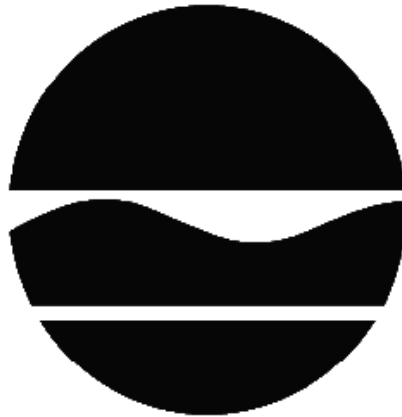


DECISION DOCUMENT

Olean Redevelopment Parcel 1
Brownfield Cleanup Program
Olean, Cattaraugus County
Site No. C905031
January 2014



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

Olean Redevelopment Parcel 1
Brownfield Cleanup Program
Olean, Cattaraugus County
Site No. C905031
January 2014

Statement of Purpose and Basis

This document presents the remedy for the Olean Redevelopment Parcel 1 site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Olean Redevelopment Parcel 1 site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Pipe Removal - Removal of an estimated 22,500 linear feet of abandoned subsurface product piping. Based on field conditions a limited amount of piping may be cleaned and capped in-

place. The piping will be cleaned and capped or recycled off-site; all pipe contents will be containerized, characterized, and disposed/recycled off-site.

3. Excavation - Excavation and off-site disposal of contaminant source areas, including
 - areas of concentrated solid or semi-solid hazardous substances including soil with arsenic concentrations exceeding 90 mg/kg, mercury concentrations exceeding 9 mg/kg and PCB concentrations exceeding 10 mg/kg; and
 - soil containing SVOCs exceeding 500 ppm.

Approximately 2,745 cubic yards of soil will be removed from the site.

On-site soil, which does not exceed site specific SCOs, may be used to backfill the excavation to the extent that a sufficient volume of on-site soil is available to establish the designed grades at the site below the cover system described in remedy element 7 below. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) may be brought in to replace the excavated soil or complete the backfilling of the excavation, as needed to establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 7 below. Soil derived from the re-grading may be used to backfill the excavation.

4. In-Situ Soil Vapor Extraction - In-Situ soil vapor extraction (SVE) will be implemented to remove VOCs and semi-volatile compounds SVOCs from the subsurface to treat subsurface grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u). VOCs and a portion of SVOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs and SVOCs from the soil to the SVE well. The air extracted from the SVE wells will be treated by passing the air stream through a biofilter to remove nuisance odors prior to it being discharged to the atmosphere.

An area of approximately 38,730 square feet of grossly contaminated soil will be treated at depths from 6 to 15 feet below ground surface.

5. Forced Vent Bio Piles - Forced Vent Bio Piles (FVBPs) will be used to remove petroleum related VOCs and SVOCs from grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u), located near surface, adjacent to subsurface piping and in planned utility corridors. Grossly contaminated soil will be excavated and placed in rows on pads for on-site treatment. VOCs, and a portion of SVOCs, will be physically removed from the soil by applying a vacuum to pipes placed below the soil piles. The vacuum draws air through the soil matrix which carries the VOCs and SVOCs from the soil to the pipe. The air flow also stimulates aerobic degradation of the contaminants within the soil. The air extracted from the FVBPs will be treated by passing the air stream through a biofilter to remove nuisance odors prior to it being discharged to the atmosphere.

Approximately 1,150 cubic yards of grossly contaminated soil will be treated in the FVBPs.

6. Utility Corridor Installation - Excavation of a clean utility corridor to lay utilities for future

development.

7. Cover System - A site cover will be required to allow for commercial use of the site. The cover will consist either of structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable SCOs. Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

8. Institutional Control - Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

9. Site Management Plan - A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in remedy element 8 above.

Engineering Controls: The SVE system discussed in remedial element 4 above, the soil cover discussed in remedy element 7 above and the LNAPL recovery systems discussed in remedial element 9(d) below.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater and/or surface water use restrictions;
- a provision for evaluation of the potential for soil vapor for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

- b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - a schedule of monitoring and frequency of submittals to the Department; and
 - monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.
- c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
 - maintaining site access controls and Department notification; and
 - providing the Department access to the site and O&M records.
- d. LNAPL Recovery - Light Non-Aqueous Phase Liquid (LNAPL) (i.e., petroleum product), will be recovered from all wells containing measurable quantities of LNAPL using high vacuum extraction, dual phase extraction, passive skimmers and/or sorbent socks. Additional recovery wells will be added as necessary to effectively remove LNAPL.
- e. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

1/06/2014

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Olean Redevelopment Parcel 1
Olean, Cattaraugus County
Site No. C905031
January 2014

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Olean Public Library
Attn: Lance Chaffee
134 North Second Street
Olean, NY 14760
Phone: 716-372-0200

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen

participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at <http://www.dec.ny.gov/chemical/61092.html>

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:

The Olean Redevelopment Parcel 1 Site, located at 1404-1406 and 1420 Buffalo Street, is in an industrial zoned area of the City of Olean. The 25.33 acre site is located just south of I-86. The site is bordered by commercial and industrial properties, including an associated BCP site to the north (Olean Redevelopment Parcel 2 Site), the Dresser Rand Company to the east and south, and Buffalo Street to the west. The nearest residential area is located approximately 400 feet south of the site.

Site Features:

The site is currently vacant with no standing buildings. Concrete foundations and associated concrete pads are visible at and slightly above ground level. An extensive network of abandoned below ground piping exists from historic industrial activities.

Current Zoning and Land Use:

The site is currently inactive and is zoned for industrial use. The site is surrounded by industrial and commercial properties.

Past Use of the Site:

The site and abutting properties were historically home to various oil refineries beginning in the late 19th century. Oil refining, storage and distribution operations were conducted on various portions of the site and surrounding properties until 1954. The site was purchased by Agway Inc. in 1966 and used for the manufacture of fertilizer until 1983 when operations ceased. The majority of the property has been vacant since that time.

Past industrial use has contaminated the site with petroleum product, volatile organic compounds, semi-volatile organic compounds, metals and PCBs. Remedial activities implemented prior to entering the Brownfield Cleanup Program include operation of a pump and treat system to remediate an ammonia and nitrogen groundwater plume.

Site Geology and Hydrogeology:

In general, the site geology consists of a limited layer of topsoil underlain by a layer of fill (ash, slag, coal, bricks, etc.) underlain by an 80 foot thick outwash aquifer which is divided into upper and lower water bearing units. Lenses of silt and clay are scattered throughout the sand and gravel outwash deposits. Depth to bedrock is estimated at 220 to 260 feet below ground surface. Groundwater flow is generally to the southwest. The water table is approximately 20 feet below ground surface.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Applicant(s) does/do not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: <http://www.dec.ny.gov/regulations/61794.html>

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

ARSENIC	N-PROPYLBENZENE
MERCURY	BENZENE
PCB-AROCLOR 1254	XYLENE (MIXED)
PAHs	1,3,5-TRIMETHYLBENZENE
PETROLEUM PRODUCTS	1,2,4-TRIMETHYLBENZENE
ETHYLBENZENE	CHLOROBENZENE
TOLUENE	1,4-DICHLOROBENZENE

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

IRM - Tank Removals

The initial remedial investigation identified multiple underground storage tanks (USTs), including several suspected septic tanks. Six USTs ranging in size from 550 to 5,500 gallons

were removed or abandoned in-place. Water and sediment within the tanks were disposed off-site.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination:

Based upon the investigations to date, the primary contaminants of concern at the site are petroleum product, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals and polychlorinated biphenyls (PCBs).

Soil - SVOC compounds that exceed commercial Soil Cleanup Objectives (SCOs) include benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene and chrysene. Metals that exceed commercial SCOs include arsenic and mercury. Aroclor 1254 exceeded the commercial SCO for total PCBs. Areas of grossly contaminated petroleum impacted soil are also present. Off-site migration of contaminants significantly impacting soil quality is limited to an area of grossly contaminated soil extending north onto an associated BCP site (Olean Redevelopment Parcel 2 Site C905032). This off-site soil contamination will be addressed as part of the remedy for that site.

Groundwater - Groundwater beneath the site is contaminated with petroleum related VOC and SVOC compounds and metals. VOC compounds that exceed NYS TOGS regulatory values include ethylbenzene, toluene, n-propylbenzene, benzene, xylene, 135- and 1,2,4-trimethylbenzene, chlorobenzene and 1,4-dichlorobenzene. SVOC compounds that exceed NYS TOGS regulatory values include chrysene, cresol and phenol. Metal compounds that exceed regulatory values include arsenic, chromium, lead, magnesium and nickel. In addition, petroleum product was observed floating on the groundwater in multiple monitoring wells at thicknesses ranging from trace levels to 1.44 feet of product. No significant off-site migration of contaminants via groundwater is occurring.

Soil Vapor and Indoor Air - No soil vapor sampling was completed but due to the nature of contamination at the property, impacts to on-site soil vapor are likely. Off-site soil vapor concerns are not expected as the petroleum related VOC levels in groundwater off-site are low. In addition, off-site soil vapor concerns due to the area of grossly contaminated soil extending north onto the Olean Redevelopment Parcel 2 site will be addressed as part of the final remedy for that site.

Special Resources Impacted/Threatened:

Drinking water in the area of the site is provided via a municipal treatment facility. The site is located in a predominately commercial/industrial area with no significant impact to fish or wildlife.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*.

The site is completely fenced, which restricts public access. However, persons who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Currently there are no buildings on the site. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future onsite development.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from

contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Olean Redevelopment Parcel 1 Remediation remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
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- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Pipe Removal - Removal of an estimated 22,500 linear feet of abandoned subsurface product piping. Based on field conditions a limited amount of piping may be cleaned and capped in-

place. The piping will be cleaned and capped or recycled off-site; all pipe contents will be containerized, characterized, and disposed/recycled off-site.

3. Excavation - Excavation and off-site disposal of contaminant source areas, including
- areas of concentrated solid or semi-solid hazardous substances including soil with arsenic concentrations exceeding 90 mg/kg, mercury concentrations exceeding 9 mg/kg and PCB concentrations exceeding 10 mg/kg; and
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Approximately 2,745 cubic yards of soil will be removed from the site.

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The site will be re-graded to accommodate installation of a cover system as described in remedy element 7 below. Soil derived from the re-grading may be used to backfill the excavation.

4. In-Situ Soil Vapor Extraction - In-Situ soil vapor extraction (SVE) will be implemented to remove VOCs and semi-volatile compounds SVOCs from the subsurface to treat subsurface grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u). VOCs and a portion of SVOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs and SVOCs from the soil to the SVE well. The air extracted from the SVE wells will be treated by passing the air stream through a biofilter to remove nuisance odors prior to it being discharged to the atmosphere.

An area of approximately 38,730 square feet of grossly contaminated soil will be treated at depths from 6 to 15 feet below ground surface.

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Approximately 1,150 cubic yards of grossly contaminated soil will be treated in the FVBPs.

6. Utility Corridor Installation - Excavation of a clean utility corridor to lay utilities for future development.

7. Cover System - A site cover will be required to allow for commercial use of the site. The cover will consist either of structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable SCOs. Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

8. Institutional Control - Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

9. Site Management Plan - A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in remedy element 8 above.

Engineering Controls: The SVE system discussed in remedial element 4 above, the soil cover discussed in remedy element 7 above and the LNAPL recovery systems discussed in remedial element 9(d) below.

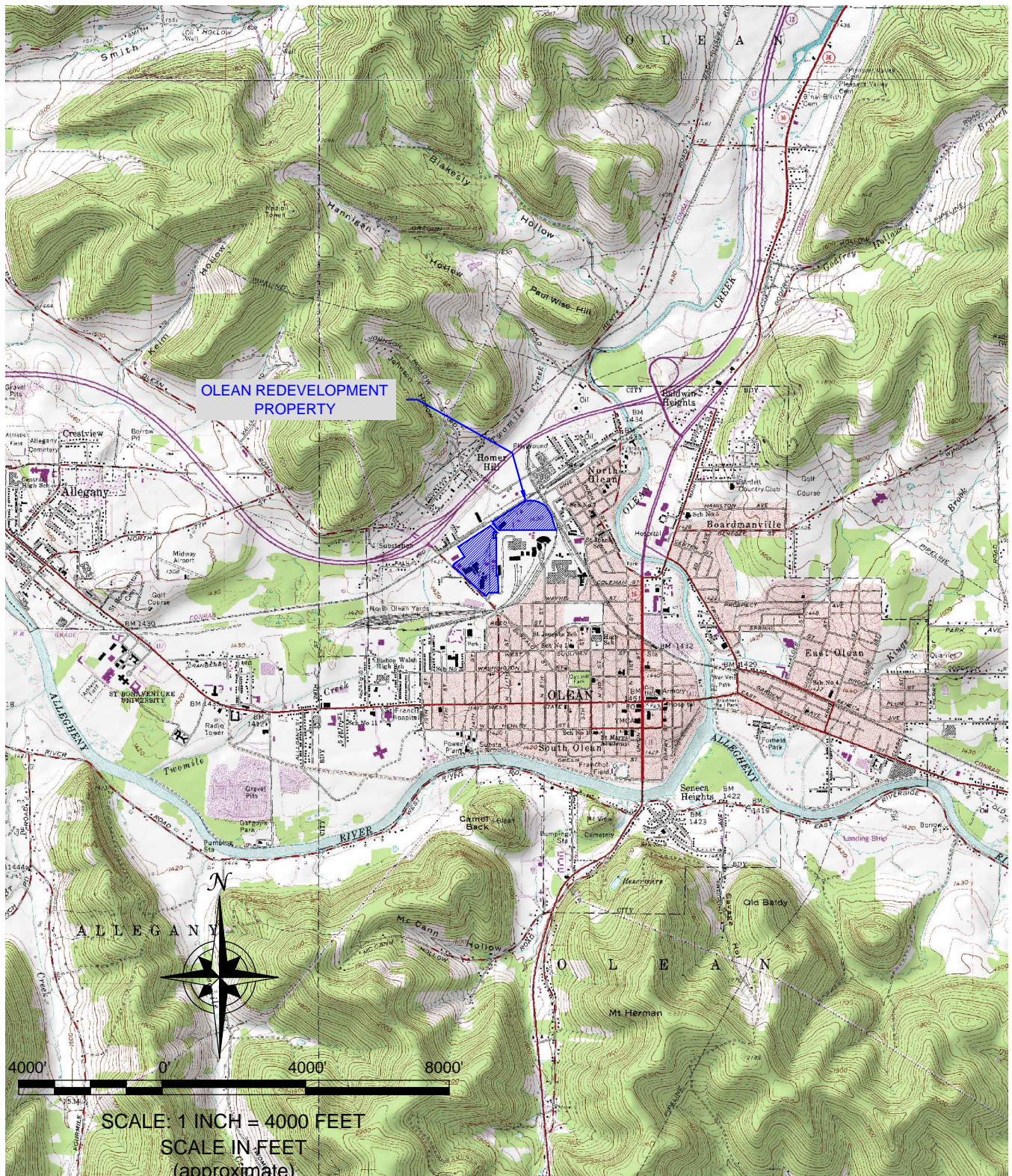
This plan includes, but may not be limited to:

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- descriptions of the provisions of the environmental easement including any land use, and/or groundwater and/or surface water use restrictions;
- a provision for evaluation of the potential for soil vapor for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and

- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - a schedule of monitoring and frequency of submittals to the Department; and
 - monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.
- c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
 - maintaining site access controls and Department notification; and
 - providing the Department access to the site and O&M records.
- d. LNAPL Recovery - Light Non-Aqueous Phase Liquid (LNAPL) (i.e., petroleum product), will be recovered from all wells containing measurable quantities of LNAPL using high vacuum extraction, dual phase extraction, passive skimmers and/or sorbent socks. Additional recovery wells will be added as necessary to effectively remove LNAPL.
- e. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Figure 1: Site Location Map

FIGURE 1-1



F:\CAD\TurnKey\Olean Gateway\2012 - Supplemental RI Report\Draft SRI AAR Figures\Figure 1-1: Site Location and Vicinity Map.dwg



2558 HAMBURG TURNPIKE
 SUITE 300
 BUFFALO, NY 14218
 (716) 856-0635

SITE LOCATION & VICINITY MAP

RI/AA REPORT

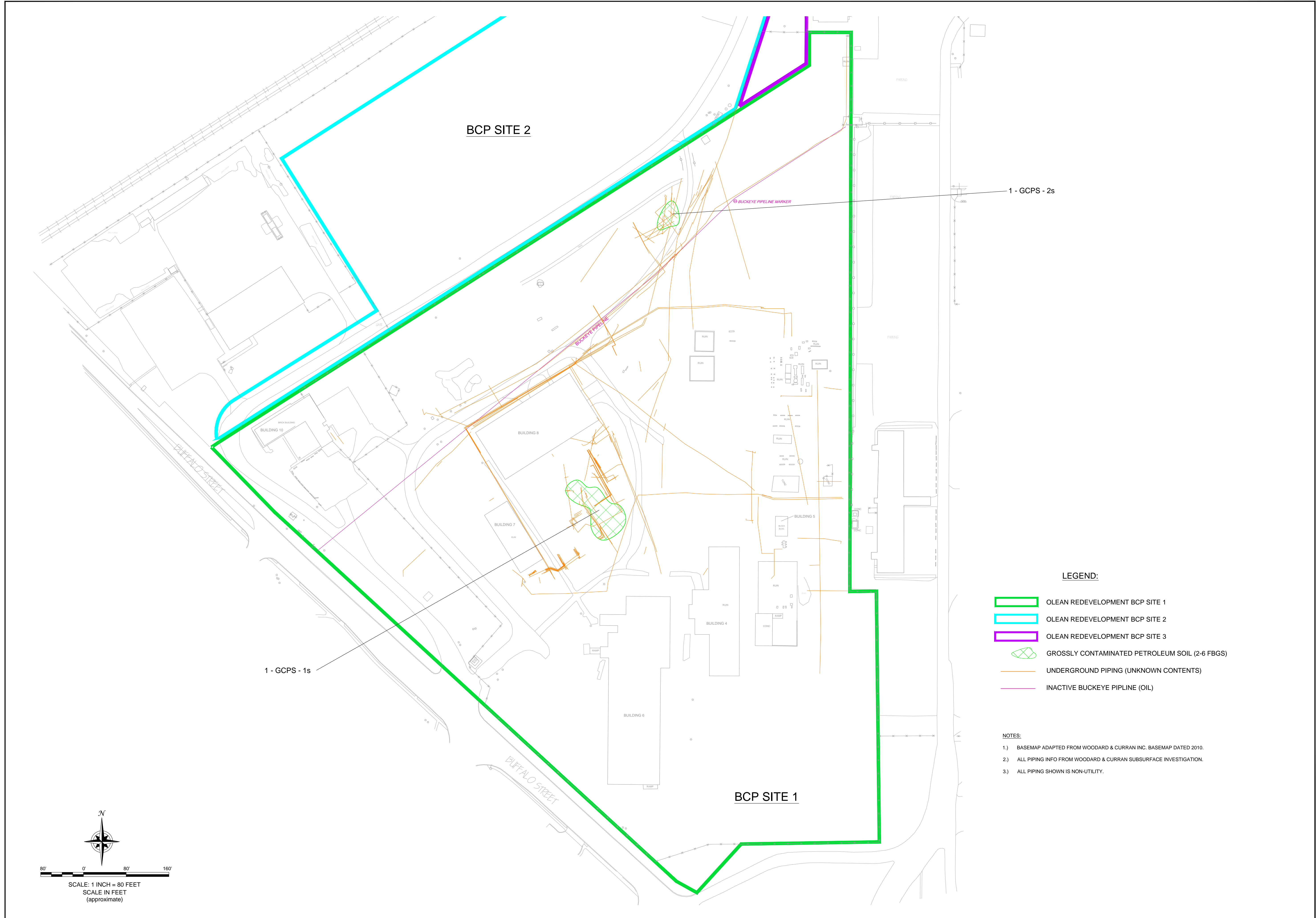
OLEAN REDEVELOPMENT PROPERTY
 OLEAN, NEW YORK
 BCP SITE NOS. C905031, C905032, C905033
 PREPARED FOR
 OLEAN GATEWAY, LLC

PROJECT NO.: 0250-012-001

DATE: NOVEMBER 2012

DRAFTED BY: BLR

Figure 2-a: Elements of Proposed Remedy for BCP Parcel 1



TURNKEY
ENVIRONMENTAL, LLC

2558 HAMBURG TURNPIKE
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0259-012-001

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DATE	BY	DESCRIPTION
NOVEMBER 2012	BLR	DRAWN BY
		CHECKED BY
		APPROVED BY

**SHALLOW GROSSLY CONTAMINATED PETROLEUM SOIL
PROXIMATE TO SUBSURFACE PIPING - BCP SITE 1**

R/VA REPORT
CLEAN REDEVELOPMENT PROPERTY
OLEAN, NEW YORK
BCP SITE NOS. C905031, C905032, C905033
PREPARED FOR
OLEAN GATEWAY, LLC

FIGURE 4-9

- LEGEND:**
- OLEAN REDEVELOPMENT BCP SITE 1
 - OLEAN REDEVELOPMENT BCP SITE 2
 - OLEAN REDEVELOPMENT BCP SITE 3
 - GROSSLY CONTAMINATED PETROLEUM SOIL (2-6 FBGS)
 - UNDERGROUND PIPING (UNKNOWN CONTENTS)
 - INACTIVE BUCKEYE PIPELINE (OIL)

- NOTES:**
- 1.) BASEMAP ADAPTED FROM WOODARD & CURRAN INC. BASEMAP DATED 2010.
 - 2.) ALL PIPING INFO FROM WOODARD & CURRAN SUBSURFACE INVESTIGATION.
 - 3.) ALL PIPING SHOWN IS NON-UTILITY.

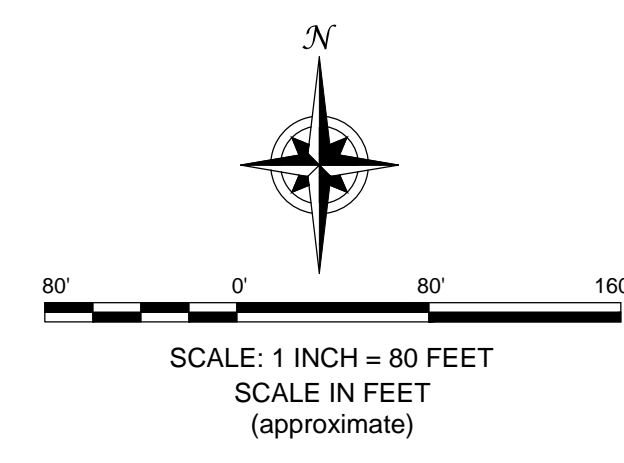
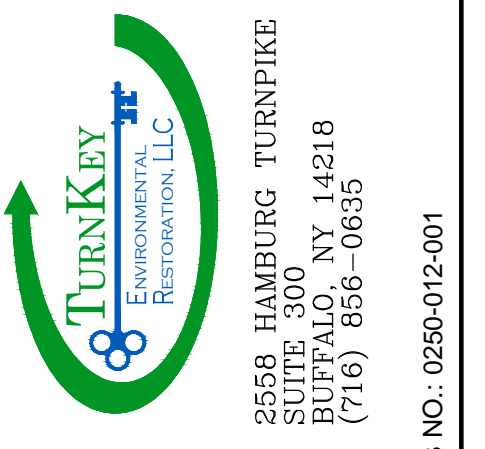
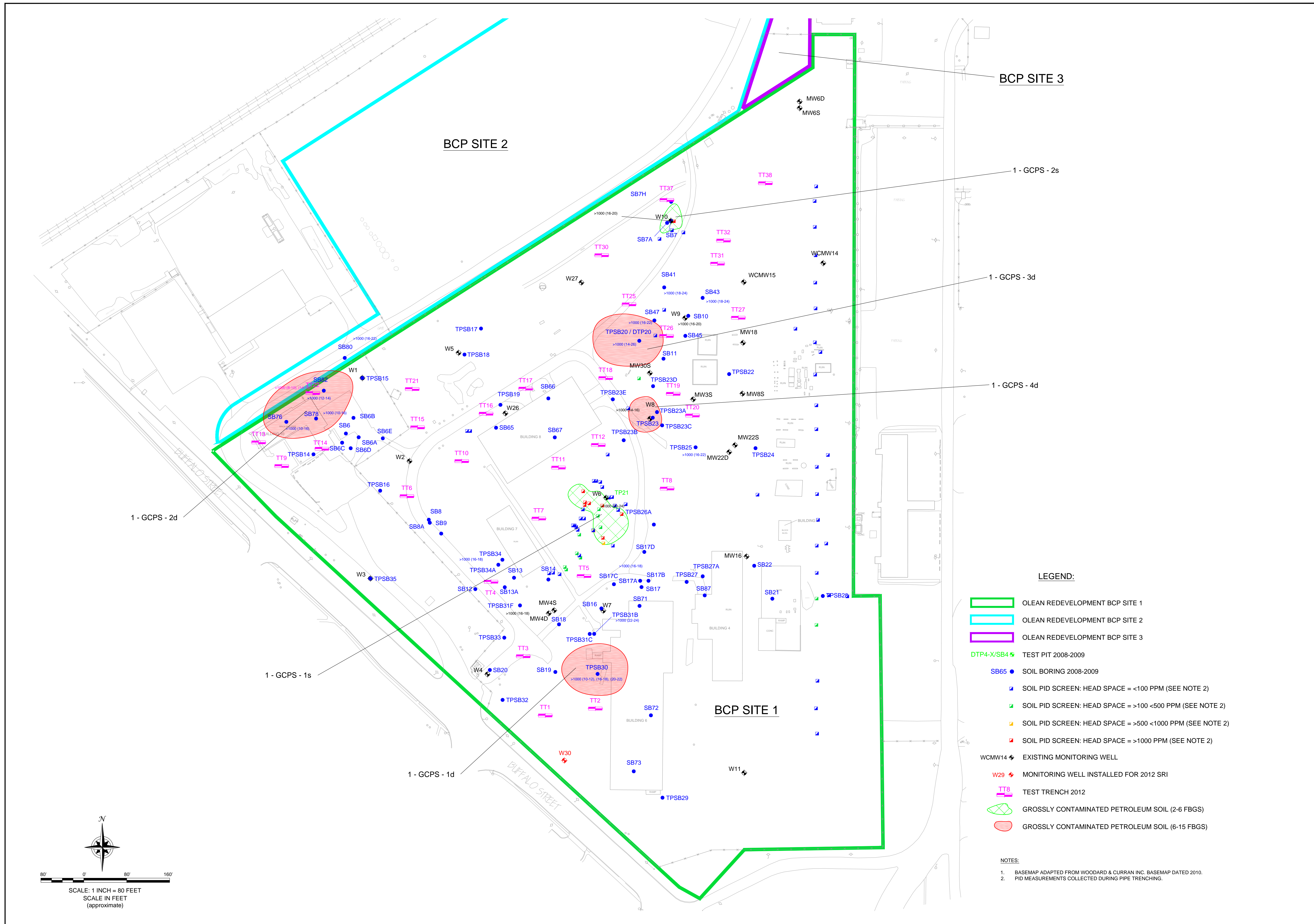


Figure 2-b: Elements of Proposed Remedy for BCP Parcel 1

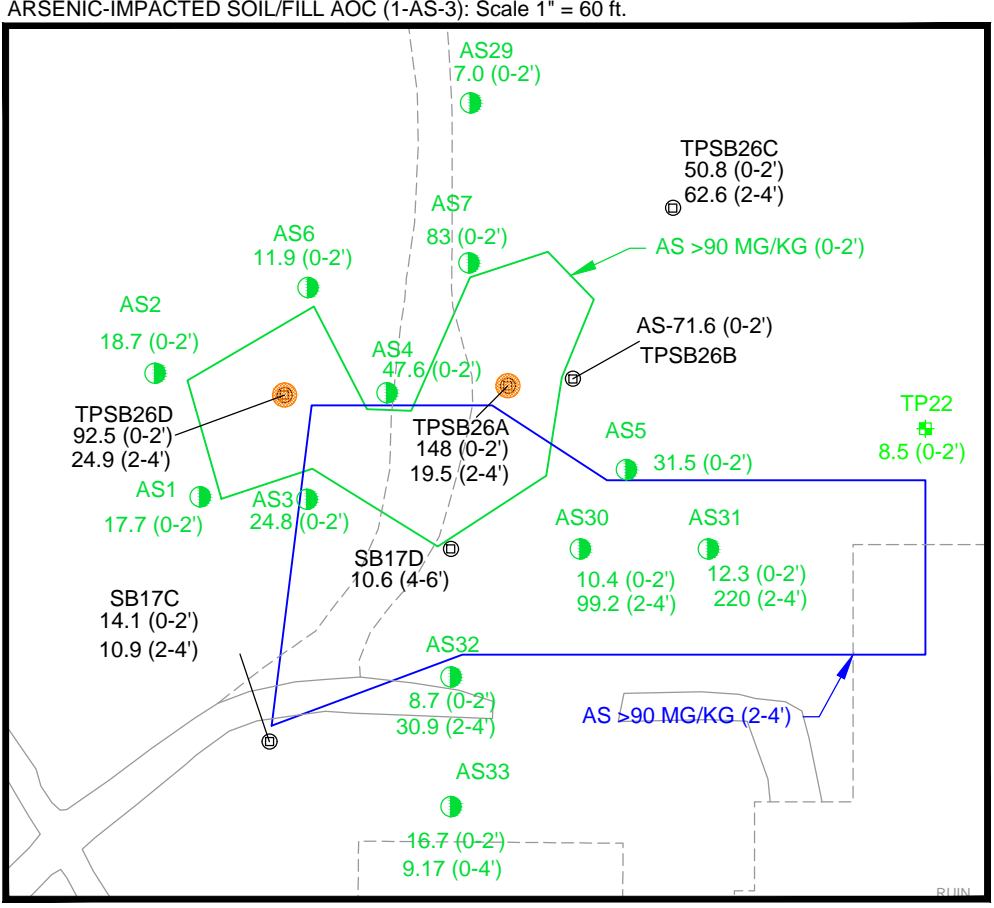
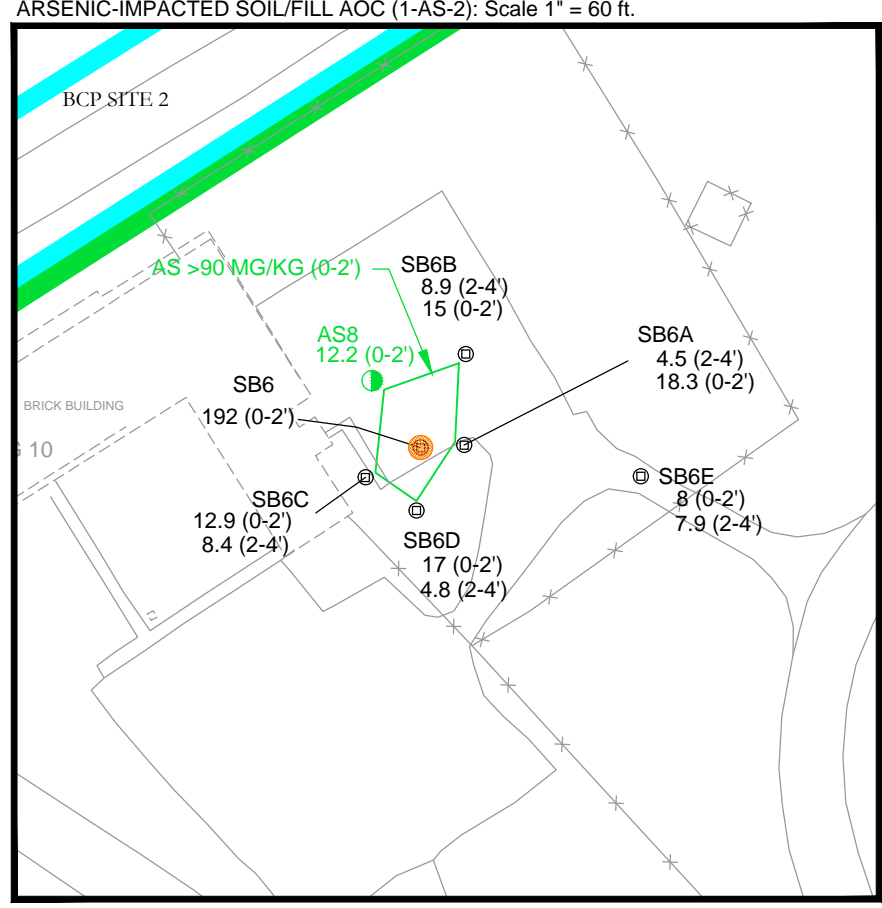
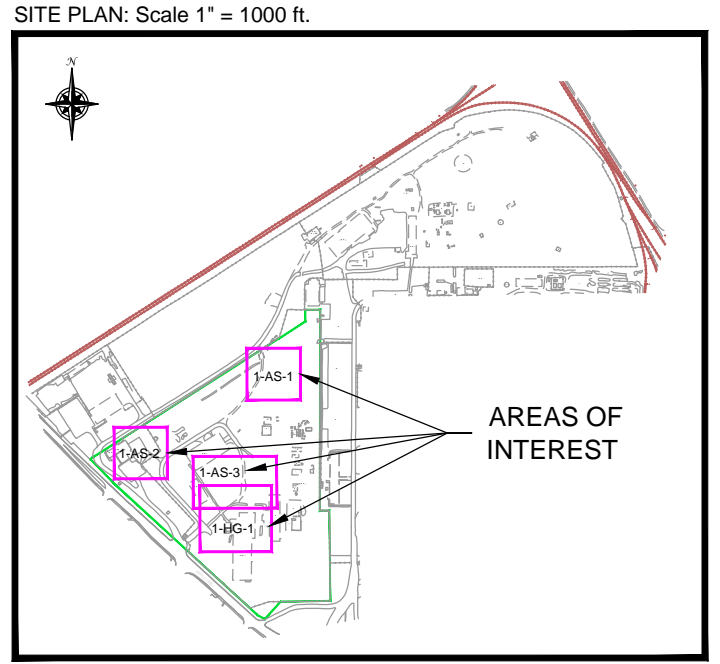
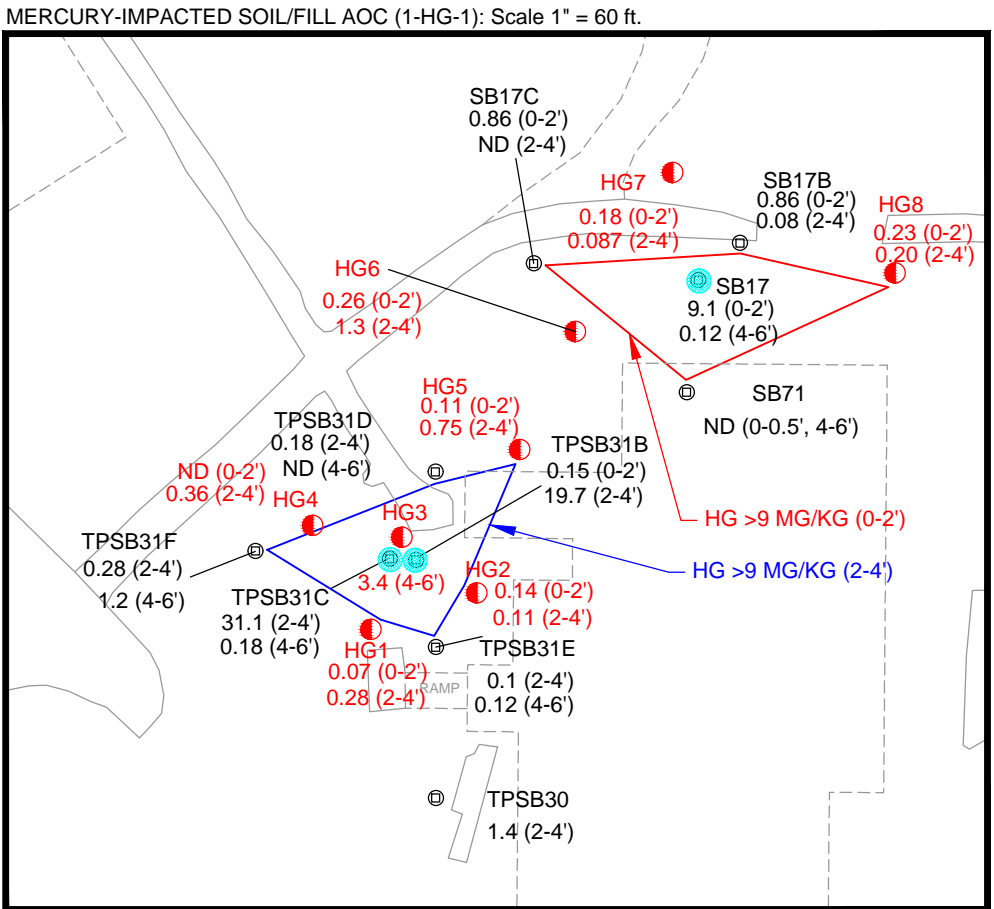
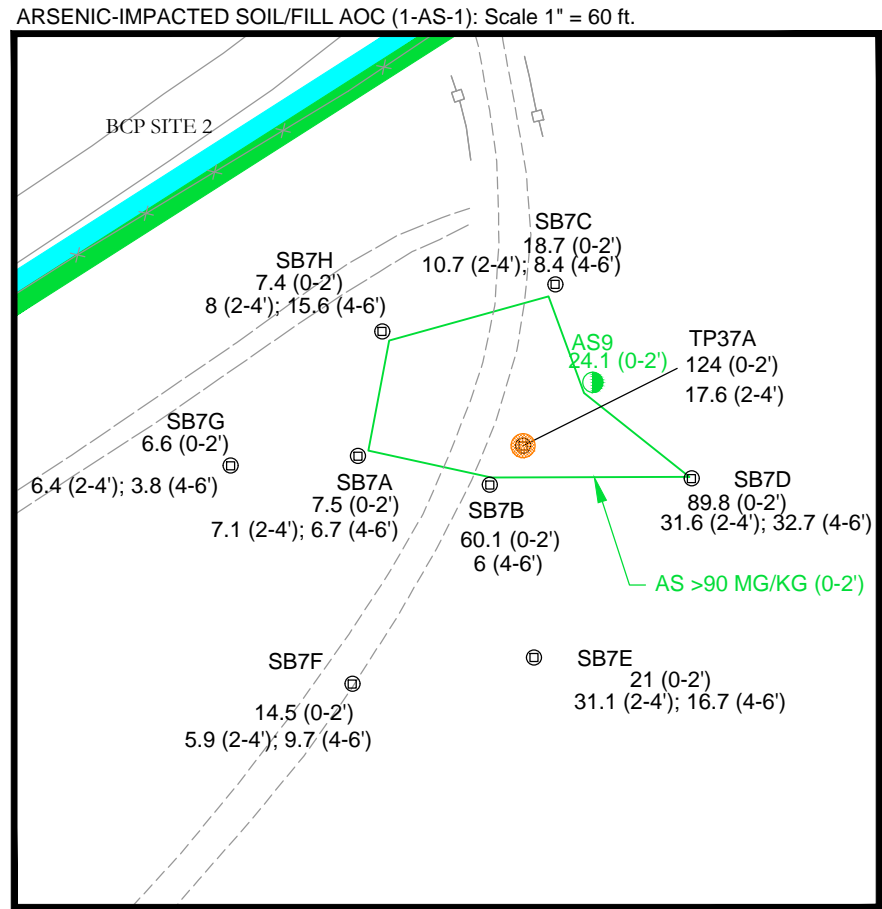


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GROSSLY CONTAMINATED PETROLEUM SOIL BCP SITE 1
 R/AA REPORT
 OLEAN REDEVELOPMENT PROPERTY
 OLEAN, NEW YORK
 BCP SITE NOS. C905031, C905032, C905033
 PREPARED FOR
 OLEAN GATEWAY, LLC

Figure 2-c: Elements of Proposed Remedy for BCP Parcel 1



LEGEND:

- OLEAN REDEVELOPMENT BCP SITE 1
- OLEAN REDEVELOPMENT BCP SITE 2
- OLEAN REDEVELOPMENT BCP SITE 3
- RAILROAD TRACK
- CHAIN LINK FENCE

ANALYTICAL DATA SHOWN IS LIMITED TO THE METAL OF INTEREST (E.G., ONLY MERCURY IS SHOWN IN THE MERCURY AREA OF INTEREST)

- TPSB26B 71.6 (0-2')
- AS 31.5
- AS > 90 MG/KG
- HG > 9 MG/KG
- HG8 0.23
- CONTOUR REPRESENTS MAXIMUM EXTENT OF AREA EXCEEDING SSAL

NOTES:

- BASEMAP ADAPTED FROM WOODARD & CURRAN INC. BASEMAP DATED 2010.
- MG/KG = MILLIGRAMS PER KILOGRAM
- AS = ARSENIC
- HG = MERCURY
- SCALE AS NOTED.

ARSENIC AND MERCURY EXCEEDENCES OF SSALS IN NEAR SURFACE SOIL / FILL - BCP SITE 1

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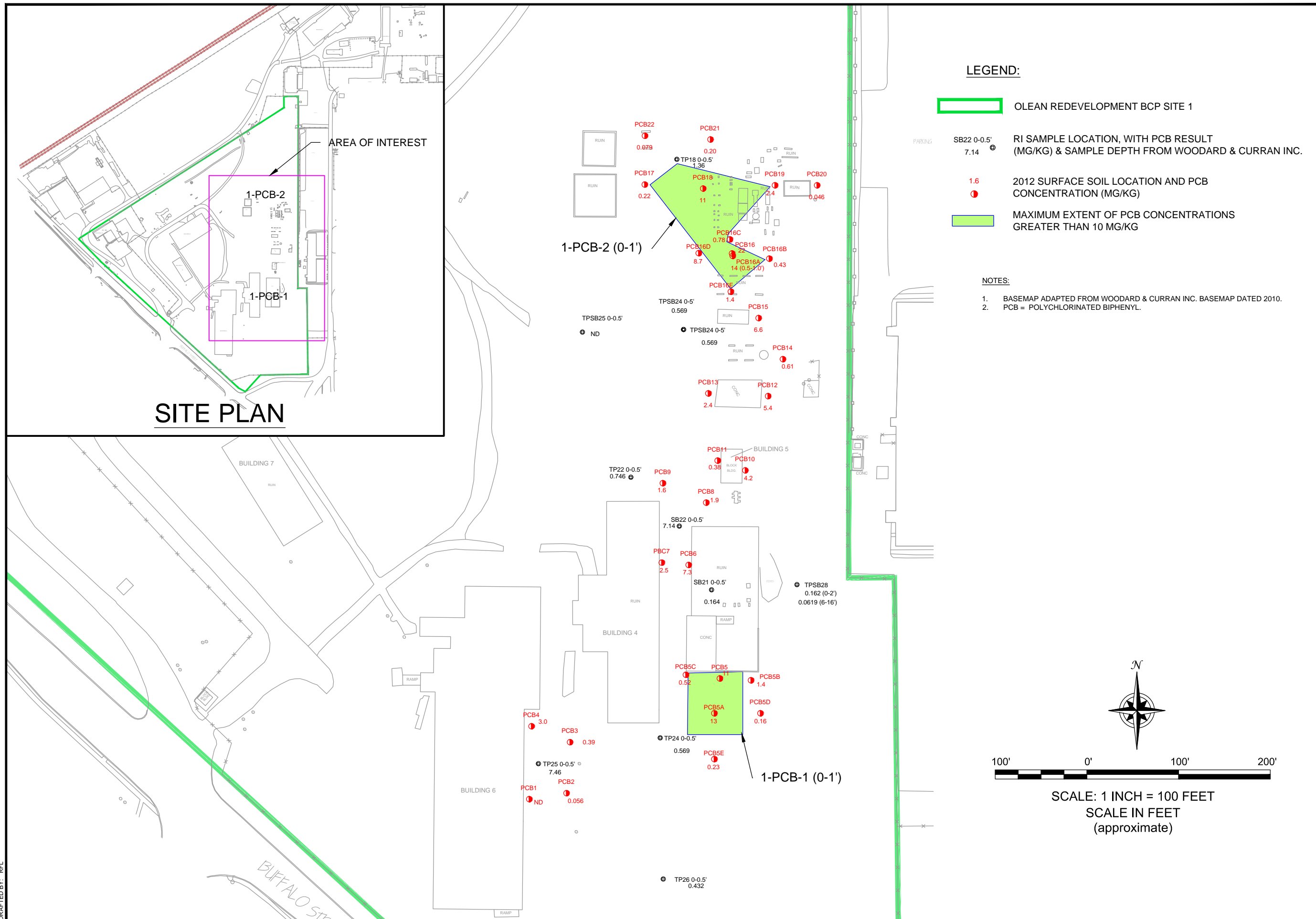
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FIGURE 8-2

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F:\CAD\TurnKey\Clean Gateway\2012 - Supplemental RI Report\Draft SRI\AAR Figures\Figure 8-2,8-6,8-7, Near Surface Metals (All Parcels).dwg

Figure 2-d: Elements of Proposed Remedy for BCP Parcel 1



2558 HAMBURG TURNPIKE
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PCBs EXCEEDENCE OF SSALS IN NEAR SURFACE SOIL / FILL - BCP SITE 1

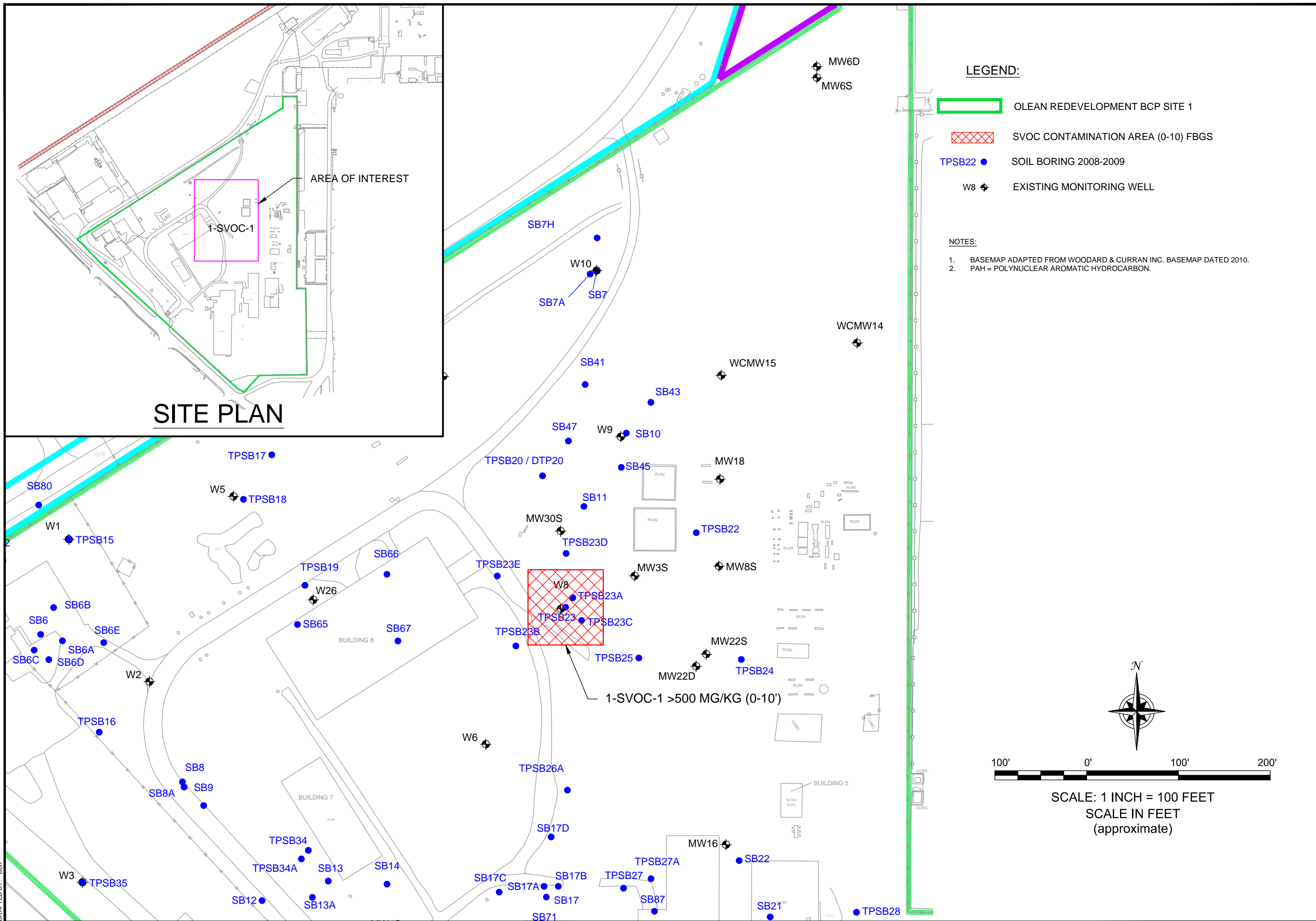
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FIGURE 8-3

F:\CAD\TurnKey\Olean Gateway\2012 - Supplemental RI Report\Draft SRI\AAAR Figures\Figure 8-3: PCBs Surface Soils.dwg

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Figure 2-e: Elements of Proposed Remedy for BCP Parcel 1



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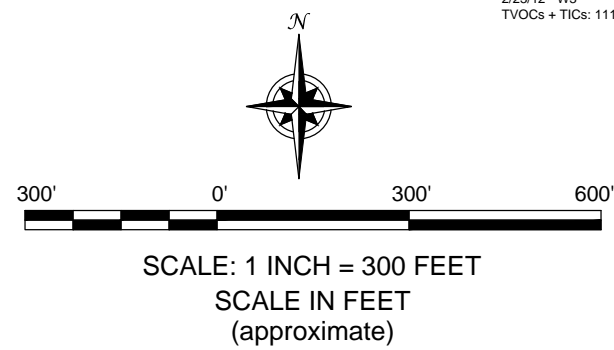
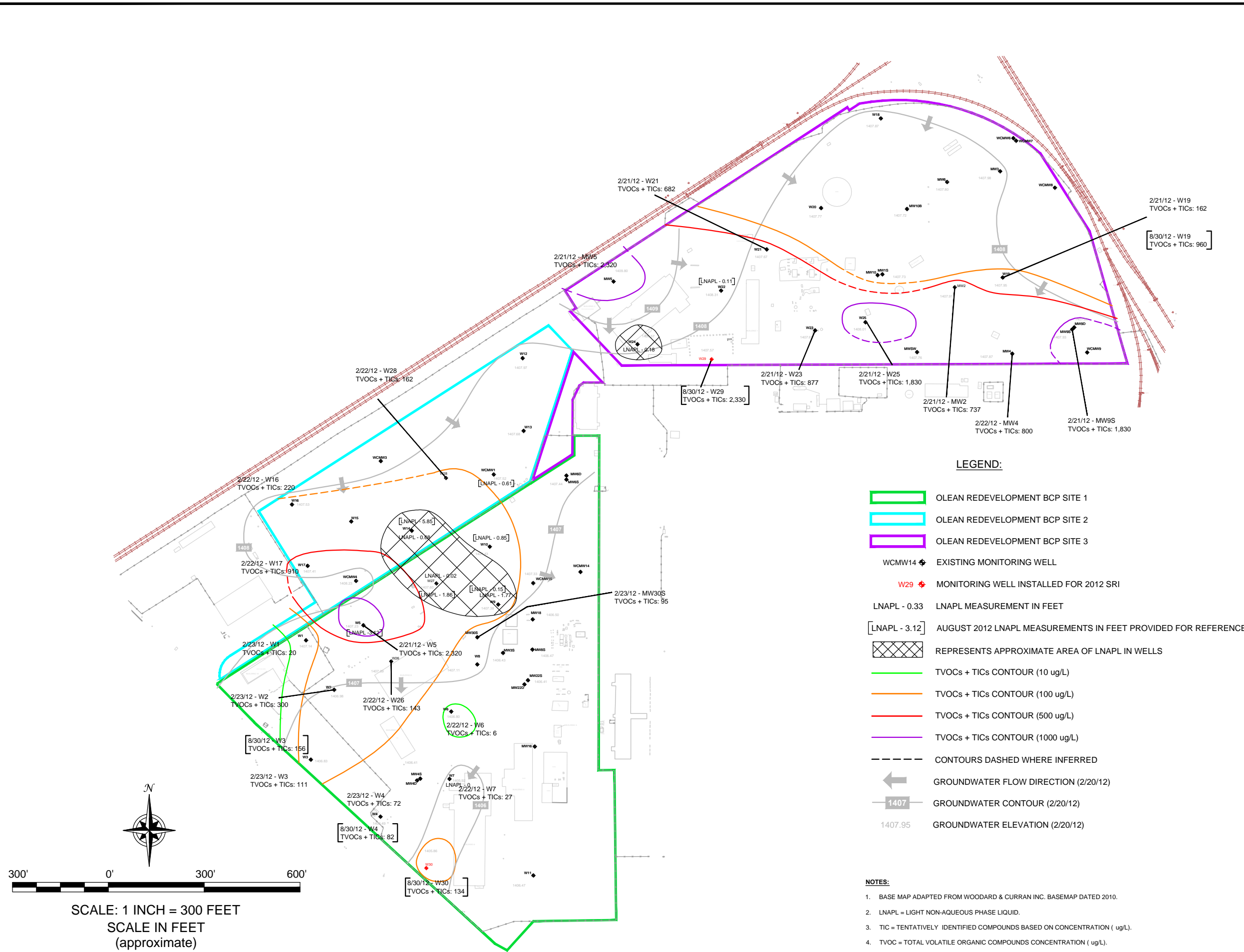
**SVOC EXCEEDENCES OF SSALS IN
NEAR SURFACE SOIL / FILL - BCP SITE 1**

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FIGURE 8-4

Figure 2-f: Elements of the Proposed Remedy for BCP Parcel 1

F:\CAD\TurnKey\Olean Gateway\2012 - Supplemental RI Report\Draft SRI AAR Figures\Figure 4-5-7: TVOCs and LNAPL (2008, 2012, TVOC+TICs 2012).dwg



DATE: NOVEMBER 2012
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**TOTAL VOCs (+TICs) AND LNAPL IN GROUNDWATER
FEBRUARY 2012**

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FIGURE 4-8