785-001	03436-004	02205-002	03366-001	03079-001	03079-002	02205-005	03366-002	03366-003	02205-007	03079-003	03079-004	02205-008	02205-009
Date Sampled:	(Unrestricted)	Objective	4/22/10	4/14/10	3/11/10	4/9/10	4/6/10	4/6/10	3/11/10	4/9/10	4/9/10	3/11/10	4/6/10	4/6/10	3/11/10	3/11/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles (ppm)			Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
Acetone	0.05	100	ND	ND	ND	ND	0.00946	ND	ND	ND	ND	ND	0.012	ND	0.023	ND
Carbon disulfide	(NA)	(NA)	ND	ND	ND	ND	0.00201	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	0.05	10	ND	ND	ND	ND	ND	ND	0.00505 C	ND	ND	ND	ND	ND	0.0038 C	0.017 C
Chloroform	0.37	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.06	4.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.47	21	ND	ND	ND	ND	ND	ND	0.0012	ND	ND	ND	ND	ND	0.00183	ND
Toluene	0.7	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.3	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	41	ND	ND	0.741	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	0.26	100	ND	ND	0.929 J	ND	ND	ND	ND	ND	ND	2.63	ND	ND	0.023	0.011 J
Isopropylbenzene	2.3	2.3	ND	ND	0.996	ND	ND	ND	ND	ND	ND	1.13	ND	ND	0.00422	0.024
Methyl acetate	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	3.6	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00572	ND
Methylcyclohexane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.21	ND	ND	0.016	ND
TOTAL VO's:	NA	NA	ND	ND	2.67	ND	0.012	ND	0.00625	ND	ND	5.97	0.012	ND	0.077	0.052
TOTAL TIC's:	NA	NA	ND	ND	245	ND	ND	ND	0.191	0.00968	0.00992	730	ND	ND	4.92	13.1
TOTAL VO's & TIC's:	NA	NA	ND	ND	248	ND	0.012	ND	0.197	0.00968	0.00992	736	0.012	ND	5.00	13.2
Semivolatiles - BNA (ppm)																
4-Methylphenol	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	100	ND	0.965	58.1	0.611	ND	0.199	0.860	ND	ND	0.576	ND	ND	9.29	0.924
2-Methylnaphthalene	NA	NA	ND	0.592 J	21.8	0.319 J	ND	0.199	0.350	ND	ND	0.270	ND	ND	3.30	0.341 J
1,1'-Biphenyl	(NA)	(NA)	ND	ND	6.49	0.344 J	ND	0.057 J	0.106 J	ND	ND	0.077	ND	ND	0.564	ND
Acenaphthylene	100	100	ND	0.322 J	ND	0.616	ND	ND	0.197	ND	ND	0.216	ND	ND	0.262 J	0.136 J
Acenaphthene	20	100	0.114	2.52	78.1	4.21	ND	0.909	1.15	ND	ND	0.392	ND	ND	4.79	0.846
Dibenzofuran	7	59	0.069 J	2.56	43.3	3.16	ND	0.522	0.781	ND	ND	0.296	ND	ND	3.38	0.432
Fluorene	30	100	0.096	2.42	59.0	3.31	ND	0.654	0.852	ND	ND	0.451	ND	ND	3.59	0.670
Phenanthrene	100	100	2.07	40.4	114	27.3	ND	5.61	7.52	0.676	0.401	4.29	ND	ND	10.9	2.47
Anthracene	100	100	0.452	7.83	41.8	5.45	ND	1.18	2.16	0.131	0.096	1.13	ND	ND	2.88	0.969
Carbazole	(NA)	(NA)	0.124	4.25	1.72	1.86	ND	0.557	0.825	ND	0.048 J	0.363	ND	ND	1.01	0.881
Di-n-butyl phthalate	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	100	2.17	37.1	46.4	27.8	ND	4.48	10.9	0.432	0.565	7.62	ND	ND	10.3	3.06
Pyrene	100	100	2.54	27.7	26.1	20.1	ND	3.53	7.66	0.407	0.460	3.87	ND	ND	5.51	2.02
Benzo[a]anthracene	1	1	1.24	15.9	7.48	10.5	ND	1.86	6.27	1.33	0.322	2.67	ND	ND	3.40	1.29
Chrysene	1	3.9	1.26	16.5	6.67	9.94	ND	1.79	5.66	1.35	0.306	2.67	ND	ND	3.32	1.39
Bis(2-ethylhexyl) phthalate	NA	NA	ND	1.05	ND	ND	ND	ND	ND	0.108	0.057 J	ND	ND	ND	0.568	1.06
Benzo[b]fluoranthene	1	1	0.766	11.1	5.99	9.49	ND	1.11	5.36	0.517	0.264	3.39	ND	ND	3.56	1.55
Benzo[k]fluoranthene	0.8	1	0.921	12.0	6.42	7.48	ND	1.19	5.50	0.249	0.204	3.25	ND	ND	2.59	1.27
Benzo[a]pyrene	1	1	1.19	15.3	7.28	10.4	ND	1.30	8.61	2.19	0.317	4.01	ND	ND	4.45	1.63
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.692	4.44	ND	3.75	ND	0.476	2.76	0.258	0.126	1.20	ND	ND	2.09	1.03
Dibenz[a,h]anthracene	0.33	0.33	0.252	2.02	ND	1.35	ND	0.267	1.21	0.388	0.071 J	0.528	ND	ND	0.856	0.367 J
Benzo[g,h,i]perylene	100	100	0.855	4.44	ND	3.39	ND	0.509	2.64	0.302	0.141	1.10	ND	ND	2.17	1.13
TOTAL BNA'S:	NA	NA	14.8	209	531	151	ND	26.4	71.4	8.34	3.38	38.4	ND	ND	78.8	23.5
TOTAL TIC's:	NA	NA	0.645	29.8	232	45.4	ND	5.70	46.8	9.84	ND	111	ND	ND	587	598
TOTAL BN's & TIC's:	NA	NA	15.4	239	763	196	ND	32.1	118	18.2	3.38	149	ND	ND	666	622
PCB's (ppm)																
Aroclor-1254	0.1	1	ND	ND	ND	ND	ND	0.00294	ND	ND	ND	ND	ND	0.00313	ND	ND
Aroclor-1260	0.1	1	ND	0.00771	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2
SUMMARY REPORT
END POINT BASE SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PEB-15B-SW	PEB-16A	PEB-17	PEB-20	PEB-21	PEB-22	PEB-23	PEB-24A	PEB-24A	PEB-25	PEB-26	PEB-27	PEB-28	PEB-29
Sample Depth:	Part 375.6	Soil	7.5/8	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5
Lab ID:	UUSCO	Cleanup	03785-001	03436-004	02205-002	03366-001	03079-001	03079-002	02205-005	03366-002	03366-003	02205-007	03079-003	03079-004	02205-008	02205-009
Date Sampled:	(Unrestricted)	Objective	4/22/10	4/14/10	3/11/10	4/9/10	4/6/10	4/6/10	3/11/10	4/9/10	4/9/10	3/11/10	4/6/10	4/6/10	3/11/10	3/11/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Pesticides (ppm)																
4,4'-DDE	0.0033	8.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.247	ND	0.000579	0.032	0.184
4,4'-DDD	0.0033	13	ND	ND	0.075	ND	ND	ND	0.039	ND	ND	0.133	ND	0.0029	0.757	3.20
4,4'-DDT	0.0033	7.9	ND	0.015	0.026	ND	ND	ND	0.023	ND	ND	0.405	ND	0.000463	0.033	0.101
alpha-Chlordane	0.094	4.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (ppm)																
Aluminum	(NA)	(NA)	6290	7100	11200	6960	8940	7080	11000	7090	7800	5340	9220	12800	10600	10200
Antimony	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	13	16	3.96	15.2	10.9	14.7	3.01	3.07	8.27	12.1	17.5	7.37	2.87	3.70	10.0	9.49
Barium	350	400	109	220	215	176	21.2	43.2	437	425	256	433	21.4	37.9	625	377
Beryllium	7.2	72	0.362	0.478	0.577	0.514	0.308 J	0.303	0.662	0.441	0.455	0.410	0.361	0.477	0.570	0.804
Cadmium	2.5	4.3	ND	0.586	0.484	1.38	ND	ND	0.460	1.97	1.21	0.761	ND	ND	1.03	0.824
Calcium	(NA)	(NA)	2310	20400	13000	16900	458	779	7730	7450	15000	10600	479	773	19900	14700
Chromium, trivalent	30	180	13.4	17.6	25.7	15.6	12.2	10.7	45.1	14.7	18.6	14.3	12.8	16.8	39.1	34.1
Cobalt	(NA)	NA	5.12	7.55	9.80	6.33	4.85	5.25	8.25	8.17	6.95	5.19	5.73	9.42	10.1	10.3
Copper	50	270	30.9	76.1	92.3	95.1	263	25.7	121	54.9	131	42.1	139	14.7	128	278
Iron	(NA)	(NA)	9890	17400	22200	16500	13900	13500	21500	15600	26800	13600	13500	18000	21800	18200
Lead	63	1000	172	657	467	342	6.22	75.3	753	290	485	233	6.10	9.27	449	364
Magnesium	(NA)	(NA)	2220	4530	4520	1770	2770	2130	3250	2670	2320	2690	2750	3350	4340	4320
Manganese	1600	2000	265	424	410	844	95.0	104	397	405	802	251	99.0	133	531	345
Mercury	0.18	0.81	1.25	2.52	1.56	1.21	0.015 J	0.160	1.50	1.11	1.01	3.09	0.018	0.068	3.01	1.98
Nickel	30	310	13.4	16.5	32.3	16.2	14.1	18.2	20.0	17.3	18.3	14.5	15.4	20.3	25.8	26.2
Potassium	(NA)	(NA)	909	1300	1670	995	1040	859	1590	1230	1040	781	1080	1160	1620	1670
Selenium	3.9	180	ND	1.66 J	2.79	1.48 J	ND	ND	2.89	1.69 J	1.95 J	2.19 J	ND	2.61	3.94	3.79
Silver	2	180	ND	2.28	0.898	0.282 J	ND	ND	0.174 J	1.12	0.630	ND	ND	ND	0.769	1.26
Sodium	(NA)	(NA)	186	380	439	575	389	80.6 J	415	168	664	205	394	137	468	428
Thallium	(NA)	(NA)	ND	0.229 J	ND	0.215 J	ND	ND	ND	ND	0.196 J	ND	ND	ND	ND	0.164 J
Vanadium	(NA)	NA	15.4	26.2	66.4	20.0	14.8	15.0	30.1	21.5	24.8	19.8	16.0	19.7	33.5	30.5
Zinc	109	10000	111	370	250	513	32.8	81.6	234	483	522	318	36.9	54.6	444	560
General Analytical																
Cyanide, Total-ppm	27	27	ND	1.39	2.01	1.98	2.11	12.3	4.11	ND	1.02 J	1.77	2.49	ND	4.22	1.65

ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the RL and above the MDL
C = Common Laboratory and/or Bottle Contaminant.
B = detected in laboratory blank
Green highlighted results exceed the UUSCO
Yellow highlighted results exceed the SSCO

TABLE 2
SUMMARY REPORT
END POINT BASE SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PEB-30	PEB-31	PEB-32	PEB-33	PEB-34	PEB-35	PEB-36	PEB-37	PEB-38	PEB-39	PEB-40	PEB-41	PEB-42
Sample Depth:	Part 375.6	Soil	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5
Lab ID:	UUSCO	Cleanup	02205-010	03079-005	03079-006	03079-007	03079-008	03079-009	06659-001	06659-002	06659-003	06659-004	06659-005	06659-006	06659-007
Date Sampled:	(Unrestricted)	Objective	3/11/10	4/6/10	4/6/10	4/6/10	4/6/10	4/6/10	7/8/10	7/8/10	7/8/10	7/8/10	7/8/10	7/8/10	7/8/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles (ppm)			Conc	Conc	Conc	Conc	Conc	Conc							
Acetone	0.05	100	0.007	0.044	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	0.05	10	0.00605 C	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	0.37	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.06	4.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.47	21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	0.7	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.3	19	0.00201	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	41	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.886	ND	ND	ND
Total Xylenes	0.26	100	ND	ND	ND	ND	ND	ND	ND	ND	1.39	3.81	ND	0.00394 J	ND
Isopropylbenzene	2.3	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.08	3.79	ND	ND
Methyl acetate	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.13	ND	ND	ND
1,2,4-Trichlorobenzene	3.6	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	2.69	ND	ND	0.011	ND
Methylcyclohexane	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VO's:	NA	NA	0.015	0.044	ND	ND	ND	ND	ND	ND	4.08	7.91	3.79	0.014	ND
TOTAL TIC's:	NA	NA	ND	ND	ND	0.075	ND	ND	2.11	ND	1130	932	1340	4.23	257
TOTAL VO's & TIC's:	NA	NA	0.015	0.044	ND	0.075	ND	ND	2.11	ND	1130	940	1340	4.24	257
Semivolatiles - BNA (ppm)															
4-Methylphenol	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	100	0.600	ND	ND	ND	0.131	ND	0.938	0.898	1.04	1.56	1.11	0.874	19.6
2-Methylnaphthalene	NA	NA	0.192	ND	ND	ND	0.081	ND	0.250	0.265	0.181	1.10	0.362	0.272	11.5
1,1'-Biphenyl	(NA)	(NA)	ND	ND	ND	ND	ND	ND	0.043 J	ND	ND	0.128	ND	0.086	3.94
Acenaphthylene	100	100	0.052 J	ND	ND	ND	0.120	ND	0.138	0.112 J	0.041 J	0.097	0.405	0.054 J	0.546
Acenaphthene	20	100	0.269	ND	ND	ND	0.302	ND	0.552	0.667	0.812	1.64	4.78	2.44	21.0
Dibenzofuran	7	59	0.108	ND	ND	ND	0.183	ND	0.299	0.303	0.314	1.25	1.14	1.61	16.6
Fluorene	30	100	0.181	0.048 J	ND	ND	0.215	ND	0.376	0.412	0.430	1.36	4.14	1.82	16.5
Phenanthrene	100	100	1.45	ND	0.112	0.199	3.47	ND	3.39	3.46	2.19	5.35	15.4	4.12	45.3
Anthracene	100	100	0.554	ND	ND	0.047 J	0.640	ND	1.03	1.74	0.889	1.10	5.70	1.30	9.69
Carbazole	(NA)	(NA)	0.143	ND	ND	ND	0.277	ND	0.425	0.601	0.404	0.372	ND	0.327	2.26
Di-n-butyl phthalate	NA	NA	ND	ND	ND	ND	ND	ND	0.041 J	ND	ND	ND	ND	ND	ND
Fluoranthene	100	100	2.17	ND	0.050 J	0.316	4.13	ND	5.09	7.64	4.16	3.33	15.9	2.64	20.4
Pyrene	100	100	1.48	ND	0.072 J	0.321	3.66	ND	4.28	6.48	3.20	2.23	17.5	1.74	14.4
Benzo[a]anthracene	1	1	1.19	ND	0.218	0.191	1.65	ND	3.28	11.1	4.40	1.23	12.3	0.885	4.76
Chrysene	1	3.9	1.19	ND	0.262	0.222	1.95	ND	2.98	9.91	3.96	1.17	11.7	0.837	4.03
Bis(2-ethylhexyl) phthalate	NA	NA	4.00	ND	ND	ND	ND	ND	ND	ND	ND	0.641	0.668	ND	ND
Benzo[b]fluoranthene	1	1	1.65	ND	0.053 J	0.128	1.42	ND	4.35	17.1	6.64	0.897	12.8	0.775	3.97
Benzo[k]fluoranthene	0.8	1	1.14	ND	0.053 J	0.161	1.27	ND	2.80	7.51	3.81	0.562	7.00	0.705	2.61
Benzo[a]pyrene	1	1	2.00	ND	0.161	0.199	1.57	ND	4.95	17.2	7.78	1.43	13.5	1.11	4.99
Indeno[1,2,3-cd]pyrene	0.5	0.5	1.00	ND	ND	0.093	0.676	ND	4.57	10.4	5.30	0.629	7.99	0.796	3.87
Dibenz[a,h]anthracene	0.33	0.33	0.538	ND	ND	0.036 J	0.253	ND	1.98	4.47	2.20	0.328	2.84	0.247	1.40
Benzo[g,h,i]perylene	100	100	1.10	ND	ND	0.141	0.784	ND	4.51	9.01	5.04	0.621	7.19	0.724	3.54
TOTAL BNA'S:	NA	NA	21.0	0.048 J	0.981	2.05	22.8	ND	46.3	109	52.8	27.0	142	23.4	211
TOTAL TIC's:	NA	NA	99.5	ND	1.59	ND	2.96	ND	33.1	34.7	40.8	123	195	64.8	184
TOTAL BN's & TIC's:	NA	NA	121	0.048 J	2.57	2.05	25.8	ND	79.4	144	93.6	150	337	88.2	395
PCB's (ppm)															
Aroclor-1254	0.1	1	ND	ND	0.033	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	0.1	1	ND	ND	ND	ND	ND	ND	1.16	ND	ND	ND	ND	ND	ND

TABLE 2
SUMMARY REPORT
END POINT BASE SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PEB-30	PEB-31	PEB-32	PEB-33	PEB-34	PEB-35	PEB-36	PEB-37	PEB-38	PEB-39	PEB-40	PEB-41	PEB-42
Sample Depth:	Part 375.6	Soil	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5
Lab ID:	UUSCO	Cleanup	02205-010	03079-005	03079-006	03079-007	03079-008	03079-009	06659-001	06659-002	06659-003	06659-004	06659-005	06659-006	06659-007
Date Sampled:	(Unrestricted)	Objective	3/11/10	4/6/10	4/6/10	4/6/10	4/6/10	4/6/10	7/8/10	7/8/10	7/8/10	7/8/10	7/8/10	7/8/10	7/8/10
Matrix:		(SSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Pesticides (ppm)															
4,4'-DDE	0.0033	8.9	0.212	ND	0.00364	ND	ND	ND	ND	ND	ND	0.057	ND	ND	ND
4,4'-DDD	0.0033	13	7.81	ND	0.010	ND	ND	ND	ND	ND	ND	0.370	0.083	0.018	0.029
4,4'-DDT	0.0033	7.9	ND	ND	0.00716	ND	ND	ND	ND	ND	ND	0.032	ND	ND	ND
alpha-Chlordane	0.094	4.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (ppm)															
Aluminum	(NA)	(NA)	7340	7690	13100	6820	6870	7190	7360	6970	11300	6960	8220	7920	9500
Antimony	(NA)	(NA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.369 J	ND	ND
Arsenic	13	16	9.16	2.78	3.95	7.94	5.32	104	7.72	7.40	2.90	20.2	10.3	3.43	38.5
Barium	350	400	143	26.5	40.2	87.4	102	28.0	336	80.1	99.0	224	460	103	428
Beryllium	7.2	72	0.532	0.368	0.535	0.299 J	0.316	0.303	0.486	0.438	0.678	0.443	0.754	0.356	0.519
Cadmium	2.5	4.3	0.256 J	ND	ND	ND	0.317	ND	0.652	ND	ND	0.493	0.952	0.255 J	0.387
Calcium	(NA)	(NA)	14000	974	874	1310	5000	570	22500	4600	2630	13700	16800	59000	8620
Chromium, trivalent	30	180	18.7	10.9	16.4	10.4	11.3	10.6	21.6	13.7	20.8	14.1	21.1	14.4	23.2
Cobalt	(NA)	NA	9.78	7.21	9.07	7.09	6.70	4.89	7.49	9.43	7.44	5.93	9.01	5.17	8.49
Copper	50	270	74.1	11.9	20.8	20.9	59.4	105	66.3	47.3	20.7	653	311	47.8	575
Iron	(NA)	(NA)	20400	14800	17900	17600	15200	13600	15100	32900	13900	13700	26700	15400	18200
Lead	63	1000	428	5.51	14.9	67.1	266	6.10	503	497	136	278	1010	173	725
Magnesium	(NA)	(NA)	2330	2690	3290	1950	2710	2240	3690	1920	2690	2730	3130	5170	3560
Manganese	1600	2000	222	297	125	301	428	137	447	292	142	224	531	241	387
Mercury	0.18	0.81	6.12	0.011 J	0.084	0.595	0.355	0.128	4.55	0.279	0.253	8.83	8.68	2.07	3.62
Nickel	30	310	28.1	13.5	28.2	14.1	12.6	22.5	15.5	18.7	19.0	32.7	23.1	10.4	127
Potassium	(NA)	(NA)	1060	1010	1160	644	693	801	1230	1050	1280	975	1350	1380	1750
Selenium	3.9	180	2.62 J	ND	3.22	1.28 J	ND	1.58 J	1.45 J	1.84 J	1.47 J	1.97 J	2.93	ND	1.90 J
Silver	2	180	ND	ND	ND	ND	0.155 J	ND	0.408 J	ND	ND	0.263 J	0.226 J	ND	ND
Sodium	(NA)	(NA)	410	102 J	159	66.0 J	98.3 J	115 J	386	305	268	440	582	526	658
Thallium	(NA)	(NA)	ND	ND	ND	ND	ND	ND	0.148 J	0.173 J	ND	ND	0.260 J	ND	0.196 J
Vanadium	(NA)	NA	22.2	14.6	19.3	14.7	15.0	13.8	25.3	22.8	24.8	22.9	29.8	22.4	27.7
Zinc	109	10000	182	36.8	84.0	93.1	217	102	459	58.4	50.1	695	351	103	352
General Analytical															
Cyanide, Total-ppm	27	27	1.86	ND	ND	ND	ND	ND	ND	3.95	ND	10.1	3.99	ND	7.37

ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the RL and above the MDL
C = Common Laboratory and/or Bottle Contaminant.
B = detected in laboratory blank
Green highlighted results exceed the UUSCO
Yellow highlighted results exceed the SSCO

TABLE 2
SUMMARY REPORT
END POINT PERCHED UNIT SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266
BCP PROJECT C241098

Sample ID:	**Site Specific**	**PEB-15B-BASE**	**M-1-PX**	**PEB-VV-N1**	**PEB-VV-S1**	**PEB-VV-S2**	**VV-BASE A**	**PEB-VV-W1**	**PEB-VV-E2**	**TW-4-1**	**TW-4-2**	**TW-4-3**	**TW-4-4**	**TW-4-5**
Sample Depth:	**Soil**	**8/8.5**	**10/10.5**	**11.5/12.5**	**15.5/16**	**15.5/16**	**16/17**	**15/15.5**	**12.5/13**	**9.5/10**	**9/10'**	**9/10'**	**9/10'**	**9.5/10**
Lab ID:	**Cleanup**	**03785-002**	**01849-002**	**02164-003**	**02164-007**	**02164-008**	**02380-001**	**03080-001**	**03080-002**	**09490-001**	**09490-002**	**09490-003**	**09490-004**	**09490-005**
Date Sampled:	**Objective**	**4/22/10**	**2/24/10**	**3/10/10***	**3/10/10***	**3/10/10***	**3/16/10**	**4/6/10**	**4/6/10**	**09/22/2010**	**09/22/2010**	**09/22/2010**	**09/22/2010**	**09/22/2010**
Matrix:	**(SSCO)**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Volatiles (ppm)		Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
Acetone	0.05	ND	ND	ND	ND	ND	ND	ND	0.022	ND	ND	ND	ND	ND
Carbon disulfide	NA	ND	ND	ND	ND	0.00239	ND	ND	0.00952	ND	ND	ND	ND	ND
Methylene chloride	0.05	ND	0.010 B	ND	ND	0.00597 C	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	49	ND	0.00721	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.3	ND	0.00235	ND	ND	ND	ND	ND	0.00367	ND	ND	ND	ND	ND
Ethylbenzene	1	ND	ND	ND	ND	ND	ND	ND	0.00274	ND	ND	ND	ND	ND
Total Xylenes	1.6	ND	ND	ND	ND	ND	ND	ND	0.00403 J	ND	ND	ND	ND	ND
Isopropylbenzene	2.3	ND	ND	0.313	ND	ND	ND	0.107	0.00896	28.1	8.65	ND	4.25	ND
Cyclohexane	NA	ND	ND	1.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylcyclohexane	NA	ND	ND	2.18	ND	ND	ND	0.164	ND	ND	ND	ND	ND	ND
TOTAL VO's:	NA	ND	0.020	3.69	ND	0.00836 C	ND	0.271	0.051	28.1	8.65	ND	4.25	ND
TOTAL TIC's:	NA	ND	ND	43.9	ND	1.35	28.2	33.4	0.951	2710	977	707	1170	1120
TOTAL VO's & TIC's:	NA	ND	0.020	47.6	ND	1.36	28.2	33.7	1.00	2740	986	707	1170	1120
Semivolatiles - BNA (ppm)														
Naphthalene	12	ND	ND	0.918	ND	0.601	0.124	0.303	0.088	~	~	~	~	~
2-Methylnaphthalene	NA	ND	ND	0.084 J	ND	ND	0.060 J	0.172	0.052 J	~	~	~	~	~
1,1'-Biphenyl	NA	ND	ND	0.021 J	ND	ND	ND	ND	ND	~	~	~	~	~
Acenaphthylene	107	ND	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~
Acenaphthene	98	0.043 J	ND	2.58	ND	1.89	0.148	0.321	0.201	~	~	~	~	~
Dibenzofuran	210	ND	ND	0.327	ND	ND	0.073	0.153	ND	~	~	~	~	~
Fluorene	386	0.030 J	ND	0.723	ND	0.594	0.121	0.222	0.072 J	~	~	~	~	~
Phenanthrene	1000	0.649	ND	0.679	ND	2.10	0.437	0.803	0.090	~	~	~	~	~
Anthracene	1000	0.155	ND	0.430	ND	0.873	0.152	0.264	ND	~	~	~	~	~
Carbazole	NA	0.056 J	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~
Di-n-butyl phthalate	NA	ND	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~
Fluoranthene	1000	0.984	ND	1.92	ND	2.62	0.445	0.677	0.038 J	~	~	~	~	~
Pyrene	1000	1.15	ND	1.32	ND	2.75	0.438	0.623	0.040 J	~	~	~	~	~
Benzo[a]anthracene	1	0.693	ND	1.56	ND	2.10	0.167	0.229	ND	~	~	~	~	~
Chrysene	1	0.703	ND	1.54	ND	5.57	0.208	0.220	ND	~	~	~	~	~
Bis(2-ethylhexyl) phthalate	NA	ND	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~
Benzo[b]fluoranthene	1.7	0.521	ND	2.25	ND	1.86	0.125	0.145	ND	~	~	~	~	~
Benzo[k]fluoranthene	1.7	0.570	ND	2.24	ND	1.08	0.147	0.139	ND	~	~	~	~	~
Benzo[a]pyrene	22	0.746	ND	3.12	ND	2.08	0.170	0.148	ND	~	~	~	~	~
Indeno[1,2,3-cd]pyrene	8.2	0.441	ND	1.44	ND	0.492 J	0.112	0.072 J	ND	~	~	~	~	~
Dibenz[a,h]anthracene	1000	0.184	ND	0.832	ND	ND	0.031 J	0.056 J	ND	~	~	~	~	~
Benzo[g,h,i]perylene	1000	0.497	ND	1.49	ND	0.946	0.132	0.076 J	ND	~	~	~	~	~
TOTAL BNA'S:	NA	7.42	ND	23.5	ND	25.6	3.09	4.62	0.581	~	~	~	~	~
TOTAL TIC's:	NA	0.415	2.49	41.8	0.366	335	59.8	125	1.91	~	~	~	~	~
TOTAL BN's & TIC's:	NA	7.84	2.49	65.3	0.366	361	62.9	130	2.49	~	~	~	~	~
PCB's (ppm)	3.2	ND	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~
Pesticides (ppm)										~	~	~	~	~
4,4'-DDE	17	ND	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~
4,4'-DDD	14	ND	0.00943	ND	ND	ND	0.012	ND	ND	~	~	~	~	~
4,4'-DDT	136	ND	0.019	ND	ND	ND	ND	ND	ND	~	~	~	~	~
alpha-Chlordane	2.9	ND	0.010	ND	ND	ND	ND	ND	ND	~	~	~	~	~
gamma-Chlordane	(NA)	ND	0.057	ND	ND	ND	ND	ND	ND	~	~	~	~	~

TABLE 2
SUMMARY REPORT
END POINT PERCHED UNIT SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266
BCP PROJECT C241098

Sample ID:	Site Specific	PEB-15B-BASE	M-1-PX	PEB-VV-N1	PEB-VV-S1	PEB-VV-S2	VV-BASE A	PEB-VV-W1	PEB-VV-E2	TW-4-1	TW-4-2	TW-4-3	TW-4-4	TW-4-5
Sample Depth:	**Soil**	**8/8.5**	**10/10.5**	**11.5/12.5**	**15.5/16**	**15.5/16**	**16/17**	**15/15.5**	**12.5/13**	**9.5/10**	**9/10'**	**9/10'**	**9/10'**	**9.5/10**
Lab ID:	**Cleanup**	**03785-002**	**01849-002**	**02164-003**	**02164-007**	**02164-008**	**02380-001**	**03080-001**	**03080-002**	**09490-001**	**09490-002**	**09490-003**	**09490-004**	**09490-005**
Date Sampled:	**Objective**	**4/22/10**	**2/24/10**	**3/10/10***	**3/10/10***	**3/10/10***	**3/16/10**	**4/6/10**	**4/6/10**	**09/22/2010**	**09/22/2010**	**09/22/2010**	**09/22/2010**	**09/22/2010**
Matrix:	**(SSCO)**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Metals (ppm)										~	~	~	~	~
Aluminum	NA	5970	1640	15700	11800	29500	5940	9140	7500	~	~	~	~	~
Antimony	NA	ND	1.83	ND	ND	ND	ND	ND	ND	~	~	~	~	~
Arsenic	16	3.23	1.55	10.3	1.46	15.5	1.61	0.520 J	0.425 J	~	~	~	~	~
Barium	820	60.0	299	103	29.0	97.1	85.3	26.9	4.92 J	~	~	~	~	~
Beryllium	47	0.343	ND	0.761	ND	1.15	ND	ND	ND	~	~	~	~	~
Cadmium	7.5	ND	2.32	ND	ND	ND	0.657	ND	ND	~	~	~	~	~
Calcium	NA	2360	6620	7030	2950	6410	36600	561	1560	~	~	~	~	~
Chromium	NA	11.5	25.5	26.8	10.6	43.1	12.3	7.74	7.19	~	~	~	~	~
Cobalt	NA	5.11	3.59	15.0	1.21 J	16.4	2.62	1.14 J	1.15 J	~	~	~	~	~
Copper	1720	23.5	974	138	ND	108	12.1	0.854 J	ND	~	~	~	~	~
Iron	NA	9600	4610	39300	6110	41200	8280	5180	3720	~	~	~	~	~
Lead	450	132	412	226	4.86	267	141	5.18	3.45	~	~	~	~	~
Magnesium	NA	2270	631	4320	1490	7270	2700	1300	1490	~	~	~	~	~
Manganese	2000	328	64.1	683	58.1	428	151	28.4	21.9	~	~	~	~	~
Mercury	0.73	0.370	0.243	0.338	0.056	0.452	0.221	0.025	0.047	~	~	~	~	~
Nickel	130	10.8	20.9	29.0	3.61	38.3	7.10	3.87	3.45	~	~	~	~	~
Potassium	NA	813	194	2180	833	4010	694	706	333	~	~	~	~	~
Selenium	4	ND	ND	3.95	1.61 J	4.81	ND	ND	ND	~	~	~	~	~
Silver	8.3	ND	1.08	ND	ND	0.343 J	ND	ND	ND	~	~	~	~	~
Sodium	NA	120	62.1 J	486	607	1570	306	242	213	~	~	~	~	~
Thallium	NA	ND	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~
Vanadium	NA	14.7	4.35	39.8	13.0	59.1	9.89	8.55	8.51	~	~	~	~	~
Zinc	2480	88.1	714	123	3.95	173	579	5.72	7.39	~	~	~	~	~
General Analytical										~	~	~	~	~
Cyanide, Total-ppm	40	ND	ND	ND	ND	ND	ND	ND	ND	~	~	~	~	~

ND = Analyzed for but Not Detected at the MDL

J = The concentration was detected at a value below the RL and above the MDL

C = Common Laboratory and/or Bottle Contaminant.

Blue highlighted results collected in the water table exceed the SSCO

TABLE 2
SUMMARY REPORT
END POINT VARNOLINE VAULT AND ISOLATED EXCAVATION SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266
BCP PROJECT C241098

Sample ID:	NYSDEC	Site Specific	PEB-VV-E1	PEB-VV-N1	PEB-VV-N2	PEB-VV-W2	PEB-VV-S1	PEB-VV-S2	PEB-16A	PEB-16A-B	PEB-16A-N	PEB-16A-E	PEB-16A-S	PEB-16A-W	PES-1-B	PES-1-E	PES-1-W	PES-1-N2	PEB-13-N	PEB-13-E	PEB-13-S	PEB-13-W	PEB-13-B
Sample Depth:	Part 375.6	Soil	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8
Lab ID:	UUSCO	Cleanup	02163-001	02163-003	02163-004	02163-006	02163-007	02163-008	03436-004	06765-010	06765-011	06765-012	06765-013	06765-014	06765-001	06765-003	06765-004	06769-047	06765-005	06765-006	06765-007	06765-008	06765-009
Date Sampled:		Objective	3/9/10	3/9/10	3/9/10	3/9/10	3/9/10	3/9/10	4/14/10	7/12/10	7/12/10	7/12/10	7/12/10	7/12/10	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010
Matrix:		(SSSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatiles (ppm)			Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
Acetone	0.05	100	ND	ND	ND	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Carbon disulfide	(NA)	(NA)	ND	ND	ND	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Methylene chloride	0.05	10	ND	ND	ND	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Toluene	0.7	100	ND	ND	0.455	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Tetrachloroethene	1.3	19	ND	ND	ND	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Ethylbenzene	1	41	ND	ND	1.67	3.26	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Total Xylenes	0.26	100	ND	0.775	20.3	16.6	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Isopropylbenzene	2.3	2.3	0.336	0.499	5.70	7.46	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Cyclohexane	(NA)	(NA)	ND	ND	ND	1.92	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Methylcyclohexane	(NA)	(NA)	0.404	1.11	5.29	6.69	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
TOTAL VO's:	NA	NA	0.740	2.38	33.4	35.9	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
TOTAL TIC's:	NA	NA	111	179	554	954	271	491	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
TOTAL VO's & TIC's:	NA	NA	112	181	587	990	271	491	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Semivolatiles - BNA (ppm)																							
Naphthalene	12	100	10.2	11.1	6.47	7.92	0.734	1.79	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
2-Methylnaphthalene	(NA)	NA	6.08	8.57	2.05	2.71	0.239	0.475	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
1,1'-Biphenyl	(NA)	(NA)	0.453	0.322	0.243	0.536	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Acenaphthylene	100	100	0.261 J	0.380	0.209	0.316	0.087 J	0.073 J	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Acenaphthene	20	100	25.7	8.38	5.69	8.82	0.999	3.85	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Dibenzofuran	7	59	19.6	4.09	2.86	4.09	0.581	2.00	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Fluorene	30	100	17.9	6.30	3.83	6.69	0.683	1.99	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Phenanthrene	100	100	37.4	16.1	7.45	18.8	1.32	3.88	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Anthracene	100	100	9.26	4.18	3.42	5.20	0.635	1.70	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Carbazole	(NA)	(NA)	1.81	1.10	0.752	1.57	0.193	0.392	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Di-n-butyl phthalate	(NA)	NA	0.179 J	ND	ND	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Fluoranthene	100	100	13.7	10.7	5.99	11.5	2.10	4.12	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Pyrene	100	100	9.91	8.56	6.86	13.8	1.73	3.01	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Benzo[a]anthracene	1	1	3.60	5.40	3.93	6.71	1.11	1.18	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Chrysene	1	3.9	3.42	5.58	3.72	6.35	1.15	1.13	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Bis(2-ethylhexyl) phthalate	NA	NA	0.192 J	0.578	ND	ND	0.111	0.145	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Benzo[b]fluoranthene	1	1	4.05	5.63	5.16	6.88	1.45	1.27	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Benzo[k]fluoranthene	0.8	1	2.87	5.56	3.28	5.32	1.25	0.997	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Benzo[a]pyrene	1	1	4.93	8.96	6.40	9.14	1.74	1.61	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Indeno[1,2,3-cd]pyrene	0.5	0.5	2.78	4.53	3.68	3.78	0.981	0.902	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Dibenz[a,h]anthracene	0.33	0.33	1.24	2.61	1.96	2.17	0.345	0.384	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Benzo[g,h,i]perylene	100	100	3.07	5.14	4.16	3.79	1.02	0.920	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
TOTAL BNA'S:	NA	NA	179	124	78.1	126	18.5	31.8	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
TOTAL TIC's:	NA	NA	163	294	137	228	120	306	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
TOTAL BN's & TIC's:	NA	NA	342	418	215	354	139	338	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
PCB's (ppm)	0.1	1	ND	ND	ND	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Pesticides (ppm)																							
4,4'-DDE	0.0033	8.9	0.037	0.074	ND	0.040	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
4,4'-DDD	0.0033	13	0.478	0.188	0.191	0.468	0.039	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
4,4'-DDT	0.0033	7.9	0.017	ND	ND	ND	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

TABLE 2
SUMMARY REPORT
END POINT VARNOLINE VAULT AND ISOLATED EXCAVATION SOIL DATA
EWMA PROJECT OCA-LIC-205490/207266
BCP PROJECT C241098

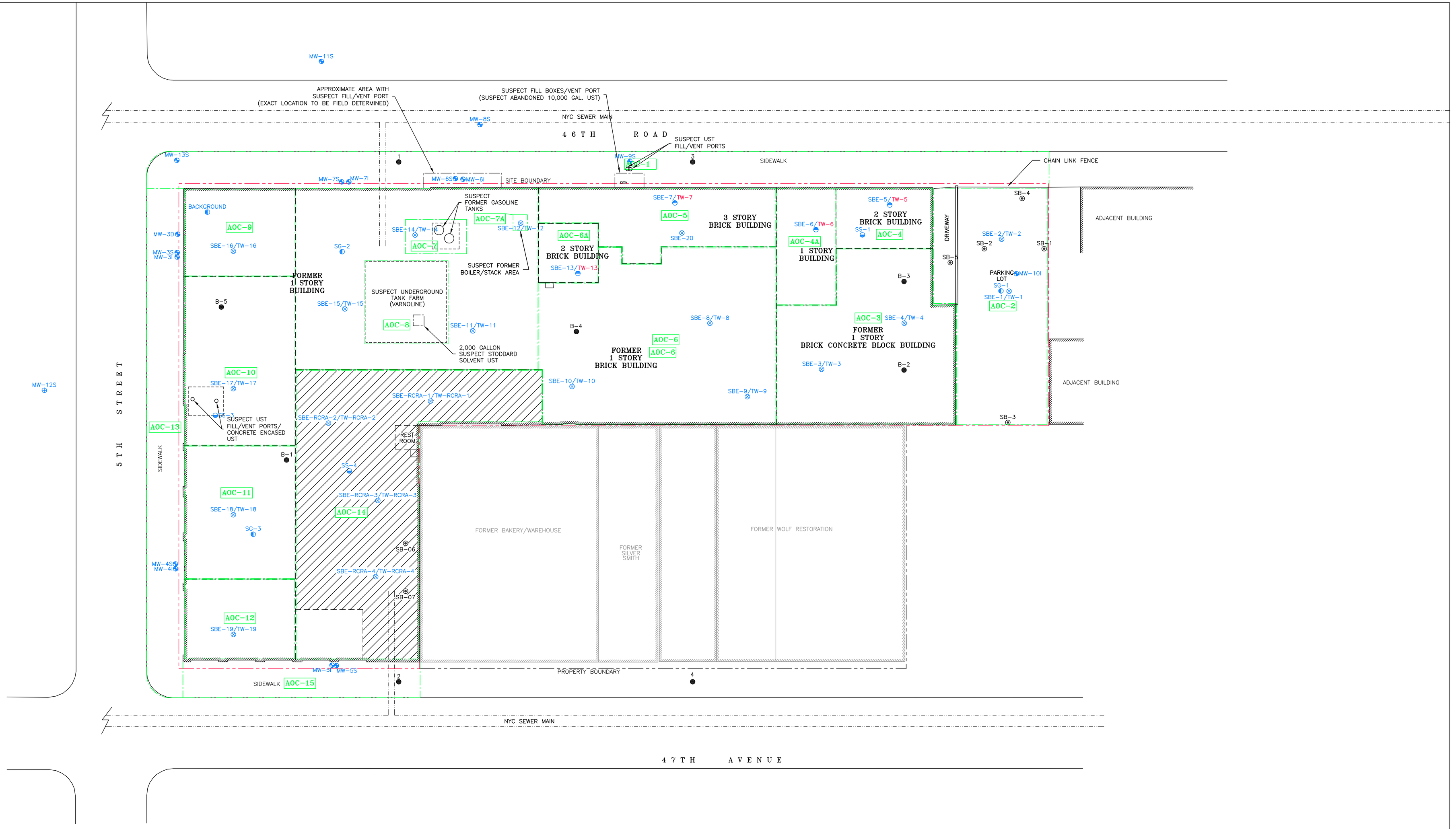
Sample ID:	NYSDEC	Site Specific	PEB-VV-E1	PEB-VV-N1	PEB-VV-N2	PEB-VV-W2	PEB-VV-S1	PEB-VV-S2	PEB-16A	PEB-16A-B	PEB-16A-N	PEB-16A-E	PEB-16A-S	PEB-16A-W	PES-1-B	PES-1-E	PES-1-W	PES-1-N2	PEB-13-N	PEB-13-E	PEB-13-S	PEB-13-W	PEB-13-B
Sample Depth:	Part 375.6	Soil	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7/7.5	7.5/8
Lab ID:	UUSCO	Cleanup	02163-001	02163-003	02163-004	02163-006	02163-007	02163-008	03436-004	06765-010	06765-011	06765-012	06765-013	06765-014	06765-001	06765-003	06765-004	06769-047	06765-005	06765-006	06765-007	06765-008	06765-009
Date Sampled:		Objective	3/9/10	3/9/10	3/9/10	3/9/10	3/9/10	3/9/10	4/14/10	7/12/10	7/12/10	7/12/10	7/12/10	7/12/10	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010	07/12/2010
Matrix:		(SSSCO)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals (ppm)									~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Aluminum	(NA)	(NA)	13900	9360	10100	8640	8480	9970	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Arsenic	13	16	18.9	7.97	7.18	11.1	13.5	14.7	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Barium	350	400	358	322	277	507	804	197	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Beryllium	7.2	72	0.497	0.396	0.427	0.420	0.486	0.509	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Cadmium	2.5	4.3	0.722	0.593	0.580	0.798	2.01	0.238 J	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Calcium	(NA)	(NA)	19300	11000	19300	23300	24400	22100	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Chromium	30	110	25.5	27.5	26.7	86.6	24.6	19.8	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Cobalt	(NA)	NA	23.7	7.63	10.6	11.8	8.40	11.0	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Copper	50	270	148	68.8	63.2	144	119	60.7	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Iron	(NA)	(NA)	38100	17600	27400	24300	24400	25300	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Lead	63	1000	216	254	199	631	543	419	657	806	29.3	30.5	189	1050	904	139	286	215	100	43.6	406	146	213
Magnesium	(NA)	(NA)	4810	3200	3460	3550	3360	3640	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Manganese	1600	2000	513	415	301	583	1290	391	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Mercury	0.18	0.81	0.421	2.16	2.28	2.15	2.62	0.827	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Nickel	30	310	29.4	19.9	28.3	19.9	21.9	24.5	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Potassium	(NA)	(NA)	1830	1350	1400	1370	1150	1570	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Selenium	3.9	180	3.00	3.06	2.71	2.73 J	3.15	3.89	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Silver	2	180	0.254 J	0.169 J	0.225 J	0.302 J	0.182 J	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Sodium	(NA)	(NA)	513	416	388	363	416	387	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Thallium	(NA)	(NA)	0.184 J	ND	ND	ND	0.166 J	0.205 J	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Vanadium	(NA)	NA	40.2	29.2	23.5	25.2	28.5	28.0	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Zinc	109	10000	369	255	247	514	828	145	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
General Analytical									~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Cyanide, Total-ppm	27	27	ND	ND	ND	1.54	ND	ND	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the RL and above the MDL
C = Common Laboratory and/or Bottle Contaminant.
Green highlighted results exceed the UUSCO
Yellow highlighted results exceed the SSSCO

TABLE 3
SUMMARY REPORT
PERCHED UNIT TEMPORARY WELL POINT GROUND WATER DATA
EWMA PROJECT OCA-LIC-205490/207266 BCP PROJECT C241098

Sample ID:	TOGS 1.1.1	TW-2	TW-3	FB	TB	TW1	TW-4	FIELD BLANK	TRIP BLANK	TW-4-1	TW-4-2	TW-4-3	TW-4-4	FB	TB
Sample Depth:	GW STANDARDS														
Lab ID:	GA CLASS	09009-001	09009-002	09009-003	09009-004	09249-001	09249-002	09249-003	09249-004	09551-001	09551-002	09551-003	09551-004	09551-005	09551-006
Date Sampled:		09/09/2010	09/09/2010	09/09/2010	09/09/2010	09/15/2010	09/15/2010	09/15/2010	09/15/2010	09/23/2010	09/23/2010	09/23/2010	09/23/2010	09/23/2010	09/23/2010
Matrix:	(ppb)	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Volatiles (ppb)		Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
Chloromethane	(NA)	ND	ND	ND	ND	ND	6.79	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	50	ND	ND	ND	ND	33	**705**	ND	ND	**144**	**142**	6.66	**93.0**	ND	ND
Methyl Tert-butyl ether (MTBE)	10*	ND	ND	ND	ND	4.2	ND	ND	ND	1.84	0.951 J	ND	0.608 J	ND	ND
cis-1,2-Dichloroethene	5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.72	ND	ND
2-Butanone (MEK)	50	1.15	1.24	ND	ND	4.47	**101**	ND	ND	20.2	17.6	ND	12.1	ND	ND
Benzene	1	ND	0.251 J	ND	ND	0.834 J	**6.39**	ND	ND	ND	ND	ND	**2.01**	ND	ND
4-Methyl-2-pentanone	(NA)	ND	ND	ND	ND	0.452 J	2.52 J	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	5**	0.727 J	0.402 J	ND	ND	0.714 J	4.37	ND	ND	1.15	1.16	**11.2**	**5.26**	ND	ND
Tetrachloroethene	5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.831 J	ND	ND	ND
Chlorobenzene	5**	1.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5**	ND	ND	ND	ND	0.499 J	ND	ND	ND	ND	ND	0.495 J	1.46	ND	ND
Total Xylenes	5**	ND	1.25 J	ND	ND	3.55	**12.6**	ND	ND	2.12	2.03	0.803 J	3.22	ND	ND
Isopropylbenzene	5**	2.28	0.851 J	ND	ND	**5.58**	**60.9**	ND	ND	**6.80**	**24.2**	**11.3**	**28.8**	ND	ND
Methylcyclohexane	(NA)	0.709 J	0.358 J	ND	ND	0.901 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VO's:	NA	6.61	4.35	ND	ND	54.2	900	ND	ND	176	188	31.3	149	ND	ND
Benzene, propyl-	5**	ND	ND	ND	ND	ND	**82.5**	ND	ND	ND	ND	ND	ND	ND	~
Napthalene	10	ND	ND	ND	ND	**34.3**	ND	ND	ND	ND	ND	ND	ND	ND	~
TOTAL TIC's:	NA	22.4	89.5	ND	ND	356	600	ND	ND	597	367	174	471	ND	~
TOTAL VO's & TIC's:	NA	29.0	93.9	ND	ND	410.2	1500	ND	ND	773	555	205	620	ND	NA
Semivolatiles - BNA (ppb)															
Naphthalene	10	2.12	1.87	ND	~	5.4	0.857 J	ND	~	ND	ND	1.20	0.406 J	ND	~
2-Methylnaphthalene	50***	2.20	ND	ND	~	2.44	ND	ND	~	ND	ND	0.771 J	2.62	ND	~
Acenaphthene	20	2.86	**31.3**	ND	~	**24.5**	1.52	ND	~	0.818 J	1.32	1.23	1.32	ND	~
Dibenzofuran	5***	ND	ND	ND	~	**8.6**	ND	ND	~	ND	ND	0.540 J	0.482 J	ND	~
Fluorene	50	2.00	6.85	ND	~	8.32	ND	ND	~	ND	0.574 J	0.503 J	0.494 J	ND	~
Phenanthrene	50	1.19	0.917 J	ND	~	4.33	0.776 J	ND	~	1.39	1.64	1.28	1.56	ND	~
Anthracene	50	0.274 J	2.32	ND	~	1.03	ND	ND	~	ND	ND	0.269 J	ND	ND	~
Carbazole	(NA)	0.366 J	ND	ND	~	1.7	ND	ND	~	ND	ND	0.341 J	ND	ND	~
Fluoranthene	50	ND	0.609 J	ND	~	ND	ND	ND	~	ND	ND	ND	ND	ND	
Pyrene	50	ND	0.305 J	ND	~	ND	ND	ND	~	ND	ND	ND	ND	ND	
TOTAL BNA'S:	NA	11.0	44.2	ND		56.3	3.55	ND		2.21	5.36	6.13	6.88	ND	~
TOTAL TIC's:	NA	31.5	37.3	ND	~	542	5230	ND	~	1800	1380	247	823	ND	~
TOTAL BNA'S & TIC's:	NA	42.5	81.5	ND	~	598.3	5233.55	ND	~	1800	1390	253	830	ND	~
Metals (ppb)															
Aluminum	100	23.1 J	20.3 J	ND	~	ND	24.6 J	ND	~	ND	**105**	ND	ND	ND	~
Antimony	3	1.86 J	**4.42**	ND	~	**3.92 J**	2.31 J	ND	~	1.11 J	2.15 J	ND	1.12 J	ND	~
Arsenic	25	5.09	10.3	ND	~	18.6	12.4	ND	~	5.81	14.3	5.09	5.65	ND	~
Barium	1000	98.2	157	ND	~	326	92.1	ND	~	264	221	129	248	ND	~
Beryllium	3	ND	ND	ND	~	ND	ND	ND	~	ND	ND	ND	ND	ND	~
Cadmium	5	0.537 J	ND	ND	~	0.620 J	ND	ND	~	ND	ND	ND	ND	ND	~
Calcium	(NA)	159000	95100	ND	~	347000	53700	ND	~	123000	128000	55000	159000	ND	~
Chromium	50	ND	ND	ND	~	ND	ND	ND	~	2.12 J	2.23 J	ND	ND	ND	~
Cobalt	(NA)	ND	3.19 J	ND	~	4.94 J	2.27 J	ND	~	10.7	26.9	ND	6.09 J	ND	~
Copper	200	7.78 J	ND	ND	~	4.81 J	11.1	ND	~	ND	2.40 J	ND	ND	ND	~
Iron	300	ND	68.0 J	ND	~	**330**	ND	ND	~	134	94.0 J	65.0 J	194	ND	~
Lead	25	0.685 J	ND	ND	~	ND	1.96 J	ND	~	0.690 J	0.890 J	ND	ND	ND	~
Magnesium	35000	10400	23000	ND	~	**41600**	10200	ND	~	**38600**	**54700**	2250	**72800**	ND	~
Manganese	300	**332**	253	ND	~	**1070**	92.2	ND	~	**313**	**423**	**307**	**732**	ND	~
Mercury	0.7	ND	ND	ND	~	ND	ND	ND	~	ND	ND	ND	ND	ND	~
Nickel	100	4.37	6.28	ND	~	13.5	5.38	ND	~	8.43	10.7	3.24 J	12.0	ND	~
Potassium	(NA)	19600	24900	ND	~	30200	14300	ND	~	36400	67200	5720	33600	ND	~
Selenium	10	5.41 J	ND	ND	~	**12.7**	ND	ND	~	ND	6.29 J	ND	ND	ND	~
Silver	50	ND	ND	ND	~	ND	ND	ND	~	ND	ND	ND	ND	ND	~
Sodium	20000	**710000**	**152000**	ND	~	**882000**	**258000**	ND	~	**219000**	**313000**	**366000**	**117000**	ND	~
Thallium	0.5	ND	ND	ND	~	ND	ND	ND	~	ND	ND	ND	ND	ND	~
Vanadium	(NA)	18.3	4.61 J	ND	~	ND	15.4	ND	~	ND	5.23 J	3.63 J	ND	ND	~
Zinc	2000	17.6	25.6	ND	~	18.8	18.6	ND	~	30.8	29.5	19.0	19.2	ND	~

(NA) = No Standards Available
~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the RL and above the MDL
Bold and Shaded results exceed the TOGS 1.1.1 GA Class standard
Bold and boxed results exceed the TAGM 4046 standard
* Not listed in TOGS 1.1.1; MCL used as standard as listed in 10 NYCRR Part 5
** The principal Organic contaminant standard of 5 ug/l applies to this compound
*** TAGM 4046 ground water standards



LEGEND

MW-01	J.C. BRODERICK & ASSOCIATES MONITORING WELL LOCATION – 2005
GW-1	EEA, INC. MONITORING WELL LOCATION – 2006
B-1	EEA, INC. SOIL BORING LOCATION – 2005
1	CA RICH CONSULTANTS SAMPLE LOCATION – 1992
SB-1	J.C. BRODERICK & ASSOCIATES SAMPLE LOCATION – 2005
SBE-7/TW-7	EWMA SOIL BORING OR SOIL BORING/TEMPORARY WATER SAMPLE LOCATION – 2008
SBE-6/TW-6	EWMA HAND AUGER SAMPLE LOCATION – 2008 (PROPOSED TEMPORARY WATER SAMPLE NOT COLLECTED)
	CONCRETE REMOVAL AREA / TEST PIT INVESTIGATION
MW-3S	EWMA MONITORING WELL LOCATION (SHALLOW) – 2008/2009
MW-3I	EWMA MONITORING WELL LOCATION (INTERMEDIATE) – 2008/2009
MW-3D	EWMA MONITORING WELL LOCATION (DEEP) – 2008
SS-1	EWMA SUB-SLAB AIR SAMPLE LOCATION FOR VAPOR INTRUSION INVESTIGATION – 2008
SG-1	EWMA SOIL GAS / AMBIENT AIR SAMPLE LOCATION FOR VAPOR INTRUSION INVESTIGATION – 2008
MW-18I	EWMA MONITORING WELL LOCATION (SAND AQUIFER) – 2009 LOCATION APPROXIMATE – NOT SURVEYED
	ENCAPSULATED AREA
	SITE BOUNDARY
	BUILDING OUTER WALL
	BUILDING INTERIOR WALL/MULTIPLE STORY WALL
	AOC BOUNDARY

AREAS OF CONCERN

AOC-1	FORMER 10,000 GALLON #6 FUEL OIL UST/46th ROAD SIDEWALK	AOC-7A	SUSPECT FORMER BOILER/STACK AREA
AOC-2	EASTERN PARKING LOT	AOC-8	SUSPECT TWENTY-TWO (22) 1,500 GALLON VARNOLINE STORAGE TANKS
AOC-3	1-STORY BRICK/CONCRETE BLOCK BUILDING (DEMAND ELECTRIC)	AOC-9	1-STORY BUILDING (AMN RENOVATION)
AOC-4	MOTORCYCLE REPAIR SHOP (BASEMENT 2-STORY BRICK BUILDING)	AOC-10	1-STORY BUILDING (JMJ ELECTRICAL)/SUSPECT UST AND FILL/VENT PORTS
AOC-4A	1-STORY BUILDING	AOC-11	FORMER WOHL, INC. CLEANERS AND DYERS (DIRECT AIR)
AOC-5	3-STORY BRICK BUILDING (ART STUDIOS)	AOC-12	FORMER WOHL, INC. CLEANERS AND DYERS (LIBERTY CONTRACTING)
AOC-6	1-STORY BRICK BUILDING (KNOSSOS CUSTOM DESIGN FURNITURE)	AOC-13	5TH STREET SIDEWALK
AOC-6A	2-STORY BRICK BUILDING	AOC-14	FORMER ACCURATE ASSOCIATES RCRA AREA
AOC-7	TWO (2) FORMER GASOLINE STORAGE TANKS	AOC-15	47TH AVENUE SIDEWALK

SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

Environmental Waste Management Associates, LLC
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Parsippany, NJ 07054
Tel: (973) 560-1400

SCALE: AS SHOWN	PROJECT# 207266
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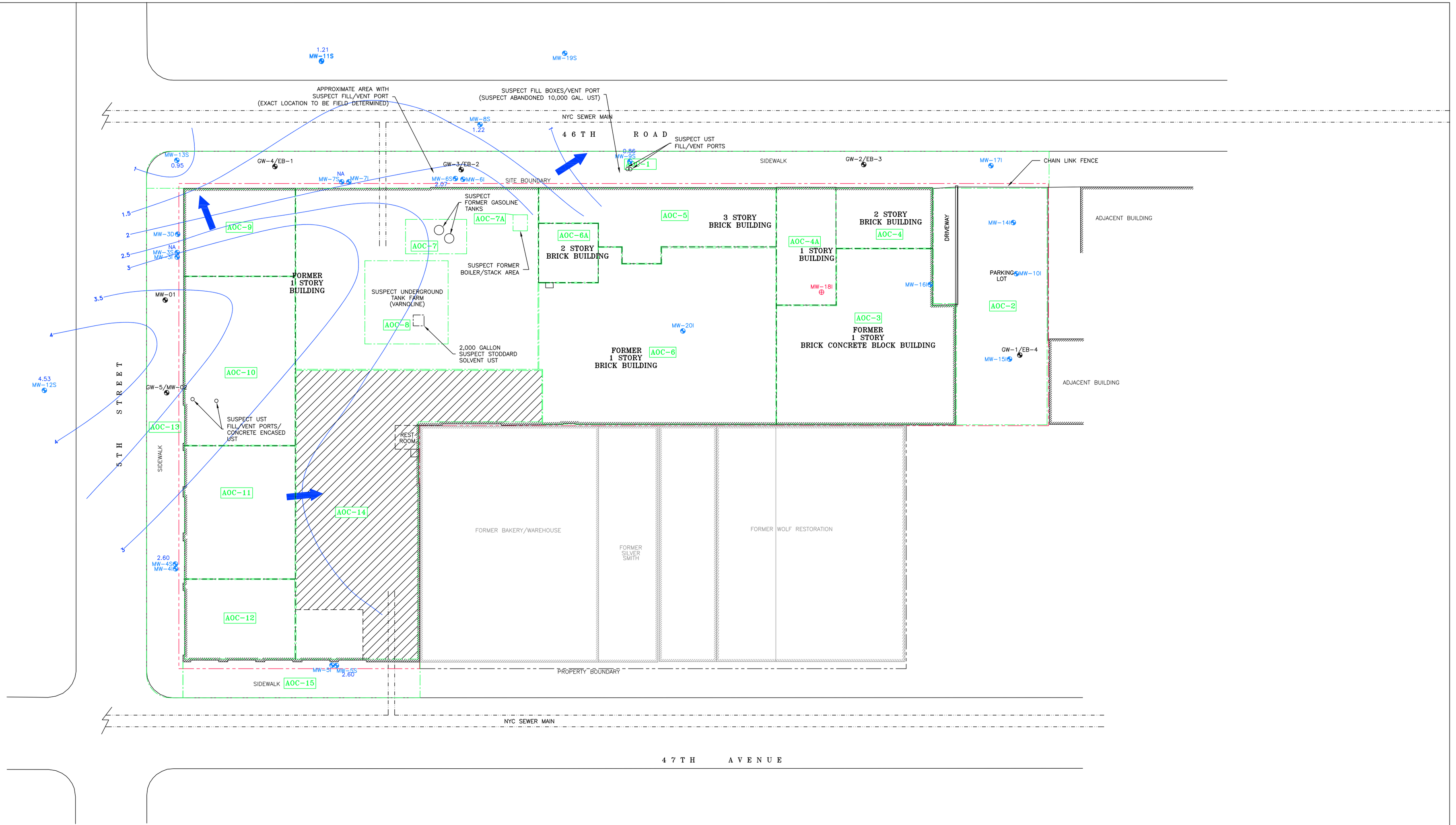
CHECKED BY: RA	

SITE PLAN WITH SAMPLE LOCATION PLAN
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 1



LEGEND

MW-01	J.C. BRODERICK & ASSOCIATES MONITORING WELL LOCATION – 2005
GW-1	EEA, INC. MONITORING WELL LOCATION – 2006
MW-13S 0.95	EWMA MONITORING WELL LOCATION (PERCHED WATER ZONE) WITH WATER LEVEL ELEVATION IN FEET BASED ON ASSUMED SURVEYOR ELEVATION DATUM (ASED) – 2008/2009
MW-3I	EWMA MONITORING WELL LOCATION (SAND AQUIFER) – 2008/2009
MW-3D	EWMA MONITORING WELL LOCATION (SAND AQUIFER) – 2008
3	GROUND WATER CONTOUR WITH ELEVATION IN FEET BASED ON (ASED) WITH FLOW DIRECTION
NA	WATER LEVEL NOT AVAILABLE
MW-18I	EWMA MONITORING WELL LOCATION (SAND AQUIFER) – 2009 LOCATION APPROXIMATE – NOT SURVEYED
	ENCAPSULATED AREA
	SITE BOUNDARY
	BUILDING OUTER WALL
	BUILDING INTERIOR WALL/MULTIPLE STORY WALL
	AOC BOUNDARY

NOTE: J.C. BRODERICK AND EEA INSTALLED WELLS WERE NOT USED IN CONSTRUCTING WATER LEVEL CONTOURS, DUE TO UNCERTAINTIES IN WELL CONSTRUCTION
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

AREAS OF CONCERN

AOC-1	FORMER 10,000 GALLON #6 FUEL OIL UST/46th ROAD SIDEWALK
AOC-2	EASTERN PARKING LOT
AOC-3	1–STORY BRICK/CONCRETE BLOCK BUILDING (DEMAND ELECTRIC)
AOC-4	MOTORCYCLE REPAIR SHOP (BASEMENT 2–STORY BRICK BUILDING)
AOC-4A	1–STORY BUILDING
AOC-5	3–STORY BRICK BUILDING (ART STUDIOS)
AOC-6	1–STORY BRICK BUILDING (KNOSSOS CUSTOM DESIGN FURNITURE)
AOC-6A	2–STORY BRICK BUILDING
AOC-7	TWO (2) FORMER GASOLINE STORAGE TANKS
AOC-7A	SUSPECT FORMER BOILER/STACK AREA
AOC-8	SUSPECT TWENTY–TWO (22) 1,500 GALLON VARNOLINE STORAGE TANKS
AOC-9	1–STORY BUILDING (AMN RENOVATION)
AOC-10	1–STORY BUILDING (JMJ ELECTRICAL)/SUSPECT UST AND FILL/VENT PORTS
AOC-11	FORMER WOHL, INC. CLEANERS AND DYERS (DIRECT AIR)
AOC-12	FORMER WOHL, INC. CLEANERS AND DYERS (LIBERTY CONTRACTING)
AOC-13	5TH STREET SIDEWALK
AOC-14	FORMER ACCURATE ASSOCIATES RCRA AREA
AOC-15	47TH AVENUE SIDEWALK

GRAPHIC SCALE
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(IN FEET)

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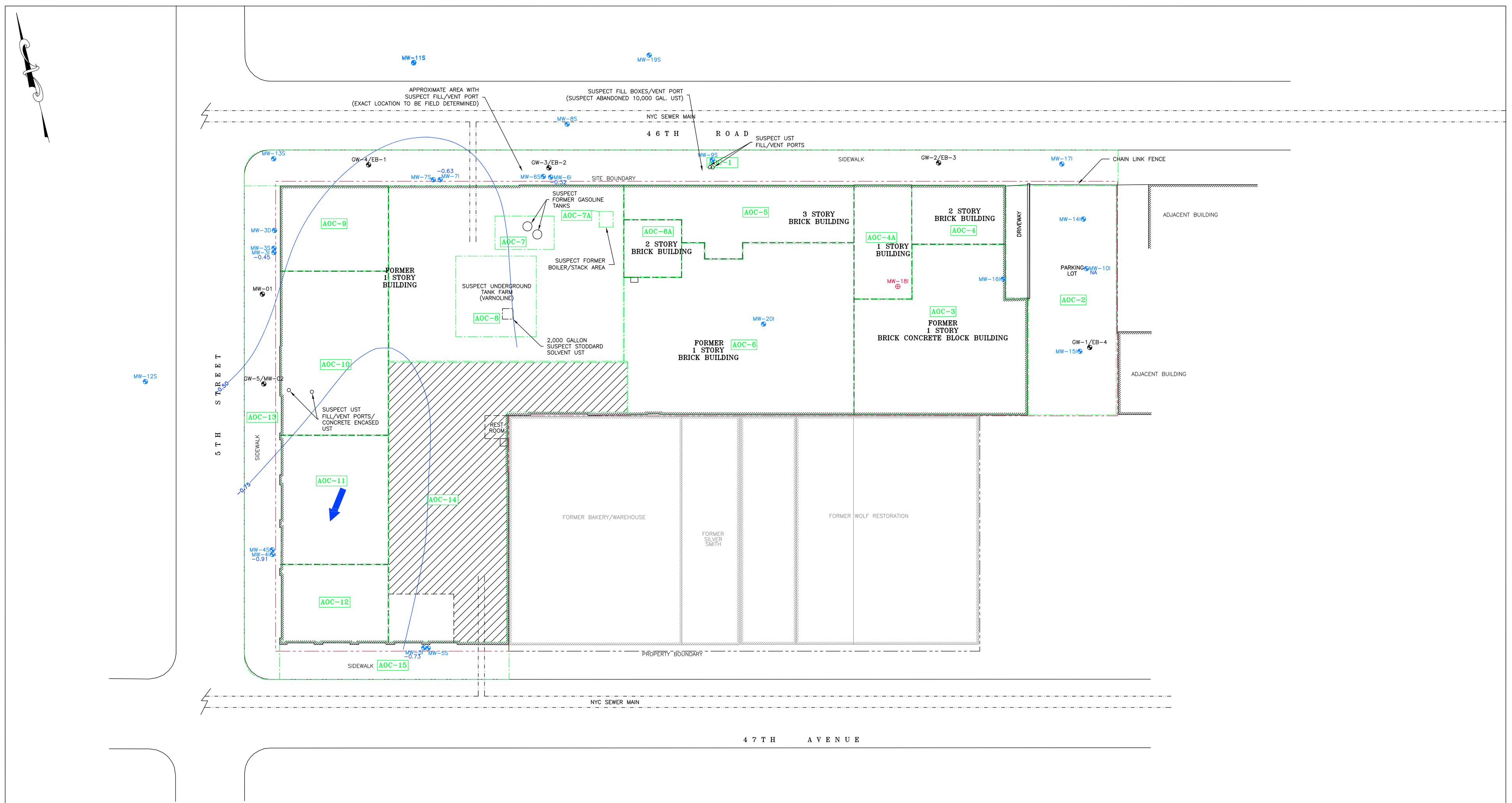
WATER LEVEL ELEVATION CONTOUR –PERCHED WATER ZONE – 7/17/08

OCA LIC FIFTH STREET MIXED–USE HOUSING
5–20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 2



LEGEND

MW-01	J.C. BRODERICK & ASSOCIATES MONITORING WELL LOCATION – 2005
GW-1	EEA, INC. MONITORING WELL LOCATION – 2006
MW-3S	EWMA MONITORING WELL LOCATION (PERCHED WATER ZONE) – 2008/2009
MW-3I -0.45	EWMA MONITORING WELL LOCATION (SAND AQUIFER) WITH WATER LEVEL ELEVATION IN FEET BASED ON ASSUMED SURVEYOR ELEVATION DATUM (ASED) – 2008/2009
MW-3D	EWMA MONITORING WELL LOCATION (SAND AQUIFER) – 2008
0.75	GROUND WATER CONTOUR WITH ELEVATION IN FEET BASED ON (ASED) WITH FLOW DIRECTION
NA	WATER LEVEL ELEVATION NOT AVAILABLE
MW-18I	EWMA MONITORING WELL LOCATION (SAND AQUIFER) – 2009 LOCATION APPROXIMATE – NOT SURVEYED
	ENCAPSULATED AREA
	SITE BOUNDARY
	BUILDING OUTER WALL
	BUILDING INTERIOR WALL/MULTIPLE STORY WALL
	AOC BOUNDARY

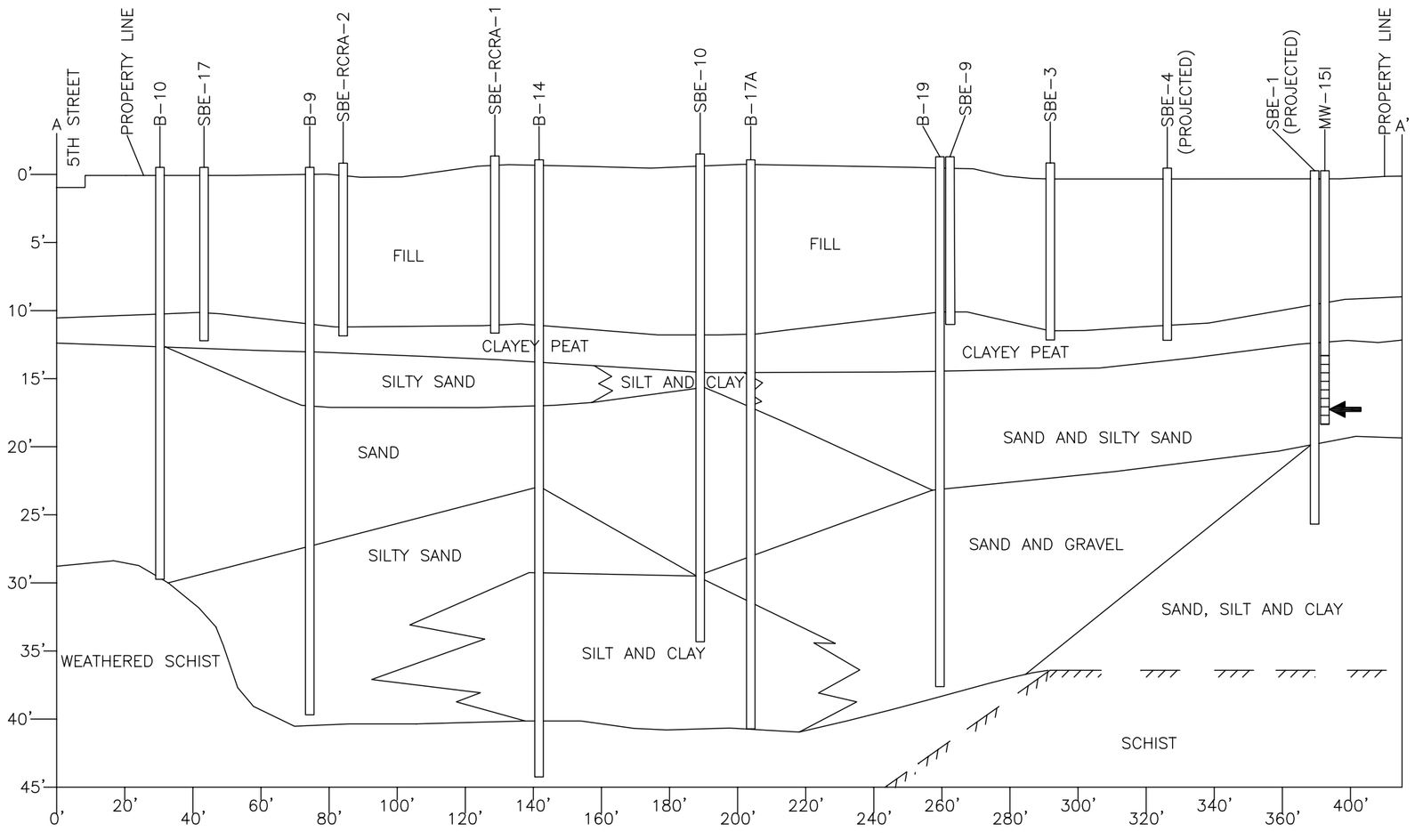
NOTE: J.C. BRODERICK AND EEA INSTALLED WELLS WERE NOT USED IN CONSTRUCTING WATER LEVEL CONTOURS, DUE TO UNCERTAINTIES IN WELL CONSTRUCTION
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

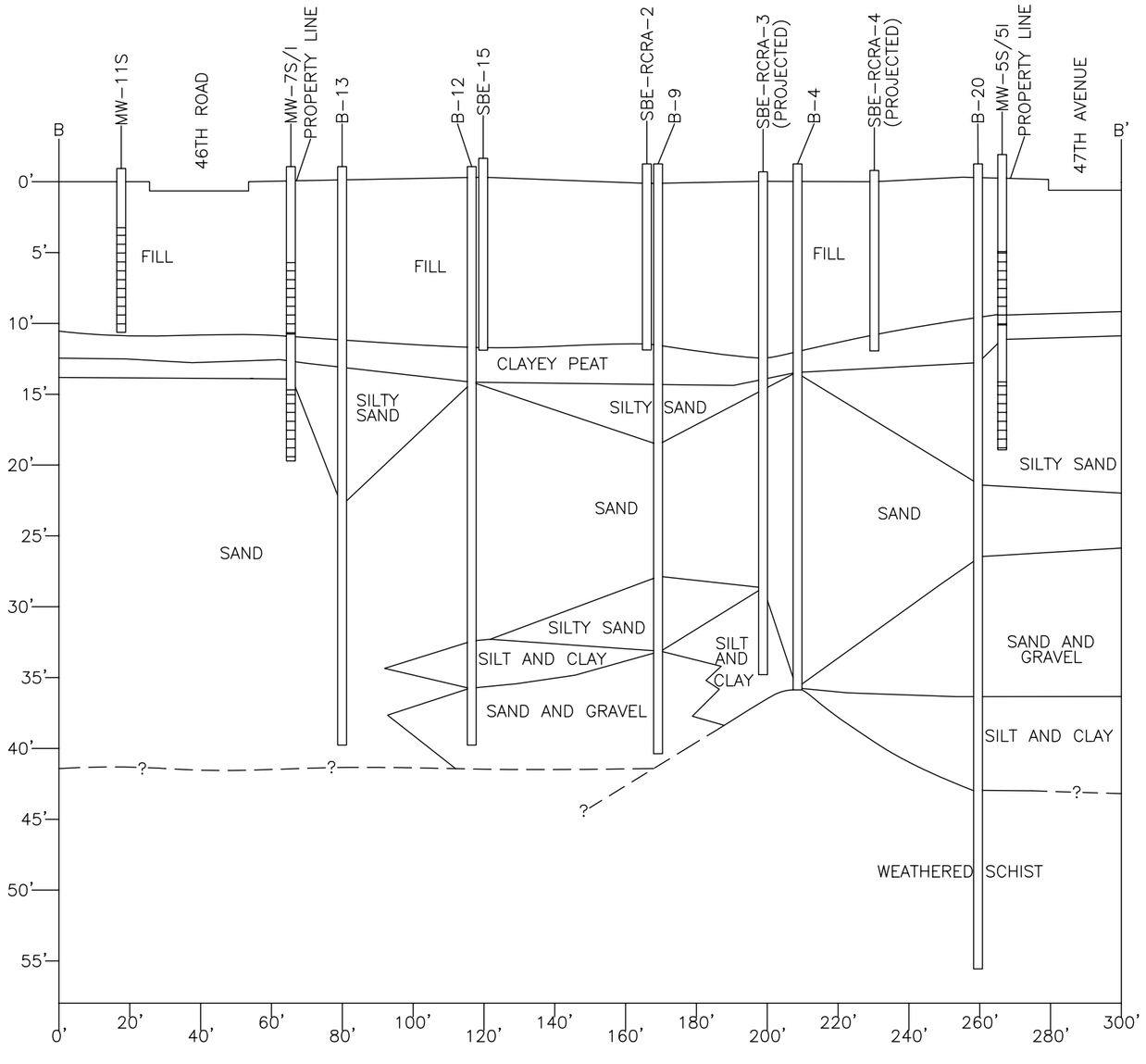
AREAS OF CONCERN

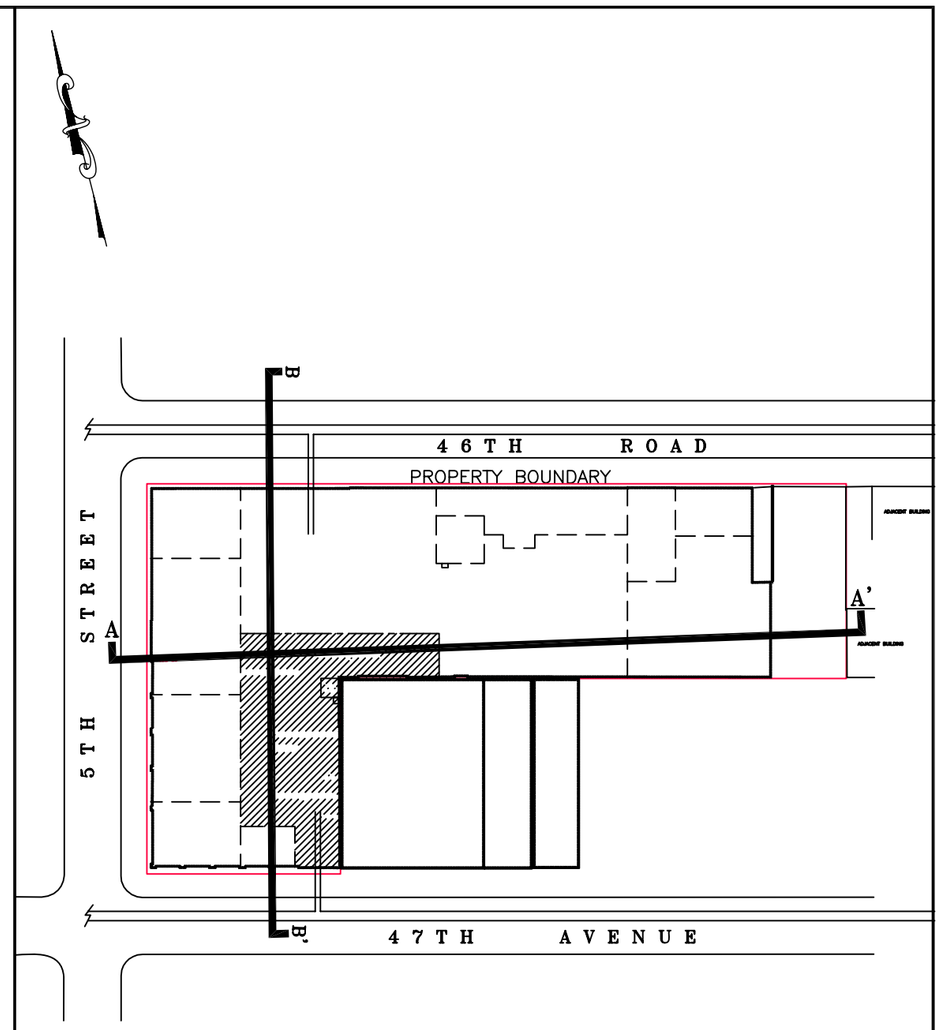
AOC-1	FORMER 10,000 GALLON #6 FUEL OIL UST/46th ROAD SIDEWALK	AOC-7A	SUSPECT FORMER BOILER/STACK AREA
AOC-2	EASTERN PARKING LOT	AOC-8	SUSPECT TWENTY-TWO (22) 1,500 GALLON VARNOLINE STORAGE TANKS
AOC-3	1-STORY BRICK/CONCRETE BLOCK BUILDING (DEMAND ELECTRIC)	AOC-9	1-STORY BUILDING (AMN RENOVATION)
AOC-4	MOTORCYCLE REPAIR SHOP (BASEMENT 2-STORY BRICK BUILDING)	AOC-10	1-STORY BUILDING (JMJ ELECTRICAL)/SUSPECT UST AND FILL/VENT PORTS
AOC-4A	1-STORY BUILDING	AOC-11	FORMER WOHL, INC. CLEANERS AND DYERS (DIRECT AIR)
AOC-5	3-STORY BRICK BUILDING (ART STUDIOS)	AOC-12	FORMER WOHL, INC. CLEANERS AND DYERS (LIBERTY CONTRACTING)
AOC-6	1-STORY BRICK BUILDING (KNOSSOS CUSTOM DESIGN FURNITURE)	AOC-13	5TH STREET SIDEWALK
AOC-6A	2-STORY BRICK BUILDING	AOC-14	FORMER ACCURATE ASSOCIATES RCRA AREA
AOC-7	TWO (2) FORMER GASOLINE STORAGE TANKS	AOC-15	47TH AVENUE SIDEWALK

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400	SCALE: AS SHOWN	PROJECT# 207266
	DATE: 12/3/10	
	DRAWN BY: RR CHECKED BY: RA	
WATER LEVEL ELEVATION CONTOUR -SAND AQUIFER - 7/17/08		FIGURE# 3
OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK		







GRAPHIC SCALE

80 0 40 80 160

(IN FEET)

LEGEND

SBE- EWMA SOIL BORING LOCATION

MW- MONITORING WELL LOCATION WITH SCREENED INTERVAL

B- DEWBERRY GEOTECHNICAL BORING LOCATION

HYDROCARBON SHEEN ENCOUNTERED AT THIS DEPTH

VERTICAL SCALE IN FEET: 10, 0

HORIZONTAL SCALE IN FEET: 0, 40

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PROJECT# 207266

SUBSURFACE CROSS-SECTIONS A-A' & B-B'
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 4

LEGEND

- ADDITIONAL EXCAVATION LIMIT
- PEB-(X) POST-EXCAVATION SAMPLE LOCATION (BASE 7'-7.5')
- PES-(X) POST-EXCAVATION SAMPLE LOCATION (SIDEWALL 6.5'-7')
- AOC-14A-C RCRA SAMPLE LOCATION (COMPOSITE SOIL AND CONCRETE SAMPLES EVALUATING TRENCHES AND SUMPS)
- EXCAVATION TO 7' BELOW SURFACE GRADE (BSG)
- RCRA ENCAPSULATED AREA
- SITE BOUNDARY
- FORMER BUILDING FOOTPRINT
- AOC BOUNDARY
- CURB LINES
- TANK VAULT BOUNDARY
- 28 (7) UNDER GROUND STORAGE TANK WITH ID NUMBER
- SUMP LOCATION
- FLOOR TRENCH

SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

FORMER AREAS OF CONCERN

AOC-1	FORMER 10,000 GALLON #6 FUEL OIL UST/46th ROAD SIDEWALK
AOC-2	EASTERN PARKING LOT
AOC-3	1-STORY BRICK/CONCRETE BLOCK BUILDING (DEMAND ELECTRIC)
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AOC-13	5TH STREET SIDEWALK
AOC-14	FORMER ACCURATE ASSOCIATES RCRA AREA
AOC-15	47TH AVENUE SIDEWALK

GRAPHIC SCALE

20 0 10 20 40 (IN FEET)

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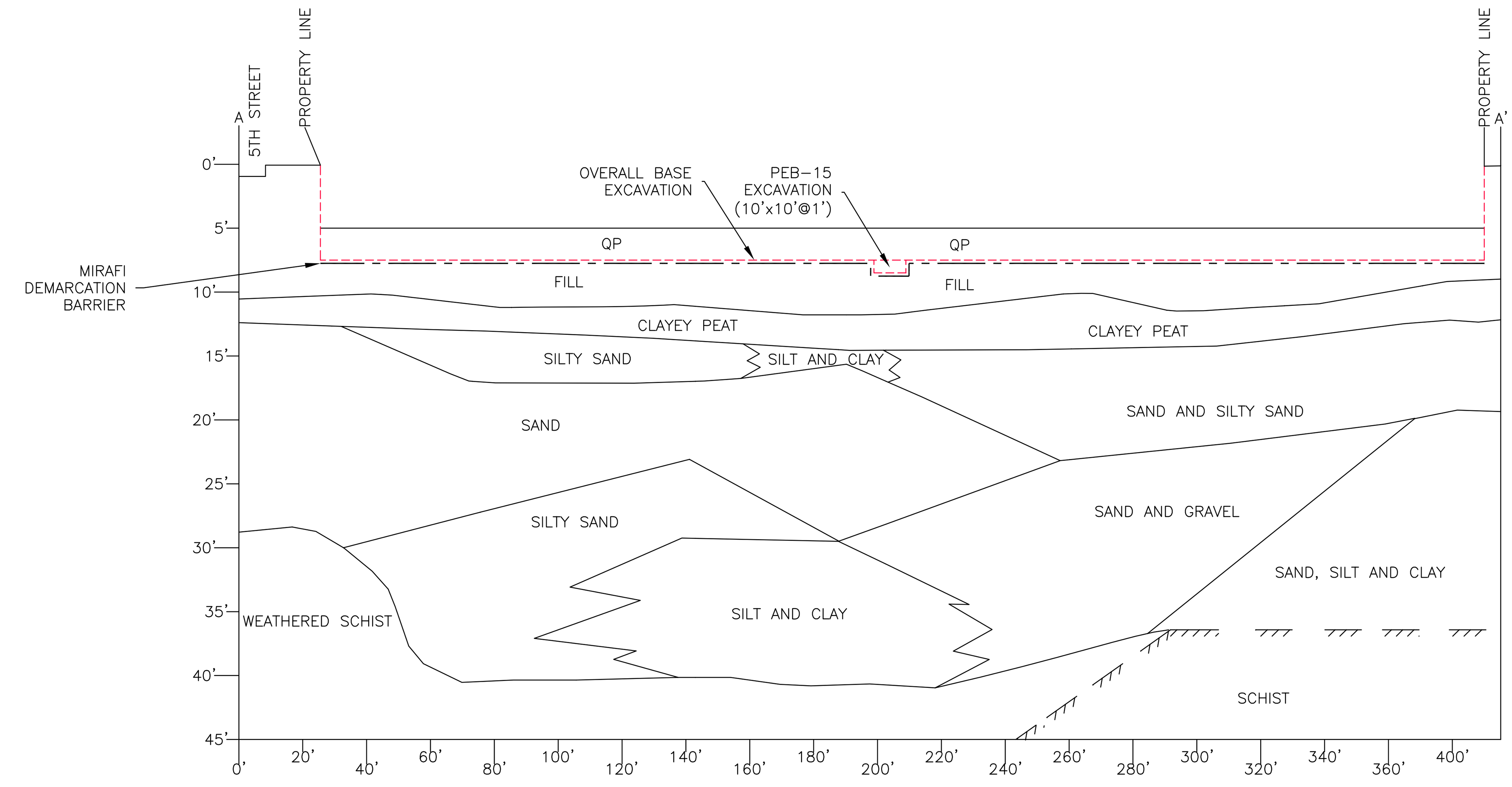
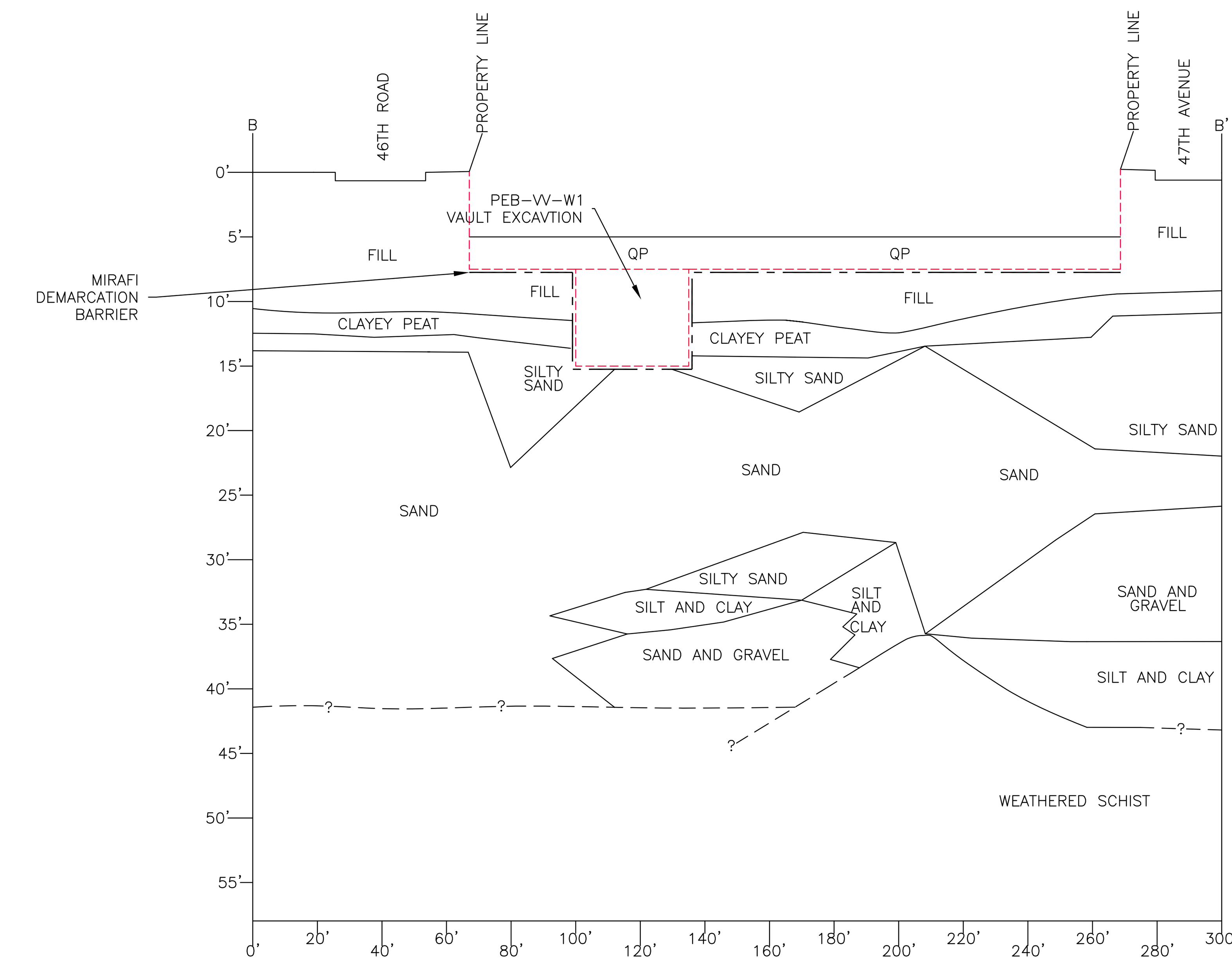
REMEDIAL ACTION EXCAVATION PLAN
OVERVIEW - 2009-2010
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

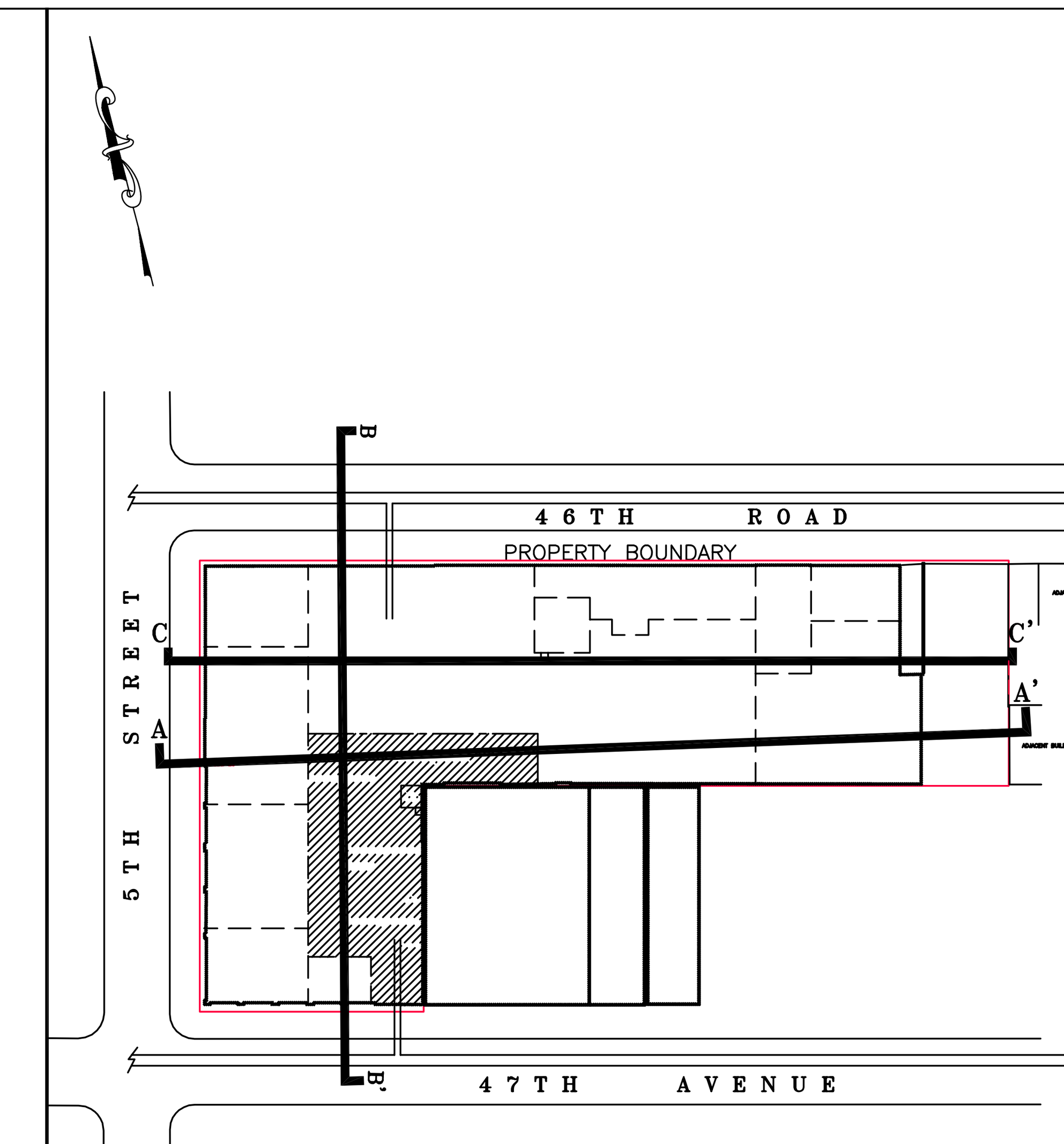
FIGURE# 5



CROSS SECTION A-A'
SCALE: VERTICAL 1"=10' HORIZONTAL 1"=40'

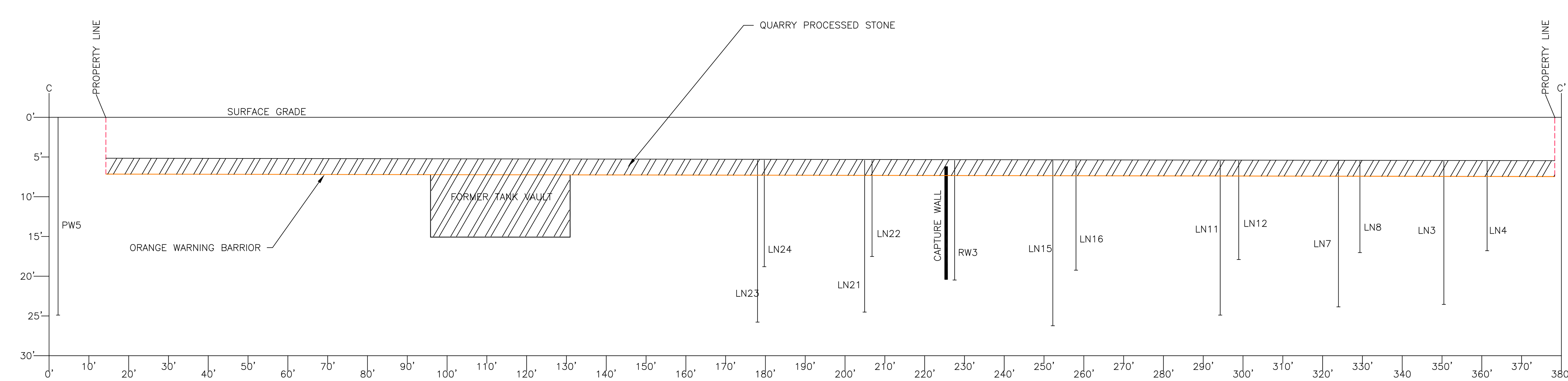


CROSS SECTION B-B'
SCALE: VERTICAL 1"=10' HORIZONTAL 1"=40'



PLAN VIEW & SECTON LOCATIONS

GRAPHIC SCALE
(IN FEET)



CROSS SECTION C-C'
SCALE: VERTICAL 1"=10' HORIZONTAL 1"=20'

LEGEND

PW5	EWMA PERIMETER MONITORING AND RECOVERY WELL – 2010
RW3	EWMA RECOVERY WELL ADJACENT TO CAPTURE WALL– 2010
LN23	EWMA INTERIOR MONITORING AND RECOVERY WELL – 2010

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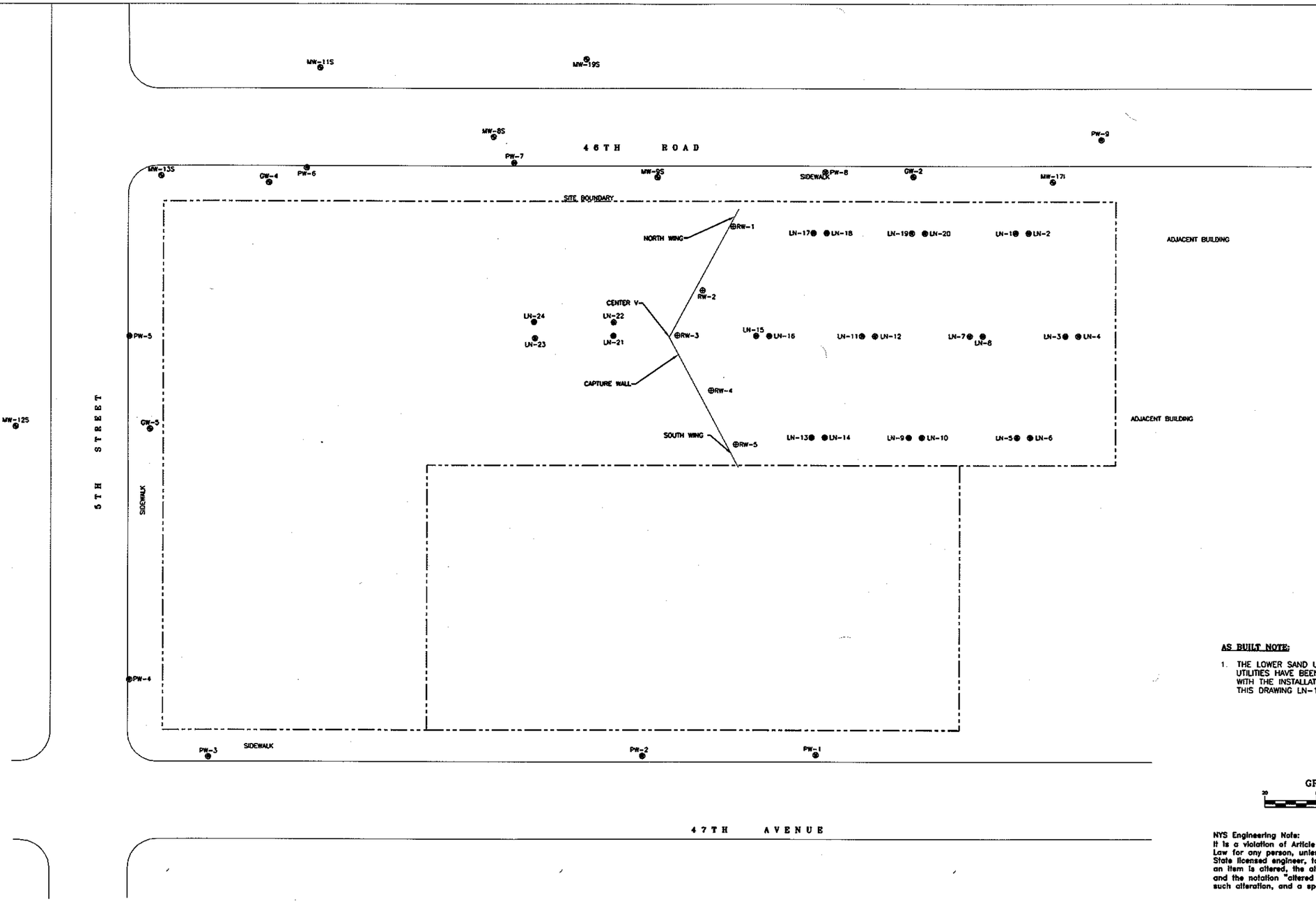
CUT AND FILL CROSS SECTIONS A-A', B-B' & C-C'
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 6



AS BUILT NOTE:

1. THE LOWER SAND UNIT LNAPL REMEDIATION UTILITIES HAVE BEEN INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS PRESENTED ON THIS DRAWING LN-1 AS-BUILT.

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

NYS Engineering Note:
It is a violation of Article 145 Section 7209(2) of New York State Education Law for any person, unless he is acting under the direction of a New York State licensed engineer, to alter an item of this document in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

LEGEND

- RW-3 — EWMA RECOVERY WELL LOCATION ADJACENT TO CAPTURE WALL - 2010
- PW-5 — EWMA PERIMETER MONITORING AND RECOVERY WELL LOCATION - 2010
- LN-2 — EWMA INTERIOR MONITORING AND RECOVERY WELL LOCATION - 2010
- GW-1 — EEA, INC. MONITORING WELL LOCATION - 2006
- MW-3S — EWMA MONITORING WELL LOCATION (SHALLOW) - 2008/2009
- MW-3I — EWMA MONITORING WELL LOCATION (INTERMEDIATE) - 2008/2009
- SITE BOUNDARY
- CAPTURE WALL

SOURCE: MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y.

EWMA ENGINEERING SERVICES, LLL - NYS ENG. CERT # 0005216

RICHARD ARNOLD — STATE OF NEW YORK — LICENSED PROFESSIONAL ENGINEER — 12/16/2010 — 076202

NYS PE # 076202

REVISIONS	
No./ID	DATE

An Environmental Consulting & Remediation Firm
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054

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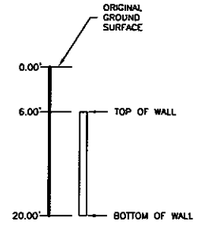
PROJECT# 207266

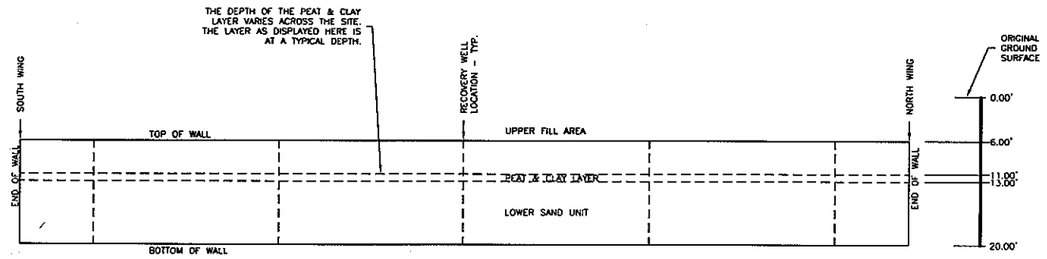
AS-BUILT EXISITNG WELL LOCATION PLAN WITH CAPTURE WALL

OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

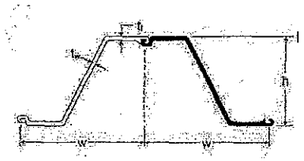
FIGURE# LN-1



SECTION OF CAPTURE WALL
SCALE: 1" = 10'



PROFILE OF CAPTURE WALL ALLIGNMENT
SCALE: 1" = 10'



SECTION	WIDTH (W) in (mm)	HEIGHT (H) in (mm)	THICKNESS FLANGE (t_1) in (mm)	THICKNESS WEB (t_w) in (mm)	CROSS SECTIONAL AREA in²/ft (cm²/m)	WEIGHT PILE lb/ft (kg/m)	WEIGHT WALL lb/ft (kg/m²)	SECION MODULUS in³/ft (cm³/m)	MOMENT OF INERTIA in⁴/ft (cm⁴/m)	COATING AREA BOTH SIDES ft²/ft OF SINGLE (m²/m)	COATING AREA WALL SURFACE ft²/ft² OF WALL (m²/m²)
AZ 12	26.38 (670)	11.89 (302.0)	0.335 (8.50)	0.335 (8.50)	5.94 (125.7)	44.42 (66.10)	20.22 (98.76)	22.3 (1200)	132.8 (18140)	5.45 (1.66)	1.23 (1.23)
AZ 13	26.38 (670)	11.93 (303.0)	0.375 (9.50)	0.375 (9.50)	6.47 (136.9)	48.38 (72.00)	22.05 (107.50)	24.2 (1300)	144.2 (19700)	5.45 (1.66)	1.23 (1.23)
(AZ 14)	26.38 (670)	11.97 (304.0)	0.413 (10.50)	0.413 (10.50)	7.03 (148.9)	52.82 (78.30)	23.84 (116.90)	25.0 (1400)	156.0 (21300)	5.45 (1.66)	1.23 (1.23)

VERTICAL AND HORIZONTAL DATUM

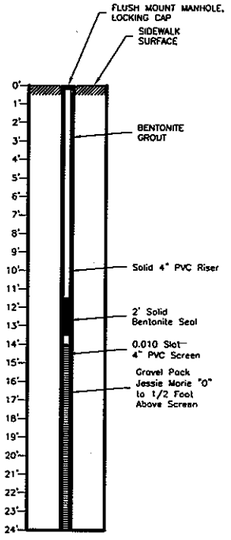
1. HORIZONTAL DATUM: FOR THE PURPOSES OF THIS PROJECT, TO PROVIDE EASE IN LOCATION CONFIRMATION DURING SITE WORK, THE LOCATIONS PRESENTED ON DRAWINGS LN-1 AND LN-2 ARE TO SCALE AND ARE TO BE VERIFIED IN THE FIELD BY TAPED MEASUREMENTS FROM THE SHORING SYSTEM THAT IS LOCATED DIRECTLY ALONG THE SITE PROPERTY LINE ON ALL SIDES OF THE BCP SITE AREA;
2. VERTICAL DATUM: FOR THE PURPOSES OF THIS PROJECT, TO TIE VERTICAL INSTALLATION WORK DIRECTLY INTO THE INVESTIGATION FINDINGS AND TO PROVIDE DIRECT CORRELATION OF VERTICAL LOCATIONS WITH RESPECT TO THE COMPLETED EXCAVATION FLOOR, ORIGINAL GROUND SURFACE REFERENCES ON DRAWINGS LN-1 AND LN-2 ARE SET AT 0.00'. THEREFORE, ACTUAL DEPTHS BELOW ORIGINAL GROUND SURFACE ARE USED FOR RECORD MEASUREMENTS OF TOP AND BOTTOM OF PEAT & CLAY LAYER DURING WELL INSTALLATIONS AND FOR USE IN SETTING SCREEN DEPTHS AND CAPTURE WALL DRIVE DEPTHS;

AS BUILT NOTE:

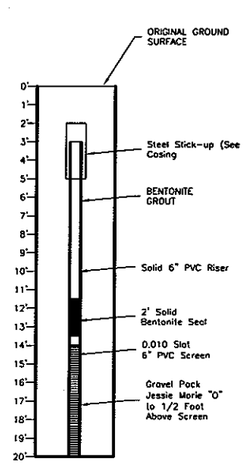
1. THE LOWER SAND UNIT LNAPL REMEDIATION UTILITIES HAVE BEEN INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS PRESENTED AND SPECIFIED ON THIS DRAWING LN-2 AS BUILT.

MONITORING/REMEDIATION/RECOVERY WELL SPECIFICATION

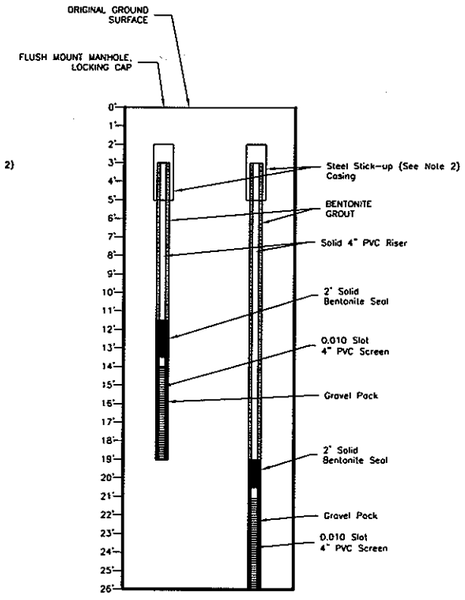
1. WELL INSTALLATION METHODS: EACH WELL SHALL BE INSTALLED WITH AUGER DRILLING METHODS. IN A BOREHOLE WITH A 2-INCH ANNULAR SPACE BETWEEN OUTER SURFACE OF WELL SCREEN OR RISER MATERIAL AND INNER SURFACE OF THE WELL BORE. THE WELLS SHALL BE INSTALLED PLUMB AND TRUE AND IN ACCORDANCE WITH NYS REGULATIONS AND GOOD AUGER DRILLING PRACTICES AND WELL INSTALLATION PRACTICES THAT ARE WELL ACCEPTED IN THE DRILLING INDUSTRY;
2. WELL COMPLETION METHODS: EACH WELL WITHIN THE INTERIOR OF THE SITE SHALL BE FINAL COMPLETED AT THE TIME OF INSTALLATION WITH A STEEL PIPE STICK-UP COMPLETION AND LOCKAGE WELL CAP. EACH PERIMETER WELL SHALL BE FINAL COMPLETED WITH A FLUSH MOUNT WELL SUMP THAT SHALL BE INSTALLED FLUSH WITH THE FINAL DEVELOPED PAVEMENT SURFACE AT EACH GIVEN LOCATION. AT THE TIME OF DEVELOPMENT CONSTRUCTION, EACH INTERIOR WELL SHALL BE RE-WORKED FOR FINAL COMPLETION WITH A FLUSH MOUNT WELL SUMP THAT SHALL BE INSTALLED FLUSH WITH THE FINAL DEVELOPED PAVEMENT SURFACE AT EACH GIVEN LOCATION. THE FLUSH MOUNT WELL SUMPS SHALL BE 8-INCH DIAMETER TRAFFIC RATED SUMPS WITH O-RING SEALABLE AND LOCKABLE CAST IRON COVERS.
3. VERIFICATION OF EFFECTIVENESS: UPON COMPLETION, EACH WELL SHALL BE CAREFULLY MEASURED TO VERIFY INSTALLED DIMENSIONS, SHALL BE THOROUGHLY DEVELOPED BY PUMPING AND ALSO BY SURGE BLOCK METHODS IF REQUIRED IN ACCORDANCE WITH GOOD WELL DEVELOPMENT PRACTICES UNTIL TURBIDITY LEVELS ARE MINIMIZED AND WITHIN SUITABLE LIMITS. AT CESSATION OF PUMPING, THE RECOVERY RATE IN EACH WELL SHALL BE MEASURED TO VERIFY FUNCTIONALITY AND ADDITIONAL DEVELOPMENT SHALL BE PERFORMED IF NEEDED;
4. CONFIRMATION OF SCREEN DEPTH: DURING AUGER ADVANCEMENT, STANDARD SPLIT SPOONS SHALL BE ADVANCED IN ACCORDANCE WITH GOOD DRILLING PRACTICES AND SAMPLES OBTAINED FOR FIELD EXAMINATION TO IDENTIFY THE ACTUAL BOTTOM OF PEAT & CLAY LAYER AND BOTTOM OF LOWER SAND UNIT AT EACH WELL LOCATION. SCREEN DEPTHS AND SPECIFIC WELL CONSTRUCTION DETAIL FOR EACH WELL SHALL THEN BE BASED UPON THIS FIELD FINDING;
5. PERIMETER MONITORING/REMEDIATION WELLS (9): THESE WELLS SHALL BE 4-INCH DIAMETER PVC MONITORING AND REMEDIATION WELLS, INSTALLED WITH BLANK RISER PIPE, O-MORIE GRAVEL PACKS, AND 10-SLOT SCREENS. THE WELL SCREENS SHALL BE INSTALLED FROM NEAR BOTTOM OF THE LOWER SAND UNIT (ASSUMED TO BE ABOUT 24-FEET BGS), UP TO ½-FOOT BELOW BOTTOM OF PEAT & CLAY LAYER. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP INTO EACH WELL SUMP. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH SCREEN FROM BOTTOM OF SCREEN UP TO BOTTOM OF PEAT & CLAY LAYER. A SOLID 2-FOOT THICK BENTONITE SEAL SHALL BE INSTALLED FROM ABOVE THE TOP OF GRAVEL PACK AND UP THROUGH THE PEAT & CLAY LAYER. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO BOTTOM OF FLUSH MOUNT WELL SUMP.
6. CAPTURE WALL MONITORING/RECOVERY WELLS (5): THESE WELLS SHALL BE 6-INCH DIAMETER PVC MONITORING AND RECOVERY WELLS, INSTALLED WITH BLANK RISER PIPE, O-MORIE GRAVEL PACKS AND 10-SLOT SCREENS. THE WELL SCREENS SHALL BE INSTALLED FROM BOTTOM OF CAPTURE WALL (20-FEET BGS) UP TO ½-FOOT BELOW BOTTOM OF PEAT & CLAY LAYER. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP TO ABOUT 3-FEET BGS. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH SCREEN FROM BOTTOM OF SCREEN UP TO BOTTOM OF PEAT & CLAY LAYER. A SOLID 2-FOOT THICK BENTONITE SEAL SHALL BE INSTALLED FROM ABOVE THE TOP OF GRAVEL PACK AND UP THROUGH THE PEAT & CLAY LAYER. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO THE WELL COMPLETION THAT SHALL INITIALLY BE A STEEL PIPE STICK-UP COMPLETION WITH LOCKABLE WELL CAP.
7. MONITORING/REMEDIATION WELL COUPLETS (12): TWO COUPLETS SHALL BE INSTALLED DOWN-GRADIENT OF THE CAPTURE WALL AND TEN COUPLETS SHALL BE INSTALLED UPGRADIENT OF THE CAPTURE WALL AS SHOWN ON DRAWING LN-1. EACH COUPLET SHALL CONSIST OF AN UPPER WELL AND A LOWER WELL INSTALLED AT A HORIZONTAL DISTANCE OF ABOUT 5-FEET FROM EACH OTHER. UPPER AND LOWER WELLS SHALL BE 4-INCH DIAMETER PVC MONITORING/REMEDIATION WELLS INSTALLED WITH BLANK RISER PIPE, O-MORRIE GRAVEL PACKS AND 10-SLOT SCREENS. THE UPPER WELLS SHALL TYPICALLY BE INSTALLED WITH 5-FEET OF WELL SCREEN EXTENDING FROM ½-FOOT BENEATH THE BOTTOM OF PEAT & CLAY LAYER AND DOWN INTO THE LOWER SAND UNIT. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP TO EACH WELL COMPLETION AT ABOUT 3-FEET BGS. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH WELL SCREEN FROM BOTTOM OF SCREEN UP TO BOTTOM OF PEAT & CLAY LAYER. A 2-FOOT THICK SOLID BENTONITE SEAL SHALL BE INSTALLED ABOVE THE GRAVEL PACK THROUGH THE PEAT & CLAY LAYER. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO THE WELL COMPLETION THAT SHALL INITIALLY BE A STEEL PIPE STICK-UP COMPLETION WITH LOCKABLE WELL CAP. THE LOWER WELLS SHALL TYPICALLY BE INSTALLED WITH 5-FEET OF WELL SCREEN EXTENDING FROM NEAR BOTTOM OF LOWER SAND UNIT AND UP INTO THE UNIT. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP TO EACH WELL COMPLETION AT ABOUT 3-FEET BGS. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH WELL SCREEN FROM BOTTOM OF SCREEN UP TO ABOUT ½-FOOT FOOT ABOVE TOP OF SCREEN. A 2-FOOT THICK SOLID BENTONITE SEAL SHALL BE INSTALLED ABOVE THE GRAVEL PACK AND THROUGH A SILTY PORTION OF THE LOWER SAND UNIT. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO THE WELL COMPLETION THAT SHALL INITIALLY BE A STEEL PIPE STICK-UP COMPLETION WITH LOCKABLE WELL CAP.



PERIMETER MONITORING/REMEDIATION WELL
SCALE: 1" = 4'



CAPTURE WALL MONITORING/RECOVERY WELL
SCALE: 1" = 4'



MONITORING/REMEDIATION WELL COUPLET
SCALE: 1" = 4'

NYS Engineering Note:
It is a violation of Article 145 Section 7209(2) of New York State Education Law for any person, unless he is acting under the direction of a New York State licensed engineer, to alter an item of this document in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

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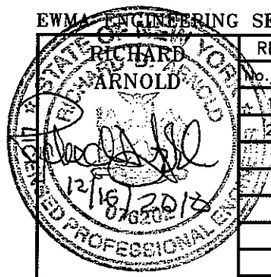


REVISIONS	
NO./ID	DATE
1	7/7/10
2	9/28/10

An Environmental Consulting & Remediation Firm
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054

SCALE: AS SHOWN
PROJECT# 205490
DATE: 9/29/10
DRAWN BY: RR
CHECKED BY: RA
FILE: k:\drawings\207000\207266\2010 DEC\\207266 LN-2 11x17.dwg

DETAIL PLAN - AS BUILT (SEE NOTE)

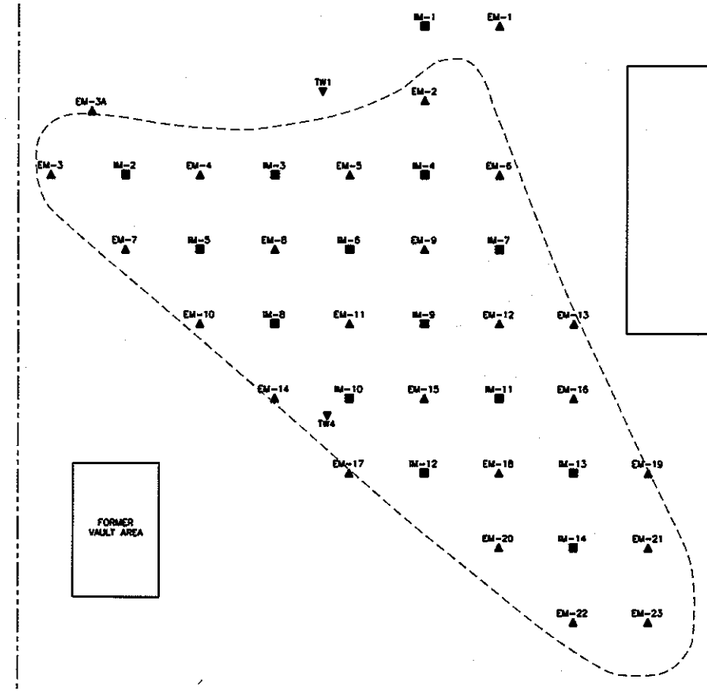
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# LN-2

46TH ROAD

5TH STREET

SIDEWALK



FORMER VAULT AREA

FORMER VAULT AREA

AS BUILT NOTE:

1. THE PERCHED UNIT LNAPL REMEDIATION UTILITIES HAVE BEEN INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS PRESENTED ON THIS DRAWING

NYS Engineering Note:
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LEGEND

- ■ EM-8 4-INCH DIAMETER EXTRACTION/MONITORING WELL - TYP (TOTAL OF 24 WELLS)
- ▲ IM-9 1-INCH DIAMETER INJECTION/MONITORING WELL - TYP (TOTAL OF 14 WELLS)
- TW4 ▼ ORIGINAL TEMPORARY WELL SAMPLING LOCATION
- APPROXIMATE BOUNDARY OF UNKNOWN AMBER VISCOUS NAPL IN PERCHED WATER AROUND TW4
- SITE BOUNDARY
- CURB LINES
- TANK VAULT BOUNDARY

SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)

EWMA ENGINEERING SERVICES, LLL - NYS ENG. CERT # 0005216

RICHARD ARNOLD
12/23/2010
NYS PE # 076202

REVISIONS	
NO.	DATE

An Environmental Consulting & Remediation Firm
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054

SCALE: AS SHOWN	PROJECT# 207266
DATE: 11/30/10	
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FILE: k:\drawings\207000\207266\2010 DEC SUB\207266f13 11x17.dwg

AS-BUILT PERCHED UNIT LNAPL REMEDIATION LOCATIONS

OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 7

46TH ROAD
5TH STREET
47TH AVENUE
SIDEWALK
SITE BOUNDARY
ADJACENT BUILDING
NYC SEWER MAIN
PEB-23 DATE: 3/11/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDD 0.0033 0.039 4,4-DDT 0.0033 0.023
PEB-W-W2 DATE: 3/9/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS VOCs ETHYLBENZENE 1 3.26 TOTAL XYLENES 1.2 16.6 ISOPROPYLBENZENE 2.3 7.46 PESTICIDES 4,4-DDE 0.0033 0.040 4,4-DDD 0.0033 0.468
PEB-28 DATE: 3/11/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.032 4,4-DDD 0.0033 0.757 4,4-DDT 0.0033 0.033
PEB-W-S1 DATE: 3/9/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDD 0.0033 0.039
PEB-29 DATE: 3/11/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.184 4,4-DDD 0.0033 3.20 4,4-DDT 0.0033 0.101
PES-15 DATE: 3/5/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.052 4,4-DDD 0.0033 1.11
PEB-25 DATE: 3/11/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS VOCs TOTAL XYLENES 0.26 2.63 PESTICIDES 4,4-DDE 0.0033 0.247 4,4-DDD 0.0033 0.133 4,4-DDT 0.0033 0.405
PES-16 DATE: 3/8/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDD 0.0033 0.416
PEB-30 DATE: 3/11/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.212 4,4-DDD 0.0033 7.81
PES-17 DATE: 3/31/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PCBs AROCLOR-1260 0.1 0.675
PES-18 DATE: 3/25/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDD 0.0033 0.00999
PEB-32 DATE: 4/6/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.00364 4,4-DDD 0.0033 0.010 4,4-DDT 0.0033 0.00716
PES-12 DATE: 3/3/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDT 0.0033 0.025
PEB-W-N2 DATE: 3/9/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS VOCs ETHYLBENZENE 1 1.67 TOTAL XYLENES 1.2 20.3 ISOPROPYLBENZENE 2.3 5.70 PESTICIDES 4,4-DDD 0.0033 0.191
PES-11 DATE: 3/2/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDD 0.0033 0.00761 J
PEB-W-N1 DATE: 3/9/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS VOCs TOTAL XYLENES 1.2 0.775 PESTICIDES 4,4-DDE 0.0033 0.074 4,4-DDD 0.0033 0.188
PES-10 DATE: 2/24/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.00505 4,4-DDD 0.0033 0.00447 4,4-DDT 0.0033 0.012
PEB-13 DATE: 2/18/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDT 0.0033 0.011
PEB-8 DATE: 2/5/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PCBs AROCLOR-1260 0.1 0.209
PEB-5 DATE: 1/15/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PCBs AROCLOR-1260 0.0033 1.18
PES-4 DATE: 5/7/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES PCBs 0.1 0.336
PES-3 DATE: 5/7/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES PCBs 0.1 0.211
PEB-3 DATE: 1/8/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDT 0.0033 0.013
PES-2 DATE: 1/8/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.00619 J 4,4-DDT 0.0033 0.028
PEB-16 DATE: 4/14/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDT 0.0033 0.00735 DEPTH: 7.5'-8.0' 4,4-DDT 0.0033 0.015
PEB-17 DATE: 3/11/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS VOCs TOTAL XYLENES 0.26 0.929 J PESTICIDES 4,4-DDD 0.0033 0.075 4,4-DDT 0.0033 0.026
PEB-36 DATE: 7/8/10 DEPTH: 7'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES ARCLOR-1260 0.1 1.16
PEB-6 DATE: 1/15/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDD 0.0033 0.018
PEB-W-E1 DATE: 3/9/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.037 4,4-DDD 0.0033 0.478 4,4-DDT 0.0033 0.017
PEB-11 DATE: 2/5/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PCBs AROCLOR-1260 0.1 0.758
PEB-9 DATE: 2/5/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PCBs AROCLOR-1260 0.1 0.292
PEB-41 DATE: 7/8/10 DEPTH: 7'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4'-DDD 0.0033 0.018
PEB-12 DATE: 2/5/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDE 0.0033 0.223 4,4-DDD 0.0033 0.530 4,4-DDT 0.0033 0.184
PEB-40 DATE: 7/8/10 DEPTH: 7'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS ISOPROPYLBENZENE 2.3 3.81 PESTICIDES 4,4'-DDD 0.0033 0.083
PEB-38 DATE: 7/8/10 DEPTH: 7'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES TOTAL XYLENES 0.26 1.39
PEB-14 DATE: 2/18/10 DEPTH: 7.0'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDT 0.0033 0.014 4,4-DDD 0.0033 0.00629
PEB-39 DATE: 7/8/10 DEPTH: 7'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4'-DDE 0.0033 0.057 4,4'-DDD 0.0033 0.370 4,4'-DDT 0.0033 0.032
PES-20 DATE: 3/29/10 DEPTH: 6.5'-7.0' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4-DDT 0.0033 0.019
PEB-42 DATE: 7/8/10 DEPTH: 7'-7.5' CONTAMINANT NYSDEC UUSCO RESULTS PESTICIDES 4,4'-DDD 0.0033 0.029

LEGEND

- ADDITIONAL EXCAVATION LIMIT
- PEB-(X) — POST-EXCAVATION SAMPLE LOCATION (BASE 7'-7.5')
- PES-(X) — POST-EXCAVATION SAMPLE LOCATION (SIDEWALL 6.5'-7')
- AOC-14A-C — RCRA SAMPLE LOCATION (COMPOSITE SOIL AND CONCRETE SAMPLES EVALUATING TRENCHES AND SUMPS)
- EXCAVATION TO 7' BELOW SURFACE GRADE (BSG)
- RCRA ENCAPSULATED AREA
- SITE BOUNDARY
- FORMER BUILDING FOOTPRINT
- AOC BOUNDARY
- CURB LINES
- TANK VAULT BOUNDARY
- 28 (7) — UNDER GROUND STORAGE TANK WITH ID NUMBER
- SUMP LOCATION
- FLOOR TRENCH

NOTES: ALL RESULTS IN RED EXCEED NYSDEC UUSCO (UNRESTRICTED); ALL RESULTS ARE IN PARTS PER MILLION (PPM)
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

FORMER AREAS OF CONCERN

AOC-1	FORMER 10,000 GALLON #6 FUEL OIL UST/46th ROAD SIDEWALK
AOC-2	EASTERN PARKING LOT
AOC-3	1-STORY BRICK/CONCRETE BLOCK BUILDING (DEMAND ELECTRIC)
AOC-4	MOTORCYCLE REPAIR SHOP (BASEMENT 2-STORY BRICK BUILDING)
AOC-4A	1-STORY BUILDING
AOC-5	3-STORY BRICK BUILDING (ART STUDIOS)
AOC-6	1-STORY BRICK BUILDING (KNOSSOS CUSTOM DESIGN FURNITURE)
AOC-6A	2-STORY BRICK BUILDING
AOC-7	SUSPECT FORMER GASOLINE STORAGE TANKS
AOC-7A	SUSPECT FORMER BOILER/STACK AREA
AOC-8	SUSPECT TWENTY-TWO (22) 1,500 GALLON VARNOLINE STORAGE TANKS
AOC-9	1-STORY BUILDING (AMN RENOVATION)
AOC-10	1-STORY BUILDING (JMJ ELECTRICAL)/SUSPECT UST AND FILL/VENT PORTS
AOC-11	FORMER WOHL, INC. CLEANERS AND DYERS (DIRECT AIR)
AOC-12	FORMER WOHL, INC. CLEANERS AND DYERS (LIBERTY CONTRACTING)
AOC-13	5TH STREET SIDEWALK
AOC-14	FORMER ACCURATE ASSOCIATES RCRA AREA
AOC-15	47TH AVENUE SIDEWALK

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

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

SCALE: AS SHOWN		PROJECT# 207266
DATE: 12/3/10		
DRAWN BY: RR		
CHECKED BY: RA		

POST-REMEDIAL ACTION VOCs, PESTICIDES, AND PCBs IN SOIL > UUSCO
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 8

PEB-W-N2
DATE: 3/9/10
DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
VOCs		
ISOPROPYLBENZENE	2.3	5.70

PEB-36
DATE: 7/8/2010
DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
PCBs		
AROCLOR-1260	1.0	1.16

PEB-5
DATE: 1/15/10
DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
PCBs		
AROCLOR-1260	1.0	1.18

PEB-W-W2
DATE: 3/9/10
DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
VOCs		
ISOPROPYLBENZENE	2.3	7.46

PEB-40
DATE: 7/08/2010
DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
VOCs		
ISOPROPYLBENZENE	2.3	3.79

LEGEND

- ADDITIONAL EXCAVATION LIMIT
- PEB-1 (7'-7.5') POST-EXCAVATION BASE SAMPLE LOCATION
- PES-1 (6.5'-7') POST-EXCAVATION SIDEWALL SAMPLE LOCATION
- SITE BOUNDARY
- FORMER BUILDING FOOTPRINT
- CURB LINES
- TANK VAULT BOUNDARY
- AOC BOUNDARY
- 28 (7) UNDER GROUND STORAGE TANK WITH ID NUMBER

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

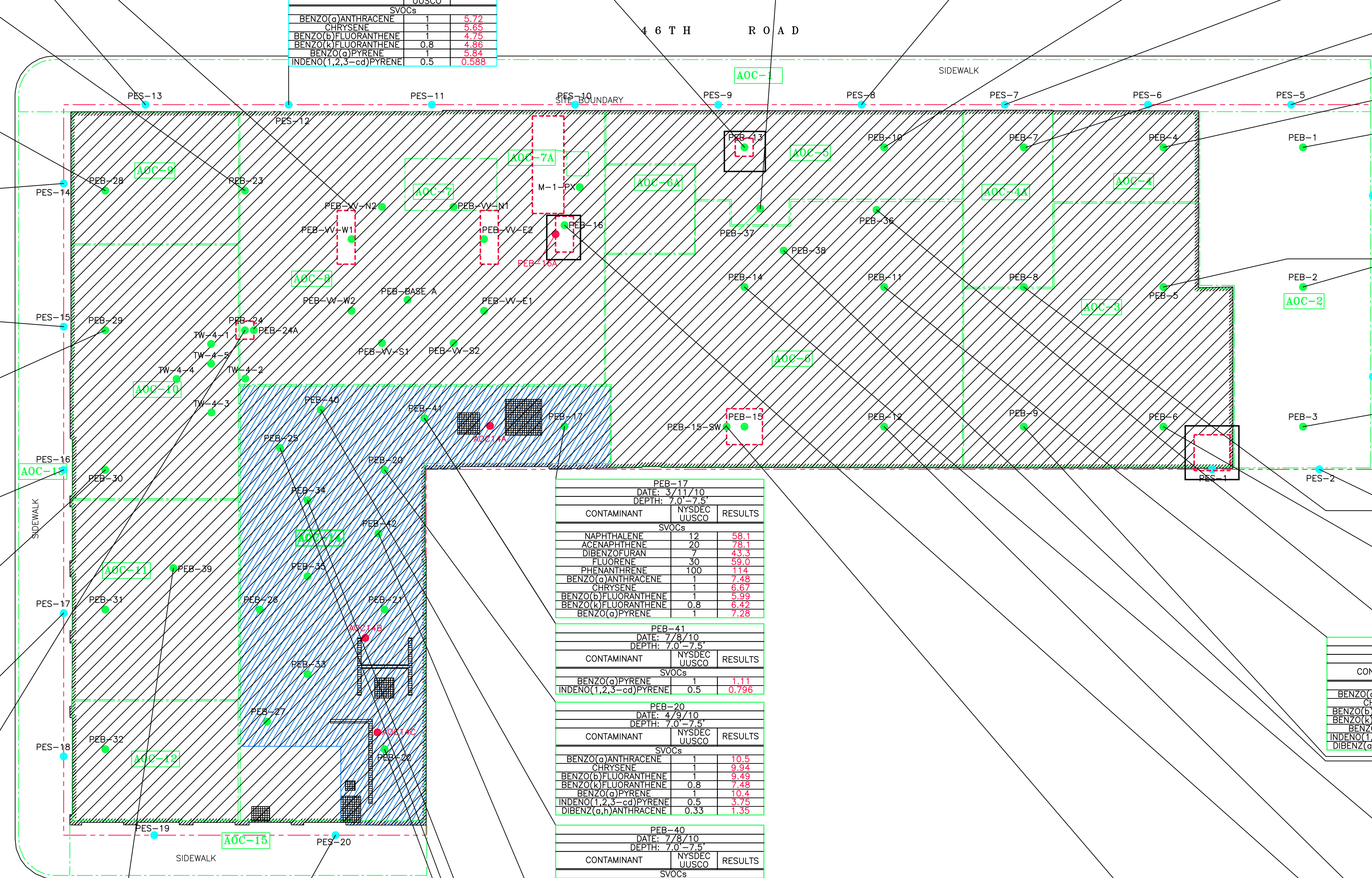
NOTES: ALL RESULTS IN RED EXCEED NYSDEC SITE SPECIFIC SOIL CLEANUP OBJECTIVE (SSCO) (RESTRICTED); ALL RESULTS SHOWN IN PARTS PER MILLION (PPM)
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

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

SCALE: AS SHOWN
DATE: 12/3/10
DRAWN BY: RR
CHECKED BY: RA
PROJECT# 207266

FINAL POST-REMEDIAL ACTION EXCEEDANCES OF VOCs, PESTICIDES AND PCBs IN SOIL >SSCO
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 8A



PES-13 — DATE: 3/4/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.21
CHRYSENE	1	1.11
BENZO(b)FLUORANTHENE	1	1.40
BENZO(k)FLUORANTHENE	0.8	1.31
BENZO(a)PYRENE	1	2.43
INDENO(1,2,3-cd)PYRENE	0.5	1.02
DIBENZ(a,h)ANTHRACENE	0.33	0.613

PEB-23 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.27
CHRYSENE	1	5.66
BENZO(b)FLUORANTHENE	1	5.36
BENZO(k)FLUORANTHENE	0.8	5.50
BENZO(a)PYRENE	1	8.61
INDENO(1,2,3-cd)PYRENE	0.5	2.76
DIBENZ(a,h)ANTHRACENE	0.33	1.21

VARNOLINE VAULT POST-EXCAVATION SAMPLES

CONTAMINANT	NYSDEC UUSCO	PEB-VV-E1 7.0'-7.5' 3/9/10	PEB-VV-N1 7.0'-7.5' 3/9/10	PEB-VV-N2 7.0'-7.5' 3/9/10	PEB-VV-W2 7.0'-7.5' 3/9/10	PEB-VV-S1 7.0'-7.5' 3/9/10	PEB-VV-S2 7.0'-7.5' 3/9/10
SVOCs							
ACENAPHTHENE	20	25.7	–	–	–	–	–
DIBENZOFURAN	7	19.6	–	–	–	–	–
BENZO(a)ANTHRACENE	1	3.60	5.40	3.93	6.71	1.11	1.18
CHRYSENE	1	3.42	5.58	3.72	6.35	1.15	1.13
BENZO(b)FLUORANTHENE	1	4.05	5.63	5.16	6.88	1.45	1.27
BENZO(k)FLUORANTHENE	0.8	2.87	5.56	3.28	5.32	1.25	0.997
BENZO(a)PYRENE	1	4.93	8.96	6.40	9.14	1.74	1.61
INDENO(1,2,3-cd)PYRENE	0.5	2.78	4.53	3.68	3.78	0.981	0.902
DIBENZ(a,h)ANTHRACENE	0.33	1.24	2.61	1.96	2.17	0.345	0.384

PES-12 — DATE: 3/3/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	5.72
CHRYSENE	1	5.65
BENZO(b)FLUORANTHENE	1	4.75
BENZO(k)FLUORANTHENE	0.8	4.86
BENZO(a)PYRENE	1	5.84
INDENO(1,2,3-cd)PYRENE	0.5	0.588

PEB-13 — DATE: 2/18/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.86
CHRYSENE	1	1.78
BENZO(b)FLUORANTHENE	1	1.87
BENZO(k)FLUORANTHENE	0.8	1.58
BENZO(a)PYRENE	1	2.41
INDENO(1,2,3-cd)PYRENE	0.5	1.34
DIBENZ(a,h)ANTHRACENE	0.33	0.552

PEB-37 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	11.1
CHRYSENE	1	9.91
BENZO(b)FLUORANTHENE	1	17.1
BENZO(k)FLUORANTHENE	0.8	7.51
BENZO(a)PYRENE	1	17.2
INDENO(1,2,3-cd)PYRENE	0.5	10.4
DIBENZ(a,h)ANTHRACENE	0.33	4.47

PES-8 — DATE: 2/2/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.35
CHRYSENE	1	1.28
BENZO(b)FLUORANTHENE	1	1.42
BENZO(k)FLUORANTHENE	0.8	1.64
BENZO(a)PYRENE	1	2.48
INDENO(1,2,3-cd)PYRENE	0.5	2.14
DIBENZ(a,h)ANTHRACENE	0.33	0.597

PEB-10 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.99
CHRYSENE	1	3.93
BENZO(b)FLUORANTHENE	1	6.38
BENZO(k)FLUORANTHENE	0.8	4.45
BENZO(a)PYRENE	1	8.91
INDENO(1,2,3-cd)PYRENE	0.5	7.49
DIBENZ(a,h)ANTHRACENE	0.33	3.01

PES-7 — DATE: 2/2/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	11.0
CHRYSENE	1	10.5
BENZO(b)FLUORANTHENE	1	7.61
BENZO(k)FLUORANTHENE	0.8	7.97
BENZO(a)PYRENE	1	11.2
INDENO(1,2,3-cd)PYRENE	0.5	6.44
DIBENZ(a,h)ANTHRACENE	0.33	1.81

PEB-7 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.76
CHRYSENE	1	2.75
BENZO(b)FLUORANTHENE	1	3.11
BENZO(k)FLUORANTHENE	0.8	2.72
BENZO(a)PYRENE	1	4.28
INDENO(1,2,3-cd)PYRENE	0.5	3.34
DIBENZ(a,h)ANTHRACENE	0.33	1.24

PEB-28 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.40
CHRYSENE	1	3.32
BENZO(b)FLUORANTHENE	1	3.56
BENZO(k)FLUORANTHENE	0.8	2.59
BENZO(a)PYRENE	1	4.45
INDENO(1,2,3-cd)PYRENE	0.5	2.09
DIBENZ(a,h)ANTHRACENE	0.33	0.856

PES-14 — DATE: 3/4/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.95
CHRYSENE	1	2.86
BENZO(b)FLUORANTHENE	1	2.64
BENZO(k)FLUORANTHENE	0.8	2.14
BENZO(a)PYRENE	1	3.86
INDENO(1,2,3-cd)PYRENE	0.5	1.31
DIBENZ(a,h)ANTHRACENE	0.33	0.528

PES-15 — DATE: 3/5/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.42
CHRYSENE	1	1.36
BENZO(b)FLUORANTHENE	1	1.09
BENZO(k)FLUORANTHENE	0.8	1.16
BENZO(a)PYRENE	1	1.51
INDENO(1,2,3-cd)PYRENE	0.5	0.758

PEB-29 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.29
CHRYSENE	1	1.39
BENZO(b)FLUORANTHENE	1	1.55
BENZO(k)FLUORANTHENE	0.8	1.27
BENZO(a)PYRENE	1	1.63
INDENO(1,2,3-cd)PYRENE	0.5	1.03
DIBENZ(a,h)ANTHRACENE	0.33	0.367 J

PES-16 — DATE: 3/8/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	25.0
CHRYSENE	1	25.8
BENZO(b)FLUORANTHENE	1	27.9
BENZO(k)FLUORANTHENE	0.8	21.1
BENZO(a)PYRENE	1	26.8
INDENO(1,2,3-cd)PYRENE	0.5	5.75
DIBENZ(a,h)ANTHRACENE	0.33	1.68

PEB-30 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.19
CHRYSENE	1	1.19
BENZO(b)FLUORANTHENE	1	1.65
BENZO(k)FLUORANTHENE	0.8	1.14
BENZO(a)PYRENE	1	2.00
INDENO(1,2,3-cd)PYRENE	0.5	1.00
DIBENZ(a,h)ANTHRACENE	0.33	0.538

PES-17 — DATE: 5/7/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.06
CHRYSENE	1	2.33
BENZO(b)FLUORANTHENE	1	1.30
BENZO(k)FLUORANTHENE	0.8	1.06
BENZO(a)PYRENE	1	3.71
INDENO(1,2,3-cd)PYRENE	0.5	0.738
DIBENZ(a,h)ANTHRACENE	0.33	1.07

PEB-24 — DATE: 4/9/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.33
CHRYSENE	1	1.35
BENZO(a)PYRENE	1	2.19
DIBENZ(a,h)ANTHRACENE	0.33	0.388

PEB-39 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.23
CHRYSENE	1	1.17
BENZO(a)PYRENE	1	1.43
INDENO(1,2,3-cd)PYRENE	0.5	0.629

PEB-17 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
NAPHTHALENE	12	58.1
ACENAPHTHENE	20	78.1
DIBENZOFURAN	7	43.3
FLUORENE	30	59.0
PHENANTHRENE	100	114
BENZO(a)ANTHRACENE	1	7.48
CHRYSENE	1	6.67
BENZO(b)FLUORANTHENE	1	5.99
BENZO(k)FLUORANTHENE	0.8	6.42
BENZO(a)PYRENE	1	7.28

PEB-41 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)PYRENE	1	1.11
INDENO(1,2,3-cd)PYRENE	0.5	0.796

PEB-20 — DATE: 4/9/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	10.5
CHRYSENE	1	9.94
BENZO(b)FLUORANTHENE	1	9.49
BENZO(k)FLUORANTHENE	0.8	7.48
BENZO(a)PYRENE	1	10.4
INDENO(1,2,3-cd)PYRENE	0.5	3.75
DIBENZ(a,h)ANTHRACENE	0.33	1.35

PEB-40 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	12.3
CHRYSENE	1	11.7
BENZO(b)FLUORANTHENE	1	12.8
BENZO(k)FLUORANTHENE	0.8	7.00
BENZO(a)PYRENE	1	13.5
INDENO(1,2,3-cd)PYRENE	0.5	7.99
DIBENZ(a,h)ANTHRACENE	0.33	2.84

PEB-42 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
NAPHTHALENE	12	19.6
ACENAPHTHENE	20	21.0
DIBENZOFURAN	7	16.6
BENZO(a)ANTHRACENE	1	4.76
CHRYSENE	1	4.03
BENZO(b)FLUORANTHENE	1	3.97
BENZO(k)FLUORANTHENE	0.8	2.61
BENZO(a)PYRENE	1	4.99
INDENO(1,2,3-cd)PYRENE	0.5	3.87
DIBENZ(a,h)ANTHRACENE	0.33	1.40

PES-20 — DATE: 4/29/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.38
CHRYSENE	1	6.49
BENZO(b)FLUORANTHENE	1	8.03
BENZO(k)FLUORANTHENE	0.8	8.34
BENZO(a)PYRENE	1	5.54
INDENO(1,2,3-cd)PYRENE	0.5	2.79
DIBENZ(a,h)ANTHRACENE	0.33	1.45

PEB-22 — DATE: 4/6/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.86
BENZO(b)FLUORANTHENE	1	1.11
BENZO(k)FLUORANTHENE	0.8	1.19
BENZO(a)PYRENE	1	1.30
CHRYSENE	1	1.79

PEB-25 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.67
CHRYSENE	1	2.67
BENZO(b)FLUORANTHENE	1	3.39
BENZO(k)FLUORANTHENE	0.8	3.25
BENZO(a)PYRENE	1	4.01
INDENO(1,2,3-cd)PYRENE	0.5	1.20
DIBENZ(a,h)ANTHRACENE	0.33	0.528

PEB-34 — DATE: 4/6/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.65
CHRYSENE	1	1.95
BENZO(b)FLUORANTHENE	1	1.42
BENZO(k)FLUORANTHENE	0.8	1.27
BENZO(a)PYRENE	1	1.57
INDENO(1,2,3-cd)PYRENE	0.5	0.676

PEB-15-SW — DATE: 4/22/10 — DEPTH: 7.5'-8'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.24
CHRYSENE	1	1.26
BENZO(k)FLUORANTHENE	0.8	0.921
BENZO(a)PYRENE	1	1.19
INDENO(1,2,3-cd)PYRENE	0.5	0.629

PEB-16A — DATE: 4/14/10 — DEPTH: 7.5'-8.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	15.9
CHRYSENE	1	16.5
BENZO(b)FLUORANTHENE	1	11.1
BENZO(k)FLUORANTHENE	0.8	12.0
BENZO(a)PYRENE	1	15.3
INDENO(1,2,3-cd)PYRENE	0.5	4.44
DIBENZ(a,h)ANTHRACENE	0.33	2.02

PEB-14 — DATE: 2/18/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.06
CHRYSENE	1	1.05
BENZO(a)PYRENE	1	1.18
INDENO(1,2,3-cd)PYRENE	0.5	0.602

PEB-12 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.33
CHRYSENE	1	3.60
BENZO(b)FLUORANTHENE	1	3.38
BENZO(k)FLUORANTHENE	0.8	2.94
BENZO(a)PYRENE	1	4.66
INDENO(1,2,3-cd)PYRENE	0.5	3.24
DIBENZ(a,h)ANTHRACENE	0.33	1.05

PES-5 — DATE: 1/5/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
INDENO(1,2,3-cd)PYRENE	0.5	0.669

PEB-4 — DATE: 1/15/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.70
CHRYSENE	1	6.84
BENZO(b)FLUORANTHENE	1	6.30
BENZO(k)FLUORANTHENE	0.8	6.08
BENZO(a)PYRENE	1	9.52
INDENO(1,2,3-cd)PYRENE	0.5	6.04
DIBENZ(a,h)ANTHRACENE	0.33	2.44

PES-4 — DATE: 5/7/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	5.43
CHRYSENE	1	5.35
BENZO(b)FLUORANTHENE	1	3.69
BENZO(k)FLUORANTHENE	0.8	4.77
BENZO(a)PYRENE	1	5.98
INDENO(1,2,3-cd)PYRENE	0.5	2.76
DIBENZ(a,h)ANTHRACENE	0.33	1.34

PEB-1 — DATE: 1/7/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	7.27
CHRYSENE	1	6.30
BENZO(b)FLUORANTHENE	1	8.05
BENZO(k)FLUORANTHENE	0.8	6.99
BENZO(a)PYRENE	1	11.7
INDENO(1,2,3-cd)PYRENE	0.5	6.34
DIBENZ(a,h)ANTHRACENE	0.33	2.99

PEB-2 — DATE: 1/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.87
CHRYSENE	1	6.52
BENZO(b)FLUORANTHENE	1	8.06
BENZO(k)FLUORANTHENE	0.8	8.04
BENZO(a)PYRENE	1	12.9
INDENO(1,2,3-cd)PYRENE	0.5	7.93
DIBENZ(a,h)ANTHRACENE	0.33	3.33

PEB-5 — DATE: 1/15/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.78
CHRYSENE	1	3.81
BENZO(b)FLUORANTHENE	1	4.03
BENZO(k)FLUORANTHENE	0.8	3.90
BENZO(a)PYRENE	1	5.93
INDENO(1,2,3-cd)PYRENE	0.5	4.15
DIBENZ(a,h)ANTHRACENE	0.33	1.38

PEB-3 — DATE: 1/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	5.88
CHRYSENE	1	5.86
BENZO(b)FLUORANTHENE	1	5.99
BENZO(k)FLUORANTHENE	0.8	5.20
BENZO(a)PYRENE	1	8.57
INDENO(1,2,3-cd)PYRENE	0.5	4.73
DIBENZ(a,h)ANTHRACENE	0.33	1.88

PES-3 — DATE: 5/7/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	8.40
CHRYSENE	1	8.12
BENZO(b)FLUORANTHENE	1	8.05
BENZO(k)FLUORANTHENE	0.8	4.70
BENZO(a)PYRENE	1	8.76
INDENO(1,2,3-cd)PYRENE	0.5	3.88
DIBENZ(a,h)ANTHRACENE	0.33	2.08

PEB-8 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.34
CHRYSENE	1	1.44
BENZO(b)FLUORANTHENE	1	1.64
BENZO(k)FLUORANTHENE	0.8	1.73
BENZO(a)PYRENE	1	2.68
INDENO(1,2,3-cd)PYRENE	0.5	2.18
DIBENZ(a,h)ANTHRACENE	0.33	0.787

PES-2 — DATE: 1/7/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.71
CHRYSENE	1	3.73
BENZO(b)FLUORANTHENE	1	4.21
BENZO(k)FLUORANTHENE	0.8	3.68
BENZO(a)PYRENE	1	6.11
INDENO(1,2,3-cd)PYRENE	0.5	3.76
DIBENZ(a,h)ANTHRACENE	0.33	1.46

PEB-11 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	13.7
CHRYSENE	1	14.0
BENZO(b)FLUORANTHENE	1	17.4
BENZO(k)FLUORANTHENE	0.8	12.0
BENZO(a)PYRENE	1	23.0
INDENO(1,2,3-cd)PYRENE	0.5	17.5
DIBENZ(a,h)ANTHRACENE	0.33	4.91

PEB-36 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.28
CHRYSENE	1	2.98
BENZO(b)FLUORANTHENE	1	4.35
BENZO(k)FLUORANTHENE	0.8	2.80
BENZO(a)PYRENE	1	4.95
INDENO(1,2,3-cd)PYRENE	0.5	4.57
DIBENZ(a,h)ANTHRACENE	0.33	1.98

PEB-6 — DATE: 1/15/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	15.8
CHRYSENE	1	15.2
BENZO(b)FLUORANTHENE	1	18.7
BENZO(k)FLUORANTHENE	0.8	15.5
BENZO(a)PYRENE	1	27.2
INDENO(1,2,3-cd)PYRENE	0.5	15.4
DIBENZ(a,h)ANTHRACENE	0.33	7.06

PEB-38 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	4.40
CHRYSENE	1	3.96
BENZO(b)FLUORANTHENE	1	6.64
BENZO(k)FLUORANTHENE	0.8	3.81
BENZO(a)PYRENE	1	7.78
INDENO(1,2,3-cd)PYRENE	0.5	5.30
DIBENZ(a,h)ANTHRACENE	0.33	2.20

PEB-9 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.45
CHRYSENE	1	6.14
BENZO(b)FLUORANTHENE	1	6.73
BENZO(k)FLUORANTHENE	0.8	6.34
BENZO(a)PYRENE	1	9.99
INDENO(1,2,3-cd)PYRENE	0.5	7.70
DIBENZ(a,h)ANTHRACENE	0.33	2.70

LEGEND

Symbol	Description
(red dashed box)	ADDITIONAL EXCAVATION LIMIT
PEB-(X)	POST-EXCAVATION SAMPLE LOCATION (BASE 7'-7.5')
PES-(X)	POST-EXCAVATION SAMPLE LOCATION (SIDEWALL 6.5'-7')
AOC-14A-C	RCRA SAMPLE LOCATION (COMPOSITE SOIL AND CONCRETE SAMPLES EVALUATING TRENCHES AND SUMPS)
(hatched)	EXCAVATION TO 7' BELOW SURFACE GRADE (BSG)
(blue hatched)	RCRA ENCAPSULATED AREA
(red dashed line)	SITE BOUNDARY
(hatched line)	FORMER BUILDING FOOTPRINT
(green dash-dot line)	AOC BOUNDARY
(line)	CURB LINES
(line)	TANK VAULT BOUNDARY
28 (7)	UNDER GROUND STORAGE TANK WITH ID NUMBER
(grid square)	SUMP LOCATION
(hatched bar)	FLOOR TRENCH

FORMER AREAS OF CONCERN

AOC	Description
AOC-1	FORMER 10,000 GALLON #6 FUEL OIL UST/46th ROAD SIDEWALK
AOC-2	EASTERN PARKING LOT
AOC-3	1-STORY BRICK/CONCRETE BLOCK BUILDING (DEMAND ELECTRIC)
AOC-4	MOTORCYCLE REPAIR SHOP (BASEMENT 2-STORY BRICK BUILDING)
AOC-4A	1-STORY BUILDING
AOC-5	3-STORY BRICK BUILDING (ART STUDIOS)
AOC-6	1-STORY BRICK BUILDING (KNOSSOS CUSTOM DESIGN FURNITURE)
AOC-6A	2-STORY BRICK BUILDING
AOC-7	SUSPECT FORMER GASOLINE STORAGE TANKS
AOC-7A	SUSPECT FORMER BOILER/STACK AREA
AOC-8	SUSPECT TWENTY-TWO (22) 1,500 GALLON VARNOLINE STORAGE TANKS
AOC-9	1-STORY BUILDING (AMN RENOVATION)
AOC-10	1-STORY BUILDING (JMJ ELECTRICAL)/SUSPECT UST AND FILL/VENT PORTS
AOC-11	FORMER WOHL, INC. CLEANERS AND DYERS (DIRECT AIR)
AOC-12	FORMER WOHL, INC. CLEANERS AND DYERS (LIBERTY CONTRACTING)
AOC-13	5TH STREET SIDEWALK
AOC-14	FORMER ACCURATE ASSOCIATES RCRA AREA
AOC-15	47TH AVENUE SIDEWALK

GRAPHIC SCALE: 20 0 10 20 40 (IN FEET)

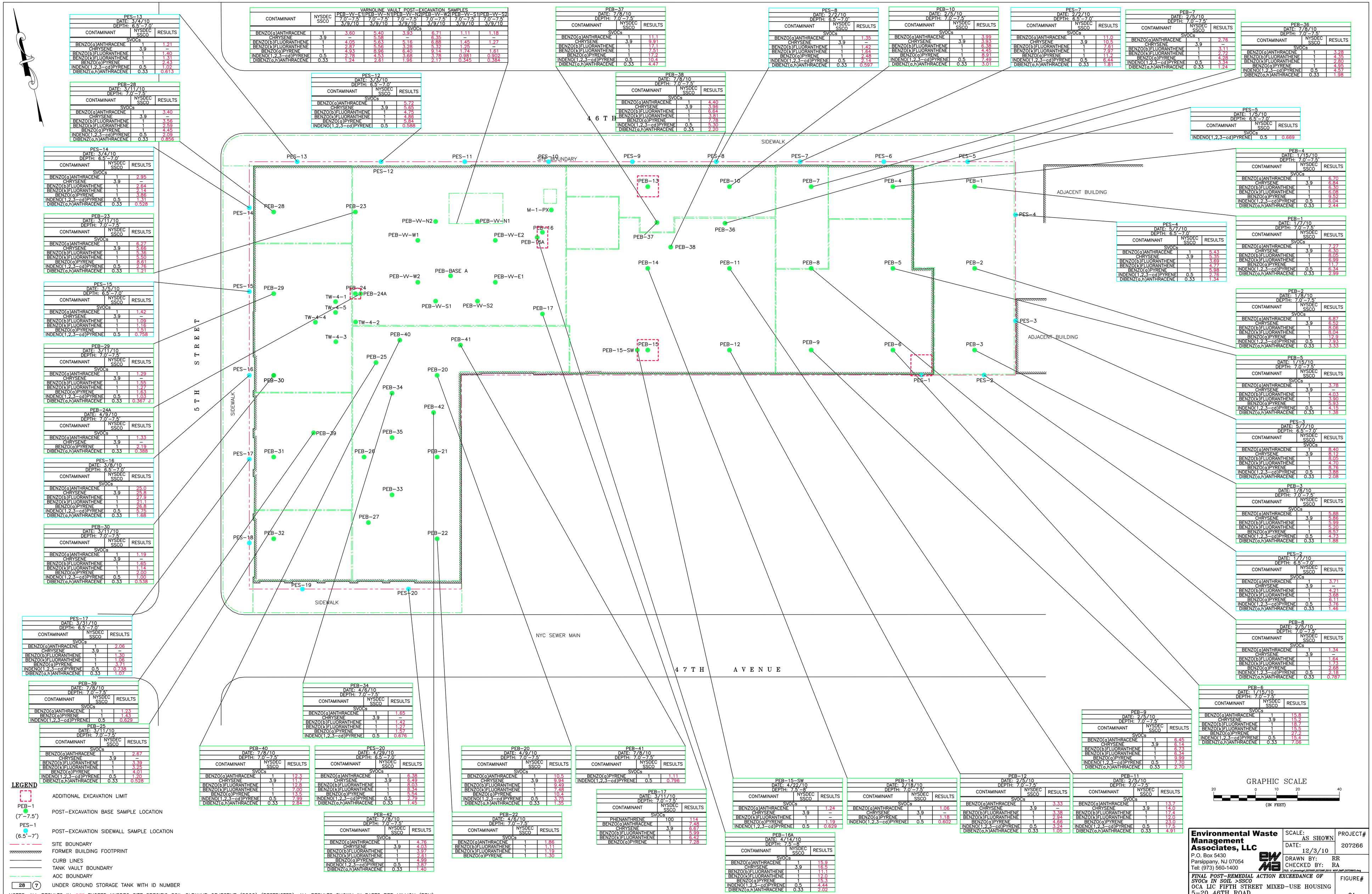
NOTES: ALL RESULTS IN RED EXCEED NYSDEC UUSCO (UNRESTRICTED); ALL RESULTS ARE IN PARTS PER MILLION (PPM)
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

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

SCALE: AS SHOWN — PROJECT#: 207266
DATE: 12/3/10
DRAWN BY: RR
CHECKED BY: RA

POST REMEDIAL ACTION SVOCs IN SOIL > UUSCO
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 9



PES-13 — DATE: 3/4/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.21
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.40
BENZO(k)FLUORANTHENE	1	1.31
BENZO(a)PYRENE	1	2.43
INDENO(1,2,3–cd)PYRENE	0.5	1.02
DIBENZ(a,h)ANTHRACENE	0.33	0.613

PES-28 — DATE: 3/17/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.40
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	3.56
BENZO(k)FLUORANTHENE	1	2.59
BENZO(a)PYRENE	1	4.45
INDENO(1,2,3–cd)PYRENE	0.5	2.09
DIBENZ(a,h)ANTHRACENE	0.33	0.856

PES-14 — DATE: 3/4/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.95
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	2.64
BENZO(k)FLUORANTHENE	1	2.14
BENZO(a)PYRENE	1	3.66
INDENO(1,2,3–cd)PYRENE	0.5	1.31
DIBENZ(a,h)ANTHRACENE	0.33	0.528

PEB-23 — DATE: 3/17/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.27
CHRYSENE	3.9	5.66
BENZO(b)FLUORANTHENE	1	5.36
BENZO(k)FLUORANTHENE	1	5.50
BENZO(a)PYRENE	1	8.51
INDENO(1,2,3–cd)PYRENE	0.5	2.76
DIBENZ(a,h)ANTHRACENE	0.33	1.21

PES-15 — DATE: 3/5/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.42
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.09
BENZO(k)FLUORANTHENE	1	1.16
BENZO(a)PYRENE	1	1.51
INDENO(1,2,3–cd)PYRENE	0.5	0.758

PEB-29 — DATE: 3/17/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.29
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.55
BENZO(k)FLUORANTHENE	1	1.27
BENZO(a)PYRENE	1	1.63
INDENO(1,2,3–cd)PYRENE	0.5	1.03
DIBENZ(a,h)ANTHRACENE	0.33	0.367 J

PEB-24A — DATE: 4/9/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.33
CHRYSENE	3.9	–
BENZO(a)PYRENE	1	2.19
DIBENZ(a,h)ANTHRACENE	0.33	0.388

PES-16 — DATE: 3/8/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	25.0
CHRYSENE	3.9	25.8
BENZO(b)FLUORANTHENE	1	27.9
BENZO(k)FLUORANTHENE	1	21.1
BENZO(a)PYRENE	1	26.8
INDENO(1,2,3–cd)PYRENE	0.5	5.75
DIBENZ(a,h)ANTHRACENE	0.33	1.68

PEB-30 — DATE: 3/17/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.19
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.65
BENZO(k)FLUORANTHENE	1	1.14
BENZO(a)PYRENE	1	2.00
INDENO(1,2,3–cd)PYRENE	0.5	1.00
DIBENZ(a,h)ANTHRACENE	0.33	0.538

PES-17 — DATE: 3/31/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.06
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.39
BENZO(k)FLUORANTHENE	1	1.06
BENZO(a)PYRENE	1	2.71
INDENO(1,2,3–cd)PYRENE	0.5	0.738
DIBENZ(a,h)ANTHRACENE	0.33	1.07

PEB-39 — DATE: 7/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.23
BENZO(a)PYRENE	1	1.43
INDENO(1,2,3–cd)PYRENE	0.5	0.629

PEB-25 — DATE: 3/17/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.67
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	3.39
BENZO(k)FLUORANTHENE	1	3.25
BENZO(a)PYRENE	1	4.01
INDENO(1,2,3–cd)PYRENE	0.5	1.20
DIBENZ(a,h)ANTHRACENE	0.33	0.528

PES-12 — DATE: 3/3/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	5.72
CHRYSENE	3.9	5.65
BENZO(b)FLUORANTHENE	1	4.75
BENZO(k)FLUORANTHENE	1	4.66
BENZO(a)PYRENE	1	5.84
INDENO(1,2,3–cd)PYRENE	0.5	0.588

VARNOLINE VAULT POST–EXCAVATION SAMPLES

CONTAMINANT	NYSDEC SSCO	PEB–WV–E1 7.0–7.5' 3/9/10	PEB–WV–N1 7.0–7.5' 3/9/10	PEB–WV–N2 7.0–7.5' 3/9/10	PEB–WV–W2 7.0–7.5' 3/9/10	PEB–WV–S1 7.0–7.5' 3/9/10	PEB–WV–S2 7.0–7.5' 3/9/10
SVOCs							
BENZO(a)ANTHRACENE	1	3.60	5.40	3.93	6.21	1.11	1.18
CHRYSENE	3.9	–	5.58	–	6.35	–	–
BENZO(b)FLUORANTHENE	1	4.05	5.63	5.16	6.68	1.45	1.27
BENZO(k)FLUORANTHENE	1	2.87	5.56	3.28	5.32	1.25	–
BENZO(a)PYRENE	1	4.93	8.96	6.40	9.14	1.74	1.61
INDENO(1,2,3–cd)PYRENE	0.5	2.78	4.53	3.68	3.78	0.981	0.902
DIBENZ(a,h)ANTHRACENE	0.33	1.24	2.61	1.96	2.17	0.345	0.384

PEB-37 — DATE: 7/8/10 — DEPTH: 7.5–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	11.1
CHRYSENE	3.9	9.91
BENZO(b)FLUORANTHENE	1	17.1
BENZO(k)FLUORANTHENE	1	7.53
BENZO(a)PYRENE	1	17.2
INDENO(1,2,3–cd)PYRENE	0.5	10.4
DIBENZ(a,h)ANTHRACENE	0.33	4.47

PEB-38 — DATE: 7/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	4.40
CHRYSENE	3.9	3.96
BENZO(b)FLUORANTHENE	1	6.64
BENZO(k)FLUORANTHENE	1	4.81
BENZO(a)PYRENE	1	7.78
INDENO(1,2,3–cd)PYRENE	0.5	5.30
DIBENZ(g,h)ANTHRACENE	0.33	2.20

PES-8 — DATE: 2/2/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.35
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.42
BENZO(k)FLUORANTHENE	1	1.64
BENZO(a)PYRENE	1	2.48
INDENO(1,2,3–cd)PYRENE	0.5	2.14
DIBENZ(a,h)ANTHRACENE	0.33	0.597

PEB-10 — DATE: 2/5/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.99
CHRYSENE	3.9	3.93
BENZO(b)FLUORANTHENE	1	6.38
BENZO(k)FLUORANTHENE	1	4.45
BENZO(a)PYRENE	1	8.91
INDENO(1,2,3–cd)PYRENE	0.5	7.49
DIBENZ(a,h)ANTHRACENE	0.33	3.01

PES-7 — DATE: 2/2/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	11.0
CHRYSENE	3.9	10.5
BENZO(b)FLUORANTHENE	1	7.61
BENZO(k)FLUORANTHENE	1	7.97
BENZO(a)PYRENE	1	11.2
INDENO(1,2,3–cd)PYRENE	0.5	6.44
DIBENZ(a,h)ANTHRACENE	0.33	1.81

PEB-7 — DATE: 2/5/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	2.76
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	3.11
BENZO(k)FLUORANTHENE	1	2.72
BENZO(a)PYRENE	1	4.28
INDENO(1,2,3–cd)PYRENE	0.5	3.54
DIBENZ(a,h)ANTHRACENE	0.33	1.24

PEB-36 — DATE: 7/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.28
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	4.35
BENZO(k)FLUORANTHENE	1	2.80
BENZO(a)PYRENE	1	4.89
INDENO(1,2,3–cd)PYRENE	0.5	4.57
DIBENZ(a,h)ANTHRACENE	0.33	1.98

PES-5 — DATE: 1/5/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
INDENO(1,2,3–cd)PYRENE	0.5	0.669

PEB-4 — DATE: 1/15/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.70
CHRYSENE	3.9	6.84
BENZO(b)FLUORANTHENE	1	8.30
BENZO(k)FLUORANTHENE	1	6.08
BENZO(a)PYRENE	1	9.52
INDENO(1,2,3–cd)PYRENE	0.5	6.04
DIBENZ(g,h)ANTHRACENE	0.33	2.44

PES-4 — DATE: 5/7/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	5.43
CHRYSENE	3.9	5.35
BENZO(b)FLUORANTHENE	1	3.69
BENZO(k)FLUORANTHENE	1	4.27
BENZO(a)PYRENE	1	5.98
INDENO(1,2,3–cd)PYRENE	0.5	2.76
DIBENZ(a,h)ANTHRACENE	0.33	1.34

PEB-1 — DATE: 1/7/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	7.27
CHRYSENE	3.9	8.28
BENZO(b)FLUORANTHENE	1	8.05
BENZO(k)FLUORANTHENE	1	6.99
BENZO(a)PYRENE	1	11.7
INDENO(1,2,3–cd)PYRENE	0.5	6.34
DIBENZ(a,h)ANTHRACENE	0.33	2.99

PEB-2 — DATE: 2/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.87
CHRYSENE	3.9	6.52
BENZO(b)FLUORANTHENE	1	8.06
BENZO(k)FLUORANTHENE	1	8.04
BENZO(a)PYRENE	1	12.3
INDENO(1,2,3–cd)PYRENE	0.5	7.23
DIBENZ(a,h)ANTHRACENE	0.33	3.33

PEB-5 — DATE: 1/15/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.78
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	4.03
BENZO(k)FLUORANTHENE	1	3.90
BENZO(a)PYRENE	1	5.93
INDENO(1,2,3–cd)PYRENE	0.5	4.18
DIBENZ(a,h)ANTHRACENE	0.33	1.38

PES-3 — DATE: 5/7/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	8.40
CHRYSENE	3.9	8.17
BENZO(b)FLUORANTHENE	1	8.05
BENZO(k)FLUORANTHENE	1	4.70
BENZO(a)PYRENE	1	8.76
INDENO(1,2,3–cd)PYRENE	0.5	3.88
DIBENZ(a,h)ANTHRACENE	0.33	2.08

PEB-3 — DATE: 1/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	5.88
CHRYSENE	3.9	5.86
BENZO(b)FLUORANTHENE	1	5.39
BENZO(k)FLUORANTHENE	1	5.20
BENZO(a)PYRENE	1	8.57
INDENO(1,2,3–cd)PYRENE	0.5	4.73
DIBENZ(a,h)ANTHRACENE	0.33	1.88

PES-2 — DATE: 1/7/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.71
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	4.21
BENZO(k)FLUORANTHENE	1	3.68
BENZO(a)PYRENE	1	6.11
INDENO(1,2,3–cd)PYRENE	0.5	3.76
DIBENZ(a,h)ANTHRACENE	0.33	1.46

PEB-8 — DATE: 2/5/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.34
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.64
BENZO(k)FLUORANTHENE	1	1.73
BENZO(a)PYRENE	1	2.68
INDENO(1,2,3–cd)PYRENE	0.5	2.18
DIBENZ(a,h)ANTHRACENE	0.33	0.787

PEB-6 — DATE: 1/15/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	15.8
CHRYSENE	3.9	15.2
BENZO(b)FLUORANTHENE	1	18.7
BENZO(k)FLUORANTHENE	1	15.5
BENZO(a)PYRENE	1	22.2
INDENO(1,2,3–cd)PYRENE	0.5	15.4
DIBENZ(g,h)ANTHRACENE	0.33	7.06

PEB-9 — DATE: 2/5/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.45
CHRYSENE	3.9	6.14
BENZO(b)FLUORANTHENE	1	6.73
BENZO(k)FLUORANTHENE	1	6.34
BENZO(a)PYRENE	1	9.99
INDENO(1,2,3–cd)PYRENE	0.5	7.70
DIBENZ(a,h)ANTHRACENE	0.33	2.70

PEB-40 — DATE: 7/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	12.3
CHRYSENE	3.9	11.7
BENZO(b)FLUORANTHENE	1	12.8
BENZO(k)FLUORANTHENE	1	7.00
BENZO(a)PYRENE	1	13.5
INDENO(1,2,3–cd)PYRENE	0.5	7.99
DIBENZ(a,h)ANTHRACENE	0.33	2.84

PES-20 — DATE: 4/29/10 — DEPTH: 6.5–7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	6.38
CHRYSENE	3.9	6.49
BENZO(b)FLUORANTHENE	1	8.03
BENZO(k)FLUORANTHENE	1	6.34
BENZO(a)PYRENE	1	5.54
INDENO(1,2,3–cd)PYRENE	0.5	2.79
DIBENZ(a,h)ANTHRACENE	0.33	1.45

PEB-34 — DATE: 4/6/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.65
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.42
BENZO(k)FLUORANTHENE	1	1.27
BENZO(a)PYRENE	1	1.67
INDENO(1,2,3–cd)PYRENE	0.5	0.676

PEB-42 — DATE: 7/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	4.76
CHRYSENE	3.9	4.03
BENZO(b)FLUORANTHENE	1	4.97
BENZO(k)FLUORANTHENE	1	2.61
BENZO(a)PYRENE	1	4.99
INDENO(1,2,3–cd)PYRENE	0.5	3.87
DIBENZ(a,h)ANTHRACENE	0.33	1.40

PEB-22 — DATE: 4/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.86
BENZO(b)FLUORANTHENE	1	1.13
BENZO(k)FLUORANTHENE	1	1.19
BENZO(a)PYRENE	1	1.30

PEB-20 — DATE: 4/9/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	10.5
CHRYSENE	3.9	9.94
BENZO(b)FLUORANTHENE	1	9.49
BENZO(k)FLUORANTHENE	1	7.48
BENZO(a)PYRENE	1	10.4
INDENO(1,2,3–cd)PYRENE	0.5	3.75
DIBENZ(a,h)ANTHRACENE	0.33	1.35

PEB-41 — DATE: 7/8/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(g)PERYLENE	1	1.11
INDENO(1,2,3–cd)PYRENE	0.5	0.798

PEB-17 — DATE: 5/17/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
PHENANTHRENE	100	114
BENZO(a)ANTHRACENE	1	7.48
CHRYSENE	3.9	6.67
BENZO(b)FLUORANTHENE	1	5.99
BENZO(k)FLUORANTHENE	1	6.42
BENZO(a)PYRENE	1	7.28

PEB-15-SW — DATE: 4/22/10 — DEPTH: 7.5–8'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.24
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	1.18
BENZO(a)PYRENE	1	1.19
INDENO(1,2,3–cd)PYRENE	0.5	0.629

PEB-16A — DATE: 4/14/10 — DEPTH: 7.5–8'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	15.9
CHRYSENE	3.9	16.5
BENZO(b)FLUORANTHENE	1	11.1
BENZO(k)FLUORANTHENE	1	12.0
BENZO(a)PYRENE	1	15.3
INDENO(1,2,3–cd)PYRENE	0.5	4.44
DIBENZ(a,h)ANTHRACENE	0.33	2.02

PEB-14 — DATE: 2/18/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	1.06
CHRYSENE	3.9	–
BENZO(a)PYRENE	1	1.18
INDENO(1,2,3–cd)PYRENE	0.5	0.602

PEB-12 — DATE: 2/5/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	3.33
CHRYSENE	3.9	–
BENZO(b)FLUORANTHENE	1	3.38
BENZO(k)FLUORANTHENE	1	2.94
BENZO(a)PYRENE	1	4.66
INDENO(1,2,3–cd)PYRENE	0.5	3.24
DIBENZ(a,h)ANTHRACENE	0.33	1.05

PEB-11 — DATE: 2/5/10 — DEPTH: 7.0–7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
SVOCs		
BENZO(a)ANTHRACENE	1	13.7
CHRYSENE	3.9	14.0
BENZO(b)FLUORANTHENE	1	17.4
BENZO(k)FLUORANTHENE	1	12.0
BENZO(a)PYRENE	1	23.0
INDENO(1,2,3–cd)PYRENE	0.5	17.5
DIBENZ(a,h)ANTHRACENE	0.33	4.91

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

LEGEND

- ADDITIONAL EXCAVATION LIMIT
- PEB–1 (7'–7.5') — POST–EXCAVATION BASE SAMPLE LOCATION
- PES–1 (6.5'–7') — POST–EXCAVATION SIDEWALL SAMPLE LOCATION
- SITE BOUNDARY
- FORMER BUILDING FOOTPRINT
- CURB LINES
- TANK VAULT BOUNDARY
- AOC BOUNDARY
- 28 (7) — UNDER GROUND STORAGE TANK WITH ID NUMBER

NOTES: ALL RESULTS IN RED EXCEED NYSDEC SITE SPECIFIC SOIL CLEANUP OBJECTIVE (SSCO) (RESTRICTED); ALL RESULTS SHOWN IN PARTS PER MILLION (PPM)
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

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

SCALE: AS SHOWN
DATE: 12/3/10
PROJECT# 207266
DRAWN BY: RR
CHECKED BY: RA
FILE: K:\Drawings\207000\207266\2010 MOP\SwPL207266010.dwg

FINAL POST–REMEDIAL ACTION EXCEEDANCE OF SVOCs IN SOIL >SSCO
OCA LIC FIFTH STREET MIXED–USE HOUSING
5–20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 9A

LEGEND

- ADDITIONAL EXCAVATION LIMIT
- PEB-(X) POST-EXCAVATION SAMPLE LOCATION (BASE 7'-7.5')
- PES-(X) POST-EXCAVATION SAMPLE LOCATION (SIDEWALL 6.5'-7')
- AOC-14A-C RCRA SAMPLE LOCATION (COMPOSITE SOIL AND CONCRETE SAMPLES EVALUATING TRENCHES AND SUMPS)
- EXCAVATION TO 7' BELOW SURFACE GRADE (BSG)
- RCRA ENCAPSULATED AREA
- FORMER BUILDING FOOTPRINT
- AOC BOUNDARY
- CURB LINES
- TANK VAULT BOUNDARY
- 28 (?) UNDER GROUND STORAGE TANK WITH ID NUMBER
- SUMP LOCATION
- FLOOR TRENCH

FORMER AREAS OF CONCERN

AOC-1	FORMER 10,000 GALLON #6 FUEL OIL UST/46th ROAD SIDEWALK
AOC-2	
AOC-3	1-STORY BRICK/CONCRETE BLOCK BUILDING (DEMAND ELECTRIC)
AOC-4	MOTORCYCLE REPAIR SHOP (BASEMENT 2-STORY BRICK BUILDING)
AOC-4A	1-STORY BUILDING
AOC-5	3-STORY BRICK BUILDING (ART STUDIOS)
AOC-6	1-STORY BRICK BUILDING (KNOSSOS CUSTOM DESIGN FURNITURE)
AOC-6A	2-STORY BRICK BUILDING
AOC-7	SUSPECT FORMER GASOLINE STORAGE TANKS
AOC-7A	SUSPECT FORMER BOILER/STACK AREA
AOC-8	SUSPECT TWENTY-TWO (22) 1,500 GALLON VARNOLINE STORAGE TANKS
AOC-9	1-STORY BUILDING (AMN RENOVATION)
AOC-10	1-STORY BUILDING (JMJ ELECTRICAL)/SUSPECT UST AND FILL/VENT PORTS
AOC-11	FORMER WOHL, INC. CLEANERS AND DYERS (DIRECT AIR)
AOC-12	FORMER WOHL, INC. CLEANERS AND DYERS (LIBERTY CONTRACTING)
AOC-13	5TH STREET SIDEWALK
AOC-14	FORMER ACCURATE ASSOCIATES RCRA AREA
AOC-15	47TH AVENUE SIDEWALK

NOTES: ALL RESULTS IN RED EXCEED NYSDEC UUSCO (UNRESTRICTED); ALL RESULTS ARE IN PARTS PER MILLION (PPM)
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

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SCALE: AS SHOWN	PROJECT# 207266	
DATE: 12/3/10		
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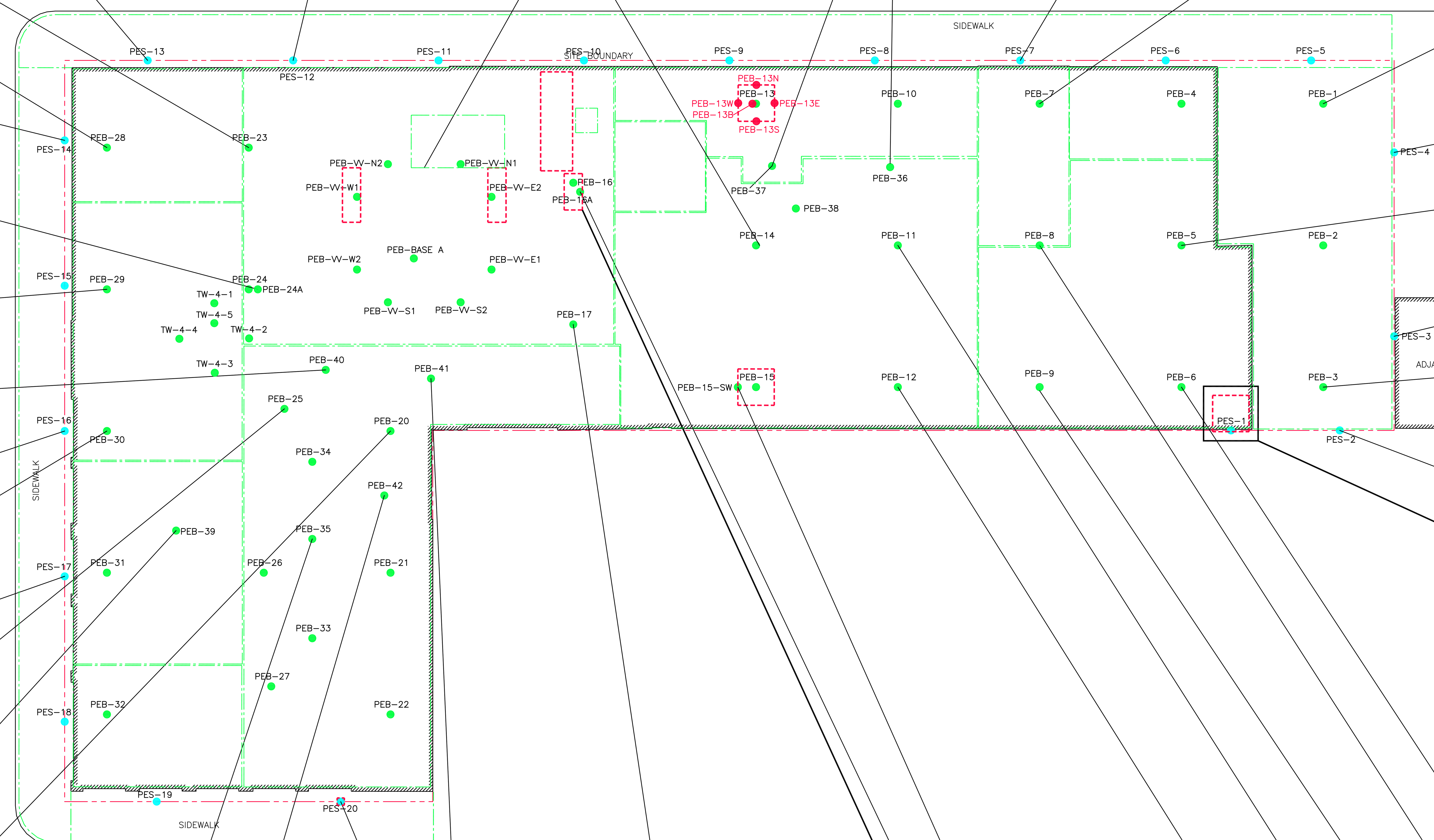
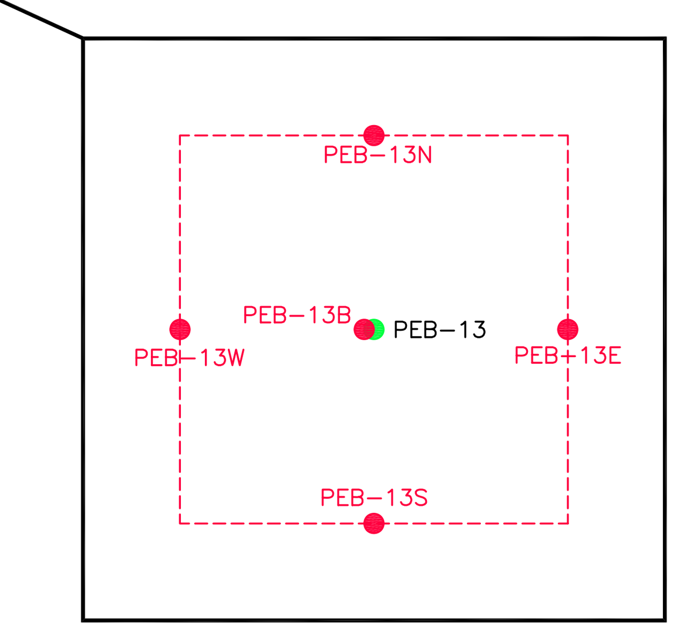
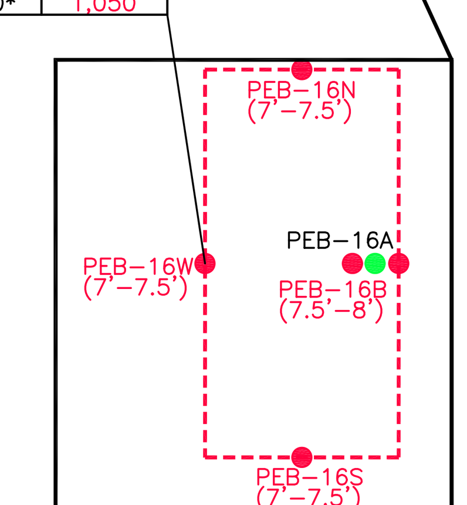
POST REMEDIAL ACTION METALS IN SOIL > UUSCO
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 10





ENLARGEMENT DETAIL
SCALE: 1" = 5'



ENLARGEMENT DETAIL
SCALE: 1" = 5'

VARNOLINE VAULT POST-EXCAVATION SAMPLES — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC UUSCO	PEB-W-E1 3/9/10	PEB-W-N1 3/9/10	PEB-W-N2 3/9/10	PEB-W-W2 3/9/10	PEB-W-S1 3/9/10	PEB-W-S2 3/9/10
SVOCs							
ARSENIC	16	18.9	–	–	–	–	–
BARIUM	400	–	–	–	507	804	–
MERCURY	0.81	–	2.16	2.28	2.15	2.62	0.827

PES-13 — DATE: 3/4/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.812

PEB-23 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	437
MERCURY	0.81	1.50

PES-12 — DATE: 3/3/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.865

PEB-14 — DATE: 2/18/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.957

PEB-36 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	4.55

PEB-36 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	4.55

PES-7 — DATE: 2/2/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	5.01

PEB-7 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.904

PEB-1 — DATE: 1/7/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.934

PEB-28 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	625
MERCURY	0.81	3.01

PES-14 — DATE: 3/4/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	750
MERCURY	0.81	1.18

PEB-24A — DATE: 4/9/10 — DEPTH: 7.5'-8'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	425
MERCURY	0.81	1.11
DEPTH: 7.0'-7.5'		
ARSENIC	16	17.5
MERCURY	0.81	1.01

PEB-29 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
COPPER	270	278
MERCURY	0.81	1.98

PEB-40 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	350	460
COPPER	50	311
LEAD	63	1,010
MERCURY	0.81	8.68

PES-16 — DATE: 3/8/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.832

PEB-30 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	6.12

PES-17 — DATE: 3/31/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
ARSENIC	16	27.4
COPPER	270	326
GENERAL		
CYANIDE, TOTAL	27	217

PEB-25 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	433
MERCURY	0.81	3.09

PEB-39 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
ARSENIC	16	20.2
COPPER	270	653
MERCURY	0.81	8.83

PEB-20 — DATE: 4/9/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	1.21

PEB-35 — DATE: 1/7/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
ARSENIC	16	104

PES-20 — DATE: 4/29/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	10.6

PEB-41 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	2.07

PEB-42 — DATE: 7/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
ARSENIC	16	38.5
BARIUM	400	428
COPPER	270	575
MERCURY	0.81	3.62

PEB-17 — DATE: 3/11/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	1.56

PEB-16A-W — DATE: 7/12/2010 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
LEAD	1,000*	1,050

PEB-15-SW — DATE: 4/14/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	1.25

PEB-16A — DATE: 4/14/10

CONTAMINANT	NYSDEC SSCO	RESULTS
DEPTH: 7.5'-8'		
MERCURY	0.81	2.52

PES-4 — 5/7/2010 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	502
LEAD	1000*	1,620
MERCURY	0.81	2.04

PEB-5 — DATE: 1/15/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.840

PES-3 — 5/7/2010 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	464
LEAD	1000*	1,650
MERCURY	0.81	2.68

PEB-3 — DATE: 1/8/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
BARIUM	400	754
MERCURY	0.81	2.11

PES-2 — DATE: 1/7/10 — DEPTH: 6.5'-7.0'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
ARSENIC	16	17.9

PEB-6 — DATE: 1/15/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	1.11

PEB-8 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	0.805

PEB-9 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	1.77

PEB-11 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	5.90

PEB-12 — DATE: 2/5/10 — DEPTH: 7.0'-7.5'

CONTAMINANT	NYSDEC SSCO	RESULTS
METALS		
MERCURY	0.81	2.35

LEGEND

- ADDITIONAL EXCAVATION LIMIT
- PEB-1 (7'-7.5') — POST-EXCAVATION BASE SAMPLE LOCATION
- PES-1 (6.5'-7') — POST-EXCAVATION SIDEWALL SAMPLE LOCATION
- JULY 12, 2010 LEAD DELINEATION SAMPLE LOCATION
- SITE BOUNDARY
- FORMER BUILDING FOOTPRINT
- CURB LINES
- TANK VAULT BOUNDARY
- AOC BOUNDARY
- 28 (7) — UNDER GROUND STORAGE TANK WITH ID NUMBER

NOTES: ALL RESULTS IN RED EXCEED NYSDEC SSCO (RESTRICTED); ALL RESULTS ARE IN PARTS PER MILLION (PPM)
RESULTS IN RED FOR LEAD EXCEED THE COMMERCIAL USE SCO (CUSCO) OF 1,000 PPM
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

NOTE: SUPPLEMENTAL DATA IS SHOWN IN ENLARGEMENT DETAILS TO DISPLAY DELINEATION RESULTS AFTER SUPPLEMENTAL EXCAVATION WORK WAS COMPLETED IN LEAD EXCEEDANCE AREAS.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

Environmental Waste Management Associates, LLC
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Tel: (973) 560-1400

SCALE: AS SHOWN	PROJECT# 207266
DATE: 12/3/10	
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CHECKED BY: RA	
FILE: k:\drawings\207000\207266\2010 NOV\SMP\207266f2.dwg	

FINAL POST-REMEDIAL ACTION EXCEEDANCE FOR METALS IN SOIL >SSCO
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 10A

PEB-W-N1		
DATE: 3/10/10		
DEPTH: 11.5'-12.5'		
CONTAMINANT	NYSDEC SSCO	RESULTS
SEMIVOLATILES - BNA		
BENZO(a)ANTHRACENE	1	1.56
CHRYSENE	1	1.54
BENZO(b)FLUORANTHENE	1.7	2.25
BENZO(k)FLUORANTHENE	1.7	2.24

TW-4-1		
DATE: 9/22/10		
DEPTH: 11.5'-12.5'		
CONTAMINANT	NYSDEC SSCO	RESULTS
VOLATILES		
ISOPROPYLBENZENE	2.3*	28.1

TW-4-4		
DATE: 9/22/10		
DEPTH: 11.5'-12.5'		
CONTAMINANT	NYSDEC SSCO	RESULTS
VOLATILES		
ISOPROPYLBENZENE	2.3*	4.25

TW-4-2		
DATE: 9/22/10		
DEPTH: 11.5'-12.5'		
CONTAMINANT	NYSDEC SSCO	RESULTS
VOLATILES		
ISOPROPYLBENZENE	2.3*	8.65

PEB-W-S2		
DATE: 3/10/10		
DEPTH: 15.5'-16'		
CONTAMINANT	NYSDEC SSCO	RESULTS
SEMIVOLATILES - BNA		
BENZO(a)ANTHRACENE	1	210
CHRYSENE	1	5.57
BENZO(b)FLUORANTHENE	1.7	1.86
METALS		
SELENIUM	4	4.81

46TH ROAD

47TH AVENUE

5TH STREET

SIDEWALK

SITE BOUNDARY

ADJACENT BUILDING

ADJACENT BUILDING

NYC SEWER MAIN

PES-1 PES-2 PES-3 PES-4 PES-5 PES-6 PES-7 PES-8 PES-9 PES-10 PES-11 PES-12 PES-13 PES-14 PES-15 PES-16 PES-17 PES-18 PES-19 PES-20

PEB-1 PEB-2 PEB-3 PEB-4 PEB-5 PEB-6 PEB-7 PEB-8 PEB-9 PEB-10 PEB-11 PEB-12 PEB-13 PEB-14 PEB-15 PEB-15-SW PEB-16 PEB-16A PEB-17 PEB-20 PEB-21 PEB-22 PEB-23 PEB-24 PEB-24A PEB-25 PEB-26 PEB-27 PEB-28 PEB-29 PEB-30 PEB-31 PEB-32 PEB-33 PEB-34 PEB-35 PEB-36 PEB-37 PEB-38 PEB-39 PEB-40 PEB-41 PEB-42 PEB-BASE A

PEB-VV-N1 PEB-VV-N2 PEB-VV-W1 PEB-VV-E1 PEB-VV-E2 PEB-VV-S1 PEB-VV-S2 PEB-VV-W2

M-1-PX

TW-4-1 TW-4-2 TW-4-3 TW-4-4 TW-4-5

LEGEND

- ADDITIONAL EXCAVATION LIMIT
- PEB-1 (7'-7.5') — POST-EXCAVATION BASE SAMPLE LOCATION
- PEB-W-N1 (BELOW 8') — POST-EXCAVATION SAMPLE LOCATION COLLECTED BELOW 8' FROM SURFACE GRADE
- PES-1 (6.5'-7') — POST-EXCAVATION SIDEWALL SAMPLE LOCATION
- JULY 12, 2010 LEAD DELINEATION SAMPLE LOCATION
- SAMPLE LOCATION COLLECTED IN SATURATED ZONE
- SITE BOUNDARY
- FORMER BUILDING FOOTPRINT
- CURB LINES
- TANK VAULT BOUNDARY
- AOC BOUNDARY
- 28 (7) — UNDER GROUND STORAGE TANK WITH ID NUMBER

NOTES: ALL RESULTS EXCEED THE NYSDEC PART 375.6 PROTECTION OF GROUND WATER RESTRICTED USE SITE SPECIFIC SOIL CLEANUP OBJECTIVE (SSCO)
SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

Environmental Waste Management Associates, LLC
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DATE: 12/3/10
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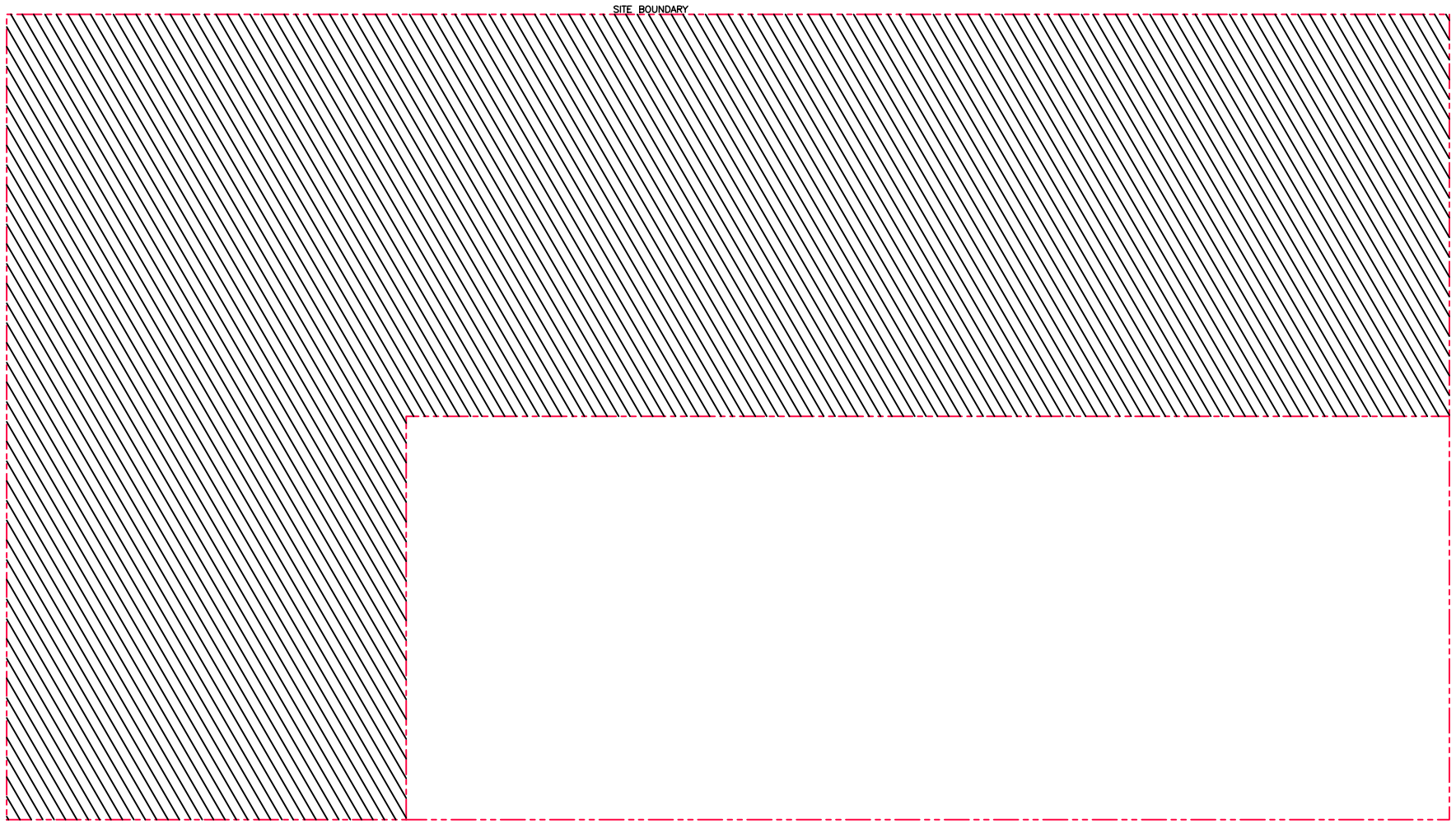
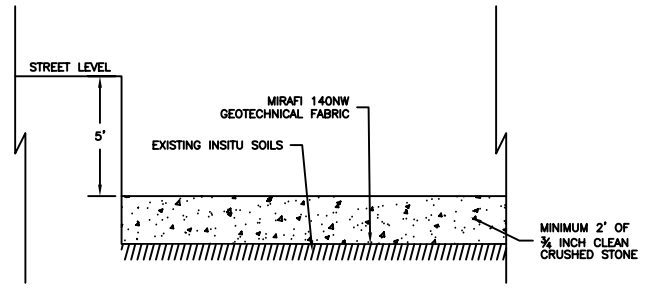
FILE: k:\drawings\207000\207266\2010 MOP\SMP\207266f2.dwg

POST-REMEDIAL ACTION PERCHED UNIT SOILS >SSCO
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 11





EXISTING SURFACE COVER SYSTEM
COVER DETAIL
ABOVE WATER TABLE
SCALE: 1"=1'

AS BUILT NOTE:

1. THE CLEAN FILL COVER MATERIAL HAS BEEN INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS PRESENTED ON AND SPECIFIED ON THIS DRAWING F-13 AS-BUILT.

NYS Engineering Note:
It is a violation of Article 145 Section 7209(2) of New York State Education Law for any person, unless he is acting under the direction of a New York State licensed engineer, to alter an item of this document in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

GENERAL NOTE:
SITE IS COVERED WITH A MINIMUM OF 2 FEET OF 3/4-INCH CLEAN CRUSHED STONE, UNDERLAIN BY MIRAFI 140 NW ORANGE GEOTECHNICAL WARNING FABRIC PLACED ON UNREMEDIATED SOILS.

LEGEND

- SITE BOUNDARY
- CURB LINES
- POST-EXCAVATION AREA WITH 2 FEET OF IMPORTED, 3/4 INCH CLEAN CRUSHED STONE

SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

EWMA ENGINEERING SERVICES, LLL - NYS ENG. CERT # 0005216

RICHARD ARNOLD

NYS PE # 076202

REVISIONS	
No./ID	DATE

An Environmental Consulting & Remediation Firm
100 Misty Lane
P.O. Box 5430
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SCALE: AS SHOWN
DATE: 11/29/10
PROJECT# 207266
DRAWN BY: RR
CHECKED BY: RA
FILE: k:\drawings\207000\207266\2010 DEC SUB\207266F12 11x

AS-BUILT CLEAN FILL POST EXCAVATION COVER PLAN

OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 12