Former Greer Toyota Site

TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 314088

Prepared for:
Greer Nine Realty Corp.
16 Bannerman View Drive
Newburgh, NY 12550

Prepared by:
The Chazen Companies
21 Fox Street
Poughkeepsie, NY 12601
(845) 454-3980

FEBRUARY 2010

TABLE OF CONTENTS

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is a component of the remedial program at the former Greer Toyota property under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation (NYSDEC). The property was investigated and remediated in accordance with Order on Consent Index # W3-0921-02-05, Site # 314088, which was executed on December 23, 2002.

1.1.1 General

Greer Automotive, Ltd ("Greer") entered into an Order on Consent with the NYSDEC to remediate an impacted area of the Greer property, formerly known as Greer Toyota, located in the Town of Wappinger, Dutchess County, New York. This Order on Consent required Greer to investigate and remediate contaminated media on a portion of the property (hereinafter referred to as the site or Restricted Area). A map showing the location and boundaries of the property and the Restricted Area is provided in Figure 1. The boundaries of the Restricted Area (RA) are more fully described in the Metes and Bounds description on Figure 2.

After completion of the remedial work described in the Remedial Design/Remedial Action Work Plan, dated March 2003, subsurface impacted soil remained within the RA. This Site Management Plan (SMP) was prepared to manage remaining contamination within the RA in perpetuity or until extinguishment of the Deed Restriction in accordance with ECL Article 71, Title 36. Remedial action work on the property began in November 2000 with the removal of two former waste oil underground storage tanks (USTs). Remediation in the RA is ongoing and the performance standards are monitored on a routine basis. All reports associated with the RA can be viewed by

contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by The Chazen Companies (Chazen), on behalf of Greer, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated December 2002, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Deed Restriction for the remaining contamination in the Restricted Area.

1.1.2 Purpose

The RA contains remaining contamination after implementation of the NYSDEC-approved remedial action. An Engineering Control (EC) consisting of pavement and a soil vapor extraction system has been incorporated into the site remedy to provide proper management of remaining contamination in the future to ensure protection of public health and the environment. A Deed Restriction will be filed for the site and recorded with the Clerk in Dutchess County, New York to provide an enforceable legal instrument to ensure compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Deed Restriction for remaining contamination in the Restricted Area. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Deed Restriction and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage the remaining contamination after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and

submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs, which includes a reporting plan for the submittal of data, information, recommendations, and certifications to NYSDEC; (2) a Monitoring Plan for implementation of Site Monitoring; and (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Deed Restriction. Failure to properly implement the SMP is a violation of Environmental Conservation Law and the deed restriction, which is grounds for revocation of the Certificate of Compliance (COC);
- Failure to comply with this SMP is also a violation of, 6NYCRR Part 375 and the Order on Consent (Index # W3-0921-02-05; Site #314088) for the site, and thereby subject to applicable penalties.

At the time the SMP was prepared, the SMP and all site documents related to Remedial Investigation and Remedial Action were maintained at the NYSDEC Region 3 office in New Paltz, New York.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The Property is located at 1349 U.S. Route 9 in the Town of Wappinger, County of Dutchess, New York and is identified as Section 6157 Block 02 and Lot 585606 on the Town of Wappinger Tax Map. The Property is an approximately 2.3-acre area bounded by commercial facilities to the north, Old Hopewell Road to the south, U.S. Route 9 to the east, and Old Route 9 to the west (see Figure 1). The boundaries of the Property and

the Restricted Area are more fully described on the map (Figure 2) which includes written Metes and Bounds descriptions.

1.2.2 Site History

Current and Historic Property Operations and Remedial Activities

The property is currently owned by Greer Nine Realty and leased to DCH Wappingers Falls Toyota/Subaru, an independent automobile dealership.

Before the current lease arrangement when still in operation under Greer, the property was operated as a new and used automobile dealership with an automotive repair garage. Two buildings are presently on the property: a large irregularly-shaped structure which is comprised of the main showroom, offices and a non-bay repair garage and a smaller rectangular-shaped building which is occupied as a used car showroom. A plan depicting the configuration of the Restricted Area is included as Figure 2.

Although the configuration of the main building is identical to when Greer operated the dealership, recent modifications have been made by Greer Nine Realty for the current tenant, DCH Wappingers Falls Toyota/Subaru. These modifications include: low flow plumbing fixtures, connection of the facility to municipal water and sewer, formal abandonment of an underground heating oil tank and the replacement of the former waste oil tank system with aboveground waste oil containers.

Chlorinated solvents were detected in potable wells adjacent to the property in 1992. The NYSDEC and Dutchess County Department of Health (DCDOH) initiated an assessment of the area, which included sampling an oil/water separator situated in line between a former repair garage floor drain and a concrete sub-surface diffuser system located north of the garage. This diffuser system also acted as the property's sanitary waste disposal system. Chlorinated compounds were identified and the oil water separator was subsequently abandoned and the floor drains sealed as part of the remedy. Two downgradient water supply wells, situated at properties referred to as the Halpin residence and Optimum Window properties were also discovered to have been impacted by chlorinated solvents and were provided treatment using carbon filtration systems

(Figure 8). At the time of the preparation of this SMP, only the Halpin residence continues to use a potable well with a carbon filtration treatment system because Greer connected the DCH and the Optimum Window properties to municipal water during 2008. The former potable wells at the DCH and Optimum Window properties have been abandoned.

1998-1999 Investigations

A soil boring investigation was conducted in 1998 around the concrete diffuser system, followed by a Supplemental Remedial Investigation conducted in 1999. The 1999 investigation included additional soil borings, excavation to sample around the concrete diffusers and additional soil and groundwater sampling.

2000 Waste Oil Tank Closure

In 2000 two inactive buried waste oil tanks were removed from the site. Both tanks were pitted and rusted and the feeder line to the tanks was cracked. Contaminated soils extending down to the bedrock surface were excavated and temporarily stockpiled on the property and then properly disposed of in an offsite facility.

2001 Expanded Remedial Investigation/Feasibility Study and Interim Remedial Measures

An Expanded Supplemental Remedial Investigation (ESRI) was conducted in 2001. This investigation included an additional 28 soil borings and the installation of six bedrock monitoring wells. The investigation identified the extent of impacted soils adjacent to the diffuser disposal system and to the waste oil tank graves. Sampling indicated that the former waste oil tanks were the most likely source of chlorinated compounds. Sampling also indicated that gasoline compounds detected in groundwater wells adjacent to the RA were the result of an off-site/upgradient release and not the responsibility of Greer. Groundwater flow through the property was determined to flow to the northwest.

1.2.3 Geologic Conditions

The surficial geology of the area consists mainly of fill or native glacial till. The till consists of brown to grey silt and clay, with some fine to coarse sand and little to trace

amounts of fine to coarse gravel. The fill consists primarily of coarse gravel, cobbles and rock fragments, and ranges from two to eight feet below grade.

Groundwater depth below grade varies across the property between 12 feet (southernmost well MW-1) to greater than 20 feet (northernmost well MW-4). Groundwater flow in the surficial sediments and shallow bedrock aquifer at the property is generally east and west-northwest, respectively. A groundwater flow map is included as Figure 3.

The property's underlying bedrock formation is fractured and, according to the Geologic Map of New York, Lower Hudson Sheet (1970), is comprised of Ordovician-aged rocks of the Austin Glen Formation consisting of greywacke and sandstone interbedded with dark shales. Across the property, bedrock depth to bedrock ranges from four to fifteen feet. A bedrock-overburden depth contact contour map for the property is offered as Figure 4.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the property. The results of the RI are described in detail in the following reports:

- June 1999 Supplemental Remedial Investigation
- November 2001 Expanded Remedial Investigation/Feasibility Study and Interim Remedial Measures Report

These investigations are summarized in Section 1.2.2.

Generally, the RI determined that the most likely source of chlorinated solvents in groundwater was a leak from the line connecting the garage to a former waste oil tank at the northwest corner of the automobile repair garage. The tanks were removed in 2000 and impacted soils were excavated to the extent practical. The gasoline constituents identified in groundwater was attributed to an upgradient gas station on an adjacent property. In addition to the source removal, and closure of a floor drain and oil/water

separator, remedial actions completed included a paved cap over the former waste oil tanks and the installation and operation of a soil vapor extraction (SVE) system. To date and through 2009, the SVE system, two groundwater monitoring wells on the property and one downgradient off-property domestic well at the Halpin residence have been monitored on a quarterly basis.

Below is an expanded summary of conditions identified by The Chazen Companies when the RI was performed between 1998 and 2001:

1.3.1 Soil

The April 1998 soil boring investigation around the sanitary diffuser system was conducted to determine if the garage floor drain had discharged chlorinated solvents through the oil/water separator to the sanitary system. While low levels of oil and gasoline-range hydrocarbons were found, chlorinated solvents were not detected around the diffuser. A 1999 Supplemental RI further investigated the diffuser area and identified petroleum compounds but confirmed the absence of chlorinated solvents in this area. The petroleum compounds detected in the soils were below standards, criteria and guidance values (SCGs) taken at the time from NYSDEC Technical Administration and Guidance Memorandum (TAGM) No. 4046. (6 NYCRR Part 375 for Environmental Remediation Programs was not in existence at the time of the site investigation.)

Two inactive buried waste oil tanks were removed from the site in November 2000. During the waste oil tank closure, a leaking feeder line was found between the garage and the first of the two connected tanks. The tanks, as well as some impacted soils were removed from the site although not all impacted soils could be removed without impacting the stability of the garage.

In November 2000 and August 2001, additional soil samples were collected from the area northwest of the garage to further delineate the extent of soil contamination around the former buried waste oil tanks. The following contaminants were found at levels above SCGs [the Recommended Soil Cleanup Objectives (RSCOs) are shown in parentheses after contaminant levels]: benzene up to 240 parts per million (ppm) (SCG: 0.06 ppm), MTBE up to 38 ppm (SGC: 0.12 ppm), ethylbenzene up to 380 ppm (SCG:

5.5 ppm), Tetrachloroethene up to 2.1 ppm (SCG: 1.4 ppm), toluene up to 1,800 ppm (SCG: 1.5 ppm), o-xylene up to 590 ppm (SCG: 1.2 ppm), m&p-xylene up to 1,500 ppm (SCG: 1.2 ppm). Additional results and locations of these samples can be found in the November 2001 Expanded RI/FS Report. Soil boring locations are depicted in Figure 5 and the tank excavation is depicted in Figures 2, 3 and 6. Tables depicting soil sample analytical results from previous investigations as compared to TAGM No. 4046 SCGs are attached (Tables 1, 3, 4 and 5).

1.3.2 Groundwater

During the April 1998 investigation of the diffuser from the sanitary disposal system, a shallow groundwater sample was collected from the B-2 soil boring which identified petroleum contamination. Contaminants found above SCGs were: benzene at 10 ppb (SCG: 1 ppb), ethylbenzene at 33 ppb (SCG: 5 ppb), toluene at 30 ppb (SCG: 5 ppb), o-xylene at 27 ppb (SCG: 5 ppb), and m&p-xylene at 220 ppb (SCG: 5 ppb). No chlorinated solvents were found in this location.

During the June 1999 supplemental investigation of the diffuser system, three shallower groundwater samples were collected. The sampling results were consistent with the 1998 investigation. Groundwater collected from SB-1 contained chlorobenzene at 6.2 ppb and toluene at 19 ppb, a sample from SB-2 contained toluene at 44 ppb and a sample from SB-3 contained toluene at 36 ppb. Groundwater sample results from the 1998 and 1999 investigations are presented in Table 2.

Water samples were also collected from neighboring residential and commercial water supply wells. Since 1994, the DCDOH had been collecting drinking water samples from two downgradient water supply wells. These properties had historically contained granular activated carbon filters to remove VOC contamination. At the Curry Road residence (Halpin Residence), total typical VOC contamination in raw (untreated) water was approximately 30 ppb (from 2001 data), including 1,1-dichloroethane (DCA), cis-1,2-dichloroethene (DCE), and tetrachloroethene (PCE).

At the Old Route 9 residence (Optimum Window) the total typical VOC contamination was approximately 5 ppb (from 1999 data), including concentrations of

1,1-dichloroethane and 1,1,1-trichloroethane. At the time this SMP was prepared, only the Halpin residential well remains in service with a water treatment system to remove chlorinated solvents, while the Optimum Window facility is now connected to municipal water.

In December, 1999, expanded sampling of eleven residential and commercial water supply wells was conducted surrounding the property including the two mentioned above by the DCDOH and analyzed by the NYSDOH's laboratory. Contaminants were detected in seven wells. Of these, contaminants in the Halpin and Optimum Window wells were above drinking water standards. All seven wells with contaminants above detection levels had petroleum contamination, while only the Halpin and Optimum Window properties had chlorinated solvent contamination.

In August 2001, six bedrock groundwater monitoring wells were installed on the property to expand the assessment of groundwater contamination and flow direction (see Figure 3). Wells MW-1, MW-2, MW-3, MW-4 and MW-6 were approximately 50 feet deep. MW-5 was extended to 100 feet to intersect deeper fracture systems. In 2001, groundwater analyses indicated the following contamination in wells downgradient of the former waste oil tank source area above groundwater standards (the groundwater standard for each follows in parentheses): MTBE at 86 ppb (10 ppb), bis (2-ethylhexyl) phthalate at 7 ppb (5 ppb), 1,1-dichloroethane at 7.7 ppb (5 ppb), 1,1,1-trichloroethane at 5.6 ppb (5 ppb), and vinyl chloride at 2.3 ppb (2 ppb). These six groundwater monitoring wells were initially sampled and analyzed on a quarterly basis. When it became clear over time that only wells MW-4 and MW-5 consistently contained chlorinated solvent concentrations, NYSDEC allowed reduction of the monitoring program to just these two wells on a quarterly basis. Groundwater monitoring wells are depicted in Figure 3.

1.3.3 Soil Vapor Assessment

A soil vapor investigation (SVI) has not been required to date because a soil vapor extraction system (SVES) in the RA currently depressurizes and vents the subsurface environment as defined in the ROD and on Figure 2, where the two former waste oil tanks were positioned. NYSDEC has indicated that an SVI investigation may be required

at the time that discontinuance of the SVES is proposed if the current building is still in use.

1.3.4 Underground Structures

An abandoned oil water separator (OWS) is located near the north-northeast side of the main building (Figures 3 and 4). Although confirmed not to be a source of chlorinated solvents, the oil water separator and floor drains within the garage were sealed after the 1992 discovery of chlorinated solvents in downgradient potable water supply wells.

A concrete diffuser waste disposal system also remains on the property near the north side of the parcel. This previously received sanitary wastes from the buildings as well as discharges from the former floor drains. The property is currently connected to the municipal sanitary sewer so the diffuser system has been abandoned in-place.

As discussed previously, two inactive waste oil tanks were discovered and removed from near the northwest corner of the main building in 2000 (Figures 2 and 3). Tank removal activities are discussed in Section 1.2.2 above.

1.4 SUMMARY OF REMEDIAL ACTIONS

The site was remediated in accordance with the NYSDEC-approved Remedial Design/Remedial Action Work Plan (RD/RAWP) dated March 2003.

The following is a summary of the Remedial Actions performed at the site:

1. Excavation of impacted soil occurred during the November 2000 closure of the two waste oil tanks. Approximately 800 tons of impacted soils were removed; however, residual impacted soils remain beneath the building because they could not be excavated due to the close proximity of the main car dealership/auto-repair structure. Post excavation soil samples from the Tank 1 area exceeded the TAGM No. 4046 recommended soil cleanup objectives for xylenes in several sidewall sample locations as well as benzo(a)anthracene, benzo(a)pyrene, benzo(b)Flouranthene and

benzo(K)flouranthene, chrysene and dibenzo(a,h)anthracene in an east wall sample (Tables 4). As mentioned previously, the sample results were compared to TAGM No. 4046 guidance values since the work predated 6 NYCRR Part 375 standards. However, as compared to the restricted commercial use SCOs, as listed in Table 375-6.8b of 6 NYCRR Part 375, the majority of these compounds are below the restricted commercial use SCOs, except for benzo(a)pyrene. Post excavation soil samples from the Tank 2 area (ie. Pit number 2) did not exceed any unrestricted SCOs listed in Table 375-6.8a of 6 NYCRR Part 375.

2. Construction and maintenance of a soil cover system consisting of paved asphalt and the concrete building slab over remaining impacted soils to prevent human exposure to remaining contaminated soil remaining at the site;

3. Installation and operation of an SVE remediation system to remove volatile organic vapors from remaining impacted soils within the waste oil tank graves;

The three remedial activities listed above were implemented at the site during or before October 2003; however, the SVE remediation system is still in operation and monitored on a quarterly basis concurrent with groundwater monitoring activities.

Although not part of the RD/RAWP, the following two elements are now being implemented in support of continued remediation:

- Execution and recording of a Deed Restriction to restrict land use and prevent future exposure to any contamination remaining in the Restricted Area at the site will be filed with the County Clerk during 2009.

- Development and implementation of this Site Management Plan for long term management of remaining contamination as required by the Deed Restriction, which includes plans for: (1) Institutional and Engineering Controls, (2) Monitoring, (3) Operation and maintenance and (4) Reporting.

1.4.1 Removal of Contaminated Materials from the Site

Two 1,000-gallon buried waste oil tanks, which were connected to each other by piping, were removed from the site in November 2000. The pipe connecting the garage to the first tank had an apparent leak which had impacted the soils surrounding the buried piping. The two tanks and associated piping were removed as well as more than 800 tons of impacted soils. These soils were impacted with petroleum hydrocarbons and PCE. Although the bulk of impacted soils were removed, some contaminants remained because of the proximity to the building foundation. The soil excavation included two main tank excavations connected by a narrow trench excavation where the pipe had existed connecting the two tanks referred to as Pit 1 and Pit 2 (Figures 2, 3 and 5). The first tank excavation (P1) was approximately 21 feet long by 12 feet wide with an average depth of 15 feet. The second tank excavation was approximately 15 feet long by 12 feet wide with an average depth of seven feet. The piping trench excavation connecting the two was approximately 20 feet long by three feet wide with an average depth of two feet. A map showing areas where excavation was performed is provided as Figure 5. This figure also details a cross-section of fill and soil in the tank excavation areas.

1.4.2 Quality of Backfill Placed on the Site

The lower regions of the excavation during soil removal were backfilled with permeable crushed stone, vapor collection lines and a future optional treatment injection line (discussed in Section 1.4.3). The crushed stone was brought to a level that corresponds to the top of a silt-clay layer observed during excavation. The crushed stone was covered with an impermeable membrane, which, in turn, was covered with clean bank run fill and then blacktop paving. The fill material was placed in nine-inch lifts and compacted using a vibratory compactor to limit the potential for settling.

1.4.3 Treatment Systems

A Soil Vapor Extraction (SVE) system is operational at the site. One carbon treatment system is in use to treat a domestic well at the Halpin residence.

Structural constraints limited full excavation of impacted soils adjacent to the northwest corner of the repair garage building. An SVE system was therefore installed to extract residual VOCs. Diagrams of the SVE unit are shown on Figures 7 and 8. The SVE system was installed as specified in the plan provided in the RD/RAWP submitted in March 2003. Specific construction details for each of the SVE areas installed are provided below.

Extended SVE extraction pipes were installed across two zones in the excavation. The two locations are labeled B, and D. During soil excavation, a perforated pipe was also installed vertically immediately adjacent to stained soils remaining nearest to the building to focus soil vapor extraction beneath the structure in this area (Line C). The positions of these lines are shown on Figures 6 and 7.

A fourth line (Line A) was installed in the same vicinity but slightly deeper than Lines B and D, just above the bedrock surface at an approximate depth of 13 feet bgs in the source area excavation. This line is reserved for injection of bioremediation enhancement agents, if necessary. Line A has not been used for SVE purposes because the pipe becomes seasonally submerged below the shallow groundwater table.

The three buried four-inch diameter SVE pipes that surface at the northwest corner of the garage (lines B, C and D) are used to extract vapor-phase contaminants from the former waste oil tank source area. Each pipe has an independent ball-valve to allow independent line air quality control. The three SVE lines are tied into an exhaust manifold vented by a single blower discharged to the atmosphere via an exhaust pipe exposed at the garage roof line (Figure 7). VOC emissions were initially monitored monthly in order to determine the volume of contaminant removal during the first year of operation. At the time this SMP was prepared, the SVE system was being monitored on a quarterly basis. The system is managed and maintained by TCC until it is determined that continued operation is no longer necessary.

The SVE system is vented by a 100 cubic feet per minute (cfm), positive displacement type, Rotron Model EN 454 explosion-proof blower housed in a shed at the northwest corner of the maintenance garage. The shed also houses electric controls including an emergency surge shut-off in case of electric failure.

The carbon treatment system at the Halpin property has been designed to remove chlorinated and non-chlorinated organic compounds in this domestic well. Two downgradient water supply wells (Halpin and Optimum) were initially impacted by low levels of chlorinated hydrocarbons. Potable water from these wells (Figures 8) were treated via activated carbon. The Optimum Window well is no longer used because Greer paid to have the Greer facility and the Optimum Window property connected to municipal water during 2008. Compliance water samples are collected from the inlet and outlet of the water treatment system (Figure 9). The risk of ingesting impacted groundwater is mitigated through the use of these systems. The Greer Nine Realty property well is not known to be impacted.

1.4.4 Remaining Contamination

The majority of impacted soils were removed from the site during the November 2000 tank closure activities. Residual impacted soils remain beneath the building slab at the northwest corner of the main building garage**.**

Tables 4 and 5 summarize year 2000 results of all soil samples remaining at the site after completion of tank closure activities that exceed the TAGM 4046 recommended soil cleanup objectives. Figure 5 depicts where the soil samples were generally collected from in the excavation. Two compounds, benzo(a)pyrene and Dibenz(a,h)anthracene, exceeded the SCOs for commercial use of the site as listed in Table 375-6.8b of 6 NYCRR Part 375. Quarterly groundwater monitoring has shown that the SVE system has been effective at reducing contaminant levels in groundwater on the property and therefore additional remedies or investigations have not been necessary for the site.

1.4.5 Engineering and Institutional Controls over the Restricted Area

Since remaining contamination is present in the Restricted Area of this property, Engineering Controls and Institutional Controls have been implemented to protect public health and the environment for the applicable future use. The Restricted Area of the Controlled Property has the following Engineering Controls:

1. a cover system consisting of asphalt pavement and concrete building slab;

2. an SVE system

A series of Institutional Controls are required to implement, maintain and monitor these Engineering Controls. The Deed Restriction will require compliance with these Institutional Controls, to ensure that:

- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Site must be inspected and certified at a frequency and in a manner defined in this SMP;
- Groundwater, sub-grade soil vapor overlying the footprint of Pits 1 and 2 as shown in Figure 4 of the Record of Decision (aka the Restricted Area), and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management at this property must be reported at the frequency and in a manner defined in this SMP;
- Environmental monitoring devices, including but not limited to, groundwater monitoring wells, must be protected and replaced as necessary to ensure continued functioning in the manner specified in this SMP.

In addition, the Deed Restriction will place the following restrictions on the property:

- Use of groundwater underlying the property is prohibited without treatment rendering it safe for the intended use;
- All future activities on the property that would disturb remaining contaminated material in the Restricted Area must be conducted in accordance with the Excavation Plan included in this SMP;
- The potential for vapor intrusion must be evaluated for any buildings developed on the site above the Restricted Area, and any potential impacts that are identified above regulatory thresholds must be mitigated;

- The property may be used for restricted commercial use as defined in 6 NYCRR Part 375, provided that the long-term Engineering and Institutional Controls described in the SMP remain in use.

These EC/ICs are designed to:

- Prevent ingestion/direct contact with contaminated soil;
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil;
- Prevent ingestion of groundwater with contaminant levels that exceed drinking water standards;
- Prevent contact with or inhalation of volatiles from contaminated groundwater;
- Prevent the discharge of contaminants to surface water;
- Prevent contaminated groundwater from migrating off-site; and
- Prevent migration of contaminants that would result in groundwater or surface water contamination on adjacent properties.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Remedial activities completed at the site were conducted in accordance with the NYSDEC-approved RD/RAWP for the site (March 2003). A summary of the remedial strategies and EC/ICs implemented at the site are as follows:

Since remaining contaminated soil and groundwater exists beneath the Restricted Area, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

The purpose of this Plan is to provide:

- A description of all EC/ICs on the site;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the ICs created as stated in the Deed Restriction;
- A description of the features that should be evaluated during each periodic inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of an Excavation Plan for the safe handling of remaining contamination that may be disturbed during maintenance or redevelopment work at the site;

- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC; and
- A description of the reporting requirements for these controls.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Soil Cover System

Exposure to remaining contamination in soil at the site is prevented by a soil cover system placed over the former underground tank area (ie. Restricted Area). This cover system is comprised of a minimum of seven feet of clean fill and asphalt pavement. A concrete building slab exists over the remaining impacted soils that could not be removed during tank excavation activities. The Excavation Plan that appears in Section 2.4 outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 3 of this SMP.

2.2.1.2 Soil Vapor Extraction System

Procedures for operating and maintaining the SVE system are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the site, occurs.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, the remedial processes will be considered to be completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The specific determination of when the

following remedial processes are complete will be made in compliance with Section 6.6 of NYSDEC DER-10.

2.2.2.1 Composite Cover System

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals until the site is declassified.

2.2.2.2 Soil Vapor Extraction System [SVES]

The SVES will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the SVES is no longer required, a proposal to discontinue the system will be submitted by the property owner. Conditions that warrant discontinuing the SVES include contaminant concentrations in groundwater that: (1) reach levels that are consistently below ambient water quality standards, (2) have become asymptotic to a low level over an extended period of time as accepted by the NYSDEC, or (3) the NYSDEC has determined that the SVE system has reached the limit of its effectiveness. This assessment will be based in part on post-remediation contaminant levels in groundwater collected from monitoring wells located throughout the property. Systems will remain in place and operational until permission to discontinue their use is granted in writing by the NYSDEC.

The location and construction details of the SVES are discussed in Section 1.4.3 above.

2.2.2.3 Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC.

Monitoring of the downgradient potable well at the Halpin residence will continue until one half of the NYS Drinking water standards are met for four consecutive quarterly sampling events, in accordance with the ROD, and permission to discontinue is granted in writing by the NYSDEC and DCDOH. The locations of the property's groundwater

monitoring wells and potable well at Halpin residence are shown in Figures 3 and 8, respectively.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls are required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; and (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; adherence to these Institutional Controls on the site is required by the Deed Restriction and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Deed Restriction by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency defined by NYSDEC and in a manner defined in the SMP.
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency defined by NYSDEC and in a manner defined in this SMP;
- Environmental monitoring devices, including but not limited to, groundwater monitoring wells must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP.

Institutional Controls may not be discontinued without an amendment to or extinguishment of the Deed Restriction.

Prior to this remedial effort, the site did not have any Institutional Controls in the form of site restrictions. However, Institutional Controls are required by the Deed

Restriction associated with the remedial activity describe here. Restrictions that will apply to the site, as per the Deed Restriction are:

- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended purpose;
- All future activities in the Restricted Area on the property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with this SMP;
- The potential for vapor intrusion must be evaluated for any buildings developed at the site, and any potential impacts that are identified must be mitigated;
- The property may only be used for restricted commercial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a less restrictive use, such as unrestricted or restricted residential and unrestricted commercial use without agreement by the Commissioner of NYSDEC which would likely include a requirement for additional investigation and/or remediation and amendment of the Deed Restriction.
- The owner will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all site controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Soil Vapor Intrusion Evaluation

At the time that this SMP was prepared no soil vapor intrusion (SVI) evaluation was required, because a SVES was operating full-time just outside the northwest corner of the building footprint over the Restricted Area. Prior to the occupation of any new enclosed structures located above the Restricted Area, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to volatile organic vapors in the proposed structure. Alternatively, an SVI mitigation system will be installed as an element of any new building foundation if constructed over the Restricted Area without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

If a habitable structure is proposed for construction on part of the property outside the Restricted Area, a baseline soil gas sampling investigation will be performed within footprint of the proposed structure to determine whether a vapor mitigation system is necessary. The sampling plan would be proposed to the NYSDEC project manager prior to implementation.

Prior to conducting an SVI investigation or installing a mitigation system over the RA, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent version of NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed qualifying structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted by the property owner to building tenants within 30 days of validation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in Periodic Review Reports.

2.4 EXCAVATION PLAN

Any future intrusive work that will penetrate, encounter or disturb the remaining contamination, and any modifications or repairs to the existing cover system will be performed in compliance with this Excavation Plan (EP). Intrusive construction work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A sample HASP that was used during the remedial construction is attached as part of the O&M Manual in Appendix A to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section 2.4.1 below. Any intrusive construction work will be performed in compliance with the EP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 2.6).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The site owner will ensure that site redevelopment activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this Remedial Action Work Plan.

Any hotspot and/or structure found during future excavation work and selected for remediation (additional USTs, vaults and associated piping, transformers, etc.) will be removed and end-point remedial performance sampling completed before expanding any excavations related to new development plans.

Mechanical processing of historical fill and contaminated soil on the property is prohibited.

All newly discovered primary contaminant sources (including but not limited to tanks and hotspots) identified during Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. The survey information will be shown on maps to be reported in the Periodic Review Report.

2.4.1 Notification

At least 10 days prior to the start of any activity that is reasonably anticipated to encounter remaining contamination in the Restricted Area, the site owner or their representative will notify the Department. Currently, this notification will be made to:

Mr. John Rashak, P.E.

New York State Department of Environmental Conservation
Environmental Remediation, Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1620

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, or any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A statement that the work will be performed in compliance with this EP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format,
- Identification of disposal facilities for potential waste streams,

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.4.2 Soil Screening Methods

Future ground-intrusive work which is reasonably anticipated to encounter remaining contamination in the Restricted Area will only proceed in conjunction with visual, olfactory and instrument-based soil screening that is performed by a qualified environmental professional. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work in the Restricted Area defined within the Deed Restriction and shown on Figure 2.

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated materials within the Restricted Area. Soils meeting these criteria would appear discolored, have petroleum sheen, exhibit a petroleum or chemical odor or have elevated photo-ionization detector (PID) readings greater than 10 ppm. Soils will be excavated to a pre-determined depth and screened for indicators that the soil meets cleanup values. These indicators will include no indication of visual impacts, lack of odor, and PID readings of less than 10 ppm. Soils from each depth interval will be stockpiled separately and individual soil piles will be sampled for waste characterization to determine an appropriate waste disposal facility. The number of samples collected from each soil pile will be in accordance with the requirements conveyed from the disposal facility but will consist of at least one composite sample per soil pile. The composite samples will be submitted to and analyzed by a New York State-approved environmental laboratory for the required parameters. Waste profile samples required by the disposal facility are likely to require total concentration analysis for site compounds of concern (COCs) and Toxicity Characteristic Leaching Procedure (TCLP) analysis for petroleum and chlorinated compounds. At the discretion of the site owner, samples may be collected for evaluation against the site-specific subsurface SCOs and/or background concentrations for petroleum and chlorinated compounds. Sampling against site SCOs would be discontinued when the base of the excavation is reached or

when samples are found to contain petroleum and chlorinated compounds below the appropriate cleanup objectives, whichever occurs first.

If the removal of any structures and associated building slab over the Restricted Area is necessary, the building will be removed taking precautions to limit the quantity of soil excavated along with concrete slab and other demolition debris.

Soils will be segregated based on previous environmental data and screening results into material stockpiles that require disposal at a permitted facility, material stockpiles that require testing, material stockpiles that can be returned to the subsurface, and material that can be used without restrictions as cover soil.

2.4.3 Stockpile Methods

Soils excavated from the restricted area exceeding field screening criteria will be stockpiled on polyethylene (ie. Plastic) sheeting. The soils will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Stockpiles will be covered with polyethylene (ie. Plastic) sheeting or tarps during site activities where inclement weather is forecasted and at the end of each workday to prevent the migration of contaminants and the generation of dust. The cover will be appropriately anchored, will be routinely inspected, and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event until the soils are either reused or appropriately removed from the property for disposal. Results of inspections will be recorded in a logbook and maintained at the property and available for inspection by NYSDEC.

2.4.4 Materials Excavation and Load Out

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the property will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements.

A truck wash will be operated on the property. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the property until the activities performed under this section are complete.

Loaded vehicles leaving the property will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

Locations where vehicles enter or exit the property shall be inspected daily for evidence of soil tracking on adjacent roadways.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the property are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

2.4.5 Materials Transport

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the property will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the property. Truck wash waters will be collected and disposed at a permitted facility in an appropriate manner.

Truck transport routes will be identified that will: (a) limit transport through residential areas and past sensitive properties; (b) use city-mapped truck routes; (c) minimize queuing of trucks entering the facility; (d) limit total distance to major highways; and (e) promote safety in access to highways.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project property. Egress points for truck and equipment transport from the property will be kept clean of dirt and other materials during site remediation.

Queuing of trucks will be performed on the property in order to minimize disturbance to neighboring properties.

2.4.6 Materials Disposal Off the Subject Property

All soil/fill/solid waste excavated, deemed sufficiently contaminated, and removed from the site will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. Transportation and disposal methods will be determined through soil testing as previously described in section 2.4.2. If disposal of soil/fill from the site is proposed for unregulated disposal (i.e. clean soil removed for reuse purposes), a formal request will be made to the NYSDEC along with supporting laboratory documentation. Unregulated management of materials from the site will not occur without formal NYSDEC approval.

Disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off the property will be handled, at minimum, as a Municipal Solid Waste pursuant to 6NYCRR Part 360-1.2. Material that does not meet the lower of the SCOs for residential use or groundwater

protection will not be taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility) without a beneficial use determination issued by NYSDEC.

2.4.7 Materials Reuse at the Subject Property

As indicated in section 2.4.2, soils excavated from the Restricted Area will be segregated based on previous environmental data and screening results into material stockpiles that require disposal at a regulated facility, material stockpiles that require testing, material stockpiles that can be returned to the subsurface, and material that can be used without restrictions as cover soil. Soils proposed for reuse at the property must contain contaminant concentrations below 6 NYCRR Part 375 restricted commercial soil standards.

Excavated soil for which testing confirms no use restrictions under NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives Table 375-6.8(a) and/or current applicable regulatory guidance as specified in a project-specific EP may be reused anywhere on the property without restriction.

Soils for which testing confirms compliance with standards for commercial properties as listed in Table 375-6.8b of 6 NYCRR Part 375 may only be reused below paved areas provided the following sample collection activities are followed.

For soils exhibiting any visual or olfactory evidence of contamination the following testing methods must occur:

- One composite sample will be collected for each 100 cubic yards of stockpiled soil. The composite sample will be analyzed by a NYSDOH ELAP-certified laboratory for Target Compound List (TCL) SVOCs and Target Analyte List (TAL) metals.

- One grab sample will be collected from the soils pile exhibiting the highest PID reading. A random sample will be collected if a single high reading cannot be determined. The grab sample will be analyzed by a NYSDOH ELAP-certified laboratory for TCL VOCs.

For soils collected within the Restricted Area but that do not exhibit visual evidence of contamination the following must occur:

- One composite soil sample will be collected as defined below for each 2,000 cubic yards of stockpiled existing soil, and a minimum of one composite sample will be collected for volumes less than 2,000 cubic yards. The composite sample will be analyzed by a NYSDOH ELAP certified laboratory for the TCL VOCs, SVOCs and TAL metals.

Composite soil samples will be homogenized by placing equal portions of soil from each individual sample location into a pre-cleaned, stainless steel (or Pyrex glass) mixing bowl. The soil will be thoroughly mixed using disposable or decontaminated equipment and transferred to pre-cleaned jars provided by the laboratory. Grab samples for TCL VOC analysis will not be homogenized and will be placed directly in laboratory sample containers. Sample jars will then be labeled and a chain-of-custody form will be prepared.

Separate staging areas will be used for soils where samples are needed, soils where test results are pending, soils that have been approved for reuse through sampling, and soils that have been tested and are not approved for reuse.

The site owner or qualified environmental professional (on behalf of the site owner) will ensure that procedures defined for materials reuse in this SMP are followed and that excavated unacceptable material does not remain on the property. Contaminated material meeting thresholds for commercial properties as listed in Table 375-6.8b of 6 NYCRR Part 375 including historic fill and contaminated soil, will only be placed below an impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

All materials associated with the material construction of buildings exist above the depths of contaminated zones within the Restricted Area. So, all construction materials may without restriction be moved or reused in other portions of the property or removed from the property with the following exceptions: Any demolition material proposed for reuse on the property will be sampled for asbestos and the results will be

reported to the NYSDEC for acceptance. Concrete crushing or processing on the property will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the property will not be reused at the property.

2.4.8 Fluids Management

Any fluids collected during excavation processes in the Restricted Area will be stored in a temporary holding tank. This water will be tested as required and will be disposed of if warranted by test results according to NYSDEC solid and hazardous waste disposal regulations, as required. All liquids to be removed from the property, including material from excavation dewatering, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. With approval from the NYSDEC, wastewater determined to be non-hazardous will either be returned to the excavation or discharged to the municipal sanitary sewer system following local approval.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

2.4.9 Cover System Restoration

After the completion of soil removal and any other invasive remedial activities the cover system will be restored in a manner that complies with the ROD. The chosen cover system, as specified in the ROD, involves paving over the former source area (aka Restricted Area) to reduce surface infiltration into the former source region. The ROD does not indicate the need for a demarcation layer to be placed beneath the paved region. Following construction activities, any penetrations or damage to the paved region will be repaired or replaced to assure that paving is in good condition. The paved region serves as a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils in the Restricted Area defined in this Site Management Plan. Figures 2 and 3 show the location of the managed paved area.

If an excavated area within the Restricted Area is proposed for construction of a new building, the new building slab may be considered an alternate replacement cover system.

2.4.10 Backfill from Sources Off the Property

All materials proposed for import onto the property for use in the RA will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP, applicable backfill and cover soil quality regulations established in 6NYCRR 375-6.7(d) and guidance (DER-10) prior to receipt at the property.

Imported fill brought from a source off the property to be used within the RA must be managed in the following fashion:

- Material from industrial properties, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.
- Solid waste will not be imported onto the property.
- Soil represented as virgin soil, must be documented in writing to be native soil material from areas not having supported any known prior industrial or commercial development, or agricultural use.
- Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for the site, will not be imported without prior approval by NYSDEC.

Trucks entering the property with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

2.4.11 Stormwater Pollution Prevention

A Stormwater Pollution Prevention Plan (SWPPP) was not required at the time of remedial construction. Should a decision to conduct future intrusive work in the Restricted Area be made, considerations to develop and implement a site-specific SWPPP

will be discussed with the NYSDEC based on the size and extent of the proposed work. If a SWPPP is required, it will conform to the requirements of NYSDEC Division of Water guidelines and NYS regulations and will include the following provisions at a minimum:

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the property and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence to anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

2.4.12 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical

analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the property history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes, likely to only include site-specific chlorinated solvents, will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum products will also be reported to the NYSDEC spills hotline. These findings will be also included in daily and periodic electronic media reports.

2.4.13 Community Air Monitoring Plan

The need to prepare a Community Air Monitoring Program (CAMP) plan will be determined based on size of the future project. Volatile Organic Compounds (VOCs) and particulates will be monitored during all future large scale projects during excavation and grading activities in the Restricted Area. Examples of large-scale projects include buildings, building foundations, driveways and parking lots.

Air monitoring will not be implemented for small-scale projects in the site, for which wetting methods will be employed as necessary to assure that dust does not migrate beyond the work area. If wetting methods do not visibly appear to control dust migration, air monitoring will become required. Examples of small-scale projects include activities such as landscaping, vegetation maintenance and shallow buried utility repairs.

For large-scale ground intrusive activities in the Restricted Area, including drilling, jack-hammering, and any large-scale activity disturbing normal surface and subsurface conditions, the following air monitoring activities should be conducted to ensure emissions to the ambient air do not impact local residents and nearby businesses in addition to workers.

- Volatile organic compounds - monitored at the downwind perimeter of the work area on a continuous basis. If total organic vapor levels exceed 5 ppm above background levels in 15 minute intervals for a continuous monitoring period during work activities, work activities must be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings must be recorded and be available for NYSDEC and NYSDOH personnel to review.

- Particulates – monitored continuously upwind, downwind, and within the work area at temporary particulate monitoring stations. If the downwind particulate level is 150 micrograms per cubic meter (ug/m^3) greater than the upwind particulate level in 15 minute intervals for a continuous monitoring period during work activities, then dust suppression techniques must be employed. All readings must be recorded and be available for NYSDEC and NYSDOH personnel to review.

TAGM 4031 will be used as the guidance document for dust suppression. Should dust become a concern, dust suppression measures will be implemented in accordance with TAGM 4031, *Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites*. The New York State Department of Health's (NYSDOH) Generic CAMP guidance, Appendix 1A of DER-10, is attached to this document as Appendix C.

Air sampling stations will be established should air monitoring become necessary. Air sampling locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. Exceedences of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

2.4.14 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors. Specific odor control methods to be used on a routine basis could include limiting exposed surface area, covering exposed soil, the application of odor control foam or other

products applied directly to the exposed soil, or odor neutralizing devices. If nuisance odors are identified at the property boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent emissions of nuisance odors. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for disposal at a permitted facility; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to working conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

2.4.15 Dust Control Plan

A dust suppression plan that addresses dust management during invasive work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated water truck for road wetting. The truck will be equipped with water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.

- Clearing and grubbing of larger areas will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- Roads will be limited in total area to minimize the area required for water truck sprinkling.

2.5 INSPECTIONS AND NOTIFICATIONS

2.5.1 Periodic Inspections

Inspections of all remedial components installed at the site are conducted on a scheduled basis as specified in the SMP Monitoring Plan schedule. A comprehensive property-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Deed Restriction;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Site Management Reporting Plan (Section 2.6).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to

verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.5.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Order on Consent, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 10-day advance notice of any proposed ground-intrusive activities in the Restricted Area.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

  Notifications will be made to:

  Mr. John Rashak, P.E.

  NYSDEC Region 3

  Environmental Remediation

  21 South Putt Corners Road

  New Paltz, New York 12561

(845) 256- 3153

In the event that NYSDEC develops a centralized notification system, that system will be used instead.

2.5.3 Evaluation and Reporting

The results of the inspection and monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the ROD/RAWP.

2.6 REPORTING PLAN

2.6.1 Introduction

A Periodic Review Report will be submitted to NYSDEC every year, beginning one year after the Certificate of Completion is issued. The Periodic Review Report will be prepared in accordance with NYSDEC DER-10 "Technical Guidance for Site Investigation and Remediation". The frequency of submittal of the Periodic Review Report may be modified with the approval of the NYSDEC.

This report will include the following:

- Identification of all EC/ICs required by the Remedial Action Work Plan for the site;
- An assessment of the effectiveness of all Institutional and Engineering Controls for the site;

- An evaluation of the Engineering and Institutional Control Plan and the Monitoring Plan for adequacy in meeting remedial goals;
- Results of the required annual site inspections and severe condition inspections, if any occurred;
- A compilation of all deliverables generated during the reporting period, as specified in Section 2 EC/IC Plan, Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan; and
- Certification of the EC/ICs.

2.6.2 Certification of Engineering and Institutional Controls

Inspection of the EC/ICs will occur at the frequency described in Section 3 (Monitoring Plan) and Section 4 (Operation and Maintenance Plan). After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare a Periodic Review Report which certifies that:

- ECs/ICs are unchanged from the previous certification;
- They remain in-place and are effective;
- The systems are performing as designed;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for such controls;
- Access is available to the property and site by NYSDEC and NYSDOH to evaluate continued maintenance of such controls; and
- Property use is compliant with the deed restriction.

2.6.3 Periodic Review Report

A Periodic Review Report (PRR) will be submitted every year or upon intervals required by NYSDEC, beginning one year after the Certificate of Completion until the site is completely deregistered from the NYSDEC Registry of Inactive Hazardous Waste sites. The report will be submitted within 45 days of the end of each certification period. Other reports, such as groundwater data, will be submitted quarterly or annually as described in Section 3.2.3. Media sampling results will be considered when completing the PRR. The PRR is a standard NYSDEC form and will be completed completely and certified as required.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Regional Office located closest to the site, and in electronic format to NYSDEC Central Office and the NYSDOH Bureau of Environmental Exposure Investigation.

3.0 MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the implemented remedy and ECs to reduce or mitigate contamination at the site. ECs at the site include a composite soil and asphalt cover system and an SVE system. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of appropriate media (e.g., groundwater and soil vapor from the SVE system);
- Assessing compliance with NYSDEC groundwater standards;

- Assessing achievement of the remedial performance criteria;
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Quarterly monitoring of the performance of the remedy and overall reduction in contamination has been conducted for the past eight years. The continued frequency will be determined by the NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs for environmental media are summarized in Table 6 of this SMP and outlined in detail in Sections 3.2 through 3.5 below.

3.2 GROUNDWATER MONITORING PROGRAM

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy.

Groundwater monitoring of wells MW-4 and MW-5 is conducted quarterly. MW-4 and MW-5 have shown contaminant decreases over time. The improvements are attributed to significant source removal action, natural attenuation, and ongoing venting via the SVE system.

3.2.1 Monitoring System Design

The network of monitoring wells was installed to monitor both up-gradient and down-gradient groundwater conditions relative to the site. The network of monitoring wells was approved within the work plan for the August 2001 Supplemental Remedial Investigation.

Six bedrock monitoring wells were installed on the property between August 14 and August 16, 2001 (Figure 3). The wells were installed using a conventional air-rotary drilling rig, and no split-spoon samples were collected during installation. Wells MW-1, MW-2, MW-3, MW-4 and MW-6 were installed to a depth of 50 feet bgs. MW-5, located immediately downgradient of the identified source region, was extended to 100 feet bgs to intersect deeper fracture systems. Monitoring well construction details and well logs showing subsurface geology, dimensions and cased intervals for the six wells are included as part of the O&M Manual in Appendix A.

The locations of the wells include three upgradient wells (MW-1, MW-2 and MW-3) and three downgradient wells (MW-4, MW-5 and MW-6) (Figure 3). Based on groundwater elevations collection in September 2001, a groundwater flow contour map was generated (Figure 3) and which indicates that groundwater residing within the bedrock aquifer under the property contains a strong northwestern flow component. Based on sample results, NYSDEC no longer requires sampling of wells MW-1, MW-2, MW-3 and MW-6 because MW-4 and MW-5 adequately characterize groundwater downgradient of the remedial source area.

3.2.2 Groundwater Monitoring Schedule

All six wells were initially monitored on a quarterly basis for VOCs via USEPA Method 8260, and for SVOCs via USEPA Method 8270. NYSDEC approved changes to

the well monitoring plan such that the monitoring program at the time the SMP was prepared consisted of the following:

- Monitoring of MW-1 was discontinued in 2003.
- Monitoring of MW-2 was discontinued in 2004.
- Monitoring of MW-3 was discontinued in 2003.
- Monitoring of MW-6 was discontinued in 2004, and
- Wells MW-4 and MW-5 continue to be monitored on a quarterly basis; however, the NYSDEC approved the discontinuation of SVOC analysis on these two wells in 2004.

The sampling methods and frequency may be modified with the approval of NYSDEC. Table 6 of the SMP will be modified from time to time to reflect the most current changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.2.3 Sampling Event Protocol

All monitoring well sampling activities are recorded on field sampling sheets. Example field sampling sheets are presented in Appendix B. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The field sampling sheets will serve as the inspection form for the groundwater monitoring well network.

Groundwater sampling is performed as follows:

1) Prior to sampling, water level data are collected using an electronic water level meter to calculate well volumes. Well volumes are calculated by measuring the height of the water column (height of water column = depth to well bottom – depth to water), and then multiplied by a well diameter conversion factor. A single instrument is used to evaluate all water level measurements. The water level meter is decontaminated between measurements using an Alconox® solution to prevent cross contamination between wells.

2) Prior to well sampling, wells must be purged to ensure that static annular water is removed from the well column.

3) Wells will be purged using a dedicated submersible pump, a portable submersible pump, a bailer or an inertial lift pump.

4) During purging, routine water quality parameters including pH, temperature, and conductivity will be monitored using portable meters. Turbidity will be assessed visually to assist in determining when groundwater conditions have stabilized. In general, three or more well volumes will be removed before sampling.

5) Samples will be collected from monitoring wells once static water levels recover to not less than ninety percent of the pre-purging levels but not more than 24 hours following purging.

6) Groundwater samples from MW-4 and MW-5 will be analyzed for VOCs using USEPA method 8260. Temperature, pH and specific conductance will be measured in the field. Turbidity is visually assessed during sampling. Samples will be transported to the laboratory with ice or ice packs in secure coolers.

3.3 MONITORING WELL REPAIRS, REPLACEMENT AND DECOMMISSIONING

Wells will be inspected during quarterly sampling events. Each well will be checked to assure that the well is intact, the well cap is sealed and locked, and the protective well casing is unharmed.

If biofouling or silt accumulation occurs in any of the monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance. Wells

scheduled for decommissioning will be closed according to the following NYSDEC protocol:

1. The casing will be removed to the extent possible, followed by perforation of any casing left in place. A minimum of four (4) rows of perforations several inches long and a minimum of five (5) perforations per linear foot of casing is recommended.

2. The well will be sealed by pressure injection with cement bentonite grout which will extend the entire length of the boring to five feet bgs or the excavated level. The upper five feet will be backfilled with appropriate native materials compacted to avoid settlement. If necessary, alternate methods will be used to prevent the migration of the grout into the surrounding geologic formation.

3. After sealing, the area will be inspected periodically for settlement or other conditions which require remediation.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.4 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site which is attached as Appendix D. Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:

- Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
- Sample holding times will be in accordance with the NYSDEC ASP requirements.
- Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.

- Sample Tracking and Custody;
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR) was conducted during RI work which presented the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method. However, this type of report is no longer required for routine monitoring.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.5 ENGINEERING CONTROL SYSTEM MONITORING

3.5.1 Composite Soil Cover System

After the tanks and source soils were removed, the excavations were backfilled with permeable crushed stone. The crushed stone was brought to a level that corresponds to the top of the silt-clay layer. The crushed stone was covered with an impermeable membrane, which, in turn, was covered with clean fill (bank run). The fill material was placed in 9-inch lifts in the 8 to 15 foot deep excavation and compacted using a vibratory compactor to limit the potential for settling. The excavation areas were then covered with asphalt pavement to reduce surface infiltration into the former source area.

3.5.1.1 Site Cover Inspection Schedule

The asphalt cover over the former source area must be inspected during periodic monitoring events. In addition, the condition of the pavement should be inspected twice a year by the owner, and sealing performed, as necessary.

Inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the asphalt cover system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Monitoring deliverables for the asphalt cover system occur annually with the annual progress report.

3.5.2 SVE System

An SVE system was installed near the north-northwest side of the main building to extract residual VOCs from remaining impacted soils that could not be excavated because of their proximity beneath the corner of the structure.

Diagrams of the SVE unit are shown in Figures 6 and 7. The SVE system, as shown in Figures 6 and 7, was installed as specified in the plan provided in the RD/RAWP submitted in March 2003. Specific construction details for each of the SVE zones installed are provided in Section 1.4.3 of this SMP.

3.5.2.1 SVE Inspection Schedule

After installation of the SVE system in 2003, the system exhaust air was monitored in detail for the first three months, and has since been monitored on a quarterly basis.

Inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the asphalt cover system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Monitoring deliverables for the asphalt SVE system are provided in annual progress reports.

3.5.2.2 SVE General Equipment Inspection

An inspection of the complete system will be conducted during the monitoring event and includes the following:

Mechanical Checks

1. Check and confirm operation of the SVE blower.

2. Check operating temperature of the SVE blower. The blower should be warm to touch but not hot.

3. Listen to the blower for any irregular or unusually high-pitched noises.

4. Check the blower for visible signs of wear or damage.

5. Visually check the blower for kinked or disconnected pipes and listen for air leaks.

Air Pressure Monitoring

Monitor and record influent blower air pressures. This will ensure the blower is operating within acceptable parameters.

A complete list of components to be checked is provided in section I of Volume II of the O&M Manual attached in Appendix A. If any equipment readings are not within their typical range, any equipment is observed to be malfunctioning, or the system is not

performing within specifications, maintenance and repair as per the Operation and Maintenance Plan will be performed immediately, and the SVE system will be restarted.

3.5.2.3 SVE System Monitoring Devices and Alarms

Prior to starting the SVE blower, ensure that the airflow control valves are in the open position. The blower unit is equipped with an individual control box containing a motor contact switch, overload relay and operational controls. To start or stop the blower motor, press the appropriate operator button on the blower's control panel. (See fault reporting in O & M Plan before stopping any blower).

The SVE blower is powered by a three-phase electric motor. This motor will shut down whenever there is an interruption to the electrical service and will have to be manually restarted. The SVE system has a warning device to indicate that the system is not operating properly. In the event that the warning device is activated, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance Plan, and the SVE system restarted. Operational problems will be noted in the subsequent Periodic Review Report. Troubleshooting of the SVE System is referenced in Volume II of the O&M Manual (Appendix A).

3.5.2.4 SVE Sampling Event Protocol

SVE effluent samples are monitored using a PID. The results of these air tests are provided to the NYSDEC with the annual sampling reports.

Three effluent lines are measured each quarter, one from each active SVE line. The individual measurements are collected from Lines B through D. To isolate an individual SVE line for sampling, the control valves for the other two lines will be temporarily closed until measurements have concluded. The blower is then allowed to purge the line for 10 minutes to insure an isolated line concentration. This process will be repeated until measurements from all three lines are collected. The valves and sampling ports to be used are clearly labeled and correspond to zones depicted on the attached Figure 7.

The individual line samples will be used to track progress towards the clean-up objective and as the objective is met, the control valves will be positioned to increase vacuum and airflow rates to the most heavily contaminated areas.

3.5.3 Carbon Filtration Systems

Currently only one carbon filtration system (Halpin Residence) is monitored by collecting water samples before and after the carbon filters according to the Schedule of Sampling Activities provided in Volume II, Section I of the O&M Manual in Appendix A.

3.5.3.1 Carbon System Inspection Schedule

The maintenance and monitoring of the existing treatment system at the Halpin Residence will continue until one half of the drinking water standards are met for four consecutive quarterly sampling events or until the property is connected to municipal water. The results will be provided within the annual report.

3.5.3.2 Carbon System General Equipment Inspection

The carbon treatment system is inspected for water leaks each quarter. Any leak in the system is reported to the project manager.

3.5.3.3 Carbon System Monitoring Devices and Alarms

There are no monitoring devices or alarms associated with the carbon filtration system at the Halpin residence. The activated carbon is changed out when the mid-bed starts experiencing breakthrough as indicated by laboratory sampling. Once breakthrough is detected, tank 1 carbon is disposed of, tank 2 is placed in the former tank 1 location, and new carbon is installed in the tank 2.

3.5.3.4 Carbon Sampling Event Protocol

Samples collected from the Halpin Residence carbon treatment system are analyzed quarterly for VOCs using EPA Method 502.2. Both pre- and post-treatment samples are collected. Laboratory analytical reports are provided to the DCDOH.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted with the annual report.

An annual report will also be prepared and will include, at a minimum:

- Date of monitoring events;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- A determination as to whether groundwater conditions have changed since the last reporting event.
- Any recommended changes to site management or monitoring programs
- All applicable inspection forms and other records generated for the site during the reporting period, including field sheets and chain-of-custody forms;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedences highlighted. These will include a presentation of past data sufficient for the Department to evaluate contaminant concentration trends;

- A performance summary for all treatment systems during the calendar year, including information such as:
    - The number of days the system was run for the reporting period;
    - The average, high, and low airflows per day;
    - The contaminant mass removed each quarter;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A description of the resolution of performance problems;
    - A summary of the performance and/or effectiveness monitoring; and
    - Comments, conclusions, and recommendations based on data evaluation.
- A project evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific ROD;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

The annual report will be submitted in an electronic format accompanied by one hard copy report with laboratory sheets stored electronically in an appendix.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

An O&M Plan has been approved for the site in May 2004 and is included in this SMP as Appendix A.

This O&M Plan describes the measures necessary to operate and maintain the mechanical components of the remedy selected for the site. This Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the site to operate and maintain the SVE system;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in site conditions or the manner in which the SVE system is operated and maintained.

Information on non-mechanical Engineering Controls (i.e. soil cover system) is provided in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the site in the SVE shed. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 ENGINEERING CONTROL SYSTEM OPERATION AND MAINTENANCE

Engineering Control and System Operation and Maintenance for the SVE and asphalt cover systems are discussed in the O&M Manual which has been included in Appendix A.

4.3 MAINTENANCE REPORTING REQUIREMENTS

Maintenance reports and any other information generated during regular operations at the site will be kept on-file in the SVE shed. All reports, forms, and other relevant information generated will be available upon request to the NYSDEC and will

be submitted as part of the Periodic Review Report, as specified in Section 2.6.3 of this SMP.

4.3.1 Routine Maintenance Reports

Checklists or forms (see O&M Plan in Appendix A) will be completed during each routine maintenance event. Checklists/forms will include, but are not limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

4.3.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

4.4 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

A contingency plan has been included as part of the 2004 O&M Manual in Appendix A. However, the following contact information has changed and is provided in Table 7.

4.4.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the property owner, project manager or qualified environmental professional. These emergency contact lists and additional contact numbers are found on Tables 7 and 8 and must be updated periodically and maintained in an easily accessible location at the property.

4.4.2 Map and Directions to Emergency Health Facility

Property Location: 1349 US Route 9, Wappingers Falls, NY 12550

Nearest Hospital Name: Vassar Brothers Medical Center

Hospital Location: 45 Reade Place, Poughkeepsie, NY 12601

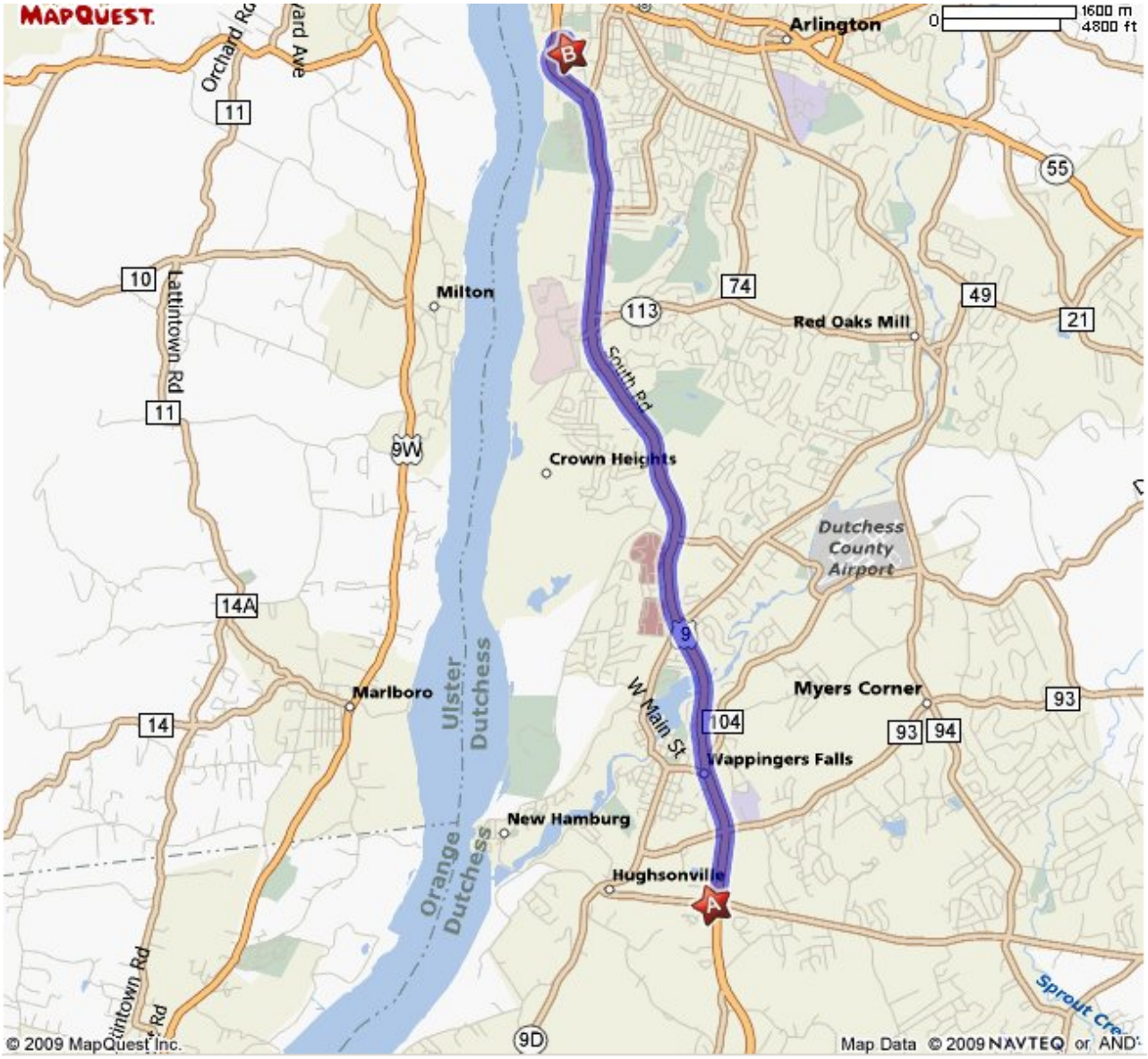
Hospital Telephone: 845-454-8500

Directions to the Hospital:

1. Start out going EAST on OLD HOPEWELL RD/CR-28 toward OLD ROUTE 9/OLD ROUTE 9N RD. (0.1 mi)
2. Turn LEFT onto US-9 N. (8.5 mi)
3. Take the COLUMBIA ST ramp toward RINALDI BLVD (0.1 mi)
4. Turn RIGHT onto COLUMBIA ST. (0.1 mi)
5. Turn RIGHT onto YOUNG ST (0.1 mi)
6. Turn RIGHT onto READE PL (0.1 mi)

Total Distance: 8.83 miles Total Estimated Time: 14 minutes

Map Showing Route from the Property to the Hospital:



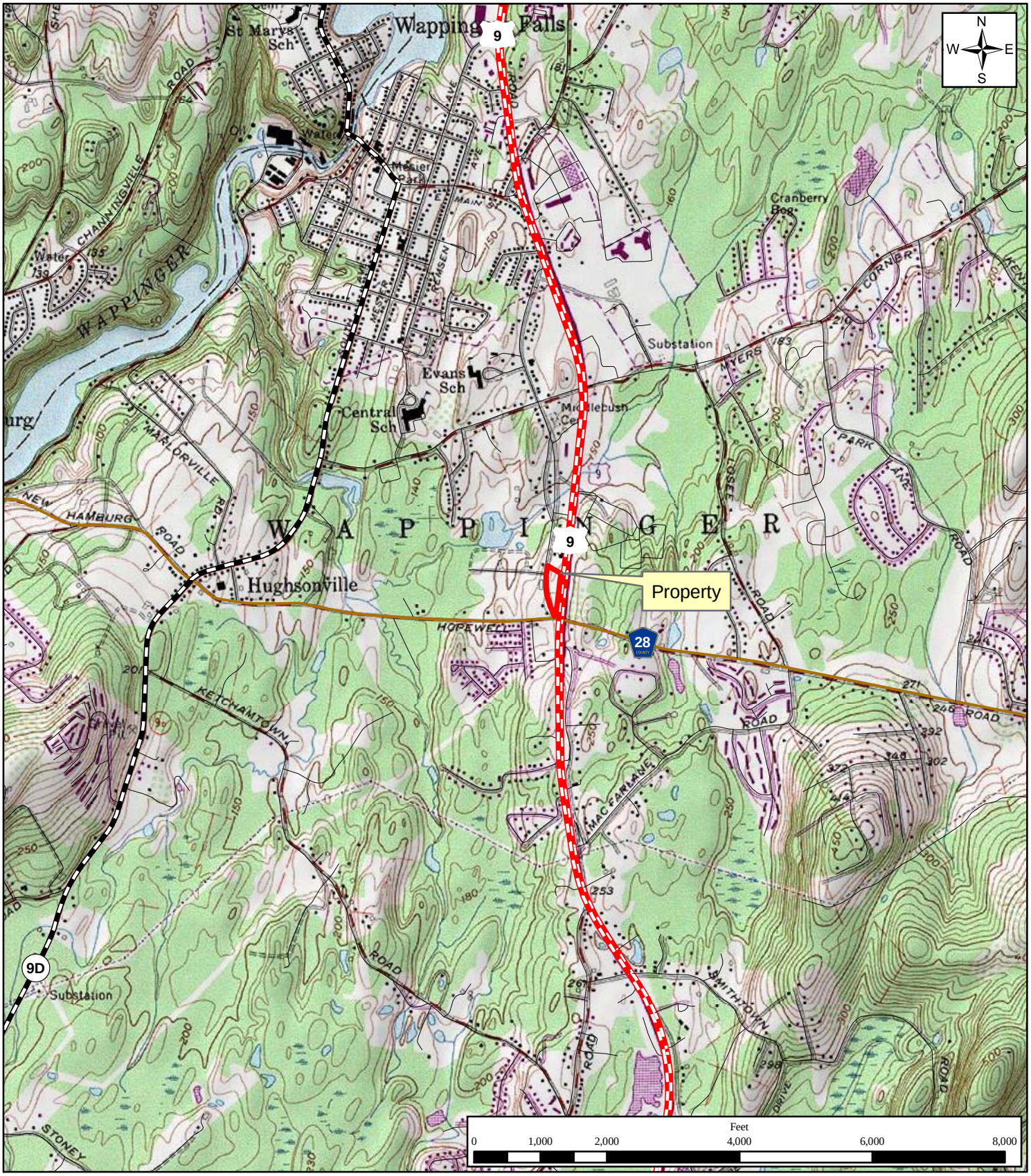
4.4.3 Response Procedures

As appropriate, the fire department and other emergency response groups will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 7). The list will also be posted prominently at the property and made readily available to all personnel at all times.

The Emergency Contingency Plan prepared for the property in April 2004 is included as Attachment F to the May 2004 O&M Manual (Appendix A). The Emergency Contingency Plan includes a description of:

- Procedures for spills;
- Evacuation plans; and
- Amendments to the contingency plan.

FIGURES



THE Chazen COMPANIES

ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (518) 812-0513

New London Office:
914 Hartford Turnpike Waterford, CT. 06385
Phone: (860) 440-2690

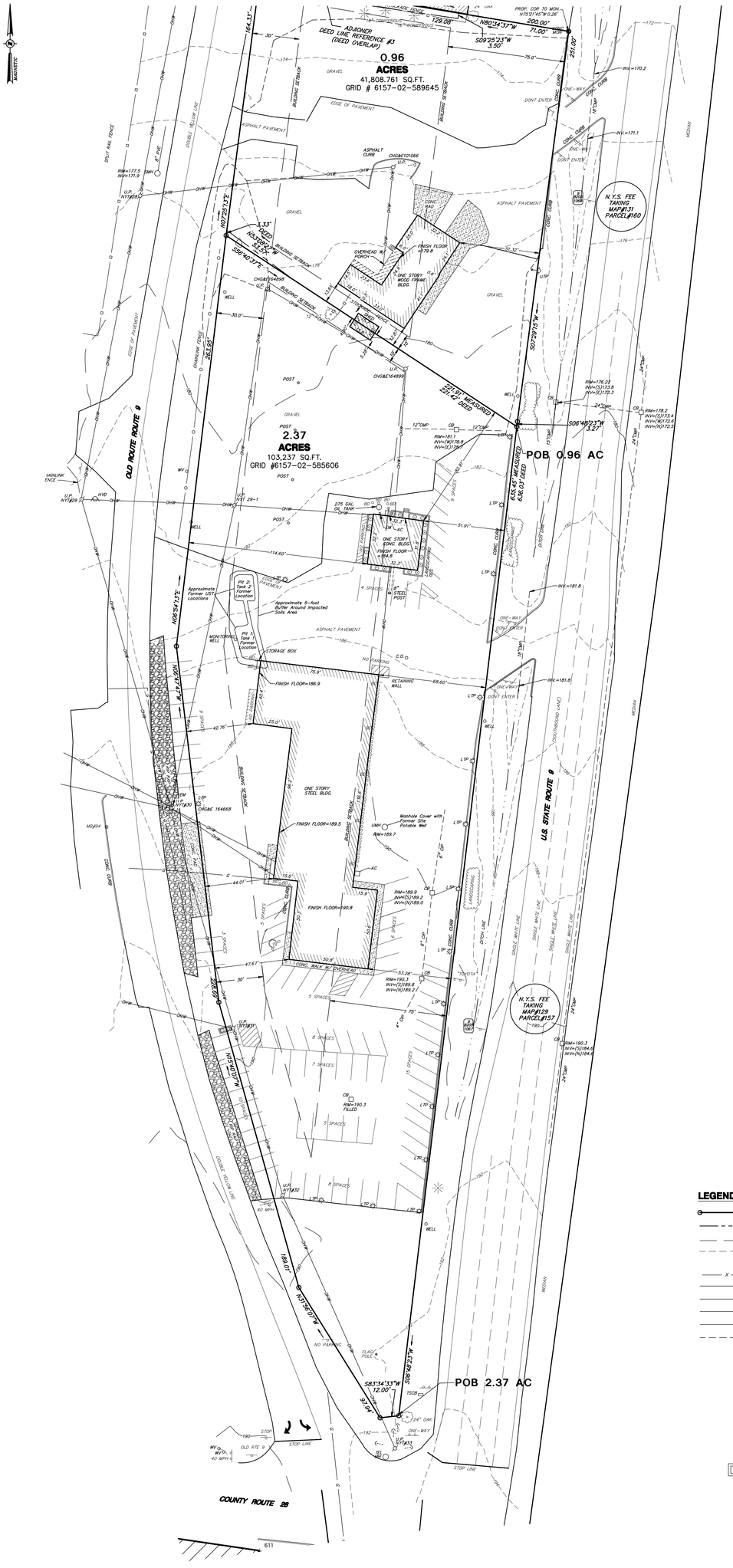
Former Greer Property

Figure 1 - Property Location Map

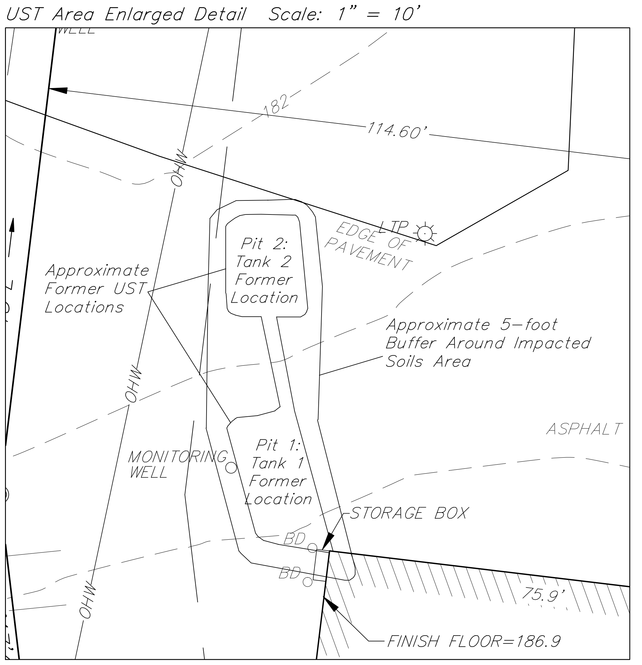
U.S. Route 9
Town of Wappinger, Dutchess County, New York

Source: U.S.G.S. Topographic Map of the Wappingers Falls, New York Quadrangle, Dated 1956 (Photorevised 1981), 7.5-Minute Series; Dutchess County Real Property Services 2008 Tax Parcel Data; NYS Department of Transportation 2007 Roads Dataset.

Drawn:	EJO
Date:	January 2010
Scale:	1:24,000
Project:	40702.00
Figure:	1



UST Area Enlarged Detail Scale: 1" = 10'



NOTES

THE LOCATION OF UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS ARE NOT ALWAYS KNOWN AND OFTEN MUST BE ESTIMATED. IF ANY UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS EXIST OR ARE SHOWN, THE IMPROVEMENTS OR ENCROACHMENTS ARE NOT COVERED BY THIS CERTIFICATE.

SUBSURFACE STRUCTURES NOT VISIBLE OR READILY APPARENT ARE NOT SHOWN AND THEIR LOCATION AND EXTENT ARE NOT CERTIFIED.

THE CONTRACTOR SHALL COMPLY WITH NEW YORK STATE INDUSTRIAL CODE RULE 53 – 48 HOURS PRIOR TO DIGGING CALL U.F.P.O. 1–800–962–7962 TO HAVE PUBLIC UTILITY LOCATIONS PAINTED.

UNDERGROUND FACILITIES AND STRUCTURES SHOWN HEREON WERE TAKEN FROM DATA OBTAINED FROM PREVIOUS MAPS AND RECORD DRAWINGS. ALL ABOVE GROUND STRUCTURES AND SURFACE FEATURES SHOWN HEREON ARE THE RESULT OF A FIELD SURVEY UNLESS OTHERWISE NOTED. THERE MAY BE OTHER UNDERGROUND UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN OR CERTIFIED BY THE UNDERSIGNED. SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES. THE UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION MUST BE NOTIFIED PRIOR TO CONDUCTING TEST BORINGS, EXCAVATION AND CONSTRUCTION.

SUBJECT TO WHATEVER RIGHT TITLE OR INTEREST THE PUBLIC MAY HAVE IN AND TO OLD RTE. 9.

DEED REFERENCE

1. LIBER 1882 PAGE 847, WILLIAM H. GREER TO GREER NINE REALTY CORP., DATED DECEMBER 28, 1990, GRID # 6157–02–585606
2. LIBER 1989 PAGE 539, ERIC B. AND MARTHA G. HARTMANN TO SCHUNZRL, INC., DATED DECEMBER 15, 1996, GRID #6157–02–589645
3. THIS AREA SUBJECTED TO AN ACTION BROUGHT BY ROBERT GIANUZZI WHICH RESULTED IN A JUDGMENT RENDERED IN THE SUPREME COURT OF THE STATE OF NEW YORK, DUTCHESS COUNTY ON MAY 14, 1955 WHICH DETERMINED THAT THE IMPROVEMENTS ON THE PARCEL DESCRIBED IN LIBER BOOK 1429 PAGE 003, DID NOT ENCROACH UPON LANDS OF ROBERT GIANIZZI. NO RECORD OF THE SUPREME COURT JUDGMENT FOUND.

TAX PARCEL NUMBER

TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK
6157–02–585606–0000
6157–02–589645–0000

LEGEND:

- NO PHYSICAL BOUNDS
- ADJACENT PROPERTY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SPOT GRADE
- EXISTING FENCE
- EXISTING OVERHEAD WIRES
- EXISTING UNDERGROUND WATER LINE
- EXISTING UNDERGROUND GAS LINE
- EXISTING UNDERGROUND SEWER LINE
- EXISTING UNDERGROUND STORM LINE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING WATER VALVE
- EXISTING GAS VALVE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING LANDSCAPING AREA
- EXISTING 4" BOLLARD

EASEMENT NOTES:

Reference is made to Chicago Title Insurance Company Title Insurance Policy Dated 08/16/02 Policy No.:RF 64–16, Title No.: CW020457, Schedule B:

Item No. 2 – Notice of Appropriation in Liber 1195 Page 7. Appropriation map references shown hereon.

Item No. 3 – Subject to the rights and easements, if any, acquired by any public utility company to maintain its poles and operate its wires and lines, etc., in, to and over the premises and in, to and over the streets adjacent thereto together with the rights to trim trees. Overhead utility wire crossing subject premises shown hereon.

SURVEY DESCRIPTION
TAX GRID NO. 6157–02–589645

ALL that plot, piece or parcel of land situate and being in the Town of Wappinger, County of Dutchess and State of New York, bounded and described as follows:

BEGINNING at a point at the southeasterly corner of the herein described parcel, said point being on the easterly U.S. Route 9 and being located North 06° 48' 23" East 635.45 feet along the easterly side of U.S. Route 9 from the intersection of the easterly side of U.S. Route 9 with the northerly side of Old Hopewell Road (County Route 28), said point also being the northeasterly corner of the lands now or formerly of Greer Nine Realty Corp. as described on Liber 1883 of deeds at Page 847, thence along the division line of the herein described parcel and said lands now or formerly of Greer Nine Realty Corp., North 56° 40' 37" West 221.91 feet to a point on the westerly line of Old Route 9, said point being the southwesterly corner of the herein described parcel, thence along the westerly line of Old Route 9, North 07° 25' 13" East 164.33 feet to a point being the northwesterly corner of the herein described parcel, said point being the southwesterly corner of lands now or formerly of Russel J. Watson as described in Document No. 02–1994–5333, thence along the division line of the herein described parcel and said lands now or formerly of Russel J. Watson, South 80° 34' 37" East 200.00 feet to a point on the easterly side of U.S. Route 9, said point being the northeasterly corner of the herein described parcel, thence along the easterly side of U.S. Route 9, South 07° 29' 15" West 251.00 feet and South 06° 48' 23" west 3.27 feet to the point or place of beginning.

CONTAINING 0.96 ACRE

SURVEY DESCRIPTION
TAX GRID NO. 6157–02–585606

ALL that plot, piece or parcel of land situate and being in the Town of Wappinger, County of Dutchess and State of New York, bounded and described as follows:

BEGINNING at a point at the southeasterly corner of the herein described parcel, said point being at the intersection of the westerly side of U.S. Route 9 and the northerly side of Old Hopewell Road (County Route 28); thence along the northerly side of Old Hopewell Road (County Route 28), South 83° 34' 33" West 12.00 feet to a point on the westerly side of Old Route 9, thence along the westerly side of Old Route 9, North 31° 56' 07" West 97.94 feet, North 15° 40' 07" West 189.01 feet, North 06° 47' 47" West 228.69 feet, North 06° 54' 13" East 263.95 feet to a point being the northwesterly corner of the herein described parcel, said point being the southwesterly corner of the lands now or formerly of Schunzel, Inc. as described in Liber 1989 of deeds at Page 539, thence along the division line between the herein described parcel and said lands now or formerly of Schunzel, Inc., South 56° 40' 37" East 221.91 feet to the northeasterly corner of the herein described parcel, said point being on the easterly side of U.S. Route 9, thence along the easterly side of U.S. Route 9, South 06° 48' 23" West 635.45 feet to the point or place of beginning.

CONTAINING 2.37 ACRES

THE Chazen COMPANIES

Former Greer Property

Figure 2 - Property Layout

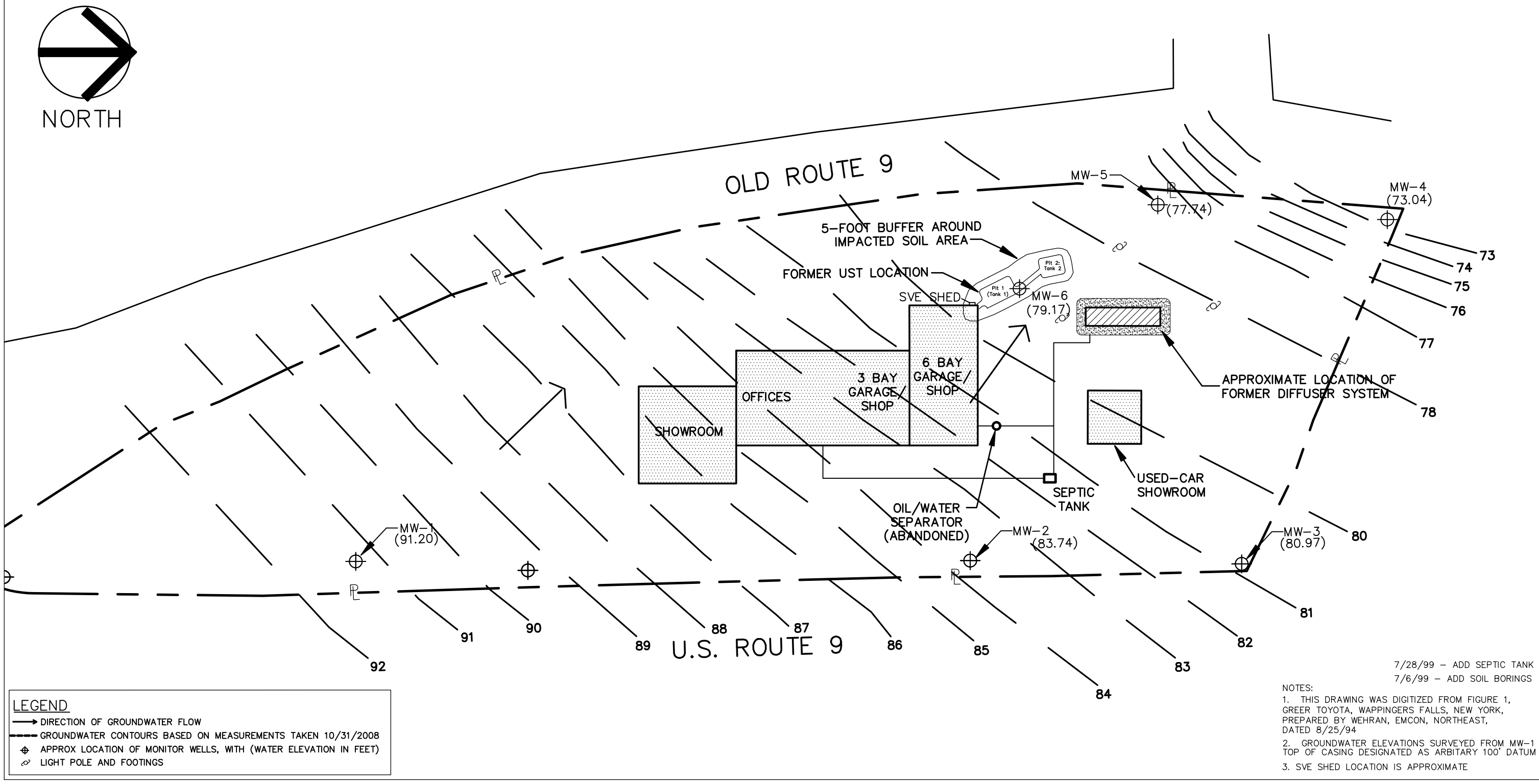
U.S. Route 9, Town of Wappinger, Dutchess County, New York

Source: Drawn by TCC, 2005 – 2009. Drawn by: EJO

Scale: 1" = 30'

Fig. 2

Drawing Name: X:\4\40700–40799\40702.00 GREER\Site_Management_Plan_2009\SMP Figures\Extra Figures\SitePlan_withDetail_05262009.dwg Date Printed: Jan 27, 2010, 4:09pm



LEGEND

- DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOURS BASED ON MEASUREMENTS TAKEN 10/31/2008
- APPROX LOCATION OF MONITOR WELLS, WITH (WATER ELEVATION IN FEET)
- LIGHT POLE AND FOOTINGS

7/28/99 – ADD SEPTIC TANK
7/6/99 – ADD SOIL BORINGS

NOTES:

1. THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY WEHRAN, EMCON, NORTHEAST, DATED 8/25/94
2. GROUNDWATER ELEVATIONS SURVEYED FROM MW-1 TOP OF CASING DESIGNATED AS ARBITARY 100' DATUM
3. SVE SHED LOCATION IS APPROXIMATE

THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., P.C.

Office Locations:

Dutchess County:	*Capital District:*	*Orange County:*	*North Country:*	*Connecticut:*
21 Fox Street	547 River Street	356 Meadow Avenue	100 Glen Street	914 Hartford Turnpike
Poughkeepsie, N.Y. 12601	Troy, N.Y. 12180	Newburgh, N.Y. 12550	Glens Falls, N.Y. 12801	Waterford, CT. 06385
Phone: (845) 454-3980	Phone: (518) 273-0055	Phone: (845) 567-1133	Phone: (518) 812-0513	Phone: (860) 440-2690

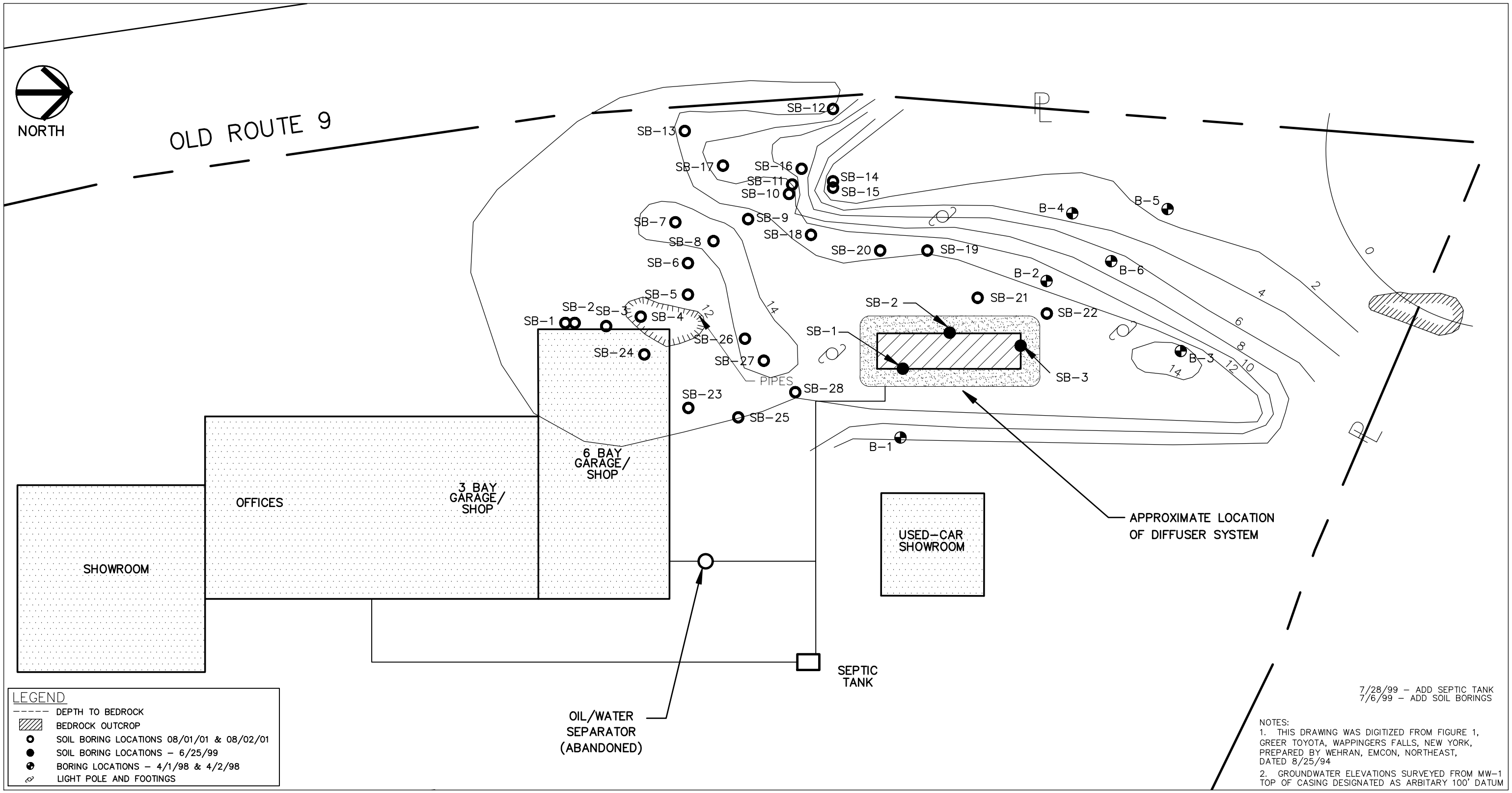
Former Greer Property

Groundwater Flow Map

U.S. Route 9, Town of Wappinger, Dutchess County, New York

drawn	checked
EJO	DPM
date: Jan. 2010	scale: 1" = 60'
project no.: 40702.00	
sheet no.: **Figure 3**	

Drawing Name: X:\4\40700-40799\40702.00 GREER\Site_Management_Plan_2009\SMP Figures\Extra Figures\F3_SitePlanandGWFlow.dwg Date Printed: Jan 27, 2010, 4:14pm



7/28/99 – ADD SEPTIC TANK
7/6/99 – ADD SOIL BORINGS

NOTES:
1. THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY WEHRAN, EMCON, NORTHEAST, DATED 8/25/94
2. GROUNDWATER ELEVATIONS SURVEYED FROM MW-1 TOP OF CASING DESIGNATED AS ARBITARY 100' DATUM

Drawing Name: X:\4\40700-40799\40702.00 GREER\Site_Management_Plan_2009\SMP Figures\Extra Figures\F4_BRContour.dwg Date Printed: Jan 27, 2010, 4:17pm

THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., P.C.

Office Locations:

Dutchess County Office:
21 Fox Street
Poughkeepsie, New York 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street
Troy, New York 12180
Phone: (518) 273-0055

North Country Office:
100 Glen Street
Glens Falls, New York 12801
Phone: (518) 812-0513

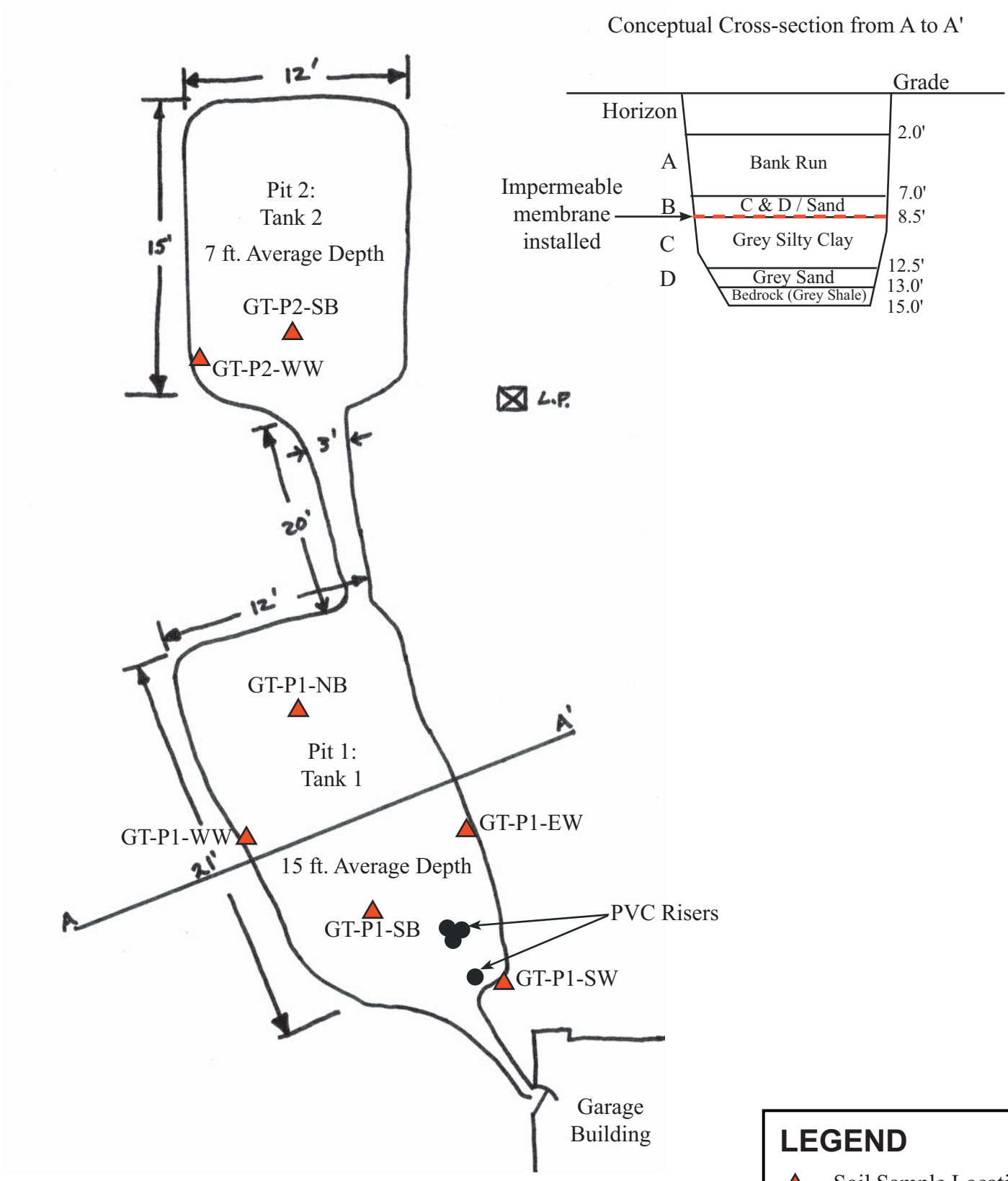
Connecticut:
914 Hartford Turnpike
Waterford, CT. 06385
Phone: (860) 440-2690

Former Greer Property

Soil Boring Location and Bedrock Depth Contour Map

U.S. Route 9, Town of Wappinger, Dutchess County, New York

drawn	checked
EJO	DPM
date	scale
Jan. 2010	1" = 30'
project no.	
40702.00	
sheet no.	
Figure 4	



THE Chazen COMPANIES
ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox St. Poughkeepsie, NY 12601
Phone: (845) 454-3980
Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055
Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (845) 812-0513
Connecticut:
914 Hartford Turnpike, Waterford, CT 06385
Phone: (860) 440-2690

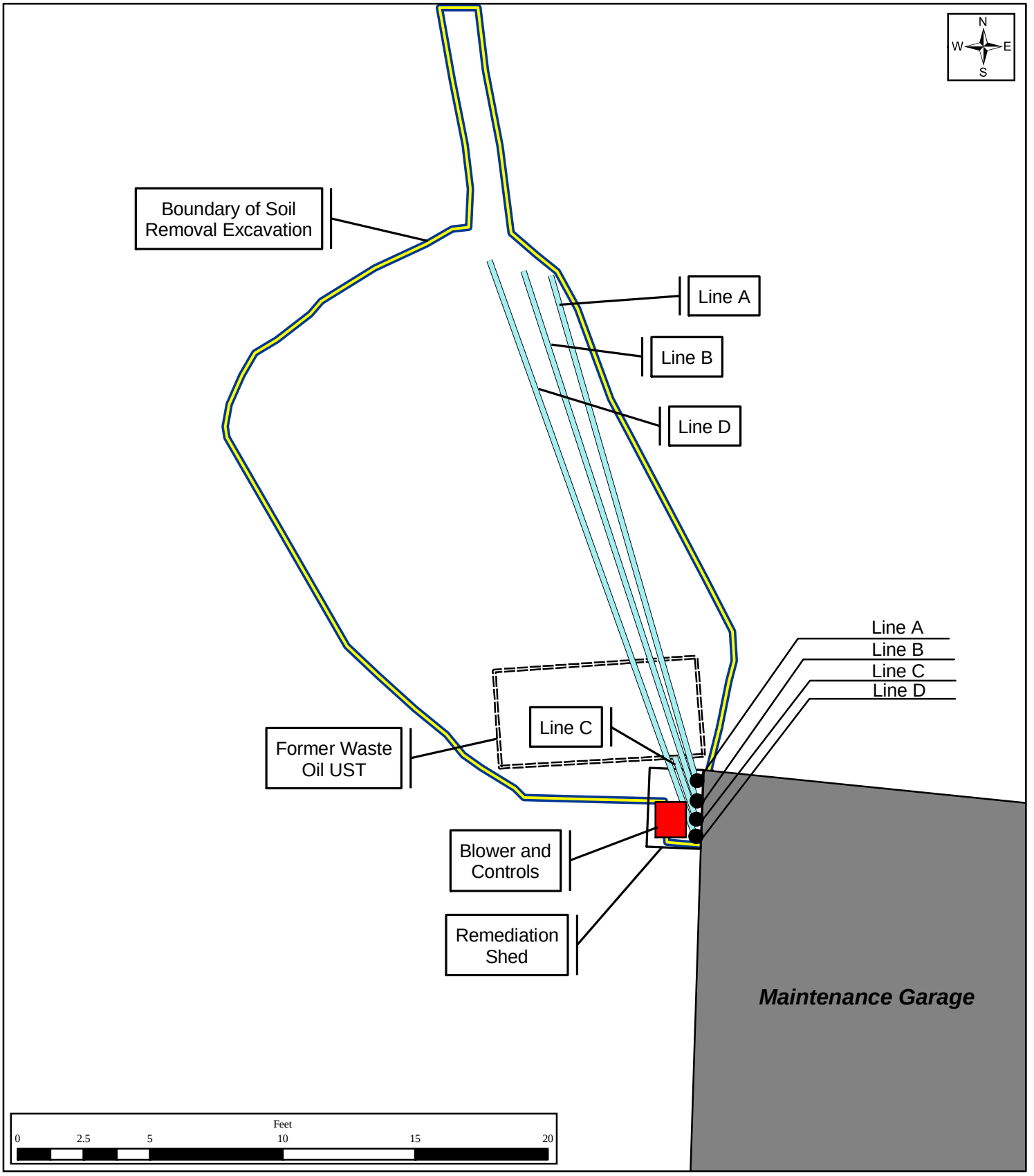
Former Greer Property

Figure 5 - UST Excavation Boundaries and Sample Locations

U.S. Route 9
Town of Wappinger, Dutchess County, New York

Source: Drawn by TCC, 1998 (Revised 2009).

Date: Jan. 2010
Scale: Not to Scale
Project #: 40702.00



THE Chazen COMPANIES

ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (518) 812-0513

New London Office:
914 Hartford Turnpike Waterford, CT. 06385
Phone: (860) 440-2690

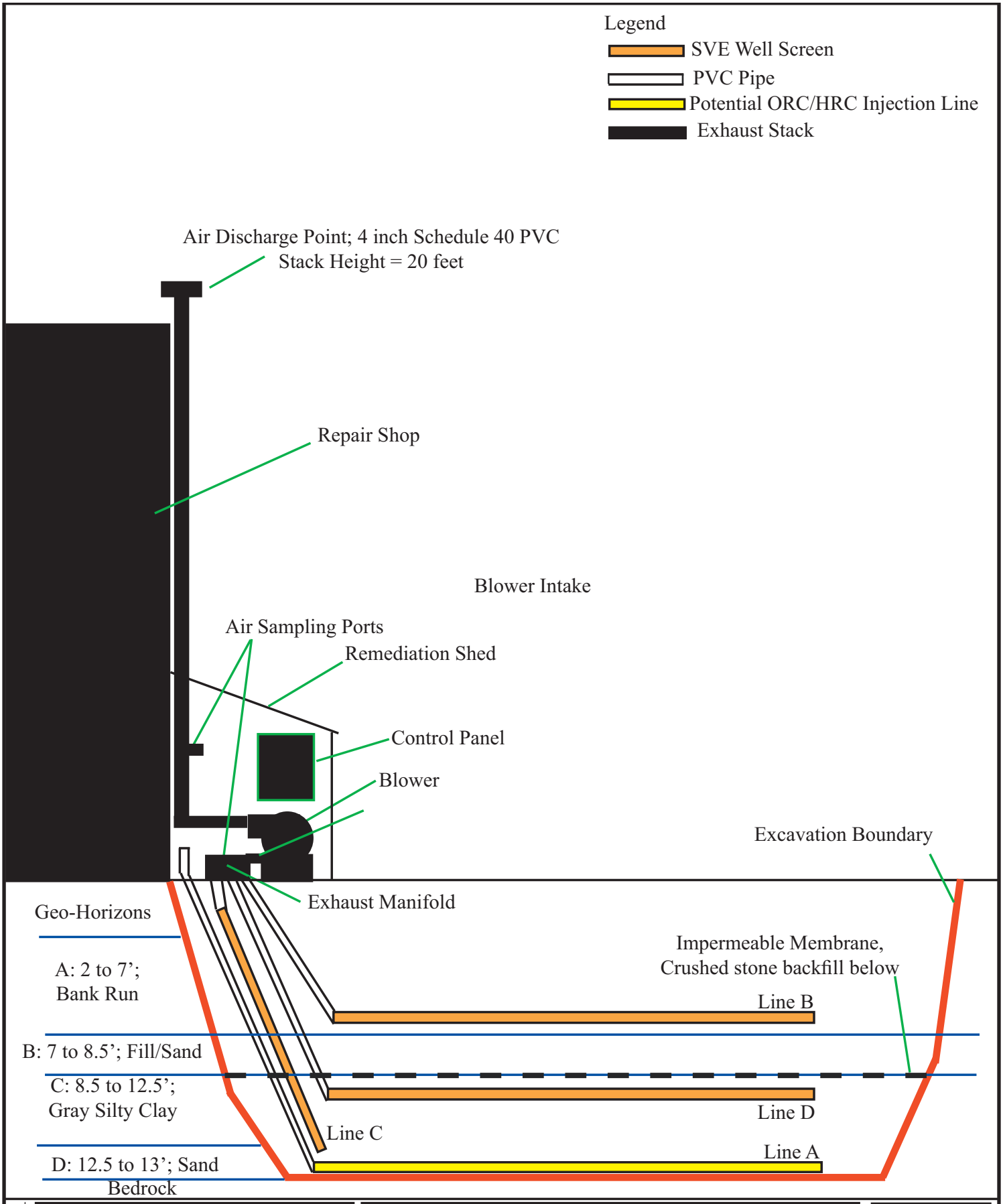
Former Greer Property

Figure 6 - SVE System and Piping Diagram

U.S. Route 9
Wappingers Falls, Dutchess County, New York

Source: Drawn by TCC, 1998.

Drawn:	EJO
Date:	January 2010
Scale:	1:60
Project:	40702.00
Figure:	6



THE Chazen COMPANIES
ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox St. Poughkeepsie, NY 12601
Phone: (845) 454-3980
Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055
Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (845) 812-0513
Connecticut:
914 Hartford Turnpike, Waterford, CT 06385
Phone: (860) 440-2690

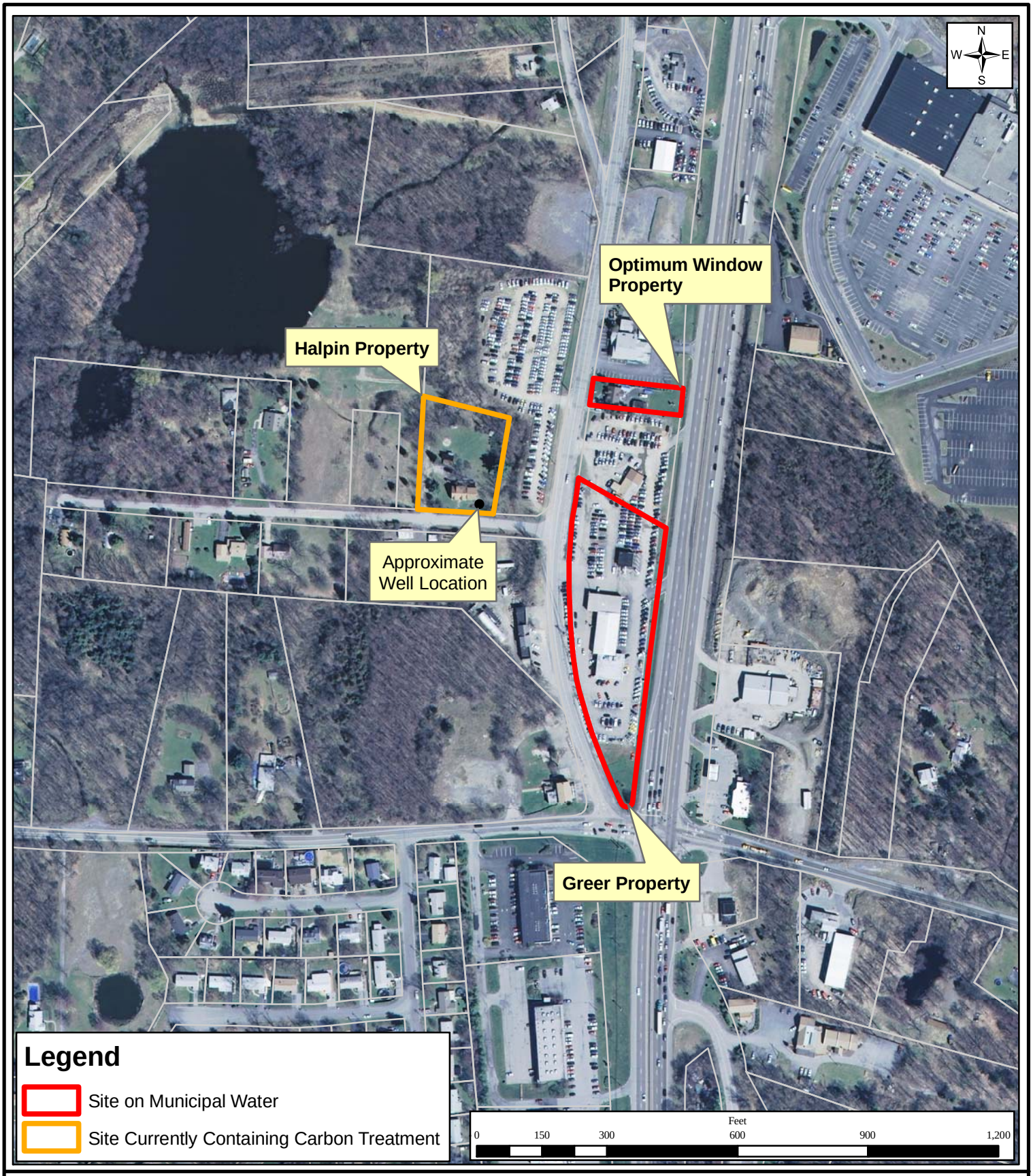
Former Greer Property

Figure 7- SVE System Layout

U.S. Route 9
Town of Wappinger, Dutchess County, New York

Source: Drawn by TCC, 2004 (Revised 2009).

Date: Jan. 2010
Scale: Not to Scale
Project #: 40702.00



THE Chazen COMPANIES

ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (518) 812-0513

New London Office:
914 Hartford Turnpike Waterford, CT. 06385
Phone: (860) 440-2690

Former Greer Property

Figure 8 - Carbon Treatment System Map

U.S. Route 9
Wappingers Falls, Dutchess County, New York

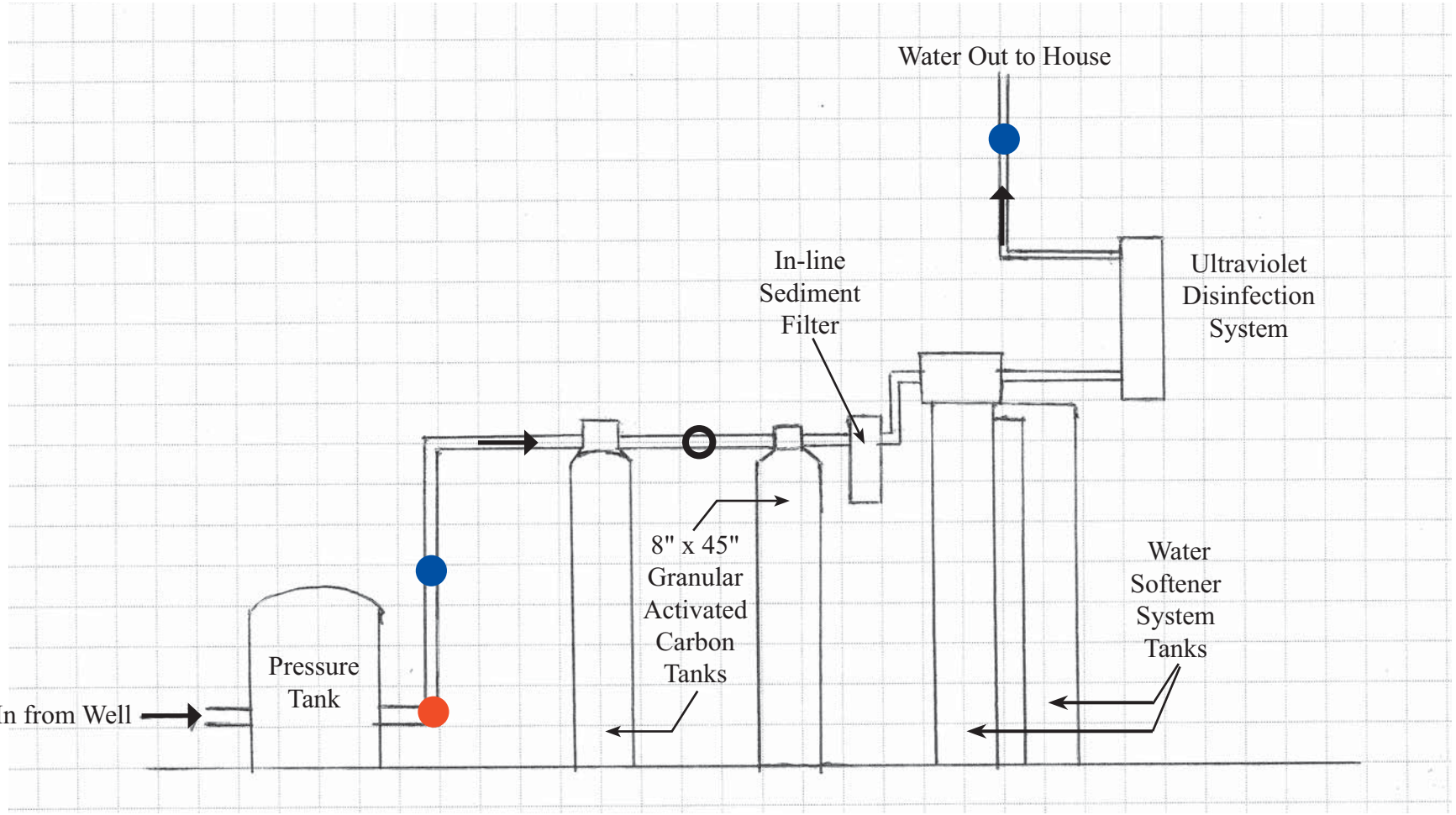
Source: NYS Office of Cyber Security and Critical Infrastructure Coordination 2004 Orthoimagery; Dutchess County Real Property Services 2008 Tax Parcel Data.

Drawn:	EJO
Date:	January 2010
Scale:	1:3,600
Project:	40702.00
Figure:	8

LEGEND

- Shut-Off Valve
- Sampling Spigot
- Unused Spigot

NOTE: Post-filtration water sample collected from kitchen sink.



THE Chazen COMPANIES
ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (518) 812-0513

Connecticut:
914 Hartford Turnpike, Waterford, CT 06385
Phone: (860) 440-2690

Former Greer Property

Figure 9 - Carbon Treatment System Layout:
Halpin Property

U.S. Route 9
Town of Wappinger, Dutchess County, New York

Source: Drawn by TCC, 2009.

Date: Jan. 2010
Scale: Not to Scale
Project #: 40702.00

TABLES

Table 1
Former Greer Property
Soil Sample Analytical Results: 1998 and 1999 Investigations

Sample ID		Recommended Soil Cleanup Objectives* (ug/Kg)	B-1: 6-8'	B-2: 8-10'	B-3: 8-10'	SB-1: 6'	SB-2: 3-5'	SB-3: 3-5'
Sample Date			4/1/1998	4/1/1998	4/1/1998	6/25/1999	6/25/1999	6/25/1999
VOCs	Acetone	200	**	**	15 J	**	88	62
	Benzene	60	**	19 J	**	**	**	**
	Bromodichloromethane	not listed	**	**	**	**	**	**
	Bromoform	not listed	**	**	**	**	**	**
	Bromomethane	not listed	**	**	**	**	**	**
	2-Butanone (MEK)	300	**	**	**	**	17	12
	Carbon Disulfide	2,700	**	**	**	**	**	**
	Carbon Tetrachloride	600	**	**	**	**	**	**
	Chlorobenzene	1,700	**	**	**	280	**	**
	Chloroethane	1,900	**	**	**	**	**	**
	Chloroform	300	**	**	**	**	**	**
	Chloromethane	not listed	**	**	**	**	**	**
	Dibromochloromethane	N/A	**	**	**	**	**	**
	1,1-Dichloroethane	200	**	**	**	**	**	**
	1,2-Dichloroethane	100	**	**	**	**	**	**
	1,1-Dichloroethene	400	**	**	**	**	**	**
	cis-1,2-Dichloroethene	300	**	**	**	**	**	**
	trans-1,2-Dichloroethene	300	**	**	**	**	**	**
	1,2-Dichloropropane	not listed	**	**	**	**	**	**
	cis-1,3-Dichloropropene	300	**	**	**	**	**	**
	trans-1,3-Dichloropropene	300	**	**	**	**	**	**
	Ethylbenzene	5500	**	180	**	**	**	**
	2-Hexanone	not listed	**	**	**	**	**	**
	Methylene Chloride	100	**	**	**	**	**	**
	4-Methyl-2-Pentanone (MIBK)	1,000	**	**	**	**	**	**
	Styrene	not listed	**	**	**	**	**	**
	1,1,2,2-Tetrachloroethane	600	**	**	**	**	**	**
	Tetrachloroethene	1,400	**	**	**	**	**	**
	Toluene	1,500	**	57	**	**	**	**
	1,1,1-Trichloroethane	800	**	**	**	**	**	**
	1,1,2-Trichloroethane	not listed	**	**	**	**	**	**
	Trichloroethene	700	**	**	**	**	**	**
	Vinyl Chloride	200	**	**	**	**	**	**
	o-Xylene	1,200	**	290	**	**	**	**
	m&p-Xylene	1,200	**	690	**	50	**	8.5
TAL Metals	Aluminum	SB	18,700	12,900	13,200	NA	NA	NA

Table 1
Former Greer Property
Soil Sample Analytical Results: 1998 and 1999 Investigations

Sample ID		Recommended Soil Cleanup Objectives* (ug/Kg)	B-1: 6-8'	B-2: 8-10'	B-3: 8-10'	SB-1: 6'	SB-2: 3-5'	SB-3: 3-5'
Sample Date			**4/1/1998**	**4/1/1998**	**4/1/1998**	**6/25/1999**	**6/25/1999**	**6/25/1999**
TAL Metals	Antimony	SB	**	**	**	NA	NA	NA
	Arsenic	7.5 or SB	54.5	13.5	14.1	NA	NA	NA
	Barium	300 or SB	112	48.9	58.1	NA	NA	NA
	Beryllium	0.16 (HEAST) or SB	3.82	3.76	3.89	NA	NA	NA
	Cadmium	1 or SB	1.54	1.34	1.52	NA	NA	NA
	Calcium	SB	2670	690	865	NA	NA	NA
	Chromium	10 or SB	17.3	15	14.2	NA	NA	NA
	Cobalt	30 or SB	11.6	12.8	15.2	NA	NA	NA
	Copper	25 or SB	44.4	37.6	28	NA	NA	NA
	Iron	2,000 or SB	22,500	24,200	24,900	NA	NA	NA
	Lead	SB	357	9.52	12.7	NA	NA	NA
	Magnesium	SB	3950	4,300	4,740	NA	NA	NA
	Manganese	SB	833	776	813	NA	NA	NA
	Mercury	0.1	**	**	**	NA	NA	NA
	Nickel	13 or SB	21	22.4	26.1	NA	NA	NA
	Potassium	SB	821	770	769	NA	NA	NA
	Selenium	2 or SB	0.805	0.597	0.598	NA	NA	NA
	Silver	SB	**	**	**	NA	NA	NA
	Sodium	SB	265	104	130	NA	NA	NA
	Thallium	SB	7.26	6.92	7.83	NA	NA	NA
	Vanadium	150 or SB	23.6	14	14.3	NA	NA	NA
	Zinc	20 or SB	102	73.3	76.8	NA	NA	NA

NOTES
* As Listed in TAGM #4046
** Results below laboratory method detection limit

Table 2
Former Greer Property
Groundwater Sample Analytical Results: 1998 and 1999 Investigations

Sample ID		Groundwater	B-2 Water	SB-1: 3-5'	SB-2 4'	SB-3 5'
Sample Date		Standards (ug/L)*	4/1/1998	6/25/1999	6/25/1999	6/25/1999
VOCs 8260	Acetone	5.0	**	**	**	**
	Benzene	1.0	**10**	**	**	**
	Bromodichloromethane	NS	**	**	**	**
	Bromoform	NS	**	**	**	**
	Bromomethane	5.0	**	**	**	**
	2-Butanone (MEK)	NS	**	**	**	**
	Carbon Disulfide	NS	**	**	**	**
	Carbon Tetrachloride	5.0	**	**	**	**
	Chlorobenzene	5.0	3.4J	**6.2**	**	**
	Chloroethane	5.0	**	**	**	**
	Chloroform	7.0	**	**	**	**
	Chloromethane	NS	**	**	**	**
	Dibromochloromethane	NS	**	**	**	**
	1,1-Dichloroethane	5.0	**	**	**	**
	1,2-Dichloroethane	0.6	**	**	**	**
	1,1-Dichloroethene	5.0	**	**	**	**
	cis-1,2-Dichloroethene	5.0	**	**	**	**
	trans-1,2-Dichloroethene	5.0	**	**	**	**
	1,2-Dichloropropane	1.0	**	**	**	**
	cis-1,3-Dichloropropene	0.4	**	**	**	**
	trans-1,3-Dichloropropene	0.4	**	**	**	**
	Ethylbenzene	5.0	**33**	**	**	**
	2-Hexanone	NS	**	**	**	**
	Methylene Chloride	5.0	**	**	**	**
	4-Methyl-2-Pentanone (MIBK)	NS	**	**	**	**
	Styrene	5.0	**	**	**	**
	1,1,2,2-Tetrachloroethane	5.0	**	**	**	**
	Tetrachloroethene	5.0	**	**	**	**
	Toluene	5.0	**30**	**19**	**44**	**36**
	1,1,1-Trichloroethane	5.0	**	**	**	**
	1,1,2-Trichloroethane	1.0	**	**	**	**
	Trichloroethene	5.0	**	**	**	**
	Vinyl Chloride	2.0	**	**	**	**
	o-Xylene	5.0	**27**	**	**	**
	m&p-Xylene	5.0	**220**	**	**	**

*NOTES * as listed in Table 1 of TOGS 1.1.1 (6/98)*
***= Results below laboratory method detection limit*
NS= No standard exists for this compound

Table 3
Former Greer Property
Soil Sample Analytical Results from August 2001 Soil Borings

Sample ID			NYSDEC Soil	GT-SB-4	GT-SB-16	GT-SB-20	GT-SB-22	GT-SB-26	GT-SB-28
Sample Date			Guidance Values	8/1/2001	8/2/2001	8/2/2001	8/2/2001	8/2/2001	8/2/2001
VOCs 8260	Acetone	ug/kg	200	**	**	**	**	**	**
	Benzene	ug/kg	60	**	**	**	**	**	**
	Bromodichloromethane	ug/kg	NS	**	**	**	**	**	**
	Bromoform	ug/kg	NS	**	**	**	**	**	**
	Bromomethane	ug/kg	NS	**	**	**	**	**	**
	2-Butane (MEK)	ug/kg	300	**	**	**	**	**	**
	Methyl-tert-butyl-ether	ug/kg	120	**	**	**	**	3.3J	**
	Carbon Disulfide	ug/kg	2700	**	**	**	**	**	**
	Carbon Tetrachloride	ug/kg	600	**	**	**	**	**	**
	Chlorobenzene	ug/kg	1700	**	**	**	**	**	**
	Chloroethane	ug/kg	1900	**	**	**	**	**	**
	Chloroform	ug/kg	300	**	**	**	**	**	**
	Chloromethane	ug/kg	NS	**	**	**	**	**	**
	Dibromochloromethane	ug/kg	NS	**	**	**	**	**	**
	1,1-Dichloroethane	ug/kg	200	**	**	**	**	**	**
	1,2-Dichloroethane	ug/kg	100	**	**	**	**	**	**
	1,1-Dichloroethene	ug/kg	400	**	**	**	**	**	**
	Cis-1,2-Dichloroethene	ug/kg	NS	**	**	**	**	**	**
	Trans-1,2-Dichloroethene	ug/kg	300	**	**	**	**	**	**
	1,2-Dichloropropane	ug/kg	NS	**	**	**	**	**	**
	Cis-1,3-Dichloropropene	ug/kg	NS	**	**	**	**	**	**
	Trans-1,3-Dichloropropene	ug/kg	NS	**	**	**	**	**	**
	Ethylbenzene	ug/kg	5500	**	**	**	**	**	**
	2-Hexanone	ug/kg	NS	**	**	**	**	**	**
	Methylene Chloride	ug/kg	100	**	**	**	**	**	**
	4-Methyl-2-Pentanone	ug/kg	1000	**	**	11J	**	**	**
	Styrene	ug/kg	NS	**	**	**	**	**	**
	1,1,2,2-Tetrachloroethane	ug/kg	600	**	**	**	**	**	**
	Tetrachloroethene	ug/kg	1400	**	**	5.9J	**	**	**
	Toluene	ug/kg	1500	**	**	**	**	**	**
	1,1,1-Trichloroethane	ug/kg	800	**	**	**	**	**	**
	1,1,2-Trichloroethane	ug/kg	NS	**	**	**	**	**	**
	Trichloroethene	ug/kg	700	**	**	**	**	**	**
	Vinyl Chloride	ug/kg	200	**	**	**	**	**	**
	0-Xylene	ug/kg	1200	**	**	**	**	1.1J	**
	M&P Xylene	ug/kg	1200	**	**	**	**	**	**
SVOCs 8270	Acenaphthene	ug/kg	50,000*	**	**	**	**	**	**
	Acenaphthylene	ug/kg	41,000	**	**	**	**	**	**
	Anthracene	ug/kg	50,000*	**	**	66J	**	**	**
	Benzo(a)anthracene	ug/kg	224 or MDL	**	**	120J	**	**	**
	Benzo(a)pryene	ug/kg	61 or MDL	**	**	**	**	**	**
	Benzo(b)fluoranthene	ug/kg	1,100	**	**	**	**	**	**
	Benzo(g,h,I)perylene	ug/kg	50,000*	**	**	**	**	**	**
	Benzo(k)fluoranthene	ug/kg	1,100	**	**	**	**	**	**
	Benzyl Alcohol	ug/kg	NS	**	**	**	**	**	**
	Butyl Benzl Phthalate	ug/kg	50,000*	**	**	**	**	**	**
	Di-n-Butylphthtalate	ug/kg	8,100	**	**	120J	**	**	**
	Carbazole	ug/kg	NS	**	**	**	**	**	**
	Indeno(1,2,3-cd)pyrene	ug/kg	3,200	**	**	**	**	**	**
	4-Cloroaniline	ug/kg	220 or MDL	**	**	**	**	**	**
	Bis(2-Chloroethoxy)methane	ug/kg	NS	**	**	**	**	**	**
	Bis(2-Chloroethoxy) ether	ug/kg	NS	**	**	**	**	**	**
	2-Chloronaphthalene	ug/kg	NS	**	**	**	**	**	**
	2-Chlorophenol	ug/kg	800	**	**	**	**	**	**
	2,2'-Oxybis (1-Chloropropane)	ug/kg	NS	**	**	**	**	**	**
	Chrysene	ug/kg	400	**	**	100J	**	**	**
	Dibenzo(a,h) Anthracene	ug/kg	14 or MDL	**	**	**	**	**	**
	Dibenzofuran	ug/kg	6,200	**	**	**	**	**	**
	1,3-Dichlorobenzene	ug/kg	1600	**	**	**	**	**	**
	1,2-Dichlorobenzene	ug/kg	7900	**	**	**	**	**	**
	1,4-Dichlorobenzene	ug/kg	8500	**	**	**	**	**	**
	3,3'-Dichlorobenzidine	ug/kg	NS	**	**	**	**	**	**
	2,4-Dichlorophenol	ug/kg	400	**	**	**	**	**	**

Table 3
Former Greer Property
Soil Sample Analytical Results from August 2001 Soil Borings

Sample ID			NYSDEC Soil	GT-SB-4	GT-SB-16	GT-SB-20	GT-SB-22	GT-SB-26	GT-SB-28
Sample Date			Guidance Values	8/1/2001	8/2/2001	8/2/2001	8/2/2001	8/2/2001	8/2/2001
SVOCs 8270	Diethylphthalate	ug/kg	7,100	**	**	**	**	**	**
	Dimethyl Phthalate	ug/kg	2,000	**	**	**	**	**	**
	2,4-Dimethylphenol	ug/kg	NS	**	**	**	**	**	**
	2,4-Dinitrophenol	ug/kg	200 or MDL	**	**	**	**	**	**
	2,4-Dinitrotoluene	ug/kg	NS	**	**	**	**	**	**
	2,6-Dinitrotoluene	ug/kg	1,000	**	**	**	**	**	**
	Bis(2-Ethylhexyl) Phthalate	ug/kg	50,000*	**	890	4,500	220J	8,300	690
	Fluoranthene	ug/kg	50,000*	**	**	170J	**	540J	**
	Fluorene	ug/kg	50,000*	**	**	89J	**	**	**
	Hexachlorobenzene	ug/kg	410	**	**	**	**	**	**
	Hexachlorobutadiene	ug/kg	NS	**	**	**	**	**	**
	Hexachlorocyclopentadiene	ug/kg	NS	**	**	**	**	**	**
	Hexachloroethane	ug/kg	NS	**	**	**	**	**	**
	Isophorone	ug/kg	4,400	**	**	**	**	**	**
	2-Methylnaphthalene	ug/kg	36,400	**	**	1,600	**	**	**
	4,6-Dinitro-2-Methylphenol	ug/kg	NS	**	**	**	**	**	**
	4-Chloro-3-Methylphenol	ug/kg	240 or MDL	**	**	**	**	**	**
	2-Methylphenol	ug/kg	100 or MDL	**	**	**	**	**	**
	4-Methylphenol	ug/kg	900	**	**	**	**	**	**
	Naphthalene	ug/kg	13,000	**	**	490	**	**	**
	2- Nitroaniline	ug/kg	430 or MDL	**	**	**	**	**	**
	3-Nitroaniline	ug/kg	500 or MDL	**	**	**	**	**	**
	4-Nitroaniline	ug/kg	NS	**	**	**	**	**	**
	Nitrobenzene	ug/kg	200 or MDL	**	**	**	**	**	**
	2-Nitrophenol	ug/kg	330 or MDL	**	**	**	**	**	**
	4-Nitrophenol	ug/kg	100 or MDL	**	**	**	**	**	**
	N-Nitrosodimethylamine	ug/kg	NS	**	**	**	**	**	**
	N-Nitrosodiphenylamine	ug/kg	NS	**	**	**	**	**	**
	Di-N-Octyl Phthalate	ug/kg	50,000*	**	**	**	**	**	**
	Pentachlorophenol	ug/kg	1,000 or MDL	**	**	**	**	**	**
	Phenanthrene	ug/kg	50,000*	**	**	320J	**	780J	**
	Phenol	ug/kg	30 or MDL	**	**	**	**	**	**
	4-Bromophenyl-Phenylether	ug/kg	NS	**	**	**	**	**	**
	4-Chlorophenyl-Phenylether	ug/kg	NS	**	**	**	**	**	**
	N-Nitroso-Di-N-Propylamine	ug/kg	NS	**	**	**	**	**	**
	Pyrene	ug/kg	50,000*	**	**	230J	**	800J	**
	1,2,4-Trichlorobenzene	ug/kg	3,400	**	**	**	**	**	**
	2,4,6-Trichlorophenol	ug/kg	NS	**	**	**	**	**	**
	2,4,5-Trichlorophenol	ug/kg	100	**	**	**	**	**	**

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
"*" As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
"**"As per TAGM 4046, PCBs 1 ppm (surface), 10 ppm (sub-surface)
"NS" indicates that no standard is published in TAGM 4046
"J" indicates an estimated value for the compound below the laboratory method detection limit

Table 4
Former Greer Property
Pit 1 Soil Sampling Results (Tank 1 closest to Garage)

Sample ID:		NYSDEC Soil	GT-P1-EW-A	GT-P1-EW-C	GT-P1-EW-D	GT-P1-WW-A
Sample Date:		Guidance Values	10/18/2000	10/18/2000	10/18/2000	10/18/2000
RCRA Metals (mg/kg)	Arsenic	7.5 or SB	5.2	4	3.58	4.57
	Barium	300 or SB	41.5	36.3	21.5	50
	Cadmium	1 or SB	0.581	0.605 U	0.552 U	0.567 U
	Chromium	10 or SB	**16.3**	**15.8**	**11.7**	**13.5**
	Lead	SB*	18.1	16.8	28.2	16.4
	Mercury	0.1	0.0581	**	**	**
	Selenium	2 or SB	1.63	1.58	1.12	1.44
	Silver	SB*	1.16	**	**	**
VOCs 8260 (ug/Kg)	Acetone	200	**2,900**	**	**	**
	Benzene	60	**	**	**	**
	Bromodichloromethane	NP	**	**	**	**
	Bromoform	NP	**	**	**	**
	Bromomethane	NP	**	**	**	**
	2-Butane (MEK)	NP	**	**	**	**
	Methyl-tert-butyl-ether	120	**	**	**	**
	Carbon Disulfide	2700	**	**	**	**
	Carbon Tetrachloride	600	**	**	**	**
	Chlorobenzene	1700	**	**	**	**
	Chloroethane	1900	**	**	**	**
	Chloroform	300	**	**	**	**
	Chloromethane	NP	**	**	**	**
	Dibromochloromethane	NP	**	**	**	**
	1,1, Dichloroethane	200	**	**	**	**
	1,2-Dichloroethane	100	**	**	**	**
	1,1-Dichloroethene	400	**	**	**	**
	Cis-1,3-Dichloropropene	NP	**	**	**	**
	Trans-1,3-Dichloropropene	NP	**	**	**	**
	Ethylbenzene	5500	**	1,900	**	**
	2-Hexanone	NP	**	**	**	**
	Methylene Chloride	100	**	**	**	**
	4-Methyl-2-Pentanone	1000	**	**	**	**
	Styrene	NP	**	**	**	**
	1,1,2,2-Tetrachloroethane	600	**	**	**	**
	Tetrachloroethene	1400	**	**	**	**
	Toluene	1500	**	1,300	**	**
	1,1,1-Trichloroethane	800	**	**	**	**
	1,1,2-Trichloroethane	800	**	**	**	**
	Trichloroethene	700	**	**	**	**
	Vinyl Chloride	200	**	**	**	**
	0-Xylene	1200	**	**5,800**	**	84
	M&P Xylene	1200	**	**10,000**	**	**
SVOCs 8270 (ug/Kg)	Acenaphthene	50,000*	**	**	**	**
	Acenaphthylene	41,000	**	**	**	**
	Anthracene	50,000*	**	**	**	**
	Benzo(a)anthracene	224 or MDL	**	**	**	**
	Benzo(a)pryene	61 or MDL	**	**	**	**
	Benzo(b)fluoranthene	1,100	**	**	**	**
	Benzo(g,h,I)perylene	50,000*	**	**	**	**
	Benzo(k)fluoranthene	1,100	**	**	**	**
	Benzyl Alcohol	NP	**	**	**	**
	Butyl Benzl Phthalate	50,000*	**	**	**	**
	Di-n-Butylphthtalate	8,100	**	**	**	**
	Carbazole	NP	**	**	**	**

Table 4
Former Greer Property
Pit 1 Soil Sampling Results (Tank 1 closest to Garage)

Sample ID:		NYSDEC Soil	GT-P1-EW-A	GT-P1-EW-C	GT-P1-EW-D	GT-P1-WW-A
Sample Date:		Guidance Values	10/18/2000	10/18/2000	10/18/2000	10/18/2000
Semi-volatile Organic Compounds EPA 8270C	Indeno(1,2,3-cd)pyrene	3,200	**	**	**	**
	4-Cloroaniline	220 or MDL	**	**	**	**
	Bis(2-Chloroethoxy)methane	NP	**	**	**	**
	Bis(2-Chloroethoxy) ether	NP	**	**	**	**
	2-Chloronaphthalene	NP	**	**	**	**
	2-Chlorophenol	800	**	**	**	**
	Chrysene	400	**	**	**	**
	Dibenzo(a,h) Anthracene	14 or MDL	**	**	**	**
	Dibenzofuran	6,200	**	**	**	**
	1,3-Dichlorobenzene	NP	**	**	**	**
	1,2-Dichlorobenzene	NP	**	**	**	**
	1,4-Dichlorobenzene	NP	**	**	**	**
	3,3-Dichlorobenzene	NP	**	**	**	**
	2,4-Dichlorophenol	NP	**	**	**	**
	Diethylphthalate	7,100	**	**	**	**
	2,4-Dimethylphenol	NP	**	**	**	**
	2,4-Dinitrophenol	NP	**	**	**	**
	2,4-Dinitrotoluene	NP	**	**	**	**
	2,6-Dinitrotoluene	1,000	**	**	**	**
	Bis(2-Ethylhexyl) Phthalate	50,000*	**	3,800	**	**
	Fluoranthene	50,000*	**	**	**	**
	Fluorene	50,000*	**	**	**	**
	Hexachlorobenzene	410	**	**	**	**
	Hexachlorobutadiene	NP	**	**	**	**
	Hexachlorocyclopentane	NP	**	**	**	**
	Hexachloroethane	NP	**	**	**	**
	Isophorone	4,440	**	**	**	**
	2-Methylnaphthalene	36,400	**	4,000	**	**
	4,6-Dinitro-2-Methylphenol	NP	**	**	**	**
	4-Chloro-3-Methylphenol	NP	**	**	**	**
	2-Methylphenol	100 or MDL	**	**	**	**
	4-Methylphenol	900	**	**	**	**
	Naphthalene	13,000	**	2,700	**	**
	2- Nitroaniline	430 or MDL	**	**	**	**
	3-Nitroaniline	500 or MDL	**	**	**	**
	4-Nitroaniline	100 or MDL	**	**	**	**
	Nirtobenzene	200 or MDL	**	**	**	**
	2-Nitrophenol	330 or MDL	**	**	**	**
	4-Nitrophenol	430 or MDL	**	**	**	**
	n-Nitrosodimethylamine	NP	**	**	**	**
	n-Nitrosodiphenylamine	NP	**	**	**	**
	Di-n-octyl phthalate	NP	**	**	**	**
	Pentachlorophenol	NP	**	**	**	**
	Phenanthrene	NP	**	**	**	**
	Phenol	NP	**	**	**	**
	4-Bromophenyl-Phenylether	NP	**	**	**	**
	4-Chlorophenyl-Phenylether	NP	**	**	**	**
	N-Nitroso-Di-N-Propylamine	NP	**	**	**	**
	Pyrene	50,000*	**	**	**	**
	1,2,4-Trichlorobenzene	NP	**	**	**	**
	2,4,6-Trichlorophenol	NP	**	**	**	**
	2,4,5-Trichlorophenol	100 or MDL	**	**	**	**

Notes: Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
* Per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
** = Results below laboratory method detection limits
"NP" indicates that no standard is published in TAGM 4046

Table 4
Former Greer Property
Pit 1 Soil Sampling Results (Tank 1 closest to Garage)

Sample ID:		NYSDEC Soil	GT-P1-WW-B	GT-P1-WW-C	GT-P1-WW-D	GT-P1-NB	GT-P1-SB
Sample Date:		Guidance Values	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000
RCRA Metals (mg/kg)	Arsenic	7.5 or SB	5.91	**21.6**	6.1	**7.72**	5.05
	Barium	300 or SB	48.6	55.3	57.8	45.8	36.7
	Cadmium	1 or SB	0.596 U	0.608 U	0.572 U	0.6	0.564
	Chromium	10 or SB	**15.3**	**17.4**	**17.7**	**18.6**	**14.7**
	Lead	SB*	14.3	80.1	34.8	30.2	34.2
	Mercury	0.1	**	**	**	0.06	0.0564
	Selenium	2 or SB	1.87	1.86	1.7	1.99	1.15
	Silver	SB*	**	**	**	1.2	1.13
VOCs 8260 (ug/Kg)	Acetone	200	**	**	**	**	**
	Benzene	60	**	**	**	**	**
	Bromodichloromethane	NP	**	**	**	**	**
	Bromoform	NP	**	**	**	**	**
	Bromomethane	NP	**	**	**	**	**
	2-Butane (MEK)	NP	**	**	**	**	**
	Methyl-tert-butyl-ether	120	**	**	**	**	**
	Carbon Disulfide	2700	**	**	**	**	**
	Carbon Tetrachloride	600	**	**	**	**	**
	Chlorobenzene	1700	**	**	**	**	**
	Chloroethane	1900	**	**	**	**	**
	Chloroform	300	**	**	**	**	**
	Chloromethane	NP	**	**	**	**	**
	Dibromochloromethane	NP	**	**	**	**	**
	1,1, Dichloroethane	200	**	**	**	**	**
	1,2-Dichloroethane	100	**	**	**	**	**
	1,1-Dichloroethene	400	**	**	**	**	**
	Cis-1,3-Dichloropropene	NP	**	**	**	**	**
	Trans-1,3-Dichloropropene	NP	**	**	**	**	**
	Ethylbenzene	5500	**	**	**	**	**
	2-Hexanone	NP	**	**	**	**	**
	Methylene Chloride	100	**	**	**	**	**
	4-Methyl-2-Pentanone	1000	**	**	**	**	**
	Styrene	NP	**	**	**	**	**
	1,1,2,2-Tetrachloroethane	600	**	**	**	**	**
	Tetrachloroethene	1400	**	**	**	**	**
	Toluene	1500	**	**	**	**	**
	1,1,1-Trichloroethane	800	**	**	**	**	**
	1,1,2-Trichloroethane	800	**	**	**	**	**
	Trichloroethene	700	**	**	**	**	**
	Vinyl Chloride	200	**	**	**	**	**
	0-Xylene	1200	**	**	**	9.1	**9,900**
	M&P Xylene	1200	**	**	**	**	**5,300**
SVOCs 8270 (ug/Kg)	Acenaphthene	50,000*	**	**	**	**	**
	Acenaphthylene	41,000	**	**	**	**	**
	Anthracene	50,000*	**	**	**	**	**
	Benzo(a)anthracene	224 or MDL	**	**	**	**	**
	Benzo(a)pryene	61 or MDL	**	**	**	**	**
	Benzo(b)fluoranthene	1,100	**	**	**	**	**
	Benzo(g,h,I)perylene	50,000*	**	**	**	**	**
	Benzo(k)fluoranthene	1,100	**	**	**	**	**
	Benzyl Alcohol	NP	**	**	**	**	**
	Butyl Benzl Phthalate	50,000*	**	**	**	**	**
	Di-n-Butylphthtalate	8,100	**	**	**	**	**
	Carbazole	NP	**	**	**	**	**

Table 4
Former Greer Property
Pit 1 Soil Sampling Results (Tank 1 closest to Garage)

Sample ID:		NYSDEC Soil	GT-P1-WW-B	GT-P1-WW-C	GT-P1-WW-D	GT-P1-NB	GT-P1-SB
Sample Date:		Guidance Values	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000
Semi-volatile Organic Compounds EPA 8270C	Indeno(1,2,3-cd)pyrene	3,200	**	**	**	**	**
	4-Cloroaniline	220 or MDL	**	**	**	**	**
	Bis(2-Chloroethoxy)methane	NP	**	**	**	**	**
	Bis(2-Chloroethoxy) ether	NP	**	**	**	**	**
	2-Chloronaphthalene	NP	**	**	**	**	**
	2-Chlorophenol	800	**	**	**	**	**
	Chrysene	400	**	**	**	**	**
	Dibenzo(a,h) Anthracene	14 or MDL	**	**	**	**	**
	Dibenzofuran	6,200	**	**	**	**	**
	1,3-Dichlorobenzene	NP	**	**	**	**	**
	1,2-Dichlorobenzene	NP	**	**	**	**	**
	1,4-Dichlorobenzene	NP	**	**	**	**	**
	3,3-Dichlorobenzene	NP	**	**	**	**	**
	2,4-Dichlorophenol	NP	**	**	**	**	**
	Diethylphthalate	7,100	**	**	**	**	**
	2,4-Dimethylphenol	NP	**	**	**	**	**
	2,4-Dinitrophenol	NP	**	**	**	**	**
	2,4-Dinitrotoluene	NP	**	**	**	**	**
	2,6-Dinitrotoluene	1,000	**	**	**	**	**
	Bis(2-Ethylhexyl) Phthalate	50,000*	2,100	**	**	**	**
	Fluoranthene	50,000*	**	**	**	**	**
	Fluorene	50,000*	**	**	**	**	**
	Hexachlorobenzene	410	**	**	**	**	**
	Hexachlorobutadiene	NP	**	**	**	**	**
	Hexachlorocyclopentane	NP	**	**	**	**	**
	Hexachloroethane	NP	**	**	**	**	**
	Isophorone	4,440	**	**	**	**	**
	2-Methylnaphthalene	36,400	**	**	**	**	**
	4,6-Dinitro-2-Methylphenol	NP	**	**	**	**	**
	4-Chloro-3-Methylphenol	NP	**	**	**	**	**
	2-Methylphenol	100 or MDL	**	**	**	**	**
	4-Methylphenol	900	**	**	**	**	**
	Naphthalene	13,000	**	**	**	**	**
	2- Nitroaniline	430 or MDL	**	**	**	**	**
	3-Nitroaniline	500 or MDL	**	**	**	**	**
	4-Nitroaniline	100 or MDL	**	**	**	**	**
	Nirtobenzene	200 or MDL	**	**	**	**	**
	2-Nitrophenol	330 or MDL	**	**	**	**	**
	4-Nitrophenol	430 or MDL	**	**	**	**	**
	n-Nitrosodimethylamine	NP	**	**	**	**	**
	n-Nitrosodiphenylamine	NP	**	**	**	**	**
	Di-n-octyl phthalate	NP	**	**	**	**	**
	Pentachlorophenol	NP	**	**	**	**	**
	Phenanthrene	NP	**	**	**	**	**
	Phenol	NP	**	**	**	**	**
	4-Bromophenyl-Phenylether	NP	**	**	**	**	**
	4-Chlorophenyl-Phenylether	NP	**	**	**	**	**
	N-Nitroso-Di-N-Propylamine	NP	**	**	**	**	**
	Pyrene	50,000*	**	**	**	**	**
	1,2,4-Trichlorobenzene	NP	**	**	**	**	**
	2,4,6-Trichlorophenol	NP	**	**	**	**	**
	2,4,5-Trichlorophenol	100 or MDL	**	**	**	**	**

Notes: Concentrations which exceed NYSDEC TAGM
* Per TAGM 4046, Total VOCs <10 ppm, Total
** = Results below laboratory method detection
"NP" indicates that no standard is published in

Table 4
Former Greer Property
Pit 1 Soil Sampling Results (Tank 1 closest to Garage)

Sample ID:		NYSDEC Soil	GT-P1-SW-A	GT-P1-SW-B	GT-P1-SW-C	GT-P1-SW-D	GT-P1-EW-B
Sample Date:		Guidance Values	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000
RCRA Metals (mg/kg)	Arsenic	7.5 or SB	**7.7**	**7.12**	3.07	6.2	4.86
	Barium	300 or SB	68.7	38.5	58.3	34.5	45.9
	Cadmium	1 or SB	0.563	0.605	0.645	0.858	1.07
	Chromium	10 or SB	**10.1**	**17.6**	**13.9**	**12.5**	8.55
	Lead	SB*	15	39	21.3	118	106
	Mercury	0.1	0.0563	0.0605	0.0645	0.0805	0.0654
	Selenium	2 or SB	**3.2**	**2**	1.43	2.19	2.44
	Silver	SB*	1.13	1.21	1.29	1.61	1.31
VOCs 8260 (ug/Kg)	Acetone	200	**	**	**	**	**
	Benzene	60	**	**	**	**	**
	Bromodichloromethane	NP	**	**	**	**	**
	Bromoform	NP	**	**	**	**	**
	Bromomethane	NP	**	**	**	**	**
	2-Butane (MEK)	NP	**	**	**	**	**
	Methyl-tert-butyl-ether	120	**	**	**	**	**
	Carbon Disulfide	2700	**	**	**	**	**
	Carbon Tetrachloride	600	**	**	**	**	**
	Chlorobenzene	1700	**	**	**	**	**
	Chloroethane	1900	**	**	**	**	**
	Chloroform	300	**	**	**	**	**
	Chloromethane	NP	**	**	**	**	**
	Dibromochloromethane	NP	**	**	**	**	**
	1,1, Dichloroethane	200	**	**	**	**	**
	1,2-Dichloroethane	100	**	**	**	**	**
	1,1-Dichloroethene	400	**	**	**	**	**
	Cis-1,3-Dichloropropene	NP	**	**	**	**	**
	Trans-1,3-Dichloropropene	NP	**	**	**	**	**
	Ethylbenzene	5500	**	**	**	**	**
	2-Hexanone	NP	**	**	**	**	**
	Methylene Chloride	100	**	**	**	**	**
	4-Methyl-2-Pentanone	1000	**	**	**	**	**
	Styrene	NP	**	**	**	**	**
	1,1,2,2-Tetrachloroethane	600	**	**	**	**	**
	Tetrachloroethene	1400	**	**	**	**	**
	Toluene	1500	**	**	**	**	**
	1,1,1-Trichloroethane	800	**	**	**	**	**
	1,1,2-Trichloroethane	800	**	**	**	**	**
	Trichloroethene	700	**	**	**	**	**
	Vinyl Chloride	200	**	**	**	**	**
	0-Xylene	1200	**	**	110	**	**
	M&P Xylene	1200	**	**	230	**	**
SVOCs 8270 (ug/Kg)	Acenaphthene	50,000*	**	**	**	**	**
	Acenaphthylene	41,000	**	**	**	**	**
	Anthracene	50,000*	**	**	**	**	**
	Benzo(a)anthracene	224 or MDL	**	**	**	**	**2,800**
	Benzo(a)pryene	61 or MDL	**	**	**	**	**2,600**
	Benzo(b)fluoranthene	1,100	**	**	**	**	**2,200**
	Benzo(g,h,I)perylene	50,000*	**	**	**	**	1,900
	Benzo(k)fluoranthene	1,100	**	**	**	**	**2,400**
	Benzyl Alcohol	NP	**	**	**	**	**
	Butyl Benzl Phthalate	50,000*	**	**	**	**	**
	Di-n-Butylphthtalate	8,100	**	**	**	**	**
	Carbazole	NP	**	**	**	**	**530**

Table 4
Former Greer Property
Pit 1 Soil Sampling Results (Tank 1 closest to Garage)

Sample ID:		NYSDEC Soil	GT-P1-SW-A	GT-P1-SW-B	GT-P1-SW-C	GT-P1-SW-D	GT-P1-EW-B
Sample Date:		Guidance Values	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000
Semi-volatile Organic Compounds EPA 8270C	Indeno(1,2,3-cd)pyrene	3,200	**	**	**	**	**
	4-Cloroaniline	220 or MDL	**	**	**	**	**
	Bis(2-Chloroethoxy)methane	NP	**	**	**	**	**
	Bis(2-Chloroethoxy) ether	NP	**	**	**	**	**
	2-Chloronaphthalene	NP	**	**	**	**	**
	2-Chlorophenol	800	**	**	**	**	**
	Chrysene	400	**	**	**	**	**2,700**
	Dibenzo(a,h) Anthracene	14 or MDL	**	**	**	**	**720**
	Dibenzofuran	6,200	**	**	**	**	**
	1,3-Dichlorobenzene	NP	**	**	**	**	**
	1,2-Dichlorobenzene	NP	**	**	**	**	**
	1,4-Dichlorobenzene	NP	**	**	**	**	**
	3,3-Dichlorobenzene	NP	**	**	**	**	**
	2,4-Dichlorophenol	NP	**	**	**	**	**
	Diethylphthalate	7,100	**	**	**	**	**
	2,4-Dimethylphenol	NP	**	**	**	**	**
	2,4-Dinitrophenol	NP	**	**	**	**	**
	2,4-Dinitrotoluene	NP	**	**	**	**	**
	2,6-Dinitrotoluene	1,000	**	**	**	**	**
	Bis(2-Ethylhexyl) Phthalate	50,000*	**	**	**	**	**
	Fluoranthene	50,000*	**	**	**	**	**
	Fluorene	50,000*	**	**	**	**	**
	Hexachlorobenzene	410	**	**	**	**	**
	Hexachlorobutadiene	NP	**	**	**	**	**
	Hexachlorocyclopentane	NP	**	**	**	**	**
	Hexachloroethane	NP	**	**	**	**	**
	Isophorone	4,440	**	**	**	**	**
	2-Methylnaphthalene	36,400	**	**	**	**	**
	4,6-Dinitro-2-Methylphenol	NP	**	**	**	**	**
	4-Chloro-3-Methylphenol	NP	**	**	**	**	**
	2-Methylphenol	100 or MDL	**	**	**	**	**
	4-Methylphenol	900	**	**	**	**	**
	Naphthalene	13,000	**	**	**	**	**
	2- Nitroaniline	430 or MDL	**	**	**	**	**
	3-Nitroaniline	500 or MDL	**	**	**	**	**
	4-Nitroaniline	100 or MDL	**	**	**	**	**
	Nirtobenzene	200 or MDL	**	**	**	**	**
	2-Nitrophenol	330 or MDL	**	**	**	**	**
	4-Nitrophenol	430 or MDL	**	**	**	**	**
	n-Nitrosodimethylamine	NP	**	**	**	**	**
	n-Nitrosodiphenylamine	NP	**	**	**	**	**
	Di-n-octyl phthalate	NP	**	**	**	**	**
	Pentachlorophenol	NP	**	**	**	**	**
	Phenanthrene	NP	**	**	**	**	**
	Phenol	NP	**	**	**	**	**
	4-Bromophenyl-Phenylether	NP	**	**	**	**	**
	4-Chlorophenyl-Phenylether	NP	**	**	**	**	**
	N-Nitroso-Di-N-Propylamine	NP	**	**	**	**	**
	Pyrene	50,000*	**	**	**	**	**
	1,2,4-Trichlorobenzene	NP	**	**	**	**	**
	2,4,6-Trichlorophenol	NP	**	**	**	**	**
	2,4,5-Trichlorophenol	100 or MDL	**	**	**	**	**

Notes: Concentrations which exceed NYSDEC TAGM
* Per TAGM 4046, Total VOCs <10 ppm, Total
** = Results below laboratory method detection
"NP" indicates that no standard is published in

Table 5
Former Greer Property
Pit 2 Soil Sampling Results (Tank 2 is between Tank 1 and Diffuser System)

Sample ID		NYSDEC Soil	GT-P1-SW-A	GT-P2-WW	GT-P2-SB
Sample Date		Cleanup Guidelines	10/18/2000	10/18/2000	10/18/2000
RCRA Metals (mg/Kg)	Arsenic	7.5 or SB	7.7	**8.08**	**5.6**
	Barium	300 or SB	68.7	27.2	37.9
	Cadmium	1 or SB	**	0.588	0.586
	Chromium	10 or SB	10.1	**18.2**	**15**
	Lead	SB*	15	36.9	33.2
	Mercury	0.1	0.0563 U	0.0588	0.0586
	Selenium	2 or SB	3.2	**2.31**	1.52
	Silver	SB*	**	1.18	1.17
VOCs 8260 (ug/Kg)	Acetone	200	**	**	**
	Benzene	60	**	**	**
	Bromodichloromethane	NP	**	**	**
	Bromoform	NP	**	**	**
	Bromomethane	NP	**	**	**
	2-Butane (MEK)	NP	**	**	**
	Methyl-tert-butyl-ether	120	**	**	**
	Carbon Disulfide	2700	**	**	**
	Carbon Tetrachloride	600	**	**	**
	Chlorobenzene	1700	**	**	**
	Chloroethane	1900	**	**	**
	Chloroform	300	**	**	**
	Chloromethane	NP	**	**	**
	Dibromochloromethane	NP	**	**	**
	1,1, Dichloroethane	200	**	**	**
	1,2-Dichloroethane	100	**	**	**
	1,1-Dichloroethene	400	**	**	**
	Cis-1,3-Dichloropropene	NP	**	**	**
	Trans-1,3-Dichloropropene	NP	**	**	**
	Ethylbenzene	5500	**	**	**
	2-Hexanone	NP	**	**	**
	Methylene Chloride	100	**	**	**
	4-Methyl-2-Pentanone	1000	**	**	**
	Styrene	NP	**	**	**
	1,1,2,2-Tetrachloroethane	600	**	**	**
	Tetrachloroethene	1400	**	**	**
	Toluene	1500	**	**	**
	1,1,1-Trichloroethane	800	**	**	**
	1,1,2-Trichloroethane	800	**	**	**
	Trichloroethene	700	**	**	**
	Vinyl Chloride	200	**	**	**
	0-Xylene	1200	**	**	**
	M&P Xylene	1200	**	**	**
SVOCs 8270 (ug/Kg)	Acenaphthene	50,000*	**	**	**
	Acenaphthylene	41000	**	**	**
	Anthracene	50,000*	**	**	**
	Benzo(a)anthracene	224 or MDL	**	**	**
	Benzo(a)pryene	61 or MDL	**	**	**
	Benzo(b)fluoranthene	1100	**	**	**
	Benzo(g,h,I)perylene	50,000*	**	**	**
	Benzo(k)fluoranthene	1100	**	**	**
	Benzyl Alcohol	NP	**	**	**
	Butyl Benzl Phthalate	50,000*	**	**	**
	Di-n-Butylphthtalate	8100	**	**	**

Table 5
Former Greer Property
Pit 2 Soil Sampling Results (Tank 2 is between Tank 1 and Diffuser System)

Sample ID		NYSDEC Soil	GT-P1-SW-A	GT-P2-WW	GT-P2-SB
Sample Date		Cleanup Guidelines	10/18/2000	10/18/2000	10/18/2000
SVOCs 8270 (ug/Kg)	Carbazole	NP	**	**	**
	Indeno(1,2,3-cd)pyrene	3200	**	**	**
	4-Cloroaniline	220 or MDL	**	**	**
	Bis(2-Chloroethoxy)methane	NP	**	**	**
	Bis(2-Chloroethoxy) ether	NP	**	**	**
	2-Chloronaphthalene	NP	**	**	**
	2-Chlorophenol	800	**	**	**
	Chrysene	400	**	**	**
	Dibenzo(a,h) Anthracene	14 or MDL	**	**	**
	Dibenzofuran	6200	**	**	**
	1,3-Dichlorobenzene	NP	**	**	**
	1,2-Dichlorobenzene	NP	**	**	**
	1,4-Dichlorobenzene	NP	**	**	**
	3,3-Dichlorobenzene	NP	**	**	**
	2,4-Dichlorophenol	NP	**	**	**
	Diethylphthalate	7100	**	**	**
	2,4-Dimethylphenol	NP	**	**	**
	2,4-Dinitrophenol	NP	**	**	**
	2,4-Dinitrotoluene	NP	**	**	**
	2,6-Dinitrotoluene	1000	**	**	**
	Bis(2-Ethylhexyl) Phthalate	50,000*	**	**	**
	Fluoranthene	50,000*	**	**	**
	Fluorene	50,000*	**	**	**
	Hexachlorobenzene	410	**	**	**
	Hexachlorobutadiene	NP	**	**	**
	Hexachlorocyclopentane	NP	**	**	**
	Hexachloroethane	NP	**	**	**
	Isophorone	4440	**	**	**
	2-Methylnaphthalene	36400	**	**	**
	4,6-Dinitro-2-Methylphenol	NP	**	**	**
	4-Chloro-3-Methylphenol	NP	**	**	**
	2-Methylphenol	100 or MDL	**	**	**
	4-Methylphenol	900	**	**	**
	Naphthalene	13000	**	**	**
	2- Nitroaniline	430 or MDL	**	**	**
	3-Nitroaniline	500 or MDL	**	**	**
	4-Nitroaniline	100 or MDL	**	**	**
	Nitrobenzene	200 or MDL	**	**	**
	2-Nitrophenol	330 or MDL	**	**	**
	4-Nitrophenol	430 or MDL	**	**	**
	N-Nitrosodimethylamine	NP	**	**	**
	N-Nitrosodiphenylamine	NP	**	**	**
	Di-n-octyl phthalate	NP	**	**	**
	Pentachlorophenol	NP	**	**	**
	Phenanthrene	NP	**	**	**
	Phenol	NP	**	**	**
	4-Bromophenyl-Phenylether	NP	**	**	**
	4-Chlorophenyl-Phenylether	NP	**	**	**
	N-Nitroso-Di-N-Propylamine	NP	**	**	**
	Pyrene	50,000*	**	**	**
	1,2,4-Trichlorobenzene	NP	**	**	**
	2,4,6-Trichlorophenol	NP	**	**	**
	2,4,5-Trichlorophenol	100 or MDL	**	**	**

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
* As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
** = Results below laboratory method detection limits
"NP" indicates that no standard is published in TAGM 4046

Table 6: Media Monitoring Schedule (As of April 2009)

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater	Quarterly	Groundwater	VOCs-8260
Drinking Water	Quarterly	Drinking Water at Halpin residence only	502.2
Engineering Control Systems	Quarterly: SVE Annual: pavement	SVE Vapor NA	VOCs by PID NA- Visual only

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

Table 7: Emergency Contact Numbers

Medical, Fire, and Police:	911
Public Buried Utilities Clearance One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 8: Other Contact Numbers

Emergency Contact : Cindy Greer, Site Owner	845-569-1692 (office)
Alternate Emergency Contact: Lee Burns, DCH Wappingers Falls Toyota	845-298-8880 (office) Ext. 275001
Dan Michaud, TCC Project Manager	845-486-1519 (office) 845-235-4357 (mobile)

* Note: Emergency contact numbers are subject to change and will be updated whenever a change in personnel occurs

APPENDIX A:

2004 Operations and Maintenance Manual

Operations and Maintenance Manual
Volume I
Site #3-14-088

Greer Toyota
Route 9
Town of Wappinger, New York

May 2004

THE
Chazen
COMPANIES

Prepared For:

New York State DEC, Region 3
21 South Putt Corners Road
New Paltz, NY

Operations and Maintenance Manual
Volume I
Site #3-14-088

Greer Toyota
Route 9
Town of Wappinger, New York

May 2004

THE
Chazen
COMPANIES

Prepared by:

The Dutchess County Office
The Chazen Companies
21 Fox Street
Poughkeepsie, New York 12601

Dutchess County
(845) 454-3980

Orange County
(845) 567-1133

Capital District
(518) 371-0829

FIGURES:

1.0 INTRODUCTION

1.1 Project Description

Greer Toyota completed a Remedial Investigation and Feasibility Study (RI/FS) at its Wappingers Falls facility (NYSDEC Site Number 3-14-088) in conformance to the Order on Consent entered into with The New York State Department of Environmental Conservation (NYSDEC). The RI/FS incorporated an Interim Remedial Measure (IRM) to address petroleum hydrocarbons and chlorinated solvents in impacted soil and groundwater. The IRM consisted of the removal of two abandoned waste oil tanks at the facility and impacted soils to the extent feasible. Part of the selected remedy is to install and operate a Soil Vapor Extraction (SVE) system.

1.2 Purpose of the O&M Manual

The purpose of this Operations and Maintenance (O&M) manual is to provide a description and a schedule for operating and maintaining the SVE systems installed at the Greer Toyota site and to monitor site conditions to ensure the remediation goals are being met.

1.3 Site-Specific Safety Warnings

The SVE system and wells were installed in accordance with all applicable safety standards. There are no spaces, such as tanks, sumps, manholes, storage bins, or pits, that meet the Occupational Safety and Health Administration (OSHA) definition of a confined space defined under 29 CFR 1910.146(b). All controls are designed and installed to allow for lockout devices to be applied during any maintenance activities. Chemicals are not used in the remediation process or in the routine maintenance of the system.

1.4 Records Management

The remediation systems at the Greer Toyota site are operated and maintained by the Environmental Services Group at The Chazen Companies (TCC), Poughkeepsie, New York. Operational details, system faults, repairs, general condition and other routine monitoring parameters are noted in field logs kept at the site and copies are also kept at TCC's office. Quarterly groundwater sampling results are maintained at TCC's Poughkeepsie office and provided to the NYSDEC. TCC currently performs quarterly monitoring of the SVE system and onsite groundwater monitoring wells. VOC concentrations in the SVE system exhaust stream will be sampled monthly by use of a photoionization detector (PID) for the first three

months of operation and then quarterly thereafter. Details of the sampling and monitoring requirements are outlined in Section 4 of this manual.

1.4.1 O&M Needs Summary

The existing SVE system is designed to operate efficiently with little direct involvement. TCC employees are familiar with the system and can restore it to normal operation, as necessary, should it cease operating for any reason. Replacement of the blower motor would be the worst case O&M scenario.

1.4.2 O&M List of Official Records and References

The following documents contain information about the significant work done at the Greer Toyota site and are maintained by the NYSDEC:

- Order of Consent #W3-0660-93-10.
- *Remedial Investigation- Feasibility Study (RI-FS)* Report, The Chazen Companies, November 2001.
- Proposed Remedial Action Plan, NYSDEC, February 2002.
- *Record of Decision*, Greer Toyota Site, Town of Wappinger, New York, Site No. 3-14-088, New York State Department of Environmental Conservation, March 2002.

2.0 SITE DESCRIPTION

The former Greer Toyota is located at the intersection of Route 9 and Old Hopewell Road in the Town of Wappinger (Figure 1). The parcel is identified in the Dutchess County Real Property Tax Records as being Section 6157, Block 02, Lot 585606 and occupies approximately 2.3 acres. The site is currently under lease and operating as the Wappingers Falls Toyota-Subaru dealership. According to the Town of Wappinger Zoning Ordinance, the site is zoned HB- Highway Business.

The Greer site is situated in an area designated for industrial, commercial, and residential uses. New and used automobiles are sold and a repair shop operates at the facility.

There are currently two main buildings on-site: the main showroom/car repair facility and the used car showroom (Figure 2).

Site topography slopes gently northwestward towards an unnamed tributary to the Wappingers Creek at an elevation between 180 to 200 feet above mean sea level (MSL). The site is fully developed and no surface water or wildlife habitats are present at the site.

The property is bounded by commercial facilities to the north, a State highway (Route 9) to the east, commercial and residential properties to the south and southwest, and an auto repair service shop to the west. The auto repair service shop was formally a NAPA auto parts store. Additionally, a former gasoline station existed on the east side of Route 9 and an unnamed tributary of the Wappingers Creek runs within one mile to the north and west of the property. Regional drainage is towards the unnamed tributary of the Wappingers Creek.

2.1 Site History

This site is a listed Class 2 Inactive Hazardous Waste Site identified as Site Number #3-14-088. In 1992, the presence of chlorinated solvents was detected in two water supply wells located downhill from the Greer site.

The NYSDEC and the Dutchess County Department of Health (DCDOH) initiated an assessment of the area, which included sampling of an oil/water separator at the Greer site. Chlorinated solvents similar to those found in the wells adjacent to the Greer property were detected in the oil/water separator. The oil/water separator was attached to the maintenance shop via a floor drain. The oil/water separator drained into a concrete diffuser system located approximately 50 feet to the north of the maintenance garage area. The diffuser system also received sanitary

wastewater as well as the water draining from the oil/water separator. The diffuser system was designed to temporarily retain wastewater before it infiltrates into the subsurface. The system was designed to retain approximately 9,000 to 11,000 gallons of wastewater. The facility was historically used by 25 to 40 employees, and it is estimated that 375 to 600 gallons of wastewater were generated per day Monday through Saturday during operation. Currently, less than 3600 gallons of sanitary wastewater is estimated to be generated on a weekly basis, because low flow toilets and bathroom fixtures are in use. Infiltration into the subsurface is slow, so the system is usually fully recharged.

The floor drains were sealed and the oil/water separator abandoned when it was discovered that chlorinated hydrocarbons were present at elevated levels in 1992. Recent inspection of the floor drain system indicates that the drains are still effectively sealed. Shop management personnel indicated that the floor drain system has to be periodically evacuated by hand. The solids and liquids removed from the floor drain pit are disposed of as waste oil impacted material. Recent testing in the diffuser area suggests that the diffuser area is no longer a potential source of the chlorinated volatile organic compounds (CVOCs) observed in the down-gradient wells.

As previously mentioned, chlorinated solvents were found in a sample taken from the oil/water separator in 1992 and similar chlorinated solvents were detected in two down-gradient water supply wells. The NYSDEC suspected that Greer site was a potential source of the chlorinated solvents based on the samples obtained from the oil/water separator. Two water supply wells located down-gradient from the Greer site have been impacted by, and continue to be impacted by low levels of chlorinated hydrocarbons. Water from these two wells and from the drinking water well at Wappingers Falls Toyota (former Greer site) is treated via carbon filtration systems. Groundwater samples are collected from these three water supply wells and data are regularly provided to the DCDOH. The risk of ingesting impacted groundwater is mitigated through the use of the carbon filtration systems.

Private and publicly owned wells were identified within a one-mile radius of the Greer Toyota site using information obtained from the DCDOH, and were summarized in the 2001 RI/FS report. Quarterly private well sampling and water treatment systems at the Halpin and Optimum Window Properties are managed by Greer. The business or residences with water supply wells were identified through publicly available DCDOH records. Locations of businesses and residences with public water supply and residential wells were located within a one-mile radius of the site. The homes with private wells were located using tax parcel locations that correspond to the accompanying tax ID list provided by the DCDOH search.

The DCDOH initiated a well sampling program in 1992 down-gradient from the fuel spill at the 7-11 convenience store site located across the street from the Greer site on the other side of Route 9. The results of that evaluation indicated that gasoline range compounds were widespread in the area; however, chlorinated solvents were detected in a few of the wells adjacent to the Greer site. The DCDOH concluded in 1992 that additional investigation was warranted to determine the source. The DCDOH listed several potential sources including the Greer site, the former Cavo Appliances building (for cleaning appliances), Napa Auto Parts (for the cleaning of auto parts), and the Halpin residence (for auto repair work). Upon discovery of the chlorinated solvents in the oil/water separator sample, the focus shifted to Greer. No samples were taken in 1992 from the diffuser system area to verify that Greer was actually the source of the chlorinated solvents and none of the other potential source areas were investigated.

Previous testing indicated that the likely source of the CVOCs was a failed waste oil tank. CVOC compounds were found at elevated levels in the sludge inside the tank, and soil surrounding the tank. Impacts were noted below the waste oil tank up to the bedrock surface. The impacted soils were removed, and the area was passively vented until connection of the blower motor to the SVE system pipes.

The chlorinated solvents in groundwater were similar to those encountered in the Greer oil/water separator. The chlorinated solvents were thought to have been introduced to groundwater through the site's diffuser system however chlorinated solvents were not identified in any of the soil samples collected from around the diffuser system. In April 1998, six soil borings were installed around the diffuser system. The presence of the chlorinated compounds was not detected by the laboratory. In June 1999, as part of a supplemental investigation to compare previous findings, three additional soil borings were advanced within one foot of the sidewalls of the diffusers. These findings were consistent with the initial study. Petroleum hydrocarbons were detected in soil samples during both the preliminary and supplemental investigations however none of the identified compounds exceeded the recommended soil cleanup objectives listed in TAGM 4046. Groundwater samples collected during the supplemental investigation did contain petroleum compounds above the groundwater standards listed in TOGS 1.1.1 and 6 NYCRR Part 703. Following these investigations, the oil/water separator was cleaned and sealed. However, the diffuser system was not abandoned, since it is needed and used to manage sanitary wastewater.

2.2 Groundwater Flow and Hydrogeology

Regional groundwater flow was found to be west northwestward, in the direction of an unnamed tributary to the Wappingers Creek. Hydrogeologic investigations conducted by the NYSDEC at another spill site nearby indicate that groundwater

flow in the vicinity of the site is generally westward. Bedrock wells installed on the property confirm the flow direction.

Saturated conditions were not encountered in any of the preliminary soil borings installed during the initial assessment performed in April 1998. Borings installed in the vicinity of the diffuser system in June 1999 reached saturated conditions at approximately 3 feet below grade. Groundwater was encountered in the borings installed immediately adjacent to the diffuser system; however, the crushed stone surrounding the diffuser system was fully saturated from approximately one foot below ground surface (bgs) to boring termination at refusal. The fluids surrounding the diffuser system had a strong septic odor.

Groundwater was not encountered in appreciable quantities until tank removal activities. Borings installed during the investigation in August 2001 around the tank graves revealed unsaturated conditions over bedrock. From each of these investigations, it is probable that groundwater is occasionally present just above the overburden/bedrock interface during periods of high water, referred to as "perched" conditions. Unsaturated conditions shown in the Spring 1998 borings were installed during the time of the year that groundwater levels should be highest. Therefore, it is unlikely that the bedrock water table rises to the bedrock/overburden interface.

Overburden soils consisting of various materials (gravels through silts) are underlain by a gray silt layer lying in contact with the bedrock surface. Any precipitation recharging these soils or water discharged through the diffuser system may saturate the overburden and remain perched above the confining silt unit. Groundwater may then slowly drain to the bedrock aquifer below. This process could result in shallow groundwater levels followed by completely dry soils at different times throughout the year.

To enhance the understanding of the groundwater quality and groundwater flow characteristics in the bedrock aquifer below the site, six new groundwater wells penetrating 50-100' below the subsurface were installed between 8/14/01 and 8/16/01. A well was placed at each corner of the property and a shallow/deep couplet was placed in the source area for a determination of the local hydraulic gradient. A groundwater flow contour map was generated based on data collected on September 21, 2001, and showed that groundwater residing within the bedrock aquifer under the site contains a strong northwestern flow component. Recharge occurs along the eastern property boundary, while groundwater discharges along the northwestern edge of the property.

Groundwater depth below grade varies across the site between approximately 12 feet in the southernmost well (MW-1), to greater than 20 feet in the northern most well (MW-4).

Relevant boring logs are included in Volume II of the Operations and Maintenance Manual.

3.0 SITE REMEDIAL ACTIONS

A brief summary of remedial activities employed at the Greer Toyota site follows. The selected remedies are summarized in the Record of Decision, Section 8.

3.1 SVE System

Structural constraints limited full excavation of impacted soils adjacent to the northwest corner of the repair garage building. There was an area of stained soils that remained at the southern zone of the investigation. Excavating in this area would have damaged the building, and SVE systems were therefore installed to extract residual VOCs.

Diagrams of the SVE unit are shown on Figures 3 and 4. The layouts of SVE systems were installed as specified in the plan provided in the RD/RA Work Plan submitted in March 2003. Specific construction details for each of the SVE areas installed are provided below. Appropriate catalogues and specification sheets are included in Volume II of the Operations and Maintenance Manual.

SVE extraction pipe has been installed at three locations on the site. The three locations, labeled B, C, and D, correspond to areas where solvent impacted soils above the soil cleanup guidance values could not be excavated. During soil excavation, a perforated pipe was installed vertically, and immediately adjacent to the stained soils, to facilitate soil vapor extraction (Line B, Figures 3 and 4). Another perforated pipe was installed along the eastern excavation wall at an elevation that corresponds to the sandy horizon (Line C, Figures 3 and 4). Extraction Line D was installed in the crushed stone backfill at the source area to facilitate removal of vapors along the eastern wall of the excavation (Line D, Figures 3 and 4). This pipe will be used as the third and final soil vapor extraction line. This SVE line was installed crushed stone backfill, which was then covered with an impermeable geo-membrane.

A fourth line (Line A) was installed in the same vicinity as Line D just above the bedrock surface in the source area excavation (Line A, Figures 3 and 4). Potential injection Line A lies in the saturated zone just above the bedrock surface, and may be used for injection of bioremediation enhancement agents, if necessary. Line A will not be used for SVE, because the pipe becomes seasonally submerged below the water table.

The lower regions of the excavation (during soil removal) were backfilled with permeable crushed stone. The crushed stone was brought to a level that corresponds to the top of the silt-clay layer. The crushed stone was covered with an

impermeable membrane, which, in turn, was covered with clean fill (bank run). The fill material was placed in 9-inch lifts and compacted using a vibratory compactor to limit the potential for settling.

The buried four-inch diameter SVE pipes that surface at the northwest corner of the garage are used to extract vapor-phase contaminants from the source area. Each pipe has an independent ball-valve prior to the sample port, to allow for independent air monitoring within each pipe. Each SVE line is tied into an exhaust manifold, and then through a single blower, prior to being discharged to the atmosphere via a vent pipe exposed at the elevation of the garage roof (Figure 4). VOC emissions will be monitoring monthly in order to determine volume of contaminant removal for a period of one year, and quarterly thereafter. The system will be managed and maintained by TCC until it is determined that continued operation is no longer necessary.

The SVE system is fueled by a 100 cubic feet per minute (cfm), positive displacement type, Rotron Model EN 454 explosion-proof blower. The blower is housed within a small shed at the northwest corner of the maintenance garage. The secure shed houses both the blower and electric controls, which will be powered from within the garage. The electric panel has an emergency surge shut-off, in case of electric failure.

3.2 HRC®/ORC®

If groundwater quality worsens, then additional SVE extraction wells and/or in-situ Hydrogen Release Compound/Oxygen Release Compound (HRC®/ORC®) treatments will be considered for the site, as mandated in the NYSDEC's Record of Decision. HRC®/ORC® treatments are delivered to contaminated soil and groundwater reserves via injection wells, and generally destroy any contaminants through biological degradation. Action beyond the current phase of SVE treatment will only occur if the SVE treatments are found to be ineffective. Groundwater and SVE air sampling data are reviewed every six months to assess the effectiveness of the remedial measures. A monitoring plan will evaluate changes in groundwater quality resulting from on-going activities, and will establish whether additional remedial technologies will be needed at this site.

3.3 Carbon Filters on Private Wells

Three potable water treatment systems designed to remove chlorinated and non-chlorinated organic compounds are also utilized and are identified by the name of the resident or business that operates on the property as the Halpin, Optimum Window, and Wappingers Falls Toyota systems. Two water supply wells (Halpin and Optimum) located down-gradient from the Greer site were initially impacted by

low levels of chlorinated hydrocarbons. The Wappingers Falls Toyota well is not known to be impacted. Water from all three wells is treated via activated carbon (Figures 5, 6 and 7). Water samples are collected from the inlet and outlet of the water treatment systems and the data are regularly provided to the DCDOH. The risk of ingesting impacted groundwater is mitigated through the use of these systems.

3.4 Site Paving to Reduce Infiltration

The source region area has been repaved. Paving of the former source area served to reduce surface infiltration into the former source region.

3.5 Annual Review of Remedy Effectiveness

An annual review of the effectiveness of the remedy will be completed each year in accordance with year-by-year goals to be established by the NYSDEC. In general, a continued decrease in the concentration of contaminants in groundwater and the influent to potable water systems to non-detectable levels will be indicators that the remedies are effective and HRC®/ORC® injection will not be required. Detectable VOC concentrations in the SVE system air stream will be an indicator that the SVE system should continue operating.

3.6 Annual Certification of Engineering Controls

The Property Owner will provide the NYSDEC with annual certification that the paved area remains intact and free from cracks and other permeable imperfections.

3.7 Treatment Systems Evaluation

A treatment system, such as carbon filtration units, to control extracted vapors at Greer Toyota is not necessary based on conservative estimates of air emission rates. The total emission rate of all air contaminants was estimated at 0.25 pounds per hour. Air emission control devices, pursuant to 6 NYCRR Part 212.9, are not generally considered for "A" rated contaminants until air emissions exceed 10 pounds per hour. Furthermore, 6 NYCRR 212.10 suggests that VOC RACT (and the related overall removal efficiency requirement) does not apply unless total VOC emissions exceed 3.0 pounds per hour. Based on this estimate, VOC emissions should be discharged directly to the atmosphere without the need for treatment. Consequently, influent and effluent exhaust and VOC emission rates should be monitored initially and should not be require thereafter.

3.8 Goals the Remedial Measures

The goals of the remedial measures are to bring the site into compliance with the applicable Standards, Criteria and Guidelines (SCGs), to the extent practical and feasible. Groundwater impacts are already mitigated by use of potable water treatment systems that use activated carbon.

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet the SCGs and be protective of human health and the environment. At a minimum, the remedy selection will eliminate or mitigate all significant threats to the public health and to the environment presented by the CVOC present at the site.

In those areas where the TAGM 4046 values were not met, soil vapor extraction lines were installed to actively remediate the suspected source area. Well water samples will be collected quarterly until one half of the value of the drinking water standards are met for four consecutive quarterly sampling events. If one half of the values of the drinking water standards are met, the SVE operation will be discontinued. If not, or if groundwater quality worsens, then additional SVE wells or HRC/ORC treatment will be considered.

The existing treatment systems on impacted private supply wells will occur as deemed necessary by the New York State and/or Dutchess County Department of Health.

4.0 MONITORING, TESTING AND RECORDS

4.1 Monitoring Plan

The monitoring plan includes the following elements:

- Groundwater – Sampling of four wells on a quarterly or less frequent basis
- SVE System – Inspection to ensure the system is operating and still removing VOCs
- Private Wells – Maintain three carbon filtration systems
- Paving – Ensure paving is in good condition to prevent infiltration in the source region

4.2 Environmental Effectiveness Monitoring

4.2.1 General

The effectiveness of the environmental monitoring programs will be documented in the quarterly project progress reports.

4.2.2 Groundwater Sampling Program

Groundwater monitoring of wells MW-2, MW-4, MW-5, and MW-6 will be conducted quarterly. Quarterly monitoring of MW-1 and MW-3 is no longer necessary as determined by the NYSDEC.

Recent ground water monitoring (May 2002 and February 2003) has shown an improvement in groundwater quality in all of the on-site monitoring points. Upgradient monitoring wells (MW-1 through MW-3) show sharp decreases in concentrations to non-detect status or minor detections of compounds. MW-4 and MW-5 have shown varying decreases in some compounds. Downgradient monitoring well MW-6 has shown significant improvement in groundwater quality. The improvements in groundwater quality are believed to be consequential to the significant source removal action, natural attenuation, and ongoing venting via the existing SVE lines.

Groundwater sampling will be performed as follows:

1) Prior to sampling, water level data will be collected using an electronic water level meter to calculate well volumes. Well volumes are calculated by measuring the height of the water column (height of water column = water level – well bottom elevation), and then multiplied by a well diameter conversion factor. A single instrument will be used to evaluate all water level measurements. The water level meter will be decontaminated between measurements using an Alconox® solution to prevent cross contamination between wells.

1) Prior to well sampling, wells must either have just been developed, or the wells must be purged to ensure that static annular water is removed from the well column.

1) Wells will be purged using a dedicated submersible pump, a portable submersible pump, a bailer or an inertial lift pump.

1) During purging, routine water quality parameters including pH, temperature, conductivity and turbidity will be monitored using a portable meters. Turbidity will also be assessed visually to determine when groundwater conditions have stabilized. In general, three or more well volumes will be removed before sampling.

1) Samples will be collected from monitoring wells once static water levels recover to not less than ninety percent of the pre-purging levels but not more than 24 hours following purging.

2) Groundwater samples from MW-2, MW-4, MW-5, and MW-6 will be analyzed for volatiles using EPA method 8260. MW-4, MW-5, and MW-6 will be analyzed for semi-volatiles using EPA method 8270. Temperature, pH and specific conductance will be measured in the field, where possible. Samples will be transported to the laboratory with ice or ice packs in secure coolers.

4.2.3 Well Maintenance Procedures

Wells will be inspected during quarterly sampling events. Each well will be checked to assure that the well is intact, the well cap is sealed and locked, and the protective well casing is unharmed. Any damaged wells will be quickly repaired.

If necessary, wells will be sealed and restored to a safe condition to prevent contaminant migration, according to NYSDEC protocol, as follows:

1. The casing will be removed to the extent possible, followed by perforation of any casing left in place.

2. The well will be sealed by pressure injection with cement bentonite grout and will extend the entire length of the boring to five feet bgs or the excavated level. The screened interval of the borehole will be sealed separately and tested to ensure its adequacy before sealing the remainder of the borehole. The upper five feet will be backfilled with appropriate native materials compacted to avoid settlement. If necessary, alternate methods will be used to prevent the migration of the grout into the surrounding geologic formation.

3. After sealing, the site will be inspected periodically for settlement or other conditions, which require remediation.

4.3 On-Site Treatment System Performance Monitoring

4.3.1 SVE System

SVE system exhaust air will be monitored for the first three months and then quarterly thereafter. During the first year, the data will be evaluated quarterly to determine if further vapor extraction is warranted. After the first year, SVE system data will be evaluated at least yearly.

The SVE system should continue operating until VOC concentrations are no longer detectable using a PID.

4.3.2 SVE Air Sampling

Effluent samples will be monitored using a PID. The results of these air tests will be provided to the NYSDEC with the quarterly sampling reports.

Three effluent samples will be collected, one from each active SVE line. The individual samples will be collected from Lines B through D. To isolate an individual SVE line for sampling, the control valves for the other two lines will be temporarily closed until sampling has concluded. The blower is then allowed to purge the line for 20 minutes to insure a fresh sample. This process will be repeated until all three lines are sampled. The valves and sampling ports to be used are clearly labeled and are shown as-built on the attached Figure 2.

The individual line samples will be used to track progress towards the clean-up objective. As the objective is met, the control valves will be positioned to optimize efforts to the most heavily contaminated areas.

4.3.3 Carbon Filters

Three carbon filtration systems are monitored by collecting water samples before and after the carbon filters according to the Schedule of Sampling Activities provided in Volume II. Samples collected from the Halpin and Optimum Window systems are analyzed quarterly for VOCs using EPA Method 502.2. The Wappingers Falls Toyota system is analyzed twice per year before the filter for VOCs using EPA Method 502.2, methyl-tertiary butyl ether (MTBE), Total Coliform, E. Coli, and chlorides, sodium, manganese, and color (IOCG3) and quarterly after the filter for VOCs using EPA Method 502.2 and MTBE. Laboratory analytical reports are provided to the DCDOH.

The maintenance and monitoring of the existing treatment systems will continue until one half of the drinking water standards are met for four consecutive quarterly sampling events.

4.4 Analytical Program

All groundwater and potable water samples are collected in accordance with the Quality Assurance procedures outlined in the Quality Assurance Project Plan, previously provided to the NYSDEC.

4.4.1 Schedule

A schedule of sampling activities can be found in Operation and Maintenance Manual Volume II, Section H.

4.4.2. Laboratory Certification

The laboratory selected to conduct chemical analyses will be an Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

4.4.3 Quality Assurance and Quality Control

Specifics on laboratory and TCC control and assurance of laboratory quality can be obtained in the Quality Assurance Project Plan, previously provided to the NYSDEC.

4.5 Record Keeping and Reporting:

All operational notes, observations, and SVE system maintenance will be documented in the record book. This record book is maintained in the remediation shed as a permanent record of operations.

In addition to the permanent record book, observations recorded as part of the required monthly and quarterly monitoring will be recorded on forms provided for this purpose. A copy of all completed forms will be keep on file at the office of TCC and, in addition, copies of the completed forms will be forwarded to the NYSDEC along with the quarterly monitoring reports.

5.0 MAINTENANCE

The following details periodic maintenance required for successful operation of the SVE remediation system, carbon filters (potable wells), groundwater monitoring wells, and paving. Schematic diagrams of the SVE electrical systems are provided in Volume II of the Operations and Maintenance Manuals and include a control panel diagram and parts description.

5.1 Site Security

5.1.1 Remediation Shed

The remediation shed and wells will be secured with pad-locks to prevent unauthorized entry. Access keys for the system and wells are held by the current site owner, TCC, and one site contact for use in case of emergency. TCC and NYSDEC contact information (including phone and address) are posted on the outside of the shed for emergency reference in case the system shuts down.

5.1.2 Site Signs

With the exception of the contact information sheet posted on the remediation shed, no signs are required to maintain any of the site remedial activities.

5.1.3 Site Cover

The source area was repaved to reduce surface infiltration into the former source region. The condition of the pavement will be inspected twice per year by the owner and sealing will be performed, as necessary.

5.1.4 Vehicle Access Road

All of the areas of the site having undergone remediation are easily accessible including the treatment shed and the monitoring wells. Occasional clearing of snow may be required to ensure access to the monitoring wells in the winter months. Snow removal on the parking lot has on occasion covered a couple of the wells making identification possible through the use of a magnetometer.

5.1.5 Vermin and Vectors

Vermin (small animals such as mice, etc.) and vectors (an organism that transmits disease) have not presented any operational obstacles. The site will be monitored monthly for vermin and vector problems.

5.2 SVE System Maintenance

Prior to starting the SVE blower, ensure that the airflow control valves are in the open position.

The blower unit is equipped with an individual control box containing a motor contact switch; overload relay, and operational controls. To start or stop the blower motor, press the appropriate operator button on the blower's control panel. (See fault reporting in next section before stopping any blower).

5.2.1 Electrical Failure Reset

The SVE blower is powered by a three-phase electric motor. This motor will shut down whenever there is an interruption to the electrical service and will have to be manually restarted. Should a system shutdown occur, employee will contact the owner or consultant to re-start the system. However, the system should be checked for proper operation whenever there is an indication that an interruption to electrical power is likely to have occurred.

5.2.2 Monthly Maintenance and System Checks

The following actions will be performed for the first three months and then quarterly thereafter:

Mechanical Checks

1. Check and confirm operation of the SVE blower.

2. Check operating temperature of the SVE blower. The blower should be warm to touch but not hot.

3. Listen to the blower for any strange noises.

4. Check the blower for visible signs of wear or damage.

5. Visually check the blower for kinked or disconnected pipes and listen for air leaks.

6. Remove the drain plug and stop the blower to remove any accumulated water from the water separators. Replace drain and restart blower. (Note: If blower is left off for more than five minutes a fault condition will be reported by the lighted alarm system.)

Air Pressure Monitoring

Monitor and record influent blower air pressures. This will ensure the blower is operating within acceptable parameters.

Maintenance

The SVE blower is a sealed unit with an explosion proof motor. This unit does not require any routine or preventative maintenance in addition to the mechanical checks listed above.

5.2.3 Quarterly Maintenance and System Checks

Quarterly maintenance requirements are detailed in Section 5.2.2.

5.2.4 Annual Maintenance and System Checks

The following actions are performed annually:

1. Inspect all pipes and joints for signs of cracks or breaks.

2. Replace any worn parts.

5.2.5 Disposal of Used Materials and Waste

The SVE system generates no waste for offsite disposal. The potable well carbon filtration systems are maintained by Anthony's Water Store (AWS) and spent carbon is disposed of or recycled by AWS in accordance with applicable regulations.

5.2.6 Troubleshooting

Troubleshooting of the SVE system can be referenced in Volume II of the Operations and Maintenance Manual.

6.0 REPORTS

6.1 Monthly Reports

There are no monthly reporting requirements for the Greer Toyota site.

6.2 Quarterly Report

A quarterly report summarizing all pertinent monthly and quarterly monitoring and sampling results shall be provided to the NYSDEC. The only monthly requirement is SVE system monitoring with a photo-ionization detector for the first three months. The SVE results are provided with the quarterly and annual monitoring reports. Quarterly groundwater samples are collected at monitoring MW-2, MW-4, MW-5, and MW-6. All sampling locations can be referenced on Figure 2, RI/FS Report and have been previously summarized at Section 4 of this report. MW-2, MW-4, MW-5, and MW-6 are tested quarterly for volatile organics using laboratory procedure 8260 and MW-4, MW-5, and MW-6 are monitored quarterly for semi-volatile organics using laboratory procedure 8270. Laboratory data will be compared with NYS groundwater standards located under 6 NYCRR Part 703 and TOGS 1.1.1. Included with every other quarterly report is a discussion of any observed changes in contaminate mass identified through a review of groundwater and SVE air sampling data. Quarterly reports will be submitted within 30 days of the end of the previous quarter.

6.3 Annual Report

An annual report summarizing all pertinent monthly and quarterly sampling results shall be provided to the NYSDEC. The annual report shall also include, if applicable, a description of any improvements to the system, significant changes in groundwater contaminant concentrations, a discussion of the fate and volume of the contaminants removed and predictions of future system performance.

6.4 Five Year Performance Review Report

The remedial system may not be required to operate for five more years. TCC is hopeful that all remedial goals for this site will be met in two years. If necessary, the first five-year performance reviews will be provided to the NYSDEC at the end of the first quarter of 2009. The report will make recommendations for revisions in the sampling program and discuss the efficiency and continued operations of the existing remediation systems.

7.0 CITIZENS PARTICIPATION PLAN

Greer Toyota in conjunction with the NYSDEC, is committed to informing area residents about upcoming activities to characterize the Greer Toyota site, which has been classified as a Class 2 inactive hazardous waste site. TCC anticipates that the site will qualify soon for reclassification to a Class 4 site.

The Citizen Participation Plan also provides opportunities for the public to obtain and provide information that will enable Greer Toyota and the NYSDEC to develop a remedial program, which is protective of both public health and the environment.

A Fact Sheet will be prepared summarizing the recent findings in preparation of reclassifying the site to a Class 4. The Fact Sheet will document improvements in site soil and groundwater quality, contaminant removal and an outline of the ongoing remedial operations.

7.1 Contact List

A contact list has been prepared by the NYSDEC and will be kept updated based on returned mailings, public meeting sign-in sheets, and individual requests to be added to the list. To be added to the list, contact Dan Geraghty at the NYSDOH or Gianna Aiezza at the NYSDEC, as listed below.

7.2 Regulatory Contacts

NYSDEC Remediation Project Manager:

Ms. Gianna Aiezza
NYS Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road
New Paltz, New York 12561-1696
(845) 256-3153

NYSDEC Citizen Participation Specialist:

Mr. Mike Knipfing
NYS Department of Environmental Conservation
21 South Putt Corners Road
New Paltz, NY 12561

(845) 256-3154

NYS Department of Health - Albany:

Mr. Dan Geraghty
New York State Department of Health
Bureau of Environmental Exposure Investigation
547 River Street
Troy, NY 12180-2216

(518) 402-7880 or (518) 402-7850

7.3 Document Depositories

Documents related to this project are available for public review at two document depositories. The depositories contain the same documents and are located as follows:

1. Grinnell Library
   2642 E Main Street
   Wappingers Walls, New York

   The telephone number for the Grinnell Library is (845) 297-3428. No appointment should be necessary for visits during normal library hours.

1. NYS Department of Environmental Conservation
   21 South Putt Corners Road
   New Paltz, NY 12561
   Please call Mr. Michael Knipfing at (845) 256-3154 between 8:30 am and 4:45 p.m. to make arrangements to view these documents.

8.0 PROJECT PERSONNEL

8.1 Project Organization and Personnel Responsibilities

The following personnel have been assigned to the Greer Toyota site.

Project Manager – Charles P. Alongi: Mr. Alongi will be the primary contact with the NYSDEC. He will confirm implementation of established protocols, maintain quality and consistency, and monitor the overall work assignment and schedules. He will be responsible for the overall implementation of the HASP, and for ensuring that all health and safety responsibilities are carried out in conjunction with this project. Mr. Alongi is also the Primary Emergency Coordinator and is responsible for coordinating all emergency response measures. The Project Manager can be reached at The Chazen Companies Poughkeepsie, New York Office, (845) 454-3980.

Field Operations Leader – Dan Michaud: Mr. Michaud assists the Project Manager in executing the scope of work. He supervises the daily site operations and shall act as the On-Site Safety Officer, in accordance with the HASP. Mr. Michaud is also the Alternate Emergency Coordinator and is responsible for coordinating emergency response measures when the Primary Emergency Coordinator is unavailable. Mr. Michaud maintains knowledge of remediation system and is the primary point of contact for system maintenance and trouble shooting. The Field Operations Leader can be reached at The *Chazen* Companies Poughkeepsie, New York Office, (845) 454-3980.

Health and Safety Officer – Kim Cuppett: The Health and Safety Officer (HSO) is responsible for developing and implementing the site-specific Health and Safety Plan, and for providing any health and safety technical assistance and guidance to the PM and on-site personnel. The Health and Safety Officer can be reached at The *Chazen* Companies Poughkeepsie, New York Office, (845) 454-3980.

Field Geologist – Will Olsen: The field geologist will perform the field activities, including adherence to and interpretation of the HASP and quality assurance protocols, oversight of site activities, scheduled preventative maintenance, and sampling. The Field Geologist can be reached at The *Chazen* Companies Poughkeepsie, New York Office, (845) 454-3980.

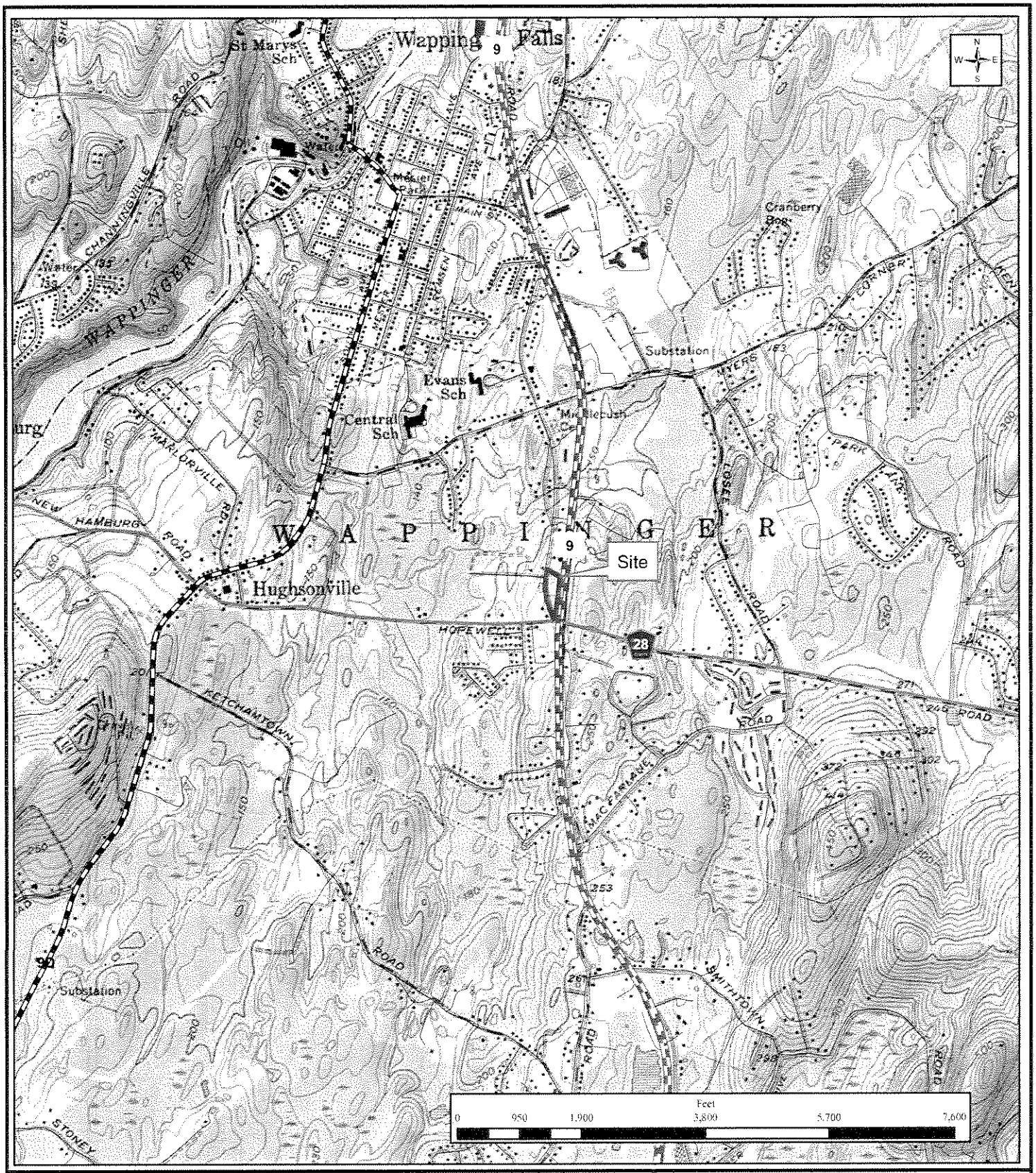
Troubleshooting – Todd Syska: Mr. Syska was responsible for the design and installation of the SVE system. He can replace the blower motor and make other system changes should any unforeseen malfunctions occur. He can be reached at Todd Syska, Inc., Clinton Corners, New York, (845) 266-8322.

8.2 Qualifications and Training

All personnel working on-site have environmental backgrounds accomplished through schooling, training or a combination of the two. All personnel conducting activities on-site for which potential health and safety impacts exist must be in compliance with all applicable Federal/State rules and regulations, including OSHA 29 CFR 1910 and OSHA 29 CFR 1926. Personnel shall have completed 40 hours of OSHA training and be current with their eight-hour refreshers in accordance with 29 CFR 1910.120. On–site personnel must also be familiar with the procedures and requirement of the Greer Toyota HASP. Employees who conduct maintenance activities must receive safety training in the lockout and tagout of energized equipment.

Personnel who make connections and repairs to electrical and/or plumbing utilities must demonstrate knowledge of these skills. Knowledge can be presented through work experience or through a profession degree or certification.

Location Map and Site Plan



THE Chazen COMPANIES

ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845)454-3636

Orange County Office:
356 Meadow Avenue, Newburgh, NY 12550
Phone: (845)567-3133

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518)273-0055

Glens Falls Office:
106 Glen Street, Glens Falls, NY 12801
Phone: (518)812-0513

New London Office:
814 Berkshire Turnpike Waterford, CT. 06385
Phone: (860)440-2692

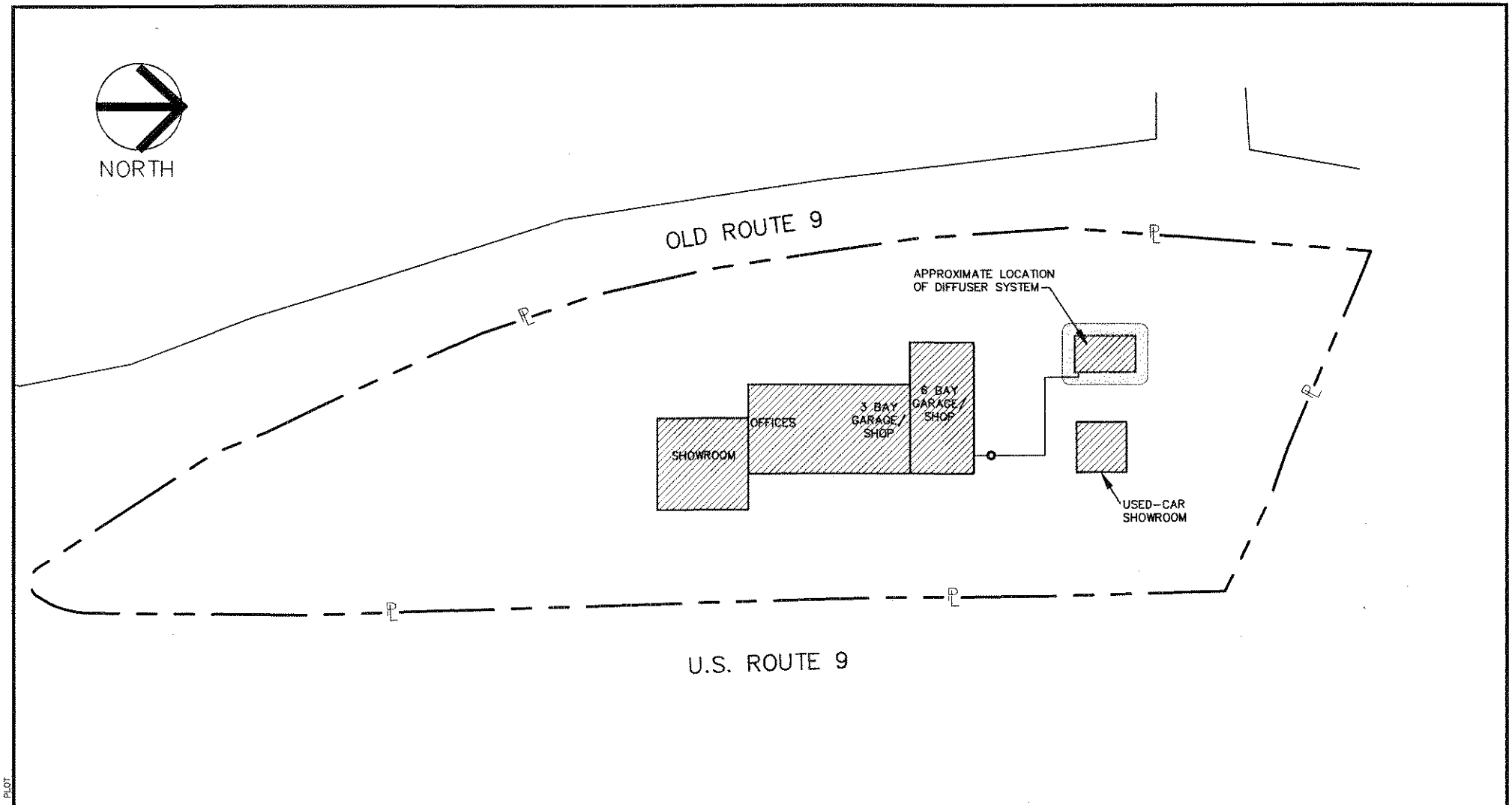
Greer Toyota

Figure 1 - Site Location Map

Route 9
Town of Wappinger, Dutchess County, New York

Source: USGS Topographic Map of the Wappingers Falls, New York Quadrangle
Dated 1956 (Photorevised 1981); Dutchess County RPS 2008 Tax Parcel Data

Drawn:	KL
Date:	March 2009
Scale:	1 inch=2,000 feet
Project:	40702.00
Figure:	1



THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists

CHAZEN ENVIRONMENTAL SERVICES, INC.

Dutchess County Office:
Manchester Rd PO Box 3479
Poughkeepsie, NY 12603
Phone: (914) 454-3980

Orange County Office:
Suite G, 201 Ward Street
Montgomery, NY 12549
Phone: (914) 457-1521

Capital District Office:
1407 Route 9, Bldg. 2
Clifton Park, NY 12065
Phone: (518) 371-0929

GREER TOYOTA

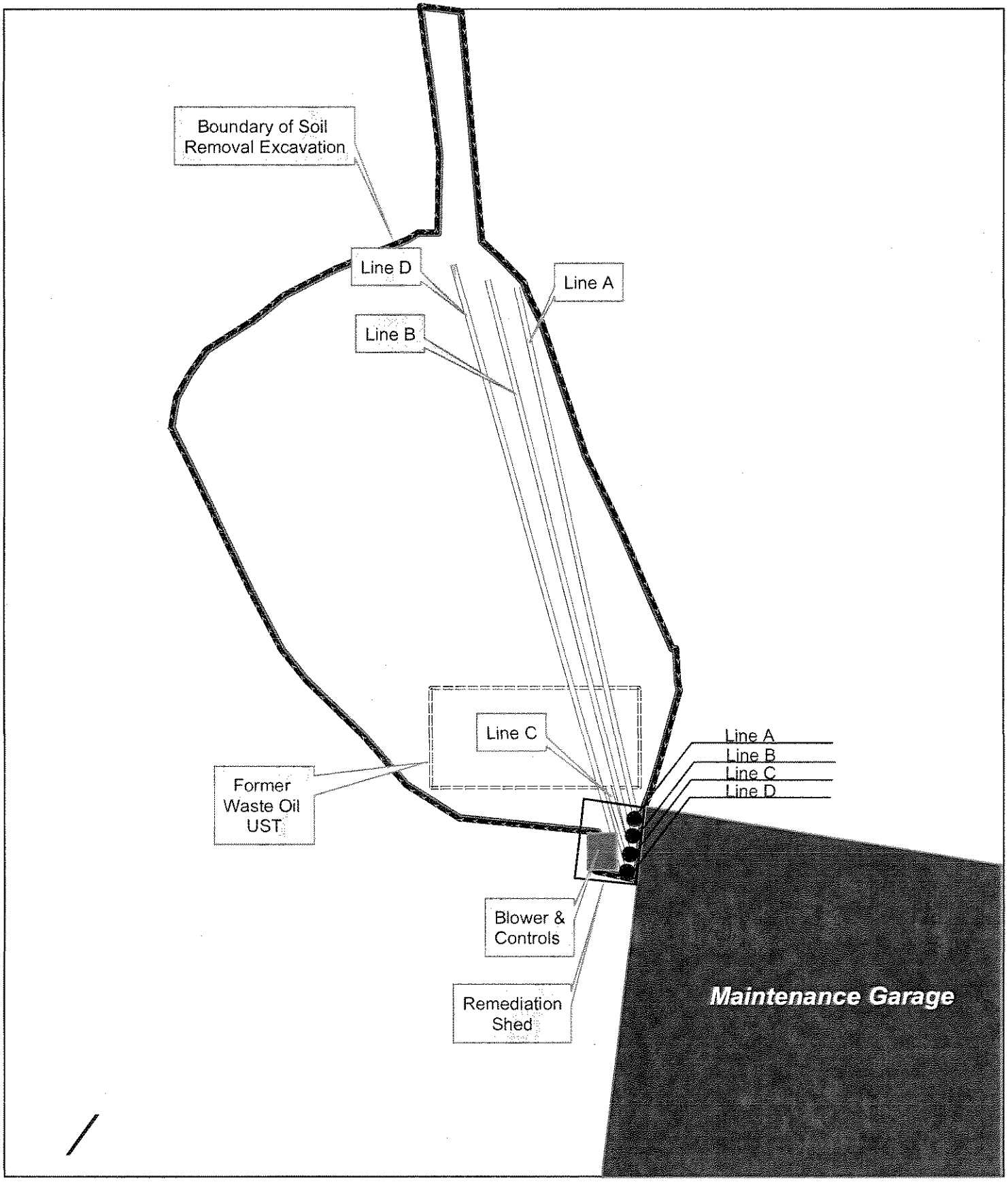
SITE MAP

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

drawn:	check:
JAS	A.M.M.
date: 2/4/04	scale: 1"=60'
project no. 49799.25	
sheet no. Figure 2	

x:\A\49799\49799.25\07M MANUAL\FIGURES\SITE PLAN.dwg
x-BASE.dwg
PLOT SCALE: 1"=60' - SAVED UCS: PLOT

Figures:



THE Chazen COMPANIES

Engineers/Surveyors
Planners
Environmental Scientists
GIS Consultants

CHAZEN ENGINEERING & LAND SURVEYING CO., P.C.

Dutchess County Office:
21 Fox Street
Poughkeepsie, New York 12601
Phone: (845) 454-3980

Orange County Office:
263 Route 17K
Newburgh, New York 12550
Phone: (845) 567-1133

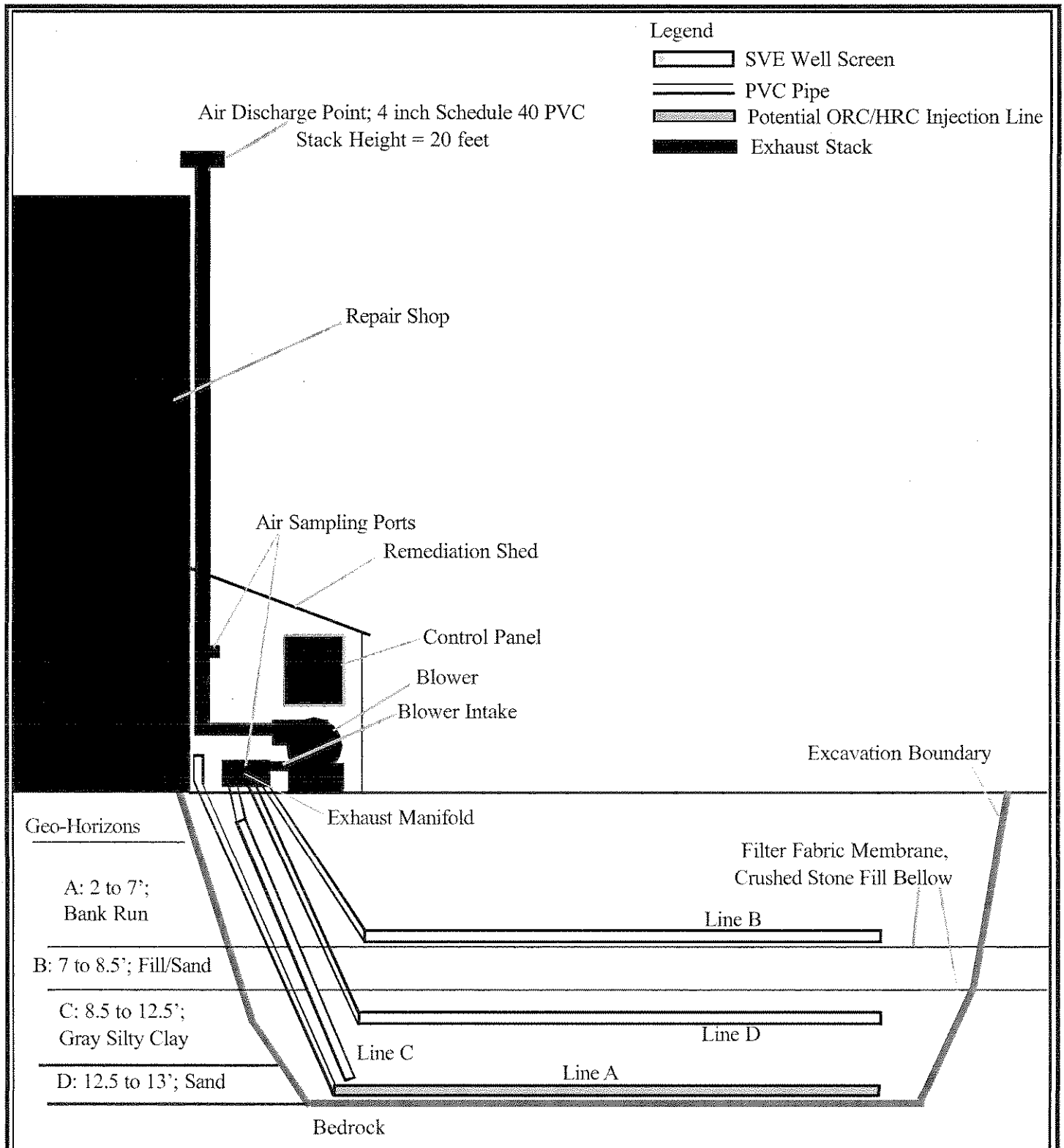
Capital District Office:
20 Corliss Avenue
Troy, New York 12182
Phone: (518) 235-0050

North Country Office
110 Dow Street
Glens Falls, New York 12801
Phone: (518) 812-0513

Figure 3:
SVE System/Pipes

Greer Site # 3-14-088
Wappingers Falls, NY

Created by: DPM/JM
Date: March 2004
Scale: ~1 in = 5 ft
Project #: 49799.25



THE Chazen COMPANIES
ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL
SCIENTISTS

Dutchess County Office:
21 Fox St. Poughkeepsie, NY 12601
Phone: (845) 454-3980

Orange County Office:
263 Route 17K Newburgh, NY 12550

Capital District Office:
20 Gurley Avenue, Troy, NY 12182

Glens Falls Office:
110 Glen Street Glens Falls, NY 12801

FIGURE 4 - SVE System

Greer Site; # 3-14-088
Route 9
Town of Wappingers,
Dutchess County, New York

Date: March, 2004

Scale: Not to Scale

Project #: 49799.25

Operations and Maintenance Manual
Volume II
Site #3-14-088

Greer Toyota
Route 9
Town of Wappinger, New York

May 2004

THE
Chazen
COMPANIES

Prepared For:

New York State DEC, Region 3
21 South Putt Corners Road
New Paltz, NY

Operations and Maintenance Manual
Volume II
Site #3-14-088

Greer Toyota
Route 9
Town of Wappinger, New York

May 2004

THE
Chazen
COMPANIES

Prepared by:

The Dutchess County Office
The Chazen Companies
21 Fox Street
Poughkeepsie, New York 12601

Dutchess County
(845) 454-3980

Orange County
(845) 567-1133

Capital District
(518) 371-0829

Section A	Boring Logs and Monitoring Well Construction Details
Section B:	Mechanical Equipment Information: Catalog-cuts, Spare Parts List, Vendor Contacts
Section C:	Electrical Schematics
Section D:	Standard Operating Procedures
Section E:	Health and Safety Plan
Section F:	Emergency Contingency Plan
Section G:	Consent Order and Record of Decision
Section H:	Troubleshooting
Section I:	Records and Forms: Maintenance Cost Records Accident Report Form Contingency Plan Revision Log Operating Records Sampling Activities Schedule Quarterly Service Report Operations and Maintenance Manual Revision Log

Section A:
Boring Logs and
Monitoring Well Construction Details

The Chazen Companies

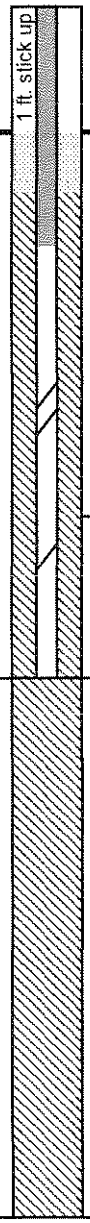
BORING/WELL NO. MW-1

PROJECT NAME: Greer Toyota
PROJECT No.: 49799.24
CLIENT: Cindy Greer
WELL TYPE: Bedrock Well
WELL LOCATION: MW-1
CITY/TOWN: Wappinger Falls
COUNTY: Dutchess
STATE: New York

Elevations:
Ground Surface Elevation:
Water Level Reference Point: TOC
Water Level Reference Point Elevation:

Water Levels:
Date:
Depth to Water:

Starting Date: 8/15/2001
Stop Date: 8/15/2001
Method: Air-Rotary
Contractor: Kendrick, Inc.
Driller: Terry and Pat
Rig: Ingersoll-Rand T4
Geologist: Dan Michaud



Sample #

Drill Rate (ft/hr)

Well Construction

Stratum and Field Descriptions:

Bedrock at 4 ft.

Overburden: sandy silty till.
Brown heavily weathered shale from 4-7 feet.
Competent bedrock consists of gray shale, fractured in places.

Stainless steel casing from 0-9 feet. Seated into bedrock a few (approx. 3) extra inches. Finished with a cement grout over the entire length of the hole. Open rock hole from 9-50 feet bgs.

Fracture - increase in drilling rate from 24-28' bgs

Fracture - increase in drilling rate ~40' bgs

Sample of rock cuttings taken while drilling through 45' bgs depth.

End of drilling @ 50 ft.

NOTES:

DECON: Rig/all equipment was completely steam-cleaned between holes.

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

BORING/WELL NO. MW-2

PROJECT NAME: Greer Toyota
PROJECT No.: 49799.24
CLIENT: Cindy Greer
WELL TYPE: Bedrock Well
WELL LOCATION: MW-2
CITY/TOWN: Wappinger Falls
COUNTY: Dutchess
STATE: New York

Elevations:
Ground Surface Elevation:
Water Level Reference Point:TOC
Water Level Reference Point Elevation:

Water Levels:
Date:
Depth to Water:

Starting Date: 8/16/2001
Stop Date: 8/16/2001
Method: Air-Rotary
Contractor: Kendrick, Inc.
Driller: Terryand Pat
Rig: Ingersoll-Rand T4
Geologist: Dan Michaud

Boring	1 ft. stick up	Depth (Depths in Feet)	Sample #	Drill Rate (ft/hr)	Well Construction	Stratum and Field Descriptions:
Bedrock at 1 ft.		5, 10, 15, 20, 25, 30, 35, 40, 45, 50				Topsoil: 0-1' bgs Brown heavily weathered shale from 1-4 feet. Competent bedrock consists of gray shale, fractured in places. Stainless steel casing from 0-9'3" feet. Seated into bedrock a few (approx. 3) extra inches. Finished with a cement grout over the entire length of the hole. Open rock hole from 9'3"-50 feet bgs. Fracture - increase in drilling rate from 17-18' Fracture - increase in drilling rate from 21-22' Sample of rock cuttings taken while drilling through 45' bgs depth.
		55, 60, 65, 70, 75, 80, 85, 90, 95, 100				End of drilling @ 50 ft.

NOTES:

DECON: Rig/all equipment was completely steam-cleaned between holes.

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

BORING/WELL NO. MW-3

PROJECT NAME: Greer Toyota
PROJECT No.: 49799.24
CLIENT: Cindy Greer
WELL TYPE: Bedrock Well
WELL LOCATION: MW-3
CITY/TOWN: Wappinger Falls
COUNTY: Dutchess
STATE: New York

Elevations:
Ground Surface Elevation:
Water Level Reference Point: TOC
Water Level Reference Point Elevation:

Water Levels:
Date:
Depth to Water:

Starting Date: 8/16/2001
Stop Date: 8/16/2001
Method: Air-Rotary
Contractor: Kendrick, Inc.
Driller: Terry and Pat
Rig: Ingersoll-Rand T4
Geologist: Dan Michaud

Boring	1 ft. stick up	Depth (Depths in Feet)	Sample #	Drill Rate (ft/hr)	Well Construction	Stratum and Field Descriptions:
Bedrock at 3'6" ft.		5, 10, 15, 20, 25, 30, 35, 40, 45, 50				Overburden: sandy silty till. (0-3'6") Bedrock consists of gray shale, fractured in places. (3'6"-50') Stainless steel casing from 0-9'3" feet. Seated into bedrock a few (approx. 3) extra inches. Finished with a cement grout over the entire length of the hole. Open rock hole from 9'3"-50 feet bgs. Well drilling subcontractor reports that drilling is faster than in competent bedrock, and therefore bedrock appears to be fractured. Sample of rock cuttings taken while drilling through 45' bgs depth.
		55, 60, 65, 70, 75, 80, 85, 90, 95, 100				End of drilling @ 50 ft.

NOTES:
DECON: Rig/all equipment was completely steam-cleaned between holes.

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

BORING/WELL NO. MW-4

PROJECT NAME: Greer Toyota
PROJECT No.: 49799.24
CLIENT: Cindy Greer
WELL TYPE: Bedrock Well
WELL LOCATION: MW-4
CITY/TOWN: Wappinger Falls
COUNTY: Dutchess
STATE: New York

Elevations:
Ground Surface Elevation:
Water Level Reference Point: TOC
Water Level Reference Point Elevation:

Water Levels:
Date:
Depth to Water:

Starting Date: 8/15/2001
Stop Date: 8/15/2001
Method: Air-Rotary
Contractor: Kendrick, Inc.
Driller: Terry, Pat, Donny
Rig: Ingersoll-Rand T4
Geologist: Dan Michaud

Boring	3 ft. stick up	Depth (Depths in Feet)	Sample #	Drill Rate (ft/hr)	Well Construction	Stratum and Field Descriptions:
Bedrock at grade		5, 10, 15, 20, 25, 30, 35, 40, 45, 50				0-1" Blacktop 1"-50' Bedrock consists of gray shale, fractured in places. Stainless steel casing from 0-7 feet. Seated into bedrock a few (approx. 3) extra inches. Finished with a cement grout over the entire length of the hole. Open rock hole from 7-50 feet bgs. Fracture - increase in drilling rate from 24-28' bgs White cuttings (maybe Calcite) at ~45'bgs.
		55, 60, 65, 70, 75, 80, 85, 90, 95, 100				End of drilling @ 50 ft.

NOTES:
DECON: Rig/all equipment was completely steam-cleaned between holes.

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

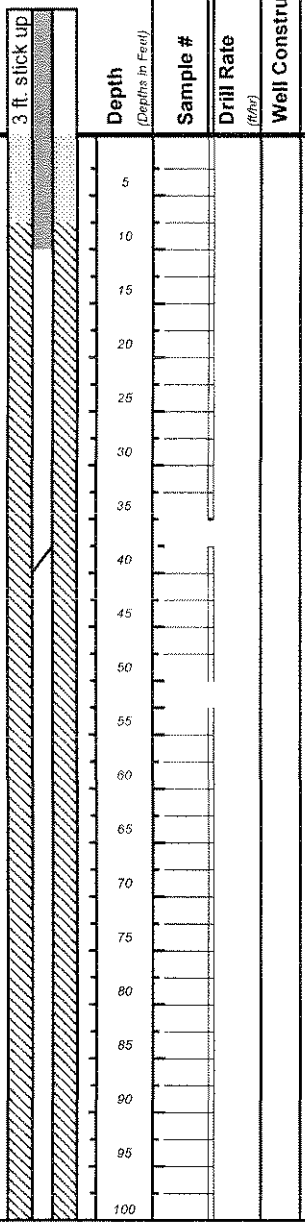
BORING/WELL NO. MW-5

PROJECT NAME: Greer Toyota
PROJECT No.: 49799.24
CLIENT: Cindy Greer
WELL TYPE: Bedrock Well
WELL LOCATION: MW-5
CITY/TOWN: Wappinger Falls
COUNTY: Dutchess
STATE: New York

Elevations:
Ground Surface Elevation:
Water Level Reference Point:TOC
Water Level Reference Point Elevation:

Water Levels:
Date:
Depth to Water:

Starting Date: 8/14/2001
Stop Date: 8/14/2001
Method: Air-Rotary
Contractor: Kendrick, Inc.
Driller: Terry, Pat,Donny
Rig: Ingersoll-Rand T4
Geologist: Dan Michaud



Stratum and Field Descriptions:

Overburden: sandy silty till.

Bedrock at 7'9" ft.

Bedrock consists of gray shale @ 7'9" bgs, fractured in places.

Stainless steel casing from 0-10'6" feet. Seated into bedrock a few (approx. 3) extra inches. Finished with a cement grout over the entire length of the hole. Open rock hole from 10'6"-50 feet bgs.

Fracture - increase in drilling rate ~37-39' bgs, white chips (appears to be calcite) increased water discharge during drilling

End of drilling @ 100 ft.

NOTES:
DECON: Rig/all equipment was completely steam-cleaned between holes.

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

BORING/WELL NO. MW-6

PROJECT NAME: Greer Toyota
PROJECT No.: 49799.24
CLIENT: Cindy Greer
WELL TYPE: Bedrock Well
WELL LOCATION: MW-6
CITY/TOWN: Wappinger Falls
COUNTY: Dutchess
STATE: New York

Elevations:
Ground Surface Elevation:
Water Level Reference Point: TOC
Water Level Reference Point Elevation:

Water Levels:
Date:
Depth to Water:

Starting Date: 8/15/2001
Stop Date: 8/15/2001
Method: Air-Rotary
Contractor: Kendrick, Inc.
Driller: Terry and Pat
Rig: Ingersoll-Rand T4
Geologist: Dan Michaud

Boring	Flush Mount	Depth (Depths in Feet)	Sample #	Drill Rate (ft/hr)	Well Construction	Stratum and Field Descriptions:
Bedrock at 13'		5				0-3" Blacktop 3"-13' Till Overburden, oil/petroleum odor, sample taken at ~5' bgs.
		10				Stainless steel casing from 0-15'10" feet. Seated into bedrock a few (approx. 3) extra inches. Finished with a cement grout over the entire length of the hole. Open rock hole from 15'10"-50 feet bgs.
		15				13'-50' Bedrock consists of gray shale, fractured in places.
		20				
		25				Fractured zone - increase in drilling rate from 26-35' bgs.
		30				
		35				
		40				
		45				Sample of rock cutting gathered at ~45 bgs.
		50				
		55				End of drilling @ 50 ft.
		60				
		65				
		70				
		75				
		80				
		85				
		90				
		95				
		100				

NOTES:
DECON: Rig/all equipment was completely steam-cleaned between holes.

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 01

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** NT

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-3'8" 6" blacktop 10" brown sand and silt	
	2						
	3						
	4					*boring terminated @ 3'8"-refusal*	
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 02

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** NT

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1–20					0-4' upper 6" blacktop lower 36" brown sand and silt and gravel 4-8' 12" brown sand and silt and gravel 8-12' 24" fine-medium sand and gravel (fill) 16" gray-brown mottled silt and fine sand: trace clay 12-13'6" 6" brown silt and gravel 8" stone dust and item 4 crushed stone 8" brown sand and silt 8" broken rock *boring terminated @ 13'6"-refusal*	

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 03

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** NT

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-1'6" 18" brown silt and sand, trace gravel	
	2					*boring terminated @ 1'6"-refusal*	
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 04

PROJECT NAME: Greer Toyota
PROJECT No.: #49799.24
CLIENT: Cindy Greer
WELL TYPE: NA
WELL LOCATION:
CITY/TOWN: Wappingers
COUNTY: Dutchess
STATE: N.Y.

Elevations: NA
Ground Surface Elevation:
Water Level Reference Point:
Water Level Reference Point Elevation:

Water Levels: NA
Date:
Depth to Water:

Starting Date: 8/1/2001
Stop Date: 8/1/2001
Method: Direct Push
Contractor: T. Syska
Driller: T. Syska
Rig: Geoprobe
Geologist: NT

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1–12					0-4' 12" blacktop and gravel 12" gravel and some brown sand and silt 4-8' 6" moist brown sand and silt 8" gravel (fill) 8-12' 6" gravel (fill) 12" brown silt and some sand 14" light brown silt and some clay 7" brown silty sand with broken rock on top	
	13–20					*boring terminated @ 12'-refusal*	

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 05

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 5" Item 4 Stone lower 3" c brown sand, some c gravel unsaturated	No PID hits No visual or odor signs of contamination.
	4					4-8' 12" c gravel, some brown c sand unsaturated	No PID hits No visual or odor signs of contamination.
	8					8-12' 24" c gravel, some brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	12						Composite sample collected from 12-12'6" interval at 11:40 am.
	13					*boring terminated @ 12'6"-refusal*	
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 06

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 4" item 4 crushed stone lower 44" mc brown sand and c gravel unsaturated	No PID hits. No visual or odor signs of contamination.
	2						
	3						
	4					4-8' 30" c gravel, some brown mc sand unsaturated	No PID hits. No visual or odor signs of contamination.
	5						
	6						
	7						
	8					8-12' 18" moist fine brown silt 14" mc brown sand, trace silt trace coarse gravel	No PID hits. No visual or odor signs of contamination.
	9						
	10						
	11						
	12						Composite sample collected from 8-12' interval.
	13					*boring terminated @ 12'-refusal*	
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 07

PROJECT NAME: Greer Toyota
PROJECT No.: #49799.24
CLIENT: Cindy Greer
WELL TYPE: NA
WELL LOCATION:
CITY/TOWN: Wappingers
COUNTY: Dutchess
STATE: N.Y.

Elevations: NA
Ground Surface Elevation:
Water Level Reference Point:
Water Level Reference Point Elevation:

Water Levels: NA
Date:
Depth to Water:

Starting Date: 8/1/2001
Stop Date: 8/1/2001
Method: Direct Push
Contractor: T. Syska
Driller: T. Syska
Rig: Geoprobe
Geologist: PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4'	
						upper 18" item 4 crushed stone	No PID hits.
						lower 12" c gravel, some c brown sand	No visual or odor signs of contamination.
	2					unsaturated	
	3						
	4					4-8'	
						upper 10" c brown sand and c gravel	No PID hits.
	5					lower 14" item 4 crushed stone	No visual or odor signs of contamination.
						unsaturated	
	6						
	7						
	8						
	9					8-12'	
						6" c-m brown sand	No PID hits.
	10					unsaturated	No visual or odor signs of contamination.
	11						
	12					12-14'4"	
						upper 18" c gravel some c brown sand	No PID hits.
	13					lower 12"m-c brown sand, m gravel	No visual or odor signs of contamination.
						unsaturated	
	14						Composite sample collected from 12-14'4"
						boring terminated @ 14'4"-refusal	at 12:30 pm.
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 08

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 6" blacktop and base material 16" item 4 crushed stone 4" c brown sand 10" item 4 crushed stone unsaturated	No PID hits. No visual or odor signs of contamination.
	5					4-8' upper 12" c gravel, some c brown sand 5" fill material, broken glass 6" c gravel lower 14" c brown silt unsaturated	No PID hits. No visual or odor signs of contamination.
	9					8-12' upper 6" c gravel and gray sand 24" c brown silt, some rust coloration lower 18" c brown sand, trace c gravel unsaturated	No PID hits. No visual or odor signs of contamination.
	13					12-14'6" 8" c brown silt 40" mc brown sand, some mc gravel unsaturated	No PID hits. No visual or odor signs of contamination. Composite sample collected from 12-14'6" at 1:30 pm.
	17					*boring terminated @ 14'6"-refusal*	

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 09

PROJECT NAME: Greer Toyota
PROJECT No.: #49799.24
CLIENT: Cindy Greer
WELL TYPE: NA
WELL LOCATION:
CITY/TOWN: Wappingers
COUNTY: Dutchess
STATE: N.Y.

Elevations: NA
Ground Surface Elevation:
Water Level Reference Point:
Water Level Reference Point Elevation:

Water Levels: NA
Date:
Depth to Water:

Starting Date: 8/1/2001
Stop Date: 8/1/2001
Method: Direct Push
Contractor: T. Syska
Driller: T. Syska
Rig: Geoprobe
Geologist: PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 6" blacktop and base material 24" c brown sand, some gravel lower 6" c gravel unsaturated	No PID hits. No visual or odor signs of contamination.
	4					4-8' upper 20" c gravel, trace gray sand 6" fine dark brown silt lower 6" fine brown silt unsaturated	No PID hits. No visual or odor signs of contamination.
	8					8-12' No sample.	
	12					12-13' upper 30" m brown sand, some brown silt lower 6" fine gray silt	PID hit of 23 ppm. Lower 6" smells of petroleum.
	13					*boring terminated @ 13'-refusal*	Composite sample collected from 12'6"-13' at 2:10 pm
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 10

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-2' upper 6" blacktop 18" item 4 crushed stone	
	2					*boring terminated @ 2'-refusal*	
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 11

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 6" blacktop and base material lower 30" c gravel and mc brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	2						
	3						
	4					4-8' 16" dark brown silt 12" trace brown silt lower 6" mc brown sand, trace c gravel unsaturated	No PID hits. No visual or odor signs of contamination.
	5						
	6						
	7						
	8					8-10'4" upper 6" light brown silt 28" c brown sand, some mc gravel 6" gray silt unsaturated	PID hit of 40 ppm. Definite odor from gray silt. Composite sample collected from 8-10'4" interval.
	9						
	10						
	11					*boring terminated @ 10'4"-refusal*	
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 12

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 24" c gravel and item 4 crushed stone lower 12" fine light brown silt unsaturated	No PID hits. No visual or odor signs of contamination.
	2						
	3						
	4					4-8' upper 9" fine light brown silt 30 " c gravel and c gray sand 3" weathered bedrock unsaturated	No PID hits. No visual or odor signs of contamination.
	5						
	6						
	7						
	8					8-9' 24" weathered shale unsaturated	No PID hits. No visual or odor signs of contamination.
	9						
	10					*boring terminated @ 9'-refusal*	Composite sample collected from 8-9' at 3:25 pm.
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 13

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' 6" blacktop and base material 34" c gravel, some mc brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	4					4-8' 6" c gravel, some dark brown silt 40" light brown silt unsaturated	No PID hits. No visual or odor signs of contamination.
	8					8-11'6" upper 15" light brown silt lower 15" weathered bedrock unsaturated	No PID hits. No visual or odor signs of contamination. Composite sample collected from 8-11' at 3:50 pm.
	12					*boring terminated @ 11'6"-refusal*	

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 14

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-2' 12" blacktop and item 4 crushed stone	
	2						
	3					*boring terminated @ 2'-refusal*	
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 15

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/1/2001 **Stop Date:** 8/1/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-1' 12" blacktop and item 4 crushed stone	
						boring terminated @ 1'-refusal	
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 16

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 4" blacktop 20" item 4 crushed stone, some c brown sand lower 12" fine silty sand with brown roots unsaturated	No PID hits. No visual or odor signs of contamination.
	4					4-8' upper 6" fine brown silty sand 6" c gravel and c gray-brown sand 18" fine brown silty sand lower 18" weathered shale unsaturated	No PID hits. No visual or odor signs of contamination.
	8					8-9'2" 14" weathered shale unsaturated	No PID hits. No visual or odor signs of contamination.
	10					*boring terminated @ 9'2"-refusal*	Composite sample collected from 4-8' at 8:30 am.

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 17

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 6" blacktop and base material lower 22" c gravel (fill), and trace mc brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	4					4-8' lower 20" fine brown silt unsaturated	No PID hits. No visual or odor signs of contamination.
	8					8-9'7" 16" fine brown silt 4" weathered bedrock unsaturated	No PID hits. No visual or odor signs of caontamination.
	10					*boring terminated @ 9'7"-refusal*	Composite sample collected from 8-9' at 8:50 am.

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 18

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' 36" c gravel and c brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	2						
	3						
	4					4-8' upper 6" c gravel 14" slightly moist gray-brown sand 8" slightly moist brown clay lower 8" fine brown silt	No PID hits. No visual or odor signs of contamination.
	5						
	6						
	7						
	8					8-10'7" upper 12" c gray sand 12" silty brown sand lower 12" brown silty sand unsaturated	PID hit of 23 ppm. Petroleum odor. Composite sample collected from 8-10'7" at 9:15 am.
	9						
	10						
	11					*boring terminated @ 10'7"-refusal*	
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 19

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' 8" item 4 crushed stone 30" c gravel and some mc gray sand unsaturated	PID hit of 5 ppm. No visual or odor signs of contamination.
	4					4-8' upper 18" c gravel and some gray sand 18" slightly moist brown silt lower 12" highly weathered, crushed shale unsaturated	No PID hits. No visual or odor signs of contamination.
	8					8-12' 48" highly weathered shale unsaturated	PID hit of 50 ppm. Slight petroleum odor.
	12					*boring terminated @ 12'-refusal*	Composite sample collected from both the 4-8' and 8-12' intervals.
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 20

PROJECT NAME: Greer Toyota
PROJECT No.: #49799.24
CLIENT: Cindy Greer
WELL TYPE: NA
WELL LOCATION:
CITY/TOWN: Wappingers
COUNTY: Dutchess
STATE: N.Y.

Elevations: NA
Ground Surface Elevation:
Water Level Reference Point:
Water Level Reference Point Elevation:

Water Levels: NA
Date:
Depth to Water:

Starting Date: 8/2/2001
Stop Date: 8/2/2001
Method: Direct Push
Contractor: T. Syska
Driller: T. Syska
Rig: Geoprobe
Geologist: PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' 30" c gravel (backfill) and item 4 crushed stone unsaturated	No PID hits. No visual or odor signs of contamination.
	4					4-8' 6" mc gray sand 16" dark brown clay with roots 6" taupe colored clay 2" rock fragments lower 18" brown silt, trace m gravel unsaturated	PID hit of 1.9 ppm. No visual or odor signs of contamination.
	8					8-10'6" 6" dark clay 42" brown silt (lower 6" had strong odor)	PID hit of 57 ppm for lower 6". PID hit of 3 ppm for upper segment. Strong petroleum odor in lower 6". Composite sample collected at 10:20 am.
	11					*boring terminated @ 10'6"-refusal*	
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 21

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
						0-4'	
	1					24" c gravel, gray-brown mc sand	No PID hits.
						unsaturated	No visual or odor signs of contamination.
	2						
	3						
	4					4-8'	
						6" taupe colored clay	No PID hits.
	5					4" crushed rock	No visual or odor signs of contamination.
						36" light brown silt	
	6					unsaturated	
	7						
	8					8-10'7"	
						upper 6" light brown silt	PID hit of 45 ppm in lower 8" segment.
	9					10" gray sand	
						12" c gray sand and weathered bedrock	
	10					8" weathered bedrock and shale	Composite sample collected at 11:00 am.
						lower 8" weathered shale	
	11					*boring terminated @ 10'7"-refusal*	
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 22

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 35" c gravel and c brown sand lower 5" dark brown clay unsaturated	No PID hits. No visual or odor signs of contamination.
	2						
	3						
	4					4-6'1" upper 8" dark brown clay lower 16" highly weathered bedrock unsaturated	No PID hits. No visual or odor signs of contamination.
	5						
	6						
	7					*boring terminated @ 6'1"-refusal*	Composite sample collected at 11:25 am.
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 23

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 4" blacktop 2" fill (wood fragments) 30" c gravel and some c gray sand unsaturated	PID hit of 1 ppm. No visual or odor signs of contamination.
	2						
	3						
	4					4-8' 24" c gravel unsaturated	No PID hits. No visual or odor signs of contamination.
	5						
	6						
	7						
	8					8-12' 6" c gravel 18" c brown sand unsaturated	PID hit of 0.2 ppm. No visual or odor signs of contamination
	9						
	10						
	11						
	12					12-13'6" upper 6" tan clay lower 12" red-brown c sand unsaturated	No PID hits. No visual or odor signs of contamination.
	13						
	14					*boring terminated @ 13'6"-refusal*	
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 24

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' c gravel and c brown sand unsaturated	No PID hits No visual or odor signs of contamination. No recovery could be measured: sample slide out of tube.
	2						
	3						
	4					4-8' upper 8" c gravel and crushed stone lower 16" c brown sand and c gravel unsaturated	No PID hits. No visual or odor signs of contamination.
	5						
	6						
	7						
	8					8-12' upper 8" c gravel and mc grey sand 20" light brown silt lower 8" dark brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	9						
	10						
	11						
	12					12-13'6" 14" c brown sand	
	13						
	14					*boring terminated @ 13'6"-refusal*	Composite sample collected at 1:10 pm.
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 25

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' 36" c gravel and c brown-gray sand unsaturated	No PID hits. No visual or odor signs of contamination.
	4					4-8' upper 6" c gravel and light gray sand 24" c brown sand lower 6" brown clay unsaturated	No PID hits. No visual or odor signs of contamination.
	8					8-12' 6" c gravel and m gray sand 36" c brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	12					*boring terminated @ 12'-refusal*	Composite sample collected from 8-12' interval at 2:40 pm.

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 26

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
	1					0-4' upper 4" blacktop 36" c gravel and light brown c sand 4" brown sand and c gravel unsaturated	No PID hits. No visual or odor signs of contamination.
	5					4-8' 48" c brown sand with wood fragments unsaturated	No PID hits. No visual or odor signs of contamination.
	9					8-12' 8" c brown sand and some c gravel 10" brown silty clay 18" c dark brown sand unsaturated	No PID hits. No visual or odor signs of contamination.
	13					12-14'7" 12" c gravel and some brown sand 8" highly weathered bedrock unsaturated	PID not working due to heat. Petroleum odor from interval. Composite sample collected from 12-14'7" interval at 2:10 pm.
	15					*boring terminated @ 14'7"-refusal*	
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 27

PROJECT NAME: Greer Toyota **PROJECT No.:** #49799.24 **CLIENT:** Cindy Greer **WELL TYPE:** NA **WELL LOCATION:** **CITY/TOWN:** Wappingers **COUNTY:** Dutchess **STATE:** N.Y.	**Elevations:** NA Ground Surface Elevation: Water Level Reference Point: Water Level Reference Point Elevation: **Water Levels:** NA Date: Depth to Water:	**Starting Date:** 8/2/2001 **Stop Date:** 8/2/2001 **Method:** Direct Push **Contractor:** T. Syska **Driller:** T. Syska **Rig:** Geoprobe **Geologist:** PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
						0-4'	
	1					36" c brown sand and c gravel	PID not working due to heat.
							No visual or odor signs of contamination.
	2						
	3						
	4					4-8'	
						30" mc gray-brown sand	PID not working due to heat.
	5					4" crushed rock	No visual or odor signs of contamination.
	6						
	7						
	8					8-12'	
						24" light brown silt	PID not working due to heat.
	9					16" highly weathered bedrock	Petroleum odor from upper segment.
	10						
	11						
	12					12-14'7"	
						28" weathered bedrock	PID not working due to heat.
	13					unsaturated	Moderate petroleum odor.
	14						Composite sample collected from 12-14'7" interval at 2:40 pm.
	15					*boring terminated @ 14'7"-refusal*	
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

The Chazen Companies

Boring NO. 28

PROJECT NAME: Greer Toyota
PROJECT No.: #49799.24
CLIENT: Cindy Greer
WELL TYPE: NA
WELL LOCATION:
CITY/TOWN: Wappingers
COUNTY: Dutchess
STATE: N.Y.

Elevations: NA
Ground Surface Elevation:
Water Level Reference Point:
Water Level Reference Point Elevation:

Water Levels: NA
Date:
Depth to Water:

Starting Date: 8/2/2001
Stop Date: 8/2/2001
Method: Direct Push
Contractor: T. Syska
Driller: T. Syska
Rig: Geoprobe
Geologist: PK

Boring Log	Depth (Depths in Feet)	Sample #	Blow Counts	Recovery (Depths in Inches)	Unified	Stratum and Field Descriptions:	Field Notes, Comments, PID Readings
						0-4'	
	1					36" c gray-brown sand and c gravel	PID not working due to heat. No visual or odor signs of contamination.
	2						
	3						
	4					4-8'	
	5					24" mc gray-brown sand 4" crushed rock unsaturated	PID not working due to heat. No visual or odor signs of contamination.
	6						
	7						
	8					8-12'	
	9					26" highly weathered bedrock	PID not working due to heat. No visual or odor signs of contamination.
	10						
	11						
	12						
	13					*boring terminated @ 12'-refusal*	
	14						
	15						
	16						
	17						
	18						
	19						
	20						

NOTES:

Drilling Information:

	Casting	Sample	Tube	Core
Type:				
Diam.:				
Weight:				
Fall:				

Section B:
Mechanical Equipment Information

Section C:
Electrical Schematics

Electrical schematics have not been created for the Greer Toyota SVE system. The system is simple and does not incorporate a control panel. The system is activated by an off-the-shelf on/off switch. The identification of this switch has been included on the "Spare Parts List".

Section D:
Standard Operating Procedures

The Chazen Companies, Standard Operating Procedure **SOP Number: Greer-001**

Subject: Operation of the Remediation System at Greer Toyota **Date: March 10, 2004**

Objective

To explain the start-up, operation, and shutdown of the remediation system used to treat contaminated soil at the Greer Toyota Facility located in the Town of Wappinger, New York. Maintenance and sampling procedures are covered in the Greer Toyota Operations and Maintenance Manual.

Applicability

This procedure applies to all Chazen personnel designated to operate this equipment.

Definitions

Remediation System – Fixed equipment that removes soil contaminants.

Supporting Documents

Greer Toyota Operations and Maintenance Manual, Site #3-14-088.

Equipment and Materials

Remediation System – Soil Vapor Extraction

Training

Employees must have a general understanding of the remediation system before operating. Operators familiar with the system will provide employee instruction.

Environment, Health and Safety

Personnel protective equipment is not required during normal operation of the remediation system. Chemicals are not used in the remediation process. The remediation system does not create any wastes that require offsite disposal.

Process

Step	Action
1.	System Startup: *The SVE system is composed of one blower and the associated piping.* Before starting the blower, assure that the airflow control valves on Lines B, C, and D connected to the blower are in the open position. The SVE pipes are on the rear wall of the Remediation Shed. The airflow control valves have yellow handles.

Step	Action
2.	Start the SVE Blower unit by moving the on/off switch, located on the east wall of the Remediation Shed, to the "on" position.
3.	SVE system is now self-operating.
4.	System Shutdown: Shutdown SVE Blower unit by moving the on/off switch, located on the east wall of the Remediation Shed, to the "off" button. End.

The Chazen Companies, Standard Operating Procedure **SOP Number: Greer-002**

Subject: Airflow Test of the Soil Vapor Extraction System at Greer Toyota **Date: March 10, 2004**

Objective

To explain the step-by-step procedure for conducting an airflow velocity test of ducts or pipes associated with the Soil Vapor Extraction (SVE) System at Greer Toyota. An airflow test measures the velocity of air in a duct or pipe and is useful in monitoring system performance and identifying maintenance problems.

Applicability

This procedure applies to all Chazen personnel designated to maintain the SVE System.

Definitions

Soil Vapor Extraction System – Fixed equipment that removes vapor-phase soil contaminants.

Supporting Documents

Greer Toyota Operations and Maintenance Manual, Site # 3-14-088
Standard Operating Procedure Number: Greer-001, Operation of the Groundwater Remediation System at the Greer Toyota Facility

Equipment and Materials

Manometer, if less than 3 inches of water
If more than 3 inches of water:

a. Jar of tinted water, minimum of 24 ounces
b. Ten feet of transparent tubing
c. Tape measure
d. Air Velocity Calculator: converts velocity pressure from inches of water to cubic feet per minute

Training

None.

Environment, Health and Safety

None.

Process

Step	Action
	The SVE system is composed of one blower and the associated piping.
	The blower is connected to three zones: Zone B, Zone C, and Zone D. Each zone is labeled accordingly.

Step	Action
1.	Start Blower: If blower is not already operating, start blower. If blower is operating, skip to Step 3. Before starting the blower, assure that the airflow control valves connected to the blower are in the open position. The SVE pipes are on the rear wall of the Primary Remediation Shed. The airflow control valves have yellow handles.
2.	Start the blower unit(s) by moving the on/off switch, located on the east wall of the Remediation Shed, to the "on" position.
3.	Measure Individual Line Pressures of SVE System for each Zone (B, C, and D): In order to measure the pressure of a line with multiple zones, isolate the zone by shutting off the other zones. Turning the yellow airflow control handle perpendicular to the pipe will disconnect the zone. Insert one end of the transparent tubing into the access port and the other end of the tubing into the jar of tinted water. The tinted water should migrate upwards from the jar. Measure (in inches) the height in the tubing above ground surface that the tinted water reaches. The height of the water column is the line pressure, expressed in inches of water. If desired, convert height of water column from inches of water to cubic feet per minute using the Air Velocity Calculator. If the result is less than 3 inches of water, the manometer may be used to collect a measurement. *The individual line pressures as well as the total pressure of each zone should be measured in-line before the blower associated with the line.* End.

Section E:
Health and Safety Plan

Site Specific Health & Safety Plan

Greer Site # 3-14-088
Route 9 and Old Hopewell Road
Wappingers Falls, New York

"March 2003"

THE
Chazen
COMPANIES

Prepared by:

The Dutchess County Office:
The Chazen Companies
21 Fox Street
Poughkeepsie, NY 12601

SITE SPECIFIC HEALTH AND SAFETY PLAN

Plan Preparation Date: 3/09/03

Project Name: Greer Toyota

Site Location: Route 9 & Old Hopewell Road, Wappingers Falls, New York

Site Description: The Greer Toyota site is located on Route 9 in Wappingers Falls, Dutchess County, New York. The site is situated at the intersection of Route 9 and Old Hopewell Road. The Greer business sold new and used automobiles and operated a repair shop. During Greer's operation, there were two main buildings on-site: the main showroom/car repair facility and the used car showroom. The current site configuration generally does not vary from its previous configuration but there have been minor upgrades to the building. The property is bounded by commercial facilities to the north, a State highway (Route 9) to the east, a former gasoline station on the east side of Route 9, an unnamed tributary of the Wappingers Creek to the north and west, and commercial and residential properties to the south and southwest.

The site is currently on the Registry of Hazardous Waste Sites (Site No. 3-14-088). Chlorinated solvents were detected in wells adjacent to the Greer Toyota site in 1992. More recent investigations identified oil and gasoline range hydrocarbons in soils and groundwater. Interim Remedial Measures (IRM) were implemented to remove two abandoned waste oil tanks at the facility. The soils surrounding the tanks were impacted with petroleum hydrocarbons and tetrachloroethylene (PCE). The impacted soils were excavated to the extent physically possible. Analytical data indicate that the bulk of the problem has been removed but elevated levels of petroleum hydrocarbons remain in an obviously stained area that could not be excavated. Water samples collected from each of the excavations also contained petroleum hydrocarbons above groundwater standards. Furthermore, water chemistry has revealed petroleum hydrocarbons and Methyl-Tertiary Butyl Ether (MTBE) in several upgradient wells, indicating an off-site source for these compounds. Chlorinated compounds were detected in downgradient wells. The findings are documented in detail in the 2001 RIFS report previously submitted to the NYSDEC.

Project Description: As part of the 2001 RIFS report, a soil vapor extraction (SVE) system was recommended to address impacts to the ground in areas where soils could not be removed. The system has been installed and the

design and operation of the remediation system is described in the Greer Toyota Operations and Maintenance Manual.

Primary Hazards: The site contaminants are petroleum hydrocarbons including ethylbenzene, toluene, and xylene, chlorinated solvents including perchloroethene, vinyl chloride, 1,1-dichlororehtane, 1,1-dichlorethene, 1,1,1-trichloroethene, bis (2-ethylhexyl) phthalate, and MTBE. These compounds had impacted soils and have been found in groundwater.

EMERGENCY SERVICES:

Hospital: **Vassar Brothers Medical Center** **45 Reade Place** **Poughkeepsie, New York**	845-454-8500
Ambulance:	911
Fire Department:	911
Police Department:	911
Poison Control Center:	1-800-336-6997
National Response Center	1-800-424-8802
NYSDEC Oil & Chemical Spills *24-hour Hotline*	1-800-457-7362

Hospital Directions: Directions to Vassar Brothers Medical Center follow. A map to the hospital is provided as Attachment A.

- From site (Route 9 and Old Hopewell Road in Wappingers Falls, New York), go Northeast on NY-9D toward Marlorville Road (0.55 miles).
- Turn right onto CR-93/Middlebush Road. Continue to follow CR-93. (0.80 miles).
- Turn left onto US-9 North (7.76 miles).
- Take the Columbia Street exit toward Rinaldi Blvd. (0.10 miles).
- Turn right onto Columbia Street (0.09 miles).
- Turn right onto Young Street (0.11 miles).
- Turn right onto Reade Place (0.00 miles).

Attachment A:

Map from Greer Toyota to Vassar Brothers Medical Center

Attachment B:

Lockout/Tagout Program

1.0 Introduction

The purpose of this Site-Specific Health and Safety Plan (HASP) is to provide specific guidelines and establish procedures for the protection of personnel performing the scope of activities, as described in Section 2.3. The plan includes preliminary evaluation of site characteristics prior to site entrance; establishment of an emergency chain of command; the use of basic safety equipment, personal protective equipment and air monitoring devices, equipment decontamination, and an employee medical surveillance program. This HASP must be reviewed by all personnel prior to entering the work area. This HASP shall inform on-site personnel of any potential fire, explosion, health, or safety hazards as a result of the project tasks/operations, as well as the emergency response procedures.

This HASP has been developed for *Chazen* personnel. All contractors must develop their own HASP, applicable to their work activities.

2.0 Site and Project Description

2.1 Site Location

The site is located on Route 9 and Old Hopewell Road, Wappingers Falls, New York.

2.2 Site Description

The Greer Toyota site is located on Route 9 in Wappingers Falls, Dutchess County, New York. The site is situated at the intersection of Route 9 and Old Hopewell Road. The Greer business sold new and used automobiles and operated a repair shop. During Greer's operation, there were two main buildings on-site: the main showroom/car repair facility and the used car showroom. The current site configuration generally does not vary from its previous configuration but there have been minor upgrades to the building. The property is bounded by commercial facilities to the north, a State highway (Route 9) to the east, a former gasoline station on the east side of Route 9, an unnamed tributary of the Wappingers Creek to the north and west, and commercial and residential properties to the south and southwest.

The site is currently on the Registry of Hazardous Waste Sites (Site No. 3-14-088). Chlorinated solvents were detected in wells adjacent to the Greer Toyota site in 1992. More recent investigations identified oil and

gasoline range hydrocarbons in soils and groundwater. Interim Remedial Measures (IRM) were implemented to remove two abandoned waste oil tanks at the facility. The soils surrounding the tanks were impacted with petroleum hydrocarbons and PCE. The impacted soils were excavated to the extent physically possible. Analytical data indicate that the bulk of the problem has been removed but elevated levels of petroleum hydrocarbons remain in an obviously stained area that could not be excavated. Water samples collected from each of the excavations also contained petroleum hydrocarbons above groundwater standards. Furthermore, water chemistry has revealed petroleum hydrocarbons and MTBE in several upgradient wells, indicating an off-site source for these compounds. Chlorinated compounds were detected in downgradient wells. The findings are documented in detail in the RIFS report previously submitted to the NYSDEC.

2.3 Scope of Work

This investigation will consist of operating and maintaining the mechanical soil vapor extraction (SVE) systems installed at the Greer Toyota site.

3.0 Project Personnel Responsibilities

3.1 Project Manager

The Project Manager (PM) shall be responsible for the overall implementation of the HASP, and for ensuring that all health and safety responsibilities are carried out in conjunction with this project. This shall include, but is not limited to, review and approval of the HASP, ensuring that personnel assigned to the project meet necessary medical and training requirements, communication of site requirements to Subcontractor personnel, consultation with the Client/Owner regarding appropriate changes to the HASP, and relating any changes to the site personnel. The PM will act in a supervisory capacity over all employees and activities with respect to the site. The PM also has the authority to direct response operations and assumes total control over all site activities. The Project Manager, Mr. Charles P. Alongi, can be reached at The *Chazen* Companies Poughkeepsie Office, (845) 454-3980.

3.2 Field Operations Leader

The Field Operations Leader (FOL) supervises the daily site operations and shall act as the On-Site Safety Officer. The FOL will interface with the site Health and Safety Officer (HSO), subcontractors, and other site

workers. The Field Operations Leader will notify the Health and Safety Officer of any significant changes to on-site operations, conditions, or any issues that may change the scope/details of the HASP, as well as any unsafe conditions, injuries, or other issues that may require work stoppage. The designated Field Operations Leader is Mr. Daniel Michaud and may be reached at The Chazen Companies Poughkeepsie Office, (845) 454-3980.

3.3 Work Party

Personnel in the work party safely complete the on-site tasks required to fulfill the work plan. Personnel in the work party will comply with the site safety plan, and ensure that the Field Operations Leader will be notified of any unsafe conditions or injuries. All personnel in the work party will have the required training.

3.4 Decontamination Officer

The Decontamination Officer is responsible for decontamination procedures involving equipment, supplies, and Personal Protective Equipment. The Decontamination Officer will be assigned on-site, as needed, prior to commencement of work.

3.5 Health and Safety Officer

The Health and Safety Officer (HSO) is responsible for developing and implementing the site-specific Health and Safety Plan, and for providing any health and safety technical assistance and guidance to the PM and on-site personnel. Any significant changes in site operations, condition, or other issues that may require alterations to the HASP, shall be discussed and approved by the HSO. The HSO, with the assistance of the Field Operations Leader, will investigate any accidents, illness and incidents that occur on-site and have the authority to stop site operations if he or she determines that an imminent health or safety hazard or other potentially dangerous situation exists. The HSO will immediately attempt to notify the Project Manager of any stop work orders. The designated Health and Safety Officer is Ms. Kimberly Cuppett and may be reached at The Chazen Companies Poughkeepsie Office, (845) 454-3980.

4.0 Personnel Training Requirements

All personnel conducting activities on-site for which potential exposure exists must be in compliance with all applicable Federal/State rules and

regulations, including OSHA 29 CFR 1910.120, and OSHA 29 CFR 1926. *Chazen* personnel shall have completed 40 hours of OSHA training and be current with their 8 hour refreshers in accordance with 29 CFR 1910.120. On–site personnel must also be familiar with the procedures and requirement of this HASP. In the event of conflicting safety procedures/requirements, personnel must implement those safety practices that afford the highest level of protection.

The objectives of the training program are: that workers are aware of the potential hazards they may encounter; to provide the knowledge and skills necessary to perform the work with minimal risk to workers health and safety; to make workers aware of the purpose and limitations of safety equipment; and to ensure that workers can safely avoid or escape from emergencies.

All employees and contractors engaged in site field work must sign an acknowledgement form to indicate that they have read this HASP, understand the content of this HASP, and agree to abide by the precautionary measures stated in this HASP. The Project Manager, Field Operations Leader, and Health and Safety Officer shall also sign-off on this HASP to verify that the content is factual.

5.0 Site Standard Operating Safety Procedures

Standard operating safety procedures include safety precautions and operating practices that all *Chazen* personnel will follow. These include:

5.1 Personal Precautions

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the hand-to-mouth transfer and ingestion of material is prohibited in any area designated contaminated.

- Hands and face must be thoroughly washed as soon as possible after leaving the work area.

- Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

- No facial hair, which interferes with satisfactory fit of the mask-to-face seal, is allowed on personnel required to wear respirators.

Personnel will use the negative and positive pressure fit test prior to each use of the respirator.

- Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit, or place equipment on drums, containers or the ground.

- Medicine and alcohol can potentiate the effects from exposure on toxic chemicals. Prescribed drugs should not be taken by personnel on response operations where the potential absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverages should be avoided during response operations.

5.2 Operations

- All personnel going on-site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.

- Any required respiratory protection and chemical protective clothing must be worn by all personnel going into areas designated for wearing protective equipment.

- Personnel on-site must use the buddy system when wearing respiratory protection. As a minimum, two other persons, suitably equipped, are required as safety backup during initial entry.

- Visual contact must be maintained between pairs on-site and safety personnel. Entry team members should remain together to assist each other during emergencies.

- During continual operations, on-site workers act as safety backup to each other. Off-site personnel provide emergency assistance.

- Personnel should practice unfamiliar operations prior to doing the actual procedure.

- Entrance and exit locations must be designated and emergency escape routes delineated. Warning signals for site evacuations must be established.

- Communications using radios, hand signals, signs, or other means must be maintained between initial entry members at all times. Emergency communications should be prearranged in case of radio failure, necessity for evacuation of sit, or other reasons.

- Personnel and equipment in the contaminated area should be minimized, consistent with effective site operations.

- Work areas for various operational activities must be established.

- Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established based on expected site conditions.

6.0 Chemicals of Concern

Exposure to hazardous chemicals at a concentration of concern is not foreseen during the operation and maintenance of the mechanical remediation system.

7.0 Personal Protective Equipment

All personnel will be provided with appropriate personal safety equipment and protective clothing. Each individual will be properly trained in the use of this safety equipment before the start of field activities. Safety equipment and protective clothing shall be used as directed by the Site Health and Safety Officer. All such equipment and clothing will be cleaned and maintained in proper condition by the personnel. The Site Health and Safety Officer will monitor the maintenance of personnel protective equipment to ensure proper procedures are followed.

Modified Level D is the minimum accepted level of protection for this site. Modified Level D provides minimal dermal protection. Respiratory protection is optional unless air-monitoring data indicated otherwise. Modified Level D includes:

- Shirt and long pants
- Tyvek suits (optional)
- Nitrile, PVC, or vitron gloves (when water contact)

If circumstances warrant upgrading to Level C (such as exposure to airborne water mists or droplets from a stagnant water source), the following is required:

- Full-face, air purifying respirator with chemical cartridge filters as designated by the Health and Safety Officer
- Chemical resistant coveralls
- Gloves (outer), chemical resistant
- Gloves (inner), chemical resistant
- Boots (inner), leather work shoe with steel toe and shank.
- Boots (outer), chemical resistant
- Hard Hat (during drilling and when overhead fall or bump hazard exist)
- Taping between suit and gloves, and suit and boots

8.0 Confined Space Entry

There are no confined spaces that are associated with the remediation system at this site.

9.0 Lockout and Tagout of Energy

When repairs to the SVE system are needed, steps to de-energize equipment will be employed. Lock out and tagout helps to safeguard *Chazen* employees from the unexpected startup of equipment or release of hazardous energy. When equipment maintenance is performed, where there is the potential for the unexpected startup of the air extraction machine, the equipment must be turned off and disconnected from the energy source and the energy-isolating device must be locked and tagged out.

The Chazen Companies Lockout/Tagout Program will be followed during all maintenance activities that require de-energizing a mechanical, hydraulic, pneumatic, chemical, thermal, or other energy source. The Lockout/Tagout Program is provided as Attachment B.

10.0 Site Air Monitoring

Monitoring of the air is not a necessary step to operate or maintain the Greer Toyota SVE system. No confined spaces are associated with this remedial system.

11.0 Site Activities and Associated Personal Protective Equipment

The levels of protection assigned to each activity represent a best estimate of exposure potential and protective equipment needed for that exposure. The Site Safety Officer will revise those levels of protection, up or down, based on air monitoring results and on-site assessment of actual exposures.

Note: The Site Safety Officer may make changes to the levels of protection required based on the identification of known substances and any required changes to the scope of work.

12.0 Contingency Plan

The On-Site Safety Officer is responsible for implementing the Contingency Plan whenever there is either a threat to human health or an environmental hazard. Possible such situations include actual or imminent fires, explosions or spills.

12.1 Assessment

The On-Site Safety Officer is responsible for ascertaining any possible health or environmental hazards and determining the need for evacuation and notification to the proper authorities.

12.2 Control Procedure

The employee discovering a fire, explosion, spill or other emergency situation is responsible for notifying the Field Operations Leader. The Field Operations Leader will assess the situation to determine if field personnel can adequately handle the situation or if additional assistance is needed.

Before any employee attempts to extinguish a fire, clean-up and contain a spill, or take any other action, he or she must be aware of the properties of the material involved and its associated hazards. All employees are familiarized with this information during their training period and are instructed on the proper protective clothing to be worn in such a situation.

12.3 Fire and/or Explosion

The most serious emergency situation that could be faced at the site would be a chemical release or major fire. In the event of a fire or

explosion, the site should be evacuated, appropriate emergency numbers called, and the Field Operations Leader should be notified as described in the preceding section.

12.4 Spill and/or Material Release

Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, or Superfund) requires that the National Response Center be promptly notified of any release in excess of the reportable quantity of a listed hazardous material. It should be noted that spills meeting reportable criteria are not anticipated, as site contaminants are bound in groundwater and soils and have been found, through site investigations, to be present at low concentrations.

If the spill is small and poses no danger to clean-up personnel, the spill may be promptly cleaned. The first step is to determine the source of the spill and correct it, which would normally involve patching a leaking drum, closing a valve or turning off a pump. In the event of a small spill, absorbent granules or sorbent pads will be utilized to soak up the spilled material. Absorbent materials are kept in designated storage locations in the facility. The granules would then be swept up and containerized in Department of Transportation approved drums.

If the spill is large or poses danger to clean-up personnel, contact the fire company.

Regardless of the size of the spill, immediately notify the Health and Safety Officer and Project Manager. If needed, the Health and Safety Officer or Project Manager will notify the National Response Center, the NYSDEC Oil & Chemical Spills and/or will make arrangements for waste disposal.

12.5 Post-Emergency Equipment Maintenance

After an emergency situation, any emergency equipment that was used will be decontaminated or replaced.

Equipment needed for decontamination would be: sorbent (such as Speedi-Dry), broom, shovel, rags, detergent, degreaser, water, rinse basin, protective clothing, containers for disposal.

Decontamination of equipment involves these steps:

- Wash thoroughly with detergent and, if necessary, degrease.
- Rinse with water.
- Collect all detergent, degreaser, and rinse water. Drum all contaminated disposables, such as sorbents and protective clothing.
- Before operations are resumed, state, local and regional administrators must be notified that clean-up and decontamination activities were performed and that operations will resume.

13.0 Miscellaneous Health and Safety Items

13.1 Heat Stress

Heat stress may occur even in moderate temperature areas and may present any or all of the following:

Heat Rash: Result of continuous exposure to hot humid air and chafing clothes. Heat rash is uncomfortable and decreases the ability to tolerate heat.
Heat Cramps: Result of the inadequate replacement of body electrolytes lost through perspiration. Sign include severe spasms and pain in the extremities and abdomen.
Heat Exhaustion: Result of the increase stress on the vital organs of the body in the effort to meet the body's cooling demands. Signs include shallow breathing, pale, cool, moist skin, profuse seating, dizziness and listlessness.
Heat Stroke: Result of overworked cooling system. Heat stroke is the most serious form of heat stress. Body surfaces must be cooled and medical help must be obtained immediately to prevent severe injury and/or death. Sign include red, hot, dry skin, absence of perspiration, nausea, dizziness, confusion, strong rapid pulse, coma and death.

The following any or a combination of the following actions can be taken to prevent heat stress:

- Replace body fluids (water and electrolytes) lost through perspiration. Solutions may include a 0.1 % salt and water solution or commercial mixes such as Gatorade and Squench. A

fluid/electrolyte replacement will be used as necessary to minimize fluid loss. This liquid supplement will be stored in a cooler at the edge of the decontamination zone. Disposable cups or squeeze bottles may be used to dispense the liquid.

- Provide cooling devices to aid in the natural body ventilation. Cooling occurs through evaporation of perspiration and limited body contact with heat absorbing protective clothing. Fans and air conditioners can assist in evaporation.
- Provide hose-down mobile shower facilities, where feasible, to cool protective clothing and reduce body temperature.
- Conduct activities early in the morning or evening during very hot weather.
- Provide shelter against heat and direct sunlight to protect personnel.
- Rotate workers utilizing protective clothing during hot weather.

13.2 Cold Stress

Cold stress may present:

Hypothermia: Symptoms of hypothermia include shivering, slurred speech, disorientation and loss of coordination. Advance stages of hypothermia include feelings of warmth and reckless behavior.
Frostbite: Symptoms of frostbite include cold feelings, red color to skin, tingling, swelling and pain. In advanced stages of frostbite, the skin will appear white in color.

To avoid cold stress take the following actions:

- Provide a shelter area where warmth is available.
- Wear thermal clothing applied in layers.
- Remain active in order to maintain blood circulation throughout the body.
- Maintain warm/hot drinks in the support zone.

13.3 Equipment and Materials Decontamination Facility

To prevent the transfer of contamination to vehicles, administrative areas and personnel, the following procedures should be followed.

- Whenever possible, monitoring equipment should be decontaminated with a solution of *Alconox* and thoroughly rinsed with water prior to leaving the site. This must be done outside a fifteen foot radius equipment onsite. Whenever it is not possible to

decontaminate field equipment onsite, each piece of equipment should be sealed in a bag and transported back to the *Chazen* office for decontamination.

- Disposable PPE (such as tyvek suits) should be bagged and disposed of at the site. Non-disposable PPE (such as respirator and outer gloves) should be individually bagged, transported back to the Chazen office and properly decontaminated with a solution of *Alconox.*

13.4 Communications

To be addressed prior to commencement of site work.

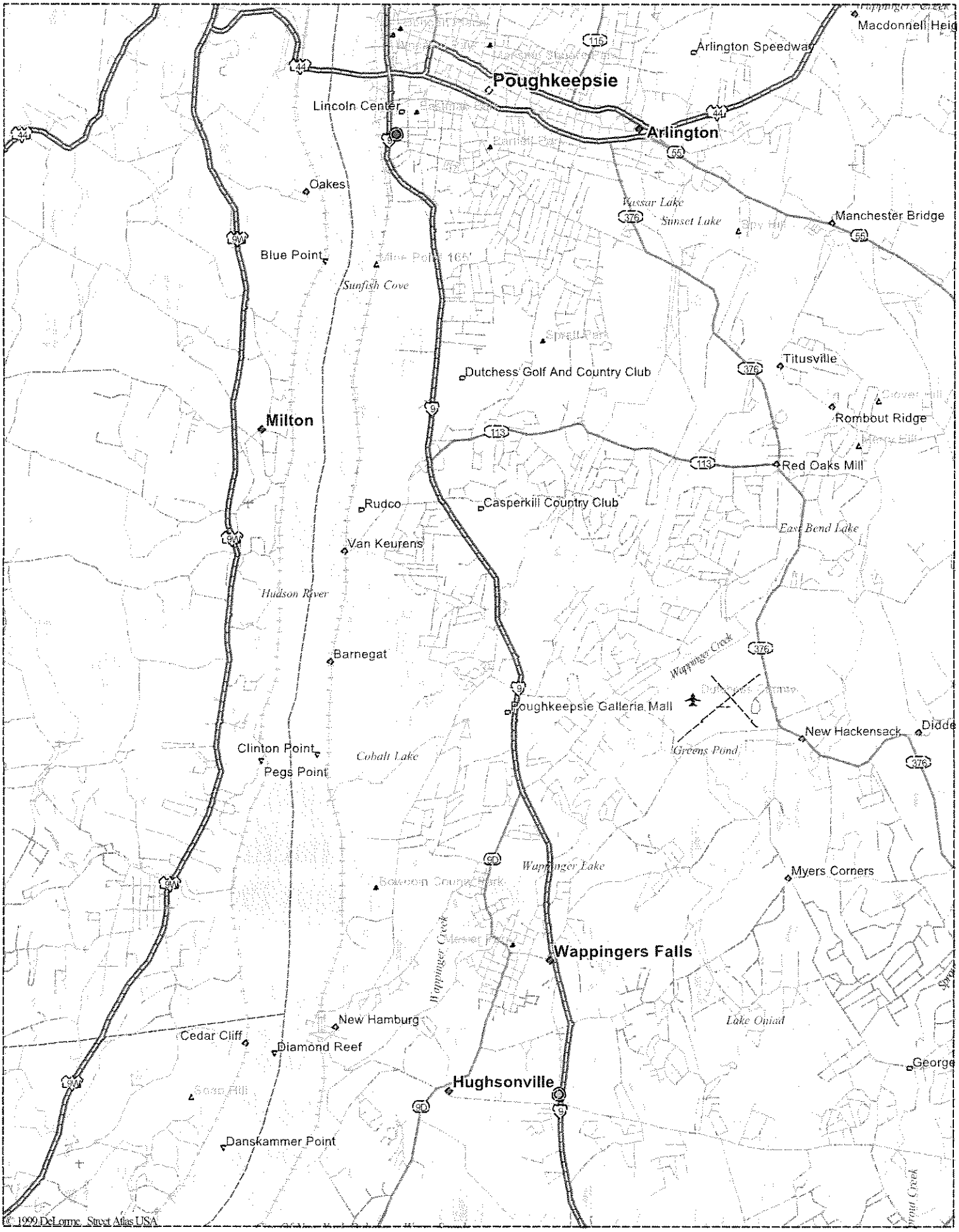
13.5 Security

To be addressed prior to commencement of site work.

14.0 Safety Meetings

The Field Operations Leader and/or the Health and Safety Officer will conduct safety meetings, which will be mandatory for all project personnel. The meetings will provide refresher courses for existing equipment and protocols, and will examine new site conditions as they are encountered.

Attachment A
Hospital Map


Poughkeepsie
Arlington
Arlington Speedway
Macdonnell Heig
Lincoln Center
Oakes
Blue Point
Sunfish Cove
Passar Lake
Sunset Lake
Manchester Bridge
Titusville
Dutchess Golf And Country Club
Milton
Rombout Ridge
Red Oaks Mill
Rudco
Casperkill Country Club
Van Keurens
East Bend Lake
Hudson River
Barnegat
Wappinger Creek
Poughkeepsie Galleria Mall
New Hackensack
Clinton Point
Pegs Point
Cobalt Lake
Greens Pond
Myers Corners
Wappinger Lake
Wappingers Falls
New Hamburg
Cedar Cliff
Diamond Reef
Lake Oniad
Hughsonville
Danskammer Point
© 1999 DeLorme, Street Atlas USA

Attachment B
Lockout/Tagout Program

Greer Toyota
Route 9 and Old Hopewell Road
Wappingers Falls, New York

Health and Safety Plan Acknowledgement

All Chazen project personnel and subcontractor personnel are required to sign the following agreement prior to conducting work:

(1) I/We have read and fully understood the requirements of this Site Specific Health and Safety Plan (HASP) and my/our individual responsibilities in accordance with compliance of this HASP.

(2) I/We agree to abide by the provisions of the HASP.

Name and Company	Signature	Date

Section F:
Emergency Contingency Plan

Emergency Contingency Plan

Greer Site # 3-14-088
Route 9 & Old Hopewell Road
Wappingers Falls, New York

"April 2004"

THE
Chazen
COMPANIES

Prepared by:

The Dutchess County Office:
The Chazen Companies
21 Fox Street
Poughkeepsie, NY 12601

1.0 PURPOSE

The contingency plan is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

2.0 APPLICATION

The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents, which could threaten human health or the environment.

3.0 DESCRIPTION OF FACILITY

The Greer Toyota site is located on Route 9 in Wappingers Falls, Dutchess County, New York at the intersection of Route 9 and Old Hopewell Road. The Greer business sold new and used automobiles and operated a repair shop. During Greer's operation, there were two main buildings on-site: the main showroom/car repair facility and the used car showroom. The current site configuration generally does not vary from its previous configuration but there have been minor upgrades to the building.

The site is currently listed on the Registry of Hazardous Waste Sites (Site No. 3-14-088). Previous sampling indicated that petroleum hydrocarbons including ethylbenzene, toluene, and xylene, chlorinated solvents including PCE, trichloroethylene (TCE), cis,1,2-dichloroethylene (DCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (DCA), freon and MTBE had impacted soils and groundwater.

3.1 Description of Activity

An active mechanical remediation system has been installed at Greer Toyota. A soil vapor extraction (SVE) system removes contamination from soils that were difficult to remove during excavation activities. Vapors are discharged at the level of the roof of the maintenance garage.

3.2 Description of Materials and Wastes

The remedial system removes the identified solvents and hydrocarbons from soil. No raw materials are used in the remedial process. The process generates no wastes.

4.0 DESCRIPTION OF PLAN IMPLEMENTATION

4.1 Amendments of Emergency Contingency Plan

The Emergency Contingency Plan shall be reviewed and amended as needed, whenever:

- The facility permit is revised;
- The plan fails during an emergency;
- The facility changes in design, construction, operation, maintenance or other circumstances, in a manner that materially increases the potential for fire, explosion, emission or discharge of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;
- The list of emergency coordinators changes; or
- The list of emergency equipment changes.

4.2 Copies of the Plan

A copy of the emergency contingency plan and all revisions to the plan are:

- Maintained at the remedial system; and
- Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services, upon request.

4.3 List of Emergency Coordinators

The Emergency Coordinators (EC) for the Greer Toyota facility are shown in Table 1:

Table 1 – Emergency Coordinators

Primary EC	Alternate EC
Cindy Greer, Owner Greer Toyota	Lee Burns
Office: 845-216-9000	Office: 845-298-8880
Cell Phone: 845-216-9000	Cell Phone: 914-456-7555
Home Phone: 845-216-9000	Home Phone: 845-386-2876

4.4 Duties and Responsibilities of all Day-to-Day Greer Employees

All employees are trained in responding to basic emergencies involving the remediation system. Basic response involves identifying a potential situation and informing the EC of any potential situations. If the Primary EC and Alternate EC cannot be contacted, the 911 emergency response center should be notified if the situation is an emergency or if the situation could harm human health or the environment outside of the facility.

At least one employee has been assigned to make daily observations of system operation and has been instructed to shut off power to the SVE system via the circuit breaker, if any apparent abnormal observations are noted such as smoke, unusual odors, or unusual system discharges. At least one backup employee has been trained to fulfill this position in the event the primary employee is not available.

Employees who have not been assigned to daily equipment observations have been instructed to stay away from the remediation system.

4.5 Duties and Responsibilities of the EC

ECs are responsible for coordinating all emergency response measures. The coordinators are thoroughly familiar with the aspects of this Plan, facility operations and activities, the location and characteristics of materials handled, the facility layout, the operation of the remediation system, and the location of records. In addition, ECs have the authority to commit the resources needed to carry out the contingency plan.

In the event of an imminent or actual emergency situation, the EC (or alternate) must immediately:

- Activate facility alarms or communication systems to notify facility personnel.
- Evacuate the affected area.
- Notify local emergency response agencies including the NYSDEC, as appropriate.

Whenever there is an emission or discharge, fire or explosion, the EC must immediately:

- Identify the character, exact source, amount and extent of emitted or discharged materials.

- Proceed to the scene of the emergency and question personnel involved with, or witness to the incident.

- Determine, through questioning what materials are involved with the emergency, the amount(s) of material(s) involved and the extent of any material(s) that has/have been discharged. If more information is needed to determine the above, the EC will instruct personnel to obtain MSDSs or other documentation that describes the material(s) involved with the incident. The EC must determine the amount(s) of material(s) that has/have been spilled or released or has/have the potential for being spilled or released due to the emergency situation.

- Assess possible hazards to human health or the environment that may result from the emission or discharge, fire or explosion. The assessment will consider both direct and indirect effects of the emission, discharge, fire or explosion.

- Determine, using information gathered and the nature of the scene, whether the emergency situation is threatening to the environment, or the health of personnel inside or outside the facility. This determination is based on whether there are, or there is the potential for, any toxic, irritating or asphyxiating gases being generated by the emergency.

If the EC determines the remediation system has had an emission, discharge, fire or explosion, which would threaten human health or the environment outside the facility, the EC must immediately:

- Notify Dutchess County Emergency Management by calling 911. Indicate if evacuation of local areas may be advisable.

- Immediately notify the New York State Department of Environmental Conservation (NYSDEC) Region 3 Office at (845) 256-3003.

- Immediately notify the NYSDEC Spill Line at (800) 457-7362.

- Immediately notify the National Response Center at (800) 424-8802.

Relay the following information when reporting the incident:

- Name of the person reporting the incident;

- Name, address and ID number (NYSDEC Site Number 3-14-088) of the facility;

- Phone number where the person reporting the emergency can be reached;

- Date, time and location of the incident;
- A brief description of the incident;
- Nature of the materials or wastes involved and possible hazards to human health or the environment;
- The extent of injuries, if any;
- The estimated quantity and the complete Department of Transportation (DOT) shipping name (if known) of the materials or wastes involved;
- The extent of contamination of land, water, or air, if known.

During an emergency, the EC will take reasonable measures necessary to ensure that a fire, explosion, emission or discharge does not occur, reoccur, or spread to other materials or wastes at the installation. This can best be accomplished by stopping operation of the remedial facility. This activity must not be performed if harm to human health or bodily harm could result.

If the affected facility stops operations in response to a fire, explosion, emission or discharge, the EC must ensure that adequate monitoring is conducted for leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment, wherever this is appropriate. Immediately after an emergency, the EC with NYSDEC approval must provide for treating, storing or disposing of residues, contaminated soil, etc., from an emission, discharge, fire or explosion at the affected facility. The EC must insure that, in the affected areas of the facility, no material or waste incompatible with the emitted or discharged residues is processed, stored, treated or disposed of until cleanup procedures are complete; and emergency equipment has been cleaned and is fit for its intended use.

Within 15 days after the incident, the EC will submit a written report on the incident to the NYSDEC. The report must include the following:

- Name, address, and telephone number of the owner or operator of the facility;
- Name, address, and telephone number of the facility;
- Date, time and type of incident;
- Name and quantity of materials involved;
- Extent of injuries, if any;

- An assessment of actual or potential hazards to human health or the environment, where this is applicable;

- Estimated quantity and disposition of recovered materials or wastes that resulted from the incident.

5.0 CHAIN OF COMMAND AND EMERGENCY PROCEDURES

Table 2 lists the chain of command for the Greer Toyota remedial facility. In the event of an emergency, the Primary EC or Alternate EC must be notified immediately whether at work or at home.

Table 2 - Chain of Command

Name	Work Number	Home Number	Pager/Cell Phone
Cindy Greer	(845) 216-9000	(845) 216-9000	(845) 216-9000
Lee Burns	(845) 298-8880	(845) 386-2876	(914) 456-7555

If an emergency situation occurs, notify the Primary EC immediately, or instruct a co-worker to do so. The EC will determine if other individuals within the Chain of Command should be contacted at that time. If the Primary EC cannot be reached, proceed down the list until direct contact is made (leaving a message on an answering machine is not acceptable).

The Primary EC or designee will:

- Evaluate the emergency situation based primarily on health and safety risks to yourself and others. Evacuate any or all personnel, including yourself, that may be at risk.

- If possible, shut down any or all operations or processes that may affect or be affected by the emergency (do not place yourself at risk to do this).

- If necessary, activate the Emergency Management System (EMS) by dialing 911 or by instructing a co-worker to do so. Explain the emergency to the 911 operator (be sure to speak clearly and slowly).

- As a secondary measure, assess the effect of the emergency on the environment from direct or indirect discharges, emissions, fires or explosions.

- Take necessary precautions to ensure that fires, explosions, emissions or discharges do not occur, reoccur or spread to other materials or wastes.

- Obtain as much information as possible about any materials or waste involved or potentially involved in the incident.

- Adequately monitor the area for leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment, unless risk of injury is probable.

- Only the EC or a person designated by the EC shall notify the NYSDEC, the National Response Center or the Dutchess County Emergency Management Agency if required. These agencies are only to be contacted if an emission, discharge, fire or explosion has occurred and could threaten human health or the environment.

6.0 SPILL/LEAK/FIRE PREVENTION AND RESPONSE

This section describes the actions personnel must take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the Greer Toyota remedial facility. All day-to-day employees have been trained in basic emergency response. Any employee who observes a spill/leak/or fire situation should (depending on severity and impacts of the situation) either notify emergency responders by phoning 911 or contact the Primary EC. The affected area should be evacuated.

6.1 Pre-release Planning

A detailed Operations and Maintenance Manual has been developed for the Greer Toyota site and a Standard Operating Procedure (SOP) has been developed for startup, operation, and shutdown of the remediation equipment. By adhering to these guidelines and procedures, personnel perform their duties in a manner that minimizes or eliminates the potential for negative environmental or health and safety impacts resulting from their work.

6.2 Inspections, Monitoring, and Preventive Maintenance Program

Inspections of the remediation equipment include monthly, quarterly, and semi-annual performance checks, maintenance and sampling. The detailed schedule is outlined in the Greer Toyota Operations and Maintenance Manual.

6.3 Employee Training Program

Employees are trained in evacuation procedures, emergency response measures, and hazard communication.

7.0 CONTINGENCIES

7.1 Countermeasures

Emergency response countermeasures are not to be undertaken by any day-to-day employees. In the event of a small spill or release, the EC should contain and clean the remedial waters only if the situation posses no hazards. Response to potentially harmful smaller releases, larger releases or fires/explosions should be initiated through the 911 emergency network. Personnel will call the 911 emergency network to obtain emergency response support.

7.2 Alarm Systems

No automatic alarm systems exist however; at least one employee has been assigned to conduct daily visual observations of the remedial system. This person has been authorized to make appropriate notifications if any abnormal occurrences are witnessed.

7.3 Evacuation Plan for Personnel

Specific emergency routes have not been created. The Greer Toyota remediation system is located outside and is simple to escape in the event of an emergency situation. There are no fences or obstructing boundaries, which would hinder response and/or escape.

7.4 Emergency Equipment Available for Response

A fire extinguisher is available for use only by trained personnel when extinguishing fires that are in the incipient/beginning stages. An emergency spill response kit is "not" available. Minor spills of hazardous substances are not foreseen, as hazardous substances are not used in the remedial process. All major releases of remediation materials will be directed to the Dutchess County hazardous materials response organization at (845) 471-1414. In addition, a first aid kit is available for use during minor injuries.

8.0 EMERGENCY SPILL CONTROL NETWORK

8.1 Arrangements with Local Emergency Response Agencies

The Wappingers Falls Fire Department provides primary emergency spill control services. The Dutchess County Hazardous Materials Response Unit will provide additional emergency assistance if needed.

8.2 Emergency Phone Numbers

Hospital, *Vassar Brothers Medical Center* *45 Reade Place, Poughkeepsie, NY*	(845) 454-8500
Fire Department	(845) 297-9022
Police	(845) 297-1011
Ambulance	911
Dutchess County Emergency Management Agency	(845) 471-1414 or 911
New York State Department of Environmental Conservation, Spill Line	(800) 457-7362
National Response Center (24-hour toll free number)	(800) 424-8802

Emergency Contingency Plan Revision Log

Date	Section of Plan Revised	Description of Revision	Reason for Revision	Name of Person Revising Plan

Section G:
Consent Order, Record of Decision,
NYSDEC SPDES Permit

The Consent Order and Record of Decision for the Greer Toyota site are maintained at the NYSDEC, Region 3 office. No SPDES permit is needed, since there is no treated groundwater discharge.

Section I:
Records and Forms

Operations and Maintenance (O&M) Manual Revision Log

The O&M Manual is maintained in a three ring binder to accommodate future edits through the removal and replacement of affected pages/sections. Additionally, each page of the Manual is sequentially numbered. Any changes to the Manual should be documented in the O&M Manual Revision "Master" Log. The Master Log is maintained with the Project Manager. Pages affected by revision should be renumbered, using an alphanumeric system if needed (e.g. Page 72A, 72B, etc.), and the Table of Contents page(s) should be updated to reflect any page number changes. All Manual changes should be conveyed to appropriate project personnel and regulatory agencies.

Date	Section of Manual Revised	Description of Revision	Reason for Revision	Name of Person Revising Manual

Greer Toyota Remediation System
NYSDEC # 3-14-088

Quarterly Report

Date:_____

Technician:_____

Vacuum Measured in SVE System (inches of H_2O)

Line B _____ Line C _____ Line D _____

VOC measurements collected using the PID (ppm)

Line B _____ Line C _____ Line D _____ Exhaust _____

Perform the following checks on the SVE System:

1) Look for signs of excess blower wear or damage _____
2) Listen for smooth blower operation _____
3) Touch blower for uniform temperature _____
4) Visually check for kinked or disconnected pipes _____
5) Listen for air leaks in the System _____

Notes:

Greer Automotive, LTD	Quarterly Service Report
THE Chazen COMPANIES	Greer Site Route 9 Wappingers Falls, New York

Schedule of Sampling Activities

Sampling Point	Frequency/Methods
Groundwater: Bedrock Monitoring Wells	
MW-2	Quarterly, EPA 8260
MW-4	Quarterly, EPA 8260 and 8270
MW-5	Quarterly, EPA 8260 and 8270
MW-6	Quarterly, EPA 8260 and 8270
SVE System Compliance Monitoring	
SVE Line B	Quarterly Air Flow + VOC Concentration*
SVE Line C	Quarterly Air Flow + VOC Concentration
SVE Line D	Quarterly Air Flow + VOC Concentration
SVE Exhaust	Monthly Feb. to April 2004, Quarterly May 2004 to Future Air Flow + VOC Concentration
Carbon Filtration Systems Compliance Monitoring	
Halpin Residence: Untreated Water before Filtration	Quarterly, EPA 502.2
Halpin Residence: Kitchen Faucet	Quarterly, EPA 502.2
Optimum Window: Untreated Water before Filtration	Quarterly, EPA 502.2
Optimum Window: Kitchen Faucet	Quarterly, EPA 502.2
Wappingers Falls Toyota: Untreated Water before Filtration	Twice/Year, EPA 502.2, MTBE, Total Coliform, E.Coli, and IOCG3 (chlorides, sodium, manganese, color)
Wappingers Falls Toyota Men's Room Faucet	Quarterly, EPA 502.2 + MTBE

* Measured with a Photoionization Detector (PID)

Spare Parts List
Greer Toyota Remediation System

Component Function	Component Identification
SVE Blower	Ametek EN/CP 454
SVE Blower Motor Starter	Cutler Hammer ECN0501CAA
On/Off Switch	Cutler Hammer ECN0501BAA
Activated Carbon Filters	Calgon F200 12x40 (1) Cubic foot A-3

APPENDIX B:

Example Field Sampling Sheets

The Chazen Companies

FIELD DATA SHEET - Groundwater Levels

SITE INFORMATION

Project Name: ______________________ Date: ______________________

Project Location: ______________________ Sample Tech(s): ______________________

Project Number: ______________________

Well ID	Measuring Point	Depth to Water

THE Chazen COMPANIES

Chazen Environmental Services, Inc
Field Data Sheet

SAMPLE INFORMATION:

Sample ID: _____ **Sample Date:** _____ **Sample Time:** _____

Well ID: _____ **Sample Matrix:** *GW SW DW Soil Other:* _____

Project Name: _____ Project and Task#: _____

Sample Location/Task: _____ Proj. Manager: _____

WELL INFORMATION:

Well Condition: _____

_____

Lock Type: _____ Key #: _____

PURGE DATA:

Measuring Point: _____

Depth to Bottom: _____

Water Level: _____

Height of Water Column: _____

Purge Method: _____

Start Date: _____

Start Time: _____

Stop Time: _____

Calculated Volume:

A = Water Column

(Bottom Depth-Depth to Water)

B = Gallons/Foot

C = # of Volumes To Be Purged

A x B x C = Gallons To Be Purged

Gallons to be purged: _____

Pipe Width	Gal/ Foot
1.5”	0.092
2.0”	0.163
3.0”	0.367
4.0”	0.653
6.0”	1.469
8.0’	2.611

Actual Volume:

Purge Rate (gpm): _____

Elapsed Time (min): _____

Well Volumes Purged (#): ___

Purge Volume (gal): _____

Well went dry?: • No • Yes

Condition: • No Odor • Odor

• Clear • Sl.Turbid • Turbid

FIELD RESULTS:

Water Level	Sample Depth	Temperature	pH	Conductivity	Turbidity	Other: _____
_____	Start	_____	_____	_____	_____	_____
_____	Volume 1	_____	_____	_____	_____	_____
_____	Volume 2	_____	_____	_____	_____	_____
_____	Volume 3	_____	_____	_____	_____	_____
_____	Volume 4	_____	_____	_____	_____	_____
_____	Sample	_____	_____	_____	_____	_____

SAMPLE INFORMATION:

Sample Method: _____ Sample Type: • Composite • Grab

i.e. Peristaltic, Submersible, Dedicated or Disp. Bailer, Waterra, etc.. Sample Depth: _____

Weather: _____ Sample Technician(s): _____

Notes: _____

_____

LAB REQUESTS:

Laboratory Name:	Analysis/Method:	Turn Around Time:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

QA/QC

• Duplicate • Field Blank • Equip. Blank • Trip Blank

SAMPLE TRANSPORT:

Transported Via: _____ Date: _____

APPENDIX C:

DER-10 Community Air Monitoring Plan

APPENDIX 1A

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.