Alternatives Analysis Report

3130 Monroe Avenue
Town of Pittsford, New York

ECL Article 27/Title 14

NYSDEC Site # C828109

Prepared for:

Christopher Williams Agency
26 S Main Street, P.O. Box 499
Pittsford, NY, 14534 •

Prepared by:
Passero Associates
100 Liberty Pole Way
Rochester, NY 14604
585-325-1000

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1.0 INTRODUCTION

This Alternatives Analysis Report (AAR) provides a summary of remedial alternatives evaluated and selects remedial actions to be implemented for the Brownfield Cleanup Program (BCP) site at 3130 Monroe Avenue in the Town of Pittsford, New York (NYSDEC Site # C828109) (the "Site").

The remedial alternatives were evaluated based on Phase II data generated by Passero Associates in 1999 and by Harding Lawson Associates in 2003, and during the Remedial Investigation conducted in 2005-2006.

2.0 BACKGROUND

The Speedy's Cleaners site is located at 3130 Monroe Avenue in the Town of Pittsford, New York (Figure 1). It is an approximately 0.27-acre parcel improved with one building: the west side of the building was operated as Speedy's Cleaners dating back to the 1950s. Speedy's Cleaners operated a dry cleaning operation, and subsequently a drop-off/pick-up location.

The adjacent property at the north side of the Site is the Rochester Gas & Electric (RG&E) right-of-way; the Oak Hill Country Club golf course is north of the RG&E parcel. There are commercial properties to the east and west of the site, and Monroe Avenue and Wegman's Food Market and parking lot are to the south.

The historic Speedy's Cleaners lease space on the west side of the building is currently occupied by Star Classic Nails, Inc. (Star Nails). The east side is currently occupied by Optometrix (dba Pittsford Optical).

2.1 Passero Associates 1999

In February 1999, Passero Associates conducted a Phase I Environmental Site Assessment (ESA) of the subject property. In our ESA we indicated two potential recognized environmental conditions regarding:

1. an out-of-service underground fuel oil tank at the southwest corner of the building, and

2. potential site contamination with the dry-cleaning solvent tetrachloroethylene (a/k/a perchloroethylene, or PCE).

In March 1999, Passero Associates supervised the removal of one 1000-gallon underground storage tank (UST) that had historically been used to store #2 fuel oil at the southwest corner of the Speedy's building. During the UST removal, petroleum-contaminated soil was encountered, and free product (fuel oil) was found seeping into the excavation; the NYSDEC assigned spill number 9870611. To remediate petroleum-contaminated soil, Passero excavated soils to the north of the UST for off-site disposal at Mill Seat Landfill. Four injection wells were

installed in October and November 1999 as part of a bioremediation program. Based on groundwater analyses and post excavation soil sample results, the NYSDEC Spills Department closed Spill # 9870611 with no further action required regarding the petroleum contamination on February 15, 2002.

In March and May 1999 14 soil borings were completed to determine the extent of contamination from the fuel oil spill, as well as potential chlorinated solvent contamination. The highest concentrations of chlorinated solvents were detected in the RG&E right-of-way near the northern corner of the building. Chlorinated solvents detected in the right-of-way are summarized below:

PCE was detected at a concentration of 748,000 µg/Kg (748 parts per million). The NYSDEC Part 375, Table 375.6.8(b) Soil Cleanup Objective for Restricted Commercial Use for PCE is 150 ppm. The NYSDEC Part 375, Table 375.6.8(b) Soil Cleanup Objective for Protection of Groundwater for PCE is 1.3 ppm.

Trichloroethene (TCE) was detected at a concentration of 5.4 ppm. The NYSDEC Part 375, Table 375.6.8(b) Soil Cleanup Objective for Restricted Commercial Use for TCE is 200 ppm. The NYSDEC Part 375, Table 375.6.8(b) Soil Cleanup Objective for Protection of Groundwater for TCE is 0.47 ppm.

To remediate petroleum-contaminated soil, Passero excavated soil on the southwest side of the building in the vicinity of the former UST. Four injection wells were installed in October and November 1999 as part of a bioremediation program. Passero injected a 55-gallon drum of bacterial solution supplied by Lambda Bioremediation into the injection wells for in-situ bioremediation of the remaining petroleum contaminated soil and groundwater.

On October 21, 2001 Passero collected groundwater samples for volatile organic compound (VOC) analysis and semi volatile organic compound (SVOC) analysis by USEPA methods 8260 and 8270 from three on-site wells northwest of the former UST location. Cis-1,2-dichloroethene (DCE) (7 µg/L), vinyl chloride (6 µg/L) and benzene (2 µg/L) were the only compounds detected in the samples from the three wells at concentrations greater than the NYS Class GA groundwater standards.

On February 15, 2002 the NYSDEC Spills Department closed Spill # 9870611 with no further action required regarding the petroleum contamination, and referred the chlorinated solvent contamination to the Hazardous Waste Remediation Program

2.2 Harding Lawson Associates 2003

Harding Lawson Associates investigated the Speedy's site and the adjacent RG&E right-of-way to determine whether chlorinated solvent contamination had originated from the Site and migrated off site in groundwater, and to collect sufficient information to allow for NYSDEC re-classification of the site. Harding Lawson's Final Preliminary Site Assessment Report is included in Appendix 1 of the Passero Associates Remedial Investigation Report (RIR).

Harding Lawson determined the following:

1. Evidence of hazardous waste use and disposal at the Site was documented.

2. PCE was detected in soil 5 feet northeast of the Speedy's Cleaners back door, and 3 feet BGS, at a concentration of 110 ppm.

3. Based on analyses of soil samples collected, PCE contamination in soil is concentrated around the northern corner of the Site building.

4. Chlorinated solvents were detected in groundwater samples collected from the Site at concentrations exceeding the NYS Class GA groundwater standards.

5. Fuel-related volatile organic compounds (VOCs) including toluene, ethylbenzene, m,p-xylene, and o-xylene were detected in groundwater samples at concentrations up to 250 micrograms per liter (µg/L) (equivalent to parts per billion); the NYS Class GA groundwater standard for each of the fuel-related VOCs is 5 µg/L.

6. The groundwater flow direction is to the northeast, toward the Oak Hill Country Club.

The majority of the contamination detected by Harding Lawson was in the RG&E right-of-way, north of the subject site. The only chlorinated compounds detected by Harding Lawson on the subject of this BCP were 28 µg/L of PCE, and associated breakdown products in groundwater by Speedy's back door at the subject site border with the RG&E right-of-way.

2.3 Interim Remedial Measure

Active Sub-Slab Depressurization (ASD)

Based on the results of the air testing discussed in Section 3.1, an Active Sub-Slab Depressurization (ASD) system was installed by Mitigation Technology in April

2006 as a Time Critical Interim Remedial Measure (IRM). Details of the ASD are discussed in the RIR.

3.0 SUMMARY OF THE REMEDIAL INVESTIGATION

Soil Vapor Intrusion

The air data from 2005 for both TCE and PCE, when compared to the NYSDOH Soil Vapor/Indoor Air Matrices 1 and 2 indicated that mitigation was warranted. An ASD was subsequently installed my Mitigation Technology as a Time Critical IRM.

PCE was detected in the sub-slab air sample at a concentration of 18,000 ug/m^3 in September 2005; the NYSDOH Soil Vapor/Indoor Air Matrix 2 indicates that mitigation is required if sub-slab are values for PCE are > 1000 ug/m^3.

TCE was detected in the sub-slab air sample at a concentration of 860 ug/m^3 in September 2005; the NYSDOH Soil Vapor/Indoor Air Matrix 2 indicates that mitigation is required if sub-slab are values for TCE are > 250 ug/m^3. The ASD was installed by Mitigation Technology in April 2006 as a Time Critical Interim Remedial Measure (IRM). Details of the ASD are in Appendix 5 of the RIR.

As indoor air samples continued to indicate elevated levels of PCE in indoor air samples, Mitigation Technology added additional vacuum points beneath the slab to increase the ASD efficiency. Several modifications were made to the system since its initial installation. Adjustments to valves on the system piping have been made at various times to optimize system performance. A higher power fan was installed in March 2008 to increase the vacuum pressure. In March 2009, the fan was repaired and a 3-inch diameter pipe was installed to increase the sub-slab air flow. The ASD system has operated continuously since May 2006.

Soil

The VOCs acetone; benzo(g,h,i)perylene; vinyl chloride; TCE; cis-1,2-DCE; and trans-1,2-DCE were detected in concentrations greater than the Soil Cleanup Objectives (SCO) for Unrestricted Use around and beneath the historic Speedy's Cleaners building; the concentrations for all parameters are at least one order of magnitude less than the SCOs for Restricted Commercial Use for each of these compounds.

All of the site soils are underneath the subject building or underneath the surrounding asphalt parking lot. Potential exposure exists through direct contact with these soils if future excavation is performed that disturbs these soils. There is also potential for inhalation exposure via soil vapor intrusion that has been mitigated by the installation of the ASD.

Groundwater

Three of the four on-site monitoring wells have contamination at concentrations greater than the applicable TOGS 1.1.1 Groundwater Standards. However, the immediately down gradient

groundwater beneath the RG&E right-of-way is contaminated at concentrations orders of magnitude greater than the groundwater contamination detected on site. There are no known users of groundwater in the Site area.

4.0 OBJECTIVES

The objective of this AAR is to evaluate remedial alternatives to address the contaminants of concern at the Site as presented above and to select the most appropriate remedy that is protective of human health and the environment and ensures short- and long-term effectiveness, in light of cost and future use of the Site.

(a) In accordance with section 4.3 of the DER-10, remedial alternatives are evaluated using the evaluation criteria set forth 6 NYCRR 375-1.8(f) in conjunction with the additional guidance provided for each criterion in subdivisions (b) through (j) of this section.

1. When performing this evaluation:

i. the first two evaluation criteria, subdivisions (b) and (c) below, are threshold criteria and must be satisfied in order for an alternative to be considered for selection; and

ii. the next six evaluation criteria, subdivisions (d) to (i) below, are primary balancing criteria which are used to compare the positive and negative aspects of each of the remedial alternatives, provided the alternative satisfies the threshold criteria.

(b) Overall protectiveness of the public health and the environment

1. How each alternative would eliminate, reduce or control through removal, treatment, containment, engineering controls or institutional controls any existing or potential human exposures or environmental impacts identified by the RI.

2. The ability of each alternative to achieve each of the RAOs.

3. Overall protection of human health and the environment draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with SCGs.

(c) Standards, criteria and guidance (SCGs). The remedy will conform to officially promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of the remedy will also take into consideration guidance as appropriate.

(d) Long-term effectiveness and permanence. This criterion is an evaluation of the long-term effectiveness and permanence of an alternative or remedy after implementation.

1. If contamination will remain on- or off-site after the selected remedy has been

implemented, this evaluation will assess the impact of the remaining contamination on any of the following:

i. human exposures;
ii. ecological receptors; or
iii. impacts to the environment.

2. The evaluation of institutional and/or engineering controls performed in accordance with subdivision 4.3(b) of the DER-10 is considered.

(e) Reduction of toxicity, mobility or volume of contamination through treatment.

(f) Short-term impact and effectiveness. This criterion is an evaluation of the potential short-term adverse environmental impacts and human exposures during the construction and/or implementation of an alternative or remedy.

(g) Implementability. This criterion is an evaluation of the technical and administrative feasibility of implementing an alternative or remedy.

(h) Cost effectiveness. This criterion is an evaluation of the overall cost effectiveness of an alternative or remedy.

(i) Land use. This criterion is an evaluation of the current, intended and reasonably anticipated future use of the site and its surroundings, as it relates to an alternative or remedy, when unrestricted levels would not be achieved.

(j) Community acceptance. This criterion is evaluated after the public review of the remedy selection process as part of the final DER selection/approval of a remedy for a site.

In conformance with NYSDEC BCP guidance the following Remedial Action Objectives (RAOs) apply to this AAR:

5.0 REMEDIAL ACTION OBJECTIVES

Groundwater

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.

- Remove the source of groundwater 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

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

6.0 DEVELOPMENT OF REMEDIAL ALTERNATIVES

This section includes the rationale for the remedial alternatives being considered for addressing the contaminants identified at the Site. The Site is proposed for continued use as a commercial building. The remedial alternatives evaluated are summarized below:

1. **Impacted Soils Left In-Place - No Action:**

The no-action alternative is included as a procedural requirement and as a baseline to evaluate other alternatives. Under this alternative, no further remedial or monitoring activities would occur. No environmental easement would be recorded to run with the land including institutional or engineering controls to further manage residual contamination. The Site would remain virtually unchanged and change in use would not be limited except by existing land use controls such as zoning.

2. **Impacted Soils Left In-Place – Site Management Plan with Institutional Controls:**

Under this alternative, institutional controls (e.g. deed restrictions, NYSDEC Environmental Easement, etc.) and development of a Site Management Plan (SMP) would be implemented to protect against exposure and also control Site use. The Site would remain essentially unchanged and Site use would be

restricted to commercial or industrial, in conformance with existing zoning.

To alleviate future concerns relative to vapor intrusion, it is recommended that the ASD be upgraded with a low-pressure warning device set to activate an alarm light and audible local alarm to alert the tenants that the ASD is not functioning properly and requires maintenance.

3. All Soils and Groundwater in Exceedance of Unrestricted Use SCOs Treated by Injection:

Under this alternative, the soils and groundwater beneath the Speedy's building would be treated in place by the injection of chemicals to facilitate the natural breakdown of the petroleum compounds and chlorinated solvents. An interior grid of injection points would be designed and installed to ensure that the impacted soils beneath the building come into contact with the injected materials.

4. All Soils in Exceedance of Unrestricted Use SCOs Excavated for Off-Site Disposal:

Under this alternative, the Speedy's building would be demolished, and the impacted soils would be excavated and disposed of at a NYSDEC-permitted landfill. The building is approximately 5,000 square feet in size. Soils from approximately 8 feet BGS to the top of the till layer at 14 feet BGS, or approximately 1100 cubic feet of impacted soils would be removed. Based on conversion factor of 1.6 tons per cubic yard, approximately 1775 tons of soils would be removed.

7.0 DETAILED EVALUATION OF ALTERNATIVES

1) Impacted Soils Left In-Place - No Action

Under this alternative the impacted soils beneath the building would remain as is and future site use and development would not be limited. In addition, remedial and monitoring activities as well as placement of institutional controls at the Site would not be implemented.

(a) Overall protectiveness of the public health and the environment

This alternative will not be protective of the public health, as indoor air samples were determined to have PCE and TCE present at concentrations greater than the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) Matrices 1 and 2.

(b) Standards, criteria and guidance (SCGs).

This alternative will not be protective of the SCGs, as indoor air samples were determined to have PCE and TCE present at concentrations greater than the New

York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) Matrices 1 and 2.

(c) Long-term effectiveness and permanence.

The evaluation of the long-term effectiveness and permanence of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(d) Reduction of toxicity, mobility or volume of contamination through treatment.

The evaluation of the reduction of toxicity, mobility or volume of contamination through treatment of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(e) Short-term impact and effectiveness.

The evaluation of the short-term impact and effectiveness of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(f) Implementability.

The evaluation of the implementability of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(g) Cost effectiveness.

The evaluation of the cost effectiveness of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(h) Land use.

The evaluation of the land use relative to this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(i) Community acceptance.

As the air inside of the subject building was determined to have PCE and TCE present at concentrations greater than the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) Matrices 1 and 2, it is anticipated that this alternative would not be acceptable to the community.

Estimated Cost of No Action.....**$ 0**

2) **Impacted Soils Left In-Place – Site Management Plan with Institutional Controls:**

Under this alternative, institutional controls (e.g. deed restrictions, NYSDEC Environmental Easement, etc.) and development of a Site Management Plan (SMP) would be implemented to protect against exposure and also control Site use. The SMP would include procedures for properly handling and disposing of impacted media (e.g. soil, groundwater) should they be disturbed in the future.

(a) Overall protectiveness of the public health and the environment

This alternative is protective of the public health and the environment as the concentrations for all contaminants in site soils are at least one order of magnitude less than the SCOs for Restricted Commercial Use for each of these compounds. All of the site soils are underneath the subject building or underneath the surrounding asphalt parking lot

The institutional controls will prohibit any future use of site groundwater.

There would be potential for inhalation exposure via soil vapor intrusion; under this alternative the soil vapor concern has been mitigated by the installation of the ASD.

(b) Standards, criteria and guidance (SCGs).

This alternative will be protective of the SCGs, as the concentrations for all contaminants in site soils are at least one order of magnitude less than the SCOs for Restricted Commercial Use for each of these compounds.

The institutional controls will prohibit any future use of site groundwater.

The air data from 2005 for both TCE and PCE, when compared to the NYSDOH Soil Vapor/Indoor Air Matrices 1 and 2 indicated that mitigation was warranted. An ASD was subsequently installed my Mitigation Technology as a Time Critical IRM. The ASD system has operated continuously since May 2006.

(c) Long-term effectiveness and permanence.

i. Human Exposures;

This alternative will effectively address potential long-term exposures:

- The concentrations for all contaminants in site soils are at least one order of magnitude less than the SCOs for Restricted Commercial Use for each of these compounds.

- The institutional controls will prohibit any future use of site

groundwater.

- The ASD system has operated continuously since May 2006.

ii. Ecological Receptors

There are no fish and wildlife resources on or adjacent to the site and the absence of resources is not due to contamination at the site. With the exception of the adjacent RG&E right-of-way at the north side of the Speedy's Cleaners parcel, all of the adjacent parcels are paved parking areas associated with commercial properties to the east and west; Monroe Avenue to the south; and Wegman's Food Market and parking lot south of Monroe Avenue. Ecological receptors are not of concern relative to this AAR.

iii. Impacts to the Environment.

There are no sensitive environmental resources on or adjacent to the site and the absence of resources is not due to contamination at the site. With the exception of the adjacent RG&E right-of-way at the north side of the Speedy's Cleaners parcel, all of the adjacent parcels are paved parking areas associated with commercial properties to the east and west; Monroe Avenue to the south; and Wegman's Food Market and parking lot south of Monroe Avenue. Environmental resources are not of concern relative to this AAR.

(d) Reduction of toxicity, mobility or volume of contamination through treatment.

The evaluation of the reduction of toxicity, mobility or volume of contamination through treatment of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(e) Short-term impact and effectiveness.

The evaluation of the short-term impact and effectiveness of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(f) Implementability.

The evaluation of the implementability of this alternative or remedy after implementation is not applicable, as no remedial measures would be performed.

(g) Cost effectiveness.

The estimated cost of installing the ASD and preparing the Environmental Easement and Institutional Controls is approximately: **$15,000**

This appears to be the most cost-effective remedy as it addresses potential future human exposure issues without incurring the greater cost of source-removal or in-situ treatment.

(h) Land use.

The environmental easement will require that the Site remain a commercial property.

(i) Community acceptance.

Based on the findings of the studies performed to date, it is anticipated that this alternative would be acceptable to the community.

3) All Soils in Exceedance of Unrestricted Use SCOs Treated by Injection:

Under this alternative, the soils beneath the Speedy's building would be treated in place by the injection of chemicals (i.e. permanganates, whey, hydrogen-releasing compounds, or others) to facilitate the natural breakdown of the petroleum compounds and chlorinated solvents. An interior grid of injection points would be designed and installed to ensure that the impacted soils beneath the building come into contact with the injected materials.

(a) Overall protectiveness of the public health and the environment

This alternative is protective of the public health and the environment as the concentrations for all contaminants in site soils are at least one order of magnitude less than the SCOs for Restricted Commercial Use for each of these compounds. All of the site soils are underneath the subject building or underneath the surrounding asphalt parking lot.

The institutional controls will prohibit any future use of site groundwater.

There would be potential for inhalation exposure via soil vapor intrusion; under this alternative the soil vapor concern has been mitigated by the installation of the ASD.

Standards, criteria and guidance (SCGs).

This alternative will be protective of the SCGs, as the concentrations for all contaminants in site soils are at least one order of magnitude less than the SCOs for Restricted Commercial Use for each of these compounds.

The institutional controls will prohibit any future use of site groundwater.

The air data from 2005 for both TCE and PCE, when compared to the NYSDOH Soil Vapor/Indoor Air Matrices 1 and 2 indicated that mitigation was warranted. An ASD was subsequently installed my Mitigation Technology as a Time Critical IRM. The ASD system has operated continuously since May 2006.

(d) Long-term effectiveness and permanence.

i Human Exposures;

This alternative will effectively address potential long-term exposures:

- The concentrations for all contaminants in site soils are at least one order of magnitude less than the SCOs for Restricted Commercial Use for each of these compounds.
- The institutional controls will prohibit any future use of site groundwater.
- The ASD system has operated continuously since May 2006.

ii Ecological Receptors

There are no fish and wildlife resources on or adjacent to the site and the absence of resources is not due to contamination at the site. With the exception of the adjacent RG&E right-of-way at the north side of the Speedy's Cleaners parcel, all of the adjacent parcels are paved parking areas associated with commercial properties to the east and west; Monroe Avenue to the south; and Wegman's Food Market and parking lot south of Monroe Avenue. Ecological receptors are not of concern relative to this AAR.

iii Impacts to the Environment.

This alternative should be protective of human health and the environment. On-site treatment with a long-term injection system will destroy contaminants in the saturated zone including at the property line so that off-site migration is addressed.

There are no sensitive environmental resources on or adjacent to the site and the absence of resources is not due to contamination at the site. With the exception of the adjacent RG&E right-of-way at the north side of the Speedy's Cleaners parcel, all of the adjacent parcels are paved parking areas associated with commercial properties to the east and west; Monroe Avenue to the south; and Wegman's Food Market and parking

lot south of Monroe Avenue. Environmental resources are not of concern relative to this AAR.

(d) Reduction of toxicity, mobility or volume of contamination through treatment.

On-site treatment with a long-term injection system will destroy contaminants in the saturated zone including at the property line so that off-site migration is addressed.

(e) Short-term impact and effectiveness.

There would be some limited increase in short-term risks for the community and the workers implementing the alternative and depending on the materials used some increased risk with the transfer/storage of such materials; however, these risks could be managed through a properly implemented remedial work plan. This alternative would be effective in the long term and would be a permanent remedy.

(f) Implementability.

This alternative includes installing the infrastructure (i.e. injection wells, piping, etc.) to facilitate injection of treatment chemicals in order to treat the impacted groundwater and saturated zone soils. Although the final system details would be based on the design, it is anticipated that the system installation without disruption of the tenant activities would be problematic.

(g) Cost effectiveness.

We estimate that the cost to conduct pilot testing, design the injection program for NYSDEC approval, install the injection points, acquire and inject the chemicals is in the range of .....$40,000 to $60,000

(h) Land use.

The environmental easement will require that the Site remain a commercial property.

(b) Community acceptance.

Based on the findings of the studies performed to date, it is anticipated that this alternative would be acceptable to the community.

4) **All Soils in Exceedance of Unrestricted Use SCOs Excavated for Off-Site Disposal:**

Under this alternative, the Speedy's building would be demolished, and the impacted soils would be excavated and disposed of at a NYSDEC-permitted landfill. As de-watering of the soils would be required, contaminated groundwater would be removed and characterized for either sanitary sewer discharge or disposal at a waste water treatment plant. The building is approximately 5,000 square feet in size. Soils from approximately 8 feet BGS to the top of the till layer at 14 feet BGS, or approximately 1100 cubic yards (yd^3) of impacted soils would be removed. Based on conversion factor of 1.6 tons per cubic yard, approximately 1775 tons of soils would be removed.

(a) Overall protectiveness of the public health and the environment

This alternative is protective of the public health and the environment as all impacted soils would be removed and disposed of off site.

The institutional controls will prohibit any future use of site groundwater.

Standards, criteria and guidance (SCGs).

This alternative will be protective of the SCGs, as all impacted soils would be removed and disposed of off site.

The institutional controls will prohibit any future use of site groundwater.

(b) Long-term effectiveness and permanence.

i Human Exposures;

This alternative will effectively address potential long-term exposures:

- All impacted soils would be removed and disposed of off site.
- The institutional controls will prohibit any future use of site groundwater.

ii Ecological Receptors

There are no fish and wildlife resources on or adjacent to the site and the absence of resources is not due to contamination at the site. With the exception of the adjacent RG&E right-of-way at the north side of the Speedy's Cleaners parcel, all of the adjacent parcels are paved parking areas associated with commercial properties to the east and west; Monroe Avenue to the south; and Wegman's Food Market and parking lot south of Monroe Avenue. Ecological receptors are not of concern

relative to this AAR.

iv. Impacts to the Environment.

This alternative should be protective of human health and the environment as all impacted soils would be removed and disposed of off site.

There are no sensitive environmental resources on or adjacent to the site and the absence of resources is not due to contamination at the site. With the exception of the adjacent RG&E right-of-way at the north side of the Speedy's Cleaners parcel, all of the adjacent parcels are paved parking areas associated with commercial properties to the east and west; Monroe Avenue to the south; and Wegman's Food Market and parking lot south of Monroe Avenue. Environmental resources are not of concern relative to this AAR.

(d) Reduction of toxicity, mobility or volume of contamination through treatment.

On-site treatment is not applicable as all impacted soils would be removed and disposed of off site.

(e) Short-term impact and effectiveness.

There would be some limited increase in short-term risks for the community and the workers implementing the alternative and depending on the materials used some increased risk with the transfer/storage of such materials; however, these risks could be managed through a properly implemented remedial work plan. This alternative would be effective in the long term and would be a permanent remedy.

(f) Implementability.

This alternative requires the demolition of the subject building. This is not feasible as the BCP volunteer plans to use the subject building for commercial purposes in the future.

(g) Cost effectiveness.

Prior to demolition of the building, an asbestos survey is required. We estimate that the pre-demolition asbestos survey will cost in the range of $5,000 to $10,000.

Asbestos abatement may fall in the range of $10,000 to $20,000.

Demolition of the building will cost approximately $30,000.

The estimated cost of soil removal and disposal, assuming that the soils are classified as a non-hazardous waste (1100 yd^3 * 1.6 tons/ yd^3 * $75/ton) is $132,000.

An estimated fee of $5000 may be incurred to dispose of contaminated groundwater.

Total Range: **$182,000 to $197,000**

(h) Land use.

The environmental easement will require that the Site remain a commercial property.

(i) Community acceptance.

It is anticipated that the community would be in favor of one of the options that allows the subject building to remain standing, as they take advantage of the services provided by the commercial tenants in the building.

8.0 COMPARATIVE EVALUATION OF ALTERNATIVES & RECOMMENDED ACTIONS

This section of the AAR compares the remedial alternatives proposed and presents the recommended action for addressing contamination at the Site.

1. The no action alternative will not be protective of human health and the environment. While the no action alternative may be acceptable to the community, any future intrusive activities may result in exposure to impacted soils and groundwater at the Site, which presents a potential exposure pathway for workers in the area.

2. Development of a Site Management Plan with Institutional Controls will be protective of human health and the environment. It can be implemented for a fee of approximately $15,000 and will mitigate future concerns relative to exposure through direct contact.

3. The treatment in place of the contaminated soils and groundwater would be a long-term and permanent remedy. However, implementation of this remedy would be problematic, as it would require equipment operation inside of the building. Accessibility inside of the tight confines of the building would be difficult, and disruption of the operating businesses would also occur.

4. The demolition of the former Speedy's building and removal of the contaminated soils and groundwater would be a long-term and permanent remedy. However, demolition of the building would not allow for the continued commercial use of

the Site by the Christopher Williams Agency.

9.0 SUMMARY OF RECOMMENDED REMEDIAL ACTIONS

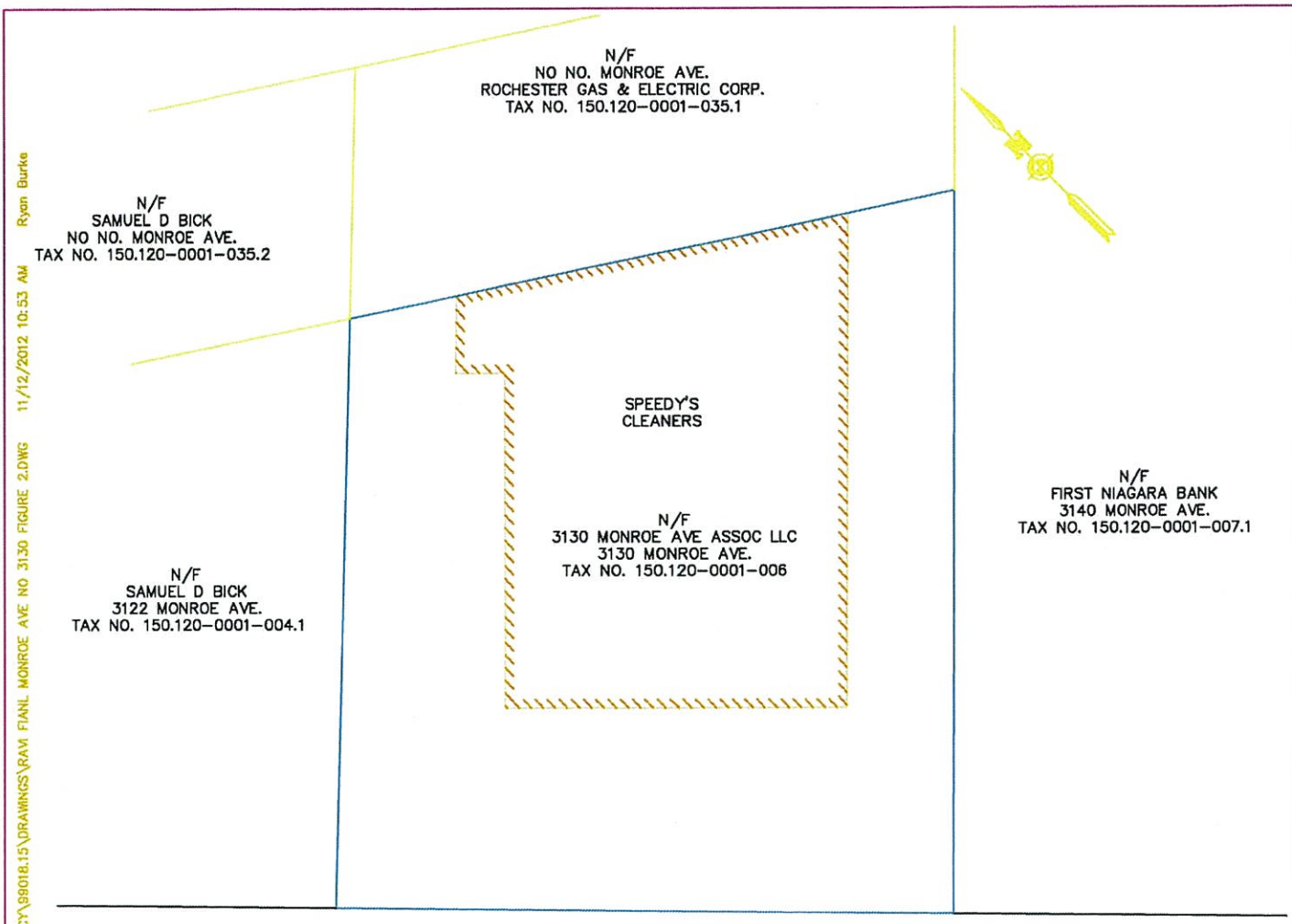
The recommended remedial action is Alternative 2: under this alternative, a Site Management Plan with Institutional Controls will be developed. An Environmental Easement will be recorded to run with the land including institutional or engineering controls to further manage residual contamination.

To alleviate future concerns relative to vapor intrusion, it is recommended that the ASD be upgraded with a low-pressure warning device set to activate an alarm light and audible local alarm to alert the tenants that the ASD is not functioning properly and requires maintenance.

10.0 ENVIRONMENTAL EASEMENT AND INSTITUTIONAL CONTROLS

An Environmental Easement will be developed to manage and control any impacts remaining at the Site. The Environmental Easement will include the following:

- Indicate that groundwater cannot be used as a source of drinking water or extracted for any reason without prior approval from regulatory agencies.
- Indicate that Site use and groundwater use restrictions are part of an environmental easement and will include a copy of the easement.
- The ASD should be maintained to mitigate concerns relative to vapor intrusion.



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Project:	SPEEDY'S CLEANERS BCP FIGURE 1 SITE LOCATION MAP / TAX MAP	Scale: 1" 30' Date: 03-28-2012 PIC: John Caruso, P.E. PM: Ed Freeman, P.L.S.
Client:	SPEEDY'S CLEANERS SITE PITTSFORD, NEW YORK SITE NO. 8-28-109	Designer: R.D.C. Project No. 99000018.0015

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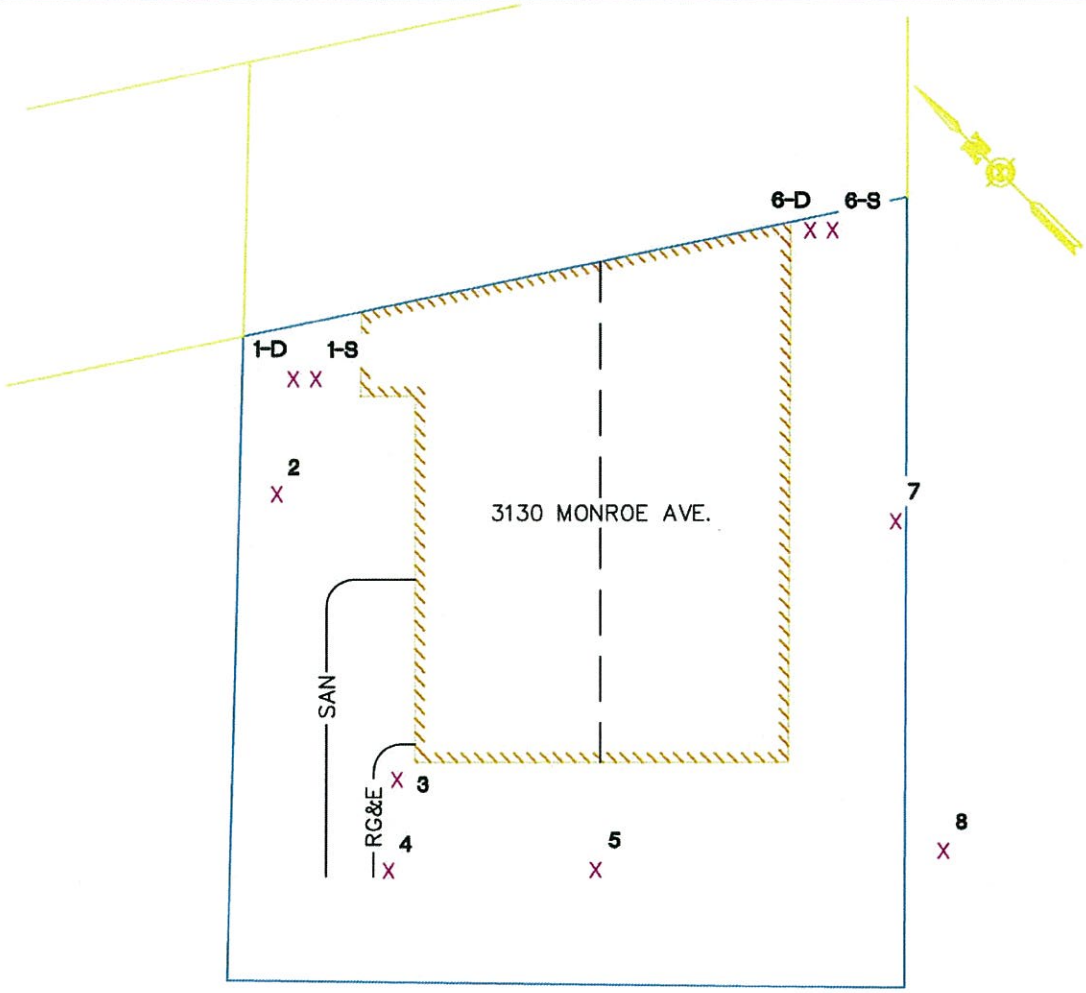
Project:	SPEEDY'S CLEANERS BCP FIGURE 2 SOIL VAPOR INTRUSION SAMPLES SEPTEMBER 2005	Scale: 1" 30' Date: 03-28-2012 PIC: John Caruso, P.E. PM: Ed Freeman, P.L.S.
Client:	SPEEDY'S CLEANERS SITE PITTSFORD, NEW YORK SITE NO. 8-28-109	Designer: R.D.C. Project No. 99000018.0015



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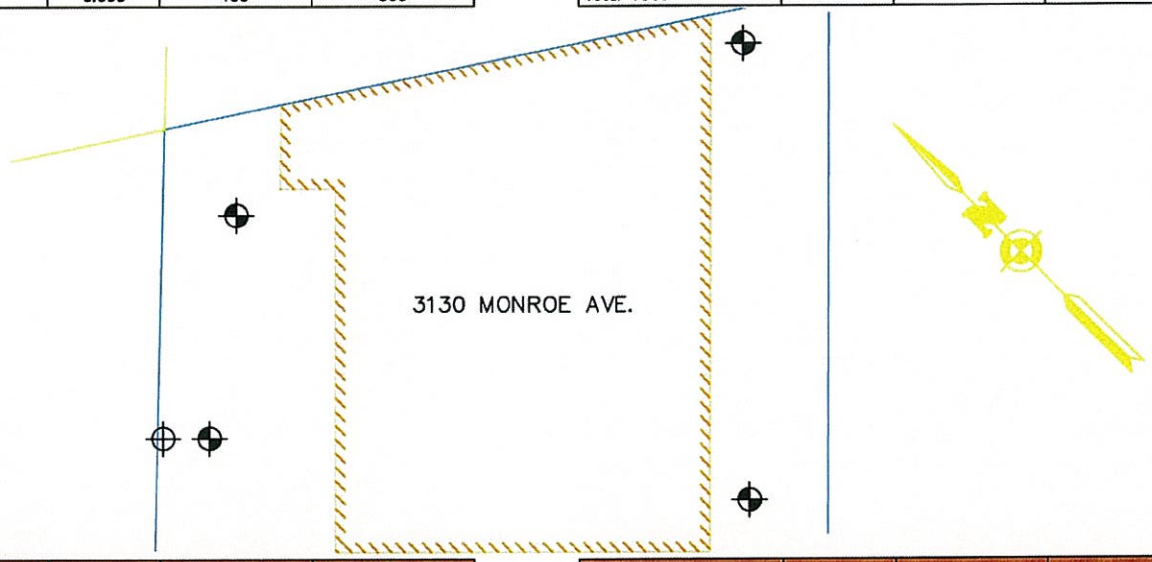
Project:	SPEEDY'S CLEANERS BCP FIGURE 3 BOUNDARY SOIL GAS SAMPLES 11/28/06	Scale: 1" 30' Date: 03-28-2012 PIC: John Caruso, P.E. PM: Ed Freeman, P.L.S.
Client:	SPEEDY'S CLEANERS SITE PITTSFORD, NEW YORK SITE NO. 8-28-109	Designer: R.D.C. Project No. 99000018.0015

Sample ID Sample Depth Sampling Date units	BH-2 2'-6' 7/13/05 ppm	Part 375-6.8(a): Unrestricted Use SCO	* Part 375-6.8(b) Restricted Commercial Use SCO and CP-51 Soil Cleanup Guidance
Methylene chloride	0.016	0.05	500
Acetone	0.007 J	0.05	500
Carbon Disulfide	ND	NS	NS
2-Butanone	ND	NS	NS
Ethylbenzene	ND	1	1
Total Xylenes	ND	0.26	1.6
Cyclohexane	ND	NS	NS
Methylcyclohexane	ND	NS	NS
Isopropylbenzene	ND	NS	2.3
Trichloroethene	0.003 J	0.47	0.47
Tetrachloroethene	0.670 D	1.3	1.3
cis-1,2-Dichloroethene	0.003 J	0.25	500
Total TICs	0	NS	NS
Total VOCs	0.699	100	500

Sample ID Sample Depth Sampling Date units	BH-3 2'-6' 7/13/05 ppm	Part 375-6.8(a): Unrestricted Use SCO	* Part 375-6.8(b) Restricted Commercial Use SCO and CP-51 Soil Cleanup Guidance
Methylene chloride	0.021	0.05	500
Acetone	ND	0.05	500
Carbon Disulfide	ND	NS	NS
2-Butanone	ND	NS	NS
Ethylbenzene	ND	1	1
Total Xylenes	ND	0.26	1.6
Cyclohexane	ND	NS	NS
Methylcyclohexane	ND	NS	NS
Isopropylbenzene	ND	NS	2.3
Trichloroethene	ND	0.47	0.47
Tetrachloroethene	0.005	1.3	1.3
cis-1,2-Dichloroethene	ND	0.25	500
Total TICs	0	NS	NS
Total VOCs	0.026	100	500



Sample ID Sample Depth Sampling Date units	BH-1 6'-8' 7/14/05 ppm	Part 375-6.8(a): Unrestricted Use SCO	* Part 375-6.8(b) Restricted Commercial Use SCO and CP-51 Soil Cleanup Guidance
Methylene chloride	0.045	0.05	500
Acetone	0.310 E**	0.05	500
Carbon Disulfide	0.005 J	NS	NS
2-Butanone	0.120	NS	NS
Ethylbenzene	0.006	1	1
Total Xylenes	0.017	0.26	1.6
Cyclohexane	0.042 J	NS	NS
Methylcyclohexane	0.200	NS	NS
Isopropylbenzene	0.120	NS	2.3
Trichloroethene	ND	0.47	0.47
Tetrachloroethene	ND	1.3	1.3
cis-1,2-Dichloroethene	ND	0.25	500
Total TICs	6.480	NS	NS
Total VOCs	7.355	100	500

Sample ID Sample Depth Sampling Date units	BH-4 8'-10' 7/13/05 ppm	Part 375-6.8(a): Unrestricted Use SCO	* Part 375-6.8(b) Restricted Commercial Use SCO and CP-51 Soil Cleanup Guidance
Methylene chloride	0.025	0.05	500
Acetone	0.058	0.05	500
Carbon Disulfide	0.002 J	NS	NS
2-Butanone	0.010	NS	NS
Ethylbenzene	ND	1	1
Total Xylenes	ND	0.26	1.6
Cyclohexane	ND	NS	NS
Methylcyclohexane	ND	NS	NS
Isopropylbenzene	ND	NS	2.3
Trichloroethene	ND	0.47	0.47
Tetrachloroethene	0.004	1.3	1.3
cis-1,2-Dichloroethene	ND	0.25	500
Total TICs	0	NS	NS
Total VOCs	0.099	100	500

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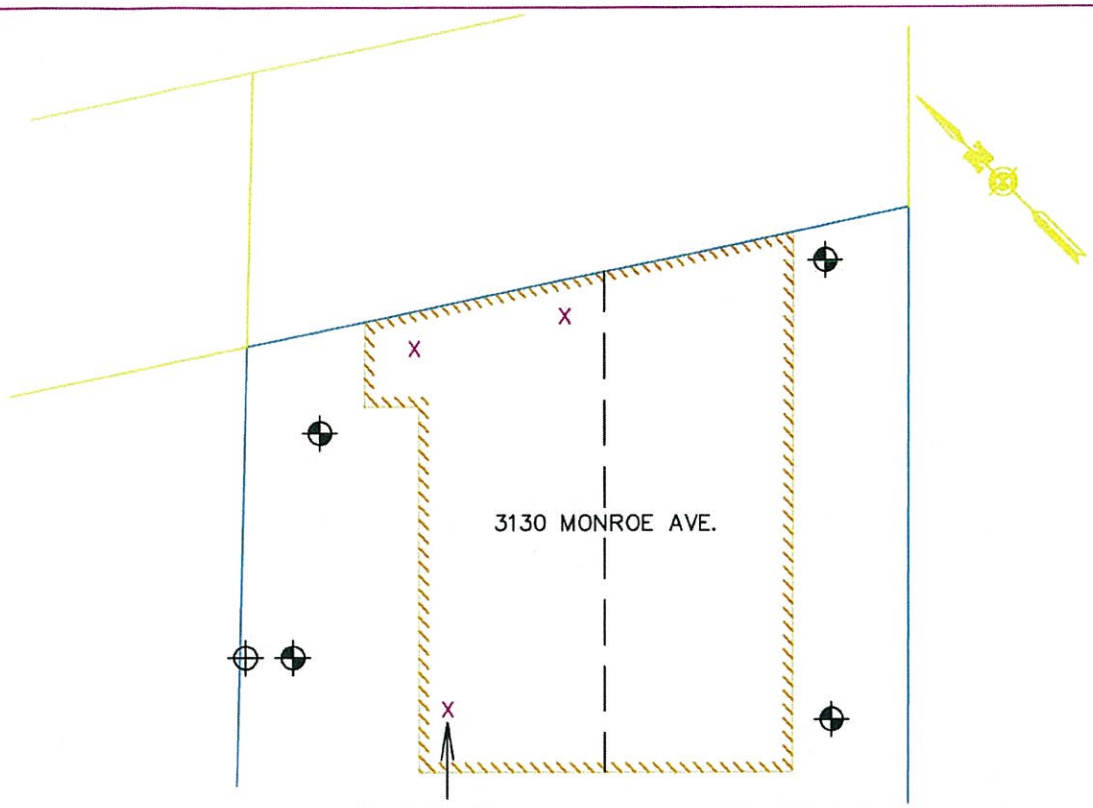
Project:	SPEEDY'S CLEANERS BCP FIGURE 4 SOIL SAMPLES - LOCATION & RESULT JULY 13 & 14, 2005	Scale: 1" 30' Date: 03-28-2012 PIC: John Caruso, P.E. PM: Ed Freeman, P.L.S.
Client:	SPEEDY'S CLEANERS SITE PITTSFORD, NEW YORK SITE NO. 8-28-109	Designer: R.D.C. Project No. 99000018.0015



Analyte	Sub Slab 1 8-9 (ppm)	RSCO (ppm)
Vinyl chloride	0.19 J	0.02
Acetone	ND	500
2-Butanone	ND	NS
Trichloroethene	ND	0.47
Tetrachloroethylene	ND	1.3
Total Xylenes	ND	0.26
cis-1,2-Dichloroethene	4.6	500
trans-1,2-Dichloroethene	ND	0.19
Cyclohexane	ND	NS
Methylcyclohexane	ND	NS
Isopropylbenzene	ND	2.3

Sub Slab SVOC		
Analyte	Sub Slab 1 8-9 (ppm)	RSCO (ppm)
Naphtalene	1.1 DJ	100
2-Methylnaphthalene	5.6 D	NS
Acenaphthene	0.320 DJ	100
Fluorene	0.870 DJ	100
Phenanthrene	19 D	100
Anthacene	0.220 DJ	100
Fluoranthene	0.190 DJ	100
Pyrene	0.3 DJ	100
Benzo(a)anthracene	69 DJ	1
Chrysene	0.084 DJ	3.9
Bis(2-ethylhexyl) phthalate	0.073 BDJ	NS
Benzo(b)fluoranthene	0.073 DJ	1

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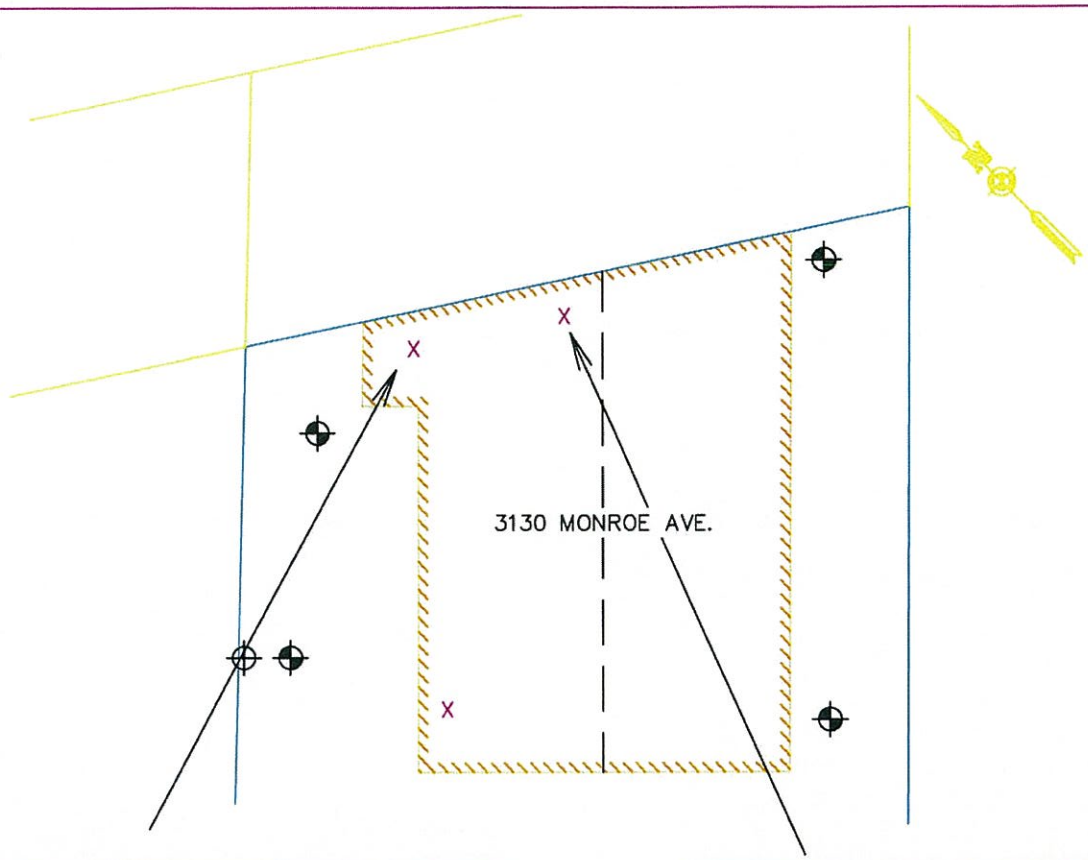
Project:	SPEEDY'S CLEANERS BCP FIGURE 5 SUB-SLAB SOIL SAMPLES OCTOBER, 2005	Scale: 1" 30' Date: 03-28-2012 PIC: John Caruso, P.E. PM: Ed Freeman, P.L.S.
Client:	SPEEDY'S CLEANERS SITE PITTSFORD, NEW YORK SITE NO. 8-28-109	Designer: R.D.C. Project No. 99000018.0015



Analyte	Sub Slab 2 6-8 (ppm)	RSCO (ppm)
Vinyl chloride	ND	0.02
Acetone	0.25	500
2-Butanone	0.006 J	NS
Trichloroethene	ND	0.47
Tetrachloroethylene	ND	1.3
Total Xylenes	0.087	0.26
cis-1,2-Dichloroethene	ND	500
trans-1,2-Dichloroethene	ND	0.19
Cyclohexane	0.022	NS
Methylcyclohexane	0.150	NS
Isopropylbenzene	0.110	2.3

Analyte	Sub Slab 2 6-8 (ppm)	RSCO (ppm)
Vinyl chloride	0.270 J	0.02
Acetone	ND	500
2-Butanone	ND	NS
Trichloroethene	0.650 J	0.47
Tetrachloroethylene	0.250 J	1.3
Total Xylenes	ND	.026
cis-1,2-Dichloroethene	16	500
trans-1,2-Dichloroethene	0.640 J	0.19
Cyclohexane	ND	NS
Methylcyclohexane	ND	NS
Isopropylbenzene	ND	2.3

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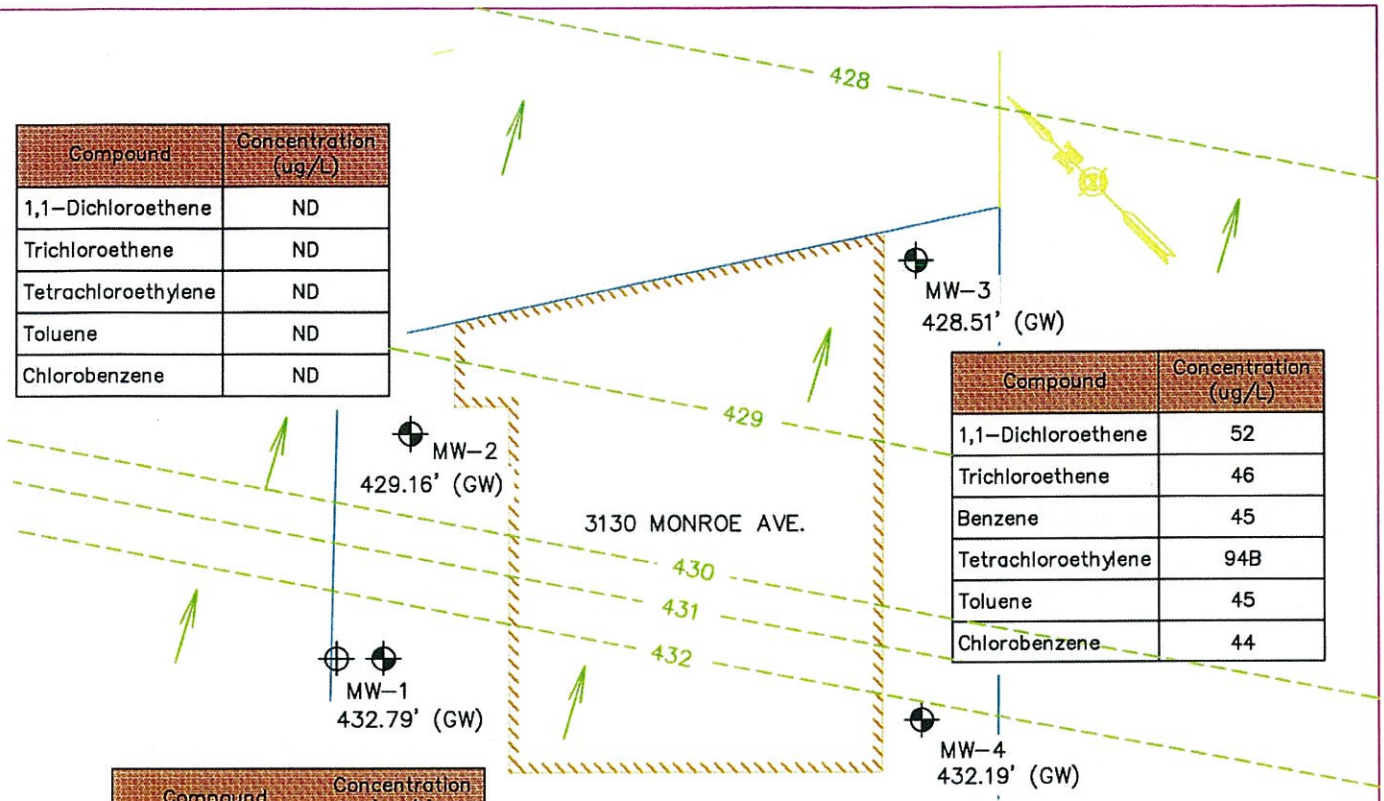
Project:	SPEEDY'S CLEANERS BCP FIGURE 5a SUB-SLAB SOIL SAMPLES OCTOBER, 2005	Scale: 1" 30' Date: 03-28-2012 PIC: John Caruso, P.E. PM: Ed Freeman, P.L.S.
Client:	SPEEDY'S CLEANERS SITE PITTSFORD, NEW YORK SITE NO. 8-28-109	Designer: R.D.C. Project No. 99000018.0015



Compound	Concentration (ug/L)
1,1-Dichloroethene	ND
Trichloroethene	ND
Tetrachloroethylene	ND
Toluene	ND
Chlorobenzene	ND

Compound	Concentration (ug/L)
1,1-Dichloroethene	52
Trichloroethene	46
Benzene	45
Tetrachloroethylene	94B
Toluene	45
Chlorobenzene	44

Compound	Concentration (ug/L)
1,1-Dichloroethene	33
Trichloroethene	30
Tetrachloroethylene	64B
Toluene	29
Chlorobenzene	28
Benzene	29

Compound	Concentration (ug/L)
Ethylbenzene	130
Total Xylenes	1,000
Isopropylbenzene	680

(GW) = GROUND WATER ELEVATION MEASURED

Compound	SCGs (ug/L)
1,1-Dichloroethene	5
Trichloroethene	5
Tetrachloroethylene	5
Toluene	5
Chlorobenzene	5
Benzene	2
Ethylbenzene	5
Isopropylbenzene	5

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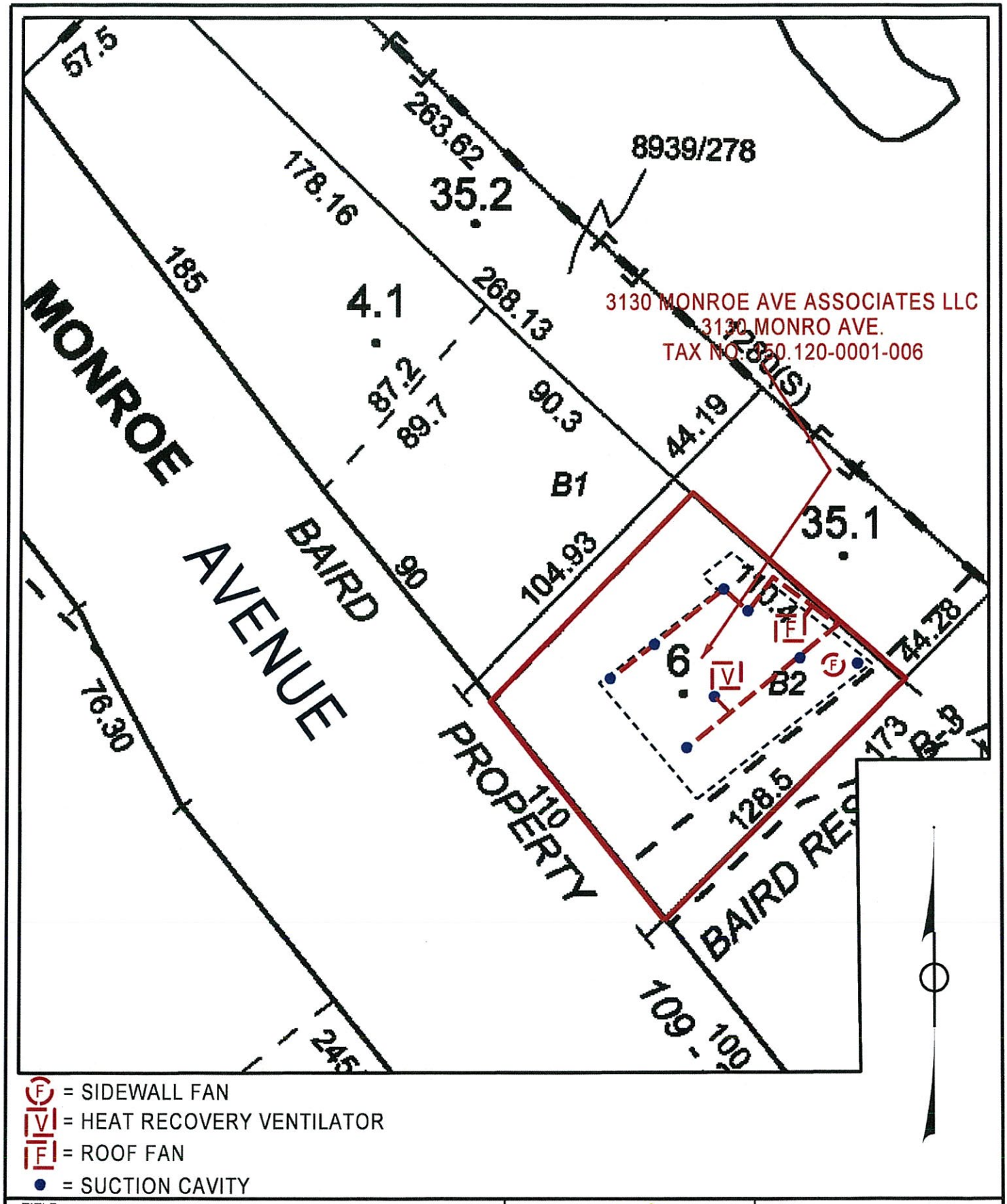
Project:	SPEEDY'S CLEANERS BCP FIGURE 6 GROUNDWATER ELEVATION CONTOURS AND VOC RESULTS SEPTEMBER 9, 2005	Scale: 1" 30' Date: 03-28-2012 PIC: John Caruso, P.E. PM: Ed Freeman, P.L.S.
Client:	SPEEDY'S CLEANERS SITE PITTSFORD, NEW YORK SITE NO. 8-28-109	Designer: R.D.C. Project No. 99000018.0015



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