PROPOSED REMEDIAL ACTION PLAN
FORMER SPEEDY'S CLEANERS
State Superfund Project
Town of Brighton, Monroe County, New York
Site No. 828128
March 2010

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

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous waste at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Sections 5 of this document, have contaminated various environmental media. The proposed remedy, discussed in detail in Section 8, is intended to attain the remedial action objectives identified for this site in Section 6 for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy. The Department will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this PRAP in accordance with the requirements of 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 document is a summary of the information that can be found in the site related reports and documents which are available for review at the document repositories. The public is encouraged to review the reports and documents, which are available at the following repositories:

Brighton Memorial Library
Reference Desk
2300 Elmwood Avenue
Brighton, N.Y. 14618
(585) 784-5300
M–Th: 10:00 AM - 9:00 PM, Fr: 10:00 AM – 6:00 PM, Sa: 10:00 AM – 4:00 PM. Su: 1:00 PM – 4:00 PM

By appointment only:
Jason Pelton, Project Manager
NYSDEC Central Office
625 Broadway
Albany, New York 12233-7013

(518) 402-9814
(888) 459-8667
M – Fr: 8:00 AM – 4:45 PM

Lisa LoMaestro Silvestri, Citizen Participation Specialist
NYSDEC Region 8 Office
6274 E. Avon-Lima Road
Avon, New York 14414
(585) 226-5350
M – Fr: 8:00 AM – 4:45 PM

The Department seeks input from the community on all PRAPs. A public comment period has been set from March 1, 2010 to March 31, 2010 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for March 18, 2010 at the Town of Brighton Town Hall Auditorium beginning at 7:00 PM.

At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Pelton at the following address 625 Broadway, Albany, New York 12233-7013 through March 31, 2010.

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

SECTION 2: SITE DESCRIPTION AND HISTORY

2.1: Location and Description

The Former Speedy's Cleaners Site is located at 2150 Monroe Avenue in a mixed residential and commercial area in the Town of Brighton, Monroe County (Figure 1). The 0.15 acre property is located along the intersection of Monroe Avenue (NYS Route 31) and Hampshire Drive. An approximate 3,000 square foot, two story brick and block construction building with a partial basement is the only structure located on the property. With the exception of a few small grassy areas, the remainder of the site is covered with asphalt parking lot.

The property is zoned commercial and the site building is currently operated as a beauty salon on the first floor and a photography studio on the second floor. The property is bordered immediately to the west and north by a combination of single and multi-tenant residential buildings. Monroe Avenue and various commercial and retail establishments border the site to the south and east.

The site is located approximately 450 feet east of a petroleum spill (NYSDEC Spill Number 0306131) that occurred at the former Newcomb Oil/Citgo Gasoline Station located at 2087 Monroe Avenue and approximately 350 feet east of a Class 2 Inactive Hazardous Waste Disposal Site (HW ID No. 8-28-120) identified as the Carriage Cleaners site at 2101 Monroe Avenue. A map showing these property locations is provided as Figure 1.

The geology beneath and near the Former Speedy's Cleaners Site directly influences the distribution and ability for contaminants to migrate from the site. Site geology consists of a thin veneer of sandy glacial till (overburden beneath the site) comprised of loose to dense sand with some silt and gravel overlying a medium dark gray dolomite (bedrock beneath the site) of the Lockport Group. The thickness of overburden ranges from approximately 9 feet to 15 feet. The upper one (1) to three (3) feet of bedrock consists of a weathered zone that is underlain by a shallow fractured bedrock zone with a thickness of approximately 6 to 15 feet. The groundwater table in the vicinity of the site is present in either overburden or weathered/fractured bedrock, depending on the depth to water and the bedrock elevation. The depth to groundwater ranges from approximately 6 feet to 10 feet below grade and data suggests a hydraulic connection exists between the overburden and the shallow bedrock groundwater systems. The majority of the groundwater monitoring wells at and in the vicinity of the site are constructed with screens straddling the overburden and upper shallow weathered bedrock.

The site investigation data suggest that the top of the bedrock surface is an irregular erosional surface. The presence of a bedrock high northeast of the Former Speedy's Cleaners Site and a bedrock trough north of the site (northeast of the Carriage Cleaners Site), with an approximate northwest to southeast orientation, appears to influence the local groundwater flow direction. In general, groundwater flow is to the east-northeast.

The nearest surface water body is a small unnamed tributary to the Allen Creek. The unnamed tributary is located over 1,000 feet northwest of the site and flows toward the east. The majority of surface water runoff from the site is captured by the Monroe County Pure Waters stormwater collection system.

2.2: Operational/Disposal History

The 2150 Monroe Avenue property was first developed in the 1940's. Review of the R.L. Polk & Co. Rochester Suburban City Directories indicate that the site was used as George and Bill's Super Grocery from 1950 to 1952. The Speedy's Cleaners operated at the site for approximately 28 years from 1953 to 1981. Between 1982 and 1999, and prior to the current property use as the beauty salon, the site was used for Lasser's Home Products. A property inspection performed by the Monroe County Health Department (MCHD) of the Former Speedy's Cleaners on June 29, 1977 documented the use of approximately 550 gallons of tetrachloroethene (PCE) per year.

Data collected as part of the RI suggest that PCE disposal may have occurred in areas where the original building was expanded. Town of Brighton records indicate that two (2) separate building additions occurred; the first of which occurred in 1968. Both additions expanded the original slab on grade building to the north and involved excavation for full basement construction. The highest PCE concentrations were detected near the southeast and northeast sides of the building addition area and suggest that disposal may have occurred in the location where the site building was expanded. Data collected during the RI did not provide information on when and for what duration PCE disposal actually occurred at the site. The data does generally show that PCE handling practices over a period of nearly 30 years has contributed to the on-site PCE contamination. Since the site was no longer used for dry cleaning after approximately 1981, it is anticipated that PCE releases occurred prior to this time.

2.3: Remedial History

The site remedial program is being performed by the Department under the NYS Superfund program. In April 2005, the Department first identified the site as a Potential (P) site during investigation activities being completed at

the nearby Carriage Cleaners site (828120) and Citgo Gasoline Station petroleum spill (Spill No. 0306131). A P site is a temporary classification assigned to a site that had inadequate and/or insufficient data for inclusion in any of the other classifications in the Registry of Inactive Hazardous Waste Disposal Sites in New York. As a result of identified hazardous waste disposal, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York in July 2007. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Investigations/actions performed to date at the Former Speedy's Cleaners site include the following:

- Former Speedy's Cleaners site was first identified during public meetings for the former Newcomb Oil/Citgo Gasoline Spill and Carriage Cleaners site in 2005;
- Site Characterization work completed in January 2007; and
- Subslab depressurization system installed as part of an IRM in March 2007;

SECTION 3: LAND USE

The Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings when assessing the nature and extent of contamination. For this site, alternatives that may restrict the use of the site to commercial criteria as described in Part 375-1.8 (g), are being evaluated in addition to unrestricted SCGs because, the site is currently used for commercial purposes. Further, the site is surrounded by other commercial and multi-residential land uses along the Monroe Avenue (NYS Route 31) corridor. It is expected that the commercial property use at 2150 Monroe Avenue will continue.

A comparison of the appropriate SCGs for the identified land use against the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in section 5.1.2.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include, Mr. John Casciani, the current site owner; Speedy Cleaners, Inc; and B.A. Speedy Realty, Inc.

The PRPs for the site declined to implement a remedial program when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation has been conducted to determine the nature and extent of contamination and to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the Remedial Investigation (RI) was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between November 2008 and February 2010. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Soil borings and monitoring well installations,
- Sampling of surface and subsurface soils, groundwater, and soil vapor,
- Sampling of groundwater, and
- Human Health Exposure Assessments.

5.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform with 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 surface and subsurface soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in the following Sections list the applicable SCG in the footnotes. For a full listing of all SCGs see:

http://www.dec.ny.gov/regulations/61794.html

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI Report.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the remedial investigation. As described in the RI report, source materials were identified at the site and are impacting groundwater and soil.

Waste/Source Areas

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site were substantial quantities

of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium.

Source areas identified at the site include subsurface soil with PCE at concentrations suggesting the presence of dense non-aqueous phase liquids. Specifically, PCE was detected at a maximum concentration of 830 ppm in a subsurface soil sample collected from a depth of approximately nine (9) feet beneath the ground surface from an area adjacent to the central-southeast side of the site building (DP-17 on Figure 2). Additionally, PCE was detected in a soil sample (DP-13 on Figure 2) collected from a depth of six (6) feet beneath the ground surface along the northeast side of the site building. There were no structures, storage tanks, drywells, or piping present that may explain the presence of these two source areas. Instead, the location of these source areas and the presence of PCE in soil at other locations of the site, suggest that disposal may have occurred where the site building was expanded and where an exterior storage shed was historically located. Subsurface soil data does suggest that these two source areas are fairly localized and restricted to the area along the central-southeast side and the northeast side of the site building.

The waste/source areas identified will be addressed in the remedy selection process.

This section describes the findings for all environmental media that were evaluated. As described in the RI report, groundwater and soil samples were collected to characterize the nature and extent of contamination.

For each media, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into four categories; volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), and inorganics (metals). For comparison purposes the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCG identified in Section 3 are also presented.

Groundwater

As summarized in Table 1 below, a total of 53 groundwater samples were collected from a network of monitoring wells installed as part of the Former Speedy's Cleaners RI along with existing monitoring wells that were installed as part of investigation activities completed at nearby sites (former Newcomb Oil/Citgo Gasoline Station spill site and the Carriage Cleaners site). During the RI, groundwater samples were collected from 36 monitoring wells during a January/March 2009 sampling event and from 12 wells during a July 2009 sampling event. Figure 3 illustrates the groundwater sampling results for the January/March 2009 sampling event and shows the approximate limits of groundwater contamination. The samples were collected to assess groundwater conditions on and off-site. With the exception of groundwater samples collected from off-site monitoring wells MW-1, -2, -3, -4, -5, and -6, the samples were collected from monitoring wells that straddle the overburden and shallow fractured bedrock.

Four (4) VOCs, including PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride were detected in on-site groundwater at concentrations exceeding the respective SCGs. PCE, detected at concentrations of 7,600 ppb and 22,000 ppb in monitoring well MW-212 during the January/March 2009 and July 2009 sampling events respectively, was the VOC detected at the highest concentration in site groundwater. MW-212 is located adjacent to the southeast side of the site building and in one of the source areas described above (Figure 3). The maximum TCE, cis-1,2-DCE, and vinyl chloride concentrations detected in site groundwater (180 ppb, 170 ppb, and 12 ppb respectively) were well below the maximum concentration of PCE detected in on-site groundwater. The highest TCE concentration (180 ppb) was detected in MW-212 located in the source area along

the southeast side of the site building and the highest cis-1,2-DCE, and vinyl chloride concentrations (170 ppb, and 12 ppb respectively) were detected in groundwater collected from MW-211 located in the source area near the northeast side of the site building (Figure 3).

As shown on Figure 3, eight (8) off-site monitoring wells (MW-201, MW-202, MW-202I, MW-203S, MW-204S, MW-205S, HA-118, and HA-119) were sampled and show that the groundwater contamination extends off-site in an east-northeast direction approximately 1,000 feet. Downgradient of the Former Speedy's Cleaners site, PCE was detected in MW-202 at maximum concentrations of 420 ppb and 1,100 ppb during the January/March 2009 and July 2009 sampling events respectively. MW-202 is located approximately 20 feet from the site property boundary (Figure 3). Further downgradient, PCE groundwater concentrations ranged from non-detect (HA-119) to 31 ppb (MW-204S). Cis-1,2-DCE and vinyl chloride were detected in groundwater samples collected from downgradient monitoring wells at concentrations above the PCE groundwater concentrations suggesting breakdown of the PCE contamination. Specifically, cis-1,2-DCE was detected at a maximum downgradient concentration of 190 ppb in groundwater from MW-203S and vinyl chloride was detected at a maximum downgradient concentration of 56 ppb in groundwater from HA-119.

The Former Speedy's Cleaners plume is partially coalesced with PCE groundwater contamination originating from the nearby Carriage Cleaners site (Figure 3). The presence of PCE (at concentrations ranging from non-detect to 230 ppb) in groundwater samples collected upgradient of the Former Speedy's Cleaners site at concentrations that are well below the concentrations of PCE (7,600 ppb and 22,000 ppb in MW-212 during the January/March 2009 and July 2009 sampling events respectively) detected in on-site monitoring wells, shows that a release occurred at the Former Speedy's Cleaners site. The detection of PCE in monitoring wells immediately upgradient of the Former Speedy's Cleaners site combined with the detection of PCE in groundwater at concentrations of 13,000 ppb and 29,000 ppb in MW-6 during the January/March 2009 and July 2009 sampling events respectively does however show that some fraction of contamination originating from Carriage Cleaners is migrating off-site toward the Former Speedy's Cleaners site.

Petroleum VOC contamination was also identified in groundwater at concentrations exceeding the respective SCGs in up to 17 of the groundwater samples collected during the Former Speedy's Cleaners RI. These petroleum contaminants are associated with the petroleum spill at the former Newcomb Oil/Citgo Gasoline Station and are being addressed under NYSDEC Petroleum Spill No. 0306131.

In addition to the collection of groundwater samples for VOC analysis, on-site groundwater was sampled and analyzed for SVOCs, PCBs, pesticides, and metals. Based on these analyses, no pesticides, PCBs, and SVOCs were detected in site groundwater. Two (2) metals, iron and sodium, were detected above the SCG in a groundwater sample collected from monitoring well MW-206 and sodium was detected above the SCG in a groundwater sample collected from monitoring well MW-212. These two (2) inorganic compounds occur naturally and are not associated with disposal at the site.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG

PCE	0.8 – 29,000	5	31 of 53
1,2-dichloroethene	1 – 1,200	5	10 of 12
Cis-1,2-dichloroethene	0.84 – 1,100	5	23 of 41
Xylene, m/p	0.36 – 1,400	5	8 of 52
Toluene	0.37 – 900	5	9 of 53
Ethylbenzene	0.29 – 590	5	17 of 52
TCE	0.52 – 350	5	20 of 53
Benzene	0.42 – 210	1	12 of 53
Vinyl Chloride	0.84 – 160	2	23 of 53
Xylene, o	1.4 – 570	5	5 of 52
Sodium	30,900 – 147,000	20,000	9 of 9
Iron	155 – 1,420	300	4 of 10

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The primary groundwater contaminants are PCE and PCE breakdown products including TCE, cis-1,2-DCE, and vinyl chloride. The PCE is associated with operation of a former dry cleaner at the site. As noted on Figure 3, the primary groundwater contamination is likely associated with PCE storage and handling practices along the northeast and southeast sides of the site building.

Based on the findings of the RI, the disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: PCE, and PCE breakdown products including TCE, cis-1,2-DCE, and vinyl chloride.

Soil

A total of 27 subsurface soil samples were collected at the site during the RI. The subsurface soil samples were collected from depths ranging from 4 - 12 feet beneath the ground surface to determine if a source area exists and to assess soil contamination impacts to groundwater. The results indicate that soil at the site exceeds the protection of groundwater SCGs for volatile organic compounds. The protection of groundwater soil cleanup objectives (SCOs) are used for the primary site contaminants (PCE and PCE breakdown products) that are present in groundwater at concentrations exceeding the groundwater SCGs.

Subsurface soil sampling at the Former Speedy's Cleaners site in 2006 documented the presence of PCE in site subsurface soil and subsequent soil sampling completed during the Former Speedy's Cleaners RI expanded on this initial sampling. The 27 soil samples were collected from 25 soil borings installed adjacent to and beneath the site building to locate previously unidentified source areas and to assess soil contamination impacts to groundwater. The results document PCE in site soil at concentrations ranging from 0.0014 ppm to 830 ppm and above the SCO of 1.3 ppm (protection of groundwater SCO).

As described above, the highest concentration of PCE (830 ppm) was detected in a soil sample collected from a depth of approximately 9 feet below ground surface near the central-southeast side of the site building (DP-17 on Figure 2). PCE was also detected above the protection of groundwater SCO in subsurface soil samples collected in three (3) nearby soil borings installed outside of the site building and from three (3) nearby soil borings installed beneath the site building. The soil samples in these six (6) borings were collected from the four (4) to nine (9) foot depth interval and contained PCE at concentrations ranging from 1.5 ppm to 35 ppm. As shown on Figure 2, the presence of PCE above the protection of groundwater SCO is confined to the area adjacent to and beneath the southeast and northeast sides of the site building. This corresponds to the area where the site building was expanded and where an external storage shed was maintained. No other VOCs were detected in soil samples collected at the Former Speedy's Cleaners Site at concentrations exceeding the protection of groundwater SCOs.

In addition to soil samples being collected for VOC analysis, a total of four (4) soil samples were additionally analyzed for SVOCs, PCBs, pesticides, and metals. Based on this sampling and as summarized in Table 2, no SVOCs or PCBs were detected above their respective SCGs in these soil samples. Zinc was detected (157 ppm) in one soil sample (DP-007 on Figure 2) at a concentration slightly above the SCG (109 ppm), but below the zinc concentrations detected in one of the three background soil samples (200 ppm). One pesticide, Dieldrin, was detected in a subsurface soil sample at a concentration of 0.016 ppm and slightly above the SCG of 0.005 ppm.

Table 2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Restricted SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Tetrachloroethene	0.0014 - 830	1.3[d]	8 of 27	150	1 of 27
Zinc	40.7 - 157	109	1 of 4	10,000	0 of 4
Dieldrin	ND – 0.016	0.005	1 of 4	1.4	0 of 4

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Commercial Soil Cleanup Objectives.
d - SCG: Part 375-6.8(a), Protection of Groundwater Soil Cleanup Objective

Similar to the primary contaminant in site groundwater, PCE is the primary contaminant present in site soil and is associated with operation of a former dry cleaner at the site. Historic expansion of the site building along with the distribution of PCE in site soil suggests that soil contamination is associated with PCE storage and handling practices along the northeast and southeast sides of the site building.

Although zinc was detected in one soil sample slightly above the SCG, the concentration is consistent with concentrations of zinc detected in background soil samples (107 to 200 ppm) and is not associated with disposal at the Former Speedy's Cleaners site. The pesticide Dieldrin was detected in a soil sample collected from a grassy area between the site building and an adjacent multi-residential building. Dieldrin was not detected in soil samples collected from other parts of the site and is not considered a site specific contaminant.

Based on the findings of the Remedial Investigation, the disposal of hazardous waste has resulted in the contamination of soil. The site contaminant identified in soil which is considered to be the primary contaminant of concern, to be addressed by the remedy selection process is PCE.

Surface Water

No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

No site-related sediment contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for sediment.

Soil Vapor Intrusion

Since the potential for soil vapor intrusion was evaluated during an initial evaluation as part of the Carriage Cleaners remedial investigation, the Former Speedy's Cleaners RI did not include the collection of soil vapor intrusion samples. Based on the earlier soil vapor intrusion sampling, a subslab depressurization system (SSD) was installed at the on-site building in March 2007 by the owner to address current indoor air contamination of volatile organic compounds associated with soil vapor intrusion. The potential for vapor intrusion for off-site properties may be further evaluated as part of the final site remedy.

Based on the findings of the Remedial Investigation, the disposal of hazardous waste has resulted in the contamination of soil vapor. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of soil vapor to be addressed by the remedy selection process are, PCE, TCE, cis-1,2-DCE, and vinyl chloride.

5.2: 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 Record of Decision.

There were no IRMs performed at this site during the RI.

5.3: Summary of Human Exposure Pathways:

This section describes the current or potential human exposures (the way people may come in contact with contamination) that may result from the site contamination. A more detailed discussion of the human exposure pathways can be found in the RI report available at the document repository. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g.,

ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

The surrounding area is served by public water and the site is paved or covered by the on-site structure; therefore, exposures to drinking contaminated groundwater or exposures to contaminated surface soils are not likely. The potential for exposures related to soil vapor intrusion has been evaluated on-site and the potential for exposure has been addressed through the installation and operation of a sub-slab depressurization system. However, a potential exists for people to be exposed to site-related contaminants as follows:

- Workers who dig or enter excavations on-site or off-site could potentially be exposed to contaminated soil through dermal contact and/or incidental ingestion.

- Inhalation of VOCs from contaminated groundwater could occur via soil vapor intrusion into the indoor air of overlying structures off-site.

5.4: 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 did not identify any current or potential impacts to ecological resources.

Surface water resources at or near the site include a small unnamed tributary to the Allen Creek. This unnamed tributary is located over 1,000 feet northwest of the site and flows to the northeast toward Irondequoit Creek. The majority of surface water runoff from the site is captured by the Monroe County Pure Waters stormwater collection system and no current or potential site-related surface water impacts have been identified.

Groundwater resources at the site include a shallow groundwater unit that occurs in the interface between the overburden and shallow bedrock. Contamination originating from the site has impacted the groundwater resources in this overburden and shallow bedrock groundwater unit. Data collected during the RI indicates that the depth to groundwater is approximately six (6) to ten (10) feet beneath the ground surface and flows from the site to the east-northeast. The highest contaminant concentrations were detected in the interface between the overburden and shallow on-site bedrock groundwater, but the plume extends off-site approximately 1,000 feet to the east-northeast.

Site related contamination is impacting groundwater. The groundwater is not used as a source of potable water. Protection of the groundwater resource will be addressed in the remedy selection process.

SECTION 6: 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 objectives for this site are:

Public Health Protection

Groundwater

- Prevent people from drinking groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with contaminated groundwater.
- Prevent inhalation of contaminants from groundwater.

Soil

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

Soil Vapor

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

Environmental Protection

Groundwater

- Restore the groundwater aquifer to meet ambient groundwater quality criteria, to the extent feasible.
- Prevent discharge of contaminated groundwater to surface water.

Soil

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

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is presented below. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to

evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following alternatives were considered to address the contaminated media identified at the site as describe in Section 5:

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 5.2. This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

Alternative 2: No Further Action with Site Management

The No Further Action with Site Management Alternative recognizes the remediation of the site completed by the IRM described in Section 5.2 and Site Management, which includes Engineering Controls and Institutional Controls, is necessary to confirm the effectiveness of the IRM. This alternative maintains engineering controls which were part of the IRM and includes institutional controls, in the form of an environmental easement and site management plan, necessary to protect public health and the environment from contamination remaining at the site. As part of the site management plan, groundwater monitoring both on-site and downgradient of the site would be conducted to ensure that contaminant concentrations are decreasing over time.

Present Worth: *$260,000*
Capital Cost: *$19,000*
Annual Costs: *$15,000*

Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 5.1.1 and soil would meet the protection of groundwater soil cleanup objectives listed in Part 375-6.8 (a). This alternative would include excavation and off-site disposal of PCE contaminated soil located in the two source areas adjacent to the northeast and southeast sides of the site building (DP-13 and DP-17 areas respectively on Figure 2), the addition of biological amendments into the open excavations, as well as upgradient injections of biological amendments. The excavation of PCE contaminated soil prior to the introduction of the enhanced biodegradation amendment would remove a potential continuous source of contamination at the site. Contaminant concentrations outside of the excavation areas can be effectively treated by use of the biological amendments. Additionally, and to treat soil that is inaccessible beneath the site building, this alternative would include the installation of an SVE system to treat vadose zone soil both beneath the building and immediately downgradient of the building.

To address the residual contamination present in groundwater off-site, in-situ enhanced biodegradation would be included. Based on the orientation and length of the groundwater plume, a series of biological amendment injections would be completed in three separate right-of-ways downgradient of the site. Following implementation of the remedial alternative, groundwater monitoring both on-site and downgradient from the site would be conducted for up to 30 years to evaluate the effectiveness of the alternative.

It is expected that it would take approximately one (1) year to design and implement the remedy. Costs are based on completing a pre-design investigation; excavation and off-site disposal of contaminated soil; purchase and introduction of the biological amendments; design, construction, and operation of the SVE system; site restoration; and long-term groundwater quality monitoring.

Present Worth: *$3,300,000*
Capital Cost: *$1,800,000*
Average Annual Costs: *$81,000*

Alternative 4: Soil Vapor Extraction and Air Sparging

Alternative 4 involves the installation and operation of a soil vapor extraction (SVE) and air sparging system to reduce contaminant concentrations within the vadose and saturated zones immediately downgradient of the site building to achieve the SCGs. This alternative does not directly influence contaminants located beneath the building. However, the existing subslab depressurization system (an active interim remedial measure) will continue to operate.

This alternative would include a combination of soil vapor extraction wells and air sparging wells to remove VOCs from groundwater, saturated soil, and vadose zone soil on-site. The air sparging wells add air to the groundwater promoting the evaporation of VOCs into the vadose zone where they would be removed through a series of SVE wells. Vapors extracted from the ground would be treated with activated carbon prior to discharge to the atmosphere. This alternative assumes that the SVE and air sparging system would require operation, monitoring and maintenance for an estimated 15 years, and that groundwater monitoring would occur for 30 years to evaluate the effectiveness of the system.

It is expected that it would take approximately one (1) year to design and implement the remedy. Costs are based on completing a pre-design investigation, installation and operation of the air sparging with SVE system, and long-term groundwater quality monitoring.

Present Worth: *$2,000,000*
Capital Cost: *$560,000*
Annual Costs: *$78,000*

Alternative 5: In-Situ Enhanced Biodegradation

Alternative 5 consists of in-situ enhanced biodegradation to reduce contaminant concentrations within the plume and to achieve chemical-specific SCGs. Specifically, Alternative 5 includes the injection of a biological amendment into the groundwater upgradient of the existing site building through a series of temporary injection points. The amendments used for in-situ enhanced biodegradation are typically long-lasting and migrate with groundwater flow, and therefore are expected to reach the impacted area located beneath and downgradient of the site building. Based on the groundwater flow direction and velocity, it is expected that one row of injection points at an approximate 10-foot spacing (up to 10 points), located upgradient of the site building would be sufficient to distribute the amendments under the building and to other on-site VOC impacted areas. Since injections will not occur throughout the entire impacted area, it is anticipated that the total dose of amendments would be split up into two injection events approximately 6 months apart, and that the second round of injections would be slightly staggered from the first to allow for a greater distribution.

Enhanced biodegradation would treat the plume as the biological amendment flows with groundwater through the treatment area. Long-term groundwater monitoring within the treatment zone and downgradient of the site would be conducted for up to 30 years.

It is expected that it would take approximately one (1) year to design and implement the remedy. Costs are based on completing a pre-design investigation, purchase and injection of the biological amendments for two (2) events, and long-term groundwater quality monitoring.

Present Worth: *$520,000*
Capital Cost: *$100,000*
Annual Costs: *$25,000*

Alternative 6: On-Site Excavation and In-Situ Enhanced Biodegradation

Alternative 6 relies on the excavation of PCE contaminated soil from two areas, combined with in-situ enhanced biodegradation to achieve chemical-specific SCGs on-site and to reduce the contaminant concentrations within the remaining portions of the plume.

This alternative would include the excavation of approximately 90 cubic yards of PCE contaminated soil from two source areas adjacent to the southeast and the northeast sides of the site building (Figure 4). Prior to backfilling the excavations, biological amendments will be added to the groundwater to treat residual soil and groundwater contamination downgradient and adjacent to the excavations. The excavation areas will then be backfilled and a perforated pipe will be installed in the middle of the excavations to facilitate the introduction of any future biological amendments. The excavation of PCE contaminated soil prior to the introduction of the enhanced biodegradation amendments would remove a potential continuous source of contamination at the site. Since the protection of groundwater SCO (1.3 ppm) is only marginally exceeded in two (2) soil samples near the source areas (DP-16 and DP-18 on Figure 2), these locations will not be included in the excavation of contaminated soil. Instead, the residual PCE contamination remaining outside of the excavation areas will be effectively treated through the injection of biological amendments.

To address the presence of PCE in soil beneath and downgradient of the site building at concentrations marginally above the protection of groundwater soil cleanup objective, Alternative 6 additionally includes the injection of a biological amendment into the groundwater upgradient of the existing site building through a series of temporary injection points (as described in Alternative 5 and shown on Figure 4).

Following the excavation and injection activities, groundwater monitoring within the treatment zone and downgradient of the site would be conducted.

It is expected that it would take approximately one (1) year to design and implement the remedy. Costs are based on completing a pre-design investigation, excavation and off-site disposal of contaminated soil, extraction and treatment of groundwater during the excavation, purchase and introduction of the biological amendments, site restoration, and long-term groundwater quality monitoring.

Present Worth: *$750,000*
Capital Cost: *$310,000*
Annual Costs: *$26,000*

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which sets forth the requirements for the remediation of inactive hazardous waste disposal sites in New York. A detailed discussion of the evaluation criteria and comparative analysis is included in the feasibility study report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in the Remedial Alternatives Cost Table 3

Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Action	0	0	0
Alternative 2: No Further Action with Site Management	19,000	15,000	260,000
Alternative 3: Restoration to Pre-Disposal Conditions	1,800,000	81,000	3,300,000
Alternative 4: Soil Vapor Extraction and Air Sparging	560,000	78,000	2,000,000
Alternative 5: In-Situ Enhanced Biodegradation	100,000	25,000	520,000
Alternative 6: On-Site Excavation and In-Situ Enhanced Biodegradation	310,000	26,000	750,000

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 6, On-Site Excavation and In-Situ Enhanced Biodegradation as the remedy for this site. The elements of this remedy are described at the end of this section.

8.1 Basis for Selection

The proposed remedy is based on the results of the RI and the evaluation of alternatives.

Alternative 6 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the balancing criterion described in Section 7.2. It would achieve the remediation goals for the site by removing the contaminated soils from the source areas adjacent to the southeast and northeast sides of the site building and by treating the remaining contaminated soil and groundwater through the use of in-situ enhanced biodegradation. This alternative will provide immediate improvements to soil and groundwater quality whereas the other alternatives, except for the restoration to pre-disposal alternative (Alternative 3), would require significant time before any benefits are realized.

Alternative 1 (No Action) does not provide protection to public health and the environment and will not be evaluated further. Alternative 2 (No Further Action with Site Management) provides protection to public health by means of institutional controls but does not provide active remediation to protect the environment and will not be evaluated further. Alternatives 4 (Soil Vapor Extraction and Air Sparging) and 5 (In-Situ Enhanced Biodegradation) are likely to meet the threshold criteria but may have difficulties in effectively treating the source area and therefore have a lower certainty than Alternatives 3 (Restoration to Pre-disposal Conditions) and 6 (On-Site Excavation and In-Situ Enhanced Biodegradation). Through the on-site treatment of both contaminated soil and groundwater combined with the treatment of contaminated off-site groundwater, Alternative 3 (Restoration to Pre-disposal Conditions) would be more effective in reducing the total mass of VOC groundwater contamination and would provide more protection to human health and the environment than the other alternatives. Because Alternatives 3, 4, 5, and 6 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site.

Alternatives 3 through 6 rely on active remedial approaches combined with long-term groundwater monitoring to achieve groundwater SCGs. Based on the persistent nature of the contaminants and the length of the off-site groundwater plume, however, it is not expected that Alternatives 4, 5, and 6 would achieve the groundwater SCGs in all areas of the groundwater plume in the near future. Alternative 3, including the injection of biological amendments over the length of the groundwater plume (both on-site and off-site), would be the most effective alternative in achieving the SCGs in the near future.

Since each alternative includes established technologies that have commonly been applied during cleanup programs, possible short-term impacts on the community, workers, and the environment can easily be controlled using standard work practices and engineering controls during remedy implementation. Because Alternative 3 involves the injection of biological amendments in three (3) right-of-way off-site areas, this alternative would have the greatest short-term impact on the local community.

The time needed to achieve the remediation goals is the shortest for Alternative 3 (Restoration to Pre-disposal Conditions) because this alternative involves on-site and off-site treatment and Alternative 6 (On-Site Excavation and In-Situ Enhanced Biodegradation) because this alternative involves excavation of the most contaminated soil (source areas near the southeast and northeast sides of site building) combined with the on-site injection of biological amendments in two areas to address residual contamination in soil and groundwater. Alternatives 4 and 5 would require the longest amount of time to achieve the remediation goals.

Long-term effectiveness is best accomplished by those alternatives involving removal of the source area, which in this case is a common element to Alternatives 3 and 6. Since the concentrations in the source area are high enough to suggest that potential DNAPL conditions exist and the source areas represents a continuous source of contamination to downgradient groundwater, removal of the source area provides the best long-term effectiveness. Alternatives 4 and 5, involving SVE with air sparging and in-situ enhanced biodegradation respectively, may have

difficulties treating the high concentrations present in the source areas. As such Alternatives 4 and 5 could potentially allow continued long-term contaminant migration during treatment.

The excavation and off-site disposal portion of Alternatives 3 and 6, reduces the toxicity, mobility and volume of on-site waste by transferring the material to an approved off-site location. However, depending on the disposal facility, the volume of the material would not be reduced. Although the volume of the contaminated soil is not necessarily reduced, the excavation would achieve a significant reduction in toxicity and mobility of the site contaminants. Alternative 5 and the enhanced biological treatment portion of Alternatives 3 and 6 would permanently reduce the toxicity; mobility and volume of contaminants by use of biological enhancements for treatment. Alternative 4 would reduce the toxicity and mobility of the contaminants in the ground, however, the extracted vapors would be treated through activated carbon which would require additional treatment and/or disposal which may not reduce the overall volume of contaminants.

Alternatives 3, 4, 5, and 6 are readily implementable. However, the site property is small, contains active commercial businesses, and is immediately bounded by two roadways and a large apartment complex. With the installation and long-term operation of an SVE and air sparging system, Alternative 4 would cause the most significant disruption to regular business operations. Alternative 5 (In-Situ Enhanced Biodegradation) requires the least amount of room and time, and therefore would be the easiest to implement given the site specific limitations.

The costs of the alternatives vary significantly. Alternative 5 has a low cost, but may not be successful at addressing the source area. Alternative 3, with on-site treatment of the source area combined with treatment of the off-site groundwater plume and Alternative 4 involving design, construction, and operation of the air sparging and SVE system have the largest capital costs. These two alternatives also have the largest present worth due to high annual costs while in operation. Alternative 6 is less than half the total present worth and capital cost of Alternative 4 and significantly more cost effective than Alternative 3 (Restoration to Pre-Disposal Conditions). The total present worth for Alternative 6 is approximately 20% higher than the total present worth for Alternative 5 (In-Situ Enhanced Biodegradation), but the On-Site Excavation and In-Situ Enhanced Biodegradation (Alternative 6) provides a much higher degree of confidence in meeting the clean up objectives.

Through the excavation and off-site disposal of contaminated soil from the source areas, Alternatives 3 and 6 would achieve the protection of groundwater SCOs to the extent practicable. Alternatives 3 and 6 also include the addition of biodegradation amendments for the treatment of any residual soil outside of the excavation areas and beneath the site building containing PCE at concentrations above the protection of groundwater SCO. Unlike Alternatives 3 and 6, it is possible that Alternatives 4 and 5 may require a Site Management Plan to address soil remaining at the site above the protection of groundwater SCO.

Alternative 6 (On-Site Excavation and In-Situ Enhanced Biodegradation) is preferred because it can be implemented quickly, will remove the most contaminated soil during the two source area excavations, and includes an approach to effectively treat the residual VOC contamination in the groundwater plume over the long term. Alternative 6 will not require above ground structures that may interfere with site operations and will not require long-term operation and maintenance of an active remedial system. With removal of the source material and treatment of residual VOC contamination under Alternative 6, the off-site migration of VOC contamination will be reduced over the long-term.

The estimated present worth cost to implement the remedy is $750,000. The cost to construct the remedy is estimated to be $310,000 and the estimated average annual costs for 30 years is $26,000.

8.2 Elements of the Proposed Remedy

The elements of the proposed restricted use remedy are as follows:

1. A remedial design program, including pre-design investigations, would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Contaminated soil from two areas adjacent to the southeast and northeast sides of the site building will be excavated to fractured bedrock, which is estimated to occur at a depth of approximately 12 feet beneath the ground surface. It is expected that the two excavations will remove PCE source areas and will achieve the protection of groundwater SCOs to the extent practicable. As shown on Figure 4, it is assumed that the two excavations will be approximately 10-feet by 10-feet in surface area, but this would be confirmed during the pre-design investigations. Soil will be segregated for re-use (assume top 3 feet) and for off-site disposal. Groundwater will be extracted and treated through a temporary on-site treatment unit during the excavation. Verification samples will be collected to document the quality of soil left in-place and that will be treated with the biological amendments.

3. Prior to backfilling the source area excavations, groundwater pumping will cease, allowing the excavation to fill with groundwater, and biological amendments will be added to the groundwater to treat the soil and groundwater downgradient of the excavations. Both excavations will then be backfilled. A distribution pipe will be installed in the middle of the excavations to facilitate the addition of biological amendments in the future. Prior to backfilling the excavations, a demarcation material will be placed in the excavations to differentiate between material left in place from clean fill material used as backfill. The excavations will be finished as per current conditions for continued used as a parking area.

4. Injections of biological amendments via direct injections will be conducted upgradient of the on-site building (Figure 4). An estimated 10 injection points at 10-foot spacing will be advanced and biological amendments will be injected from approximately 7 feet to 12 feet below grade.

5. Additional biological amendments will be added to the subsurface approximately six months after the initial injection. The upgradient injections will be completed similarly to the initial injections and the distribution pipe inside the source area excavations will be used to introduce additional amendments in the excavation areas.

6. Groundwater monitoring, primarily sampling for VOCs, will be conducted within the treatment area and downgradient of the treatment area to evaluate the effectiveness of the remedial alternative and determine the need for additional biological amendments.

7. To maximize the net environmental benefit, Green remediation and sustainability efforts are considered in the design and implementation of the remedy to the extent practicable, including;
   - reducing green house gas emissions;
   - encouraging low carbon technologies; and
   - conserving natural resources.

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

(a) 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).
(b) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;
(c) requires compliance with the Department approved Site Management Plan;

9. Since the remedy results in contamination remaining at the site that does not allow for unrestricted use, a Site Management Plan is required, which includes the following:

(a) a 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 assure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The restriction of groundwater at the site as a source of potable or process water as discussed in Paragraph 8 above.

Engineering Controls: The continued operation and maintenance of the sub-slab depressurization system discussed in Section 5.2 above.

This plan includes, but may not be limited to:

(i) descriptions of the provisions of the environmental easement including groundwater use restrictions;
(ii) provisions for the management and inspection of the identified engineering controls;
(iii) maintaining site access controls and Department notification; and
(iv) 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 is not limited to:

(i) monitoring of groundwater to assess the performance and effectiveness of the remedy;
(ii) a schedule of monitoring and frequency of submittals to the Department; and
(iii) provision to evaluate the potential for vapor intrusion for off-site buildings, including provision for mitigation of any impacts identified.

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Brighton, NY

MACTEC

Site Features

Project 3612-08-2109

FIGURE 1

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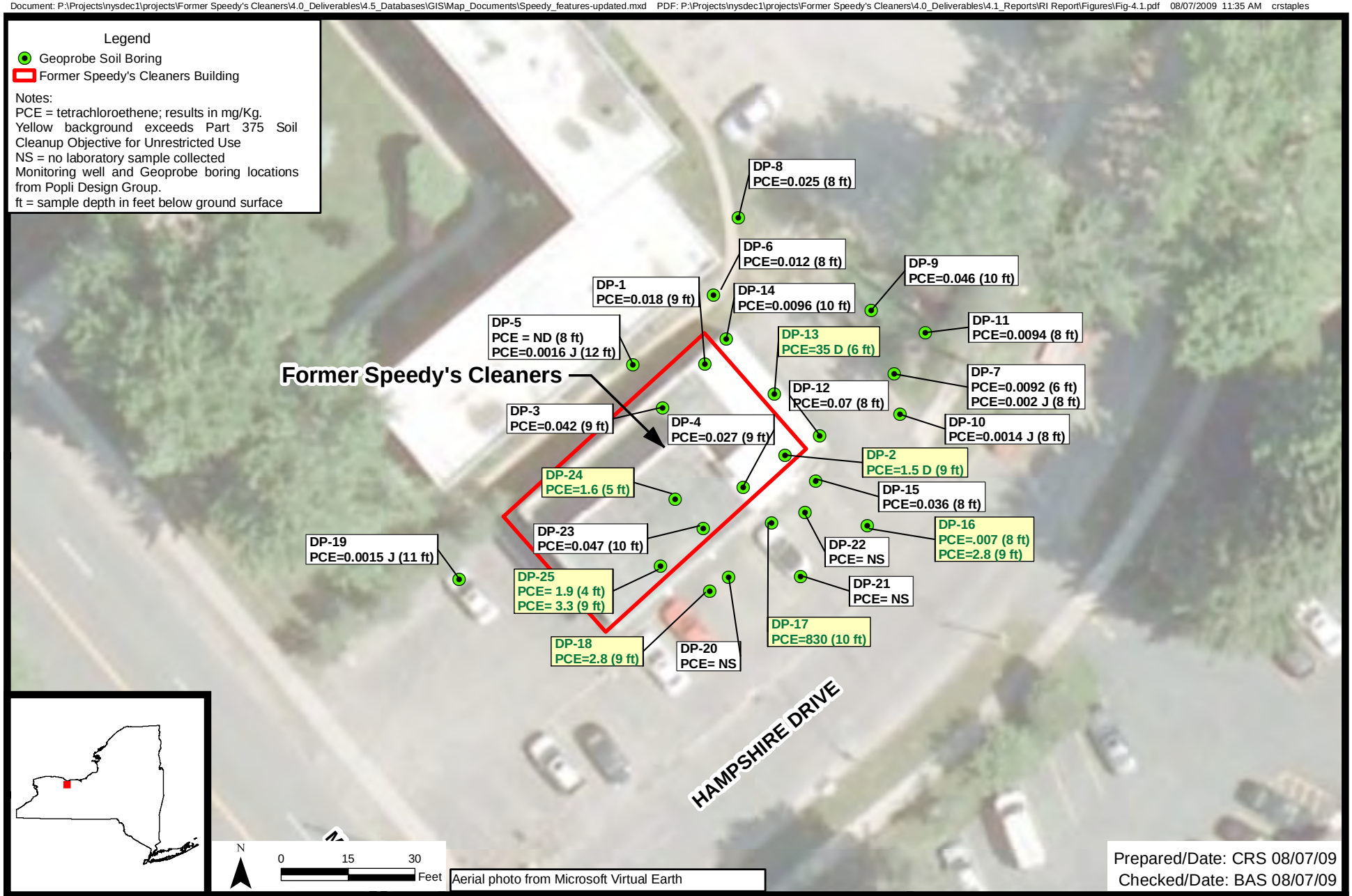

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Checked/Date: BAS 08/07/09

NYSDEC
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Brighton, NY

MACTEC

PCE Concentrations in Soil

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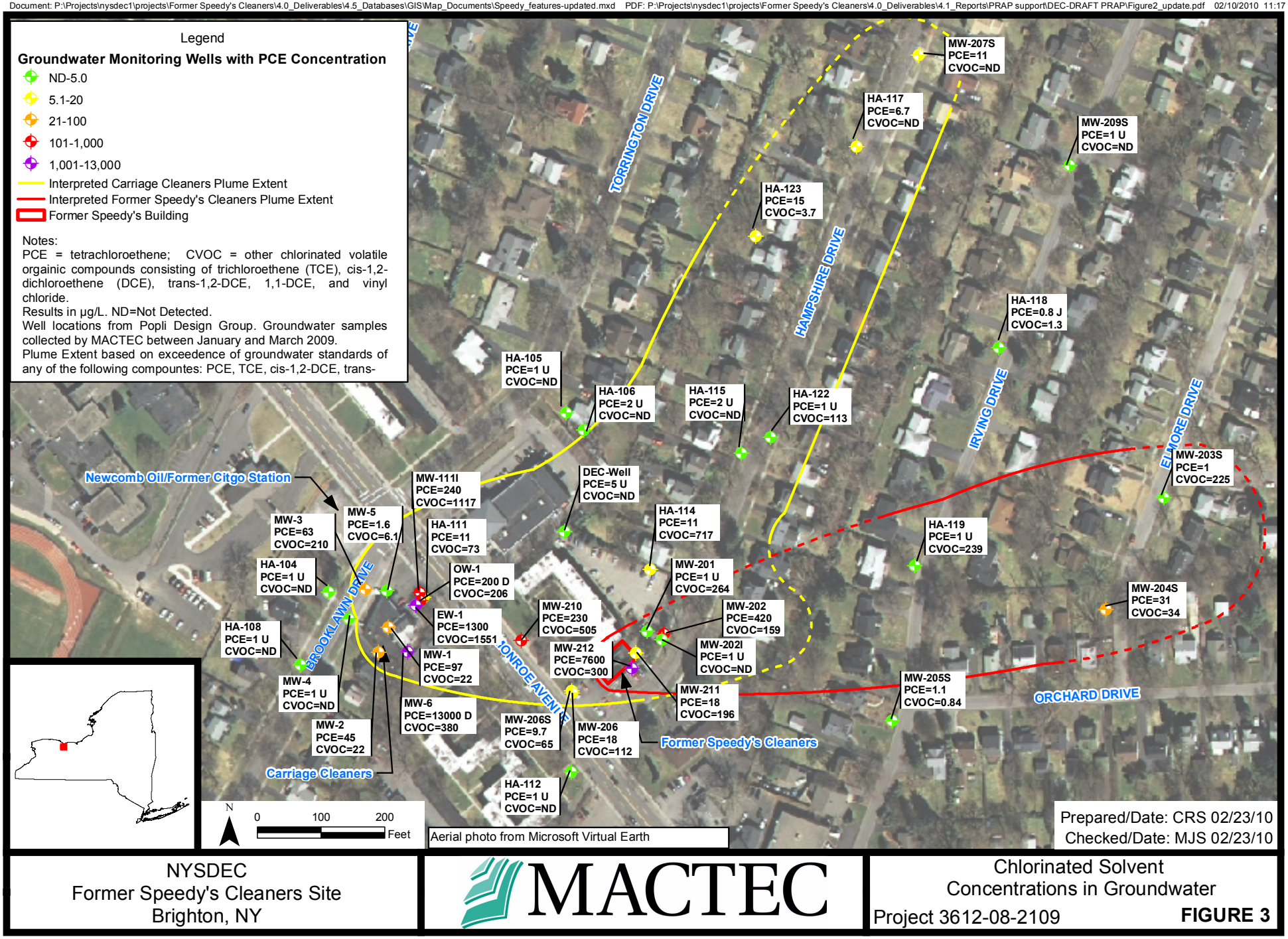
FIGURE 2



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Chlorinated Solvent
Concentrations in Groundwater

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FIGURE 3

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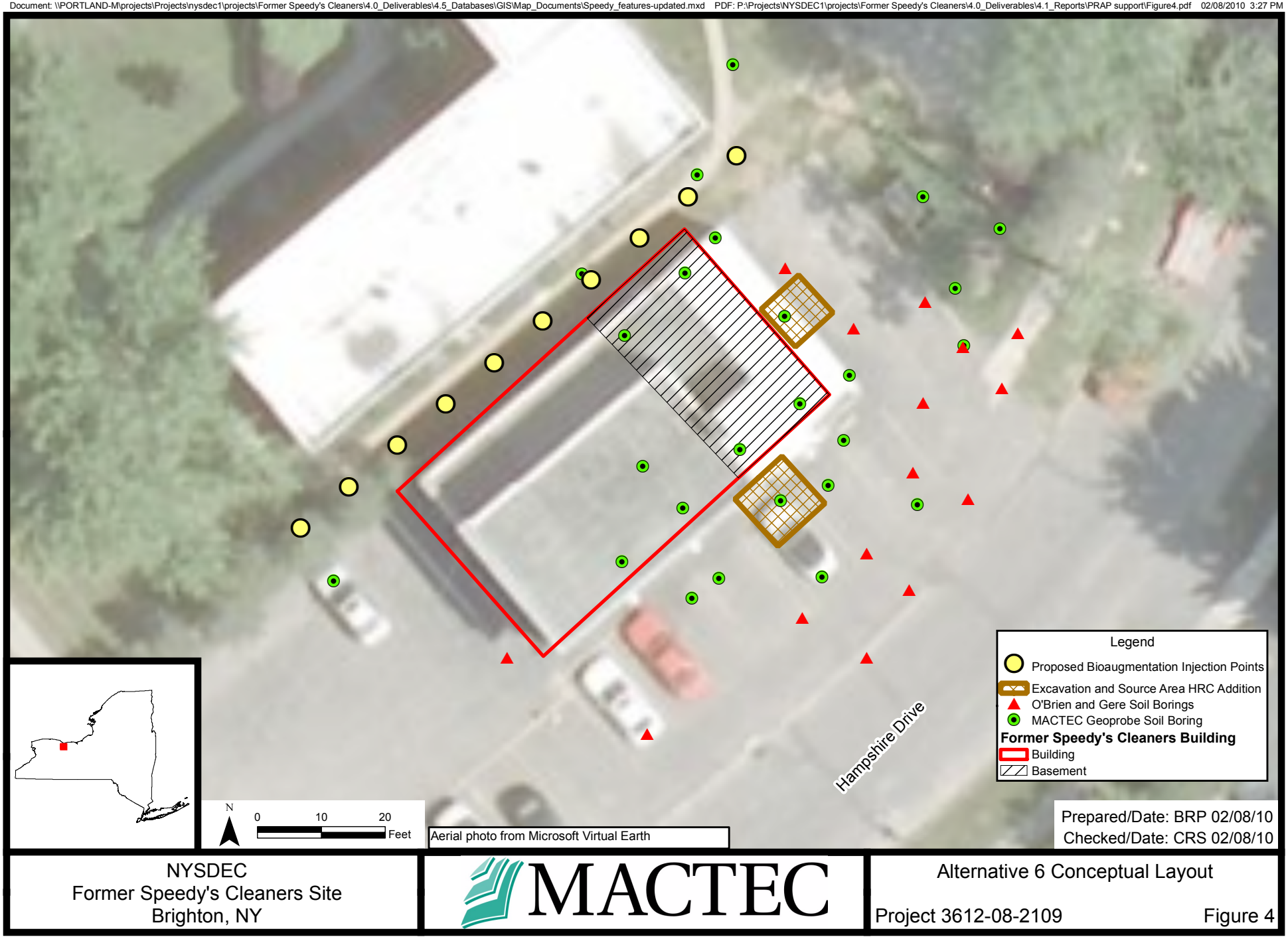

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Alternative 6 Conceptual Layout

Project 3612-08-2109 Figure 4