DECISION DOCUMENT

Carriage Cleaners
Brownfield Cleanup Program
Penfield, Monroe County
Site No. C828131
October 2012

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

DECLARATION STATEMENT - DECISION DOCUMENT

Carriage Cleaners
Brownfield Cleanup Program
Penfield, Monroe County
Site No. C828131
October 2012

Statement of Purpose and Basis

This document presents the remedy for the Carriage Cleaners 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 Carriage Cleaners 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. A remedial design program would be implemented to provide the details necessary for the construction, operation, 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 gas 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 that balance ecological, economic, and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. The site-specific soil cleanup objectives (SCOs) relevant to the planned use of the site will be used to guide the excavation of contaminated soils. On-site soils which exceed site specific SCOs will be excavated and transported off-site for disposal. The site-specific SCOs are

protection of groundwater for tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2- dichloroethene, 1,1-dichlorothene, and vinyl chloride and commercial use SCOs for all other constituents.

Approximately 270 cubic yards of soil/fill material will be removed. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. In-situ chemical oxidation is a technology used to treat chlorinated ethene compounds (a type of volatile organic compound) in the soil and groundwater. The process injects a chemical oxidant into the subsurface via injection wells or an infiltration gallery. The method of injection and depth of the injection is determined by location of the contamination. As the chemical oxidant comes into contact with the contaminant, an oxidation reaction occurs that breaks down the contaminant into relatively benign compounds such as carbon dioxide and water. Several chemical oxidants are commercially available. For the purpose of this discussion Permanganate (either potassium or sodium permanganate) will be the chemical oxidant evaluated. At this site, the chemical oxidant would be applied through injection wells screened from 5 to 20 feet to target tetrachloroethene and the degradation by-products.

Prior to full implementation of this technology, laboratory and on-site pilot scale studies would be conducted to more clearly define design parameters. Between pilot and full scale implementations, it is estimated that 52 shallow injection points would be installed. It is anticipated that the chemical oxidant would be introduced to the subsurface environment via a tank and gravity feed into the distribution system over a period of time for several treatment events.

4. A site cover will be required to allow for commercial use of the site. The cover will consist either of the 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 soil cleanup objectives (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).

5. Groundwater monitoring will be conducted within the treatment area and down gradient of the treatment area to evaluate the effectiveness of the remedial alternative.

6. 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 Monroe County Health Department;
• prohibits agriculture or vegetable gardens on the controlled property; and
• requires compliance with the Department approved Site Management Plan.

7. 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: See item #6 above.
• Engineering Controls: See item #4 above.

This plan includes, but may not be limited to:
• an Excavation Plan which details the provisions for management of future excavations;
• descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
• a provision for evaluation of the potential for soil vapor intrusion or any buildings occupied or 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;
• monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required by the Institutional and Engineering Control Plan discussed in item 7 above.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but 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.

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.

10/9/2012

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Carriage Cleaners
Penfield, Monroe County
Site No. C828131
October 2012

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:

Penfield Public Library
Attn: Pat Gough
1985 Baird Road
Penfield, NY 14526
Phone: 585-340-8720

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 site is located at 1600 Penfield Road in the town of Penfield, Monroe County. The site is approximately 0.2 mile west of Panorama Trail. Irondequoit Creek is located approximately 0.1 miles to the west/southwest of the site.

Properties in the area of the site are a mix of commercial and residential. The nearest residential area is located approximately 236 feet north/northwest of the site. Adjacent properties are a day care facility and dance studio located north of the Site; an unoccupied automated banking facility is located east of the site; west of the Site is a commercial office space with at least 3 tenants; and Penfield Road with a large parking lot and commercial plaza is located south of the site.

Site Features:
The site is approximately 0.6 acres in size. Historically, the site consisted of a 4,550 square foot commercial building which was constructed in 1961. The remainder of the site is paved with some grassy areas located along the western and northern portion of the site. The commercial building was demolished in the summer of 2009 leaving the concrete floor slab in place.

Current Zoning/Use(s):
The site is zoned for commercial use. The surrounding parcels are currently used for a combination of commercial and utility right-of-ways.

Past Uses:
The property housed a dry cleaning facility from approximately 1961 to 2005. The site is currently vacant.

A Phase II Environmental Site Assessment (ESA) was conducted in August 2002 as part of a real estate transaction. The Phase II ESA identified the presence of solvent contaminated soils and shallow groundwater. A passive soil gas survey was completed on August 2003.

A spill number (0270503) was opened based on the Phase II ESA analytical results. A passive soil gas survey of the site was completed in August 2003. The site was referred to Hazardous Waste Remediation based on the Phase II ESA and the passive soil gas survey. The owner of the site executed a Voluntary Cleanup Agreement in December 2003 with Department. The Voluntary Cleanup Agreement was terminated October 2005. A volunteer executed a Brownfield Cleanup Agreement October 2005 that was later modified by the volunteer June 2006.

Related and other site numbers associated with the Site are C828131A, 828131, V00668.

Site Geology and Hydrogeology:
The site consists generally of medium to fine grained sand with little to no silt and trace amounts of clay as well as fine to coarse gravel to approximately 74 feet below ground surface. Groundwater flow direction is to the northwest with a slight northern trend. The depth to groundwater ranges from 2.02 feet to 9.97 feet across the site.

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 Volunteer(s) does/do not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, 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
- soil vapor

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:

TETRACHLOROETHYLENE (PCE)	VINYL CHLORIDE
TRICHLOROETHENE (TCE)	1,1,1,2-TETRACHLOROETHANE
METHYLENE CHLORIDE	DICHLOROETHYLENE

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

- groundwater
- soil
- soil vapor intrusion

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/vault removal

Operable Unit 01A IRM consisted of the excavation and off-site disposal of an underground storage tank/vault (UST) that was located on the north side of the building. The UST had received drainage from dry-cleaning operations at the site.

The IRM included the excavation and off-site disposal of the surrounding, highly contaminated soils and groundwater, and the collection of confirmatory sidewall and bottom soil samples. A total of six (6) confirmatory soil samples were collected and analyzed for TCL VOCs. The analytical data indicated concentrations for tetrachloroethene (PCE) ranged from 1.6 to 130,000 ppm; trichloroethene (TCE) ranged from 0.015 to 260 ppm; and cis-1,2-dichloroethene ranged from 0.017 to 300 ppm.

The excavated soils and liquid generated during the removal process was disposed at off-site at permitted landfill facilities. A portion of the excavated soils (approximately 44 tons) were also shipped to a treatment facility in Quebec, Canada. The imported backfill material met Part 375 Unrestricted Use SCOs.

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 on the investigations conducted to date the primary contaminants at the site are volatile organic compounds (VOCs), especially chlorinated organic compounds, typically associated with dry cleaning process. The primary contaminants detected are tetrachloroethene and the breakdown products trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride. Analytical results indicate that the soil, soil vapor, and groundwater are impacted.

Subsurface soil samples were collected and analyzed for TCL VOCs. The VOC analytical results for subsurface soils indicate that soils remaining after the completion of the IRM significantly exceed the Part 375 Unrestricted Use and the Protection of Groundwater Soil Cleanup Objectives (SCOs). Tetrachloroethene concentrations ranged from non-detect to 130,000 parts per million (ppm). Additionally, trichlorothene concentrations ranged from non-detect to 260 ppm. cis-1,2-dichloroethene concentrations ranged from non-detect to 300 ppm.

Groundwater samples were collected and analyzed for TCL VOCs. The VOC analytical results for groundwater indicate an exceedance of the Part 703 Groundwater Standards and Guidance values (typically 5 ug/L). Tetrachloroethene concentrations ranged from non-detect to 142,000

ug/L. Trichlorothene concentrations ranged from non-detect to 5,300 ug/L. cis-1,2-dichloroethene concentrations ranged from non-detect to 4,900 ug/L. The impacted groundwater is migrating off-site.

The analytical results for the perimeter soil gas survey, which included one sampling point located off-site, indicates detections for volatile organic compounds along the western property boundary.

Special Resources Impacted/Threatened:
There are no special resources identified at the site.

Significant Threat:
The site presents a significant public and environmental threat due to ongoing releases from the tetrachloroethene and associated breakdown byproduct source areas underneath the flooring slab into the soils, groundwater, and soil vapor at the site.

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.*

People are not coming into contact with the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Since the site is fenced and covered by asphalt or concrete, people will not come into contact with site-related soil contamination unless they dig below the surface. Volatile organic compounds in the groundwater may move into the soil vapor (air between soil particles), 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. Because there is no on-site building, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. In addition, sampling indicates soil vapor intrusion is a concern for off-site buildings and sub-slab depressurization systems have been installed to prevent the indoor air quality from being affected by the contamination in soil vapor beneath those buildings.

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

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- 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.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

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 remedy.

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

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, 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 gas 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 that balance ecological, economic, and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. The site-specific soil cleanup objectives (SCOs) relevant to the planned use of the site will be used to guide the excavation of contaminated soils. On-site soils which exceed site specific SCOs will be excavated and transported off-site for disposal. The site-specific SCOs are protection of groundwater for tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2- dichloroethene, 1,1-dichlorothene, and vinyl chloride and commercial use SCOs for all other constituents.

Approximately 270 cubic yards of soil/fill material will be removed. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. In-situ chemical oxidation is a technology used to treat chlorinated ethene compounds (a type of volatile organic compound) in the soil and groundwater. The process injects a chemical oxidant into the subsurface via injection wells or an infiltration gallery. The method of injection and depth of the injection is determined by location of the contamination. As the chemical oxidant comes into contact with the contaminant, an oxidation reaction occurs that breaks down the contaminant into relatively benign compounds such as carbon dioxide and water. Several chemical oxidants are commercially available. For the purpose of this discussion Permanganate (either potassium or sodium permanganate) will be the chemical oxidant evaluated. At this site, the chemical oxidant would be applied through injection wells screened from 5 to 20 feet to target tetrachloroethene and the degradation by-products.

Prior to full implementation of this technology, laboratory and on-site pilot scale studies would be conducted to more clearly define design parameters. Between pilot and full scale implementations, it is estimated that 52 shallow injection points would be installed. It is anticipated that the chemical oxidant would be introduced to the subsurface environment via a tank and gravity feed into the distribution system over a period of time for several treatment events.

4. A site cover will be required to allow for commercial use of the site. The cover will consist either of the 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 soil cleanup objectives (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).

5. Groundwater monitoring will be conducted within the treatment area and down gradient of the treatment area to evaluate the effectiveness of the remedial alternative.

6. 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 Monroe County Health Department;
- prohibits agriculture or vegetable gardens on the controlled property; and
- requires compliance with the Department approved Site Management Plan.

7. 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: See item #6 above.
- Engineering Controls: See item #4 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion or any buildings occupied or 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.

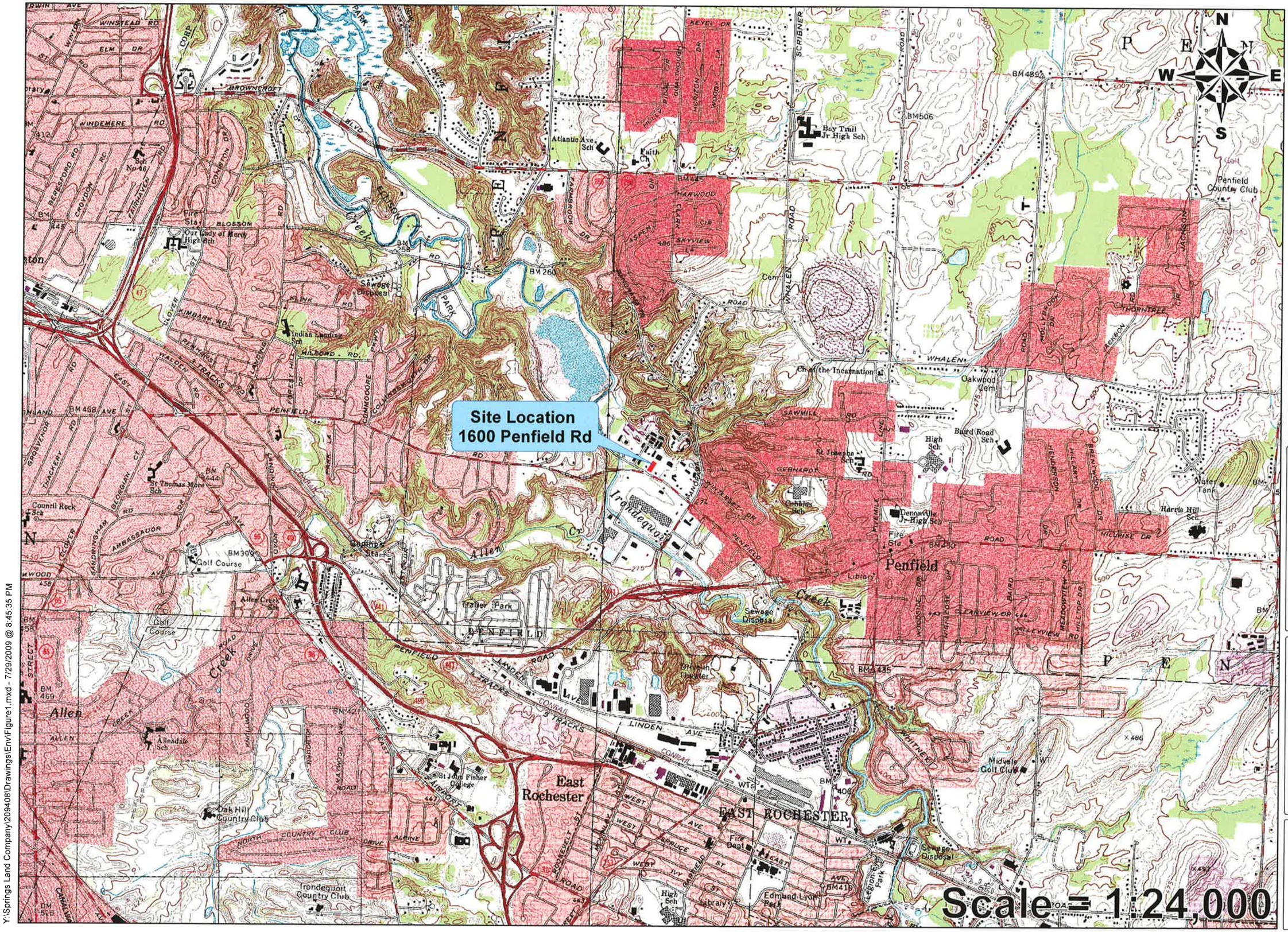
b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;

- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required by the Institutional and Engineering Control Plan discussed in item 7 above.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but 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.



LABELLA Associates, P.C.
300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585) 454-3066
www.labellapc.com

PROJECT/LOB

CARRIAGE CLEANTOWN
REMEDIAL ALTERNATIVES ANALYSIS

SPRINGS LAND COMPANY, LLC

1600 PENFIELD ROAD
PENFIELD, NEW YORK

DRAWING TITLE

SITE LOCATION MAP
WITH USGS QUADRANGLE
TOPOGRAPHY MAP

ISSUED FOR: DRAFT
DATE: JULY 2009
DESIGNED BY: JJW
DRAWN BY: RCN
REVIEWED BY: DPN

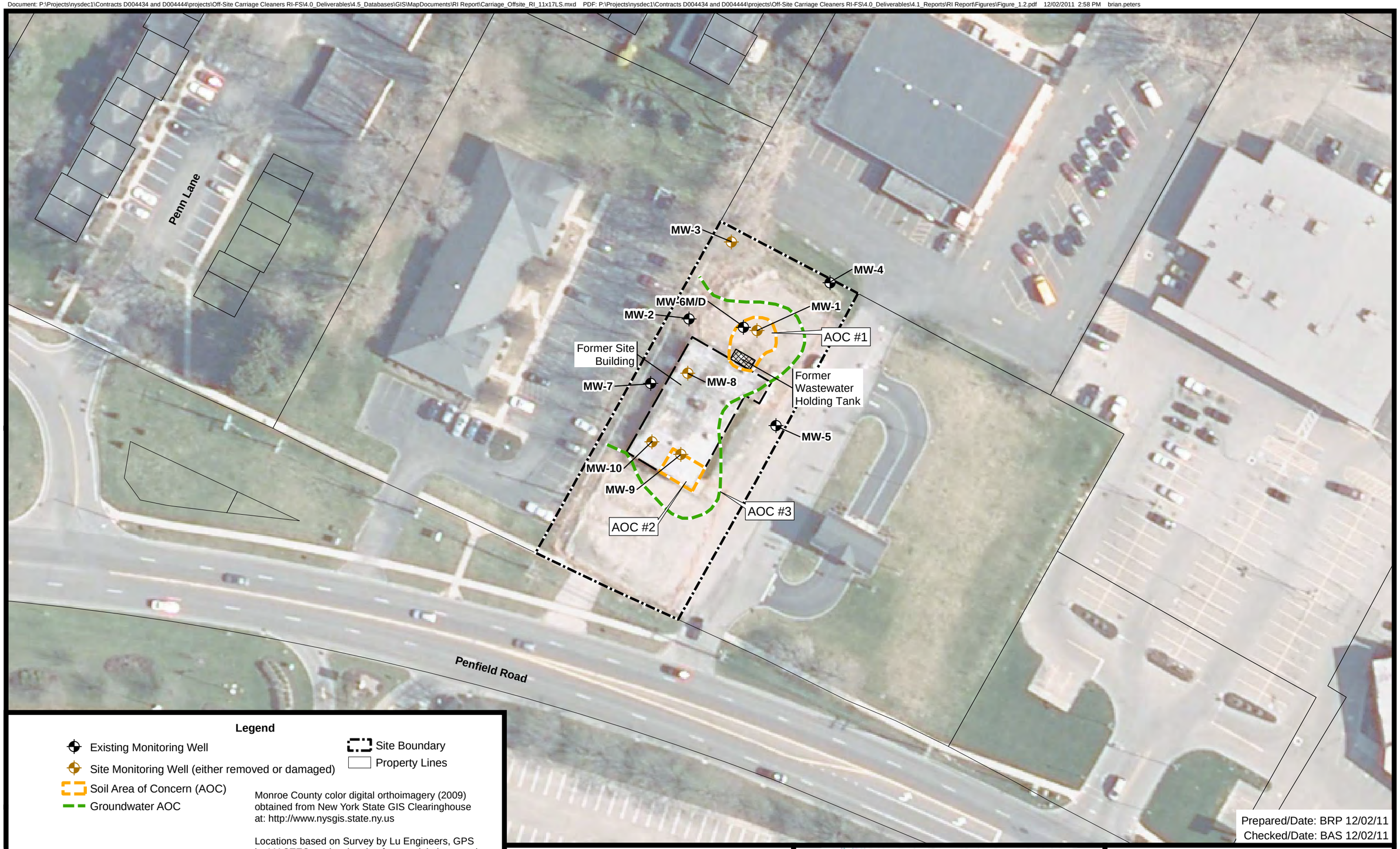
PROJECT/DRAWING NUMBER

209408

FIGURE 1

Y:\Springs Land Company\209408\Drawings\Env\Figure1.mxd - 7/29/2009 @ 8:45:35 PM

Document: P:\Projects\nysdec1\Contracts D004434 and D004444\projects\Off-Site Carriage Cleaners RI-FS\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\RI Report\Carriage_Offsite_RI_11x17LS.mxd PDF: P:\Projects\nysdec1\Contracts D004434 and D004444\projects\Off-Site Carriage Cleaners RI-FS\4.0_Deliverables\4.1_Reports\RI Report\Figures\Figure_1.2.pdf 12/02/2011 2:58 PM brian.peters



Legend

- Existing Monitoring Well
- Site Monitoring Well (either removed or damaged)
- Soil Area of Concern (AOC)
- Groundwater AOC
- Site Boundary
- Property Lines

N

0 30 60 Feet

Monroe County color digital orthoimagery (2009) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

Locations based on Survey by Lu Engineers, GPS by MACTEC, and estimation from aerial photograph

AOCs approximated from Carriage Cleantown IRM Report (LaBella, 2009b)

Prepared/Date: BRP 12/02/11
Checked/Date: BAS 12/02/11

Remedial Investigation Report
Off-Site Carriage Cleaners
Penfield, New York

MACTEC

Historical Investigation Locations

Project 3612-10-2168 Figure 1.2

OFFICE
BUILDING
1598 PENFIELD ROAD

LEGEND

- PROPERTY LINE
- B3 — SOIL BORING ADVANCED IN AUGUST, 2002
- SOIL BORING CONVERTED TO SHALLOW OVERBURDEN GROUNDWATER MONITORING WELL IN AUGUST, 2002
- SOIL BORING ADVANCED IN NOVEMBER, 2005
- GROUNDWATER MONITORING WELL INSTALLED IN NOVEMBER, 2005
- SOIL GAS POINT SAMPLED IN AUGUST, 2003
- PERMANENT SOIL GAS SAMPLING WELL
- SUPPLEMENTAL SHALLOW OVERBURDEN GROUNDWATER MONITORING WELL LOCATION
- SUPPLEMENTAL SHALLOW SOIL BORING LOCATION
- SUPPLEMENTAL DEEP GROUNDWATER MONITORING WELL LOCATION
- IRM SOIL REMOVAL AREA
- PROPOSED ADDITIONAL REMOVAL OF UNSATURATED ZONE IMPACTS
- PROPOSED ADDITIONAL WORST-CASE SCENARIO REMOVAL AREA

B-35 (MW-3) SG-16 SG-06 B-10 B-11 B-12 B-13 SG-05 SG-04 SG-03 B-36 (MW-4) SG-02 SG-01

EXTENT OF IRM SOIL REMOVAL

SG-07 B-14 B-15 B-16 B-17 B-18 B5 B4 SG-08 B-19 B-20 B-21 B-22 B-23 B-24 B9 B3 SW-3 B8/MW-1 SW-2 B6 MW-6M/ MW-6D BS-2 SG-09 B-25 B-26 B-27 B-28 B-29 B2 SW-4 B7 B-37 (MW-2) B1 BS-1 SW-1 B-30 B-31 B-32 B-41 B-33 B-34 SG-10 B-40

PROPOSED ADDITIONAL WORST-CASE SCENARIO REMOVAL AREA

1,500 GAL. CONCRETE WASTEWATER HOLDING TANK (IDENTIFIED ON PLUMBING LAYOUT PLAN)

EXISTING BUILDING

FLOOR DRAINS AND PIPING IDENTIFIED ON PLUMBING LAYOUT PLAN

SG-11 B-39 B-38 (MW-5) B-51 B-49/MW-8 B-42 SG-12 B-43/MW-7 B-46 SG-13

PROPOSED ADDITIONAL SOIL REMOVAL AREAS FROM UNSATURATED ZONE SOILS

PROPOSED BUILDING FOOTPRINT

CARRIAGE CLEANTOWN 1600 PENFIELD ROAD

B-50 B-45 APPROX. LOCATION OF PCE STILL SG-15 B-44/MW-9 & B-44R B-53 B-47/MW-10 B-48 B-52 & B-52R B-54 B-55

NOTE:

ALL LOCATIONS ARE APPROXIMATE.

NO	REVISION	BY	DATE
1	ADDRESS NYSDEC COMMENTS	RCN	6/8/09
2			
3			
4			
5			
6			

LABELLA Associates, P.C.
300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585) 454-3066
www.labellapc.com

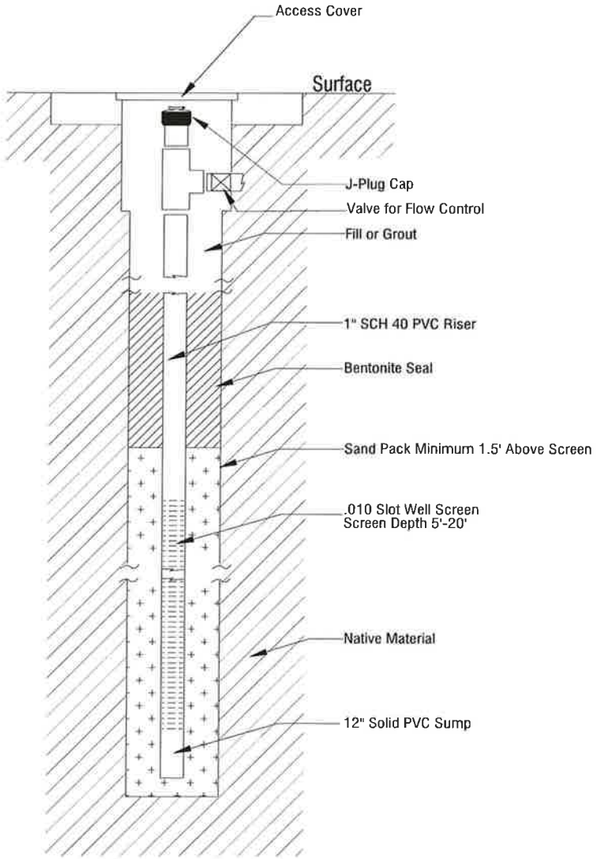
PROJECT/CLIENT
CARRIAGE CLEANTOWN
REMEDIAL ALTERNATIVES ANALYSIS
SPRINGS LAND COMPANY, LLC
1600 PENFIELD ROAD
PENFIELD, NEW YORK

DRAWING TITLE
SITE PLAN
PROPOSED UNSATURATED ZONE
SOIL REMOVAL ALTERNATIVE

ISSUED FOR: DRAFT
SCALE: 1" = 20'
DESIGNED BY: DPN
DRAWN BY: RCN
REVIEWED BY: DPN
DATE: JULY 2009

PROJECT NUMBER
209408
DRAWING NUMBER
FIGURE 2
SHEET 1 OF 1

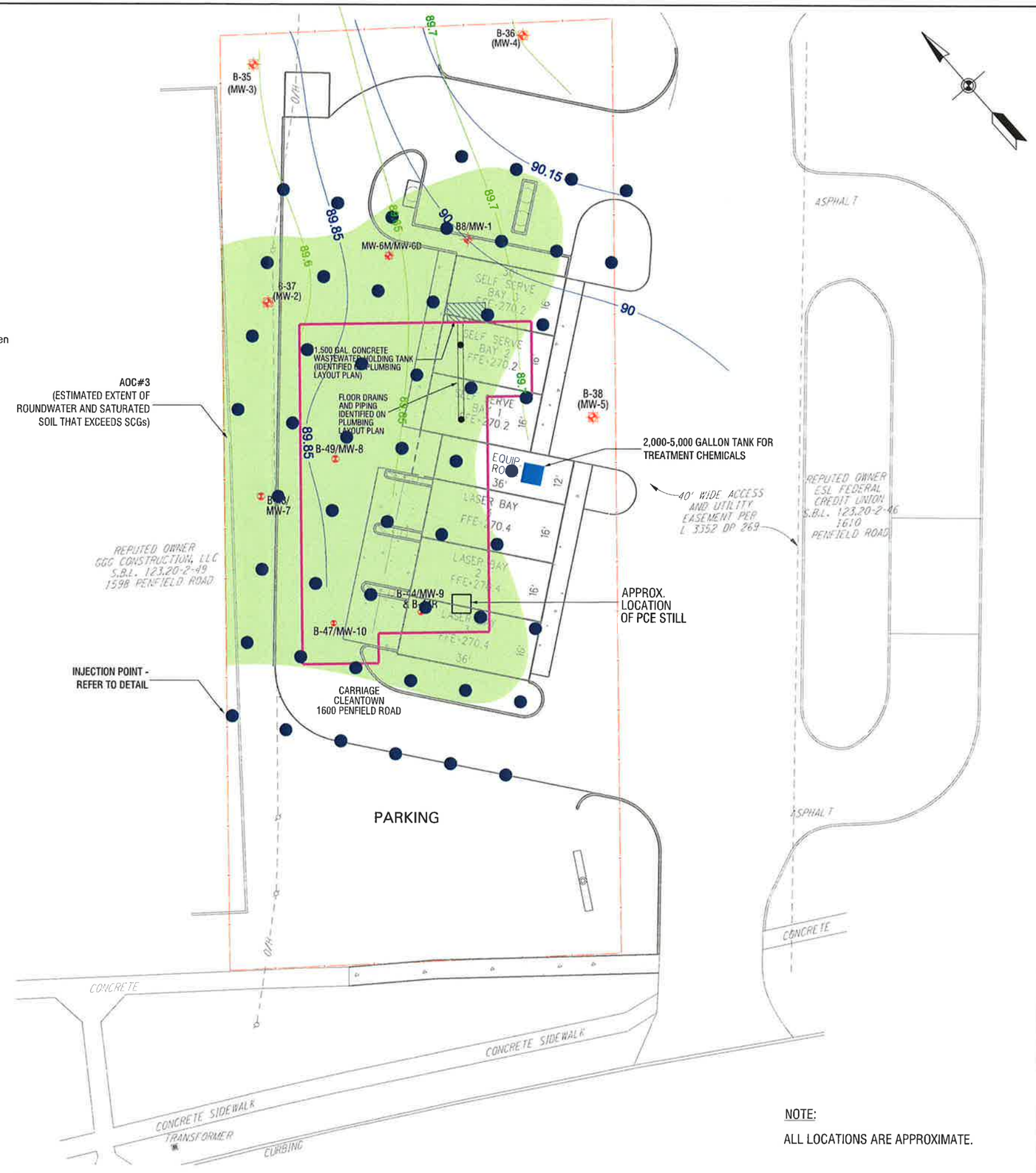
PLOTDRVR Dwn-XM-Half-Color.pltcfg
MODEL Model
FILE PATH Y:\Springs Land Company\209408\Drawings\Env\Figure 6.dgn
DATE/TIME 7/31/2009 10:23:40 AM



DETAIL

LEGEND

- PROPERTY LINE
- B3 — SOIL BORING ADVANCED IN AUGUST, 2002
- SOIL BORING CONVERTED TO SHALLOW OVERBURDEN GROUNDWATER MONITORING WELL IN AUGUST, 2002
- SOIL BORING ADVANCED IN NOVEMBER, 2005
- GROUNDWATER MONITORING WELL INSTALLED IN NOVEMBER, 2005
- SOIL GAS POINT SAMPLED IN AUGUST, 2003
- PERMANENT SOIL GAS SAMPLING WELL
- SUPPLEMENTAL SHALLOW OVERBURDEN GROUNDWATER MONITORING WELL LOCATION
- SUPPLEMENTAL SHALLOW SOIL BORING LOCATION
- SUPPLEMENTAL DEEP GROUNDWATER MONITORING WELL LOCATION
- ESTIMATED EXTENT OF GROUNDWATER THAT EXCEEDS SCGs
- INJECTION POINT



NOTE:

ALL LOCATIONS ARE APPROXIMATE.

NO	REVISION	BY	DATE
1	ADDRESS NYSDEC COMMENTS	RCN	9/8/09
2			
3			
4			
5			
6			

LABELLA Associates, P.C.
300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585) 454-3066
www.labellapc.com

PROJECT/CLIENT
CARRIAGE CLEANTOWN
REMEDIAL ALTERNATIVES ANALYSIS
SPRINGS LAND COMPANY, LLC
1600 PENFIELD ROAD
PENFIELD, NEW YORK

DRAWING TITLE
SITE PLAN
WITH IN-SITU TREATMENT
SYSTEM ALTERNATIVE

ISSUED FOR: DRAFT
SCALE: 1" = 30'
DESIGNED BY: DPN
DRAWN BY: RCN
REVIEWED BY: DPN
DATE: JULY 2009

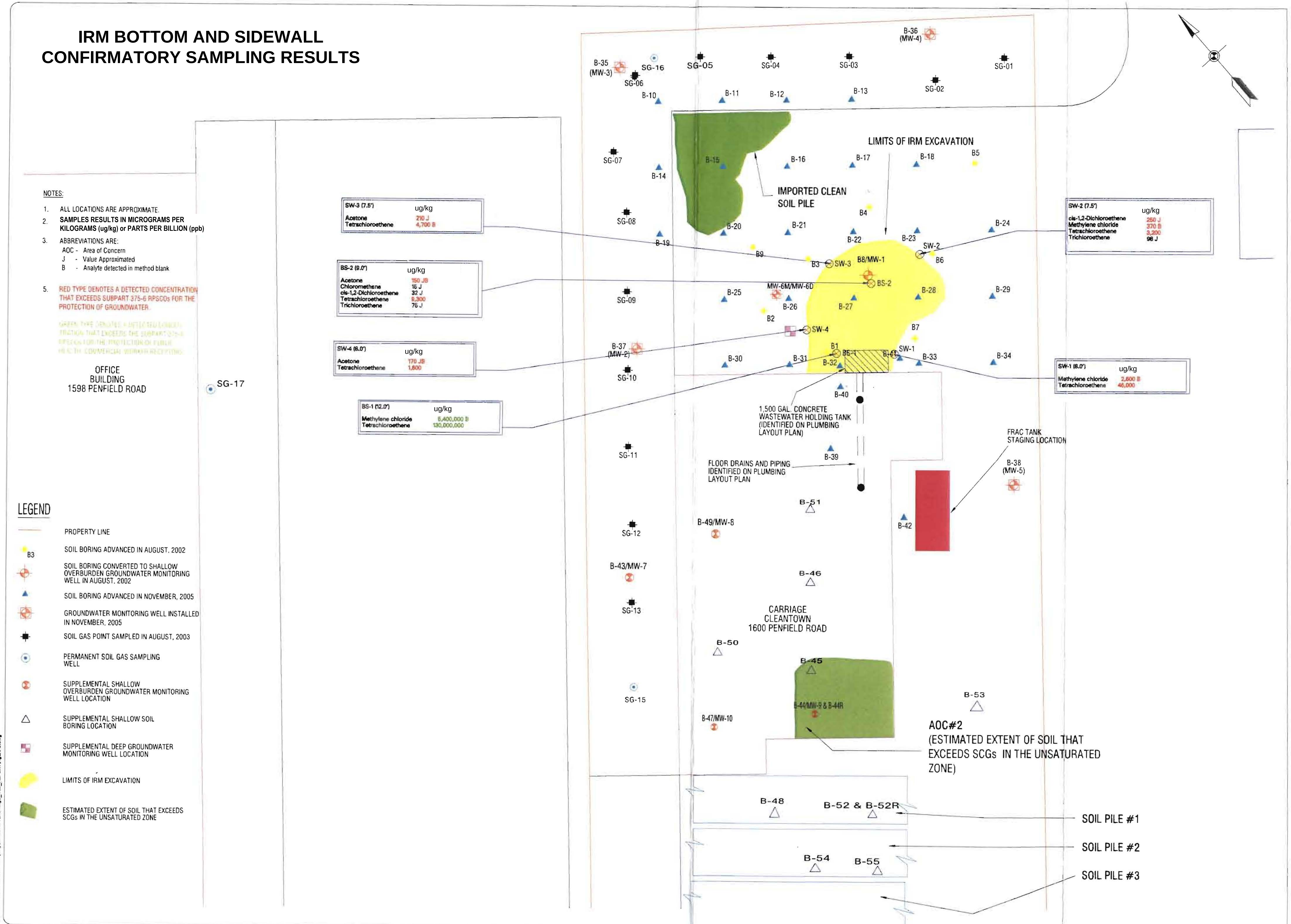
PROJECT NUMBER
209408

DRAWING NUMBER
FIGURE 2.2

SHEET 1 OF 1

PLOTDRVR: Dell-XM-Half-Color.pltcfg
PLOTSTYLE: Default
FILE PATH: V:\Springs Land Company\209408\Drawings\Env Figure 7.dgn
DATE/TIME: 7/31/2009 1:18:25 PM

IRM BOTTOM AND SIDEWALL CONFIRMATORY SAMPLING RESULTS



NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. SAMPLES RESULTS IN MICROGRAMS PER KILOGRAMS (ug/kg) or PARTS PER BILLION (ppb)
3. ABBREVIATIONS ARE:
AOC - Area of Concern
J - Value Approximated
B - Analyte detected in method blank
5. RED TYPE DENOTES A DETECTED CONCENTRATION THAT EXCEEDS SUBPART 375-6 RPSCOs FOR THE PROTECTION OF GROUNDWATER.
OFFICE BUILDING 1598 PENFIELD ROAD
SW-3 (7.5') ug/kg
Acetone 210 J
Tetrachloroethene 4,700 B
BS-2 (9.0') ug/kg
Acetone 150 JB
Chloromethane 16 J
cis-1,2-Dichloroethene 32 J
Tetrachloroethene 8,300
Trichloroethene 75 J
SW-4 (6.0') ug/kg
Acetone 170 JB
Tetrachloroethene 1,600
BS-1 (12.0') ug/kg
Methylene chloride 5,400,000 B
Tetrachloroethene 130,000,000
SW-2 (7.5') ug/kg
cis-1,2-Dichloroethene 250 J
Methylene chloride 370 B
Tetrachloroethene 3,200
Trichloroethene 98 J
SW-1 (8.0') ug/kg
Methylene chloride 2,600 B
Tetrachloroethene 46,000
LIMITS OF IRM EXCAVATION
IMPORTED CLEAN SOIL PILE
1,500 GAL. CONCRETE WASTEWATER HOLDING TANK (IDENTIFIED ON PLUMBING LAYOUT PLAN)
FLOOR DRAINS AND PIPING IDENTIFIED ON PLUMBING LAYOUT PLAN
FRAC TANK STAGING LOCATION
CARRIAGE CLEANTOWN 1600 PENFIELD ROAD
AOC#2 (ESTIMATED EXTENT OF SOIL THAT EXCEEDS SCGs IN THE UNSATURATED ZONE)
SOIL PILE #1
SOIL PILE #2
SOIL PILE #3
LEGEND
PROPERTY LINE
SOIL BORING ADVANCED IN AUGUST, 2002
SOIL BORING CONVERTED TO SHALLOW OVERBURDEN GROUNDWATER MONITORING WELL IN AUGUST, 2002
SOIL BORING ADVANCED IN NOVEMBER, 2005
GROUNDWATER MONITORING WELL INSTALLED IN NOVEMBER, 2005
SOIL GAS POINT SAMPLED IN AUGUST, 2003
PERMANENT SOIL GAS SAMPLING WELL
SUPPLEMENTAL SHALLOW OVERBURDEN GROUNDWATER MONITORING WELL LOCATION
SUPPLEMENTAL SHALLOW SOIL BORING LOCATION
SUPPLEMENTAL DEEP GROUNDWATER MONITORING WELL LOCATION
LIMITS OF IRM EXCAVATION
ESTIMATED EXTENT OF SOIL THAT EXCEEDS SCGs IN THE UNSATURATED ZONE

FILE PATH: N:\Clifton Land Company\205237.01\Drawings_IRM_REPORT\Figure 5.dwg

NO.	REVISION	BY	DATE
1			
2			
3			
4			
5			
6			

It is a violation of New York Education Law Article 145 Sec 7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered, the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

LABELLA Associates, P.C.
300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585) 454-3066
www.labellapc.com

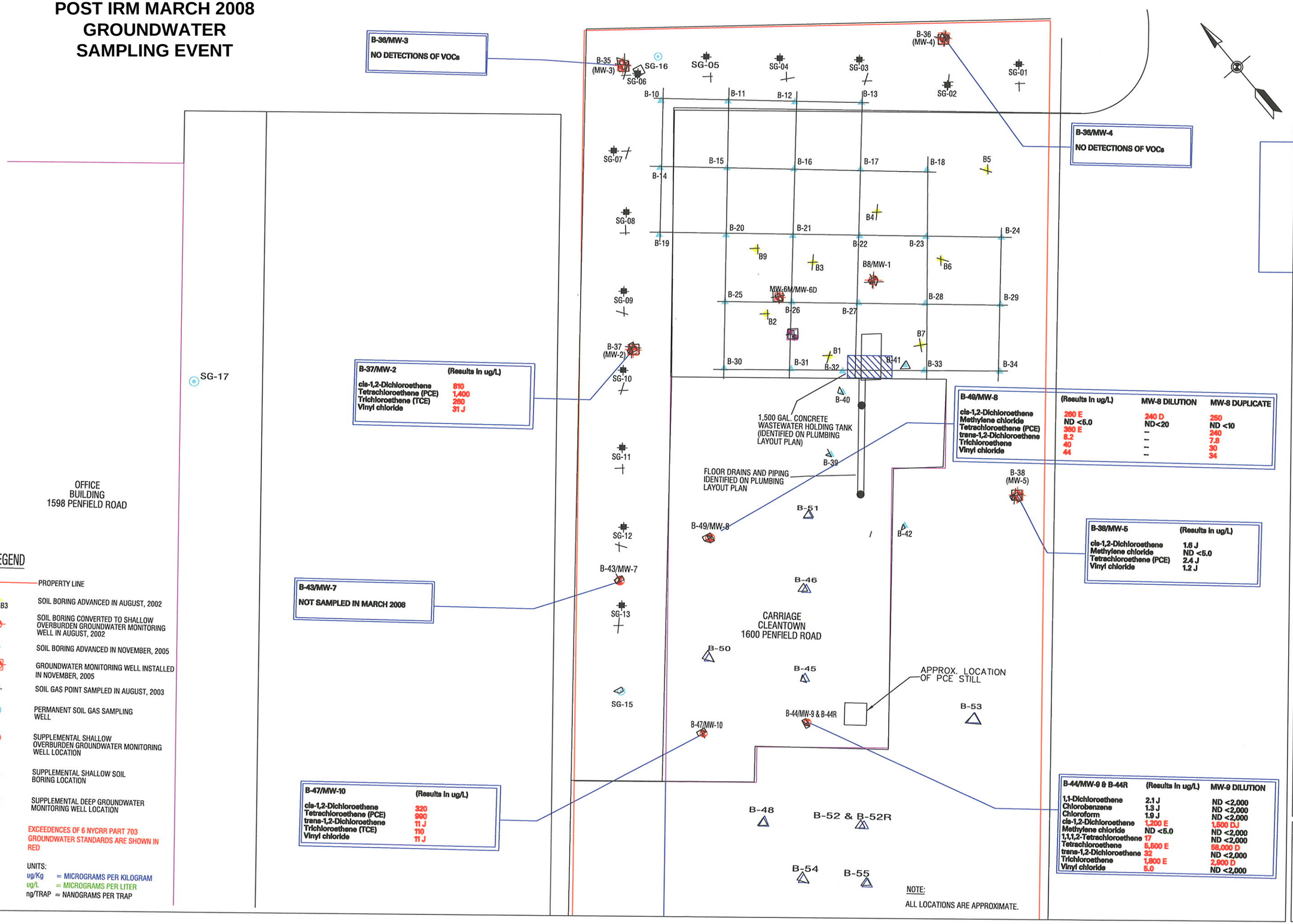
PROJECT/CLIENT
CARRIAGE CLEANTOWN INTERIM REMEDIAL MEASURE REPORT
SPRINGS LAND COMPANY, LLC
1600 PENFIELD ROAD PENFIELD, NEW YORK

DRAWING TITLE
IRM SOIL REMOVAL SITE PLAN

ISSUED FOR: FINAL
DATE: JUNE 2009
SCALE: 1" = 20'
DESIGNED BY: DPN
DRAWN BY: ED
REVIEWED BY: DP

PROJECT NUMBER 205237.01
DRAWING NUMBER FIGURE 3
SHEET 1 OF 1

POST IRM MARCH 2008 GROUNDWATER SAMPLING EVENT



NO.	REVISION	BY	DATE
1			
2			
3			
4			
5			
6			

It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless he is acting under the direction of a licensed professional engineer, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered, the altering engineer, architect or land surveyor shall affix to the item their seal and notation stating "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

LABELLA Associates, P.C.
300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585) 454-3066
www.labellapc.com

PROJECT/CLIENT
CARRIAGE CLEANTOWN REMEDIAL INVESTIGATION REPORT
SPRINGS LAND COMPANY, LLC
1600 PENFIELD ROAD
PENFIELD, NEW YORK

DRAWING TITLE
SHALLOW OVERBURDEN GROUND-WATER SAMPLING WELLS

ISSUED FOR: REVISION
SCALE: 1" = 20'
DESIGNED BY: DPH
DRAWN BY: GK
REVIEWED BY: DPH
DATE: JUNE 2009

PROJECT NUMBER
205237.01
DRAWING NUMBER
FIGURE 4
SHEET 1 OF 1

FILE PATH: N:\Clifton Land Company\035207\Civil\Isolation\Construct.dwg\[Figure 11 Isl RGN.dwg