Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
Greer Toyota Site
Town of Wappinger, Dutchess County
Site Number 3-14-088

March 2002

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Greer Toyota Inactive Hazardous Waste Disposal Site
Town of Wappinger, Dutchess County, New York
Site No. 3-14-088

Statement of Purpose and Basis

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

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

Assessment of the Site

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

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Greer Toyota site and the criteria identified for evaluation of alternatives, the NYSDEC has selected source remediation via soil vapor extraction and enhanced bioremediation. The components of the remedy are as follows:

A conceptual design and details necessary for the construction, operation and maintenance, and monitoring of a two phase remedial program including soil vapor extraction (SVE) system and enhanced bioremediation treatment.

- A soil and groundwater monitoring program for each phase of the remedial program.
- Maintenance and monitoring of existing treatment (carbon filters) on impacted private supply wells until one half the drinking water standards are met for four consecutive quarterly sampling events.

- Paving of site and continued maintenance that will reduce infiltration into the source region. Annual certification by property owner to the NYSDEC that the site is in compliance with engineering controls outlined in the ROD.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

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

3/29/2002
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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RECORD OF DECISION

Greer Toyota Site
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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected this remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the Greer Toyota Class 2, inactive hazardous waste disposal site. As more fully described in Sections 3 and 4 of this document, historical disposal of chlorinated solvents through floor drains have resulted in the disposal of a number of hazardous wastes, including tetrachloroethene, 1,1-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and vinyl chloride at the site, some of which were released or have migrated from the site to surrounding areas, including one residential drinking water supply and one commercial drinking water supply located about 200 feet downgradient of the site. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

C a significant threat to human health associated with contaminated potable water supplies.

C a significant environmental threat associated with the impacts of contaminants to New York State groundwaters.

In order to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the Greer Toyota site have caused, the following remedy was selected:

- A conceptual design and details necessary for the construction, operation and maintenance, and monitoring of a two phase remedial program including soil vapor extraction (SVE) system and enhanced bioremediation treatment.

- A soil and groundwater monitoring program for each phase of the remedial program.

- Maintenance and monitoring of existing treatment (carbon filters) on impacted private supply wells until one half the drinking water standards are met for four consecutive quarterly sampling events.

- Paving of site and continued maintenance that will reduce infiltration into the source region. Annual certification by property owner to the NYSDEC that the site is in compliance with engineering controls outlined in the ROD.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site, in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The site is located at 1420 Route 9 in the Town of Wappinger, Dutchess County between Route 9 and Old Route 9 at the corner of Hopewell Rd. The site is approximately 2.3 acres. The site is located along Route 9 which has commercial businesses; automobile dealerships, gasoline stations, convenience stores, restaurants, and shopping plazas. The site is approximately four miles west of the Hudson-Wappinger Watershed. See Figure 1 for location map.

Water is supplied at the site from a private on-site well. All adjacent properties are also supplied by private wells located on their properties. There are no municipal sewers in the area of the site. A stream exists approximately 1300 feet down gradient to the north and northwest of the site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Greer Toyota is an automobile dealership that also has a garage to repair and maintain automobiles. The garage uses various products to clean automobile parts, some of these products contain chlorinated solvents. Spent chlorinated solvents are regulated as hazardous wastes. Until 1992, floor drains in the garage were connected together and discharged into a 250 gallon underground steel tank that operated as an oil/water separator located outside the garage. The outlet of the oil/water separator was connected to the site's septic system. The septic system consisted of a diffuser tank which was substituted for a leach field since there is limited overburden soil on site to install a leach field. The diffuser tank at the site is a rectangular concrete chamber with a gravel bottom to allow the flow of liquid into the ground.

3.2: Remedial History

1989 The NYSDEC discovered that Greer Toyota was illegally discharging wastewater. Greer Toyota entered into a Consent Order with the NYSDEC to stop discharging wastewater.

1991 The Dutchess County Health Department (DCHD) conducted a drinking water survey along Route 9 and discovered three residential wells contaminated with chlorinated solvents. DCHD informed the NYSDEC and NYSDOH of the contamination and continued the survey.

1992 Inspections were conducted of area businesses that may have contributed to the contamination of groundwater with chlorinated solvents. The DCHD and NYSDEC conducted an inspection of the Greer Toyota dealership. During the inspection the floor drain system described above was discovered and sampled. Results are shown in Table 2.

Based on the presence of chlorinated solvents and petroleum contaminants in the oil/water separator, the site was listed as a Class 2 in the New York State Registry of Inactive Hazardous Waste Disposal Sites. A Class 2 designation indicates that a significant threat to the public health or environment exists and action is required. The NYSDEC investigated the site for violation of the 1989 Consent Order. This resulted in the oil/water separator being cleaned and sealed in 1992.

The same chlorinated solvents detected in the oil/water separator were detected in water supply wells of several down-gradient nearby residential and commercial properties.

1993 NYSDOH ordered Greer Toyota to place carbon filters on three private drinking water wells (2 commercial wells and 1 residential well) impacted by the site (see Figure 2). Greer Toyota was fined for violating the 1989 Consent Order.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site, and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste a Consent Order was executed in 1997 between Greer Toyota and the NYSDEC. The NYSDEC required Greer Toyota to perform a focused Remedial Investigation/Feasibility Study (RI/FS). Greer Toyota conducted an RI/FS in August of 1999. Additional investigations were conducted in October 2000 and August 2001 resulting in the Expanded Remedial Investigation/Feasibility Study and Interim Remedial Measures Report dated November 2001.

4.1: Summary of the Remedial Investigation

The purpose of the RI/FS was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI/FS was conducted in a number of phases. The first phase was conducted between September 1997 and January 1999, the second phase was conducted in June 1999, the third phase was conducted in November 2000 and a fourth phase was conducted in August 2001. A report entitled Expanded RI/FS and Interim Remedial Measures Report dated November 2001, has been prepared which describes the field activities and findings of the RI in detail.

The RI included the following activities:

- Installation of nine soil borings for the chemical and physical analysis of soils in the area of the subsurface disposal system.
- Excavation of four test pits to locate underground diffuser tanks.
- Thirty-one soil samples to determine chemical and physical analysis of soils in the area of the underground storage tanks.

- Sixteen soil borings to delineate the extent of contaminated soils from the Underground Storage Tank (UST) locations.

- Installation and sampling of six groundwater monitoring wells located both up and down gradient.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the RI analytical data was compared to environmental standards, criteria, and guidance values (SCGs). Groundwater and drinking water SCGs identified for the Greer Toyota site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines that are based on the protection of groundwater, background conditions, and health-based exposure scenarios. In addition, for soils, site specific background concentration levels can be considered for certain classes of contaminants.

Based on the comparison of the RI results to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the Expanded Remedial Investigation/Feasibility Report and Interim Remedial Measures Report dated November 2001.

Chemical concentrations are reported in parts per billion (ppb) for groundwater and parts per million (ppm) for soils. For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

Surficial geology consists of fill or glacial till. Areas of bedrock outcrops exist east and west of the property. The till contains brown to gray silt and clay with some fine to coarse sand and little to trace amounts of fine to coarse gravel. The fill is primarily coarse gravel, cobbles and rock fragments and ranges from 2 to 8 feet below grade.

Fractured bedrock is present at the site. Depth to bedrock ranges from 4 to 15 feet below grade and consists of Ordovician Austin Glen formation. Austin Glen formation is variable graywacke and sandstone interbedded with dark, occasionally massive deep-water shales. Depth to groundwater on the site is approximately 13 feet. Groundwater flow in the vicinity of the site is generally east to west.

4.1.2: Nature of Contamination

As described in the RI report, many soil and groundwater samples were collected at the site to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are volatile organic compounds (VOCs). The primary VOCs of concern are tetrachloroethene (PCE), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), and their associated breakdown products. In addition, a number of petroleum compounds were found on site and include, but are not limited to, benzene, toluene, xylene and methyl-tert-butyl-ether (MTBE).

4.1.3: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in groundwater and soil and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil

In April 1998, six soil borings (B-1 through B-6) were installed in the area of the diffuser system (see Figure 3). The soil borings went down to bedrock, which ranged from one foot to 14 feet below grade. No chlorinated solvents were detected in any of these samples. Petroleum compounds were detected in sample B-2.

In June 1999 three additional soil borings (SB-1 through SB-3) were installed in the area of the diffuser system using a Geoprobe sampler (see Figure 3). An excavation was conducted to expose the top and edge of the diffuser tanks and borings were placed around the edge of the diffuser tanks for sample collection. Low levels of petroleum compounds were detected in all three soil borings. SB-1 contained chlorobenzene at 0.28 ppm and m&p-xylene at 0.05 ppm. SB-2 contained in 2-butanone at 0.017 ppm and SB-3 contained in 2-butanone at 0.012 ppm and m&p-xylene at 0.0085 ppm. The levels detected in the soil borings were below soil SCGs for all contaminants.

In November 2000 and August 2001 soil samples were taken from the area northwest of the main building to further delineate the extent of contamination (see Figures 4 and 5). Contaminants found at levels above SCGs [the Recommended Soil Cleanup Objective (RSCO) are shown in parentheses after contaminant levels]: benzene up to 240 ppm (0.06 ppm), MTBE up to 38 ppm (0.12 ppm), ethylbenzene up to 380 ppm (5.5 ppm), tetrachloroethene up to 2.1 ppm (1.4 ppm), toluene up to 1800 ppm (1.5 ppm), o-xylene up to 590 ppm (1.2 ppm), m&p-xylene up to 1500 ppm (1.2 ppm) and other petroleum breakdown component compounds. Additional results and locations of these samples can be found in the RI/FS.

Groundwater

In April 1998, a water table sample was collected from the B-2 soil boring (at a depth of 8-10 feet) based on field analysis of the soil sample. The B-2 water table sample was collected directly from the borehole, therefore the sample may not be representative of the groundwater aquifer and these results were not included in Table 1. The B-2 water sample had petroleum contamination, with each contaminant concentration listed below and followed in parentheses by the groundwater standard for that contaminant: benzene at 10 ppb (1 ppb), ethylbenzene at 33 ppb (5 ppb), toluene at 30 ppb (5 ppb), o-xylene at 27 ppb (5 ppb), and m&p-xylene at 220 ppb (5 ppb).

In June 1999, three groundwater samples were collected during Geoprobe sampling to a depth of five feet below grade in close proximity to the diffuser system. These samples may not be representative of the groundwater aquifer and these results were not included in Table 1. The sampling results are consistent with the three soil samples that were collected. Low levels of petroleum compounds were

detected in all three groundwater samples. One sample, SB-1, contained chlorobenzene at 6.2 ppb and toluene at 19 ppb. SB-2 contained toluene at 44 ppb. SB-3 contained toluene at 36 ppb.

Water samples were collected from residential and commercial water supply wells in the vicinity of the site. Since 1994 the Dutchess County Health Department (DCHD) has been collecting drinking water samples from a Curry Road residence and a residence on Old Route 9. These properties have granular activated carbon filters to remove the VOC contamination. At the Curry Road residence the total VOC contamination for untreated water is 31.2 ppb (from 2001 data). The primary contaminants in this well are 1,1-dichloroethane, cis-1,2-dichloroethene, and tetrachloroethene. At the Old Route 9 residence the total VOC contamination is 4.9 ppb (from 1999 data). The primary contaminants in this well are listed and followed in parentheses with their respective drinking water standard: 1,1-dichloroethane (5 ppb) and 1,1,1-trichloroethane (5 ppb). In December 1999, eleven residential and commercial water supply wells were sampled (including the two mentioned above) by the DCHD and analyzed by the NYSDOH's laboratory. Contaminants were detected in seven water supply wells. Three of those wells, including a well on the Greer Toyota site, had detections above drinking water standards. In total, seven properties were found to have petroleum contamination, of which three also had chlorinated solvent contamination. The most recent sampling results are represented on Tables 3 and 4.

In August 2001 six groundwater monitoring wells were installed on the Greer property (upgradient and downgradient of the source area) to assess groundwater contamination and flow direction (see Figure 6). Wells MW-1, MW-2, MW-3, MW-4 and MW-6 were installed to 50 feet. MW-5 was installed to 100 feet. Groundwater analyses indicated the following contamination in wells down gradient of the source area above groundwater standards, the groundwater standard for each contaminant follows in parentheses: methyl-tert-butyl-ether (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).

4.2: Interim Remedial Measures

An Interim Remedial Measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

In November 2000 an IRM was undertaken to remove the two underground storage tanks (see Figure 3) that had been used as waste oil storage tanks. The soils impacted from the release of contaminants from those tanks were removed to the extent feasible.

Soil samples obtained after the tank removal indicated numerous exceedances of SCGs. These were the highest contaminant levels on the site. Refer to section 4.1.3 for detailed results. Due to physical limitations at the site contaminated soils were not excavated completely, therefore some remaining soil may exceed the RSCO.

4.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 6 of the RI report.

An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Pathways which are known to or may exist at the site include:

- Ingestion of contaminated groundwater from private drinking water wells.
- Inhalation of vapors from contaminated groundwater during showering.
- Direct contact with contaminated groundwater from private drinking water systems.

Carbon filter treatment systems have been installed and are being maintained on drinking water wells that are impacted. Quarterly sampling is being conducted to insure that contaminants are being removed by the carbon filter units.

4.4: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. The Contaminant Fate and Transport evaluation included in the RI presents a discussion of the potential impacts from the site. No surface water or wildlife habitats were identified at the site. A wetland and unnamed tributary to Wappingers Creek are present approximately 1300 feet northwest of the site. Sampling results from private wells between the site and the creek indicate that the contamination has not reached this area.

Groundwater has been impacted by past site operations and cannot be used as a source of potable water without treatment.

SECTION 5: ENFORCEMENT STATUS

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

The NYSDEC and Greer Toyota entered into a Consent Order on July 22, 1997. The Order obligates the responsible parties to implement a RI/FS remedial program. Upon issuance of the Record of Decision the NYSDEC will approach the PRPs to implement the selected remedy under an Order on Consent.

The following is the chronological enforcement history of this site.

Date	Index No.	Subject of Order
1/5/93	*WP118-92*	Discharging wastewater without a State Pollutant Discharge Elimination System (SPDES) Permit.
1/5/93	*W3-0660-93-09*	Failure to ensure delivery of hazardous waste by an authorized Part 364 transporter.
7/22/97	*W3-0660-93-10*	Focused RI/FS.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all SCGs and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- *Eliminate ingestion of groundwater affected by the site that does not attain NYSDOH Part 5 Drinking Water Standards.*
- *Eliminate, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria.*
- *Eliminate, to the extent practicable, exposures to soil and groundwater.*
- *Eliminate, to the extent practicable, the migration of contaminants into the groundwater.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Greer Toyota site were identified, screened and evaluated in the report entitled Expanded Remedial Investigation/Feasibility Study and Interim Remedial Measures Report dated November 2001.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated soil and groundwater at the site.

All alternatives will include continued maintenance of the existing carbon filtration units at the private impacted drinking water wells and paving of the site that would reduce infiltration into the source region.

Alternative 1: No Further Action

Present Worth:	$ 230,580
Capital Cost:	$ 0
Annual O&M:	$ 15,000
Time to Implement	3 months

This alternative recognizes remediation of the site conducted under previously completed IRMs. Only continued monitoring would be necessary to evaluate the effectiveness of the remediation completed under the IRM.

Alternative 2: Source Removal using Soil Vapor Extraction (SVE) and Enhanced Bioremediation

Present Worth:	$ 450,000
Capital Cost:	$ 75,000
Annual O&M:	$ 22,500
Time to Implement	3-9 months

The SVE system would entail extraction of air containing VOCs and SVOCs from the soil in the unsaturated zone. The SVE system would be phase one of this alternative and would be comprised of either a regenerative or a positive displacement type blower, 4-inch diameter, slotted, vertical vapor extraction wells, underground piping connecting the blower to the extraction wells, a vapor treatment system, and required system controls. Treatment of the extracted air from the SVE wells would be performed by vapor phase carbon. A remedial equipment shed would be located adjacent to source area and would house the blower, air treatment system, and system controls. Though exact number of, radius of influence, and depth of the extraction wells will be determined by a pilot study the approximate location of two extraction wells are shown on Figure 7.

After an evaluation of the SVE treatment phase a second phase of treatment would include oxygen releasing compounds (ORC) and hydrogen releasing compounds (HRC). It would be decided after evaluation of the SVE phase if this second phase would be implemented. ORC/HRC would be delivered to the contaminated soils and groundwater as appropriate. These compounds would enhance the aerobic or anaerobic conditions respectively and aid the biochemical breakdown of contaminants into innocuous compounds to approximately 15 feet below grade.

The volume and chemical composition of individual treatments are based on the contaminant types, concentration and mass; subsurface characteristics, and pre-application laboratory test results. The chemicals would be injected through a well directly into the subsurface source area.

Alternative 3: Groundwater Extraction and Treatment

Present Worth:	$ 450,000
Capital Cost:	$ 50,000
Annual O&M:	$ 21,500
Time to Implement	3-6 months

Alternative 3 would involve the use of two recently installed bedrock wells at approximately 100 feet as extraction wells. The deep well farthest downgradient of the source area would be used as a recovery well. The discharge from the well would be run through an air stripping treatment system. Spent carbon and wastes generated during the groundwater treatment process would require off-site disposal. Treated groundwater would be re-injected into the aquifer or other permitted discharge location. A pilot aquifer test would be performed to determine the hydraulic properties of the capture zone. This alternative would involve semi-annual monitoring of down-gradient wells. The number of wells to be used, the depth of the wells, and the extraction rate would all be determined on-site with a pilot study. Groundwater exists at 13-15 feet below grade on site.

Alternative 4: Source Removal by Excavation

Present Worth:	$ 525,000
Capital Cost:	$ 385,000
Annual O&M:	$ 15,000
Time to Implement	3-9 months

This alternative would address the removal of all impacted soils exceeding SCGs (approximately 500 tons) on site including soils that may be impacted adjacent to the existing building. The bulk of the remaining contaminated soils are located near the northwest corner of the foundation of the main building. Substantial pre-removal construction measures must be taken in order to avoid permanent structural damage. All soils exceeding SCGs would be removed and replaced with clean fill. This alternative would rely on natural attenuation to address groundwater.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Feasibility Study.

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

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

All alternatives would provide immediate compliance with the SCGs at the point-of-use by supplying carbon filters to the impacted drinking water wells. Alternative 2 would treat source areas and so makes SCG soil compliance likely and would speed compliance with groundwater standards since both SVE and ORC/HRC would be used. Alternative 1 would take the longest period of time to move the site toward SCG compliance since it would rely solely on natural attenuation of contaminants. Alternative 3 would help to move groundwater towards compliance quicker than Alternative 1 but not as fast as Alternative 2. Alternative 3 would rely solely on natural attenuation of contaminants in soil. Alternative 4 would immediately provide compliance with SCGs for soil, but would not move groundwater towards compliance as fast as Alternative 2.

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

All alternatives would provide immediate compliance with the SCGs at the point-of-use and therefore provide public health protection. Alternative 1 would not provide protection of the environment as the soil and groundwater would not be addressed. Alternatives 2, 3, and 4 would include some exposure to the contaminated soil and groundwater by construction workers on the site. However, these exposures would be minimal, since protection would be provided to the workers by following guidelines established in the Health and Safety Plan for the site. Alternative 2 would provide protection to the environment by removing the contamination source in the soil and therefore allow the groundwater levels to attenuate towards SCGs. Alternative 3 would not provide protection to the environment as it would allow the groundwater levels to attenuate towards SCGs but would not address the soil contamination/source. Alternative 4 would remove the source area soils to SCGs but would not address the groundwater contamination on site.

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

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

All the alternatives would protect against short-term impacts associated with groundwater at the point-of-use by providing carbon filters. Short-term groundwater and soil exposure could occur for workers at the site under Alternatives 2, 3, and 4. Workers would be protected by following guidelines established in the Health and Safety Plan for the site. No short-term exposure would be encountered for Alternative 1 as it is a No Further Action.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the

selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 would not be permanent or effective in the long-term since it would not address soil or groundwater contamination on-site. Alternative 2 would include treatment of the soils which would be both permanent and effective in the long-term. Alternative 2 would also include partial treatment of the groundwater by the use of ORC/HRC. Alternative 3 would involve containment of the contaminated groundwater, contaminated soils would remain, and long-term monitoring for effectiveness would be conducted. Alternative 4 would involve removal of the majority of the soil contaminant mass from the site, which would be effective in the long-term. Alternative 4 would not address groundwater, nor provide long-term monitoring.

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

Alternative 1 would not reduce toxicity, mobility or the volume of the wastes at the site. Alternative 2 would reduce the toxicity and volume of the on-site soils, eventually reducing mobility. Alternative 3 would reduce the toxicity and mobility of the on-site groundwaters. Alternative 4 would reduce the toxicity, mobility and volume of soil contamination, therefore removing the groundwater contaminant source, but would not address on-site groundwater.

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

Alternative 1 would be most easily implemented since it would involve no further action. Alternatives 2 and 3 would be relatively easy to implement using conventional, readily available technologies, (SVE and groundwater pumping and treatment, respectively). Alternative 4 would be difficult to implement due to the existing structure on the property.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 5.

Alternative 1, providing no further action would be the lest expensive alternative. Alternative 4 would be the most expensive alternative as structural support would need to be provided for the existing building before site soils could be removed. Alternatives 2 and 3 would cost approximately the same but Alternative 2 would remove the groundwater contaminant source, therefore moving groundwater to SCGs faster than Alternative 3.

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

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised.

No significant public comments were received.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 2 as the remedy for this site. This selection will include two phases of source remediation via soil vapor extraction (SVE) and enhanced bioremediation. The selected remedy will include: engineering controls (site paving) and operation, maintenance and monitoring of carbon filtration units on private drinking water wells.

This remedy will address contaminated soils at the site as well as eliminate exposure risks by providing filter systems at the point-of-use to bring impacted wells to SCGs.

This selection is based on the evaluation of the four alternatives developed for this site. The only major differences between these alternatives are cost and length of time to reach compliance. Though Alternative 1 would be expected to eventually reach compliance with SCGs it would be solely by natural attenuation and would take the longest of all alternatives. Alternative 3 would be expected to reach compliance for groundwater SCGs through use of the extraction and treatment system, but soils would have to naturally attenuate before the groundwater was expected to meet SCGs. Alternative 2 will address the source area soils and groundwater. With the source area soils addressed, the groundwater will naturally attenuate at a much faster rate. During this natural attenuation, Greer Toyota will continue to maintain existing filters on the impacted wells. The lowest cost and easiest to implement would be Alternative 1, requiring no further work. Alternative 3 would be about the same level of difficulty to implement as Alternative 2 but would not remove the soil contaminants at the source. Alternative 4 would be the most difficult to implement and be the most costly. Alternative 2 will not immediately bring the site to SCG compliance but, both soil and groundwater will be improved by the use of an SVE system and HRC/ORC treatment. Addressing the source area will be the fastest way (though not immediate) to bring the site contaminants into compliance with both soil and groundwater SCGs.

The estimated present worth cost to implement the remedy is $450,000. The capital cost to construct the remedy is estimated to be $75,000 and the estimated average annual operation, maintenance and monitoring cost per year is $22,500. These costs have been estimated based on Alternatives 2 as well as costs associated with site control and maintaining carbon filters.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved.

2. Installation of a soil vapor extraction (SVE) system including a positive displacement type blower, two vertical vapor extraction wells, underground piping connecting the blower to the extraction well, a vapor treatment system, and required system controls. The effectiveness of the system will be monitored.

3. Delivery of hydrogen release compounds (HRC) and oxygen release compounds (ORC) to contaminated soil and groundwater to destroy the contaminants through rapid biological degradation. If after evaluation of the SVE phase it is deemed necessary HRC/ORC will be introduced to the soil and groundwater in the source area through existing wells and piping on the site. A soil and groundwater monitoring plan including site reviews will be completed.

4. Maintenance and monitoring of existing treatment (carbon filters) on impacted private supply wells until one half of the drinking water standards are met for four consecutive quarterly sampling events.

5. A private well sampling survey near the site to confirm that all private wells have been identified by the NYSDEC and NYSDOH. If wells are found to be impacted by site related contaminants carbon filters will be installed and maintained on a quarterly basis.

6. Paving of the site to reduce infiltration into the source region.

7. Annual review of the effectiveness of the remedy against a set of year-by-year goals to be established by the NYSDEC.

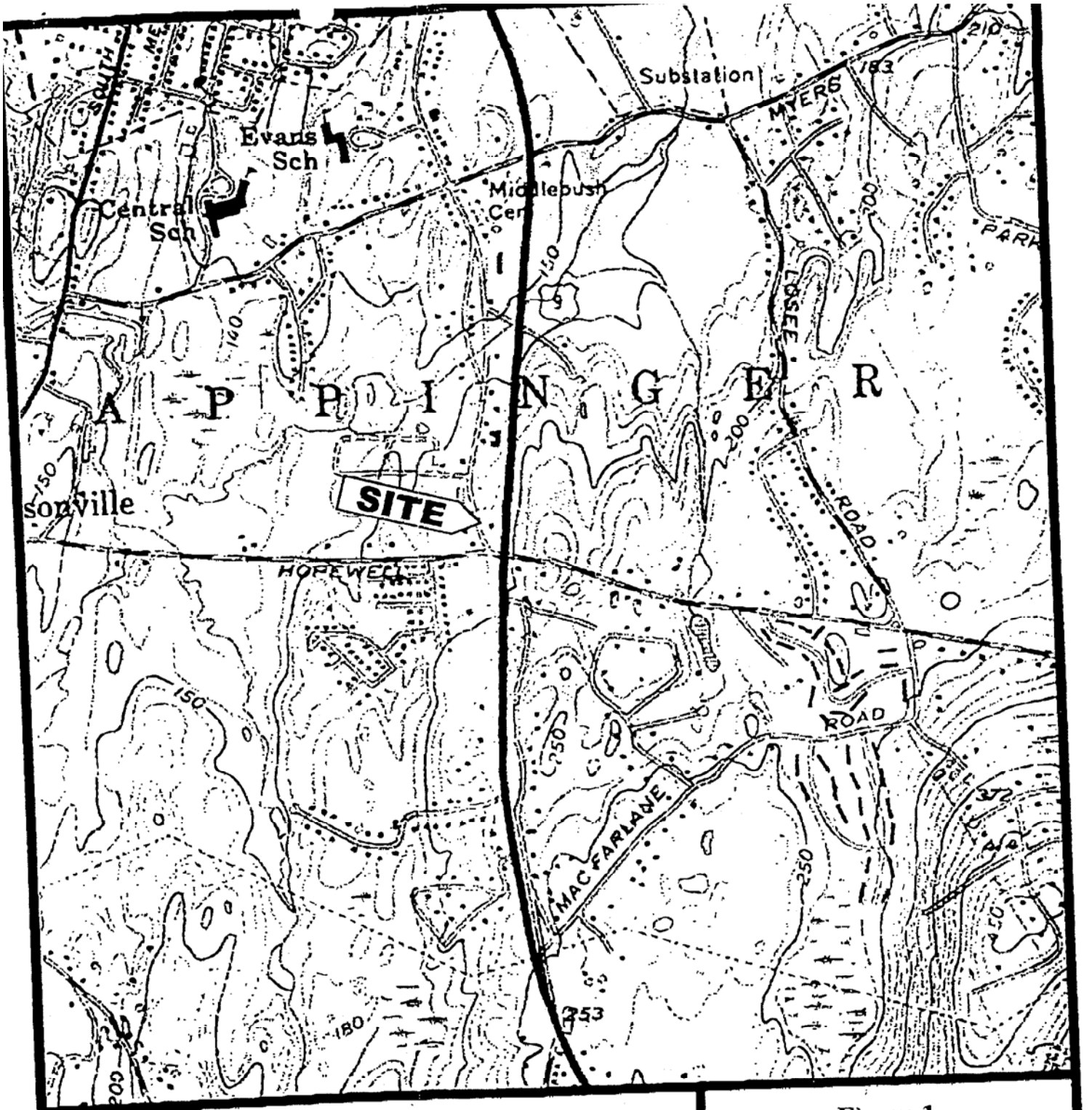
8. Annual certification by property owner to the NYSDEC that the site is in compliance with engineering controls outlined in the ROD.

A long term monitoring program will be instituted in order to track the progress of the remedy selected. Soil borings will be conducted to determine the effectiveness of soil treatment. Groundwater monitoring will occur quarterly in a minimum of three on-site wells to ensure the continued decrease of contaminant concentrations. This program will allow the effectiveness of the SVE system and HRC/ORC injection to be monitored and will be a component of the operation and maintenance for the site.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

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

- A repository for documents pertaining to the site was established.
- A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.
- In February 2002, a Fact Sheet and Notice of Public Meeting was mailed to the public. The Fact Sheet described past activities, summarized the RI/FS, and summarized the proposed remedy. The Notice of Public Meeting informed the public of the date, time and place of the public meeting presenting the PRAP.
- On March 19, 2002 NYSDEC held the PRAP Public Meeting. The PRAP was presented to the public.
- In March 2002 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.



Source
USGS Quadrangle; Wappingers Falls

Scale in Feet
0 1000 2000 3000

North

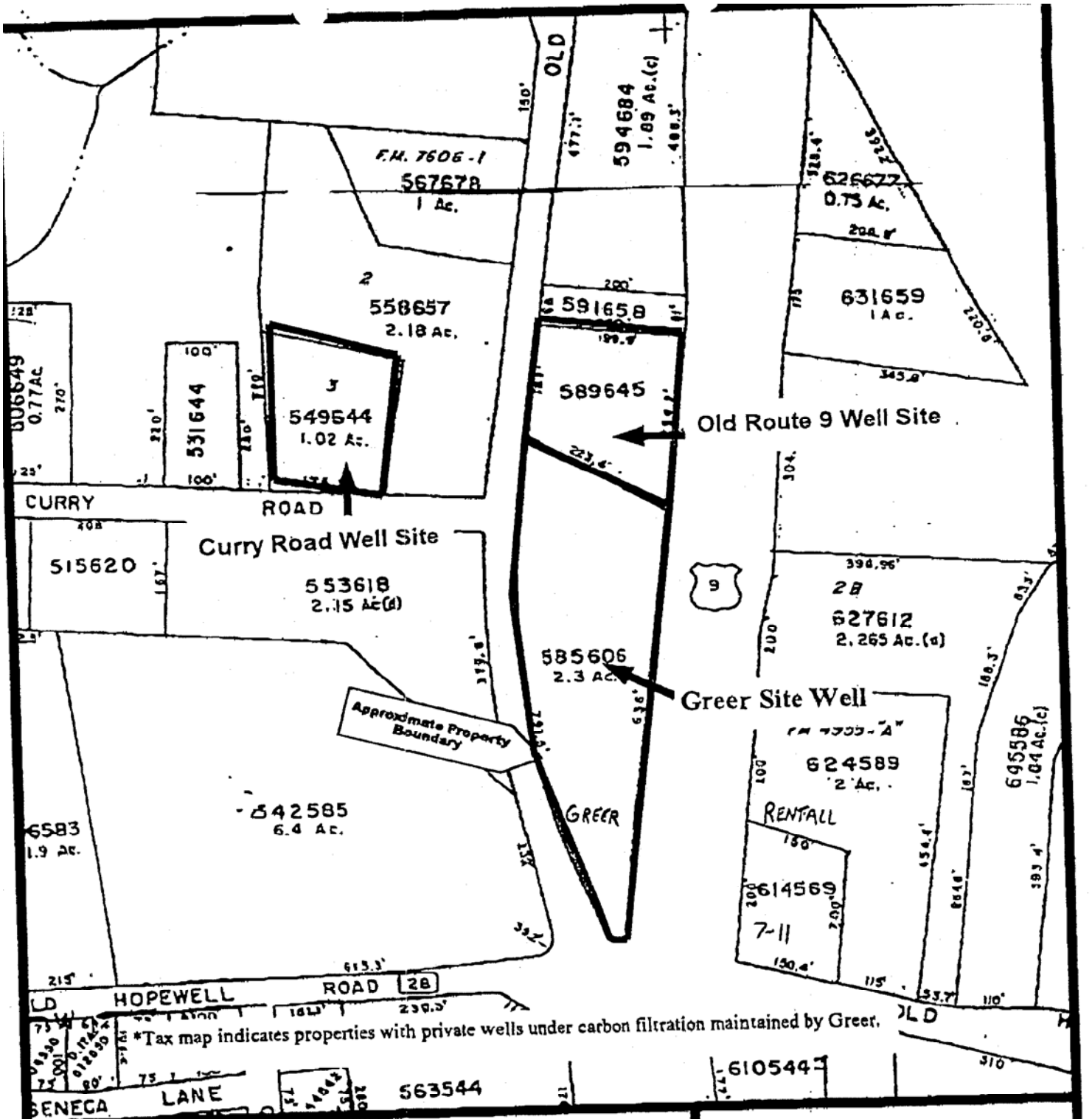
January 2002

THE Chazen COMPANIES

Figure 1

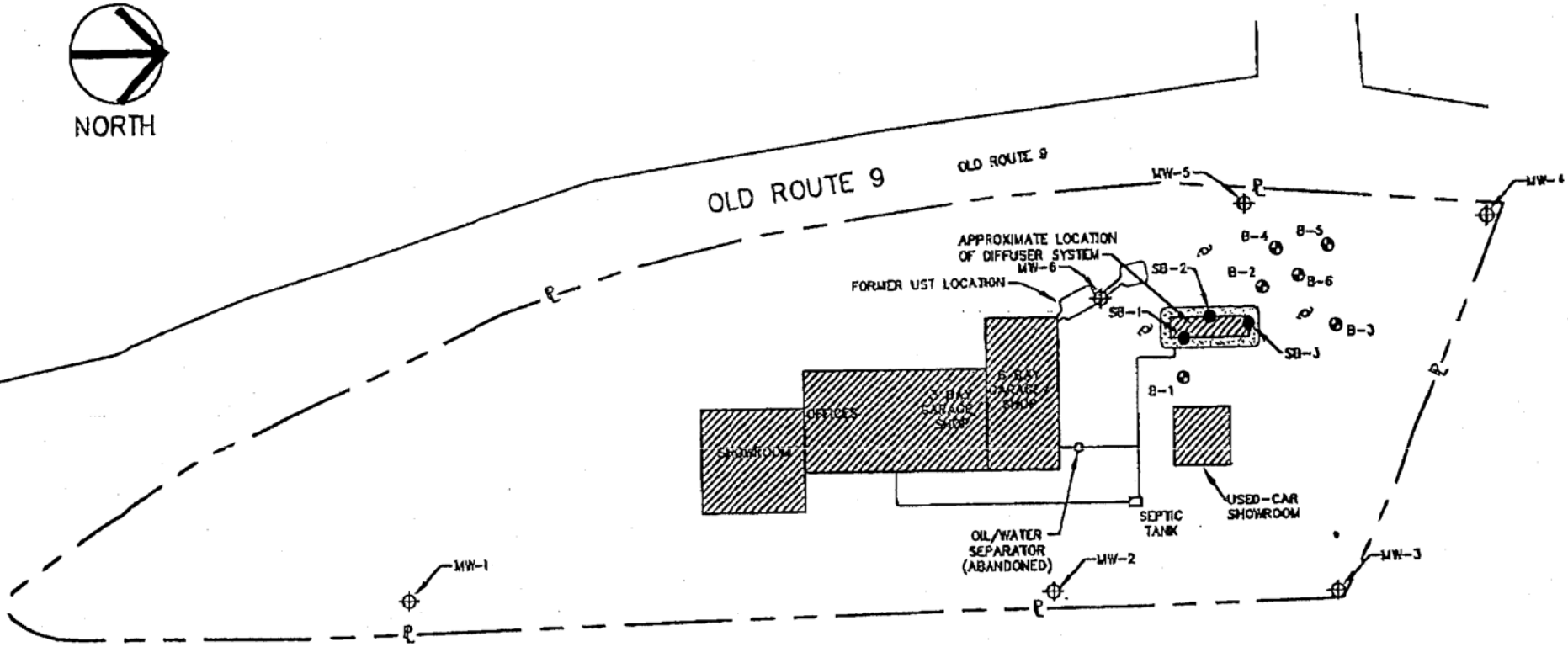
Site Location Map

Greer Site
Route 9
Wappingers Falls, New York



*Tax map indicates properties with private wells under carbon filtration maintained by Greer.

North	Source: County Real Property Tax Map	Figure 2
	Scale: Scale not available	Wells On Carbon Filtration
January 2002	THE Chazen COMPANIES	Greer Site Route 9 Wappingers Falls, New York



- MONITORING WELL LOCATIONS- 8/2001
- PROPERTY LINE
- SOIL BORING LOCATIONS- 6/25/1999
- BORING LOCATIONS- 4/1 & 4/2/1998
- LIGHT POLE AND FOOTINGS

NOTE:
THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY BECHRAN, CMCON, NORTHEAST, DATED 8/25/94

7/28/99 – ADD SEPT.
7/6/99 – ADD SOIL BORIN

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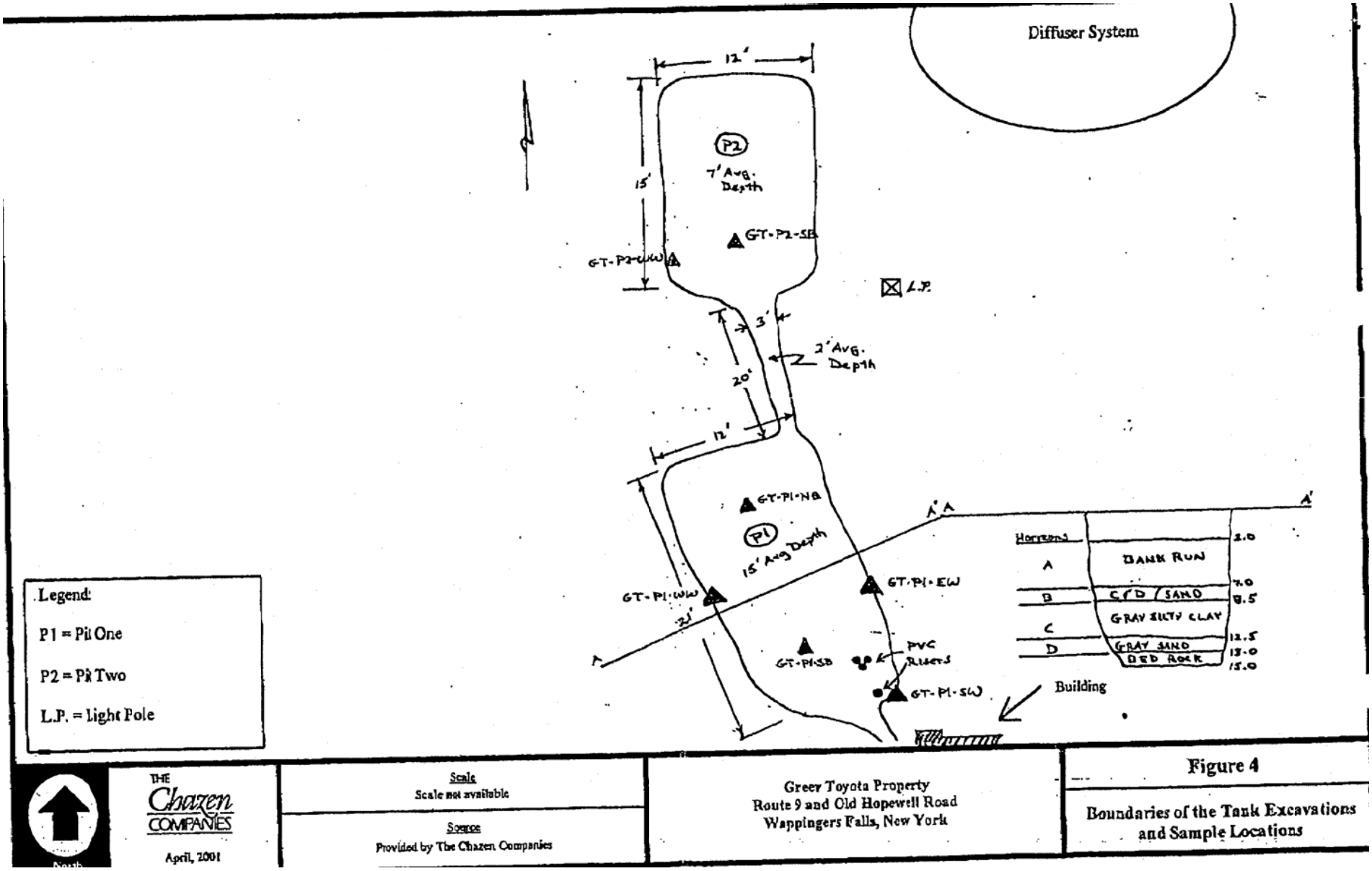
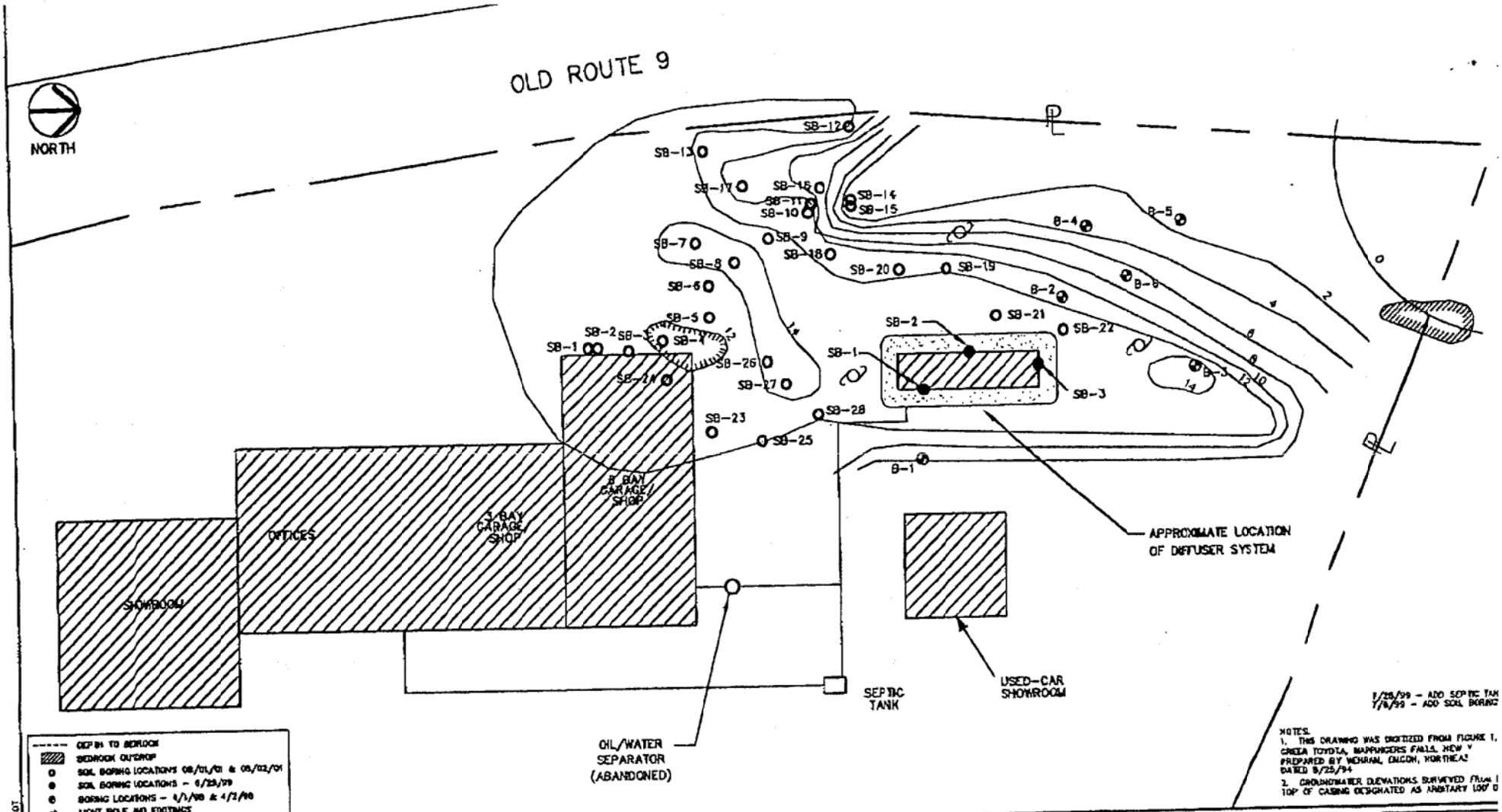
GREER TOYOTA

SITE MAP

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

drawn: JAS	check: A.N.M.
date: 1/8/02	scale: NTS
project no. 49799.24	
sheet no. Figure 3	


Diffuser System
12'
15'
P2
7' Avg. Depth
GT-P2-SE
GT-P2-WW
L.P.
3'
2' Avg. Depth
20'
12'
GT-P1-NE
P1
15' Avg Depth
GT-P1-WW
GT-P1-EW
GT-P1-SD
PVC Risers
GT-P1-SW
Building
A
A'
Horizons
A
BANK RUN
1.0
B
C'D SAND
7.0
9.5
C
GRAY SILTY CLAY
12.5
D
GRAY SAND
13.0
DED ROCK
15.0
Legend:
P1 = Pit One
P2 = Pit Two
L.P. = Light Pole
North
THE Chazen COMPANIES
April, 2001
Scale
Scale not available
Source
Provided by The Chazen Companies
Greer Toyota Property
Route 9 and Old Hopewell Road
Wappingers Falls, New York
Figure 4
Boundaries of the Tank Excavations and Sample Locations



1/28/99 - ADD SEPTIC TAN
7/6/99 - ADD SOIL BORING

NOTES:
1. THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW Y PREPARED BY MCHARG, GILLOM, NORTHEAS DATED 9/25/94
2. GROUNDWATER ELEVATIONS SURVEYED FROM I TOP OF CASING DESIGNATED AS ARBITARY 100' D

PLOT SCALE: 1"=30' - SAVED LICS: PLOT

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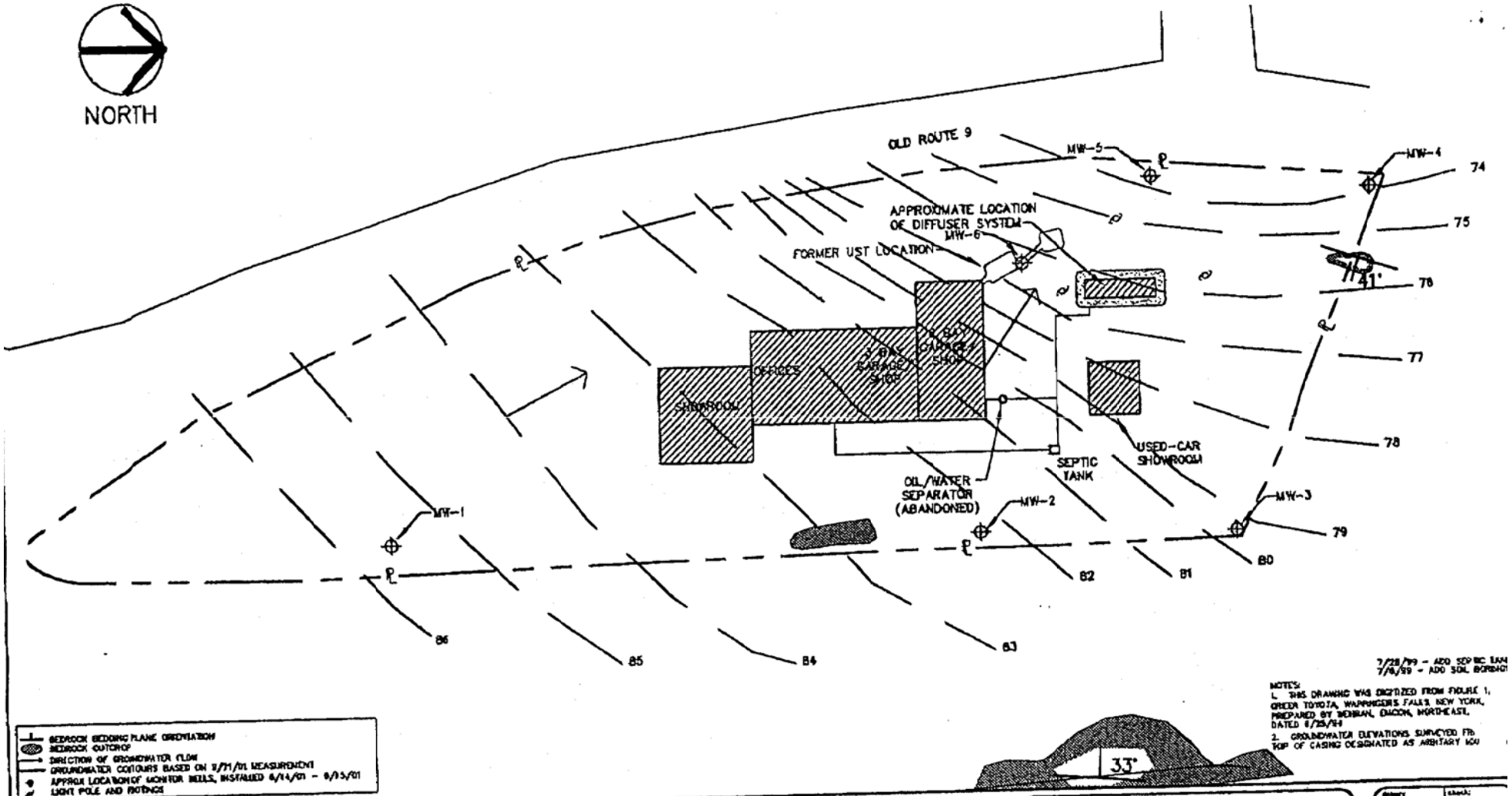
GREER AITC

2001 BORINGS

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

drawn: SLG	check:
date: 1/8/02	scale: NTS
project no.: 49799.24	
sheet no.: Figure 5	



7/28/99 - ADD SEPTIC LAN
7/8/99 - ADD SOIL BORING

NOTES:
1. THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY BENHAM, EATON, NORTHEAST, DATED 8/25/99
2. GROUNDWATER ELEVATIONS SURVEYED TO TOP OF CASING DESIGNATED AS ARBITRARY 100

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GREER SITE

MONITORING WELL LOCATIONS

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

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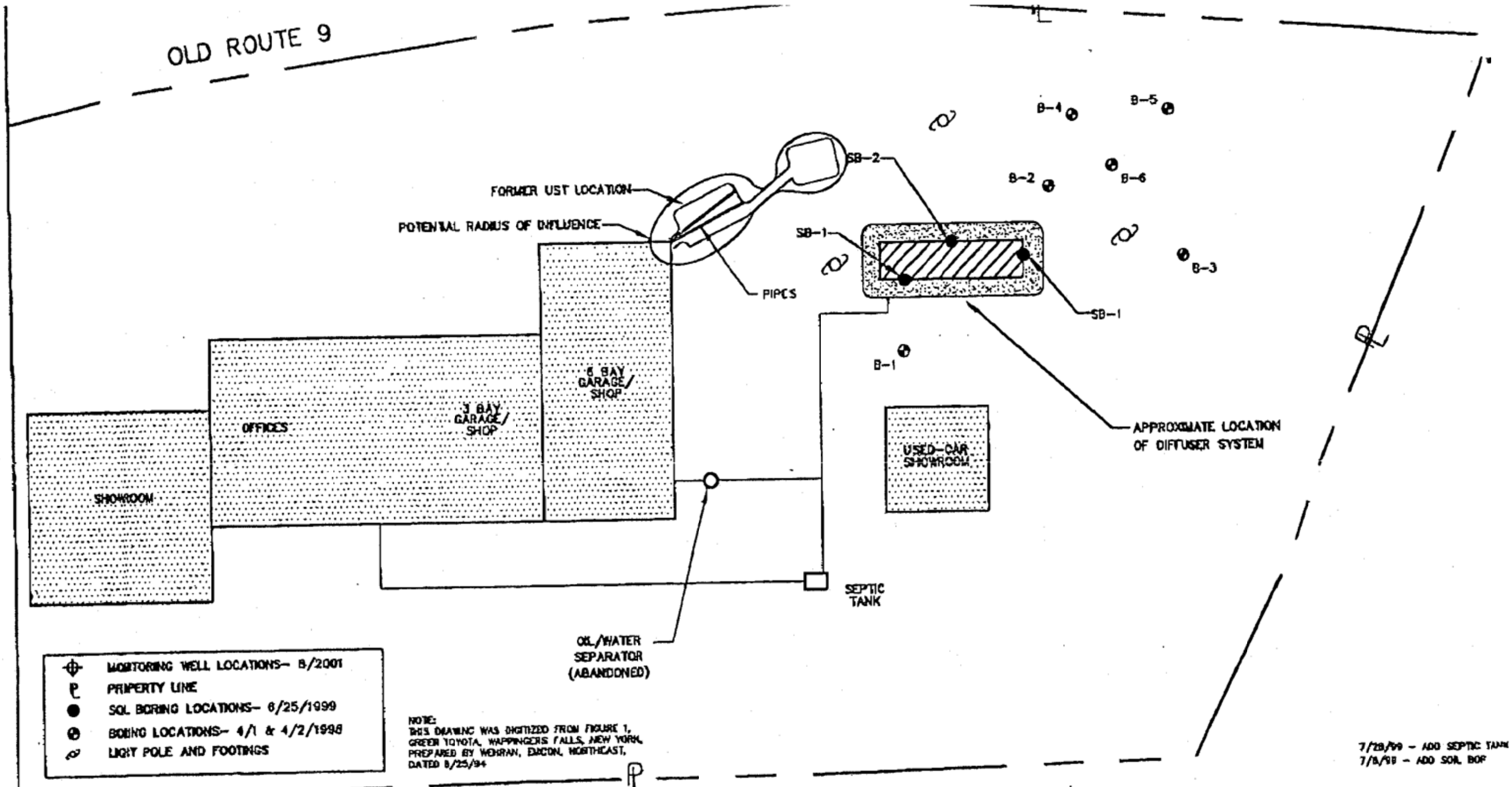
date	scale
1/8/02	NTS
project no.	
49799.24	
sheet no.	
Figure 6	



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GREER TOYOTA

SVE LOCATIONS

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

drawn: JAS	check: A.M.K.
date: 2/05/02	scale: 1"=30'
project no. 49799.24	
sheet no. Figure 7	

Table 1
Nature and Extent of Contamination
(1992 - 2001)

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	benzene	ND to 3.7	1 of 6	1
		1,1-dichloroethane	ND to 33	2 of 6	5
		cis-1,2-dichloroethene	ND to 4.4	0 of 6	5
		trichloroethene	ND to 1.9	0 of 6	5
		1,1,1-trichloroethane	ND to 5.6	2 of 6	5
		tetrachloroethene	ND to 2.8	0 of 6	5
		vinyl chloride	ND to 2.3	1 of 6	2
		methyl-tert-butyl-ether	ND to 86	3 of 6	10
	Semivolatile Organic Compounds (SVOCs)	di-n-butylphthtalate	ND to 9.6	1 of 6	50
		bis(2-ethylhexyl) phthalate	ND to 7	1 of 6	5
MEDIUM	**CATEGORY**	**CONTAMINANT OF CONCERN**	**CONCENTRATION RANGE (ppm)**	**FREQUENCY of EXCEEDING SCGs/Background**	**SCG/ Bkgd. (ppm)**
Soils	Volatile Organic Compounds (VOCs)	benzene	ND to 240	6 of 68	0.06
		toluene	ND to 1,800	7 of 68	1.5
		m&p-xylene	ND to 11,711	11 of 68	1.2
		o-xylene	ND to 590	14 of 68	1.2
		1,1,1-trichloroethane	ND to 0.170	0 of 68	0.8
		1,1-dichloroethane	ND to 0.057	0 of 68	0.2
		cis-1,2-dichloroethene	ND to 0.250	0 of 68	0.3
		trichloroethene	ND to 0.935	1 of 68	0.7
		tetrachloroethene	ND to 63	4 of 68	1.4

Table 1 Continued

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppm)
Soils	Volatile Organic Compounds (VOCs)	2-butanone	ND to 0.017	0 of 68	0.3
		chlorobenzene	ND to 0.280	0 of 68	1.7
		ethylbenzene	ND to 380	3 of 68	5.5
		methyl-tert-butyl-ether	ND to 38	3 of 68	0.12
	Semivolatile Organic Compounds (SVOCs)	di-n-butylphthtalate	ND to 0.120	0 of 68	8.1
		fluorene	ND to 0.089	0 of 68	50
		phenanthrene	ND to 0.780	0 of 68	50
		pyrene	ND to 0.800	0 of 68	50
		bis(2-ethylhexyl)phthalate	ND to 83	2 of 68	50
		2,6-dinitrotoluene	ND to 9.5	1 of 68	1
		2-methylnaphthalene	ND to 5.3	0 of 68	36.4
		anthracene	ND to 0.7	0 of 68	50
		benzo(a)anthracene	ND to 2.8	1 of 68	0.224
		benzo(a)pyrene	ND to 2.6	1 of 68	0.061
		benzo(b)fluoranthene	ND to 2.2	1 of 68	1.1
		benzo(g,h,l)perylene	ND to 1.9	0 of 68	50
		benzo(k)fluoranthene	ND to 2.4	1 of 68	1.1
		indeno(1,2,3-cd)pyrene	ND to 1.9	0 of 68	3.2
		chrysene	ND to 2.7	1 of 68	0.4
		dibenzo(a,h)anthracene	ND to 0.72	1 of 68	0.014
		fluoranthene	ND to 4.4	0 of 68	50
		4-methyl-2-pentanone	ND to 0.011	0 of 68	1

Table 2
Dutchess County Health Department
1992 Oil/Water Separator Sampling Results

Parameter	9/2/92 results (Fg/l)	5/14/92 results (Fg/l)	SCG ppb
Bromobenzene	7.5	500	5
n-Butylbenzene	37.0	--	5
sec-Butylbenzene	--	850	5
1,1-Dichloroethane	13.0	1200	5
cis-1,2-Dichloroethene	8.2	--	5
Freon TF	1.0	--	5
Ethylbenzene	72.0	6000	5
Isopropylbenzene	--	5200	5
Methylene chloride	1.2	--	5
Napthalene	--	950	10
Styrene	33.0	1900	930
Tetrachloroethene	77.0	7900	5
Toluene	130.0	4200	5
1,1,1-Trichloroethene	9.8	--	5
Trichloroethene	2.1	--	5
Trichlorofluoromethane	2.1	--	5
1,2,4-Trimethylbenzene	36.0	1700	5
1,3,5-Trimethylbenzene	30.0	1500	5
O-xylene	33.0	1900	5
m-xylene	130.0	7700	5
p-xylene	130.0	7700	5
1,2,4-Trichlorobenzene	--	2400	5
1,1,1-Trichlorobenzene	--	3300	5

Table 3
Summary of Contaminants in Well at Curry Road Residence
(data from Dutchess County Health Department)

Parameter	GW Std (ppb)	Range of Results from 1994-Present (ppb)	Most Recent Concentration Detected 4/24/01 (ppb)
1,1-Dichloroethane	5	0-1.8	--
1,2-Dichloropropane	1	0-3.0	--
1,2-Dichloroethane	0.6	0-1.1	--
1,1-Dichloroethene	5	0-0.64	--
1,2-Dichloroethene	5	0-5.7	--
cis-1,2-Dichloroethene	5	0-10	5.4
1,1,1-Trichloroethane	5	0-2.6	0.7
Trichloroethene	5	0-24	17
Tetrachloroethene	5	0-11	8.1
Methylene Chloride	5	0-1.8	--
Vinyl Chloride	2	0-0.7	--

Table 4
Off-site Properties
Contaminants Detected During
Most Recent Sampling Round
(does not include those sites on filter from spills)

Property Name	GW Std (ppb)	Curry Road* Residence	Old Route 9 Residence	Route 9 Auto	Greenbaum & Gilhooley's
Date of Sample		April 01	Dec. 99	Dec.99	Dec.99
1,1-Dichloroethane	5	--	3.4	--	0.9
cis-1,2-Dichloroethene	5	5.4	--	--	--
1,1,1-Trichloroethane	5	0.7	1.5	--	0.5
Trichloroethene	5	17	--	--	--
Tetrachloroethene	7 (G)	8.1	--	--	--
MTBE	10	--	47	14.0	5.8

* Curry Road data from Dutchess County Health Department

Table 5
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
No Action	$0	$15,000	$230,580
Source Removal via Soil Vapor Extraction (SVE) and In-Situ Bioremediation	$75,000	$22,500	$450,000
Groundwater Pump and Treat	$50,000	$21,500	$450,000
Source Removal via Excavation	$340,000 - $385,000	$15,000	$340,000 - $525,000

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Greer Toyota
Record of Decision
Town of Wappinger, Dutchess County
Site No. 3-14-088

The Proposed Remedial Action Plan (PRAP) for the Greer Toyota site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 26, 2002. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the Greer Toyota site. The preferred remedy is source removal by soil vapor extraction (SVE) and enhanced bioremediation. The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on March 19, 2002 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 27, 2002.

This Responsiveness Summary responds to all questions and comments raised at the March 19, 2002 public meeting.

The following are the comments received at the public meeting, with the NYSDEC's responses:

COMMENT 1: What started the investigation of the site?

RESPONSE 1: In 1991 the Dutchess County Health Department conducted a drinking water well survey along Route 9 and discovered three wells contaminated with chlorinated solvents. Inspections were conducted of area businesses that may have contributed to the contamination of groundwater with chlorinated solvents. During the inspection of the Greer Toyota dealership, the floor drain system was sampled and results indicated chlorinated solvents were present. This finding initiated further investigations at the Greer facility.

COMMENT 2: Adjoining property owners were not informed that something was going on for a long time, especially with relation to the spill issues.

RESPONSE 2: Although both the Hazardous Waste Remediation program and the Spill Prevention and Response program are part of the NYSDEC

Division of Environmental Remediation, the notification procedures are somewhat different. A component of the Inactive Hazardous Waste Remediation program is citizen participation. As part of this process appropriate municipal authorities and adjoining property owners are to be notified of significant milestone events, such as a change in the classification of the site, notice of a public meeting, release of a fact sheet, etc. However, the notice regarding listing of the Site as a Class 2, although sent to adjoining property owners, was erroneously sent to the Village of Wappingers Falls Clerk and the County Clerk. The contact information has been corrected and changed to the Town of Wappinger. Both the Town Clerk and the abutting property owners will be properly notified by the NYSDEC.
Under the Spill Prevention and Response program notification to adjacent property owners is not as formal. Most of the notification to adjacent homeowners associated with Spill sites occurs during perimeter sampling to determine the extent of the contaminant plume. The homes that are included in this sampling survey receive the water test results from NYSDEC.

COMMENT 3: Why were only the wells with exceedances of standards provided with carbon filters?

RESPONSE 3: Carbon filters have been provided for wells that are contaminated above drinking water standards. Only those wells found above standards are eligible for filters using NYS Superfund monies.

COMMENT 4: How much would it cost for a homeowner with a private well to install a filter system?

RESPONSE 4: The installation of a carbon filter system would cost between $3,000 and $6,000. This estimate does not include yearly maintenance costs.

COMMENT 5: Who should we call to get our water tested?

RESPONSE 5: If you have concerns about possible contamination in your well, you should contact the Dutchess County Health Department.

COMMENT 6: Has there been any change in the groundwater contamination concentrations since the IRM?

RESPONSE 6: The on-site monitoring wells were installed after the IRM had occurred, and therefore, data is not available in those exact locations for comparison. The wells will be sampled on a quarterly basis and

that data will be used to determine if the groundwater contamination is decreasing.

COMMENT 7: Why not combine Alternatives 2 and 3 to expedite the clean up?

RESPONSE 7: It is the Department's position that the implementation of Alternative 2 will adequately address the soil and groundwater contamination related to the site. Alternative 2 addresses remediation of the on-site soils which will, in turn, remove the groundwater contaminant source. Using Alternative 3, groundwater extraction and treatment, in addition to the implementation of Alternative 2 would interfere with the use of HRC/ORC treatment of the saturated soil at the source. Groundwater extraction and treatment is not a cost-effective remedy for contaminant removal at this site.

COMMENT 8: Why should the O&M be terminated if the concentrations do not exceed half the standards for four quarterly sampling periods?

RESPONSE 8: This is consistent with guidance issues in NYSDOH's technical guidance memorandum regarding carbon filters. However, consideration is also given to all available environmental data, particularly a review of current and historical groundwater data, prior to removal of filters.

COMMENT 9: Who gets the sampling results from the carbon filter units that Greer Toyota is sampling and maintaining on wells?

RESPONSE 9: The results are sent to the Dutchess County Health Department.

COMMENT 10: What wells are being monitored by Greer Toyota?

RESPONSE 10: The two private wells on the Greer Toyota property, a private drinking water well on Curry Road and a private drinking water well on Old Route 9.

COMMENT 11: What does the term "inactive" in the title of the registry mean?

RESPONSE 11: The word "inactive" means the waste management practices that resulted in the disposal of waste have ceased.

COMMENT 12: Describe the HRC/ORC process.

RESPONSE 12: Hydrogen Releasing Compounds (HRC) or Oxygen Releasing Compounds (ORC) would be injected into the soils and shallow groundwater at the site to accelerate the biochemical breakdown of

contaminants found on the Greer property. Micro-organisms occurring in the soil naturally breakdown the chemicals of concern into innocuous compounds. The addition of HRC/ORC would enhance the subsurface environment to encourage the rapid growth of the micro-organisms that degrade both chlorinated compounds and petroleum products. HRC would be used to accelerate the anaerobic (oxygen free) biochemical breakdown of chlorinated solvents. ORC would be used to accelerate the aerobic (containing oxygen) biochemical breakdown of petroleum products.

COMMENT 13: Has a geophysical study of the shallow bedrock been conducted?

RESPONSE 13: Yes. Details of that study can be found in the Remedial Investigation/Feasibility Study Report.

COMMENT 14: Was the presence of LNAPL detected?

RESPONSE 14: Yes, light non-aqueous phase liquid (LNAPL) was detected but only adjacent to one of the underground storage tanks. That material was removed with the contaminated soils during the IRM.

COMMENT 15: Was post excavation sampling done during the IRM?

RESPONSE 15: Yes, post excavation sampling was conducted during the IRM.

COMMENT 16: What was done to check the north side of Greer?

RESPONSE 16: A monitoring well was installed on the upgradient side of the on-site source area. Results indicate trace levels of methyl-tert-butyl-ether and bis(2-ethylhexyl) phthalate. It is believed the source is located at the north west corner of the main showroom building.

COMMENT 17: Which wells are being monitored?

RESPONSE 17: For the drinking water wells that are being monitored see Response 10 above. On-site monitoring wells are being sampled on a quarterly basis. The location of these wells can be found in the RI/FS Report.

COMMENT 18: Can other wells on Curry Road be impacted?

RESPONSE 18: Yes, it is possible that additional wells on Curry Road can be impacted by the site. A well survey was completed in the past to assess impacts from the Greer site and another is currently being conducted by the Dutchess County Health Department to make sure no other homes are impacted.

COMMENT 19: How much was released from the waste oil tank and over what period?

RESPONSE 19: It is unknown how much waste oil was leaked from the underground storage tanks or over what period of time.

COMMENT 20: I maintain my own filter at Greenbaum and Gilhooley's.

RESPONSE 20: The Department has reviewed the results of the January sampling event from the well at the Greenbaum and Gilhooley's restaurant. Those results indicate that the contaminants found in the water supply (methyl-tert-butyl-ether, 1,1-dichloroethane, and 1,1,1-trichloroethane) were detected at levels that do not exceed the NYS drinking water standards. Therefore, the NYSDEC will not be requiring Greer Toyota to maintain the carbon filter on the Greenbaum and Gilhooley's well. The Dutchess County Health Department (DCHD) will continue to monitor sample results from this well.

COMMENT 21: The Town has extended the sewer line onto Old Route 9 and it will be available for hook up as of May 15, 2002. It should be mandated that Greer Toyota hooks up to the sewer.

RESPONSE 21: Though it is not the responsibility of the Department to mandate Greer Toyota hook up to Town sewer, the Department believes it would be beneficial to the facility. This issue will be explored during the development of the remedial design.

COMMENT 22: Once remediation is complete at the site, what will be done for the homes with filters?

RESPONSE 22: The carbon filter units will be maintained until such time that half of the standards are met for four consecutive quarterly sampling periods regardless of the construction or operation of the remedial system.

COMMENT 23: The report should address the possibility of discharging water from recovery wells into the Town sewer.

RESPONSE 23: This comment is related to the implementation of Alternative 3 of the PRAP. If Alternative 3 were chosen as a remedy, the discharge of the extracted and treated water recovery water into the sewer would be explored. NYSDEC's position is that Alternative 2, source removal, is more beneficial to both public health and the environment as it addresses removal of the source area which in turn will help meet groundwater standards at a much faster rate than Alternative 3.

COMMENT 24: The old Witchey's building (Old Route 9 Auto) has been considered for years a possible source of contamination in the area.

RESPONSE 24: An investigation is being conducted under the NYSDEC Spills unit to determine if underground storage tanks exist on the property.

COMMENT 25: Can the Town be notified of the findings of the investigation at the Old Route 9 Auto?

RESPONSE 25: Your request has been noted, and the NYSDEC will notify the Town of the findings of that investigation.

COMMENT 26: The Town would like to be notified when a filter is needed for a private drinking water well regardless of if it's a Remediation or Spills site.

RESPONSE 26: NYSDEC will notify the Town when a filter is needed for a private drinking water well.

COMMENT 27: Explain the SVE system.

RESPONSE 27: A soil vapor extraction system uses a vacuum to extract organic vapors and air from soil voids that exist above the groundwater table. The air and vapors in the soil voids is pulled out by a vacuum and the contaminants (semi-volatile and volatile organic compounds) that normally adhere to soil particles are pulled out in this air stream. This air stream is passed through activated carbon filters and the contaminants are captured.

COMMENT 28: Will there be harmful byproducts or odors from the ORC/HRC?

RESPONSE 28: No, there will not.

COMMENT 29: The soil data numbers are high in the RI/FS.

RESPONSE 29: Those numbers are waste characterization samples that were taken during the IRM to identify what contaminants existed around the underground storage tanks. Most of that material was removed with the contaminated soils during the IRM.

COMMENT 30: What would be included in the engineering controls?

RESPONSE 30: The engineering controls will include site paving and drainage improvements that will help reduce the infiltration of surface water into the source area.

COMMENT 31: A hit of MTBE below standards was detected in the Town water supply.

RESPONSE 31: The Town supply wells are located to the south of Old Hopewell Road. From the data available, they are not downgradient of the Greer site and should not be affected by the contamination at Greer. Since there are numerous petroleum spill sites in that area, your comment will be forwarded to the NYSDEC Spills unit. The Town water supply wells will continue to be monitored.

COMMENT 32: Could the contamination at Greer Toyota be the source of chloride contamination in the Town supply wells?

RESPONSE 32: For reasons stated in RESPONSE 31, Greer Toyota is not a source for chloride contamination of the supply wells.

COMMENT 33: There should be a regional groundwater study to get an overall picture of the contamination in the area, what are the funding sources for such a study?

RESPONSE 33: Though a regional groundwater study would be beneficial to assess the surrounding area, the NYSDEC does not believe it is needed to assess the contamination at the Greer site. The RI/FS data has identified the Greer property source area. The off-site impacts related to the Greer contamination have been investigated by well surveys. The NYSDEC is not aware of funding sources for such a study.

COMMENT 34: A waterline extension should be considered up Old Hopewell Road to Route 9 for the homes impacted.

RESPONSE 34: This was not considered as one of the remedial alternatives, because only two off-site wells have been impacted by Greer Toyota contamination. With implementation of the remedy, the concentrations of contaminants are likely to drop further. To access the two off-site properties impacted by the Greer Toyota contamination, the waterline would need to be extended along Old Route 9 and Curry Road. The cost of the extension would be inordinately high. It must be remembered that Greer Toyota would be required to implement the treatment remedy even if the waterline were to be expanded.

COMMENT 35: Any possibility of the State funding a waterline extension?

RESPONSE 35: If the Town were to extend the waterline, NYSDEC Spills would

review the potential of contributing funds towards the waterline extension costs equal in amount to what NYSDEC Spills is now paying and will pay in the future to maintain carbon filter units along the extended section of the waterline.

The State Drinking Water Revolving Fund provide low interest loans for the development of water systems. To get more information on the program, please contact Dave Philips of the New York State Department of Health at (518) 402-7650.

COMMENT 36: Are funds available to assist the Town in extending the waterline?

RESPONSE 36: See response 35.

COMMENT 37: The State assisted with the Hyde Park waterline extension.

RESPONSE 37: The Hyde Park issue referred to is being handled by the NYSDEC Spills program. This program has the ability to provide filter systems to potable wells that have been impacted with petroleum products through a fund that has been set up by the State of New York. When the source of the contamination has been determined and a responsible party has been identified, the Attorney General takes legal actions against the responsible party to recover all costs expended by the Spill program. In the case of Hyde Park, the Spill program has installed over 90 filter systems in one neighborhood. The Town of Hyde Park is proceeding with a plan to expand an existing waterline to serve this area and has requested funding from the Spill program. Depending on the outcome of several legal issues regarding the Hyde Park site, the Spill program may be contributing funds toward the waterline extension project that are equal to the amount of money the program will have to spend to operate and maintain the filter systems already installed.

COMMENT 38: Why weren't residents along Old Hopewell Road informed about spills at the Route 9/Old Hopewell Road gas stations?

RESPONSE 38: See response 2.

COMMENT 39: How can the Town find out where Spills are?

RESPONSE 39: A search for spill sites can be performed on the website *http://www.dec.state.ny.us/website/der/derfoil/*.

COMMENT 40: What is going on with the gas stations at the intersection of Route 9 and Old Hopewell Road?

RESPONSE 40: The 7-11 station had spills in the past. The former Sunoco station has an open spill number. The NYSDEC Spills Program is monitoring the former Sunoco station as well as maintaining carbon filtration units on impacted wells.

APPENDIX B

Administrative Record

Administrative Record

GREER TOYOTA
Record of Greer Toyota
Town of Wappinger, Dutchess County
Site No. 3-14-088

1. Order on Consent Index #W3-0660-93-10: In the Matter of the Development and Implementation of a Remedial Investigation/Feasibility Study for an Inactive Hazardous Waste Disposal Site, New York State Department of Environmental Conservation, September 1997

2. Remedial Investigation/Feasibility Study Report, The Chazen Companies, November 2001

3. Proposed Remedial Action Plan, New York State Department of Environmental Conservation, February 2002