Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Hidden Valley Electronics Site

Town of Vestal, Broome County, New York
Site Number 704029

March 2008

New York State Department of Environmental Conservation
DAVID A. PATERSON, *Governor* ALEXANDER B. GRANNIS, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Hidden Valley Electronics Inactive Hazardous Waste Disposal Site

Town of Vestal, Broome County, New York
Site No. 704029

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Hidden Valley Electronics site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Hidden Valley Electronics inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Hidden Valley Electronics site and the criteria identified for evaluation of alternatives, the Department has selected on-site groundwater/saturated soil bioremediation and continued operation, maintenance and monitoring of several interim remedial measures including an off-site groundwater extraction and treatment system, on-site and off-site soil vapor/indoor air treatment of residential/commercial structures, and an environmental easement with periodic certification. The components of the remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. In situ enhanced biodegradation of on-site contaminated groundwater and saturated soils.

3. Continued implementation and OM&M of the site-related IRMs which have been implemented including: a hybrid sub-slab depressurization system (SSDS)/soil vapor extraction (SVE) system which currently operates beneath the HVE building annex; a groundwater extraction and treatment (GWET) system which will be operational in Spring 2008 to intercept and treat contaminated groundwater between the site and the Twin Orchards residential development, north of the site; and several residential SSDSs (currently thirteen as of March 2008) which are currently operational in the Twin Orchards development.

4. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which would also permit industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

5. Development of a site management plan which will include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion for any existing on-site buildings, future buildings developed on the site, or any off-site structures, including provision for mitigation of any impacts identified; (b) monitoring of groundwater and soil vapor/indoor air; (c) identification of any use restrictions on the site; and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

6. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

7. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

MAR 31 2008

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Hidden Valley Electronics Site. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, improper on-site waste handling practices have resulted in the disposal of hazardous wastes, including volatile organic compounds (VOCs). These wastes have contaminated soils, groundwater, soil vapor and indoor air at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to indoor air.
- a significant environmental threat associated with the current and potential impacts of contaminants to on-site soils and on-site and off-site groundwater, related to the on-site disposal of VOCs.

To eliminate or mitigate these threats, the Department has selected on-site groundwater/saturated soil bioremediation and continued operation, maintenance and monitoring of several interim remedial measures including an off-site groundwater extraction and treatment system, on-site and off-site soil vapor/indoor air treatment of residential/commercial structures, and an environmental easement with periodic certification.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially 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.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Hidden Valley Electronics facility is located at 1808 Vestal Parkway East (NY Route 434) in the Town of Vestal, Broome County, New York (Figure 1). The site is situated on 4.5 acres in a commercial and residential area. The property consists of a 30,052 square foot retail building, a paved parking lot and a new self-storage facility (Figure 2). The Miller Sunoco Site, a NYSDEC Spills site, borders the Hidden Valley Electronics (HVE) to the northeast (Figure 3). Various other commercial properties are present along the east-west bearing Vestal Parkway in the vicinity of the site. Residences are located north of these commercial businesses, in the Twin Orchards development, and south of the site, up a steep grade.

The site is located within the Susquehanna River Valley at approximately 860 feet above mean sea level (msl), and approximately one half mile south of the Susquehanna River (800 feet above msl). As a result of the glacial and river depositions in the Susquehanna River Valley, soils at the site vary considerably, with layers ranging from dense, poorly sorted sands, silts and clays to well sorted medium to coarse sands and gravels. Bedrock encountered at the site ranges in depth from 38 to 50 feet below ground surface and consist of shales and siltstones.

The site is located over a New York State primary drinking water aquifer and a USEPA-designated sole source aquifer and provides drinking water to most of the local population. The two closest public water supply wells are located along the southern shore of the Susquehanna River, two miles to the west and east of the site. Groundwater depth varies from 5 to 12 feet across the site and flows northerly towards the Twin Orchards residential development, and to the Susquehanna River, located within the east-west trending valley, approximately one half mile to the north. Figure 4 depicts the groundwater elevation data and groundwater surface contours which show groundwater flowing northerly from the source area towards the Twin Orchards area, and eventually discharging to the Susquehanna River. Groundwater flow velocities vary considerably across the site, ranging from 9 to 1400 feet per year. Vertical groundwater gradients on-site exhibit an upward flow.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The HVE property consists of a retail building formerly used in the manufacturing of electrical components from the mid-1960s until 1995 (Figure 5). Federal Electronics, Inc. (a.k.a. Harvey Electronics, Inc.) operated the site until 1991 and HVE operated the site from 1991 through March of 1995, when it relocated to Apalachin, New York.

The site was identified during the investigation of a petroleum spill at the adjacent Sunoco service station in 1994 and 1995. In 1995, chlorinated solvents were found in groundwater monitoring wells. Subsequent investigations in 2001 identified a suspected source of pollutants beneath the footprint of the HVE building.

3.2: Remedial History

In 2002, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous

Waste Disposal Sites in New York. 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.

No remedial activities were performed at this site prior to the onset of this RI/FS, however, some incidental cleanup of the off-site groundwater plume was occurring during remediation of the adjacent Miller Sunoco service station.

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:

C.G. Properties, LLC
Allen Green
Hidden Valley Electronics, Inc.
Federal Electronics, Inc.
Harvey Electronics, Inc.

The PRPs declined to implement the RI/FS at the site 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/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and/or the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between May 2004 and December 2007. The field activities and findings of the investigation are described in the RI report.

The RI included the following activities:

- A records search was conducted to identify the site history, past operations and probable contaminants of concern. The literature search involved a review and compilation of all available State, County and Town records which pertain to the site.

- A site base map was developed which illustrates the site contours, roadways, property boundaries and sample points.

- Monitoring wells were installed in overburden, both on-site and off-site, to characterize site geology, hydrogeology and groundwater chemistry, including potential impacts from site-related contamination. Groundwater samples were collected and analyzed primarily for VOCs, however, SVOCs, pesticides/PCBs and inorganics were analyzed in some of the samples. Analysis was performed utilizing both portable on-site and remote analytical laboratories to identify any site-related impacts to groundwater.

- Soil vapor samples were collected both on-site and off-site, and submitted to a remote laboratory, to characterize the nature and extent of site-related contaminants in the vapor phase

- Sub-slab vapor and indoor air samples were collected beneath and within the on-site building and off-site residential structures, and submitted to a remote laboratory, to assess actual and potential impacts to indoor air.

- Implementation of several IRMs to address impacts to sub-slab and indoor air as well as impacts to the groundwater downgradient of the site.

- Applicable Standards, Criteria, and Guidance (SCGs) were reviewed and compared to on site contaminant levels to assess the threat posed, if any, by the site.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil, groundwater, soil vapor and indoor air contains contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.

- Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006.

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 investigation for all environmental media that were investigated.

As described in the RI report, many soil, groundwater, soil vapor and indoor air samples were collected to characterize the nature and extent of contamination. As seen in Figures 6 through 11 and summarized in Table 1, the only category of contaminants that exceed their SCGs are volatile organic compounds (VOCs). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in micrograms per liter (µg/L) for water and milligrams per kilogram (mg/kg) for soil. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figures 6 through 11 and Table 1 summarize the sample locations and degree of contamination for the contaminants of concern in soil, groundwater and soil vapor and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Investigations related to the Hidden Valley Electronics (HVE) facility focused on the on-site disposal of volatile organic compounds (VOCs), primarily 1,1,1-trichloroethane (TCA) and trichloroethene (TCE), in the vicinity of the eastern portion of the on-site building (the "Annex") and subsequent movement of these chemicals where both on-site and off-site media (including soil, groundwater, soil vapor and indoor air) have been impacted. Investigation of the nature and extent of contamination within these media was conducted through the installation of temporary borings (soil, groundwater and soil vapor) and permanent borings (groundwater monitoring wells) using conventional drilling techniques (hollow stem auger and direct push technologies) or the use of vapor sampling devices for the collection of vapor/air samples in soils, beneath floor slabs and from indoor air. The following is a description of the contamination associated with the HVE Site for each media type:

Surface Soil

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

Subsurface Soil

Figure 6 illustrates the location of soil samples collected on-site and Table 1 summarizes the analytical results of these samples. The highest concentrations of TCE and 1,1,1-TCA (4.2 mg/kg and 0.95 mg/kg, respectively), and the only sample to exceed NYSDEC soil cleanup objectives for TCE and 1,1,1-TCA (0.47 mg/kg and 0.68 mg/kg, respectively) was from sample BS-102, collected outside the southeastern corner of the former HVE building, from 36 - 38 feet below grade. All soil impacts associated with the HVE facility were confined to the footprint of, or in close proximity to, the HVE Annex. No upgradient or off-site soil impacts were identified, nor were any other types of contaminants identified above background levels in soil samples collected during this investigation. However, due to the elevated soil vapor levels outside the footprint of the building, and the limited number of soil samples collected in this area, it is suspected that soil contamination may be more significant than the data reflects.

Subsurface soil contamination identified during the RI/FS was partially addressed during an IRM with the installation of a hybrid sub-slab depressurization system (SSDS)/soil vapor extraction (SVE) system, as described in Section 5.2, and will be further addressed in the remedy selection process.

Groundwater

Figures 7 and 8 illustrate the location of groundwater samples collected on-site and in the vicinity of Vestal Parkway, as well as the analytical results of these samples. Table 1 summarizes the analytical results of these samples. The highest concentrations of TCE and 1,1,1-TCA associated with the site (1,300 µg/L and 2,300 µg/L, respectively) were detected in monitoring well TW-2, located immediately north of the site building. These levels exceed the NYS Class GA Groundwater Standard for both compounds (5 µg/L). As illustrated in Figure 8, the groundwater contaminants are migrating in a northerly direction, across Vestal Parkway towards the Twin Orchards residential neighborhood. The data also shows the groundwater plume from HVE merges with the benzene, toluene, ethyl benzene and xylene (BTEX) plume north of site, in the vicinity of KOST Tire (Figure 9). The source of the BTEX plume is the former Miller Sunoco Site, located adjacent to the HVE facility to the northeast. The Miller Sunoco Site has been managed by the NYSDEC as a petroleum spill (Spill # 9401630).

Figures 7 and 9 illustrate the location and concentrations of contaminants in groundwater samples collected north of Vestal Parkway and in the vicinity of the Twin Orchards residential development. Table 1 summarizes the analytical results of these samples. Levels of TCE and 1,1,1-TCA diminish northward where concentrations of individual chlorinated solvents range from non-detect to less than 10 µg/L.

Groundwater contamination identified during the RI/FS is being partially addressed through an IRM, consisting of a groundwater extraction and treatment system, as described in Section 5.2.

Surface Water

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

Sediments

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

Soil Vapor/Sub-Slab Vapor/Air

Figure 10 illustrates the location of soil vapor samples collected on-site, and north of the site in the vicinity of Vestal Parkway. Figure 11 illustrates the location and analytical results of sub-slab vapor samples collected within the footprint of the HVE building and soil vapor samples collected adjacent to the building. Figure 12 illustrates the location and analytical results of sub-slab vapor samples and indoor air samples collected within the footprint of the HVE building. Table 1 summarizes the analytical results of the soil vapor samples. These data indicate that chlorinated solvents in groundwater, and potentially soil beneath the HVE building, are moving upward into the vadose zone (soil above the groundwater), beneath building foundations and impacting indoor air. Based on the concentrations of TCE below buildings (up to 2,800 $\mu g/m^3$ below the former HVE Annex building and up to 930 $\mu g/m^3$ below residences in the Twin Orchards development) this contaminated soil vapor has the potential to migrate into commercial and residential structures. Concentrations of TCE in indoor air marginally exceeded the NYSDOH general air guidance value for TCE in one residence in the Twin Orchards area.

Soil vapor and indoor air contamination identified during the RI/FS are being addressed during IRMs through the installation of a hybrid sub-slab depressurization system (SSDS)/soil vapor extraction (SVE) beneath the on-site building and through the installation of SSDS's beneath thirteen residential structures in the Twin Orchards development, as described in Section 5.2, and will be further addressed in the remedy selection process.

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 completion of the RI/FS. Several IRMs are being/were implemented at the site, and off-site to the north, to mitigate impacts to groundwater and indoor air as follows:

- **Groundwater** - Chlorinated solvents migrating to the north from HVE via a groundwater plume have impacted groundwater quality beneath homes in the Twin Orchards residential area. This contamination is thought to be migrating upward from the groundwater into the soil vapor through the vadose zone and impacting indoor air quality in some of these homes through a process called soil vapor intrusion, as illustrated in (Figure 13). As a result of these impacts to residential structures, the NYSDEC is in the process of implementing an IRM to intercept the northerly flow of contaminants via

groundwater through the installation of a groundwater extraction and treatment (GWET) system. This mitigation system has been designed to extract contaminated groundwater through approximately three extraction (recovery) wells located along the north side of Vestal Parkway, in the vicinity of KOST Tire (Figure 14). Groundwater will be pumped through a groundwater treatment system consisting of a primary treatment step (air stripping tower) and an optional secondary treatment step (liquid-phase granular activated carbon adsorption system). This system is currently under construction and is expected to be operational by March 2008. An Operation, Maintenance and Monitoring (OM&M) Plan will be put in place to insure that the GWET system is operating as designed through periodic maintenance and monitoring. This would include, but not be limited to: periodic site visits consisting of site and system maintenance and sampling of the (GWET) system influent (for each recovery well) and effluent for VOCs in accordance with discharge limits; periodic water level measurements from select monitoring wells, and sampling and analysis of select monitoring wells for VOCs and inorganics; preparation and submittal of periodic monitoring reports; and periodic cleaning of air stripper and submersible pumps.

- **Residential Indoor Air** - As discussed above, groundwater contaminated with chlorinated solvents has migrated north from the site and, through the process of soil vapor intrusion (Figure 13), has resulted in indoor air impacts to residences in the Twin Orchards development. Between April 2005 and December 2007, approximately 60 homes were sampled. Of these homes, fifteen were determined to have levels of chlorinated solvents (primarily TCE) which represent a concern for current or future exposures to occupants through a process called vapor intrusion. Of these fifteen homes, thirteen sub-slab depressurization systems (SSDSs) were installed in residences between September 2005 and September 2007. Two homeowners refused installation of a SSDS. The SSDS is designed to remove contaminated vapors from beneath the basement or at-grade concrete slab and discharge the vapors to the outside. This system mitigates the potential for exposure by removing chlorinated solvents before they have a chance to impact the indoor living space. An additional round of residential air sampling was conducted in December 2007. Based on the results of this data, no additional residential systems were recommended, however, one additional home may require future monitoring. If additional homes are found to require sampling and/or mitigation, this work will be conducted under the recommended remedial actions as described in this PRAP.

- **On-site Indoor Air** - The on-site disposal of chlorinated solvents within, and adjacent to, the footprint of the eastern portion of the HVE building, referred to as the "Annex", has resulted in elevated levels of VOCs (primarily TCE and 1,1,1-TCA) within soils (soil vapor) and beneath the building concrete slab (sub-slab vapor). While levels of VOCs in indoor air have not been found to exceed NYSDOH soil vapor intrusion criteria, the levels beneath the building (TCE up to 2,800 $\mu g/m^3$) have created a potential concern for indoor air impacts above these criteria and warranted the installation of a mitigation system, which was installed and became operational in September 2005. The system is a hybrid sub-slab depressurization system (SSDS)/soil vapor extraction (SVE); the SSDS is

designed to remove contaminated sub-slab vapors to prevent soil vapor intrusion and the SVE component added to the mitigation system is designed to remove VOCs from shallow soils beneath the building annex. An Operation, Maintenance and Monitoring (OM&M) Plan is in place to insure that the system is operating as designed through periodic maintenance and monitoring. An additional area of the building was sampled in December 2007. Based on the results of these data, this area will require mitigation. Additional areas of this building are proposed to be sampled during the 2007/2008 heating season. If further mitigation is warranted based on this sampling round, this work, and any future work related to potential vapor impacts, will be conducted under the recommended remedial actions as described in this PRAP.

Mitigation measures were taken at the on-site HVE building, and at thirteen residences located north of the site in the Twin Orchards development to address current and/or potential human exposures (via inhalation) to volatile organic compounds associated with soil vapor intrusion.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 6.0 of the RI report. 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.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). 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.

For this site there are no longer complete exposure pathways. However, potential exposure pathways include:

- The site is paved or covered with the on-site building, therefore, exposure to contaminated sub-surface soil is not likely. The potential exists for workers who dig or enter excavations on-site to be exposed to contaminated soils through dermal contact or incidental ingestion.

- The area is served by public water, so exposure to contaminated groundwater is not likely. The two closest public water supply wells, two miles to the west and east of the site, are not threatened by the contaminated groundwater migrating to the north from the former Hidden Valley Electronics site.

- The NYSDEC and NYSDOH have evaluated the potential for soil vapor intrusion in the eastern portion of the on-site building and a sub-slab depressurization system was installed to minimize exposures. The remaining portion of the building is currently being evaluated and, if necessary, actions will be taken to minimize exposures caused by soil vapor intrusion.

- The NYSDEC and NYSDOH are investigating and evaluating the potential for exposures related to soil vapor intrusion in buildings in the downgradient neighborhood and actions have been taken and will be taken to minimize the potential for future exposures to occur.

These potential exposure pathways are being addressed through interim remedial measures as described in Section 5.2 of this PRAP, or would be addressed under the recommended remedial actions as described in this PRAP.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

As a result of on-site disposal of chlorinated solvents, the primary contaminants of concern at this site, a significant environmental threat exists associated with the current and potential impacts of contaminants to on-site subsurface soils and groundwater and off-site groundwater. No complete exposure pathways are likely for wildlife located on or downgradient of the site.

The following environmental exposure pathways and ecological risks have been identified:

- Site contamination has impacted the groundwater resource, resulting in current and potential impacts to the site groundwater, which is located within a New York State primary drinking water aquifer and a USEPA-designated sole source aquifer. This aquifer provides drinking water to most of the local population. Site groundwater flows northward, eventually discharging to the Susquehanna River, located approximately 0.5 miles to the north.

- Disposal practices have resulted in contaminated soil with contaminant concentrations that exceed soil cleanup objectives.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- potential exposures of persons at or around the site to chlorinated solvents (i.e. TCE and 1,1,1 TCA) in groundwater and soil;
- potential exposures of persons at or in the vicinity of the site to chlorinated solvents in indoor air;
- the release of contaminants from soil into groundwater that may create further exceedances of groundwater quality standards; and
- the release of contaminants from subsurface soil and/or groundwater under buildings and homes into indoor air through soil vapor.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards;
- soil cleanup objectives; and
- air guidance values.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected 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 Hidden Valley Electronics Site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth 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 potential remedies were considered to address the contaminated soils, groundwater, soil vapor and indoor air at the site. These remedies have been grouped into soil and groundwater alternatives as follows:

Soil Alternatives - As part of the final remedy for this site, all soil alternatives described below would include the continued OM&M of the on-site SSDS/SVE system and off-site SSDS IRMs, as well as any future sampling and/or remedial efforts to address potential vapor impacts, as described in Section 5.2 of this PRAP.

- Alternative S-1: No Further Action
- Alternative S-2: Institutional Controls, Low-Permeability Cover System (Limited Action)
- Alternative S-3: Excavation and Off-site Treatment/Disposal

Groundwater Alternatives - As part of the final remedy for this site, all groundwater alternatives described below would include the continued OM&M of the groundwater extraction and treatment system IRM, as well as any upgrades necessary to insure the continued operation of this system, as described in Section 5.2 of this PRAP.

- Alternative G-1: No Further Action
- Alternative G-2: *In Situ* Enhanced Biodegradation
- Alternative G-3: *In Situ* Chemical Oxidation/Reduction

Alternative S-1: No Further Action

Present Worth: *$372,000*
Capital Cost: *$0*
Annual Costs:
(Years 1-5): *$19,000*
(Years 6-30): *$19,000*

Alternative S-1 was developed as a baseline against which to compare other remedial alternatives for soil. Under Alternative S-1, no additional actions beyond the continued operation, maintenance, and monitoring of the on-site SSDS/SVE system and off-site SSDS IRMs, as described Section 5.2 of this PRAP, would be conducted as a part of the final remedy.

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative S-2: Institutional Controls, Low-Permeability Cover System (Limited Action)

Present Worth: *$716,000*
Capital Cost: *$79,000*
Annual Costs:
(Years 1-5): *$32,000*
(Years 6-30): *$32,000*

A low-permeability asphalt cover would be constructed over, or replace, the existing asphalt pavement to minimize infiltration of precipitation, reducing the potential for leaching of soil contaminants to groundwater. The proposed extent of this cover is approximately 3,600 square feet. This area is thought to contain soil contaminants in excess of Protection of Groundwater SCOs and is considered a likely source area for VOC groundwater contamination. Periodic inspections would be conducted to evaluate the condition of the cover system and a report would be prepared documenting the inspection and the conditions observed. Long-term maintenance of asphalt cover would be conducted as needed. It is assumed that, for cost purposes, the cover system would require resurfacing every five years.

Institutional controls would be implemented to restrict future use of the site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to limit exposure to contamination remaining at a site. Institutional controls would include periodic inspections to insure the effectiveness of the remedy, implementation of land-use restrictions to control subsurface activity and prohibit the installation of drinking water wells in the area of contamination, as well as prohibit changes in zoning of the site (e.g., change from commercial to residential use).

Alternative S-3: Excavation and Off-site Treatment/Disposal

Present Worth: *$1,673,000*
Capital Cost: *$1,036,000*
Annual Costs:
(Years 1-5): *$32,000*
(Years 6-30): *$32,000*

Contaminated soil containing VOCs above Unrestricted Use/Protection of Groundwater SCOs would be excavated to the water table, located at less than 10 feet bgs. The actual vertical extent would be based upon the results of the pre-design investigation, which would include a geotechnical evaluation of limitations due to soil material properties and the proximity to the on-site building, the retaining wall, and subsurface utilities. The source area to be addressed is assumed to be

approximately 3,600 square feet and approximately 1,300 cubic yards of soil would be excavated and disposed off-site. As discussed in Section 5.1.2, due to the elevated soil vapor and groundwater impacts outside the footprint of the building, as well as the limited number of soil samples collected in this area, it is likely that soil contamination may be more significant than the data reflects. As such, further delineation of this area would be required before the extent of the excavated area is known.

Due to the proximity of the proposed excavation to the on-site building, existing subsurface utilities, and the retaining wall, the excavation would be conducted using sheeting and shoring. Following excavation and off-site treatment/disposal of contaminated soils, the site would be restored. Site restoration would include excavation backfill and compaction and surface restoration to meet pre-existing conditions. Site restoration would also include construction of a low-permeability cover consisting of an asphalt cover, as described in Alternative S-2.

Institutional controls would be implemented to restrict future use of the site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to limit exposure to contamination remaining at a site. Institutional controls would include periodic inspections to insure the effectiveness of the remedy, implementation of land-use restrictions to control subsurface activity and prohibit the installation of drinking water wells in the area of contamination, as well as prohibit changes in zoning of the site (e.g., change from commercial to residential use). Long-term monitoring would be conducted to evaluate the effectiveness of the soil removal action.

Alternative G-1: No Further Action

Present Worth: *$1,158,000*
Capital Cost: *$338,000*
Annual Costs:
(Years 1-5): *$48,000*
(Years 6-30): *$48,000*

Alternative G-1 was developed as a baseline against which to compare other remedial alternatives for groundwater. Under Alternative G-1, no additional actions beyond continued operation, maintenance, and monitoring of the existing groundwater IRM, as described Section 5.2 of this PRAP, would be conducted as a part of the final remedy. It is assumed, however, that significant treatment equipment and facility improvements of this IRM would be required in fifteen years. This alternative involves no additional actions to protect human health or the environment.

Alternative G-2: *In Situ* Enhanced Biodegradation

Present Worth: *$1,907,000*
Capital Cost: *$748,000*

Annual Costs:
(Years 1-5): $137,000
(Years 6-10): $112,000

Prior to implementation of the *in situ* treatment, pre-design investigations would be conducted to refine the vertical and horizontal distribution of the VOC groundwater contamination, the presence of any VOC soil source areas or non-aqueous phase liquids, the location and extent of confining geologic formations, groundwater parameters that would impact remedial design, and aquifer testing (i.e., hydraulic conductivity testing). Laboratory and field studies would be conducted to determine the appropriate application methods, materials and dosage for the full-scale program. *In situ* enhanced biodegradation involves injection of microorganisms (i.e., fungi or bacteria, and other microbes) and/or addition of carbon sources (reagents) to the subsurface for use by local microorganisms capable of degrading organic contaminants found in soil and/or groundwater. Carbon sources (organic substrates) for enhanced biodegradation may include sodium lactate, propionate/butyrate, methanol, ethanol, emulsified vegetable oil, chitin, the Regenesis product Hydrogen Release Compound™ (HRCTM), a slow release lactate, and/or molasses.

The unit costs for these materials vary widely; however, the required quantities and delivery methods for implementation also vary widely and are best determined through site-specific laboratory and field studies. For purposes of the feasibility study conceptual design, it has been assumed that *in situ* enhanced biodegradation would be conducted using the Regenesis product HRCTM. However, this is not meant to preclude the testing or use of other reagents.

Full-scale implementation of *in situ* enhanced biodegradation would consist of the injection of the chosen reagents/substrates into the contaminated saturated zone. This injection can be conducted using either temporary injection points advanced using direct push or similar technology or permanent injection wells. For feasibility study costing purposes, it has been assumed that full-scale implementation would involve the injection of HRCTM into permanently installed polyvinyl chloride injection wells. Injection would occur within the on-site plume, defined as the plume south of Vestal Parkway (Figure 15). Injection wells would be installed both upgradient and downgradient of the on-site building (not beneath the building) and it is assumed that the reagents/substrates would move beneath the building via groundwater flow, resulting in the treatment of these less accessible contaminants.

Long-term monitoring would be conducted to evaluate the effectiveness of the enhanced biodegradation injection(s). Periodic operation, maintenance and reinjection would be conducted as needed based upon long-term monitoring results. Subsequent to full-scale implementation, monitoring of groundwater conditions and parameters would be conducted to determine the effectiveness of the initial implementation of *in situ* enhanced biodegradation. In addition, various periodic maintenance activities would be implemented to insure the effective operation of the system. For FS costing purposes, it has been assumed that a second application of HRCTM, similar to the initial injection, would be necessary one year following the initial implementation. Additional smaller scope re-applications may be necessary to address discrete residual contamination; however, this alternative primarily focuses on source reduction.

Institutional controls would be implemented to restrict future use of the site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to manage exposure to contamination remaining at a site. Institutional controls would likely include implementation of land-use restrictions restricting subsurface activity and installation of drinking water wells in the area of contamination, and would prohibit changes in zoning of the site (e.g., change from commercial to residential use). Periodic institutional control inspections and reporting would be conducted.

Alternative G-3: *In Situ* Chemical Oxidation/Reduction

Present Worth: *$4,578,000*
Capital Cost: *$2,823,000*
Annual Costs:
(Years 1-5): *$124,000*
(Years 6-10): *$99,000*

In situ chemical oxidation/reduction (ISCO) is a remediation technology for use in groundwater and saturated soils. It involves the injection of oxidants and other additives or catalysts directly into the source area. The oxidant chemicals react with the contaminants, resulting in the production of harmless substances such as carbon dioxide, chlorides and water.

Pre-design investigations would be conducted, similar to Alternative G-2, to assess the nature and extent of contaminants, as well as the characteristics of the local geology/hydrogeology.

Laboratory and field studies would be conducted to determine the appropriate reagent, reagent dosage, and approach for the full-scale program. Common chemical oxidation reagents used in practice include permanganate (MnO_4^-), hydrogen peroxide (H_2O_2), ozone, calcium peroxide, activated (iron) persulfate, or a percarbonate Regenesis product known as RegenOx™. The unit costs for these materials vary slightly; however, the required quantities for implementation vary widely and are best determined through site-specific laboratory and field studies. This feasibility study evaluates *in situ* chemical oxidation using permanganate and persulfate based reagents. Permanganate is relatively long-lasting in the subsurface and is effective for destruction of ethene-based chlorinated solvents; persulfate, while short-lived in the subsurface, is effective at destruction of both ethene- and ethane-based chlorinated solvents.

Full-scale implementation of *in situ* chemical oxidation would consist of the injection of the chosen reagent into the contaminated saturated zone using direct push or similar technology or permanent injection wells both upgradient and downgradient of the on-site building, similar to Alternative G-2 (Figure 15). The costs developed in the feasibility study for this component of Alternative G-3 are representative of two injections of persulfate or hydrogen peroxide/Fenton's Reagent into permanently installed injection wells. Persulfate and hydrogen peroxide/Fenton's Reagent address both ethene-based (such as TCE) and ethane-based (such as 1,1,1-TCA) VOCs, but is short-lived

in the subsurface environment. Two injection polishing rounds of permanganate would be conducted for additional oxidation of TCE.

Institutional controls would be implemented to restrict future use of the site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to manage exposure to contamination remaining at a site. Periodic institutional control inspections and reporting would be conducted similar to Alternative G-2. Long-term monitoring would be conducted to evaluate the effectiveness of the chemical oxidation injection(s). Periodic operation and maintenance, including but not limited to, re-injection activities, would be conducted as needed based upon long-term monitoring results.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs 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 FS 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 five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term 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.

4. 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.

5. 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.

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-Effectivness. 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 Table 2.

This final criterion 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.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised. No significant public comments were received.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative S-1, No Further Action with continued OM&M of the residential SSDSs and HVE building IRMs and Alternative G-2, *In Situ* Enhanced Biodegradation with continued OM&M of the groundwater IRM and institutional controls, as the remedy for this site. The elements of this remedy are described at the end of this section. The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternatives S-1 and G-2 are being selected because, as described below, they satisfy the threshold criteria and provide the best balance of the primary balancing criteria described in Section 7.2. They will achieve the remediation goals for the site by greatly reducing on-site source-area contamination in groundwater and saturated soils, restoring groundwater quality to the extent practicable and reducing the source-area contamination and off-site groundwater contamination that is responsible for impacts to soil vapor and indoor air. Combining either of the other soil alternatives (S-2 or S-3) with either Alternative G-2 or G-3 would also comply with the threshold selection criteria, but at a moderately to significantly higher cost.

Because combining soil Alternatives S–1, S-2 or S-3 with groundwater Alternatives G-2 or G-3 would satisfy the threshold criteria, the five balancing criteria are particularly important in selecting

a final remedy for the site. It should be noted that in the comparison of remedial alternatives below, both soil and groundwater alternatives will be considered in the final remedy.

Alternatives S-1 and G-1 (no further action) would have no short-term impacts nor would they individually achieve remediation goals for this site. Alternatives S-2 (institutional controls and cover system), S-3 (soil excavation), G-2 (*in situ* enhanced biodegradation) and G-3 (*in situ* chemical oxidation/reduction) all have short-term impacts which can be controlled, however, Alternative S-2 would have less short-term impacts than Alternative S-3, related to excavation close to a building. The time needed to achieve the remediation goals for soils would be quicker for Alternative S-3 as compared to Alternative S-2 because shallow soils would be removed. Alternatives G-2 and G-3 would have similar short-term adverse impacts related to the installation of injection wells close to the building and the use and handling of chemicals. The time needed to achieve the remediation goals would be similar for Alternatives G-2 and G-3.

Alternatives S-2 and S-3 would both achieve long-term effectiveness by limiting any contamination above the water table from impacting groundwater. Alternative S-1, which only includes the operation of the HVE building IRM, would be somewhat less effective than S-2 and S-3. Alternatives G-2 and G-3 would both achieve long-term effectiveness by addressing the on-site contaminant source, thus limiting further downgradient impacts to the groundwater as well as limiting impacts to soil vapor and indoor air, both on-site and off-site. Alternatives S-2, S-3, G-2 and G-3 would require an environmental easement and long-term monitoring.

Alternatives S-1 and G-1 (no further action) would be the easiest alternatives to implement. Alternative S-2, installation of a cover system, would be easier to implement than Alternative S-3, excavation. Alternative S-3 would be potentially difficult to implement due to the close proximity of the building and potential damage to the building or foundation during soil excavation. Alternatives G-2 and G-3 would be equally feasible to implement, with some difficulties associated with installation of well injection points adjacent to the on-site building where utilities may be present. None of these alternatives are expected to interfere with the operation of the HVE building IRM.

Alternatives S-2 and S-3 would both reduce the mobility of contaminants above the water table, however S-3 would be more effective because the contaminants would be removed. Because of the presence of the on-site building, a partially constructed asphalt cover currently in place and operation of the building IRM, Alternative S-1 would also limit the mobility of contaminants. Alternative S-3 would reduce the volume and toxicity of contaminants on-site, but would not reduce them off-site unless treatment was applied prior to disposal. Alternatives G-2 and G-3 would reduce the toxicity, mobility and volume of contaminants through *in situ* treatment of on-site groundwater and saturated soil. Alternative G-3, which utilizes chemical oxidation to treat VOCs, is likely to result in a quicker, more complete destruction of contaminants. Alternative G-2 would have the potential to cause the generation of some hazardous daughter products, however, these would be mitigated over time and are unlikely to increase the threat of indoor air impacts because vapor treatment systems are in place to protect indoor air quality. Alternative G-1 would not reduce the toxicity, mobility or volume of contaminants.

The cost of the alternatives varies significantly. The no further action alternatives (S-1 and G-1) would be the least costly. Installation of a cover system (Alternative S-2) would be less expensive than excavation and off-site treatment/disposal (Alternative S-3) of shallow soils. Neither of the soil alternatives are considered permanent remedies. Of the two *in situ* groundwater and saturated soil treatment alternatives, Alternative G-3 is significantly more costly than Alternative G-2, however, both *in situ* alternatives would eliminate VOC contamination through chemical processes. There is the potential that Alternative G-2 would result in the generation of secondary hazardous products, however, these contaminants are expected to be mitigated over time. A SSDS/SVE IRM is currently operating on-site to intercept any vapors that may potentially impact indoor air. In addition, a groundwater extraction and treatment (GWET) IRM will be operational downgradient of the source area to intercept and treat any VOCs that would potentially migrate off-site via the groundwater.

The estimated total present worth cost to implement the remedy (Alternatives S-1 and G-2) is $2,279,000. The cost to construct the remedy is estimated to be $748,000 and the estimated average annual costs for Years 1 through 5 is $156,000 and for Years 6 through 10 is $131,000 (Table 2).

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. *In situ* enhanced biodegradation of on-site contaminated groundwater and saturated soils.

3. Continued implementation and OM&M of the site-related IRMs which have been implemented including: a hybrid sub-slab depressurization system (SSDS)/soil vapor extraction (SVE) system which currently operates beneath the HVE building annex; a groundwater extraction and treatment (GWET) system which will be operational in Spring 2008 to intercept and treat contaminated groundwater between the site and the Twin Orchards residential development, north of the site; and several residential SSDSs (currently thirteen as of March 2008) which are currently operational in the Twin Orchards development.

4. Imposition of an institutional control in the form of an environmental easement that ~~would~~ will require (a) limiting the use and development of the property to commercial use, which would also permit industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

5. Development of a site management plan which will include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion for any existing on-site buildings, future buildings developed on the site, or any off-site structures, including provision for mitigation of any impacts identified; (b) monitoring of groundwater and soil vapor/indoor air; (c) identification of any use restrictions on the site; and (d)

provisions for the continued proper operation and maintenance of the components of the remedy.

6. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

7. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. This program will allow the effectiveness of the *in situ* enhanced biodegradation remedy, as well as the various IRMs (including the on-site SSDS/SVE system, the off-site residential SSDS's and the GWET system) to be monitored and will be a component of the long-term management for the site.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.

- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.

- A fact sheet was issued on October 6, 2004 to announce the start of a Remedial Investigation/Feasibility Study at the HVE site.

- A public meeting was held on August 16, 2006 to present soil vapor and indoor air investigations related to the HVE site.

- A Proposed Remedial Action Plan (PRAP) fact sheet was mailed to the public using the public contact list (described above), announcing a public meeting and a public comment period (February 27, 2008 to March 27, 2008) for the PRAP.

- A public meeting was held on March 18, 2008 to present and receive comments on the PRAP.

- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of Contamination
2004 to 2007

On-Site Subsurface Soil Data, 2004-2005

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (mg/kg)[a]	SCG[b] (mg/kg)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-trichloroethane	ND-0.95	0.68	1/18
	trichloroethene	ND-4.2	0.47	1/18
Inorganic Compounds	Nickel	16-30	30	1/3
	Selenium	ND-49	3.9	2/3
	Zinc	49-175	109	1/3

On-Site and Off-Site Groundwater Data, 2004 - 2007

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (µg/L)[a]	SCG[b] (µg/L)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-trichloroethane	ND-1300	5	56/106
	trichloroethene	ND-2300	5	55/106
	1,1-dichloroethane	ND-270	5	22/106
	1,1-dichloroethene	ND-1600	5	29/106
	cis-1,2-dichloroethene	ND-130	5	8/73
	vinyl chloride	ND-38	2	6/73
	trichlorofluoromethane	ND-1300	5	21/96
	benzene	ND-520	1	11/100
	ethyl benzene	ND-370	5	19/100
	toluene	ND-200	5	13/100
	total xylenes	ND-1230	5	14/100

TABLE 1(cont.)
Nature and Extent of Contamination
2004 to 2007

On-Site and Off-Site Soil Vapor Data, October/December 2004

SOIL VAPOR	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency Exceeding Non-Detect
Volatile Organic Compounds (VOCs)	trichloroethene	ND-20000	NA	23/30
	1,1,1-trichloroethane	ND-2400	NA	19/30
	1,1-dichloroethane	ND-93	NA	6/7
	1,1-dichloroethene	ND-230	NA	6/7
	cis-1,2-dichloroethene	ND-220	NA	6/7
	benzene	1.9-420	NA	7/7
	ethyl benzene	3-74	NA	7/7
	toluene	22-410	NA	7/7
	total xylenes	16-5600	NA	7/7

[a] µg/L = micrograms per liter in water
mg/kg = milligrams per kilogram in soil
$\mu g/m^3$ = micrograms per cubic meter in air

[b] SCG = standards, criteria, and guidance values

ND = not detected
NA = not applicable

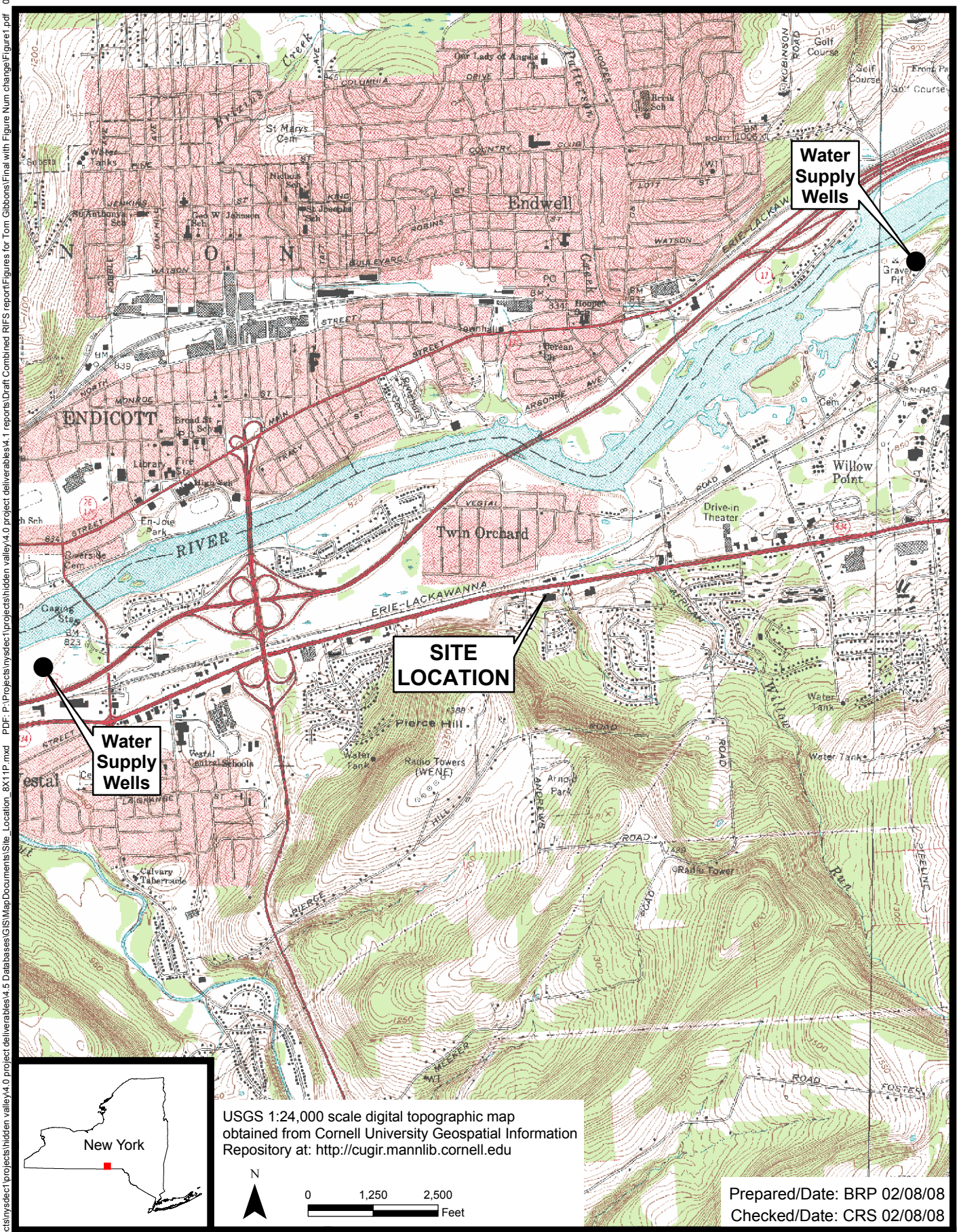
Table 2: Summary of Remedial Alternative Costs

Item	Description	Alternative S-1	Alternative S-2	Alternative S-3	Alternative G-1	Alternative G-2	Alternative G-3
1	Capital Costs	-	$ 79,000	$ 1,036,000	$ -	$ 748,000	$ 2,823,000
2	Present Worth of Annual and Periodic Costs	$ 372,000	$ 637,000	$ 637,000	$ 1,158,000	$ 1,159,000	$ 1,755,000
3	Total Present Worth (Item 1 plus 2)	$ 372,000	$ 716,000	$ 1,673,000	$ 1,158,000	$ 1,907,000	$ 4,578,000
4	Annual Costs Years 1 through 5	$ 19,000	$ 32,000	$ 32,000	$ 48,000	$ 137,000	$ 124,000
5	Annual Costs Years 6 through 10	$ 19,000	$ 32,000	$ 32,000	$ 48,000	$ 112,000	$ 99,000
6	Annual Costs Years 11 through 30	$ 19,000	$ 32,000	$ 32,000	$ 48,000	$ -	$ -
7	Periodic Costs (see Notes 1 and 2)	-	$ 3,000	$ 3,000	$ 338,000	$ 95,000	$ 844,000
8	Remedial Timeframe (yrs) (Note 3)	30	30	30	30	10	10

Notes:

1. Periodic Costs for Alternatives G-2 and G-3 would be incurred in Year 2.
2. Periodic costs for Alternative G-1 would be incurred in Year 15, and would also be incurred under G-2 and G-3 if remedial goals were not met in 15 years.
3. Present Worth costs shown above are based upon the assumed Remedial Timeframe.
4. Annual and Periodic Costs (Item 4 - 7) presented are non-discounted costs.

S-1 = No Further Action and Continued OM&M of Soil Vapor IRMs
S-2 = Limited Action with Low-Permeability Cover and Continued OM&M of Soil Vapor IRMs
S-3 = Excavation and Off-Site Treatment/Disposal and Continued OM&M of Soil Vapor IRMs
G-1 = No Further Action and Continued OM&M of Groundwater IRM
G-2 = In-Situ Enhanced Biodegradation and Continued OM&M of Groundwater IRM
G-3 = In-Situ Chemical Oxidation/Reduction and Continued OM&M of Groundwater IRM

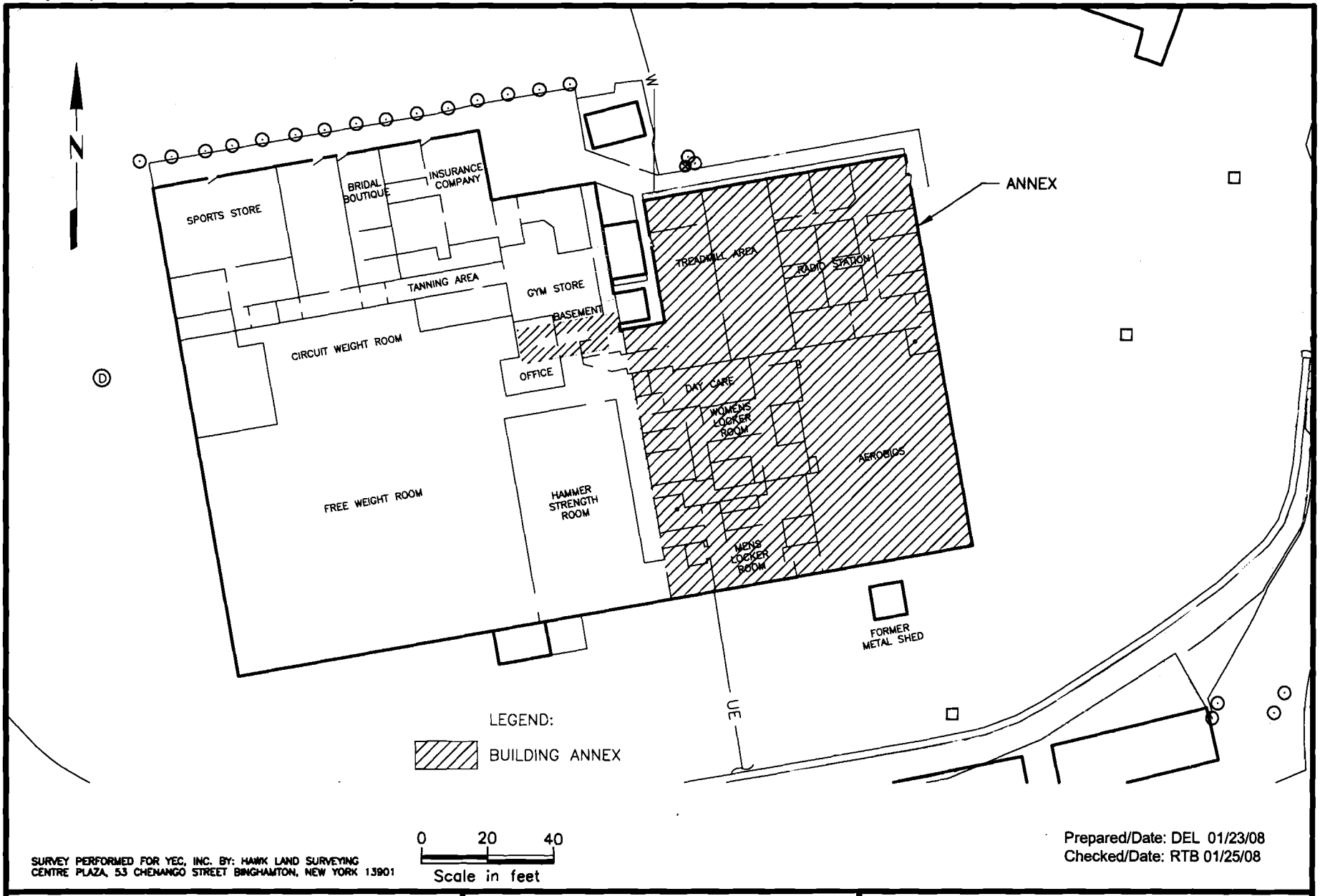


RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

SITE LOCATION
1808 VESTAL PARKWAY EAST
Project 3612-07-2082
Figure 1

M:□Projects□nysdec1□HIDDEN VALLEY□RI-FIGURE-1.2.dwg Wed, 20 Feb 2008 - 11:04am rhholman



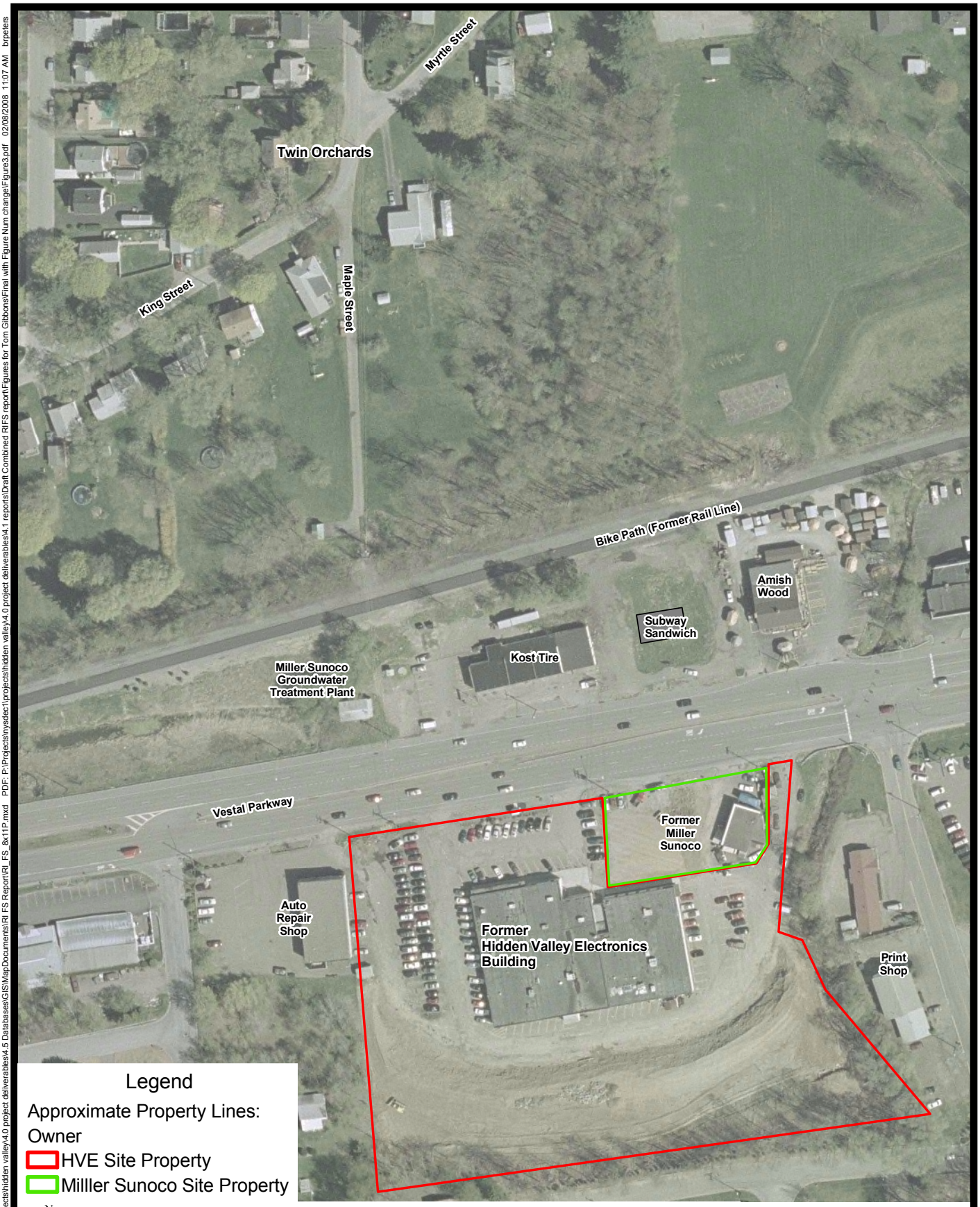
SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING
CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

Prepared/Date: DEL 01/23/08
Checked/Date: RTB 01/25/08

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

SITE BUILDING FEATURES
Project 3612-07-2082
Figure 2



Legend

Approximate Property Lines:

Owner

HVE Site Property

Millller Sunoco Site Property

N

0 75 150 Feet

Note:
Broome County color digital orthoimagery (2002) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

Prepared/Date: BRP 02/08/08
Checked/Date: TDL 02/08/08

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

SITE FEATURES
Project 3612-07-2082
Figure 3

MW-30
811.75

MW-28
810.25

812

MW-29
810.02

MW-32
813.16

812

MW-26
813.79

MW-27
814.36

MW-25
814.79

816

MW-31
814.52

MW-19
816.06

MW-22
815.31

MW-14
816.52

MW-18
817.04

MW-15
816.83

MW-20
815.95

MW-13
816.66

MW-21
815.82

820

816

MW-8
818.42

MW-12
821.43

824

MW-7
821.52

MW-9
819.95

MW-5
822.14

MW-11
819.74

MW-105

828

MW-16
829.23

832

MW-17
826.32

MW-2
833.09

820

MW-1
829.31

MW-3
830.26

836

MW-33
827.69

824

MW-4
831.85

MW-104

TW-3
830.61

MW-103
832.3

TW-7
836.26

TW-4
831.35

828

TW-2
830.44

TW-1
834.41

TW-9
834.48

Former
Hidden Valley Electronics
Building

TW-6
834.68

MW-102
835.53

MW-101
837.8

832

836

Legend

- Monitoring Wells and Groundwater Elevations
- Interpreted Groundwater Contours (dashed where inferred)

N

0 60 120 Feet

New York

Notes: Groundwater Elevations measured by MACTEC on 1/3/05.
Broome County color digital orthoimagery (2002) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

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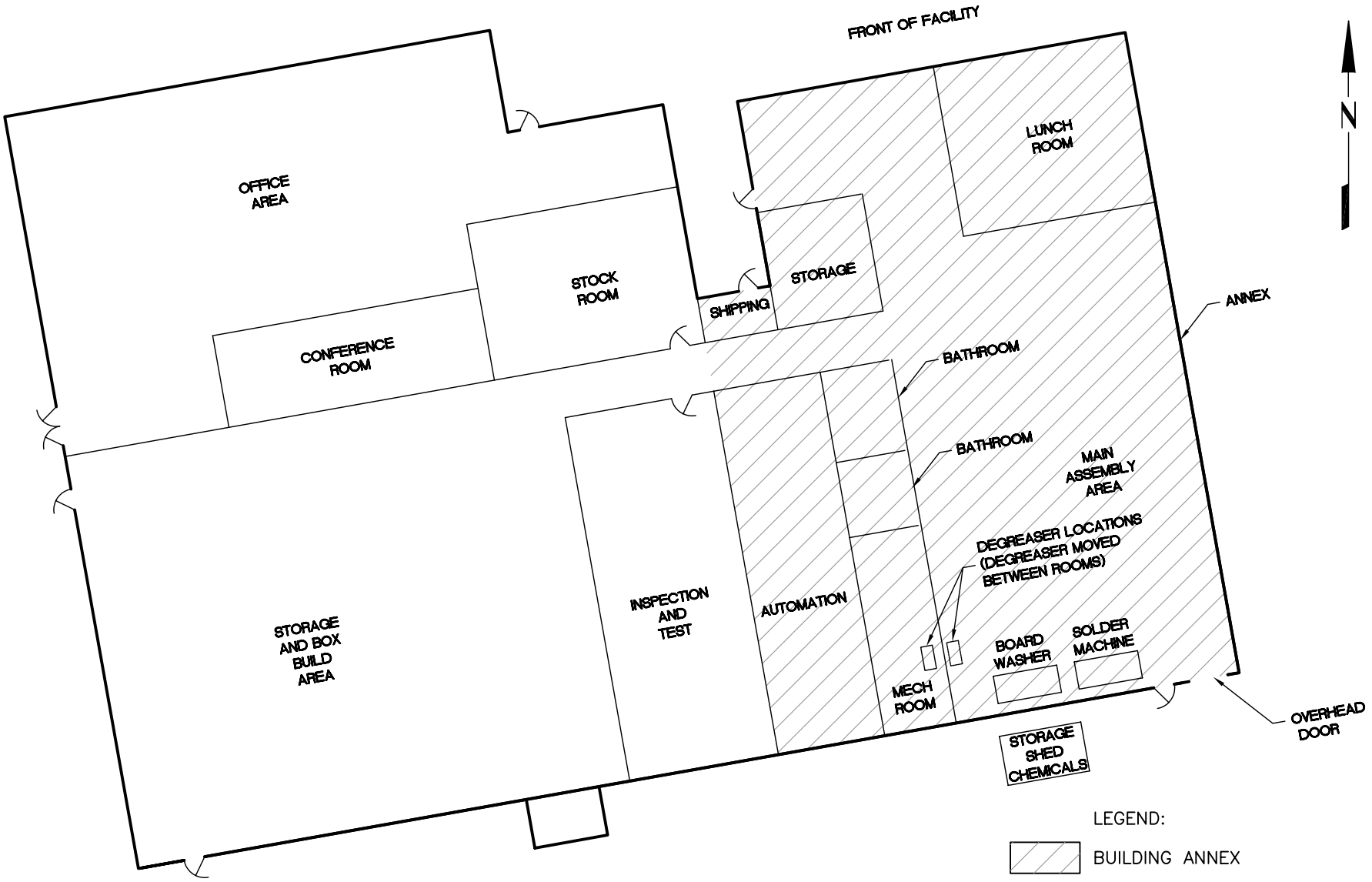
RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

PHASE 2 GROUNDWATER
POTENTIOMETRIC SURFACE
Project 3612-07-2082
Figure 4

Document: P:\Projects\nysdec1\projects\hidden valley\4.0 project deliverables\4.1 reports\Draft Combined RIFS report\Figures for Tom Gibbons\Final with Figure Num change\Figure4.pdf 02/08/2008 11:13 AM brpeters
PDF: P:\Projects\nysdec1\projects\hidden valley\4.0 project deliverables\4.5 Databases\GIS\MapDocuments\RI FS Report\RI_FS_11x17P.mxd

M:□Projects□nysdec1□HIDDEN VALLEY□RI-FIGURE-1.4.dwg Wed, 20 Feb 2008 - 11:03am rhholman



NOTE:
WALL AND DOOR LOCATIONS ARE APPROXIMATED BASED ON SKETCH BY ROBERT BEAUCHAMP, FORMER HVE QA MANAGER.

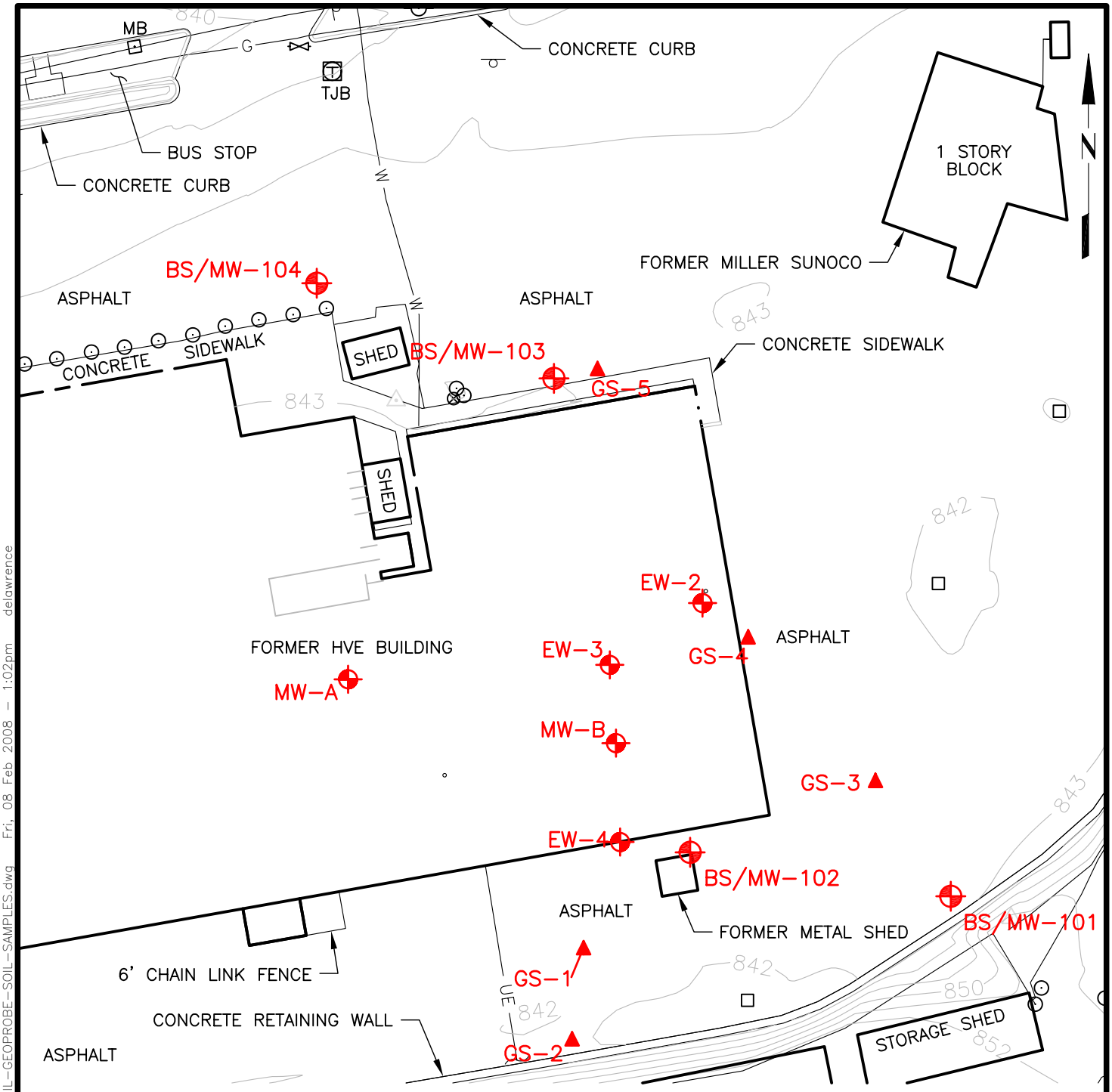
0 15 30 60
SCALE IN FEET
APPROXIMATE

Prepared/Date: DEL 01/23/08
Checked/Date: RTB 0125/08

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

HVE BUILDING PREVIOUS LAYOUT
1808 VESTAL PARKWAY EAST
Project 3612-07-2082
Figure 5



NOTE:

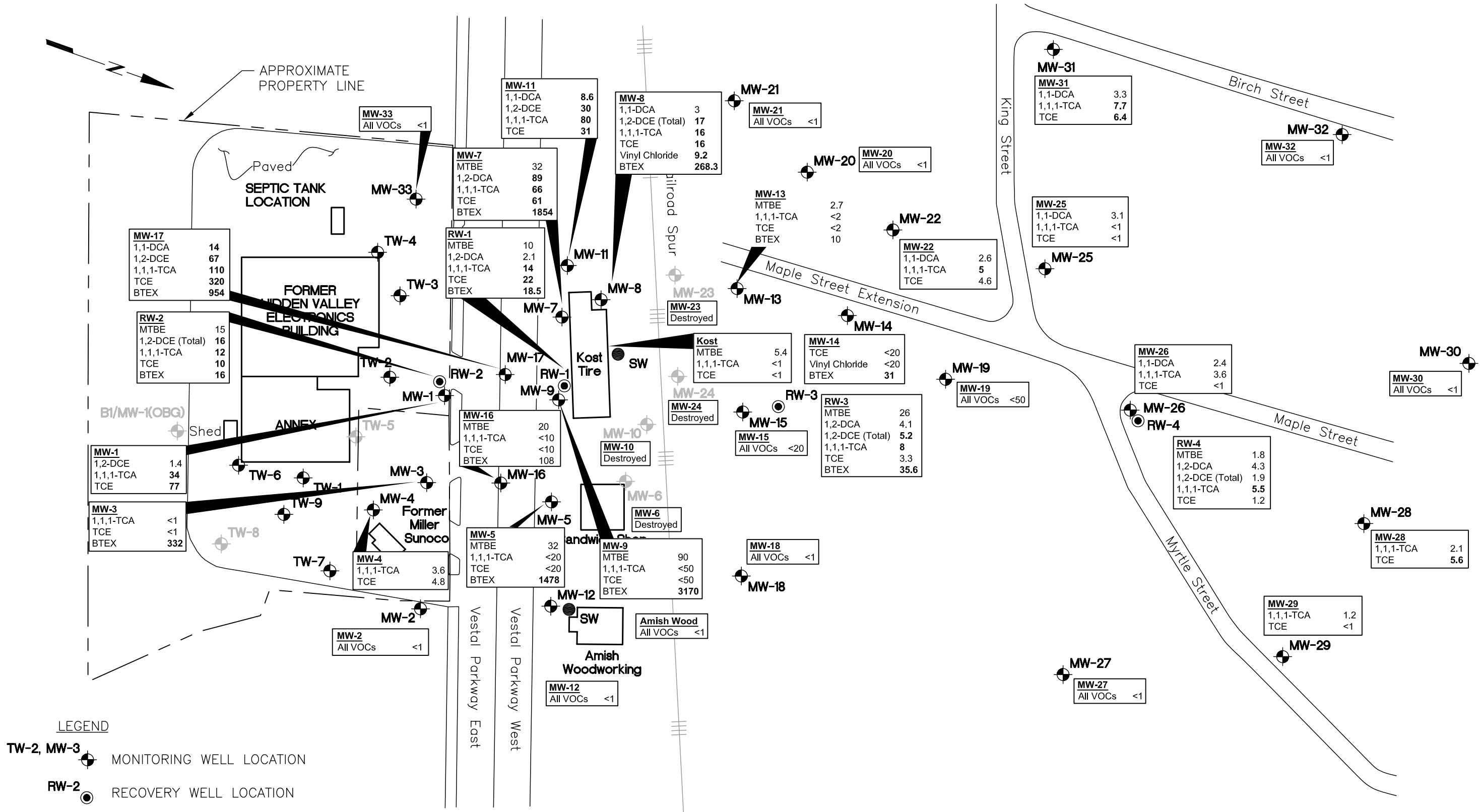
EW-2, EW-3, EW-4, MW-A AND MW-B LOCATIONS ARE APPROXIMATE.

SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING
CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

Prepared/Date: DEL 01/29/08
Checked/Date: RTB 01/29/08

RI/FS REPORT HIDDEN VALLEY ELECTRONICS SITE VESTAL, NEW YORK	MACTEC	SOIL BORING AND GEOPROBE SOIL SAMPLE LOCATIONS Project 3612-07-2082 Figure 6

M:\Projects\nysdec1\HIDDEN VALLEY\RI-FIGURE-SOIL-GEOPROBE-SOIL-SAMPLES.dwg Fri, 08 Feb 2008 - 1:02pm delawrence



LEGEND

- TW-2, MW-3 — MONITORING WELL LOCATION
- RW-2 — RECOVERY WELL LOCATION
- MW-23 — ABANDONED WELL
- SW — PRIVATE SUPPLY WELL

NOTES:
1. SAMPLES COLLECTED BY NATURE WAY ENVIRONMENTAL CONSULTANTS & CONTRACTORS, INC., ON 5/5/04 AND 5/6/04.
2. CONCENTRATIONS REPORTED IN ug/L.
3. BASE MAP FROM O'BRIEN & GERE, INC

0 25 50 100
SCALE IN FEET
APPROXIMATE

Prepared/Date: DEL 01/28/08
Checked/Date: RTB 01/28/08

MW-3
1,1,1-TCA 210
TCE <1
BTEX 122

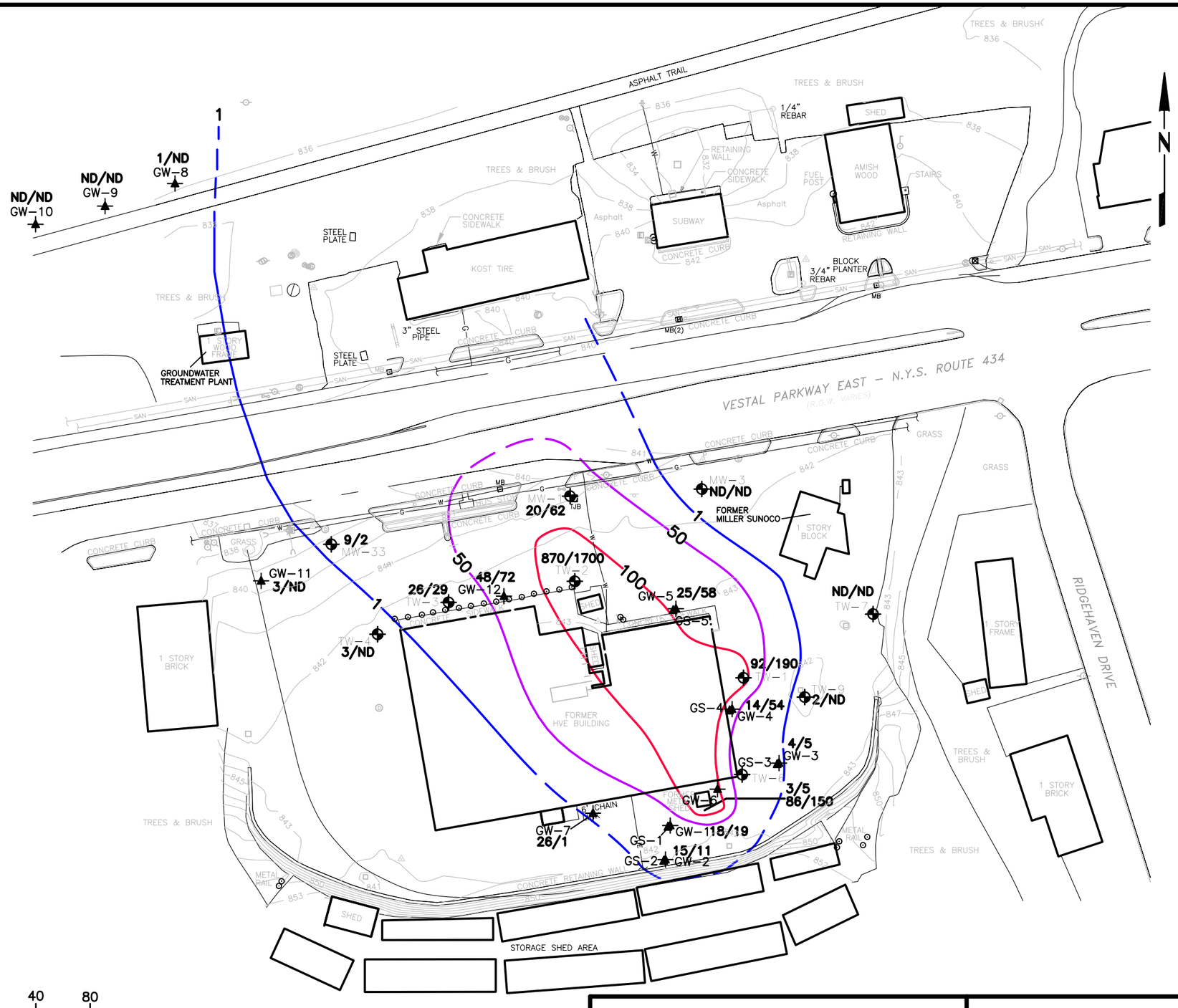
WELL ID
VOC CONCENTRATION DETECTED IN GROUNDWATER SAMPLES COLLECTED. CONCENTRATIONS IN BOLD EXCEED NEW YORK STATE CLASS GA GROUNDWATER STANDARDS.

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

VOC CONCENTRATIONS IN GROUNDWATER-MAY 2004
Project 3612-07-2082
Figure 7

M:\Projects\nysdec1\HIDDEN VALLEY\RI-FIGURE-1.6.dwg Wed, 20 Feb 2008 - 11:14am rhholman



LEGEND

GS–5▲ GEOPROBE SOIL SAMPLE LOCATION

GW–8✦ GEOPROBE GROUNDWATER SAMPLE LOCATION

TW–3⊕ EXISTING MONITORING WELL LOCATION

INTERPRETED TCE CONCENTRATION IN GROUNDWATER (DASHED WHERE INFERRED)

1,1,1–TCA/TCE RESULTS IN ug/L

RESULTS FROM GEOPROBE (10/27/ AND 10/28/2004) AND WELL (9/28 THRU 9/30/2004) SAMPLES COLLECTED.

ND = NOT DETECTED

Prepared/Date: DEL 01/24/08
Checked/Date: RTB 01/25/08

0 40 80
Scale in feet

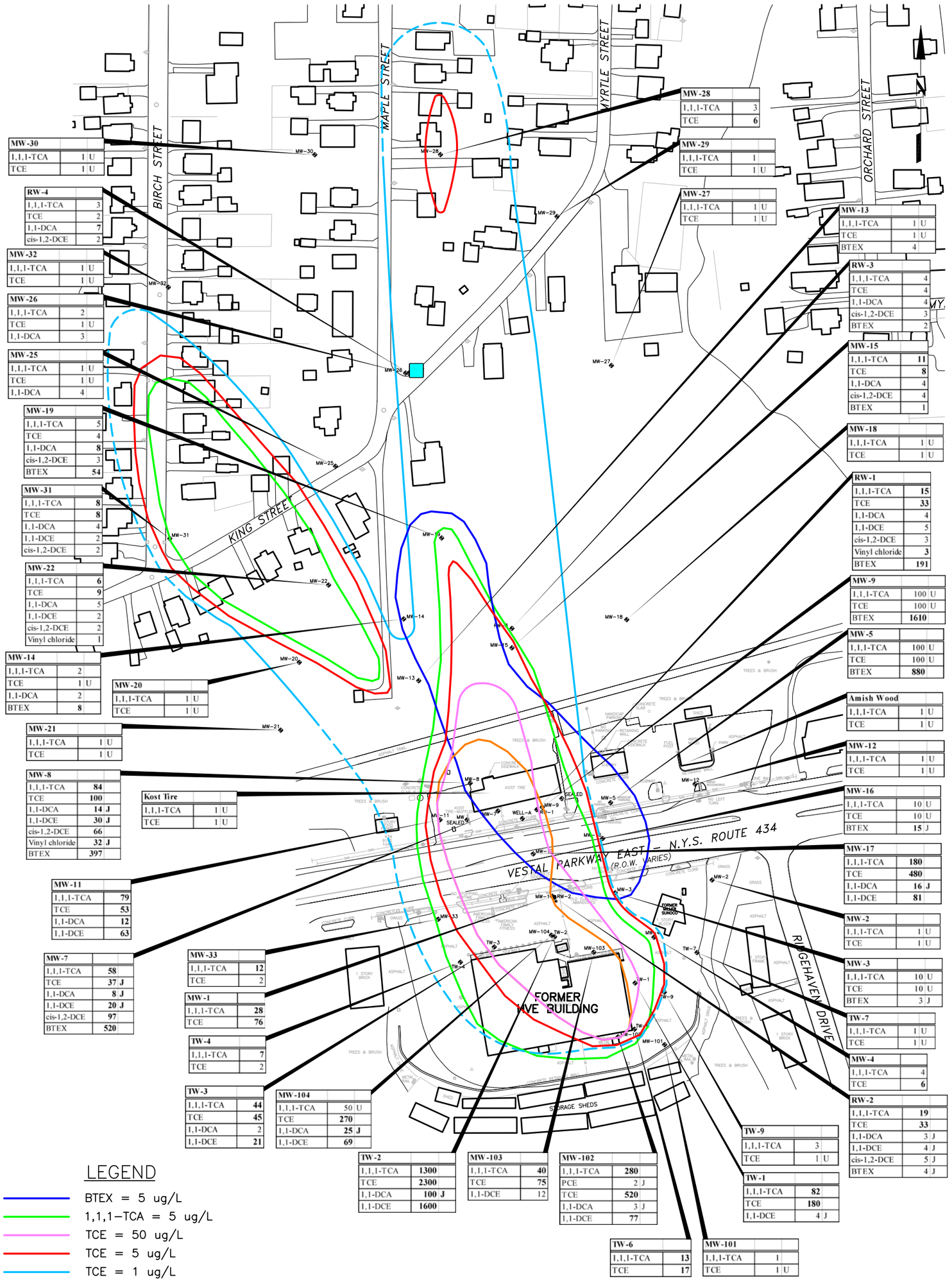
SOURCE: SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

PHASE ONE GEOPROBE AND MONITORING WELL GROUNDWATER TCE SAMPLE RESULTS
Project 3612-07-2082
Figure 8

M:\Projects\nysdec1\HIDDEN VALLEY\RI-FIGURE-4.1.dwg Fri, 08 Feb 2008 - 12:49pm delawrence



LEGEND

- BTEX = 5 ug/L
- 1,1,1-TCA = 5 ug/L
- TCE = 50 ug/L
- TCE = 5 ug/L
- TCE = 1 ug/L
- 1,1 DCE = 5 ug/L

COMPOUNDS OTHER THAN THOSE CONTOURED EXCEED THE NYS GROUNDWATER STANDARD

VALUES IN BOLD EXCEED THE NYS GROUNDWATER STANDARD

SAMPLES COLLECTED WEEK OF JANUARY 3, 2005

SOURCE: SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

Prepared/Date: DEL 01/24/08
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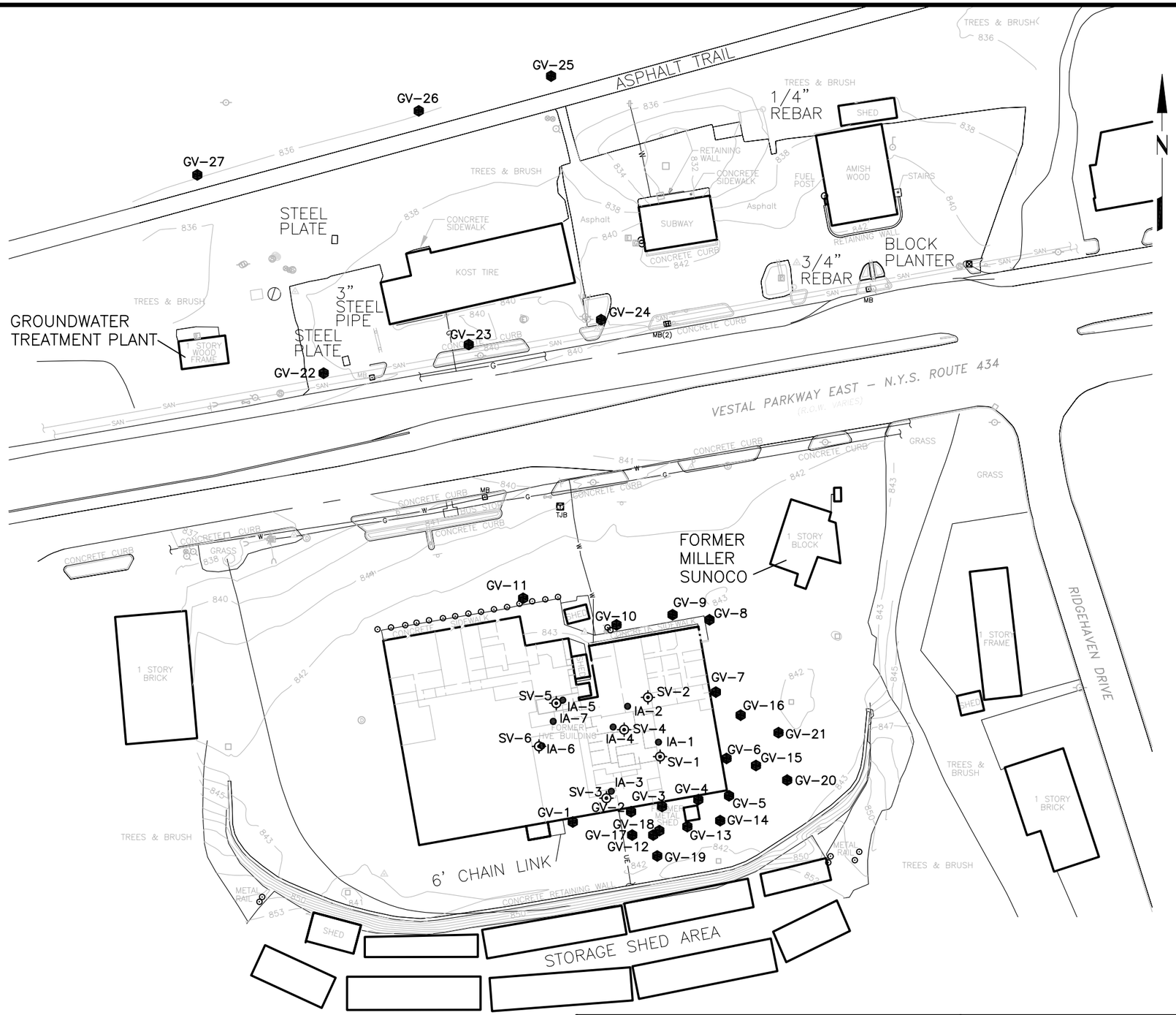
RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

PHASE TWO
GROUNDWATER VOC SAMPLE RESULTS
Project 3612-07-2082
Figure 9



LEGEND

- SV-2 ⊙ SUB SLAB SOIL VAPOR SAMPLE LOCATION
- IA-3 ● INDOOR AIR SAMPLE LOCATION
- GV-22 ⬢ GEOPROBE SOIL GAS SAMPLE LOCATION

0 40 80
Scale in feet

Prepared/Date: DEL 01/28/08
Checked/Date: RTB 01/28/08

SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING
CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

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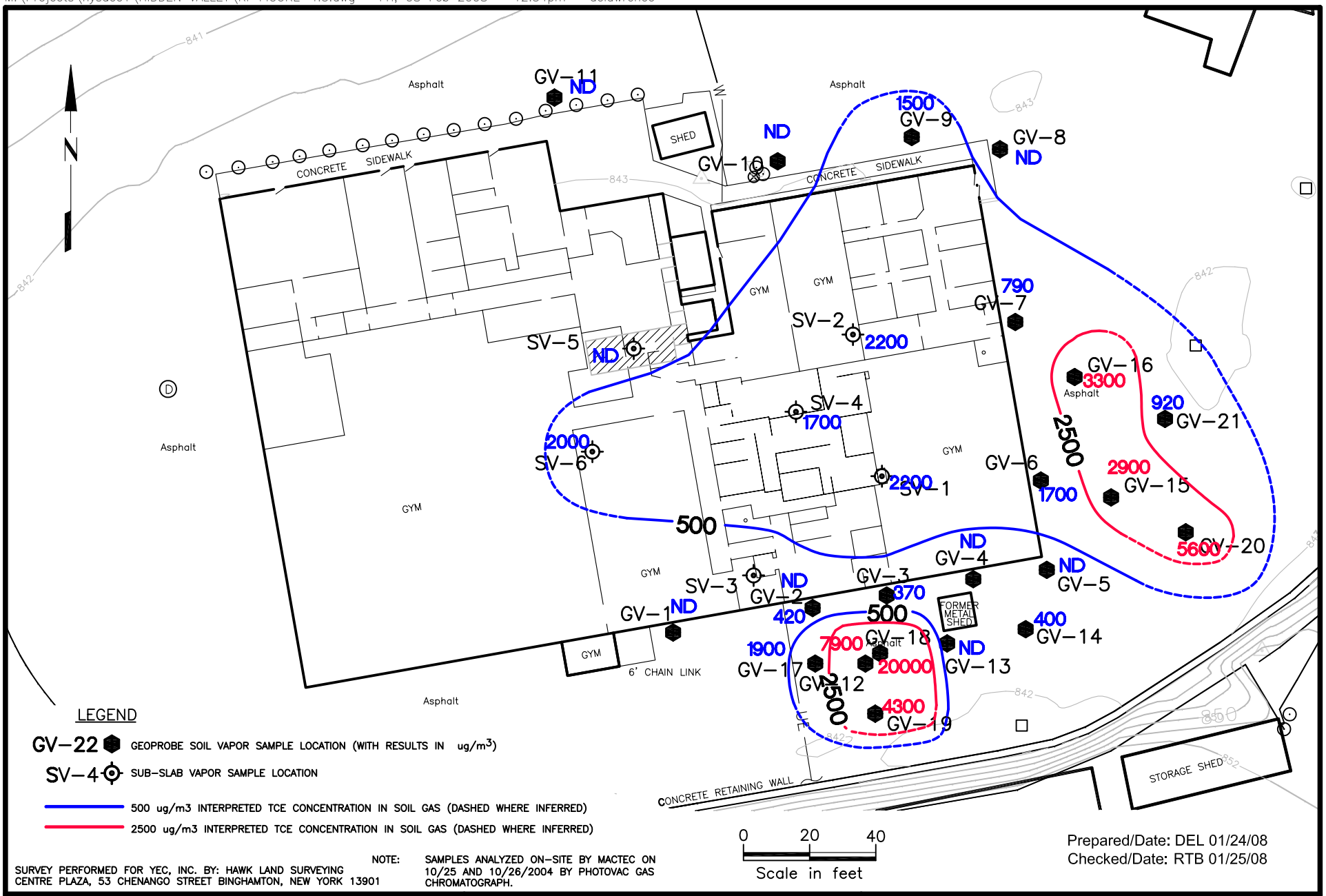
PHASE ONE SOIL VAPOR & SUB-SLAB
SOIL VAPOR/INDOOR AIR SAMPLE LOCATIONS
Project 3612-07-2082
Figure 10

M:\Projects\nysdec1\HIDDEN VALLEY\RI-FIGURE-2.1.dwg Fri, 08 Feb 2008 – 12:52pm delawrenc

M:\Projects\nysdec1\HIDDEN VALLEY\RI-FIGURE-4.3.dwg Fri, 08 Feb 2008 - 12:54pm delawrence



NOTE: SAMPLES ANALYZED ON-SITE BY MACTEC ON 10/25 AND 10/26/2004 BY PHOTOVAC GAS CHROMATOGRAPH.

SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING
CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

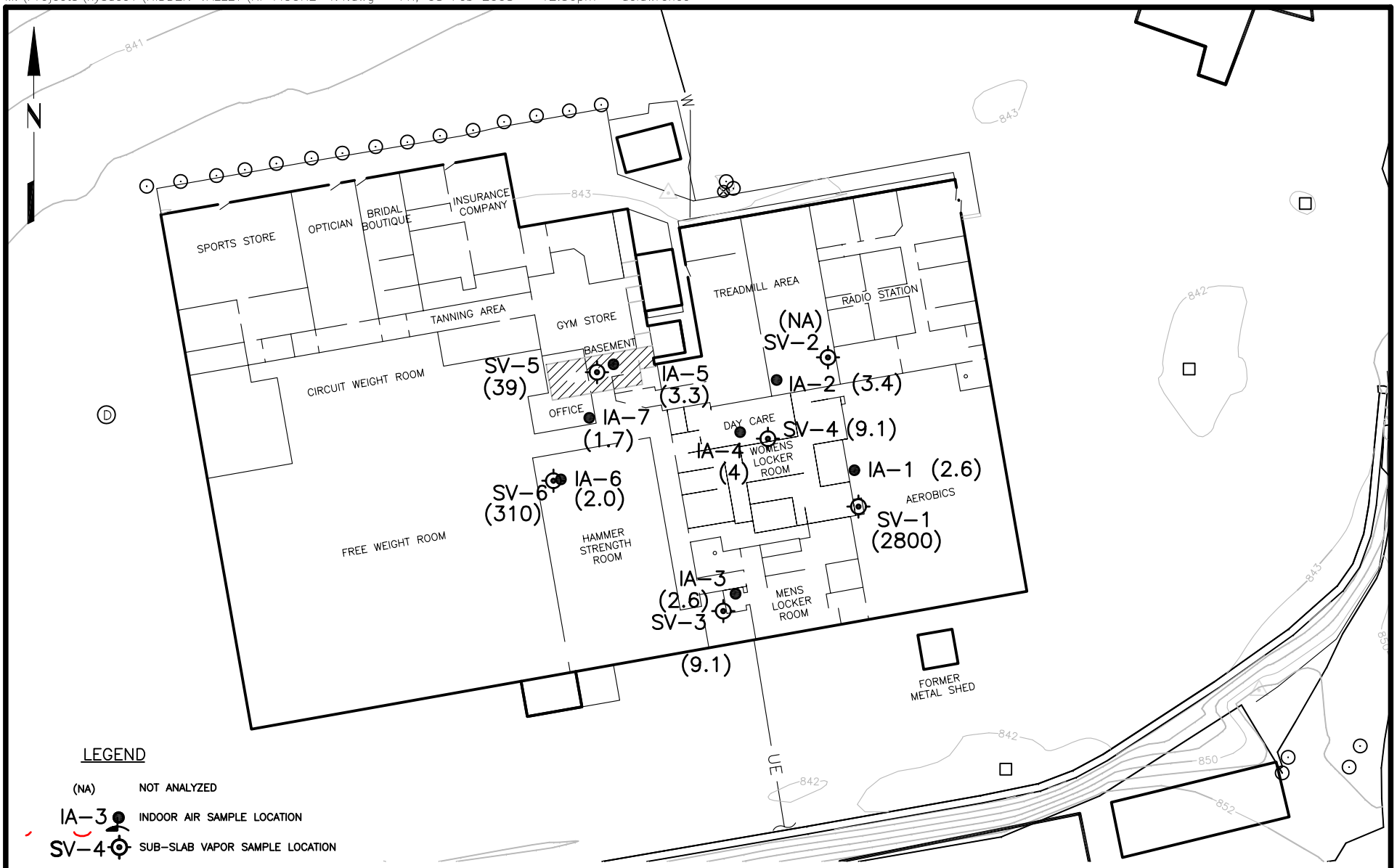
Prepared/Date: DEL 01/24/08
Checked/Date: RTB 01/25/08

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

ON-SITE
ANALYTICAL SOIL VAPOR RESULTS FOR TCE
Project 3612-07-2082
Figure 11

M:\Projects\nysdec1\HIDDEN VALLEY\RI-FIGURE-4.4.dwg Fri, 08 Feb 2008 - 12:56pm delawrence



LEGEND

(NA) NOT ANALYZED

IA-3 INDOOR AIR SAMPLE LOCATION

SV-4 SUB-SLAB VAPOR SAMPLE LOCATION

(2800) TCE RESULT IN ug/m3

NOTE: SAMPLES COLLECTED ON 12/17/04 AND ANALYZED BY BUCK LABORATORIES VIA METHOD TO-15.

0 20 40

Scale in feet

SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING
CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

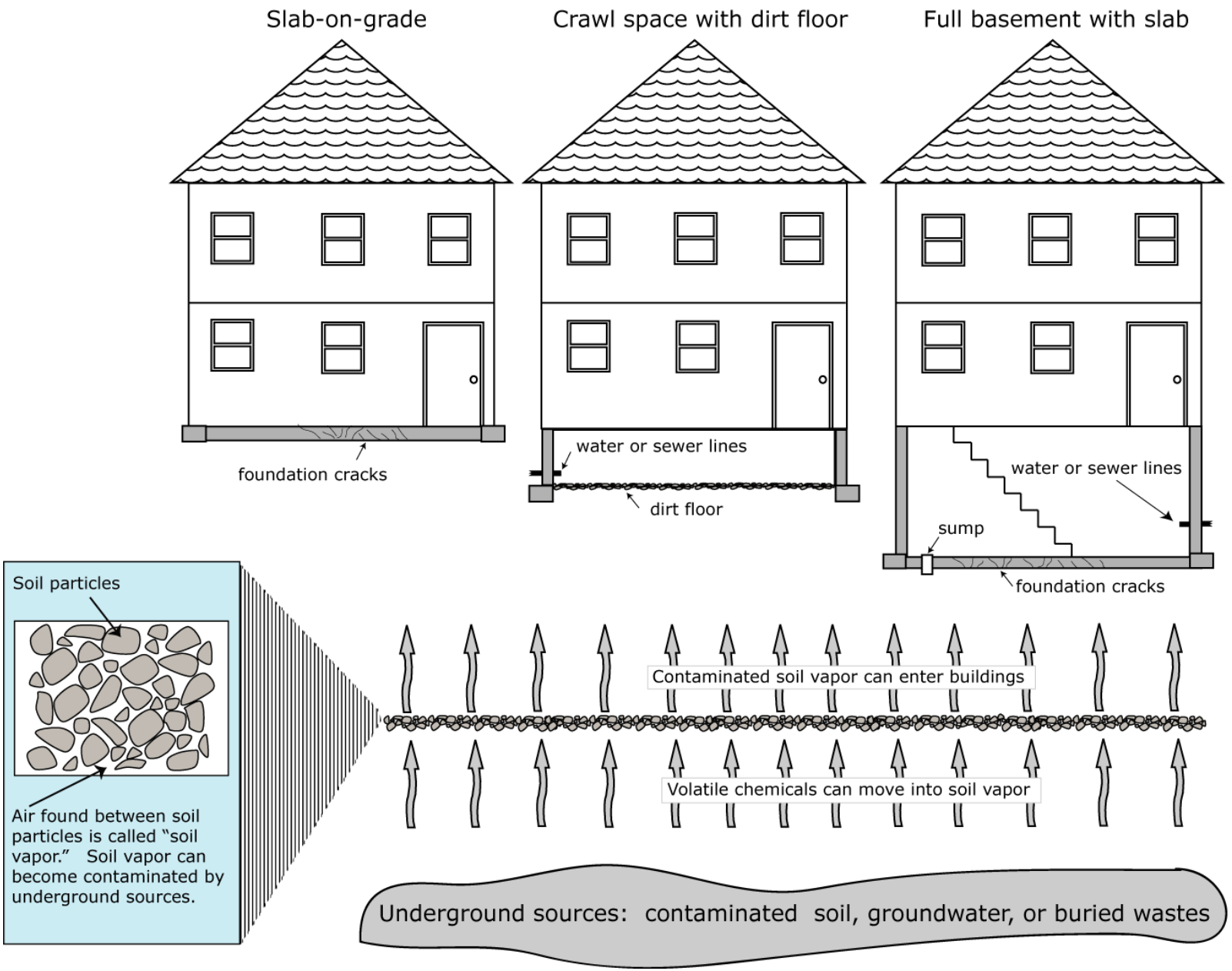
Prepared/Date: MRS 01/07/08
Checked/Date: TDL 01/07/08

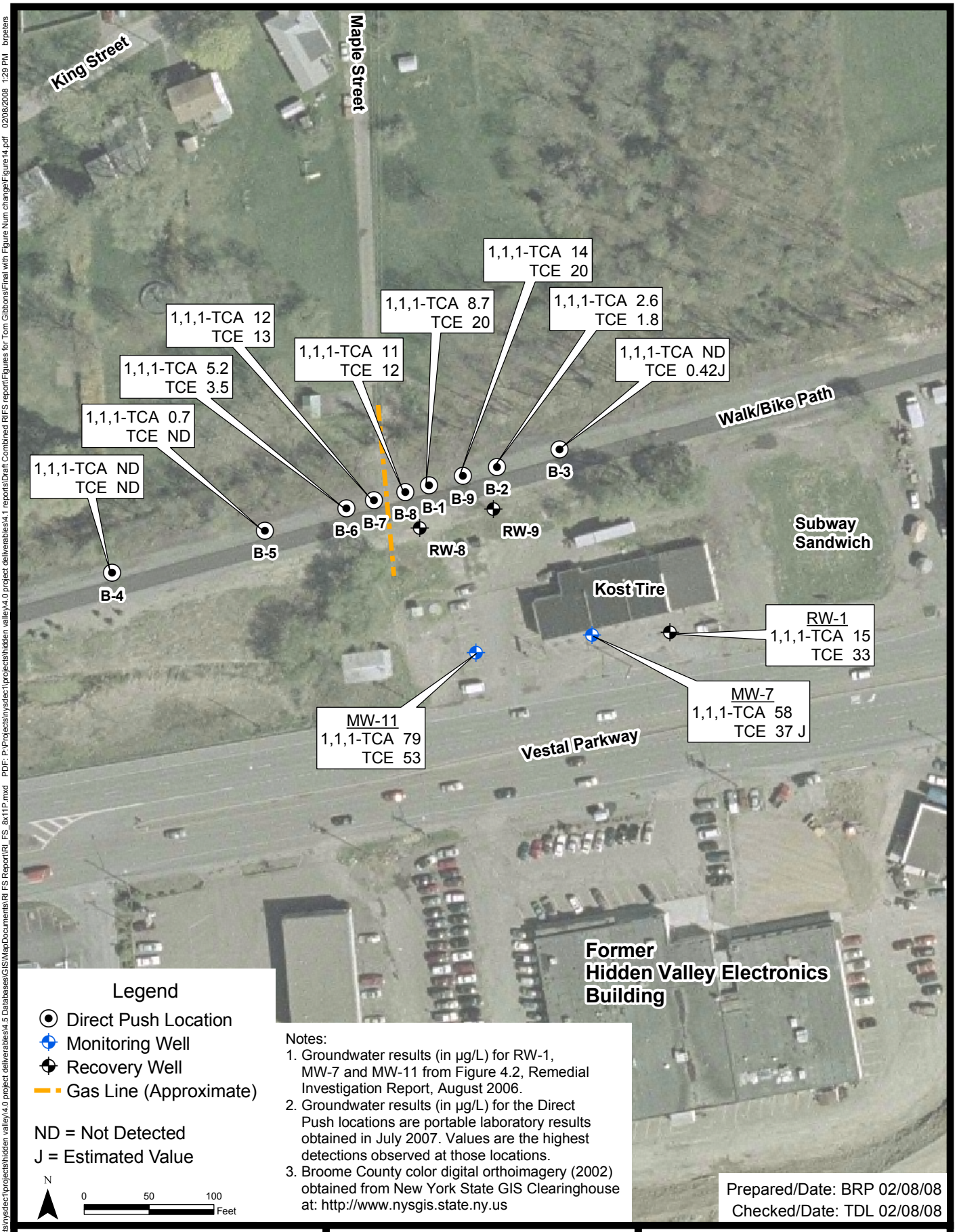
RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

FORMER HVE BUILDING INDOOR
AIR & SUB-SLAB VAPOR TCE RESULTS
Project 3612-07-2082
Figure 12

Figure 13


Slab-on-grade
Crawl space with dirt floor
Full basement with slab
foundation cracks
water or sewer lines
dirt floor
water or sewer lines
sump
foundation cracks
Soil particles
Air found between soil particles is called "soil vapor." Soil vapor can become contaminated by underground sources.
Contaminated soil vapor can enter buildings
Volatile chemicals can move into soil vapor
Underground sources: contaminated soil, groundwater, or buried wastes

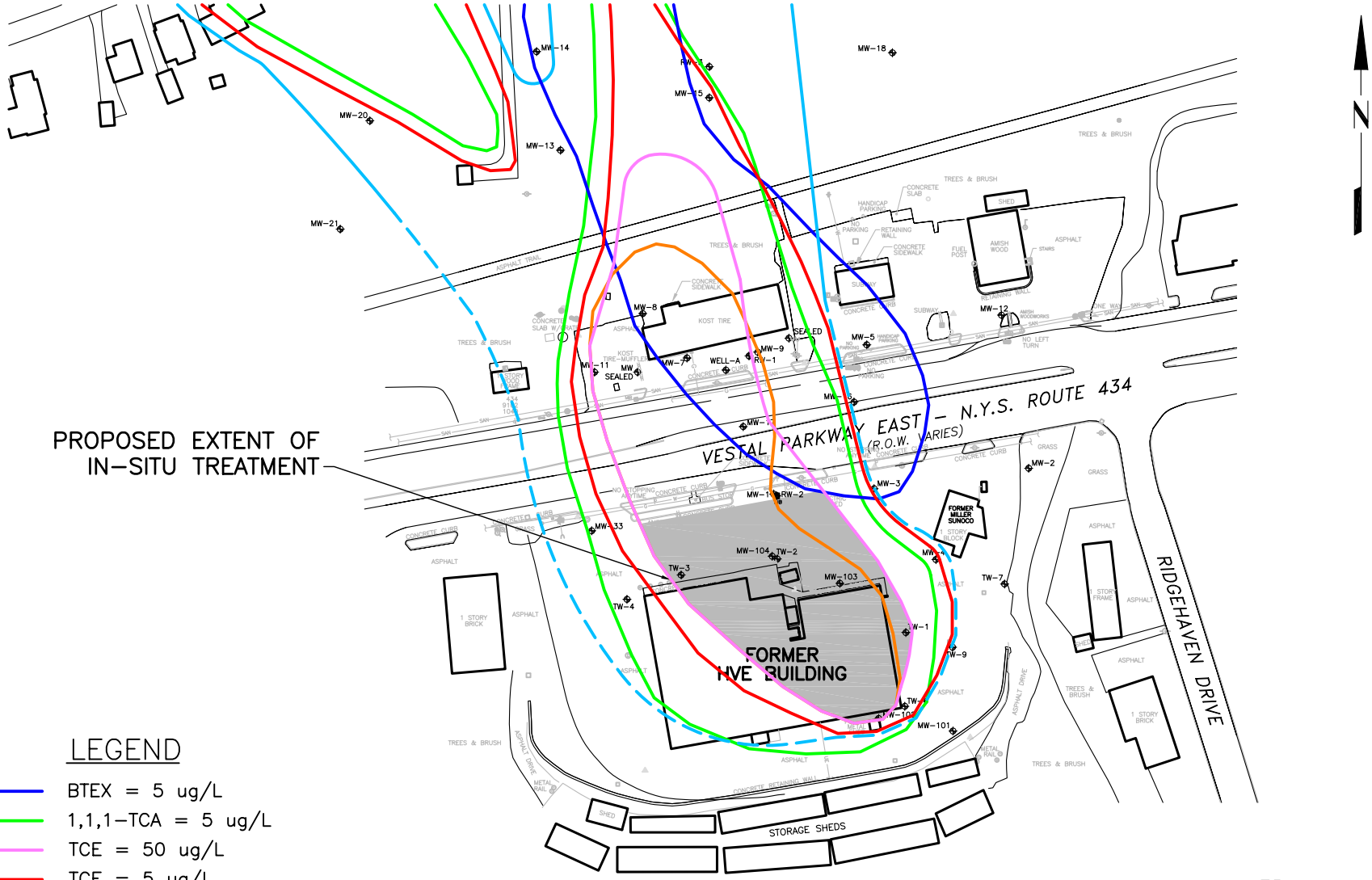


RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

MACTEC

DIRECT PUSH
EXPLORATION LOCATIONS
Project 3612-07-2082
Figure 14

M:□Projects□nysdec1□HIDDEN VALLEY□RI-FIGURE-11.2.dwg Wed, 20 Feb 2008 - 11:05am rhholman



SOURCE: SURVEY PERFORMED FOR YEC, INC. BY: HAWK LAND SURVEYING CENTRE PLAZA, 53 CHENANGO STREET BINGHAMTON, NEW YORK 13901

Prepared/Date: DEL 1/24/08
Checked/Date: RTB 1/25/08

RI/FS REPORT
HIDDEN VALLEY ELECTRONICS SITE
VESTAL, NEW YORK

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PROPOSED EXTENT OF
IN-SITU TREATMENT
Project 3612-07-2082
Figure 15

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Hidden Valley Electronics Site

Town of Vestal, Broome County, New York
Site No. 704029
March 2008

The Proposed Remedial Action Plan (PRAP) for the Hidden Valley Electronics site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 27, 2008. The PRAP outlined the remedial measure proposed for the contaminated soil, groundwater, soil vapor, sub-slab vapor and indoor air at the Hidden Valley Electronics site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on March 18, 2008, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 27, 2008.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: When did you find 1,1,1-trichloroethane (TCA) and trichloroethene (TCE) soil contamination behind the building (to the south)?

RESPONSE 1: Soil contamination was found during the Department's Phase 1 on-site soil and groundwater investigations in the fall of 2004.

COMMENT 2: Is the nearby fuel leak cleaned up and done? Are the monitoring wells that were installed as part of that investigation still going to be used?

RESPONSE 2: This investigation and cleanup of the former Sunoco station fuel spill began in 1995 and was completed in 2007. The on-site and off-site monitoring wells that were installed as part of this investigation are still available for use, and some of them will continue to be used to monitor groundwater levels, groundwater flow direction, and groundwater quality and cleanup operations both on-site and off-site, as described in the Proposed Remedial Action Plan (PRAP). Some of the wells will no longer be needed and will be properly decommissioned.

COMMENT 3: Are the monitoring and recovery wells that were installed for the investigation/cleanup of the former Sunoco station fuel spill the same ones that will be used for the Hidden Valley Electronics remedial action?

RESPONSE 3: One or two of the groundwater recovery wells that were used for cleanup of the fuel spill will continue to be used to assist in the cleanup of the Hidden Valley Electronics (HVE) contamination. In addition, two more groundwater recovery wells have been installed at locations to optimize contaminant recovery. Several of the monitoring wells will also be used, as described in Response 2, above.

COMMENT 4: Will the same treatment system that was used for the fuel spill be used for HVE?

RESPONSE 4: The same treatment building will be used, but with several modifications to more effectively remediate the types of contaminants originating from the former HVE facility (primarily TCE, TCA and cis 1,2 dichloroethene (cis 1,2 DCE). Whereas the original treatment system included a vapor-phase granular activated carbon adsorption system to treat volatile organic compounds (VOCs) from a soil vapor extraction (SVE) system, the SVE system is not part of the new design and will not be included as part of the treatment design. Groundwater treatment will likely be addressed through an air stripping tower to remove VOCs from contaminated groundwater. If additional treatment is needed to "polish" this treated water, a liquid-phase granular activated carbon adsorption system may be employed.

COMMENT 5: What is the plan for retesting homes that have been given sub-slab depressurization systems (SSDSs) as part of the HVE project?

RESPONSE 5: Once a SSDS is installed at a home, its effectiveness will be confirmed within one year after installation. As part of this confirmation, the pressure gauge (manometer) is checked to make sure that the system is creating adequate depressurization to prevent the migration of vapors into the structure.

COMMENT 6: My home has yet to be sampled for vapor intrusion. Will it be sampled in the future?

RESPONSE 6: At this site, vapors coming off of contaminated groundwater would be the source of contamination which could impact indoor air quality within a structure via the vapor intrusion pathway. As such, when determining which structures within the neighborhood to sample, the State used a step-wise approach, starting with the structures closest to the source (i.e., known contaminated groundwater plume). The soil vapor intrusion and groundwater data collected as part of the investigation fully delineate the vapor plume, and those structures with the potential for soil vapor intrusion have been mitigated. Since the remedy will stop the migration of contaminated groundwater from flowing into the neighborhood and decrease the levels of contaminants in groundwater, the levels of contaminants in soil vapor and the potential for soil vapor intrusion will also decrease over time, limiting the need for future structure sampling.

COMMENT 7: How long will the groundwater pump and treat system be operational?

RESPONSE 7: The Department routinely estimates the cost to operate a groundwater extraction and treatment (GWET) system based on an operational period of 30 years. However, the actual cleanup period is difficult to predict and is dependant on numerous complex factors related to the size, depth and concentration of the contaminant plume, the types of contaminants present in the groundwater, the types of soils where the contaminants are present, the soil and groundwater chemistry, as well as the type of

groundwater recovery system that is installed. It is expected that the GWET system will operate for several years, until the contaminants in the groundwater drop to levels where continuing groundwater extraction, based on the operational costs and the limited contaminant removal, is no longer feasible.

COMMENT 8: How long will the SSDS in my house be operational?

RESPONSE 8: As with the GWET system, the length of operation of the SSDS is difficult to predict. The systems will continue to be maintained and monitored on a periodic basis and will not be shut down until the potential for exposure to site-related contaminants is no longer a concern.

COMMENT 9: Who will do maintenance on the mitigation system in my house? If the fan dies in eight years can I call the DOH and get it fixed?

RESPONSE 9: The potential responsible party (PRP) or the Department will have the responsibility of operating and maintaining the existing SSDSs (and any additional SSDSs that may need to be installed) operating as a result of impacts from the HVE Site. The PRP or the Department will periodically inspect these systems and will respond to any maintenance issues that should arise. If a homeowner has any questions about their system, or if there is a maintenance issue which needs to be addressed, the homeowner may contact the Department or NYSDOH to have the issue resolved.

COMMENT 10: Are you still expanding the number of homes that you are testing for indoor air quality?

RESPONSE 10: The latest round of sub-slab and indoor air sampling (Round 8) was completed during the week of March 10, 2008 and the Department expects these results to be available in April 2008. The State has a good grasp of the extent of the impacts to homeowners and businesses as a result of contamination from the HVE Site and is hopeful that this latest round will complete our delineation of those impacts. The State is confident that, if additional sampling is necessary based on this latest round of data, it will be very limited in scope. See Comment # 6.

COMMENT 11: Does this site and its contamination pose any dangers for gardening or vegetable gardens?

RESPONSE 11: No. The kinds of impacts affecting homeowners in the Twin Orchards neighborhood would not affect soil quality and, as such, there would be no adverse impacts related to gardening and garden vegetables.

COMMENT 12: Have any studies been done on the values of the homes near HVE and the effect on their value because of the soil vapor intrusion?

RESPONSE 12: None that the Department or NYSDOH are aware of. Issues related to property values are outside the scope of the remedial program.

COMMENT 13: How much money has been spent on this site up to this point in time?

RESPONSE 13: Since the Department began this project in 2004, approximately $760,000 has been spent to date and this total includes all of the environmental testing conducted and mitigation systems installed.

COMMENT 14: Have any potentially responsible parties been identified?

RESPONSE 14: The Department has made and continues to make efforts to identify potentially responsible parties who are legally liable for remediation of the site. To date, the potential responsible parties include C.G. Properties, LLC, Allen Green, Hidden Valley Electronics, Inc., Federal Electronics, Inc., and Harvey Electronics, Inc. If no responsible party commits to remediate the site in the immediate future, the Department will undertake the work using State Superfund monies. The Department will then take action to recover the costs at a later date.

COMMENT 15: What houses have been affected in Twin Orchards?

RESPONSE 15: A total of 59 homes were sampled in the Twin Orchards development. Among these 59 homes, 35 required no further action; 9 required further monitoring; and 15 required SSDSs, of which 13 accepted SSDSs. Four additional homes were sampled in the Twin Orchards development in March 2008, however, the results will not be available until April 2008.

COMMENT 16: Is there a reason why the plume ends where it does? Is it predictable?

RESPONSE 16: A number of factors may explain the current extent of the groundwater plume, including the current and historical nature of the source area (the volume, concentration and distribution of contaminants in the area of the contaminant release); the nature of the soils in the affected plume area, including soil particle size and distribution as well as the organic content of the soils; the groundwater flow rate; and several other factors as well. The contaminant concentrations have been relatively stable since they were discovered in the mid-1990s and their distribution has remained largely unchanged. Given these factors, the character and distribution of the groundwater plume has remained predictable.

COMMENT 17: Has vegetation (e.g., trees) been affected by this contamination?

RESPONSE 17: The Department has not identified any impacts to vegetation in the vicinity of the site-related contamination, and would not expect to see such impacts based on the type and concentration of contaminants identified at this site.

COMMENT 18: How do you determine if a sub-slab depressurization system (SSDS) is necessary?

RESPONSE 18: In evaluating the potential for soil vapor intrusion to occur in a structure, the State collects outdoor, indoor and sub-slab soil vapor samples. We also complete a product inventory and building questionnaire at each structure to determine whether household products that are used or stored can be impacting the indoor air. To determine if actions are necessary to address the potential for vapor intrusion, the State uses an approach consisting of multiple lines of evidence, which includes, but is not limited to, the following: a comparison of the analytical data (indoor air, sub-slab soil vapor and outdoor air concentrations), surrounding environmental data, and a review of the building questionnaire and

product inventory. In general, the structures associated with this investigation were mitigated because of the potential for vapor intrusion to impact indoor air quality, not current exposures.

COMMENT 19: Are contaminant levels in the indoor air of the HVE building very high?

RESPONSE 19: Low levels of trichloroethene (TCE) were detected in the indoor air samples collected within the former HVE building. All samples had a concentration of TCE of 4 $\mu g/m^3$ or less. The State's air guideline for TCE is 5 $\mu g/m^3$. This level (5 $\mu g/m^3$) is lower than the levels that have caused health effects in animals and humans. In addition, the guideline is based on the assumption that people are continuously exposed to this level of TCE in air for a lifetime. This is rarely true, as most people do not stay in one-place 24 hours a day, 365 days a year, for a lifetime. Also, due to the primary use of this building (fitness center), people's exposure to TCE at these low concentrations would be very limited and therefore no health effects associated with TCE are expected.

APPENDIX B

Administrative Record

Administrative Record

Hidden Valley Electronics Site
Site No. 704029

1. Referral Memorandum, dated July 10, 2003, for referral of the Hidden Valley Electronics Site to the Division of Environmental Remediation for the undertaking of a Remedial Investigation/Feasibility Study, and, if appropriate, interim remedial measures.

2. Remedial Investigation/Feasibility Study Work Plan, Hidden Valley Electronics Site, Site No. 704029, Work Assignment No. D003826-9, August 26, 2004. Prepared for the New York State Department of Environmental Conservation by Harding Lawson Associates (currently Mactec Engineering and Consulting, P.C.).

3. Fact Sheet, Hidden Valley Electronics, Site No. 704029, October 6, 2004. Prepared by the New York State Department of Environmental Conservation.

4. Enhanced Sub-Slab Ventilation System, Interim Remedial Measure Work Plan, Hidden Valley Electronics, Work Assignment No. D003826-9, September 2005. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

5. Remedial Investigation/Feasibility Study Work Plan (Amendment No. 1), Hidden Valley Electronics, Site No. 704029, September 26, 2005. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

6. Remedial Investigation/Feasibility Study Project Management Work Plan Amendment, Hidden Valley Electronics, Work Assignment No. D003826-9.1, October 2005. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

7. Fact Sheet, Former Hidden Valley Electronics Environmental Investigation, August 2006. Prepared by the New York State Department of Environmental Conservation.

8. Operation, Maintenance and Monitoring Report, Sub-Slab Ventilation System, Fall 2005-Summer 2006, Hidden Valley Electronics, September 2006. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

9. Scope of Work, Groundwater Monitoring Well Installation, Former Hidden Valley Electronics Site, Vestal, Broome County, New York, Work Assignment No. D003826-9, September 2006. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

10. Final Operation, Maintenance and Monitoring Program, Sub-Slab Ventilation System, Hidden Valley Electronics, Site No. 704029, Work Assignment No. D003826-9, December 2006. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

11. Operation, Maintenance and Monitoring Report, Sub-Slab Ventilation System, Summer 2006-Summer 2007, Hidden Valley Electronics, Site No. 704029, July 2007. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

12. Scope of Work, Upgrade of Existing Miller's Sunoco/Kost Tire Groundwater Extraction and Treatment System, Former Hidden Valley Electronics Site, Site No. 704029, Work Assignment No. D004444-7, September 2007. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

13. Direct Push Investigation Report, Hidden Valley Electronics, Site No. 704029, Work Assignment No. D004444-7, September 2007. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

14. Remedial Investigation/Feasibility Study Project Management Work Plan Amendment, Hidden Valley Electronics, Site No. 704029, Work Assignment No. D004444-7, November 2007. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

15. Remedial Investigation/Feasibility Study Report, Hidden Valley Electronics, Site No. 704029, Work Assignment No. D004444-7, February 2008. Prepared for the New York State Department of Environmental Conservation by Mactec Engineering and Consulting, P.C.

16. Proposed Remedial Action Plan for the Hidden Valley Electronics Site, February 2008. Prepared by the New York State Department of Environmental Conservation.

17. Fact Sheet, Proposed Remedy for the Hidden Valley Electronics Site, February 22, 2008. Prepared by the New York State Department of Environmental Conservation.

18. Record of Decision, Hidden Valley Electronics Site, March 2008. Prepared by the New York State Department of Environmental Conservation.